Draft HFR-259

HISTORIC STRUCTURES AND GROUNDS REPORT FOR THE U.S. MUSKET FACTORY, 1859 - 1861, U.S. ARMORY AT HARPER'S FERRY, VIRGINIA

Historical Data Section

Harpers Ferry National Historical Park,
West Virginia

by

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407 pp.
14 maps
35 illustrations.

National Capital Team,
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PREFACE

Significance of the U.S. Musket Factory Site:

The U.S. Musket Factory site at Harper's Ferry, West Virginia, is a historic site of the first order of significance because of its direct association with the John Brown Raid of October 1859. The Musket Factory grounds contain the original site of the "John Brown Fort"(Armory Engine and Guard House, Musket Factory Bldg. No. 2- present Park Bldg. No. 63). At this site and in this brick structure John Brown and his raiders made their chief stand and here they were forced to surrender.

The Musket Factory grounds are also of significance because they contain the site and foundation remains of one of the two National Armories of the United States Government at Harpers Ferry and Springfield,Massachusetts, which produced most of the small arms used by the U.S. Army and Marines prior to the Civil War. From 1796 to June 30, 1860, the United States Government spent a grand total of $ 10,474.301.88 on the U.S. Armory and Arsenal at Harper's Ferry, Virginia. This sum included $ 1,781,588.39 expended on the purchase of land, the repair and improvement of buildings, canals, dams, bridges, roads, and streets, and $ 8,355, 600.05 for the manufacture and repair of small arms. From 1801, when production began, until June 30,1860, the U.S. Armory produced a grand total of 544,660 fire arms, which included muskets, rifles, carbines, and pistols of the flintlock and percussion models. Of the total, 486,592 arms, consisting of 460,786 muskets, 19,718 flintlock rifles, and 4,088 pistols were manufactured at the U.S. Musket Factory on the Potomac and the balance, 55,047 rifles and 3,021 carbines, were produced at the U.S. Rifle Factory on the Shenandoah River at Harpers Ferry.[1] Production ceased at the U.S. Armory at Harper's Ferry on April 18, 1861. Confederate troops seized the establishment at 1 a.m. on April 19, 1861, and after removing most of the machinery and tools,destroyed the Musket Factory buildings on June 14, 1861.

Purpose of the Present Study:

The purpose of this report is to bring together all documentary evidence relating to the physical history and appearance of the buildings and grounds of the U.S. Musket Factory at Harper's Ferry as they appeared during the period 1859 -1861 in order to facilitate the interpretation, archeological investigation, and possible construction of an accurate model of the site.

This present report represents a complete restudy of the Musket Factory site as presented in Historians Charles W. Snell's and Philip R. Smith, Jr.'s "Research Report - The Musket Factory Buildings and Grounds, Harpers Ferry Armory, 1859-1860, Harpers Ferry National Monument, West Virginia," (N.P.S. Typescript, Harpers Ferry NM, W. Va., April 27, 1959, 84 pp, 18 photos and 4 maps). HFR 214 Using large quantities of historical data extracted from the vouchers of the Armory Paymasters from 1817 to 1851, and also several maps found in the National Archives in 1980, it has been possible in many cases to provide detailed information, such as costs of construction, the names of the builders, and the quantities of materials used in erection many of the Musket Factory buildings - this is information that was not available in 1959. The present study thus greatly expands our knowledge of the physical history and appearance of the Musket Factory grounds and buildings at the time of the John Brown Raid and also replaces the excellent 1959 research report.

The chief revision to the Harpers Ferry National Historical Park Base Map, Drawing No. No. NM - HF- 3021, sheet no. 2 of 3,(dated October 21, 1959), based on the evidence presented in the present study, is the deletion

1. Data from Snell, Charles W., "The Expenditures at and Production of Arms and their Accessories at the U.S. Armories at Harper's Ferry, Virginia, and Springfield, Massachusetts, January 1, 1795 to June 30,1860, compiled from the Offical Reports of the Ordnance Department to the Congress of the United States," (NPS typescript, National Capital Team, Denver Service Center, January 1980, Harpers Ferry Armory Section revised October 1980). From 1795 to June 30, 1860, the U.S. Government spent a grand total of $ 10,317,745.57 at the Springfield Armory and Arsenal. This included $ 1,371,404.25 for land and repair and improvement of buildings, canals, dams,etc. From 1795, when production began, to June 30, 1860, the U.S. Armory at Springfield manufactured a grand total of 696,272 small arms. These included 689,981 flintlock and percussion muskets, 250 flintlock rifles, 4,038 rifled carbines, and 2,003 pistols.

from that map of Musket Factory Bldg. No. 17-"Old Stock House,"erected in 1832-33 . Armory Paymaster's Voucher No. 17, File No. 9895, 3rd Series of the Second Auditor of the Treasury, in National Archives Record Group No. 217, dated August 9, 1849, reveals that the Old Store House, Bldg. No. 17 was demolished in July or August 1849.

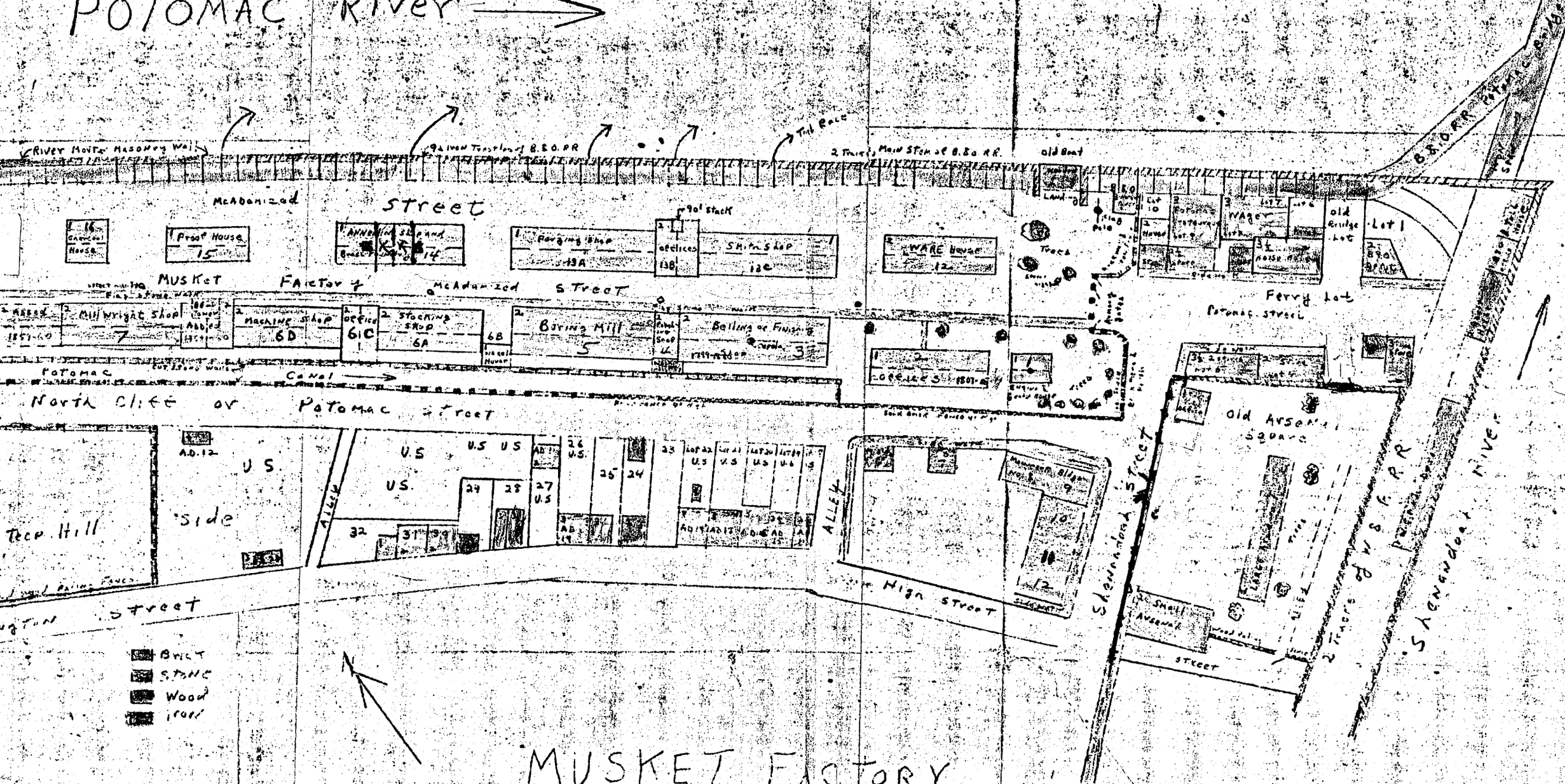
Second, the Musket Factory Bldg. No. 17 can be applied to a "new" structure previously not considered to be located in the Musket Factory yard, namely the "Old (1822)Pay Office," which was relocated to the yard in 1858. (See text 222-236 for probable location, description, and history of the Old Pay Office.)

It is this writer's opinion, that the massive stone foundations of all of the large 1859-61 Musket Factory buildings, as well as the Armory canal and its walls, lie largely intact under the fill introduced into the Musket Factory yard by the Baltimore and Ohio Railroad after 1891.

The writer wishes to acknowledge his endebtedness to the historical research studies written by National Park Service Historians Herbert L. Kissling, Charles W. Snell, Phillip R. Smith, Jr., and Arthur L. Sullivan during the years 1957 to 1961(See Biblography, pages 334- 337 for their reports) and to particularly thank Park Librarian Hilda E. Staubs of the Harpers Ferry National Historical Park for her cheerful and important assistance in 1980-81 in providing copies of many important documents and maps used in this present report.

Charles W. Snell
Washington, D.C.

August 25, 1981

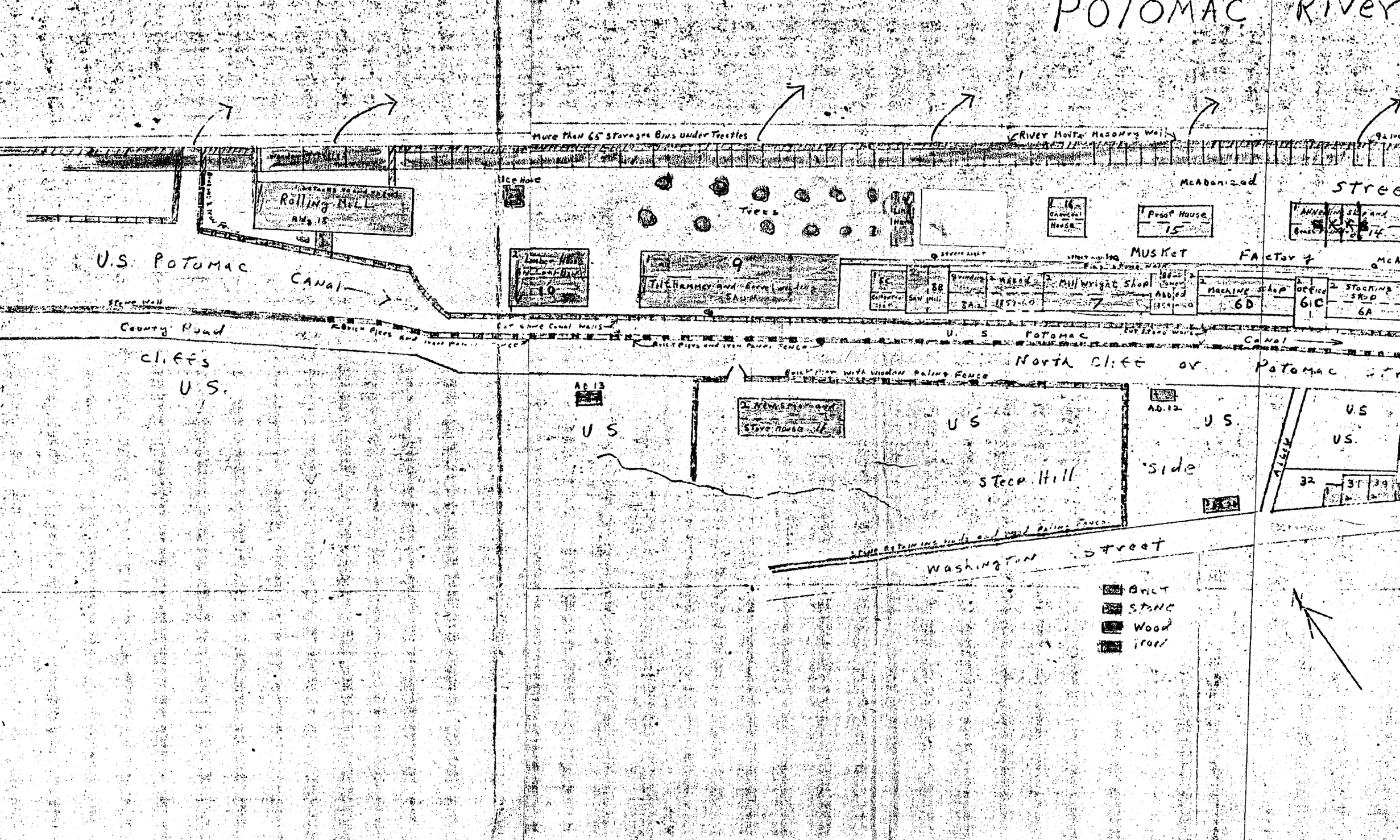


MUSKET FACTORY
AT HARPER'S FERRY, VA., 1854-60.

Study Map Prepared By Charles W. Snell, April 27, 1959

Scale 60' = 1 inch

Revised 8/25/81


POTOMAC River
More than 65' Storage Bins under Trestles
River Front Masonry Wall
McAdamized
Street
Rolling Mill
Bldg. 18
U.S. Potomac Canal
Ice House
Trees
Lumber Kiln
Lumber Shed
19
Tin Hammer and Saw
9
Musket Factory
Saw Mills
Grinding
Machine
Mill Wright Shop
Addition
Machine Shop
6D
Office
6C
Stocking Shop
6A
Proof House
15
Stone Wall
County Road
Cliffs
U.S.
Potomac Canal
North Cliff of Potomac
A.D. 13
A.D. 12
Steep Hill
Side
Alley
32
31
39
Washington Street
Brick
Stone
Wood
Iron

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PART I

Ownership of the Land Comprising U.S. Musket Factory Yard, Canal, and Dam. 1751 -1887

1. Ownership of the Land. 1751 - 1797

The land that was to form the future site of the United States Armory at Harpers Ferry, Virginia, in 1796-97, was originally owned by Robert Harper, under two patents made to him from Lord Thomas Fairfax, proprietor of the " Northern Neck" of Virginia: one dated April 25, 1751 for 125 acres, and the second, dated April 19, 1762, for 92 acres.[1] Robert Harper,a millwright from Pennsylvania, resided at and improved his wilderness property at Harpers Ferry from 1751 until his death in October 1782. He constructed and operated a saw mill and flour mill, both situated on the Hall Islands, during these years and his residence was also located on the main land, but fronting on the Upper Hall Island .

Under his will, Harper bequeathed the western half, including his residence and flour and saw mills on the Shenandoah River, to his nephew Robert Griffith. The eastern half, which included his new stone tavern and his ferry rights on the Potomac River, Harper left to his niece, Sarah Harper, who was the wife of John Wager, Sr.[2] On January 9, 1797, Robert Griffith's son and heir sold the land including the Upper and Lower Hall Islands to Thomas Rutherford, William Darke Van Rutherford, and Mary Rutherford.[3]

1. Lord Fairfax's deed to Robert Harper of April 25, 1751, is in the Northern Grants Books, Book No. 6, p. 496, for 125 acres, in Virginia State Library, Richmond, Va. Data on the 2nd deed for 92 acres, dated April 19, 1796, from the recital of facts regarding the chain of ownership in Thomas Rutherford and others deed of B. & S., dated February 20,1797, to the United States Government, in National Archives, Washington, D.C.,Record Group 121, Public Buildings Service, Entry 75, Warenty Deeds and Correspondence, Harpers Ferry, W. Va., 1797-1880, Tray No. 1.

2.Last Will of Robert Harper of Berkeley County, Va., dated September 26,1782, probated October 15,1782, in National Archives Record Group 153, Military Reserve Division, Box No. 44- has copy of Harper's will.

3. Deed of Rutherford & Others to U.S. February 20,1797,National Archives R.G.121

2. Establishment of the Armory and Acquisition of Land, 1794-1797:

On April 2, 1794, President George Washington approved "An Act to prov for the erecting and repairing of Arsenals and Magazines, and other purposes." This law directed the President to establish three or four arsenals for the storage of arms and also three or four national armories to manufacture small arms.[2] Acting under this authority, President Washington selected Harpers Ferry, Virginia, as the site of one of the new U.S. Armories and Arsenals, and directed to the War Department to purchase land at the junction of the Potomac and Shenandoah Rivers for this purpose.[3]

The 428 acres comprising the future site of the Armory and Arsenal was purchased from two parties for a total $ 17,016.66 in 1796 and 1797: On June 15,1796, John Wager, Jr. and his family conveyed about 117¼ acres to the United States for $ 7,016.66 ;[4] on February 20,1797, Thomas Rutherford William Darke Van Rutherford, and Mary Rutherford sold approximately 310¾ acres to the United States for $ 10,000.[5] This acquisition included the 72-acre site of the U.S. Musket Factory on the Potomac, the chief arms manufacturing plant, Arsenal Square, the arms storage area which embraced about one acre and was located on the bank of the Shenandoah near the junction of the Potomac and Shenandoa River, and the 13 acre site of John H. Hall and U.S. Rifle Factory, situated on the Upper and Lower Hall Islands in the Shenandoah, where the Hall Patent rifle was to be manufactured after 1819.

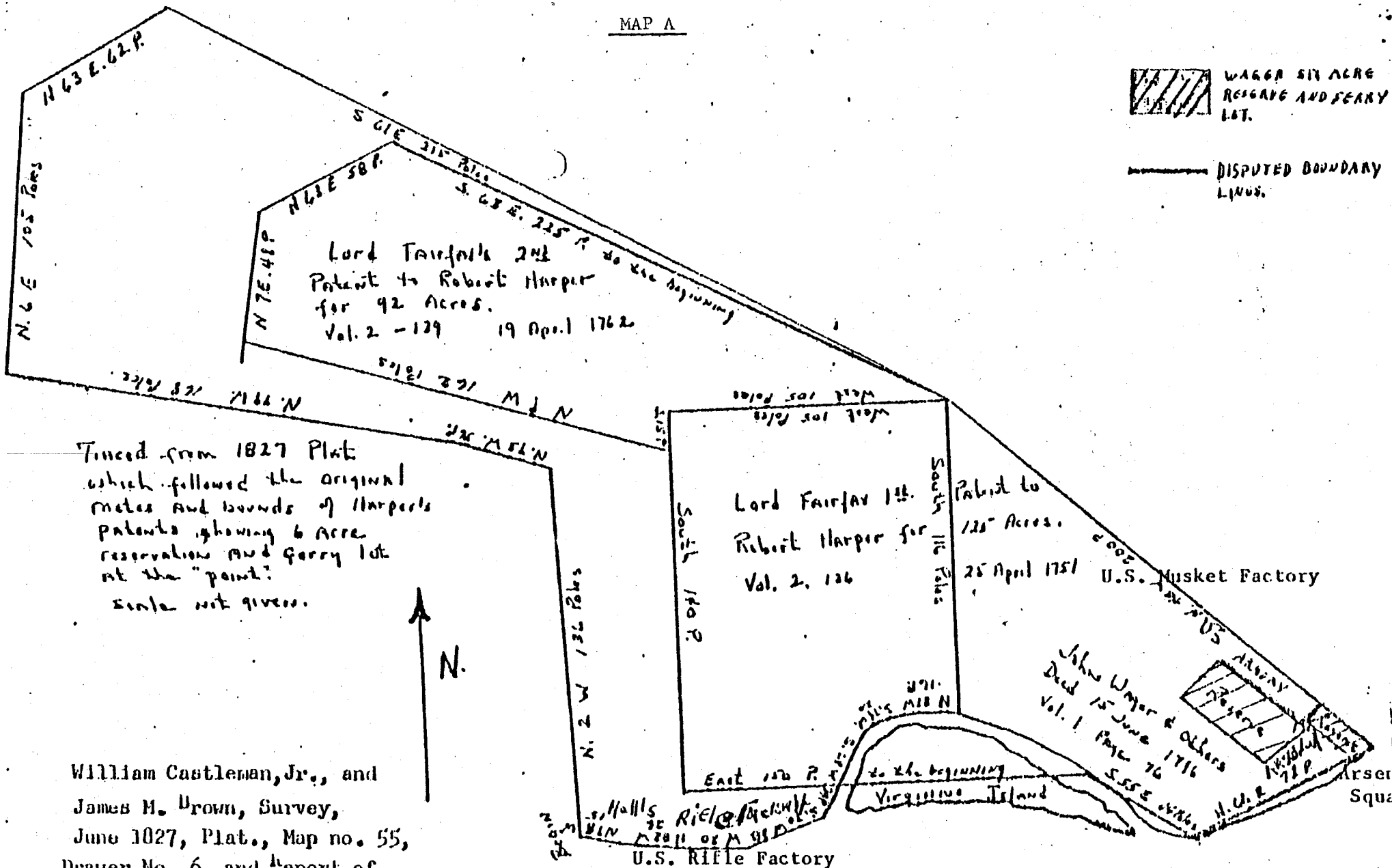
1. U.S. Statues at Large, Vol. I, p.352.
2. Ibid.
3. For this involved story see, Snell, Charles W.,"A History of the Physical Plant of the U.S. Armory at Harper's Ferry, Virginia, Its Evolution and Development, Harpers Ferry National Historical Park, West Virgina,Volume I, (1794-1841)(N.P.S. Typescript, National Capital Team, Denver Service Center, August 1980), Vol. I, Chapter II.
4. Deed in National Archives Record Group No. 121, Public Buildings Service, Entry No. 75, Warrenty Deeds and Correspondence, 1796-1884,for Public Lands at Harpers Ferry, W.Va.
5. Deed in National Archives Record Group 121. Entry 75. Washington, D.C.

MAP A

William Castleman, Jr. and James M. Brown's Survey of the U.S. Armory public lands at Harpers Ferry, Va., June 1827.

Plotting the boundaries of the 1796-97 deeds.

MAP A



William Castleman, Jr., and
James M. Brown, Survey,
June 1827, Plat., Map no. 55,
Drawer No. 6, and Report of
Surveyor Castleman, National Archives.

3. Ownership of the Land, 1797 - 1880:

The land making up the U.S. Musket Factory was owned by the United States from 1797 to 1869. On April 18, 1861, U.S. troops guarding the Harper's Ferry Armory set fire to and destroyed the two brick arsenal buildings standing on Arsenal Square in order to prevent the arms stored in those structures from falling into the hands of approaching Confederate troops. In June 1861 the Confederate army, which had held Harper's Ferry Armory since April 19, burned and destroyed the workshops and storehouses that made up the U.S. Musket Factory on the Potomac and the U.S. Rifle Factory on the Shenandoah. By June 1861 the Harpers Ferry Armory, which had been established by President George Washington, had been destroyed.

On May 14, 1866, Brevet Major General A. B. Dyer, the Chief of Ordnance, informed Secretary of War E. M. Stanton, that "Harper's Ferry can not, in my opinion, be ever again used to advantage for the manufacture of arms, the retention of the property of the United States at that place is not necessary or advantageous to the public interest... and I recommend that.... all the public land, buildings, and other property there be sold and the proceeds of the sale be applied to the construction of the armory in the west...."[1] On December 15, 1868, the U.S. Congress passed an act that authorized and directed the Secretary of War to sell at public auction the U.S. lands, buildings, machinery, and water power privileges at Harpers Ferry.[2]

In accordance with instructions from the Secretary of War, the surveyor S. Howell Brown subdivided the U.S. Armory property at Harpers Ferry into house lots completing his map, entitled "Map of Harper's Ferry -Plat of Harper's

1. A Collection of Annual Reports and Other Important Papers Relating to the Ordnance Department Taken from the Records of the Office of the Chief of Ordnance, from Public Documents, and from other Sources, prepared under the direction of Brig. General Stephen V. Benet(4 vols. Washington, D.C., 1878-1890), Vol. IV, pp. 1049-1050.
2. U.S. Statues at Large, Vol. XV, pp.265-266.

" Ferry Armory Property laid off into lots for Sale in Pursant to the Act of December 15, 1868, scale 165 feet to the inch," on November 1, 1869. (See Map 5 for Brown's 1869 map). Secretary of War William W. Belknap approved Brown's map on November 16, 1869 and the Ordnance Department held a public sale of this property at Harpers Ferry on November 30 and December 1 and 2, 1869. The total property, comprised of 248 items, was apparently sold for a total of $ 297,793 50.[3]

At the public auction held in December 1869, the United States sold the U.S. Musket Factory grounds, consisting of 72 acres of land, the U.S. Musket Factory Canal, the U.S. Musket Factory Dam across the Potomac, including the old and new dams, together with the ruins of the Musket Factory workshops and storehouses, the remains of machinery, and the water power rights on the Potomac River, to group of Washington, D.C. speculators, who were headed by Captain Francis C. Adams, for $ 176,000. Under the easy credit terms of the 1868 act, this band of men, posing as "industrialists", obtained complete control of the industrial and water power resources of Harpers Ferry by simply signing bonds promising to pay; they were not required to put up a single dollar. They had neither the money nor the desire to erect new factories at Harpers Ferry. Their true intent was to highjack the Baltimore and Ohio Railroad Company, whose main line west ran along the north or river front of the Musket Factory Yard under a right of way that had been granted to the company by the Secretary of War in 1838. Captain Adams and his partners now alledged that they owned this right of way and demanded that the railroad company pay a high price for that grant, or relocate its main line somewhere else. Because of the topography of Harpers Ferry, there was no other place where the tracks could be relocated.

3. Benet, A Collection of Annual Reports... , IV, p.1053. Report of Major S. V. Benet to the Secretary of Warm December 24,1872.

On July 20,1872, Secretary of War Belknap requested the U.S. Attorney General to institute a suit against Francis C. Adams for the sum of $ 209,705 that the speculators owed on three bonds that they had signed.[4] Suits in equity were filed against Adams by Nathan Goff, Jr., the U.S. District Attorney for West Virginia in the U.S. District Court of that State in July 1873. The court handed down a decree in favor of the United States in September or October 1873, and directed that the property be sold . In September, 1876, acting as trustee for the U.S. District Court of West Virginia, Goff sold off at public auction the land and water rights that had been held by Adams and partners. The United States repurchased its title to the water power rights of the Potomac and Shenenandoah Rivers and to the sites of the U.S. Musket and Rifle Factories for $ 70,000.[5] The Government received its deeds for these items on April 17,1877.

On June 14, 1878, the President of the United States approved an act of Congress which authorized the Solicitor of the Treasury, by and with the consent of the Secretary of War, to offer for sale all Armory land, lots, buildings, and water rights that had had their titles properly cleared from the 1869 "sale."[6] After about one and a half years of effort Solicitor of the Treasury Kenneth Rayner was able to clear the title to a total of 155 lots and items that had apparently been "sold" in December 1869. On May 25,1880, at 1 p.m., he offered 126 of these items at public sale at Harpers Ferry. He was able to sell 75 items to 27 purchasers for a total of $ 4,538.00.[7]

4. One bond for $ 176,000 for Musket Factory and Potomac Water right; 2nd Bond for $ 30,000 for U.S. Rifle Factory and water rights on Shenandoah River, and third bond for two lots of land in Block A, Shenandoah Street, for $ 3,705.
5. Serial No. 2179, Report No. 770, p.1.
6. U.S. Statues at Large, Vol. XX,pp.130-131.
7. National Archives Record Group 121, Public Buildings Servicem Entry 58, Vol. III, pp. 559-590, Washington, D.C.

Solicitor Kenneth Rayner had also offered the water power rights to the Potomac and Shenandoah River for sale in 1880, but withdrew them when he received only a bid of $ 10,000 for the rights on the Potomac and zero for the Shenandoah rights. In a letter to the Secretary of the Treasury dated January 23,1882, Solicitor Rayner wrote of the water power rights at Harper's Ferry:

> The water-power of the Shenandoah, as constructed and used in early times, is now of little value, because of the changes in the river-bed, made from time to time by devasting floods (in 1870 and 1877), so memorable in the region, and of the almost certain prospect of frequent overflow...

Continuing, Rayner remarked:

For two decades (since 1861) this whole (Armory) property, on both rivers, has been going to destruction by the filling up of the canals or race-ways, through floods in the river principally; but by the continuous disintegration of the dams; by the loss of material through the depredation of trespassers; and by the rust and decay consequent upon the exposure to the weather. There would accordingly seem to be no reason on the part of the government to hold the property for better prices, but every reason to part with for any reasonable sum that may be offered....(8)

Convinced that because of the vast changes that had occurred in the development of industrial techonology since 1861 and also due to the 20 years of neglect that had occurred, the Secretary of the Treasury, the Secretary of War, and the Solicitor of the Treasury concurred in the opinion that water power rights at Harpers Ferry could no longer be sold at high prices. They recommended that Congress should pass a law which would authorize the sale of these water power rights at lower but more realistic prices.[9]

8. Rayner to Charles J. Folger, Secretary of the Treasury, January 23,1882, in Serial No. 2027, Document No.66,pp.3-5.

9.. Ibid., pp.1-5.

The Sale of October 22,1884:

After studying the matter since 1882, Congress took action and passed a law that was approved on July 4,1884, that "authorized and directed"the Solicitor of the Treasury" to make sale of all the real estate and riparian rights now owned by the Government of the United States at Harper's Ferry,... such sale to be at public auction, without reservation,... to the highest bidder....Provided, that the property shall not be sold for less sum then twenty thousand dollars. The act also directed that at least one-third of the purchase made had to be paid in cash, and that the credit portion was to bear interest at the rate of six percent per annum. Purchases under one hundred dollars had to be made in cash, over that sum, one third in cash, one third in one year, and the balance in two years.[10]

Accordingly, on October 22,1884, at 1 p.m., what proved to be the last large sale of U.S. land was held at Harper's Ferry. Seventy six items, including the water power rights on the Potomac and Shenandoah Rivers, and 74 house lots, with two armory dwellings, were offered at public auction. Seventy-five items, including the water-power of the two rivers and 73 house lots with the two dwellings,were sold for a grand total of $ 32,325.76 to 28 purchasers.[11] From this total, $ 25,910.00 was for water power rights and $ 6,415.00 for 73 lots amd 2 houses. All purchasers paid in accordance with the terms of the law and the United States issued the 75 deeds between 1884 and 1887, with the last deed[12] that for the water power on the Potomac, being dated April 12, 1887:

10. U.S. Statues at Large, Vol. 23,p. 69.

11. National Archives Record Group No.121,Public Building Service, Entry No. 79, "Records of Federal Land sold at auction on October 22,1884-Sales of Harper's Ferry Lots," one volume.

12. National Archives Record Group 121, Entry 58, Vol.III,p. 624.

At the October 22,1884 sale, Thomas H. Savery was the high bidder and purchaser for $ 25,100, of the U.S. water Power rights on the Potomac, the Musket Factory Canal, and old and new Musket Factory dams, the 72 acres of the Musket Factory yard, the ruins of the old workshops and stores, machinery and extant Musket Factory Bldgs. No. 1, Engine and Guard House(the John Brown Fort), and Bldg. No. 2, the Armory Office Building. The United States issued the deed for this property to Thomas H. Savery on April 12, 1887, after Savery had completed his final payment for this item.[13]

For S. Howell Brown's map or plat,'Survey of the Potomac Property (U.S. Musket Factory proprerty), dated March 28,1855, see Map No. 6, p. 364. For the written boundary description, prepared by S. Howell Brown to accompany Map No. 6, see Appendix No. 4, p.354.

13. National Archives Record Group No. 121, Public Buildings Service, Entry 58, Warrenty Deeds, Vol. III, p.624, Washington, D.C. Savery also purchased the water power rights to the Shenandoah and the 13 acre U.S. Rifle Factory tract for $ 810.00. He received his deed from the United States to the Rifle Factory on March 2,1885.

PART II

INTRODUCTION - SUMMARY OF GENERAL PHYSICAL HISTORY OF THE U.S. MUSKET FACTORY, 1798 - 1865.

A. Development of the U. S. Musket Factory, 1798 - 1841:

The U.S. Armory at Harper's Ferry, Virginia, spent a grand total of $ 875,870. from 1796 to December 31, 1841 on the development and repair of its physical plant, which included the U.S. Musket Factory, U.S. Rifle Factory, U.S. Arsenal, canals, dams, stables, powder magazines, and the dwelling houses of the Armory workmen. Of the total, $ 45,477.28 had been expended to acquire 1,890 acres of land, and the balance, $ 830,383.31, had been spent for the construction and repair of buildings, dams, canals, streets, and roads.

From 1798 to 1841 the Armory constructed a grand total of about 266 buildings, which included workshops, store houses, powder magazines, offices, stables, and dwelling houses, for Armory use. These structures were erected at the following sites:

	No. of buildings	
1. U.S. Musket Factory, along the Potomac:	about	53
2. U.S. Arsenal Square, Shenandoah Street	"	9
3. U.S. or Hall Rifle Factory, Lower Hall Island in the Shenandoah River	"	28
4. Armory stables, powder magazines	"	7
5. Armory dwelling houses	"	169
Grand Total built, 1798 - 1841, about:		266

U.S. MUSKET FACTORY:

The U.S. Musket Factory at Harper's Ferry, located on the south bank of the Potomac River, was the chief arms producing plant of the Harper's Ferry Armory from 1798 to 1861. After spenting a total of $ 44,938.56 from 1798 to December 31,1801, to construct the U.S. Musket Factory shops, its canal, and dam, the plant began the production of arms during the summer of 1801.

The original(1801) Musket Factory plant was comprised of five buildings: three brick workshops and two store houses, the later built of wood or stone. The brick shops included "the Armory or Factory", 2½ stories, with four wooden water wheels that turned the machinery used for boring, grinding and polishing arms. The second floor held the work benches of the filers and stockers, while the third floor was used to store lumber, tools, and stocks. The second brick water shop, the "Forge or Mill," was probably one-story, and it held one-eight foot breast type wooden water wheel that worked the tilt hammer for heavy forging. The third brick shop, two-stories,had no water-powered machinery. Known as "the Smiths" or Forging Shop, this structure held 10 forges for the use of the smiths on the first floor and second floor served as a workshop for filers. The other two buildings consisted of a store house for coal and a proof house. The latter structure was used for the testing of muskets.

Because of wars in Europe and the threat of wars with Great Britain and France, the United States Government spent a total of $ 139,144.77 from 1808 to 1813 enlarging the physical plant of the U.S. Armory at Harper's Ferry in an effort to double the production of arms. The number of brick workshops was increased from three in 1801 to 10 by 1810 and the number shops with water-powered machinery from two in 1801 to six by 1810.

In 1810, eight of the 10 brick shops and four of the six water shops stood in the U.S. Musket Factory yard along the Potomac.[1] The number of large brick Smiths or Forging Shops was similarly increased from one in 1801 to four by 1810 and the number of available forges in these structure from 10 in 1801 to 46 by 1810. In 1810, then, a total of 11 structures stood in the Musket Factory yard consisting of four brick smiths shops, four brick water shops, one wooden carpenter shop, one wooden lumber room, and the Superintendent's

1.Two of the new brick structurees, which also contained water wheels, were built on the Lower Hall Island in the Shenandoah River in 1808-10.

two-story brick residence, the dwelling house having been erected in 1808-09. The original (1798-1801) plant had been designed and constructed by Paymaster John Mackey. The 1808-10 additions were designed by Superintendent James Stubblefield and erected by Paymaster Samuel Annin.

The basic ground plan of the yard, which the Musket Factory was to retain until the destruction of its plant in 1861, was established during the enlargement of the arms plant in 1808-10. During the expansion program, the original(1800) single line of workshops that stood on the north bank of the Musket Factory or Potomac Canal was extended both to the east and west by erecting new buildings at the lower(eastern) and upper(western) ends of the first plant. In addition, a second line of large brick workshops was erected on the south bank of the Potomac River, paralleling the original southern line of factories that stood on the bank of the canal. The new northern line of 1808-10 buildings did not contain water wheels or water-powered machinery. Within the north and south rows, the large new brick structures were arranged symmetically, so that workshops of about equal length in each line stood approximately opposite to each other. The two line of brick shops were separated by a central street, known as "Potomac Street," which was about 70 feet wide and ran from the Wager Ferry lot Reservation at the lower(eastern) end of the yard to the upper(or western) end of the Musket Factory grounds.

Between 1801 and December 31, 1813, the National Armory at Harper's Ferry manufactured a grand total of 61,257 small arms. Between 1812 and 1814, as a part of the war effort, Harpers Ferry shipped out 29,500 weapons to the army. These included 27,500 flintlock muskets, 1,000 flintlock rifles, 500 carbines, and 500 flint lock pistols.

Following the War of 1812, the number of forges at the Musket Factory was reduced from 46 to 36 when the first Smiths Shop, erected in 1799, was converted into a store house and office for the Master Armorer

On December 31, 1821, the U.S. Musket Factory was comprised of a total of 15 structures(not including the Superintendent's 1808-09) house) that were valued at $ 70,150. Seven large brick two-story brick workshops, valued at $ 67,000, stood in two lines: four structures in the southern line on the north bank of the canal and three factories in the northern line, on south bank of the Potomac. Two of the large brick shops dated from 1799-1800 ("the Factory and Smiths Shop", and the other five had been erected in 1808-10. The remaining eight smaller structures were valued at $ 3,150 and were comprised of a draw grinding shop, a proof house, store house for stone coal, tempering shop, store house for iron, store house for charcoal, an office for the superintendent, and fire engine house. Six were built of wood and two of wood and stone; all were one-story, except for the two story office and two-story engine house.

TOTAL VALUE OF THE ARMORY PLANT IN 1821 AND 1831.:

Value of Plant in 1821 and 1831	ARMORY		RIFLE FACTORY	
ARMORY	1821	1831	1821	1831
Number of buildings	113	180	2	15
Value of Buildings	$ 150.650.00	$ 217,920.74	$ 4,130.14	$ 31,215.3
Value of Canals,dams	$ 105,000.00	$ 145,117.68	0	$ 4,599.5
Value of Plant:	$ 255,650.00	$ 363,038.42	$ 4,130.14	$ 35,814.8
Value of Machinery	$ 72.247.44	$ $ 77,554.43	$ 11,917.03	$ 149,410.8
Value of Land.1.890 acres	$ 42,877.28	$ 42,877.28	0	0
TOTAL:	$ 370,774.72	$ 405,915.70	$ 16,047.17	$ 185,225.6

The Superintendent's residence, valued at $ 3,000.00. stood at the head of the eastern or lower end of the southern row of four large brick workshops. The Armory sawmill, valued at $ 1,000, was located somewhere along the bank of the Musket Factory Canal. In addition, there were also two other structures standing in the Musket Factory yard that were not included in the 1821 inventory of buildings. These were a brick puddling furnace that had been constructed in 1818 at a cost of $ 130.00 and a brick annealing furnace erected on the bank of the Potomac River prior to 1819 at an estimated cost of $ 130.00. The total number of structures standing in the Musket Factory yard in 1821 was thus 18 (not 15) workshops, storehouses, and furnaces, valued at approximately $ 71,410.00. With the Superintendent's residence included, the grand total of edifices in the yard was 19 and the value about $ 74,410.00

Originally all of the roofs of the Armory buildings were covered with wood shingles, but starting in April 1825, a program of recovering the roofs of the arsenals and chief workshops with slate was instituted. About $ 1,989.00 was expended on this program between 1825 and 1829 and $ 3,013.42 from 1830 to 1835 for work on Musket Factory buildings. After 1830 the new shops erected had slate roofs as a matter of course to reduce the danger from fire.

The Musket Factory suffered major damage from fire at 2 a.m. on May 8, 1824, when a fire swept the finishing shop, the largest Armory shop(131 by 45 fe and destroyed the roof, woodwork and machinery. The brick walls only, were left standing. The structure was reconstructed at a cost of $ 10,000.00 in 1824-25; this included $ 5,000 for work on the structure and $ 5,000.00 for building new machinery. Its roof was slated and in March 1825 a cupola or belfry was added to the roof. The shop was henceforth known as 'the Bell Shop."

Development of Musket Factory, 1822 - 1841

From 1822 through 1841, the National Armory at Harper's Ferry, Virginia, spent a grand total of $ 509,729.32 for the construction and repair of buildings, river walls, wells, canals, and dams at the U.S. Musket Factory, U.S. Rifle Factory, U. S. Arsenal, on Armory dwelling houses, and for the purchase of land.(See Chart 1, p. 16.) Of this sum approximately $ 275,085.97 was expended at the U.S. Musket Factory as follows: For Musket Factory buildings, river walls, wells, roads or streets about $ 209, 457.61; on the enlargement, improvement and repair of the Musket Factory canal, approximately $ 54,522.96; and for the extension and repair of the U.S. Potomac dam, 1822-41, $ 11,105.40.[1]

Of the approximate $ 209,457.61 expended on the Musket Factory buildings and grounds from 1822 to 1841, about $ 58, 401.17 went to erect 26 new structures, $ 56,613. 14 for repair of buildings(including $ 5,002.42 for slating roofs), $ 40,772.30 for the construction of a great stone river wall 1,624 feet long and about 15 feet high, and some $ 53,671.00 for making and purchasing new machinery.

The nine new Musket Factory buildings erected 1822- 1829 at a cost of approximately $ 8,541.23 were comprised of the following structures:

1. Shop for Turning and Tempering Locks, built in 1822 of stone at a cost of approximately $ 150.00.
2. Shop for Annealing Gun Barrels, built of stone in 1823, cost about $ 200.00.
3. Shop for Draw Grinding, built in 1826 of stone, cost about $ 481.42, A two-story building, 18 by 27 feet in size.

1. The total spent on the Potomac Dam from 1820 to 1841 was $ 23,305.40, as the dam was rebuilt in 1820-21 at a cost of $ 11,200.00.

CHART NO. 1

SUMMARY CHART: APPROXIMATE TOTAL OF EXPENDITURES AT U.S. MUSKET FACTORY, 1822 -1841, For Construction and Repair of Buildings, for Construction of new Machinery, River Walls, and Wells.

Period	For New Buildings	Repair of Buildings	For Slating	for River Walls	For New Machinery	Total Expenditures	No. of Bldgs Erected
1822-29	8,541.23	5,689.20	1,989.00	144.30	9,946.00	$ 26,309.73	9
1830-35	27,846.03	32,186.55	3,013.42			63,046.00	10
1836-41	22,013.91	13,734.97		40,628.00	43,725.00	120,101.88	7
Total:	$ 58,401.17	51,610.72	5,002.42	40,772.30	53,671.00	$ 209,457.61	26

Workshops, Store Houses, Offices and Furnaces at Musket Factory, December 31,1821 = 18. Estimated Value: $ 70,583.
Superintendent's House..... 1 " " 3,000
Total, 1821, in Musket Factory Yard: 19 buildings $ 73,583.

	1801	1810	1821	1831	1841
No. of workshops, storehouses,	5	10	18	28	24
Superintendent's Residence	1	1	1	1	1
Total:	6	11	19	29	25

4. Store House for Coal, erected in 1826 at cost of $ 202.35, Built of stone.

5. Shop for Annealing, Case Hardening and Tempering Ramrods, built in 1826 at a cost of $ 111.00. Constructed of stone.

6. Shop for the Half Stocking Machinery, erected in 1827 at a total cost of $ 2,800 $ 1,200.00 for the structure and $ 1,600.00 for making the new machinery. A two-story brick shop, 20 by 30 feet.

7. Watch House of stone, erected in 1828 at a cost of $ 200.00. Probably used by night watch men.

8. Store House for Charcoal, constructed of wood in 1828 at a cost of $ 750.00. Must have been a large building.

9. Proof and Engine House, Brass Foundry, built of stone in 1829 at an approximate cost of $ 1,500.00.

Also built in 1822 at a total cost of $ 250.00 were four small wooden sheds, three over three principal water wheels so that stoves could be kept to keep the wheels from freezing, and the fourth shed over an annealing furnace.

As has been mentioned, the large workshop, or Bell Shop, damaged by fire in 1824, was reconstructed in 1824-25 at a cost of $ 10,000.00: $ 5,000 for the structure and $ 5,000 for making new machinery.

Tilt Hammer Shop Site, 1828-1832:. From 1828 to 1832 a grand total of about $ 5,513.60 was spent constructing stone foundation walls and embankments on the north bank of the Musket Factory canal for a proposed new tilt hammer shop.[2] In 1834 it was decided to erect the shop at a new site and the old location was abandoned.

Bldgs. No. 3, 4, 8, and 9 appear to be replacement structures for four like buildings that were standing in 1821. The total number of buildings standing in the Musket Factory yard in 1829, including the Superintendent's residence, was thus probably about 24 at the most.

2. Spent on tilt hammer shop site: $ 3,496.46 from 1828 to 1829; perhaps $ 2,017.14 from 1830 to 1832.

From 1830 to 1835 the Armory spent about $ 27,846.03 constructing 10 new workshops and store houses at the Musket Factory. These consisted of the following structures:

1. A small building attached to the finishing or Bell Shop, erected in 1830 at a cost of $ 152.00. Apparently intended to house grindstones and their machinery.
2. A small house to store scrap iron, built in 1830 at a cost of $ 43.32.
3. Hardening Furnace, constructed in 1831 at a cost of $ 57.51.
4. Grinding Mill, built in 1831 at a cost of $ 2,438.45. Stone foundations and walls, slate roof. Cast iron water wheel and machinery installed (apparently) in 1834 at cost of $ 2,980.00. Total cost of building and machinery, 1831-34, about $ 5,480.00. The Grinding Mill is Bldg. No. 9 on Map No. 3 (1848). Bldg. No. 11 on Map No. 7 (1837-38).
5. Store House for Stocks, erected in 1832-33 at an approximate cost of $ 800.00. Probably built of stone, 65 by 30 feet, the new stock house replaced "a decayed" "house in in which the Musket Stocks are now deposited." This is Bldg. No. 12 on Map No. 3 (1848). Bldg. No. 15 on Map 7 (1837-38).
6. Tilt Hammer Shop for Barrel Welding(Forging Shop, Trip Hammer).

Construction started 1834-35 at a new or second site, $ 13,500.00½ expended on construction during this period. Large stone shop, stone foundations and walls, one story, with slate roof. one wooden water wheel 20 feet in diameter, and five cast iron reacting water wheels. Structure perhaps 2/3rds complete by 1835. This is Bldg. No. 11 on Map No. 3 (1848), Also see Maps No. 1 (1837), Map No. 7, and No. 10(1837). Tilt shop was not to be completed until the end of 1837. Final total cost, 1834-37, of building and machinery about $ 22,750.46. This was the one large factory building to be erected at the Musket Factory between 1810 and 1841.

7. Store House for Iron, Steel and Bin for Coal, erected in 1834 at an approximate cost of $ 1,710.15. Stone foundations, brick walls, probably two story. This may be either Bldg. No. 10 or 11 on Map No. 9 (1834), or Bldg. No. 21 or 22 on Map No. 7 (1837). This building did not replace a similar Musket Factory store house(but one that had been utilized by the Musket Factory on the Lower Hall Island).

8. Carpenters Shop, built 1834-35, stone one-story building with slate roof. Bldg. No. 7 on Map No. 3 (1848). Bldg. No. 9 on Map No. 7 (1837).

9. Machine Shop, built 1834-35, one-story stone building with slate roof. Bldg. No. 8 on Map No. 3 (1848). Bldg. No. 10 on Map No. 7(1837).

The Carpenter and Machine Shops were constructed at a total approximate cost of $ 4,230.69 in 1834-35. They replaced one old "Carpenters and Machine Shop."

10. Annealing Shop and Proof House, built in 1834-35 at an approximate cost of $ 1,872.36. Stone building with slate roof, probably one story. The new building replaced an old "annealing shop and proof house" The new shop is Bldg. No. 6 on Map No. 9 (1834), and Bldg. No. 15 on Map No. 3 (1848). Bldg. No. 17 on Map No. 7 (1837).

On September 15,1832, the wood shingle roof of one of the three old Smiths or Forging shops at the Musket Factory caught fire. The roof and interior woodwork were destroyed but the brick walls and tools were saved. This shop wes reconstructed in 1832-33. In 1832-33 $ 849.95 was spent to repair the brick walls of four old Musket Factory shops and 3,013.42 to slate their roofs. From 1833 to 1838 a total of $ 34,440.47 was expended to construct three new water wheels and new machinery for the old turning(Bell) shop, boring mill, and stocking shop at the Musket Factory(See Bldgs. No.2, 3, and 5 on Map No. 9 (1834), also Map 1 (1837), and Map. 2 (1844). The turning and stocking shops dated from 1808-10 and the boring mill from 1799-1800. The rebuilt Smiths shop had been erected in 1808-10.

During the years 1836 to 1841 the Armory spent a total of about $ 22,013.91 to erect and complete seven new structures, finish up work on the 1834 tilt hammer shop, and start the foundations of a new warehouse,. Built were the following workshops and store houses:

1. Shop for tempering springs, probably built in 1836 and perhaps constructed of brick.

2. Shop for Polishing Barrels, probably erected in 1836 and perhaps built of brick

3. Fire Engine House, perhaps constructed in 1836. Probably a frame structure.

4. Fire Engine House, perhaps erected in 1836 and probably built of wood.

Addition to Stocking Shop, Bldg. No. 6 on Map No. 7 (1837).

Total probable cost of Bldgs. No. 1 to 4 and addition- $ 1,821.45. The money for these five above projects was provided in 1834 but the work was not carried out until 1836.

Completion of the Tilt Hammer Shop for Barrel Welding. Construction on this one-story large water shop with slate roof had gotten underway in 1834-35. An additional $ 9,250.46 was spent in 1836-37 to complete the building and make its machinery. Total cost of construction, 1834-37, was about $ 22,750.46. The tilt shop is Bldg. No. 11 on Map No. 3 (1848). Also see Map No. 1 (1837) and Map. No. 10 (1837).

5. Coal Store House for Tilt Hammer Shop , built in 1837 at a cost of $ 650.00. one-story(10 feet) high, 30 by 20 feet, probably built of stone. Coal House located adjacent to Tilt Hammer Shop, Bldg. No. 12 on Map No. 7 (1848).

6. Store House for Condemned Part of Arms, Scraps, &c. Erected 1837-38 at a cost of approximately $ 3,400.00. A two-story stone building with slate roof, 80 by 30 feet. Perhaps Bldg. No. 21 or 22 on Map No. 7 (1837).

7. Forge for Scrap Iron, perhaps built in 1838-39, probable cost if built $ 5,000.00. To be built of brick or stone, with a slate roof.

Under construction last quarter of 1841, stone foundations and embankments for a new Warehouse. Cost of construction was $ 1,892.82 in 1841. Building was not to be completed until 1844. The warehouse is Bldg. No. 10 on Map No. 2 (1844) and Bldg. No. 18 on Map No. 3 (1848).

In 1841 the maxinium number of workshops and store houses standing in the Musket Factory year, including the Superintendent's House, would have been about 25.

During the period 1836 to 1841 about $ 7,299.62 was also spent to repair and slate the roofs of the old Musket Factory buildings. In 1837 a well had been sunk adjacent to the grinding mill at a cost of $ 1,000.00 to provide drinking water for the workmen. The grinding mill, erected in 1831, is Bldg. No. 9, on Map No. 3 (1848). During this same era, $ 43,725.00 was also expended to construc or purchase new machinery for use in the Musket Factory workshops.

The major construction project of the 1836-41 years was the erection of a large stone river wall from a point opposite to Wager Ferry Lot No. 11 westward up the south bank of the Potomac River for 1,624 feet (See Map No. 2 1844) for location of Lot No. 11), at a cost of about $ 40,628.00 in 1837-39. The wall was constructed in the river about 50 feet north of the northern line of Musket Factory shops. The space behind(south) of the new wall was to be filled in with 37,832 cubic yards of earth to form a new piece of land 50 feet wide and 1,624 feet long on the north side of the northern line of workshops

The stone mortar masonry wall itself, containing 6,246 perches of stone wall, was to be 1,624 feet long, 14 to 15 feet high, nine feet thick at the base and three feet thick at the top. The wall also contained stone arches and walling over the various tail races, water wheels, and sluices that led from the Musket Factory canal into the Potomac River. This great wall was completed in 1839.

On November 5, 1838, the United States Government granted the Baltimore and Ohio Railroad Company a right of way up(west) the Potomac River by passing outside or north of the Armory 1837-39 river wall. The railroad company was required to construct a stone river wall that paralleled the Armory wall at a distance of about 20 feet. The space between the two walls was left open for the free passage of river water and the railroad wall was to contain suffice openings opposite each Musket Factory tail race of the water wheels to facilitate the discharge of that water into the river. When the right of way reached a point opposite to the 1834-37 tilt hammer shop for welding barrels the railroad agreed to leave a clear space of twenty feet between the road and the river front of that shop.

The agreement further specified that the railroad track was to be carried westward across the north side of the Musket Factory on trestles that could be built of wood, brick, stone , or iron. The legs of the trestle were to be at least 15 feet apart from east to west and the legs to be mo more than 18 inches in diameter. One set of legs of the trestle were to rest on top of the Armory's new stone river wall and the other set on the paralleling stone river wall that the railroad company was to built.

In 1837-38, the Baltimore and Ohio Railroad company had succeeded in getting a bridge, of sorts, across the Potomac River at Harpers Ferry. In 1839

Virginia passed a law authorizing the B. &. O. railroad to cross into that State at Harpers Ferry and also requiring the line to run westward through Virginia to Cumberland, Maryland. On November 5, 1839, the railroad company secured rights of way along the river front from the owners of Wager Lots 9 and 7 (which stood below-east of Wager Lot 11-see Map No. 2 (1844).

In December 1839, the B.&. O. Railroad purchased the bridge and ferry rights across the Potomac River at Harper's Ferry from the Wager family heirs for $ 15,000.00. In April 1840 the company also purchased the bridge or abutment lot from the Wager family for an additional $ 1,800.

In December 1839 the Baltimore and Ohio Railroad company let contracts for work on the "1st section, 1st Residency, 1st Division, Baltimore and Ohio Rail Road, west of Harpers Ferry." This section was slightly more than a mile and one-half in length and extended from the railroad viaduct at Harpers Ferry, upwards along the Virginia shore of the Potomac to a point a little above the U.S. Musket Factory dam on the Potomac. The contracts called for :"bridge masonry and wooden superstructure trestle work, dry walling, excavation, and embankment."[1]

The railroad company constructed its paralleling stone wall and wood trestle across the face of the Musket Factory in 1840 -1841. In June 1842 the main line was opened from Harpers Ferry to Hancock and in November 1842, the line reached Cumberland, Md.[2]

The wooden trestles of the railroad were replaced by iron trestles in 1855. With the completion of the railroad wall, the U.S. Musket Factory reached its present width in 1841.

1. Virginia Free Press, November 28, 1839, p. 2, c.2.
2. Snell, Charles, W., "Historic Building Site Survey Report for Wager Lot No.1 & the Bridge Lot, "The Baltimore & Ohio Railroad Company's Bridge and Buildings at Harpers Ferry,1835-1862, Harpers Ferry National Monument,West Virginia (N.P.S. typescript, Harpers Ferry NM, W. Va., September 22,1958) pp. 11-24.

APPROXIMATE TOTAL OF EXPENDITURES ON U.S. MUSKET FACTORY BUILDINGS AND GROUNDS, CANAL, AND DAM, 1822 - 1841:

Bldgs. in 1821: 19 Estimated Value: $ 74,410.

Estimated Value of canal and dam, 1821: 105,000

Total Estimated Value, Musket Factory Plant in 1821..... $ 179,410.

PERIOD	Bldgs, River Walls, Wells	Armory Canal	Armory Dam	Total- Musket Factory
1817-21		1,345.20	11,200.00	
1822-29	26,309.73	8,454.08	6,105.01	$ 40,868.82
1830-35	63,046.00	33,969.50	4,206.73	101.222.23
1836-41	120,101.88	12,099.38	793.66	132.994.92
Total- $ 1822-41	209,457.61	54,522.96	11,105.40	$ 275,085.97

A detailed study of the phyiscal history of the U.S. Musket Factory from 1796 to 1841 will be found in Charles W. Snell's "A Physical History of the U.S. Musket Factory, 1794 to 1885, U.S. Armory at Harper's Ferry, Virginia, Volume I, 1794 to 1841, Establishment, Construction, and Development of the U.S. Musket Factory, Harpers Ferry National Historical Park, West Virginia,"(NPS typescript, National Capital Team, Denver Service Center, July 1981,) 315 pages, 9 maps and two illustrations.

Maps in the present study showing the location from Musket Factory buildings, 1834-41, include the following: No. 9(1834); No. 1 (1837-38), No. 7 (1837-38), and No. 10, 1837-38.

B. Development of the U.S. Musket Factory, 1842 - 1861:

By 1342, however, despite the expenditures of large sums of money for repair and construction, many of the large workshops and storage buildings of the U.S. Armory and Arsenal at Harper's Ferry were no longer adequate. Most of them, dating from 1810 or earlier, were at least 30 years old and in poor condition. On November 16, 1838, in the"Special Estimates for Additional Appropriations for the Service of the Ordnance Department for the Year 1839," Col. George Bomford, Chief of Ordnance, warned Congress, : "The strongest necessity exists for the improvement of the public buildings at Harper's Ferry Armory - they are at present exceedingly unslightl and unworthy of a National Establishment, and many of them, being mere wooden sheds, are besides liable to accident from fire..."[1]

1. Harpers Ferry National Historical Park Microfilm Reel 20, Vol. 6, p.624- from National Archives Record Gropp No. 156, Records of the Chief of Ordnance, Entry 129, Vol. II, p.6, Washington, D.C.

On February 2,1842, the Secretary of War ordered the Ordnance Department to make a detailed examination of the U.S. Armory at Harper's Ferry. A board comprised of Col. S. Churchill, Inspector General, and Major Henry K, Craig, the new superintendent of the Harper's Ferry Armory, were appointed by Lieut.Col. George Talcott, the newly-appointed Chief of Ordnance, to make this study.

The board, submitting its report on February 22,1842, wrote in regards to "Permanent Improvements" at Harper's Ferry:

> From actual examination, and testimony on which reliance is to be placed, the board is fully impressed by the necessity of very extensive improvements, repairs, and additions to the buildings, machinery,&c attached to this armory; not only for the increase and quality of its production, but for the security of those productions and of the other public property, and also for the comfort and preservation of the health of the officers and workmen of the armory..." [2]

The program of reconstructing the U.S. Musket Factory on the Potomac, the U. S. Rifle Factory on the Shenandoah and of rehabilitating the structures on old Arsenal Square got underway under the supervision of Superintendent Henry K. Craig in 1843-44 and roared into high gear under the direction of Major John Symington during the years 1845 to 1852. This story has been told in the detailed study " A Physical History of the U.S. Musket Factory Plant, 1794-1885, U.S. Armory at Harper's Ferry, Virginia. Volume II, 1842 - 1885, Reconstruction Destruction, and Disposal of the U.S. Musket Factory, Harpers Ferry National Historical Park, West Virginia,"(NPS Typescript, National Capital Team, Denver Service Center, July 1981), 417 pages, seven maps and 33 photos.

Here this complicated story may be summarized as follows:

2. Public Documents of the United States, published in a Serial Numbers Series by the Congress of the U.S.,1817- 1861,in approximately 1,100 volumes. Serial No. 404, Document No. 207, p. 44. Henceforth cited as Serial No. , Document No. , p. .

From 1842 to June 30, 1860, Congress authorized the expenditure of a grand total of $ 939,300.70 for repairs and improvements at the U.S. Armory at Harper's Ferry, Virginia. Ordnance Dpartment records indicate that $ 911,020.42 was actually spent for these purposes in that period. Of the total spent, about $ 468,697.75 went for repair, improvement, purchase of land, and for new machinery at the U.S. Musket Factory. (See chart on following page). About $ 146,759.26 went for the construction of 24 structures, large and small; $ 14,628.00 for remodelling three older buildings, $ 46,073.14 to make repairs to some 23 workshops and storehouses . Approximately $ 28,724.56 was spent on the Musket Factory grounds, to bring the total for buildings and grounds to $ 236,184.96. New machinery cost $ 64,570.00; land purchased to protect the Musket Factory came to $ 47,437.33. Work on the U.S. Potomac Canal amounted to about $ 44,258.03 and repair of the old U.S. dam and the construction of a new dam on the Potomac was about $ 76,247.43.

The new buildings and structures erected 1842 - 1860 were as follows:

1. Warehouse for Iron, Steel, Bldg. No. 12, 1841-44
2. Boring Mill, Bldg. No. 5, 1843-44.
3. Proof House, Bldg. No. 15, 1843-44.
4. Engine House, 1843- frame, minor structure.
5. Lime House; 1843, frame, minor structure.
6. Charcoal House, Bldg. No. 16, 1845-46.
7. Store House for Stocks, Bldg. No. 7, 1846-47.
8. Smiths or Forging Shop, Bldg. No. 13, 1845-48.
9. Engine and Guard House, Bldg. No. 1, 1847-48.

CHART NO. 3

APPROXIMATE TOTAL OF EXPENDITURES FOR REPAIRS AND IMPROVEMENTS AT THE U.S. MUSKET FACTORY, 1842 - 1860

PROJECTS	1842 - 44	1845 - 51	1852 - 54	1855 - 60	TOTAL
New Buildings	$ 21,600.00	92,209.26	19,900.00	13,050.00	$ 146,759.26
Remodelled Buildings	0	3,525.00	0	11,103.00	14,628.00
Coal Bins	0	2,680.00	0	399.00	3,079.00
Coal Scales	0	85.02	0	0	85.02
Privies	0	111.17	0	0	111.17
Subtotal	21,600.00	98,610.45	19,900.00	24,552.00	164,662.45
Repair Bldgs	6,048.09	21,681.05	8,400.00	9,944.00	46,073.14
River Wall	120.00	640.00	0	0	760.00
Gates & Enclosing walls	2,581.58	1,450.00	7,000.00	5,723.00	16,754.58
Grading	0	1,700.00	0	0	1,700.00
Paving	0	450.00	700.00	560.00	1,710.00
Wells, pipes	304.79	3,220.00	1,000.00	0	4,524.79
Subtotal MF	30,654.46	127,751.50	37,000.00	40,779.00	236,184.96
For land	0	40,437.33	7,000.00	0	47,437.33
Machinery	0	49,570.00	0	15,000.00	64,570.00
Canal	1,907.03	8,465.00	5,650.00	28,236.00	44,258.03
Dam	1,747.43	1,500.00	0	73,000.00	76,247.43
TOTAL:	$ 34,308.92	227,723.83	49,650.00	157,015.00	$ 468,697.75
No. of new Bldgs. erected	5	11	5	3	24
No. of remodelled bldgs.	0	2	0	1	3
No. of repaired Bldgs.	5	7	4	7	23
No. of relocated Buildings	0	0	0	1	1
Total Bldgs	10	20	9	12	51

List of New Buildings, 1842-60, Continued:

(Bldg. No. refer to 1859 Historical Base Map.)

10. Stocking House and Machine Shop, Bldg. No. 6, 1847-50.

11. Lumber House and Coal Bins, Bldg. No. 10, 1848-49.

12. Tilt Hammer Shop for Barrel Welding, Bldg. No. 9, 1849-51.

13. Polishing Shop, Bldg. No. 4, 1849-50.

14. Grinding, Saw and Planing(Carpenter) Mill, Bldg. 8, 1850-51.

15. Annealing Shop and Brass Foundry, Bldg. No. 14, 1851-52.

16. New Coal Shed and Scale,1849,minor structure.

17. Horse and Carriage Shed, 1851, minor structure.

18. Lime House, Bldg. No. 19, 1852. minor structure.

19. Ice House, Bldg. No. 20, 1853, minor structure.

20. Rolling Mill, Bldg. No. 18,1853-54.

21. New Stock and Store House, Bldg. No. 11, 1854-55.

22. Connecting Shop, Bldg. No. 21, 1860-61.

23. Bell Tower Shop, Bldg. No. 22, 1860-61.

24 New Horse Shed, 1856, minor structure.

Remodelled Structures:

1. Residence into Armory Central Offices, Bldg. No. 2, 1847-48.

2. Finishing, Turning or Bell Shop, modernized in 1845-51.

3. Store House for Stocks,Bldg. 7,(1846-47) remodelled 1859-60 for use as millwrights shop.

Relocated Building:

1. Old(1822) Pay Office and Vault removed from Arsenal Square in April 1858 to the Musket Factory yard.

Appropriations for the construction and repair of the Musket Factory buildings, 1842-61, are on Chart No. 4, which follows.

CHART NO. 4

APPROPRIATIONS FOR BUILDINGS AT U.S. MUSKET FACTORY, 1842-1861

Fiscal Year	Rolling Mill	Smiths or Forging Shop	Stock House (Millwright ShoP)	New Stock & store house (arsenal)	For new stock house	Stocking & Machine shop	Warehouse	Lime Houses wooden	Ice House	Old Finishing (Bell)Shop	TOTAL
1842											
1842-43											
1843-44							built	built (1)			6,500
1844-45											4,000
1845-06		(13,500)							—		—0—
1846-47			5,200			3,700 machinery 15,200 building			—		30,150
1847-48		4,500	750.00						—		8,590
1848-49	16,500					950-addition			—		19,150
1849-50										2,675 repairs	57,675
1850-51						4,300 building 2,000 machinery	505-repair floors				17,730
1851-52				new 16,450 -arsenal				built (2)			16,450
1852-53		3,100 forges		13,700 completion new arsenal					built		16,800
1853-54	7,000	2,500.00	1,000	400 for fence							10,900
1854-55	4,100 machinery				8,000					900 repairs	13,900
1855-56	1,432		363-new floor	1,324 brick fence							3,295
1856-57				(1,000-fence- 852 sale)							221
1857-58									—		0
1858-59			11,103 made over to millwright shop.								11,103
1859-60				800 fence					—		1,600
1860-61						6,025 adding building 600 alter bldg.			—		13,650
1861-62									—		
TOTAL	29,032	10,100	18,416	32,674	8,000	32,775	505		—	3,575	231,716

Buildings= $ 191,446 Machinery= $ 40,270

CHART NO. 4

APPROPRIATIONS FOR WORKSHOPS AND STOREHOUSES AT THE MUSKET FACTORY, 1842 - 1861

APPROPRIATIONS FOR BUILDINGS AT U.S. MUSKET FACTORY, 1842-1861

Fiscal Year	Annealing Furnace-Brass Foundry	Tilt Hammer Shop for Barrel Welding	Boring Mill	Charcoal House	Coal Bins	Engine and Guard House	Grinding, Saw & Planing Mill	Lumber House and coal bin	Office Building	Polishing Shop	Proof House
1842											
1842-43											built
1843-44			6,500								
1844-45			4,000	(730.00)	(1,300.00)						
1845-46				built							
1846-47								5,200	850		
1847-48					1,800	1,540					
1848-49										1,700	
1849-50		17,900 build. 27,370 machinery	(for tilt				9,730				
1850-51	9,550	shop & new	grinding mill)		880			495 repairs			
1851-52											
1852-53											
1853-54											
1854-55			900 repairs								
1855-56					176						
1856-57					223						
1857-58											
1858-59											
1859-60							800 Addition				
1860-61							7,025 Connecting building				
1861-62											
TOTAL	9,550	$ 45,270	11,400		3,079	1,540	17,555	5,695	850	1,700	

CHART NO. 4

	REPAIRS OLD BUILINGS		APPROPRIATIONS FOR BUILDINGS AT U.S. MUSKET FACTORY, 1842-1861			
Fiscal Year	Barrel Welding & Old Tilt Hammer shop			Old grinding Mill		
1842						
1842-43						
1843-44						
1844-45						
1845-46	2,600	Iron water wheels, forebays				
1846-47	7,800	rebuilt tilt hammers		2,500	Iron water wheel and stone forebay	12,900
1847-48	2,700	raising floor, and replacing tub wheels				2,700
1848-49	850	adding a room				850
1849-50						
1850-51						
1851-52						
1852-53						
1853-54						
1854-55						
1855-56						
1856-57						
1857-58						
1858-59						
1859-60						
1860-61						
1861-62						
TOTAL	13,950			2,500		248,166

CHART NO. 4

APPROPRIATIONS FOR BUILDINGS AT U.S. MUSKET FACTORY, 1842- 1861

Year	New Buildings	Remodelling Old Bldgs.	Repair of Bldgs.	Total for Bldgs.	Gates and Walls	Grading	Pavement	River Wall	Purchase Land	Cistern	Total
1842											
1843	$ 6,500			$ 6,500							$ 6,500
1844	4,000			4,000							4,000
1845											
1846	24,100	850	12,900	37,850	350		450		48,261		86,911
1847	8,590		2,700	11,290	1,100			640	—		13,030
1848	19,150	850		20,000		500					20,500
1849	55,000	2,675		57,675					200		57,875
1850	7,180		1,000	8,180							8,180
1851	9,550			9,550							9,550
1852		3,100		3,100							3,100
1853	7,000	3,500		10,500							10,500
1854	12,900		1,800	14,700	7,000		700			1,000	23,400
1855	1,608		363	1,971							1,971
1856	223	1,000		1,223	8,906		560				10,689
1857		766		766	1,000						1,766
1858		11,103		11,103							11,103
1859	800			800	800						1,600
1860	28,050	600		28,650							28,650
TOTAL	$ 184,651	$ 24,444	$ 18,703	$ 227,858	$ 19,156	$ 500	$ 1,710	$ 640	$ 48,451	$ 1,000	$ 299,325

Expenditures for Land, Construction, and Repair of Buildings, Canals, Dams, and Roads at the U.S. Armory at Harper's Ferry, Virginia, January 1, 1842 to June 30, 1860

(From Ordnance Department's Annual Reports of Operations to Congress)

Year	TOTAL		Serial No.	Document No.
Jan. 1, 1842 to Sept. 30, 1842:	$ 45,260.31 (1)		421	113
Oct. 1, 1842 to June 30, 1843:	32,480.06		441	23
July 1, 1843 to June 30, 1844:	35,046.06		464	43
1844-45:	28,701.10		483	96
1845-46:	62,468.77		499	41
1846-47:	55,346.27		516	22
1847-48:	75,269.63		540	25
1848-49:	55,674.70		576	37
1849-50:	38,373.24		598	20
1850-51:	62,399.44		640	36
1851-52:	60,979.25		677	26
1852-53:	47,979.19		717	19
1853-54:	60,023.04		783	33
SUBTOTAL:	$ 660,001.06		-	-
1854-55:	37,292.67		851	21
1855-56:	39,858.00		897	25
1856-57:	45,081.91		955	55
1857-58:	25,044.68		1004	32
1858-59:	32,663.07		1048	27
1859-60	71,079.03		1097	35
SUBTOTAL 1854-60:	$ 251,019.36		-	-
GRAND TOTAL 1842-60:	$ 911,020.42		-	-
Total, 1796-1860	$ 1,786,891.01			

(1) Vouchers of Paymaster indicate that only about $ 13,037.93 went to pay for

CHART NO. 8

Construction and Repair at the U.S. Armory at Harper's Ferry, Va., 1842 to June 30,1860, work accomplished under the various Superintendents.

Years	Superintendents	Amount expended	Amount Appropriated for C &R	No. of bldgs built
1842 to 6/30/1845	Major Henry C. Craig:	$ 141,487.53	$ 90,500(1)	6
July 1,1845 to June 30, 1852	Major John Symington	384,153.24	335,702.00	20
July 1,1852 to June 30, 1854	Col. Benjmain Huger & Major William Bell	134,360.29	92,450.00	8
Subtotal 1842-54	Military Superintendents	$ 660,001.06	$ 536,652.00	34
July 1,1854 to July 1,1858	Henry W. Clowe	147,277.26	263,542.00(2)	3
July 1, 1858 to 6/30/1860	Alfred M. Barbour	103,742.10	185,000.00	3
Subtotal, 1854-60:	Civilian Supts.	$ 251,019.36	$ 448,542.00	6
Grand Total 1842-60		$ 911,020.42	$ 985,194.00	(2) 40
Proceeds of 1852 land sale for use in 1856:			36,606.70	
1842-60,June 30. GRAND TOTAL		$ 911.020.42	$ 1,021,800.70	40

(1). Total includes $ 18,000 in funds carried over into 1842 from the 1841 appropriations of $ 38,000.00.

(2). Total does not include $ 36,606.70 obtained from the sale of U.S. Houses and lots in 1852 and authorized by Congress in 1856 for use to make repairs and improvements at the armory.

CHART NO. 6 a

SUMMARY CHART: APPROXIMATE TOTAL EXPENDITURES AT THE U.S. FACTORY FOR REPAIRS AND IMPROVEMENTS, 1822 - 1860

Period	New Bldgs.	Repair of Bldgs.	River Wall	Enclosing Walls	Grounds	Land	New Machinery	Canal	Dam	Total
1822-42	58,401.17	56,613.14	40,772.30	0		0	53,671.00	55,867.96	22,305.40	287,630.97
1842-60	164,662.45	46,073.14	760.00	16,754.58	7,934.79	47,437	64,570.00	44,258.03	76,247.43	468,697.75
TOTAL:	223,063.62	102,686.28	41,532.30	16,754.58	7,934.79	47,437	118,241.00	100,125.99	98,552.83	756,328.72

26 buildings constructed 1822-41

24 buildings constructed 1842-61

50 buildings erected 1822- 61.

Approximate total of 77 buildings located in the U.S. Musket Factory grounds from 1796 to 1861.

CHART NO. 7

Expenditures on Physical Plant of Harper's Ferry Armory 1796 - June 30, 1860

Period	For Land	For Construction and Repair	TOTAL	No. of Bldgs. built
1796-1841:	$ 45,477.28	$ 830,383.31	$ 875,870.59	266
1842-1860:	59,603.35	851,417.07	911,020.42	48
TOTAL:	$ 105,080.63	1,681,800.38	$ 1,786,891.01	314

Appraised Value of Armory Plant

Year:	1821	1831	1860
No. of Buildings	113	180	73
Value of buildings	150,650.00	217,920.74	341,221.00
Value of Canals, dams	105,000.00	145,117.66	233,279.00
Value of Machinery, Tools	72,247.44	77,554.43	379,795.00
Value of Land *	42,877.28	42,877.28	37,457.00
TOTAL:	$ 370,774.72	405,915.70	$ 991,752.00

*1,890 acres of land in 1821 and 1831; 1,669½ acres of land in 1860.

Value of Musket Factory Plant in 1821

Value of 19 buildings:	$ 74,410
Value of canal and dam:	105,000
Total, 1821	$ 179,410

CHART NO 8

ARMS PRODUCED, 1842- June 30,1860
U.S. ARMORY AT HARPER"S FERRY, VIRGINIA

YEARS:	Flintlock Muskets	Hall Percussion Rifles	Hall Perc. Carbines	Total:
Jan. 1,1842 Sept.30,1842:	6,575	0	0	6,575
Oct. 1,1842 to June 30,1843:	3,105	300	1,001	4,406
1843-44:	608	2,700	-	3,308
Total :	10,288	3,000	1,001	14,289

Years:	1842 percussion musket	1842 percussion rifle	1855 rifled musket	1855 model rifles
1844-45	2,225	0	-	-
1845-46	12,203	700	-	-
1846-47	12,000	3,054	-	-
1847-48	11.000	2,802	-	-
1848-49	8,300	1,925	-	-
1849-50	9,600	2,676	-	-
1850-51	11,100	3,050	-	-
1851-52	13,400	3,227	-	-
1852-53	10,001	2,762	-	-
1853-54	9,000	2,761	-	-
1854-55	7,700	2,339	0	0
1855-56:	0	0	0	0
1856-57	-	-	1	11
1857-58	-	-	8,581	1,719
1858-59	-	-	6,489	2,450
1859-60	-	-	5,049	2,701
TOTALS, 1844-60:	106,529	25,269	20,120	6,881

	Muskets	Rifles	Total
1842-1860:	136,937	36,151	173,088

D. DESTRUCTION OF THE HARPER"S FERRY ARMORY, 1861

Lieutenant Roger Jones, commanding the company of 44 soldiers guarding the U.S. Armory at Harper's Ferry, was warned of the approach of Confederate forces on April 18,1861. He removed a large quantity of powder from the armory magazine located on Magazine Hill and laid powder trains through the two brick arsenal buildings on Old Arsenal Square on Shenandoah Stree and also in the two rows of some 20 brick Musket Factory shops lying between North Cliff(or Potomac] Street and the Potomac River.

At nine o'clock on the night of April 18, Jones wired the Assistant Adjutant-General in Washington,D.C., of the impending crisis and the actions he had taken to meet it. He telegraphed" ...The steps I have taken to destroy the arsenal, which contains nearly 15,000 stand of arms, are so complete that I can conceive of nothing that will prevent their entire destruction...'[1]

Jones was assisted in this task by Captain Kingsbury, who had arrived to take charge as superintendent of the Armory on April 18, following Alfred M. Barbour's resignation. George Mauzy, an eyewitness of these events, a civil engineer, and resident of the island of Virginius, described what followed, writing on April 9: "At about ten at night they (Capt. Kingsbury and Lt. Jones] set fire to the carpenter shop(Bldg. 8C] and grinding mill(Bldg.8A], stocking shop(Bldg. 6A-all at the Musket Factory],and the 2 arsenals, which were both burned down together with some 15,000 guns of various kinds...

1. Lieutenant Roger Joines to Assistant Adjacent-General,Washington, D.C. April 18, 1861- 9 p.m., CR,S.I., Vol. II,pp.3-4,.

"The first named shops are also a perfect heap of ruins, fortunately the stock shop was saved with but little damage. Well after these buildings were set on fire Lieut Jones and his men walked across the [Potomac] bridge and it is said went up to the Canal, in the direction of Hagerstown, it is presumed they are making their way across to Penn."[2]

As the arsenal buildings and musket factory shops burned on the night of April 18, however, the lower town section of Harpers Ferry was alive with men, women, and children, hurrying to and fro, loaded with plunder from the workshops and soldiers' barricks. Evently some of the Armory workmen dragged the fire engines out of Musket Factory Bldg. No. 1, the Engine and Guard House, and succeeded in extinguishing the flames at the Musket Factory. Citizens of Harpers Ferry who had helped Jones in his work of destruction now fled northward for their lives, as Confederate troops entered the about 1 a.m. on April 19, 1861.[3]

Harpers Ferry NHP Negatives HF- 349, HF- 533, and HF-334 are fairly accurate drawings made and published in 1861, showing the destruction of the Armory Bldgs. on April 18,1861.

Lt. Jones and his 44 men made a forced march of 30 miles to Hagerstown, Md., where they boarded ominibuses for Chambersburg, Pa.. There they were fed by the people of the town. They arrived at Carlisle ,Pa. and safety about 2:30 p.m. on April 19. Secretary of War Cameron promoted Jones to captain for his fine work on April 22,1861.[4]

On April 25,1861, Lt. Col. James W. Ripley, of the Ordnance Office, informed Harpers Ferry Armory Paymaster Dennis Muprhy:

> The armory at Harpers Ferry having been foreably taken possesion of on the night of 18th April, by the Militia of Virginia, the United States will not be responsible for the services of the operatives after that date." 5

Thus the production of arms that began in 1803, ceased on April 18,1861 at Harpers Ferry,

2. George Mauzy to James H. Burton, former Master Armorer at Harper's Ferry , April 19,1861.
3. Sullivan, Arthur L.,"Harpers Ferry, April 18-December 31,1861- A Casualty of War, Harpers Ferry National Historical Monument,West Virginia,"(NPS typescript, Harpers Ferry NM, W.Va., Fenruary 17, 1960) Chapter I.
4. Sullivan,Ibid.,p. 28.
5. Ripley to Murphy April 25 1861 Reel 20 [illegible]

Confederate troops held Harpers Ferry from 1 a.m. April 19th to June 15, 1861. During this period all U.S. Armory property at Harpers Ferry, including 78 U.S. workshops and storehouses and the arms manufacturing machinery therein, was seized by the Confederate Government. Armory employees were forced to vacate their government quarters so that they could be used as barracks. Harpers Ferry churches were also occupied and utilized as barracks. Townspeople who were suspected of being Union sympathizers were thrown into jail without hearings or trial, their property stolen and their houses occupied as barracks. Between April 19 and June 14 more than 432 valuable machines for manufacturing arms, 57,000 assorted tools, and thousands of feet of belting and shafting for the machinery were stripped from the Musket and Rifle Factory workshops, loaded on wagons, and transported south to be used in the armories established at Richmond,Virginia, and Fayetteville, North Carolina, to manufacture arms for the Confederacy.[6]

On June 14,1861, the Confederate army, under the command of Brigadier General Joseph E. Johnston, began evacuating Harpers Ferry. About 6;30 a.m. on June 14, the army burned the Baltimore and Ohio Railroad Company's wooden bridge across the Potomac and the iron bridge span next to the Wager House Hotal, which was located on Wager Lots No. 6,7 and 8, was blown up. (Harpers Ferry NHP Negative No. HF-102, a drawing published July 1,1861,shows the destruction of the bridge). Also about 6:30 a.m. on June 14, the Confederate troops also set fire to the 22 workshops, storehouses, and offices located in the Musket Factory yard. The wooden interiors, floors, and roofs of all these structure were destroyed, with the exception of the large, incombustable

6. Sullivan, A.L,"Haprper's Ferry...",p. 53-55.

Smiths or Forging Shop, Bldg. No. 13, and a smaller store house, a warehouse, Bldg. No. 12. The solid brick walls of most of the other buildings, however, remained standing. The iron railroad trestle, with its wooden platorms, along the top of the great Potomac River wall, in the Musket Factory yard, from the lower or eastern end of the yard west to the railroad road bridge over the U.S. Armory canal, was also burnt.

On the morning of June 15, Johnston's army of more than 10,000 men began their march south towards Winchester.

The Armory Superintendent's House, Armory Dwelling No. 25(Park Bldg. No.59), which had been occupied as General Johnston's Headquarters, had been heavily damaged and stood open, with locks broken, furniture removed and the floors and grounds covered with papers, topographical plans, letters, paymaster's rolls, etc."[7]

On June 20th, or 28th, a Confederate regiment returned to Harpers Ferry during the early morning hours, and set fire to and destroyed the 10 U.S. workshops and storehouses at the Rifle Factory on the Shenandoah, which Johnston had forgot to burn on the 14th; they also burned the wooden toll bridge across the Shenandoah river, and ran Baltimore and Ohio Railroad Locotmotive No.165 and some cars into the Potomac River.[8]

Union troops occupied Harpers Ferry on July 18 and held the town until August 17, 1861.[9] (See Harpers Ferry Negatives HF- 223, and 229, for drawings showing the Musket Factory, published in July 1861). From August 18,1861 to February 25,1862, the town was a no-man's land.[10]

7.Sullivan, Op. cit.,pp.48-49, p.51. The description of the state of Armory Dwelling is from the diary of David Hunter Strother, p.25, who was present in Harpers Ferry during this period.

8.Sullivan,Ibid., p.58. Some accounts state the raid took place on June 20th,others on June 28,1861.

9.Ibid, p. 69. Captain Newton of the Engineers and a Massachusetts regiment apparently occupied Harpers Ferry on July 18,1861 Ibid.,,p. 78.

10.Sullivan, Chapter IV,p. 79-100.

On November 16, 1861, Lt. Col. William Maynadier, of the Ordnance Department, submitted a report to Secretary of War Simon Cameron listing the losses incurred at the U.S. Armory at Harper's Ferry on April 18-19,1861. With regards to the value of the armory plant, he reported:

HARPERS FERRY PROPERTY, NOVEMBER 16, 1861

The amount expended on the same for land purchases at different times.....	$ 45,477.	
(Note: This total is correct as of January 1,1847, but an additional $ 57,598.88 had been spent for land from 1847 to 1856, so that the true total for land was $ 103,076 in 1861).		
For improvements thereon, for water power, canals, embankments, walls, water privileges and for hydraulic machinery and buildings of all kinds.....	1,797,430	
Total(1796-1861), exclusive of the amount expended in the manufacture and repair of arms.....	1,832,907	
The last annual inventory of the property belonging to the United States at that Armory is dated June 30, 1860, in which the value of all the property on hand at that date is appraised as follows:		
1,669½ acres of land (of total of 1,963 acres once owned: about 216½ acres sold in 1852, 4 acres in Harpers cemetery)....	37,457.00	
Mill dams, canals, water power, and hydraulic machinery.....	233,279.00	
Forges, rolling mills, machine shops, dwellings and other buildings.....	341,221,00	
Amount of Real Estate.....	$ 611,957.00	
Machinery used in workshops.....	270,235.00	
Tools used in workshops.....	109,560.00	
Subtotal, Machinery and Tools:	$ 379,795.00	
Value of unwrought materials on hand, $ 100,043.00--------	193,616.00	
Value of parts of arms in progress, 93,573.00		
Value of 20,507 arms of different models in storage (in Arsenals at Harpers Ferr).....	285,145.00	
TOTAL APPRAISED VALUE, JUNE 30, 1860.....	$ 1,407,513.00 (11)	

11. A Collection of Annual Reports and Other Important Papers Relating to the Ordnance Department Taken from the Records of the Office of the Chief of Ordnance, from Public Documents, and from other Sources Prepared under the direction of Brig. General Stephen V. Benet (4 vols., Washington, D.C., 1880), Vol IV, p. 1043-1044.

Of the 20,507 arms reported as in storage on une 30,1860, Lt. Col. Maynadier informed the Secretary of War on November 16,1861, that this number by April 18,1861, when the Armory was destroyed, had been reduced to 4,287, the value of which he placed at approximately $ 64,000. Maynadier thus estimated the value of the Harper's Ferry Armory to be $ 1,470,513 on June 30,1860 and only $ 1,207,660 on April 18,1861.[12]

Harper Ferry, however, was too important strategically to be left unoccupied. The Baltimore and Ohio Railroad, the Chesapeake and Ohio Canal, and the road between Frederick, Md., and the Shenandoah Valley in Virginia all funneled through Harpers Ferry and its river gaps. Who ever controlled Harpers Ferry had command of the important coummincation lines from Washington, D.C. to the West. For this reason, the Union Army reoccupied Harpers Ferry on February 25, 1862, By the night of the 26th, 8,500 infantry, 18 cannon, and 2 squadrons of cavalry held the town and also Loudoun and Bolivar Heights.[13] Union forces held Harpers Ferry From February 1862 to September 1862.

During the first year of the war, the Commanding Officer's or Superintendent' Quarters, Armory Dwelling House No. 25(Park Bldg No. 59) was used as follows: Headquarters of Col. Thomas J. Jackson, CAS, about May 8 to May 23,1861; Headquarters of Brigadier General Joseph E. Johnston,C.S.A, May 23-June 15,1861; Headquarters of Major General Robert Patterson, U.S.A, July 21-25,1861. Headquarters of Major General Nathaniel P. Banks,U.SA., July 25 to ca.July 31,1861.

Escaping destruction by Confederate and Union Forces in 1861-62 were Musket Factory Buildings No. 1-Engine and Guard House(Park Bldg. No. 63) Bldg.No. 2- the Armory Office Building; No.12-the Warehouse, and No. 13 -

12. Ibid., IV, pp. 1043-1044.
13. Sullivan,, Arthur L.,"Harpers Ferry in the Civil War-1862,Harpers Ferry National Monument, West Virginia," (NPS typescript, Harpers Ferry NM, W.Va., June 26, 1961),pp.18- 22.

the Smiths or Forging Shop.

During the Federal occupation of Harper's Ferry, February-September 1862, many of the burned out brick Musket Factory buildings and the first floor of the Large Arsenal, the latter located on Old Arsenal Square, were re-roofed and utilized as Quartermaster and Commissary depots for both the troops stationed at Harpers Ferry and the large Federal forces in the Shenandoah Valley. By March 24,1862, the Winchester and Potomac Railroad had been repaired for its entire length from Harpers Ferry to Winchester, for the purpose of forwarding supplies to the Union troops in the Shenandoah Valley. The arsenal operated by the Ordnance Department at Harpers Ferry during this period was located at the U.S. Rifle Factory on the Lower Hall Island.

Colonel Dixon S. Miles, who commanded Federal forces at Harpers Ferry from March 29 to September 15,1862, had his headquarters in a house located on Shenandoah Street, probably the Master Armorer's new Quarters, Armory Dwelling House No. 1(Park Bldg. No. 36). Brigadier General Rufus Saxton, U.S.A., also had his headquarters in the same building during the period, May 25-29,1862.[14]

Siege of Harpers Ferry, September 1862

September 1862 brought the first Confederate invasion of the North following victory in the battle of Second Manassas. Reaching Frederick on his way through Maryland toward Pennsylvania, General Lee decided to remove the threat to his rear and line of communications represented by the strong Union garrison at Harpers Ferry. In order to do this he decided to divide his army, sending part of it against Harpers Ferry while the main body pressed on toward Hagerstown. It was a daring plan, its success depending upon the Confederates ability to capture Harpers Ferry and quickly reunite in time to face Major General George B. McClellan's Union army which was following them.

14. Snell, Charles W., "The Forifications at Harpers Ferry, Va., in 1861, and Jackson's Attack, May, 1862,Harpers Ferry National Monument, West Virginia," (NPS typescript, Harpers Ferry NM, W.Va., February 9, 1960,p.96-97.

Lee sent three columns with a total of some 32,000 men against Harpers Ferry: Major General Thomas J. Jackson approached from the south; Major General Lafayette McLaws invested Maryland Heights from the north; and Brigadier General John G. Walker approached from the east. Jackson reached the vicinity of Harpers Ferry on the south on September 12; on the 14th McLaws seized possession of Maryland Heights and emplaced his cannon there; Walker arrived at Loudoun Heights a day later. Thus, on September 14, Colonel Dixon S. Miles, in command of the Harpers Ferry garrison of 14,238 officers and men, largely new recruits, found himself surrounded with Confederates on the heights overlooking his positions at Camp Hill and Bolivar Heights.

Miles and his men withstood the Confederate artillery fire from across the Potomac and Shenandoah Rivers on Maryland and Loudoun Heights for two days, almost but not quite upsetting Lee's schedule for re-concentrating his army. Although the Union casualties were not heavy, his artillery ran out of ammunition and Miles surrendered his garrison on the 15th, not knowing that if he held out a little longer a rescue force would arrive. A cannon shot from the Loudoun Heights batteries mortally wounded Miles at the very end of the action. 12,693 officers and men of the Harpers Ferry garrison were taken prisoners and paroled; 44 were killed and 173 wounded. Colonel B. F. Davis led his Union cavalry command, 1,510 men, over a pontoon bridge across the Potomac and escaped. Except for prisoners, Confederate casualties in the action were greater than the Union losses, incomplete returns indicating that there were about 283 killed and wounded. Also taken were 47 pieces of artillery and some 13,000 small arms.

Immediately after the capitulation of the Union garrison, Jackson hurried off toward Sharpsburg to reinforce Lee in the battle of Antietam, leaving Major General A. P. Hill to arrange the parole of the Union prisoners. Having hurriedly done that, Hill, in turn rushed off to Sharpsburg with his men and reached there at a critical moment in time to save Lee's army from threatened disaster in the battle of Antietam.

During the siege of Harper's Ferry, September 12-15,1862, Colonel Dixon S. Miles," Headquarters continued to be located in a house on "main street" in the lower town and near the Potomac River pontoon bridge and the B.& O. Railroad bridge. This house was probably Armory Dwelling No. 1,(Park Bldg.No.36), the Master Armorer's new Quarters. After Miles's surrender, Major General A. P. Hill, C.S.A. used Miles's office as his own headquarters. Federal ammunition was also stored in"the arsenal" in the lower town, either in a re-roofed structure in the Musket Factory yard, or on the re-roofed floor of the Large Arsenal on Arsenal Square.

5.Snell, Charles W., "A Report on the Federal Fortifications at Harpers Ferry, Va., and of the Conferate and Union Troop Movements during the Siege of Harpers Ferry, September 12-15,1862,Harpers Ferry National Monument, West Virginia,"(NPS typescript, Harpers Ferry NM, W. Va., December 1,1959),p.6.

Harpers Ferry, 1862-63::

On September 20, 1862, the Union Army re-occupied Maryland Heights and on the 22nd also took position on Camp Hill and Bolivar Heights. During October 1862 three army corps with more than 60,000 men present and fit for duty camped at Harpers Ferry and its surrounding heights. During that month and November the soldiers constructed three large stone redoubts on the summit of Loudoun Heights and cleared the crest of timber. A series of strong fortified works, including the "Stone Fort" and Fort Duncan, batteries and rifle pits, were erected on Maryland Heights. Much of this mountain was also cleared of heavy forest.

When Lee invaded the north a second time—in the 1863 campaign that led to Gettysburg—a Union garrison evacuated Harpers Ferry on June 29. On July 1, they also abandoned the strong fortifications on Maryland Heights. On July 7 the Union Army reoccupied Maryland Heights and on the 14th they again moved into Harpers Ferry and Bolivar Heights.

During the period 1863-64, the headquarters of the Union generals commanding at Harpers Ferry were located in the lower town and probably in Armory Dwelling House No. 1 (Park Bldg. No. 36), the Master Armorer's New Quarters. These generals included: Brigadier General Benjamin F. Kelley; Brigadier General John R. Kenly, Brigadier General Henry H. Lockwood(July 19 to October 12,1863),and Brigadier General James C. Sullivan(October 13 to December 31,1863).

The Guard House, in September 1863, was located in the Musket Factory yard, probably in the relocated Paymaster's Old(1822) Office, Bldg. No. 17, which was described as having a front room 18 by 18 feet, and two back rooms, one 18 by 14 feet and the other 14 by 10 feet. The"dungeon," 10 by 7 feet, was the Paymaster's old vault, which was " burglar, air, and light proof."

"A Government Bakery" to bake bread for the troops and also a "slaughter house," to butcher cattle for the soldiers, were located in re-roofed Armory structures that were situated either in the Musket Factory yard or on Old Arsenal Square.[16]

16. Snell, Charles W., "Harpers Ferry Becomes a Fortress, September 21,1862 - October 6,1863, Harpers Ferry National Monument, West Virginia,"(NPS typescript, Harpers Ferry NM, W.Va., December 16,1959,p. 59-60.

Harpers Ferry, 1864-65:

The last year of the Civil War saw three related developments take place at Harpers Ferry: First, the completion of all fortifications; second, the successful defense of the position at Maryland Heights against a major attack, July 4-8., 1864; and third, the conversion of Harpers Ferry into a major base of operations for Sheridan's army, August 1864 to February 1865, which led directly to the destruction of Confederate power in the Shenandoah Valley.

The Confederates held Harpers Ferry briefly for the last time in the course of Lt. General Jubal A. Early's raid against Washington in the summer of 1864. On July 3 Early approached Harpers Ferry with approximately 20,000 men. The Union soldiers evacuated the town of Harpers Ferry on the night of July 4 and the commander, Brigadier General Max Weber, concentrated his troops on Maryland Heights. There he was joined by soldiers under the command of Major General Franz Siegel bringing the total number of Union troops to 6,500. Early arrived in Harpers Ferry on July 5, but found it impossible to cross the Potomac there as the Union army had burned the railroad and pontoon bridges and also still stood guard on Maryland Heights. On July 6 2,800 men and three batteries, re-enforcements from Washington also reached Maryland Heights. Meanwhile, Early was forced to detour his army around Harpers Ferry, crossing the Potomace near Sharpsburg. His men put Harpers Ferry to the torch as they left it on the night of the 6th. On the night of the 7th the last Confederate brigade also left Bolivar Heights. On July 6 and 7th there was heavy skirminishing on Maryland Heights along the Barnard Lines and there was also heavy cannonading from the Federal guns. Meeting with determined resistance, Early pulled back his soldiers and continued his march on Washington on the 8th. On July 8 the Union troops crossed the Potomac and re-occupied Harpers Ferry for the last time. Early devoted and lost four days in his unsuccessful attempt to cross at Harpers Fery and take Maryland Heights. As a result of this delay, Early did not reach Washington until July 10, 1864. From August 1864 to February 1865 Harpers Ferry served as the main base of operations and supplies for Major General Philip S. Sheridan's army, which successfully destroyed Early's army as a fighting force and conquered the Shenandoah Valley in Virginia.

During this period the brick and stone walls of the burned out Musket Factory, arsenal, and Rifle Factory buildings were reroofed to serve as giant warehouses for the storage of the munitions and supplies that were necessary to support Sheridan's advance. His great wagon trains numbering up to 1,000 wagons per train were parked for safety within the defensive lines on Bolivar Heights in August 1864, before they began their march south. In November 1864 the U.S. Military Railroad Corps also rebuilt the destroyed Winchester and Potomac Railroad from Harpers Ferry south 28 miles to Stephenson's Depot, a point about five miles west of Winchester, Virginia. Six hundred soldiers were employed to operate the 13 locomotives and 75 cars on this line. During the period December 1864 to June 1865 this railroad dispatched 2,236 trains that carried nearly 200,000 persons and thousands of tons of supplies to support Sheridan and also to transfer forces to Grant.

PART III

INDIVIDUAL HISTORIC STRUCTURE REPORTS FOR 22 U.S. MUSKET FACTORY BUILDINGS STANDING DURING THE 1859 - 61 PERIOD.

Building Numbers refer to the numbers used to identify the Musket Factory structures on the 1859 Historical Base Map of 1959, Harpers Ferry National Historical Park, West Virginia.

1. Engine and Guard House(Park Bldg. No. 63), 1847-48:

This is building No. 19 on Map No. 3 (1848) and Bldg. No. 1 on the 1859 historical base map. In his estimates submitted on November 30,1844 Major John Symington had requested $ 720.00 to construct a brick engine house to house the fire engine at the musket factory . His "Estimate in detail for engine house-(See plan No.3)" was based on the following calculations:

147	yards of excavation, at 18 cents	$ 26.46
67	perches masonry laid with cement, at $ 2	134.00
26,000	hard bricks laid, at $ 10 per M	260.00
160	feet of cut-stone water-table and cornice, at 60¢	96.00
2,000	feet of lumber, at 1½ cents	30.00
100	lbs.iron for hanging doors, at 12½ cents	12.50
600	feet of slating at 10 cents	60.00
36	day" carpenter's work, at $ 1.50	54.00
8	days painting, at $ 1.45	11.60
50	lbs. nails, at 4½ cents	2.12
480	feet of paving, at 6 cents	28.80
	Oil and paint	4.52
		$ 720.00 (1)

In his estimates for the 1847-48 fiscal year, however, Symington requested an appropriation of $ 1,540.00"for constructing a house for the fire-engine, and the accommodation of the night watch." The structure was needed, he explained, because "The fire- engine and appartatus are now badly sheltered in a wooden shed, out of position. This item is for the erection of a neat brick building for the engine and apparatus, to be used also as a watch house."[2] The requested amount was appropriated by Congress on March 2,1847.[3]

It seems possible that in preparing his second estimate, Symington may have simply doubled his 1844 estimate, which was for a smaller brick structure without the guard room included.

The work of constructing the engine and guard house got underway during the 3rd or 4th quarter of 1847 and was completed by June 1848. In his

1. Serial No. 464, Document No. 43, p. 14.
2. Serial No. 497, Document No. 3, p. 142, item No.6.
3. U.S. Statues at Large, IX, p. 151.

annual report for the year ending June 30,1848, Superintendent Symington wrote: "A engine and guard house, 35½ by 24 feet, one-story brick, covered with slate, and having copper gutters and down spouts, has been constructed, and is now occupied."[4] Because the paymaster's vouchers are missing from the National Archives records for the 3rd and 4th quarters of 1847 and all four quarters of 1848, it is not possible to provide specific data on the costs of construction and amount of material used in erecting the engine and guard house. Total cost was probably about $ 1,540.00. The following workmen also probably built the structure: excavation for and construction of stone foundation: the mason Peter Litle; brick work by the mason William Collins; slating by William Bayley, and copper guuters and downspouts by Dennis Snook.

The building was designed to house two fire engines and one-third of the structure served as a room for the night watchmen. The architecture of the engine and guard house matched that of the other new building being erected by Symington. The structure fronted three bays wide on the musket factory yard and was two bays deep. .... Each bay was comprised of a recessed panel that was set within a relieving round arch that was supported by capped pilasters. Bays on the east (left) gable end and also on the south(rear) elevation had solid brick walls set within each arch to the height of the capped pilaster, the space above this, to the top of the round arch, was enclosed by large semi-circular windows. Parapted brick walls with turrets at the corners rose at either end above the gable roof. Each end wall contained a small centered chimney for the service of a iron stove. In the center of the roof was a square wooden cupola which contained a bell that served as a fire alarm.

4. Serial No. 537, Document No.1, p. 348. Item 3 at the Musket Factory.

The center and left bays on the front(north) elevation each contained wide double wooden doors above which were semicircular windows. These were the entrances for the two fire engines. The third, or right bay on the front elevation lead into the guard room section. This entrance was comprised of a single centered door that was flanked on either side by side lights, each containing 10 lights of 8 by 10 inch glass . The door and sidelights were topped by a wide semicircular window with fixed sash .

The engine room was separated from the guard room by means of an interior solid brick wall. The west(right) outer gable end wall had two casement double windows, one set in each bay, which opened inwards into the guard room. Eact window contained 12 panes of glass. The round arch area above each casement window was enclosed by a solid brick wall.[5]

On February 21, 1849, the mason William Collins was paid $ 8.46 for "setting 70½ feet brick cornice at new engine and guard house."[6]

The extant paymaster's vouchers for the period 1849 to 1851 indicate that no further work was done on the structure during this period. The destruction of the Paymaster's vouchers for the years 1852 to 1861 by the National Archives staff in the 1940's makes it impossible to determine what work might have done to the structure during this period. However, the failure to mention the engine and guard house in the annual reports of the superintendents for the years 1849 to 1861 undoubtedly indicates that no major repairs or alterations were made to the structure prior to the Civil War.

5. W. Lewis Barlow,IV, "Historic Structure Report: John Brown's Fort, Architectural Data, Harpers Ferry National Historical Park, Maryland-W. Va." Denver Service Center, Historic Preservation Division, National Park Service, Denver, Colorado, May 1976), for modern plans and details
6. 3rd Series, File 9093, V. 23, for $ 8.46.

Year :	Engine and Guard House
1845	-
1846	-
1847	
1848	(1,540.00)+
1849	8.46
1850	0
1851	0
TOTAL	8.46
Approp. For	1,540.00
For Machinery	

+ Estimated as the Paymaster's vouchers for this period are missing from the 2nd Auditor's Records in the National Archives.

Description of
Engine and Guard House, Bldg. No. 1 (Park Bldg. No. 63), 1847-48:

Location: First structure at the eastern or lower head of the southern line of workshops.

Map References: Bldg. No. 19 on Map No. 3 (1848).

Visual Evidence: The Engine and Guard House can be seen in the following Historical photographs and drawings: HFNHP Negative Numbers: HF -64 (taken in 1861); HF-90 (taken in 1859- Southeast corner only); HF- 223 (drawing made 1861); HF-27B, 1865; HF-355, 1886); HF- 539-1886; HF-379, 1882; HF- 55 (1873-75); HF-100 taken during the 1889 flood; HF-190, ca. 1890-92. These views all show the structure on its original (1848) site. In 1892, the Engine and Guard House, then known as the John Brown Fort, was dismantled and shipped to Chicago for the World's Fair. Also see HF-18 (1864-65); HF-55; HF-495 (1889); HF 113; and HF 58.

History and Description:

The Engine and Guard House was a one-story brick building, 35½ by 24 feet with cut-stone water table and coping. The slate-covered gable roof was crowned with a square wooden cupola that held a fire bell. The gutters and downspouts were of copper. The structure was designed and erected by Major John Symington in 1847-48 at a cost of approximately $ 1,540. Inside, one-third of the structure was partitioned off by the means of a solid brick wall to form a guard room for the use of the night watchmen. The remaining two-thirds served as the engine house and housed two fire engines.

The building fronted three bays wide on the musket factory yard and was two-bay deep. Each bay was comprised of a recessed panel that was set within a relieving round arch that was supported by capped pilasters. Round arch windows and doors were set within recessed panels. The gable end walls were adorned with brick parapet walls that were crenelated, topped with cut-stone coping and rose above the ridge of the roof.

The Engine and Guard House, then famous as "John Brown's Fort," survived the Civil War in relatively good condition.

In his July 27, 1865 inspection report, Brigadier General Edward D. Ramsay described this structure as: "Engine House, brick, 1 story, 25 x 35 feet, No.2-Bldg.Located in Armory enclosure-In good condition-used for storing Ammunition."[1] He further remarked,"The small engine house, celebrated as the citadel of John Brown, is used as magazine. I consider this very dangerous, and the ammunition should be removed to a place of greater security."[2] The structure was serving as Ordnance Department Warehouse No. 2 in 1865.

Thomas H. Savery purchased the 72-acre Musket Factory tract, which included the Engine and Guard House, for $ 25,100 at the sale of U.S. Armory land held on October 22, 1884. He received his deed from the U.S. Government after completing his payments, on April 12, 1887.[3] On July 28, 1891, Savery and his partners sold the old Engine House to Augustine J. Smith and others for $ 5,000.[4] John Brown's Fort was taken down and shipped for exhibit at the World's Fair at Chicago in 1892.

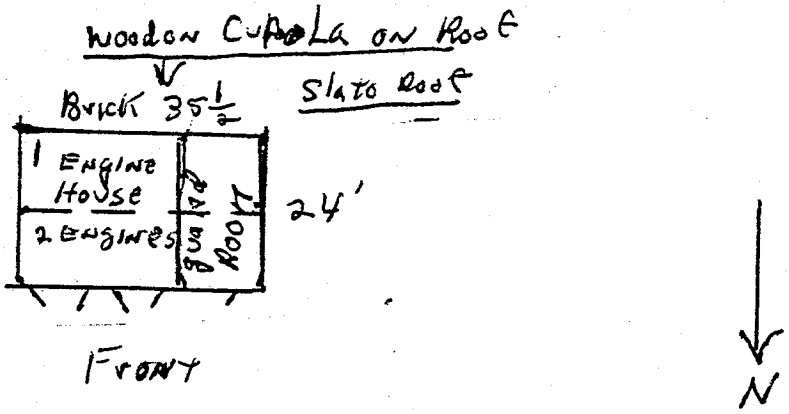
1. Brig.Gen. E.D. Ramsay to Brigadier General A.B. Dyer, Chief of Ordnance,July 27, 1865, Harpers Ferry NHP Photostats, Vol.4, p.50-56; Photostat Collection,Map Case, Drawer No.10-for list of buildings.
2. Ibid.,
3. National Archives Record Group No. 121, Public Buildings Service, Entry 58, Warrenty Deeds, Vol. III, p. 624, Washington, D.C. Deed also recorded in Deed Book Q, p. 317, Jefferson County Courthouse, Charles Town, W. Va.
4. Deed Book Y, p. 191, Jefferson County Courthouse, Charles Town, W. Va.

Bldg no 1.

Engine and Guard House 1847-48

Cost $1,540

Gable Roof



2. Armory Central Office Building, Bldg. No. 2 (1808-09):

This is Bldg. No. 1 on Maps No. 9 (1834); No. 1 (1837-38), 7 (1837-38), No. 2 (1844), No. 3 (1848), and Bldg. No. 2 on the 1859 Historical Base Map.

When James Stubblefield, the new Armory Superintendent, arrived in Harpers Ferry in May 1807, he was offered the use of the late Superintendent Joseph Perkin's residence. This structure, which stood at the lower or eastern head of the Musket Factory, was a long one-story frame warehouse, erected prior to 1796, that had been converted into a temporary armory or factory in 1798 and then, in the fall of 1801, into a dwelling for the use of Superintendent Perkin. Stubblefield refused to live in the remodelled warehouse and requested permission to live in a Armory dwelling house located on Camp Hill. The Secretary of War authorized Stubblefield to reside on Camp Hill in a house of his choice, provided that the Superintendent could put the building in livable condition for not more than $ 300.[1]

On May 25, 1808, due the threats of war with France or Great Britain, the Secretary of War authorized Stubblefield to design and construct whatever additional workshops and store houses at the Harper's Ferry Armory that might be necessary in order to double the output of muskets.[2] While no details are available, it is quite clear that as a part of the large scale construction program executed at the Musket Factory 1808-10 at a cost of $ 92,079.48, Superintendent James Stubblefield built a fine brick house, Bldg. No. 2, in the Musket Factory yard, at the lower or eastern head of the southern line of workshops, as his residence. Here he was close at hand to supervise operations.

1. Harpers Ferry NHP Microfilm Reel 18, Vol. 1, page 55, 56.
2. Reel 18, Vol. 1, p. 74.

The construction of the Superintendent's House in 1808-09 is revealed by the list of "Public Buildings at Harper's Ferry in Virginia, 1st January , 1810, prepared by Samuel Annin, Military Storekeeper," and Paymaster of the Harpers Ferry Armory.[3] Building No. 11 on this list is described as "For Superintendent," "36 by 29 feet, two stories with cellar kitchen"; and as being built of brick.[4] The gable roof was covered with wooden shingles.

In the Statement of the number and dimensions of the buildings at the United States Armory at Harper's Ferry, Virginia, together with materials of which they are built, and their estimated value," as of December 31,1821, Lt. Col. George Bomford, Chief of Ordnance, informed Congress on November 20, 1822, that Superintendent James Stubblefield's Armory dwelling measured 36 by 30 feet size, had two stories and a cellar, was built of brick, and was valued at $ 3,000.[5]

In 1828, with his house in the Musket Factory yard about 20 years old, Superintendent James Stubblefield undertook an extensive program of of improvement which consisted of renovating the original main house and of adding a large brick wing to the east gable end.

3. National Archive Record Group 107, Secretary of War, Letters Received, A-29(5), National Archives, Washington, D.C. Inventory submitted by Annin on March 17, 1810. Photostat of inventory in Park Library collection.
4. Ibid.
5. American State Papers, Military Affairs, Vol. II, p. 182 . The Paymaster's Master Armorer's residence, the 2nd and 3rd largest and best houses, were each valued at $ 2,500.

The National Armory Accounts for 1828 and 1829 reveal that a total of $ 2,429.75 was expended making additions and improvements to his residence $ 1,000 for a"brick addition"to his quarters[6] in 1828 and $ 1,429.75 in 1829. As the house had been valued at $ 3,000.00 in 1821, this large expenditure suggests that the building must have been nearly doubled in size in 1828-29. The cost of carpenter work on the elaborate interiors of the house came to at least $ 993.83 and of this sum, $ 867.83 went to Joseph Curry. The painters, William Bowin and Henry Hay, received a total of $ 294.91 for their efforts on this edifice, while James Gallaher was paid $ 101.12½ for plastering the structure. (See Chart next page). Deducting these costs from the total expenditures on the building, suggested thet masons and possibly the roofers received the balance of $ 1,039.88½ for their work on the Superintendent's House.

The enlarged Superintendent's quarters can be seen on Map No. 9 (1834), No. 1 (1837-38), and 7 (1837-38), as Bldg. No. 1.

During the third quarter of 1841, Major Henry K. Craig, the newly appointed superintendent of the Harper's Ferry Armory, spent approximately $ 400.00 making the following improvements to his Musket Factory yard

6. National Archives, Washington, D.C. Record Group 156, Entry 935, War Department, Ordnance Office's National Armory Accounts for Harper's Ferry, 1795 to 1830. The accounts from 1822 to 1829 are accompanied by annual reports detailing how the money was spent and what work was accomplished. Photostatic copies of these documents in Harpers Ferry NHP Photostat Collection. Extracts from reports for 1828 and 1829:

1828: Building a brick addition to the Superintendent's House..... 1,000.00

1829: Addition to Superintendent's quarters.....1,429.75

CHART

Improvements to Superintendent's Dwelling House, 1828-29

Records for 1st 3 quarters of 1828 are missing:					
File No.	Vou. No.	Artisan	Date	Amount	Remarks:
12579	42A	Joseph Curry	11/15/28	$ 73.50	For 42 days carpenter work making improvements to Supt.'s house.
12908	30A	" "	1/28/29	$ 103.50	For carpenter work on Supt.'s house.
15209	1A	Joseph Curry	11/9/30	71.33	Itemized voucher, 6 or 7 pages for all carpenter work done by Curry on Supt.'s house in 1828-29. totalling $ 867.83 in value. Of this; $ 786.50 had been paid and $ 71.33 was paid in 1830.
Subtotal		Joseph Curry	1828-29	$ 867.83	Carpenter work.
12579	52A	Hiram Carney	11/17/28	30.00	For 20 days work mason work laying brick at Supt. Dwelling house
13750	143A	George W. Harding	12/31/29	6.98	Mason work, paving cellar Supt. house, 5½ days.
12579	57A	Joseph Spencer	11/18/28	39.00	For 26 days laying brick to repair blacksmiths shop and pave yard at Supt.'s house.
13750	16N	" "	10/13/29	25.50	For 17 days work laying brick and paving at Supt.'s house.
13750	126A	" "	12/31/29	37.50	For mason work done on Supt.'s house in April and May 1829.
Subtotal		Joseph Spencer		$ 102.00	Mason Work, Supt.'s house.
13750	78A	William Bowin	12/31/29	66.40	For painting Supt.'s house in July 1829.
13750	144A	" "	12/31/29	78.50	Painting Supt/'s quarters.
Subtotal		William Bowin	1829	$ 144.90	Painting Supt.'s house.
12908	13A	Henry Hay	1/15/29	150.01	ForPai .nting, 69 yards painted mahogany, glazing 151 lights of sash at Supt.'s house.
12579	30A	James Gallaher	10/30/28	37.50	For plastering 300 yards at the Supt.s House.
13478	87B	" "	5/13/29	63.62½	For plastering in Supt.'s house.
Subtotal		James Gallaher	1829	101.12½	Plastering
TOTAL:			1828-29	1,579.89	Superintendents House

12579	133A	Adam Brown	12/23/28	$ 26.00	For 26 days carpenter work on Supt.'s house.
12908	102A	John Brann	3/31/29	$ 22.00	For 22 days carpenter work on Supt. house.
12908	103A	Isaac Cravin	3/31/29	$ 39.00	For 26 days carpenter work on Supt. house.
12908	101A	Jessie Hurdle	3/31/29	$ 39.00	For 26 days work, carpenter on Supt. house.
				$ 126.00	

residences:

1. $ 42.00 To John Lambaugh, mason, September 16, 1841, for building brick wall front and back with 2,040 brick and laying 130 feet of brick cornice at Superintendent's Quarters. 7

2. $ 317.20 To William Bayley, slater, "for slating roofs of the Superintendent's Quarters and of Musket Factory buffing [or polishing] shop." 8.

3. 63.99 To Benjamin M. Snook, tinsmith, for putting copper "spouting" on the Superintendent's Quarters and workshops during the 4th quarter of 1841. 9

$ 423.19

The fine brick house served as the residence of the Armory superintendents from 1808 to 1844 as follows:

1. James Stubblefield, 1808 - 1829.
2. Thomas B. Dunn, 1829 -30.
3. George Rust, Jr., 1830- 37.
4. Edward Lucas, Jr., 1837 - 41.
5. Major Henry K. Craig, 1841 - 44.

The next superintendent, Major John Symington, who reported for duty at Harpers' Ferry on November 9, 1844, chose not to reside in the house. The structure, repaired and painted, served as the residence of Armory Paymaster Richard Parker from 1844 until his death in 1847. (See Bldg. No. 1-"Paymaster's Quarters," on Map No. 2, drawn in November 1844). Dimensions of the house after the 1829 enlargement appears to have been approximately 100 by 30 feet.

7. National Archives R.G. 217, Washington, D.C., Records of the 2nd Auditor of the Treasury, 2nd Series, File No. 6465, Voucher No. 59.

8. R.G. 217, 2nd Series, File No. 6465, Voucher 79.

9. R.G. 217, 2nd Series, File No. 6718, Voucher No. 3.

The Old Dwelling is Remodelled for a Central Office Building at the Musket Factory, 1847-48:

In the estimate for the 1846- 1847 fiscal year Major John Symington requested the sum of $ 850 for "altering old quarters in offices," explaining: "The situation of the house formerly occupied by the superintendent (Bldg. No. 1) renders it unsuitable for a dwelling, and its vicinity to the (Musket Factory) shops fits it well for armory offices, which are wanted..." "The present offices" he continued, "are widely separated, and distant from the shops." The Superintendent's Old Office was located at the northeast corner of Arsenal Square and the Paymaster's Old Office at the northwest corner of that same square. The Master Armorer's Office was then located in Bldg. No. 4 on Map No. 2 (1844). Symington's estimate also included a request for $ 15,000 to build new dwellings for the superintendent and paymaster which were to be located on Camp Hill.[1]

The sums requested for these projects were appropriated by Congress on August 8,1846.[2] Work on remodelling the old residence got underway during the 3rd or 4th quarters of 1847 and was largely completed by June 30, 1848. Because the paymaster's vouchers for the 3rd and 4th quarters of 1847 and all four quarters of 1848 are missing from the National Archives records, details of the work, including costs and names of the workmen, are unknown. Superintendent Symington, in his report for the year ending June 30,1848, proudly described this improvement as follows:

"The old quarters inside the armory yard have been suitably arranged for offices for the commanding officer, the paymaster, and storekeeper, and the master armorer, by considerable alteration and repairs necessary to fit it for above named purpose. The kitchen connected with this building has been converted into a money vault, perfectly secure, with walls of heavy masonry 3 to 3½ feet thick, covered with flag-stones of very great size and weight."[3] The cost of

1. Serial No. 481, Document No. 9, p. 111-112.
2. U.S. Statues at Large, IX, p.69.
3. Serial No. 537, Document No.1, p. 348/.

these alterations were probably about $ 850.00 . During 1849 a total of $ 46.50 was spent as follows on the new Office building:

$ 24.00 for making new porch(wooden) to front of offices and for putting up hand rail & banister, stairs of storehouse (probably Bldg. 4 on Map No 2). 4

4.50 for repairing fireplaces and resetting three coal grates in Armory Offices. 5

18.00 for making doors, floors, and ceiling of privies for the Armory Offices. (6)

In 1851 $ 65.81 was spent on the Office Building: $ 25.50 was paid to Decker and Robinson on July 3,1851 for installing lightning rods- two points and two leads to the ground- on the Office building.[7] The stone mason Edward Tearney received $ 16.93 on June 24,1851 "for building new file room-Office", This construction required the excavation of 4 21/27 cubic yards of earth and the erection of 10 1/3 perches of stone mortar masonry wall.[8] The tinsmith Dennis Snook was paid $ 23.38 on May 19, 1851 for putting on 531 square feet of tin roof on "new file room:" and for making 50 feet tin gutter and 12 feet of tin spouting.[9]

The latter work was apparently described in Major Symington's report for the year ending June 30,1851, as follows:

"A new store-room for files, 11 by 30 feet, of brick on stone foundation, has been built in connexion with suitable compartments for the different varieties of files.[10] The building is covered with sheet tin."

The location of the file room is unknown; it may have been attached to a workshop, or perhaps to the central office building.

4. 3rd Series, F. 9307, V. 77, to carpenter William Rowe, July 9.1849,$ 24.00.
5. 3 S., F. 9895, V. 23, to brick mason William Collins, Aug.31,1849, $ 4.50.
6. 3rd S., F. 10276, V.46, To carpenter Patrick H. Kelly, Dec.27,1849, $ 18.00.
7. 3rd S.,F. 12680, F. 69, July 3,1851, for $ 25 50
8. 3rd S., F. 12680, V. 33, for $ 16.93. The wall cost $ 15.50 and excavtion,$ 1.43.
9. 3rd S., F. 12680, V. 5, for $ 23.38- Tin roof cost $ 15.93, 50 feet of tin gutters, $ 6.25, and 12 feet of down spouting, $ 1.20.
10. Serial No. 611, Document No.1, p.459.

Improvements for Armory Office ,Building No. 2,Musket Factory, 1857-1860

The paymaster's vouchers for the period 1852 to 1861 were destroyed by the National Archives in order to save space during the 1940's, hence it is impossible to trace any minor alterations or repairs that may have been made during the years 1852-61.

The estimates for the year 1857-58, however, requested the sum of $ 766.00 to erect an "iron fence and gates in front of armory offices". It was explained that "the building in the armory yard devoted to offices, and in which all the offices of the armory with their clerks, including the vault of the military storekeeper and paymaster, is without any enclosure. It is proposed to construct a iron fence in front, so as in a great degree to separate it from the business of the yard,and as a better and further protection to the records and papers of the establishment."[11] The requested amount was appropriated on March 7,1857.[12]

In his annual report for the year ending June 30, 1858, Superintendent Henry W. Clowe reported: " 35 cut stone bases, for fence in front of armory offices, have been purchased ready for doing the work."[13] The completion of this iron fence, however, is not mentioned in the superintendent's annual reports for June 30, 1859 and June 30,1860,[14] so that iron fence with piers of brick and cut stone was probably not erected prior to the Civil War(1861). HFNHP Negative HF-27B, an excellent photograph showing the front of the Armory Office building in 1865, apparently confirms this, as no fence is visible in front of the Office.

11. Serial No. 909, Document 192, p. 162.

12. U.S. Statues at Large, XI, p. 203.

13. Serial No. 976, Document No.1, p. 1319.

14. Serial No. 1025, Document No.1, p.1114 for 1859; Serial No. 1079, Document No.1, p.973-974.

In his annual report for the fiscal year ending June 30, 1860, Superintendent Alfred M. Barbour reported that the "new privy at offices" had been completed.[15] **What is probably this brick structure can be seen in Harpers Ferry Negative No. 539, a photo taken in 1886.**

Value of Superintendent's Quarters:

1821:	$ 3,000.00	
1828:	1,000.00	Addition of brick kitchen wing.
1829	1,429.75	" " " " "
1841	400.00	Slating roof and adding copper gutters and down spouts, brick walls.

RECORDED EXPENDITURES

Year :	Office Remodelled
1845	-
1846	-
1847	
1848	(850.00) +
1849	46.50
1850	0
1851	65.81
TOTAL	112.31
Approp. For	850.00
For Machinery	

APPROPRIATIONS FOR Bldg.2

Year:	Offices
3/3/ 1855	
8/30/ 1856	
3/7/ 1857	766
6/12/ 1858	
3/3/ 1859	
6/21/ 1860	
3/2/ 1861	
TOTAL	$ 766

+ Paymasters vouchers for 1848 are missing from National Archives files.

15. Serial No. 1079, p. 973,

Description of

Armory Central Offices, Bldg. No. 2, 1847-48:

Location: Second building from the eastern or lower head of the Southern line of workshops.

Map References: Bldg. No. 1 on Map No. 1 (1837-38); Bldg. No. 1 on Map No. 2(1844); and Bldg. No. 1 on Map No. 3(1848).

Visual Evidence:

The Armory Office building can be seen in the following HFNHP Photographs, Negative Nos. HF-51 or 256(1857 lithograph); HF -64 (Photo taken in 1859, showing roof); HF-27B, Photo taken in 1865; HF-355, taken about 1886; HF-492- taken from Loudoun Heights, about 1880; HF- 379, taken in 1882; HF- 539, taken in 1886. HF- 100(1889 Flood) and HF 190(1890-92) both show that the Armory Office had been demolished by 1889.

History and Description:

The Armory Office building was designed and erected by Superintendent James Stubblefield in 1808-09 as a two-story brick residence, about 36 by 30 feet, with a cellar kitchen and a wood shingle covered gable roof. The structure served as the residence of the superintendents from 1808 to 1844 and then of Armory Paymaster Richard Parker, 1844-47. In 1828-29 a large brick addition, which included a kitchen, was added to the original dwelling and the roofs were slated in 1841. In 1847-8, Major John Symington remodelled the old residence into the Armory Office building at a cost of approximately $ 850.00. The offices of the superintendent, paymaster, with the paymaster's vault, and of the master armorer were all located in this structure from June 30,1848 to April 18,1861. The dimensions of the Armory Office were approximately 100 by 30 feet. In the 1847-48 alterations, the 1828 kitchen was converted into a money vault with walls of heavy masonry from three to 3½ feet in thickness and its gable roof was also covered with large, heavy flag stones. Photographic evidence suggests that the original 36 by

30 foot portion of the house had large brick chimneys built within the walls at either gable end.(There was definitely such an end chimney at the south or east end and probably a matching chimney at the north or west end). The front elevation faced north (or east), opening out on the musket factory yard. A brick privy, with three stalls) was located up against the Musket Factory brick wall to the rear of the office, near the northwest corner(See HF- 539). The brick wing, added in 1829, was a long one-story wing, perhaps 64 feet long and 20 feet wide. A broad chimney pierced the center of its slate covered gable roof at middle of its length, thus probably dividing the long wing into two sections each about 32 feet long.(See 539). The wing was built on the same axis as the main house and constructed so that its north (or east) facade was flush with the front elevation of the two-story building and its depth, about 20 feet, left one bay in the east(or south) gable end wall of the main house exposed. This bay contained a window that was topped by a flat arch. Photo HF-355 suggests that the Old Pay Office erected in 1822 may have been added to the west(or north) end of the main house in 1858. A slightly lower two-bay wide structure appears to ajoin the west gable wall of the main building.(1) Photograph HF-379,taken in 1882, reveals that the east half of the long 1829 wing was two bays wide on the front(north)elevation and also two bays wide on the east (or south) gable end. The four windows visible are topped by flat arches. By 1882 all four of these openings appear to have been bricked up.

1. see discussion, page . for more details on Old Pay Office, Bldg. No. 17.

Photographs HF-27 (taken in 1864 or 1865),[2] HF-379 ,made in 1882, and HF-539 , taken in 1886, reveal the Bldg. No. 2, Armory Offices, had survived the Civil War in relatively good condition. The Quarter Master or Commissary Departments appear to have utilized the old Central Office Building as a headquarters during 1864-65. In his inspection report of July 27, 1865 to Chief of Ordnance Brigadier General A. B. Dyer, Brigadier General Edward D. Ramsay wrote: " The Q.M. and Commissary have been and are occupying some of the (Armory) buildings, but have put upon them very inferior repairs," which apparently consisted chiefly of new roofs and floors.[2]

An Inventory of "the Harpers Ferry Property", made for the Ordnance Department during the period 1866-69, described the condition of the Central Office Building (Bldg. No. 2) as follows:

I On Potomac side. (U.S. Musket Factory) (Bldg. No. 1)

Fire Engine House, about 30 ft. by 25 ft. one story brick slate roof, two iron doors, Cupola.

Long Building, about 100 ft. by 25 feet, one story brick, one half demolished, but boarded up; with board roof. The brick half has slate roof. Wooden part has brick gable. Foundation, with dressed stone coping 100 feet by 25 ft. 2 feet above ground. (Office Bldg.) Bldg. No. 2

(3)

Thomas H. Savery purchased the 72-acre Musket Factory tract, which included the Armory canal, old and new dams, and Bldg. No.2, for $ 25,100 at the sale of U.S. Armory property that was held on October 22, 1884. He received his deed from the U.S. Government after completing his payments, on April 12,

2. Harpers Ferry NHP Photostat Collections, Vol. 4, pp. 50-56, and July 27, 1865 report, photostat, in Map Case, Drawer No. 10.

3. National Archives Record Group 121, Washington ,D.C., Public Buildings Service, Harpers Ferry File No. 154, n.p., n.d., prepared ca.18865-1869. Cited from James P. Noffsinger,"Harpers Ferry,West Virginia...".pp.124-127. Building numbers added by C.W.Snell. Dimensions of the buildings as given in report are not very accurate. Nearly all structures listed were at least 35 feet wide and not 25 feet as is generally stated.

1887. Photograph HF-529, taken in 1886, reveals that the Old Armory Central Offices, Bldg. No. 2, was still standing when Savery purchased the property in 1884. HF 100, a photo taken during the great flood of 1889, also reveals that the Old Office building had been demolished by that date. It thus appears that Thomas H. Savery, in the period 1887=89, tore down the old Musket Factory structure.

4. National Archives Record Group No. 121, Public Buildings Service, Entry 58, Warrenty Deeds, Vol. III, p. 624. Deed also recorded in Deed Book Q, p. 317, Jefferson County Court House, Charles Town, West. Va.

Bldg No 2

ARMORY Central

Office Building.

Built 1808-09 – Scott's Residence

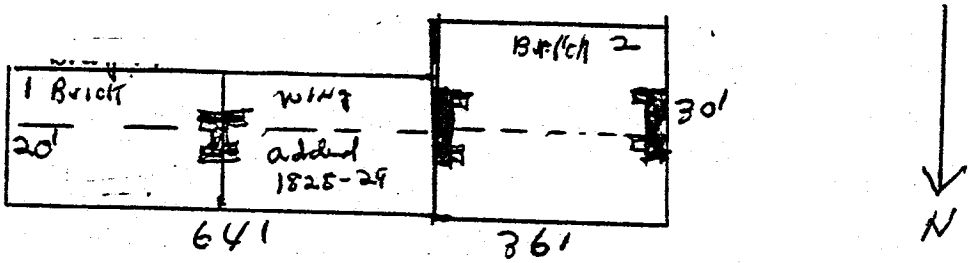
Remodelled 1847-48 – Cost $850

Enlarged 1825-29 – Cost $2,429.75

Brick wing with Kitchen added

Cellar Kitchen in 1809.

Gable Roofs Slated in 1841



FRONT

3. Old Bell (Finishing or Turning) Shop, Bldg. No. 3, 1809-11:

This is Bldg. No.2 on Maps No. 9(1834); No. 1 (1837-38); No. 7 (1837-38), No. 2 (1844), and also Map No. 3 (1848). It is Bldg. No. 3 on the 1859 Historical Base Map.

On May 25, 1808, Secretary of War Henry Dearborn authorized Superintendent James Stubblefield to design and construct whatever additional workshops and store houses that might be necessary in order to double the output of muskets at the Harper's Ferry Armory.[1] Plans for this workshop were prepared by Stubblefield and it was erected under the direction of Armory Paymaster Samuel Annin. This was the largest of the seven large new brick buildings that Stubblefield and Annin built during the 1808-10 period at a cost of $ 92,079.48. Five of the new workshops were located at the U.S. Musket Factory and the other two on the Lower Hall Island in the Shenandoah River.

Bldg. No. 3 was situated on the north bank of the U.S. Musket Factory canal at the lower or eastern head of the southern row of workshops. Details relating to the construction of Bldg. 3 are no longer extant, but construction must have gotten underway in 1808 or 1809, for the list of "Public Buildings at Harper's Ferry, Virginia, 1st January 1810," prepared by Samuel Annin, Paymaster and Military Storekeeper, ' lists the new shop as Building No. 8 and describes it as brick, two stories, 131 by 45 feet, states that it was to be "part of the finishing shop (the other part of the building not finished)."[2]

1. Harpers Ferry NHP Microfilm Reel No. 18, Vol. 1, p. 74.
2. National Archives Record Group 107, Secretary of War, Letters Received, A-29(5), Washington, D.C. This inventory was submitted by Annin on March 17, 1800. Photostatic copy of inventory in Park Library Collection.

The new workshop was completed during 1810 or 1811, for the list of "Public buildings at Harper's Ferry, Virginia, 1st October 1811," prepared by Samuel Annin, Military Storekeeper," described Bldg. 8 as being used as follows: " 1st story finishing shop, machinery, & deposit for Musket stocks; 2nd story, for Supt's Office, store room, filing shop, and meeting room."[3**]

The" meeting room" was for religious or church services. On March 10,1810, Paymaster Annin had written to the War Department requesting permission to use a portion of one workshop for religious services, explaining:

"As a society (at Harper's Ferry) we labor under great inconveniences in not having a place for public worship, for several years past we have had no other than a part of one of the workshops, which occasions considerable trouble in arranging and removing temporary seats.

"If Sir, we could be indulged with a part of the large building which is yet unfinished, until by the increase of hands it is required, it would be a great accomodation. I trust no arguments need be used to show the advantages that would result from having the Gospel statedly preached among us. We only ask permission to occupy about 40 feet, either of the 1st or 2nd story. The Building is 131 feet in length. "[4]

Secretary of War William Eustis granted the requested permission on march 24,1810, and the 1811 list of buildings indicates that church services were being held on the 2nd floor of Bldg. No. 8 on the 1811 list).[5]

3. National Archives Record Group 107, Photostat of inventory in Park Collections.

4. HF NHP Microfilm Reel 18, Vol. 3, p. 497.

5. HF NHP Reel 18, Vol. 2, p. 112.

**The December 31, 1821 Inventory of public buildings at Harper's Ferry describes Bldg. No. 3, as "workshop," 2 stories, brick, 131 by 45 feet, and valued at $ 15,000, from American State Papers, Military Affairs, Vol. II, p. 182.

The second floor room in Bldg. No. 3 may have been used as a church and school from 1810 until the "Harper's Ferry Free Church" was erected on leased Armory land in 1827. In this regards, Supertindent James Stubblefield had informed George Bomford, Chief of Ordnance, on December 30, 1825: " A room in one of the workshops had been heretofore (prior to April 1818) fitted up and occupied for a meeting room and school room, but this being so nearly connected with the Armory is considered dangerous on account of fire."[6] Church use of Bldg. 3, however, had probably ceased prior to 1824.

On Map 8, 1824, a fire swept through one of the large brick Musket Factory workshops, and probably the largest, namely Bldg. 3, the Finishing or Turning Shop. The roof, woodwork, and machinery were completely destroyed, but the brick walls were left standing

Superintendent James Stubblefield informed the Ordnance Department of this disaster on May 8, 1824, writing:

> I am sorry to inform you that we have had a very destructive fire, which terminated in the loss of one of the principal workshops. The fire was discovered about 2 o'clock this morning in a small shop attached to the building appropriated as a polishing & finishing shop in which was a great portion of our machinery, & before the (fire) engines could be brought to bear the flames had reached the roof of the large building. It then became necessary to use our greatest exertions to save the adjoining buildings which we were fortunate to succeed in.... The walls of the building are very little injured & I shall make arrangements to have it fitted up with the least possible delay which will not cost more than from three to five thousand Dollars. The loss of Machinery & Tools has however been considerable and will very much impede, .. the operations of the armory until they can be replaced. "[8]

7. HF NHP Reel 21, Vol. 8, p. 846. The Free Church, intended to be used by all the denominations, was started in 1825 but not completed until 1827. Two-stories over elevated basement, the stone church measured 60 by 40 feet. The basement held three sechool rooms, the second floor the church, and the third floor served as a Masonic Hall.

8. HF NHP Reel 21, Vol. 5, p. 423 -424.

Col. Bomford, Chief of Ordnance, at once authorized the superintendent to rebuilt the workshop and suggested that a fire wall be constructed in the middle, which would also extend above the roof.[9] By the end of the month, on May 27, Stubblefield reported: The

> workshop which we are about rebuilding will be ready in a few days to receive the roof.... I....propose making the roof fire proof with either copper, slate or tin which you might think most advisable...
>
> The repairing of the building and machinery will not cost more than about Five thousand dollars, the most important parts of the machinery were of cast Iron and are not injured by the fire... I expect to have everything in full operation by the 10th or 15th of next month." [10]

Bomford directed that copper roofing not be used because this would be too expensive and recommended that a tin roof be placed on the reconstructed shop.[11]

The total cost "For Rebuilding the large workshop and making new machinery in the same" in 1824 was reported to be " $ 10,000.00."[12]

The Armory spent $ 6,273.00 on repair and improvement in 1825 and none of this money went for work on Musket Factory buildings, with the possible exception of $ 1,520.00 expended "for Slating the Roofs of the public buildings."[13] The work on the roofs was done by Anthony Preston, the slater, and probably the carpenter William Bateman during the first half of 1825.

Preston received a total of $ 916.42 "for furnishing slate and slating" a total of 85 squares "on the roofs of the public buildings."[14] Bateman was paid a total of $ 492.70 for the follow work:

9. Reel 14, Vol. 4, p. 386.
10. Reel 21, Vol. 7, p. 741.
11. Reel 14, Vol. 4, p. 392-393.
12. Statement of Expenditures for 1824.
13. Statement of Expenditures for 1825.
14. R.G. 217-1st Series, File 9057, Voucher 45A, April 20,1825, for $ 472.50-45 squares; File 9310, Voucher 58A, for $ 443.92= August 26,1825 for 40 squares.

Date	Payment	Description of work	File No.	Voucher No.
April 7	$ 40.00	for 25 days work removing shingles from the roof of a public building and sheathing it to receive slate.	9057	13A
April 27	330.60	for 209 3/4 days of carpenter work(with journeymen carpenters) making repairs to public building.	9057	69A
Sept.25	122 10	removing old roof and nailing 22 squares and 60 feet of new shingles on the grinding mill- 57 days of work by team.(Rifle Factory?)	9310	129A
Total:	$ 492.70	William Bateman, 1825.		

David Westerfield also earned $ 25.00 on March 8, 1825 "for ripping 20,000 shingles off a public buildings."[15]

Also probably included in the $ 1,520.00 listed as expended for slating, was the following work": On March 9, 1825 the carpenter John Markell (or Markle) was paid $ 151.77 "for furnishing the material and building a cupola on one of the public "workshops and hanging a bell therein."[16] This belfry, a new architectural feature on the Armory buildings, was probably erected on the rebuilt roof of the fire damaged turning or finishing shop(Our Bldg. No. 3).

This shop was henceforth to be generally referred to as "the Bell Shop".

This work also suggests that new roof of Bldg. No 3 may have been covered with slate in 1825 after the new cupola had been installed.[17]

15. R.G. 217, 1st Series, File 9057, Voucher 97A.

16. R.G. 217, 1st Series, File 9057, Voucher no. 103A.

17. On March 31, 1826, the slater Anthony Preston was paid $ 1,407.00 " for furnishing the slating and putting on the slate, 134 squares, on the (2) public Arsenals and one workshop (at the Musket Factory),for $ 10.50 per square." R.G. 217, 1st Series, File 9851, Voucher 122A,Also Statement of Expenditures for 1826.

Constructing Three New Water Wheels for Three Old Shops:

The Ordnance Department asked for $ 8,400.00 in the estimates for 1833 for constructing three new wooden water wheels and their necessary machinery in the turning, boring, and stocking shops and for also sinking flumes for these wheels.[1] Congress appropriated the requested amount on March 2, 1833.[2]

The turning or finishing or Bell Shop, erected in 1809-10, is Bldg. No. 2 on Map 10 (1834); the boring mill, erected in 1799 is Bldg. No. 3 on Map 10, and the stocking shop, constructed in 1809-10, is Bldg. No. 5 on Map 10.

Col. George Bomford, Chief of Ordnance, had explained the need for this project to Congress, as follows:

> the water-wheels and machinery (generally) are so much worn and decayed as to require very frequent repairs. The expenditure for which per annium far exceeds the interest on the sum sufficient to renew them permanently - Much of the machinery is very imperfect and the loss of time sustained by the workmen for the want of the necessary power to propel the machinery causes the cost in fabricating some of the commponent parts of the musket to be much greater than it would be were the machinery improved and sufficient power acquired to drive all the requisite machinery at the lowest stage of the waters..[3]

Work on building the three water wheels got underway in the third quarter of 1833 and by the end of that year, $ 6,294.90 had been expended; during 1834 an additional $ 1,787.38 was utilized, thus making a grand total of $ 8,082.38 spent on the project from 1833 to 1835. The balance of $ 317,72 was carried forward on the Armory Paymaster's books and not used up until 1838.[4]

1. Reel 20, Vol. 6, p. 576.
2. U.S. Statues at Large, Vol. 4, p. 642.
3. Estimates for 1833, Reel 20, Vol. 6, p. 575.
4. R.G. 217, 2nd Series, File No. 677, 761, and 2364. Some of the money was used in 1836 and the last in 1838.

National Archives
Record Group No. 217, Records of the United States General Accounting Office, Washington, D.C. Records of the Second Aduitor:
from Paymaster of the U.S. Armory at Harper's Ferry, Virginia, Expenditures for Permanent Improvements
Three New Water Wheels for the 1830- 1835.
Boring, Turning, and Stocking Shops. $ 8,400 appropriated in 1833

Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	TOTAL	Dec.31 Balance:
1830	a	b	c	d		
1831	e	f	g	h		
1832	i	j	k	l		
1833	m	n 48.75	o 3,699.38	p 2,546.62	6,294.90	2,105.10
1834	q 1,535.58	r 251.80	s 0	t 0	1,787.38	317.72
1835	u 0	v 0	w 0	x 0	"0"	317.72
TOTAL					8,082.28	317.72

File No. - 1st Series:

n. 17163
o. 17895
p. 17895
q. 18712
r.
s. 19021
t. 19257
u. 19514
v.
w. 20041
x. 20281.

Masons and millwrights working on this project in the fall of 1833 included the following men.

R.G. 217-1st Series, File 17895

Date Paid	Payment	Builder	Service
10/11/33	$ 142.00	Martin Cotter.	Mason work, laying 284 perches of stone at Wasteway of three shops.
11/30/33	$ 184.45	Lewis Wernwag ,	Mason work, laying 105 4/10 perches of stone wall.
12/31/33	137.55	Lewis Wernwag	for laying 78 3/5 perches of stone wall
10/11/33	$ 292.66	Charles C. Starbuck	Millwright work, towards constructing three new water wheels for three shops.
Total:	$ 757.66		468 perches of stone wall.

The money for this project was virtually exhausted by the 1st quarter of 1834 and it was apparent that additional funds would be required. Accordingly, item No. 1 of the estimate for 1834 asked for an appropriatio of $ 26,040,47 for "the completion of the machinery in the turning, boring, and stocking shops." In justifying this large amount, Col. George Bomford explained to Congress:

"The Superintendent reports, in regard to this item, that it has been discovered, in attempting to introduce one of the new water wheels intended for "the Boring Mill (Bldg. No. 3 on Map No. 10), that the cost of the wheel, as well as the forebay, and tail race, will very far exceed the appropriation of 1833 (in the amount of $ 8,400) for these purposes..." [5] Congress appropriated the desired $ 26,040.47 on May 14, 1834.[6]

Lumped in this same account was $ 10,074.39 earmarked for three other projects and making a grand total of $ 36,114.86 in the combined account.

Expenditures in 1834-35 from this fund of $ 36,114.86 totaled $ 27,166.54 and the balance of $ 8,948.32 that was carried foreward, was finally used up in 1839.[7] Expenditures in 1834-35, however, were as follows:

1834:	$ 16,245.52
1835:	$ 10,921.02
Total:	$ 27, 166.54.

Masons, carpenters, slaters, and millwrights who were paid from this conbimed fund, 1834-35, and were apparently working mainly on the turning, boring, and stocking shops included the following men:

1. Lewis Wenbwag, $ 2,390.06 for mason work done during the 2nd and 3rd quarters of 1834.[8]

5. Estimates for 1834, Reel 20, Vol. 6, p. 588.
6. U.S. Statues at Large, Vol. 4, p. 675. The money was included as part of a lump sum of $ 36,114.86 that also included money for six other projects.
7. For 1839, see R.G. 217, 2nd Series, File 3971.
8. R.G. 217, Lst Series, File No. 18712 and 19021.

2. Johnson Garrett, mason,$ 220.69 for furnishing 441 33/100 perches of stone, 4th Quarter 1834.

3. Joseph F. Thompson, Mason, $ 479.35 for laying 271 perches of stone mortar wall, 4th quarter 1834.

4. John Grubb, mason, $ 288.23, for laying 441 38/100 of dry stone wall, 4th quarter, 1834.

5. William Bayley, slater, $ 538.56, for slating 59 84/100 squares of roof, 4th quarter, 1834.[9]

2. Three Water Wheels and Machinery for the Boring, Turning, and Stocking Shops: ,1836 - 1839:

On January 1,1836, the balances available for further work stood as follows:

Year	Account	Spent	Balance Available	Total
1833	3 Water Wheels	$ 8,082.28	$ 317.72	$ 8,400.00
1834	New Machinery	27,166.54	8,948.32	36,114.86
Total:	1836	$ 35,248.82	$ 9,266.04	$ 44,514.86

The large expenditures on this project were due to the fact that the raceway or canal had to be widened and deepened at the three shops so that larger and more efficient water wheels could be installed. The best funded of all the projects in early 1836, $ 4,007.88 in work was charged against the completion of machinery account in 1836.[10]

9. R.G. 217, 1st Series, File 19257.

10. R.G. 217, 2nd Series-Three Wheels Expenditures- File 677 and 761 for $ 301.52 spent in 1836; File 2364 for balance of $ 16.20 spent during 2nd quarter of 1838; New Machinery Account

National Archives
Record Group No. 217, Records of the United States General Accounting Office, Washington, D.C. Records of the Second Aduitor:
from Paymaster of the U.S. Armory at Harper's Ferry, Virginia, Expenditures for Permanent Improvements

Completion of New Machinery 1830- 1835. $ 36,114.86 appropriated May 1834.

Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	TOTAL	Dec.31 Balance:
1830	a	b	c	d		
1831	e	f	g	h		
1832	i	j	k	l		
1833	m	n	o	p		
1834	q 1,814.47	r 1,818.25	s 6,246.51	t 6,370.29	16,245.52	9,794.95
1835	u 1,917.93	v 4,748.50	w 3,324.65	x 1929.94	10,921.02	8,948.32
TOTAL					27,166.54	8,948.32

q. 18712
r. 19021
s. 19257
t.

u. 19514
v.
w. 20041
x. 20281.

For new Machinery: 26,040.47
For new Bldgs. 10,074.39
Total: $ 36,114.86

Item included in Appropriation:

1. Completion of the Machinery in the boring, turning, and stocking shops.....$ 26,040.47
2. for erecting an Annealing shop and proof house, (built in 1834)..... 1,872.36.
3. for erecting Carpenters' and Machine shop, built 1834..... 4,230.69
3. Two shops for tempering springs and polishing barrels, two houses for firecngines, and an addition to the Stocking Shop..... 1,821.45
Subtotal for 7 new shops: $ 7,924.50
4. For completion of the canal from Potomac Dam to Musket Factory (completed in 1834)..... 2,149.89
Total appropriated in 1834: $ 36,114.86

CHART NO

National Archives
Record Group No. 217, Records of the United States General Accounting Office, Washington, D.C. Records of the Second Aduitor:
from Paymaster of the U.S. Armory at Harper's Ferry, Virginia, Expenditures for Permanent Improvements

Money carried forward from 1833.

THREE NEW WATER WHEELS FOR THE BORING, TURNING & STOCKING SHOPS 1836- 1841 ($ 317.72)

Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	TOTAL	Dec.31 Balance:
1836	a 0	b 0	c 228.52	d 73.00	301.52	16.20
1837	e 0	f 0	g 0	h 0	0	16.20
1838	i 0	j 16.20	k 0	l 0	16.20	0
1839	m	n	o	p	0	0
1840	q	r	s	t	0	0
1841	u	v	w	x	0	0
TOTAL					317.72	0

COMPLETION OF MACHINERY IN THREE SHOPS 1836- 1841

Money carried forward from 1834:

Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	TOTAL	Dec.31 Balance:
1836	a 2,434.15	b 5,83.36	c 473.00	d 215.85	3,706.36	5,241.96
1837	e 171.41	f 288.93	g 484.32	h 1,319.19	2,263.85	2,343.37
1838	i 0	j 144.47	k 1,223.15	l 838.59	2,206.21	107.06
1839	m 0	n 0	o 0	p * 137.06	* 137.06	0
1840	q	r	s	t	0	0
1841	u	v	w	x	0	0
TOTAL					8,948.32	0

File Nos.

a. 20761 1st series.
b. 20654 " "
c. 677 2nd series.
d. 761
e. 951
f. 1423
g. 1716
h. 2092
i. 2364
j. 2364
k. 2729
l. 3424
m. 3703
n. 3695
o. 3971
p. 4246.

3. Two shops for tempering springs and polishing barrels, two houses for fireengines, and an addition to the Stocking Shop..... 1,821.45

* $ 137.06 reverted to the Treasury Surplus fund in 1839, Serial No. 365, Document 107, p. 3.

The new machinery fund of $ 36,114.86 had included $ 7,924.50 to erect an Annealing Shop and Proof House, a carpenters shop, and a machine shop, which had all been built in 1834-35. An additional $ 1,821.45 had been requested to build two shops for tempering springs and polishing barrels, two fire engine houses, and for making an addition to the stocking shop(Bldg. No. 5. These four small shops and the addition were probably erected in 1836.[11]

During 1836 we find the following construction being charged against the Completion of Machinery Account: $ 200.00 for the services of George W. Roger who served as engineer on the Repair of the Musket Factory Canal project; $ 1,478.58 to the mason Johnson Garrett for mason work, both in the 1st quarter of 1836 and in the second quarter;[12] on June 10,1836 the carpenter James Foley received $ 13.00 for making 8 steps and 20 feet of handrail or balustrade at the new machine shop(which had been built in 1834 under this fund).[13]

The mason Joseph Shoemaker was also paid from this fund, $ 63.12 in the first quarter of 1836 and $ 62.13 on May 15,1836. In the latter case his voucher specified it was for 35½ days mason work"underpining the walls of the Boring Mill."[14]

The $ 9,266.04 available in these two accounts, except for $ 137.06, was expended by 1838; the latter amount then reverted to the U.S. Treasury surplus fund.[15]

11. Paymaster vouchers specifying the construction of these structures were not found in R.G. 217-2nd series. However,in 1846 the mason William Collins was paid $ 70,93 for laying 12,230 brick in the forge and furnace of the tempering shop.-3rd Series- 4403; Also-during the 3rd quarter of 1841 the slater William Bayley was paid for slating the roof of the buffing or polishing shop at the Musket Factory-2nd series 6465-V.79.

12. R.G. 217-1st series-20761.

13. R.G. 217-1st series- 20954-2nd quarter 1836.

14. R.G. 217- 1st series- 20761 and 2nd series-677.

15. The money reverted in December 1839, see Serial No. 365, Document 107, p. 3.

From 1833 to 1838 a total of $ 34,440, or about $ 11,446 per building, was spent modernizing and improving the old Bell Shop, Old Boring Mill, and Old Stocking Shop. Depsite this large expenditure the days of two of the large workshops were numbered: the Old Boring Mill was torn down in August 1844,[16] and the Old Stocking Mill was demolished in May 1849.[17] Of all the large workshops erected prior to 1811, only Bldg. No. 3, the Old Bell (Finishing or Turning) Shop was still standing in April 1861.

A Chimney Stack on the Roof of the Bell Shop, ca. 1833-37:

A comparison of Harpers Ferry Negative No. HF- 628, an oil painting of the U.S. Musket Factory, done about 1826, with HF- 23, a lithograph drawn in the period 1834-40, reveals that a large masonry chimney stack had been added to the center of the Bell Shop roof at some undetermined date after 1825 and prior to, say, 1837.

The detailed annual reports of work and expenditures at the Armory from 1826 through 1831 fail to mention the construction of this large stack, suggesting that it must have been added in the period 1832-37 . and hence was probably funded out of the $ 8,400 appropriated on March 2, 1833 for constructing three new water wheels, or the May 14, 1834 appropriation of $ 26,040.47 for new machinery.

16. R.G. 217, 3rd Series, File 16983, Vouchers No. 14 and 17, August 15 and 19, 1844, to Peter Litle and George W. Tacey for tearing down the old Boring Mill and for salvaging 137,836 brick and the slate roof of the shop.
17. R.G. 217, 3rd Series, File 9307, Voucher 23, May 19,1849, to Edward Tearney for taking down brick walls and removing slate roof of Old Stocking Shop.

Addition to Bell Shop, 1830:

In 1830 $ 152.00 was spent constructing " one small building attached to finishing shop & fixtures for Grindstones."[18] This may have been a polishing shop.

Expenditures on the Bell(Finishing or Turning)Shop, 1821- 1841:

Estimated Value of Bell Shop, 1821-	$ 15,000.00.	
Reconstruction, Fire,May 8,1824:	10,000.00	
1825, Cupola or belfry added, roo Roof also probably slated	151.77	
1830-Small building holding grind-stones and machinery attached	152.00	
1833-38: Construction of new waterwheel, forebay, flume, machinery, probable addition of large chimney stack	11,446.00	(Estimated)
1841- Roof of Polishing shop slated		(19)
1839 Forebay rebuilt of stone	514.39	(20)

18. National Armory Accounts for 1830, Record Group 156, Entry 936; Harpers Ferry Microfilm Reel 20, Vol. 5, p. 419

19. During the 3rd Quarter of 1841, the slater William Bayley was paid $ 317.20 for slating the roofs of the Superintendent's residence,which was 30 feet wide and about 100 feet long, including the main house and wing, and of the musket factory buffing or polishing. The latter structure may be the small building that was added to the Bell Shop in 1830.

20. Record Group 217, 2nd Series, File 3971, Vouchers 5, 7, 56, 66; File 4246, Vouchers No. 11 and 15, dated from July 17, 1839 to November 5,1839, for quarrying stone and to masons Peter Litle and Johnson Garrett for rebuilding forebay of Bell Shop.

Alterations to the Finishing or Old Bell Shop, 1845-51:

Probably because of its great width, 45 feet, in constrast to only 30 feet for the other old musket factory workshops, and its extensive rebuilding in the late 1820's and 30's, Major John Symington decided to preserve this old structure by altering it for modern use and replacing its machinery with newer items

The estimate for the 1844-45 fiscal year contained a request for $ 500.00 for the purchase of a large clock. It was explained" Much incovenience is experienced from the want of means for regulating properly the hours of labor. It is thought that the cost of a good clock would soon be reimbursed by the precision given to the signals for labor."[2] The money for this fiscal year was appropriated on June 14,1844,[3] so it is possible that this clock, if actually acquired, was added to the cupola of the Bell Shop in 1844 or 1845.

In his annual report for the year ending June 30,1845, under the heading of machinery made, Superintendent Symington reported that"26 feet of main working shaft, 19 counter shafts, with the requisite pulleys and appendages, had been put in operation in finishing shop at the musket factory]."[4]

In June 1847, $ 23.42 was spent to repair the plaster in the Bell Shop.[5] In his annual report for the year ending June 30,1847, Major Symington reported: " 21 60/100ths square of new joist and flooring, and 11 66/100ths squares of new partition, have been put up in the finishing shop, the old floor having fallen in from decay."[6] The Paymaster's vouchers for the 3rd and 4th quarters of 1847 and all four quarters of 1848 are missing from their places in the National Archives Records, hence it is impossible to determine both the cost of alterations and who performed the work on the Bell Shop during this period. In the annual report for fiscal year ending June 30,1848, however, Symington described these changes as follows: "A large chimney stack of masonry in the bell shop, to accommodate a forge fire on each floor, has been taken down, and two portable forges, opening into sheet iron flues, substituted." He further reported that "The driving machinery

"in the bell or finishing shop has been improved by substituting pullies and cones of pullies for the continuous line of ___ drums on the main driving shaft; and removing as unnecessary, one line of counter machinery. By this arrangement the consumption of oil will be greatly diminished, and fewer bands required."[7]

In the estimates for the 1849-50 fiscal year, Major John Symington asked for $ 2,675.00 "for repairs to finishing shop, fitting up shelves and racks for patterns, and coloring the exterior of buildings." He explained the need, writing" The finishing shop requires gutters and down spouts, and a ceiling of boards for the upper story, the old lath and plaster ceiling being broken by the driving machinery, The patterns (for musket parts), which are very numerous and valuable, have now no special place of deposite, and suffer for the want of order and management. Some of the buildings only being colored, it is proposed, or uniformity and preservation, to color them all with a uniform fast wash."[8] The requested sum was appropriated on March 3,1849.[9]

The tinsmith Henry W. Edwards was paid $ 41.81 on May 18,1849 for repairing or making the copper spouting and gutters on the Bell Shop and one dwelling house.[10] In March 1850 the carpenter Patrick H. Kelly received $ 100.00"for carpenter and labor ceiling the second story of the Bell Shop and casing pillars & girders,for the same."[11] In his annual report for the fiscal year ending June 30,1850, Symington also noted: Extensive repairs have been made on the large iron-overshot-wheel at the Bell Shop.[12]

2. Serial No. 430, Document No. 6, p. 94, Item No.3.
3. U.S. Statues at Large, V, p.698. The original estimate of $17,000 was reduced to an appropriation of only $ 12,000. It is not clear if the money was provided topurchase the clock.
4. Serial No. 470, Document No.1, p.420.
5. 3rd S., F. 5623, V. 38, to R.J. and W. Brenn,June 10,1847,for $ 23.42.
6. Serial No.503, Document No.1, p 692, Item 3.
7. Serial No. 537,Document No. 1, p. 347, Items 1 and 2.
8. Serial No. 538, Document No. 2, p. 118,119, item No. 4.
9. U.S. Statues at Large, Vo.IX, p. 376.
10. 3rd S., F. 9307. V. 22, May 18,1849, for $ 41.81.
11. 3rd S.,F,10673. V. 23,, March 8,1850, for $ 100.00.
12. Serial No. 587, Doc.1, p.475,

In October 1850 $ 5.18 was spent to plaster 51 8/9 square feet of ceiling of the wash house at the Bell Shop.[13] In May 1851 the carpenters Meen and Brewing received $ 70.00 for "making alterations to wash house at Bell Shop and Boring Mill, to fit it for holding the grinder (?)."[14] In June 1851, lightning rods- 2 points and 2 leads to the ground, were installed on the roof of the Old Bell Shop at a cost of $ 50.40.[15]

Repairs to the Old Bell Shop, Bldg. No. 3, 1852 - 1854:

The destruction of the Armory paymaster's vouchers for the years 1852 to 1861 by the National Archives staff during the 1940's makes it impossible to trace in detail repairs and improvements made to the shops during this period.

The superintendent's annual reports reveal that the following work was done to these buildings and their machinery from 1852 to 1854.

In the annual report for the year ending June 30,1852. Brevet Col. Benjamin Huger reported: "A new brick wash house between the BellShop (Bldg. No.3) and Boring Mill (Bldg. No. 5 on 1859 base map), has been erected, with a tin roof."[16]

The great flood of April 20,1852 apparently damaged the Bell Shop and Boring Mill. In his annual report for the fiscal year ending June 30,1853, Col. Huger wrote: "New floors have been laid in the boring mill and in the bell shop; the excavation under the floors deepened some three feet, and the bottom graded and arranged to carry off the water washing from machines,&c, into the race-way."[17]

The estimates for the 1854-55 fiscal year contained a request for $ 1,800.00 "for repairs to the bell shop and boring mill". It wasexplained that "the lower stories of these buildings require re-flooring", thus suggesting that this money was to be used to pay for work that had already been done in 1853.[18]

13. 3rd S. F. 12169, V. 1, to Reuben & Dowling, October 18,1850, for $ 5.18.
14. 3rd S., F. 12680, May 21,1851, for $ 70.00.
15. 3rd S. F. 12680, V.69, to Decker and Robinson, July 3,1851, for $ 50.40.
16. Serial No. 659, Document No.1, p. 253,item 2.
17. Serial No. 692, Document No.1, p. 277.
18. Serial No. 714, Document No 2, p. 188,189, item 10. The money appropriated on August 5 1854

Returning to June 30,1853, Superintendent Huger further reported: "Stone forebay at bell shop repaired, 1,134 cubic feet of earth excavated, and paved, and grouted with cement. Culvert under bell-shop flagged over with 56 square yards of flagging, and cross walls under floors to support joists,&c."[19]

In the report for the year ending June 30,1854, the new superintendent, Major William H. Bell, noted: "Extensive improvements have been made to the main and counter lines of driving machinery in the first and second floors of the Bell Shop and Boring Mill."[20]

Repairs to the Old Bell Shop, Bldg. No. 3, 1855 - 60:

In his first annual report, for the year ending June 30,1855, the new superintendent, Henry W. Clowe reported, regarding the Bell Shop:

" Machines fabricated:

47 feet,lineal, main line shafting put up and in operation on first floor of bell shop.

32 10/12 feet,lineal, counter-line shafting, put up and in operation on first floor of bell shop.

This shafting is of the latest and most approved style, finished bright, with cast-iron pulleys, gearing, and metallic journals....

Various and extensive improvements have been made to the main and counter-line of driving machinery on the second floor of the bell shop...;to the water-wheel at bell shop, improving the head-gates of the same..." 21.

The estimates for the 1856-57 fiscal year contained a request for $ 1,000.00 "for forebay for cast-iron water-wheel at bell shop;" it was explained: "The present forebay for this wheel is of wood, having been constructed about 18 years ago, and is in a very dilapiated and decaying condition, The timbers are constantly giving

19. Serial No. 692, Document No. p. 277.
20. Serial No. 747, Document No.1, p.361.

21. Serial No. 841, Document No.1, p. 556.

way, causing not only a great waste of water, but requiring constant renewing. This estimate proposes that the entire frame-work of the forebay be of iron; the planking to be of yellow pine two inches thick, secured with iron bolts and straps."[22] The requested money was appropriated on August 30,1856.[23]

Finally, under the heading of machinery made, Superintendent Clowe noted in his annual report for the year ending June 30, 1856:

"31 feet of main line, and 38 of counter shafting, with pulleys of cast-iron, finished bright, of uniform size, of good quality, and the most approved construction, have been fabricated and put in operation on the first floor of the bell shop; and 38 feet of old counter shafting removed, as unfit for service.

65 feet of main line and 69 9/12 feet counter shafting, with cast-iron pulleys, hangers, and white metal journal seats, with pans for catching the oil from the journals, oil cups, cone pulleys, belt shifters, &c., all complete as above; and 98 feet of old main line, and 125 feet 4inches of the old counter shafting, removed as worn-out and unservicable from the second floor of the bell shop.[24]

In the report for the year ending June 30,1857, Clowe reported:

Fifty feet main line shafting, and 210 feet of counter shafting, of superior quality, finished bright, with cast iron pulleys, hangers, and Babbitt metal journal bearings or seats, have been completed and in operation on the first and second floors of the bell shop and boring mills, in the stocking shop, and on the first and second floors of the machine shop."[25]

In the report for the fiscal year ending June 30,1858, Clowe noted that " 1 cast iron forebay for water wheel at bell shop,(had been) fabricated." and that "I set of gearing, shafting,&c. for head of forebay(had also been) fabricated."[26] **The cast-iron forebay was apparently installed at the Bell Shop in 1858-59.**

22. Serial No. 865m o, 245, 247, item No. 11.
23. U.S. Statues at Large,XI, p.150.
24. Serial No. 876, Document No.1, p. 388.
25. Serial No.920,p.550.
26. Serial No. 976, p. 1318.

RECORDED EXPENDITURES

YEAR	Old Bell Shop
1842	
1843	17.30 (1)
1844	8.40 (2)
TOTAL	$ 25.70

Year :	Altering Bell Shop
1845	0
1846	0
1847	23.42
1848	(2,675.00)
1849	41.81
1850	105.18
1851	120.40
TOTAL	290.81
Approp. For	2,675.00
For Machinery	

APPROPRIATIONS FOR

Year	Bell Shop & Boring Mill
8/31/ 1852	
3/3 / 1853	
3/5/ 1854	$ 1,800
Total	$ 1,800

Bldg. 3

Year:	Bell Shop
3/3/ 1855	
8/30/ 1856	1,000
3/7/ 1857	
6/12/ 1858	
3/3/ 1859	
6/21/ 1860	
3/27/ 1861	
TOTAL	$ 1,000

(1) R.G. 217, 3rd Series, File 440, Voucher 40, to John P. Kennedy, June 28, 1843, for $ 17.30, for painting 144 2/3 square yards 3 coats at Bell Shop.

(2) R. G. 217, 3rd Series, File 970, Voucher 57, to Peter Litle, Match 15,1855, for $ 315. for 10½ sq.yds. of flagging, gates of Bell Shop; and File 1693, Voucher 35, to Timothy MCrierty, Sept. 13,1844, $ 5.25, for cutting stone head blocks for water wheel at the Bell Shop.

Description of
Old Bell, Finishing, or Turning Shop, Bldg. No. 3, 1847-48:

Location: In the southern line of workshops, third structure from the lower or eastern end of that row.

Map References: Bldg. No. 2 on Map No. 1(1838); Bldg. No. 2 on Map 2(1844); Bldg. No. 2 on Map No. 3 (1848).

Visual Evidence: The Old Bell Shop can be seen in the following HF NHP Negs.: HF-11 or HF-256, 1857 lithograph; HF- 66, Photo taken in 1859; HF-64,photo taken in October 1859; HF-30,photo taken in 1862; HF- 27B, photo taken in 1865; and HF- 355, taken in 1886, reveals that the structure had been demolished by that date. HF- 492, taken about 1880, also shows that the shop is gone. HF-45, perhaps taken about 1870, indicates that the Old Bell Shop was gone by that date.

History and Description: This two-story brick workshop was designed by Superintendent James Stubblefield and erected by Paymaster Samuel Annin in 1809-10. Measuring 131 by 45 feet and covered with a wood-shingle gable roof, the Finishing Shop was the largest workshop to be constructed at the Harper's Ferry Armory until the mid-1840's. Its forebay and water wheel were constructed of wood. The workshop was valued at $ 15,000 in 1821.

On May 8, 1824, a serious fire apparently swept through this shop; this destroyed the roof, interior woodwork, water -wheel, machinery and tools, but left the brick walls standing. The shop was reconstructed in 1824-25 at a cost of $ 10,000, with $ 5,000 of the total going for structural work and the balance for rebuilding the machinery and water wheel. During the rebuilding, the new roof was slated and a lath and plaster ceiling was installed. In March 1825, a cupola or belfrey was constructed on the center of the roof of the Finishing Shop and the building was henceforth often called "the Bell Shop." The bell was used to call the men to their work and signal lunch hours and the end of the day.

In 1830 a small building was erected and attached to the Bell Shop at a cost of $ 152.00. This addition held grindstones and their machinery.

In 1833 and 1834 Congress appropriated a grand total of $ 34,440 to make repairs to three old Musket Factory Shops, including the Bell Shop. It is estimated

that about one-third of the total- $ 11,446, was used to rebuild the wooden water wheel, the wooden forebay, to construct new machinery, and sink a deeper flume at the Bell Shop during the period 1833-39. In 1839 the forebay of the workshop was rebuilt of stone at a cost of $ 514. A large masonry chimney stack was also added to the center of the roof, probably in the period 1833-37. (Compare HF-628, a painting done about 1826, with HF- 23, a lithograph drawn about 1834- 37.)

Because of its great length and breadth, the Old Bell Shop apparently proved adaptable to the changes and improvements that were to be made at the Musket Factory during the years 1842 to 1860. The Old Bell, Finishing, or Turning Shop was thus the only pre-1841 workshop at the Musket Factory to escape demolition and hence was still standing in 1861.

In 1848 Major John Symington had the "large chimney of masonry in the bell shop," which accommdated a forge fire on each floor, taken down and replaced by two portable forges that opened into sheet iron flues.
In 1849-50 about $ 2,675 was spent overhauling the Old Bell Shop. Copper gutters and downspouts were installed, the old lath and plaster ceiling was replaced by a new ceiling of wood, and shelving and racks for storing patterns for arms were made. The exterior brick walls were also painted. In 1851 lightning rods were installed on the shop at a cost of $ 50.50.

The great flood of April 1852 damaged the Bell Shop and about $ 900 was spent replacing the flooring. New floors were laid and the excavation under the floor deepened about three feet, and the bottom graded and arranged to carry off water washing from the machines into the raceway. The machinery of the shop was also updated and improved in 1854. In 1855 and again in 1856 the driving lines for the machinery were improved. In 1858-59 a cast iron forebay was made at the Musket Factory and installed at the Bell Shop at a cost of about $ 1,000.

The doors and window frames of the Bell Shop were of wood and the windows and doors were topped by flat arches, The floors and ceilings were also of wood. A octagonal wooden cuploa or belfry crowned the slate covered roof. The Old Bell Shop was destroyed by fire by the Confederate Army on June 14, 1861. Its brick walls, covered by a temporary roof, however, were being used by the Union Army as a supply depot in 1864-65.

The brick walls of the Old Bell Shop were apparently demolished by the Ordnance Department . In an inventory of Harpers Ferry Armory property, made 1866-69, the ruins of the Bell Shop. Bldg. No. 3, appear to be the third item on the list:

"Harpers Ferry Property (1) Ca.1865-69)

I On Potomac side. (U.S. Musket Factory) (Bldg. No. 1)

Fire Engine House, about 30 ft. by 25 ft. one story brick slate roof, two iron doors, Cupola. (1)

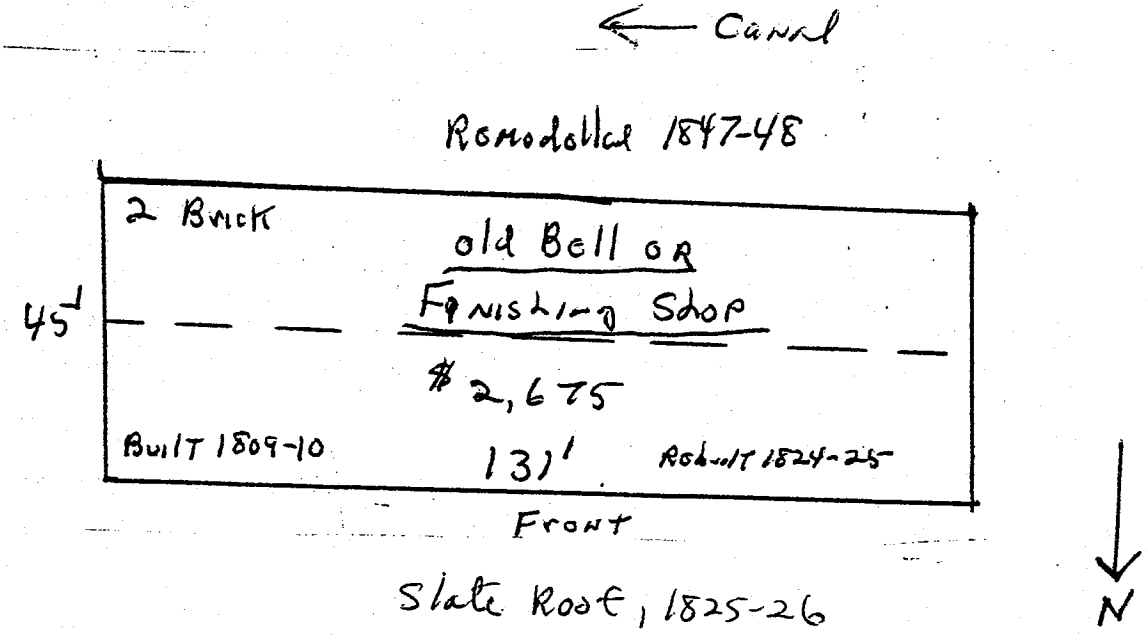
Long Building, about 100 ft. by 25 feet, one story brick, one half demolished, but boarded up; with board roof. The brick half has slate roof. Wooden part has brick gable. Foundation, with dressed stone coping 100 feet by 25 ft. 2 feet above ground. (Office Bldg.) Bldg. No. 2

Foundation & Stone Coping, 2 feet above ground 100 feet by 25 feet. (Bldg. 3 ?)

Photos HF- 45; HF-492, and HF-355, document the fact that the walls of the Bell Shop had been levelled before Thomas H. Savery purchased the Musket Factory tract on October 22, 1884.

1.National Archives Record Group 121, Washington ,D.C., Public Buildings Service, Harpers Ferry File No. 154, n.p., n.d., prepared ca.18865-1869. Cited from James P. Noffsinger,"Harpers Ferry,West Virginia...".pp.124-127. Building numbers added by C.W.Snell. Dimensions of the buildings as given in report are not very accurate. Nearly all structures listed were at least 35 feet wide and not 25 feet as is generally stated.

Bldg No. 3


Canal
Remodelled 1847-48
2 Brick
old Bell or
Finishing Shop
45'
#2,675
Built 1809-10
131'
Rebuilt 1824-25
Front
Slate Roof, 1825-26
Built 1809-10
Gable Roof.
N

4. Polishing Shop, Musket Factory, 1849-50: (Bldg. No. 4)

The Polishing Shop is Bldg. 4, located between Bldgs. No. 3-the Old Bell Shop and Bldg. No. 5, the new Boring Mill, on the 1859 historical base map.

In the estimates for the 1848-49 fiscal year Major John Symington requested the sum of $ 1,700.00" for building a polishing shop at the Musket factory", explaining that"The present shop is too small and dark for the necessary work, and some of the wheels have consequently been set up in the finishing (or Bell) Shop, (Bldg. No. 2 on Map No. 3 (1848)); this is destructive to the machinery, from the dust made. The workmen also suffer much from the want of proper ventilation to carry off the dust."[1] The requested amount was appropriated on August 14, 1848.[2]

The Polishing shop was built so as to connect Bldg. No.3, the Old Bell Shop and the new Boring Mill, Bldg. No. 5.

Construction on the new polishing shop got underway, probably in September or October, of 1849. The mason William Collins received a total of $ 737.51 for executing the following construction:

$ 7.80 for excavating and removing 26 cubic yards of earth.
24.00 for making 16 perches of stone masonry.
238.58 for laying 47,716 brick in front and rear walls.
5.62 for laying 45 lin. feet of brick cornice.
12.54 for laying laying 96½ ft. of cut stone coping and cornice.
18.95 for hauling 47,395 bricks from rifle factory to the building site.
15.00 for 7½ days mason, for cutting out stone and brick walls, building abutments, & preparing for building arches & walls of wheel house.
6.25 for 6½ days service of tender.
0.75 for hauling 3 cart loads of sand.
0.50 for hauling 2 cart loads of stone.
391.27 for making 47,395 brick.
4.00 for taking down gable of old wheel, taking down,& replacing cornice, removing and resetting lintels, & rebuilding a portion of gable at wheel house, 2 days of mason
1.25 for 1½ day of tender.
0.75 for mortar for this work.
$727.76 for building new Polishing shop, including cost of brick.(3)

1. Serial No. 514, Document No. 2, pp. 110-111, item 1. The Old Polishing Shop had been erected ca. 1834-36 along the north bank of the Armory Canal. Its exact location is unknown, but it may have been adjacent to the Old Bell Shop.
2. U.S. Statues at Large, Vol. IX, p. 306.
3. 3rd Series, File 10276, V. 8, October 29, 1849, for $ 727.76.

$ 9.75 for 3½ days work of mason, 1 3/4 days work ,of labor, and 1 load of mortar. (4)

$ 737.51

The stone cutter Redmond Burke received $ 77.88 for providing 66 feet of cut stone coping for the new Polishing shop.[5]

Patrick H. Kelly, working under a contract for the specified sum of $ 160.00, did the "carpenter and joiners work constructing a polishing shop and wash house over the wheel house between the bell shop and boring mill, according to the specifications and for this sum previously agreed on."[6] On March 8,1850, George W. Tacey was paid $ 40.84 for slating the roof of the new polishing shop with slate, 2,042 square feet.[7] Also in March 1850, the tinsmith Henry W. Edwards received $ 2.80 for making 28 feet of copper spouting for the new shop.[8] Finally, in June 1850, Robert Simms received $ 20.00 for plastering 80 square feet inside the new Polishing shop.[9] Total recorded cost of construction was approximately $ 1,039.03. Total cost was proably about $ 1700.00.

In the annual report for the fiscal year ending June 30,1850, Superintendent John Symington described the Polishing shop as follows:

"A new polishing-shop has been erected, 40 by 22 feet, two stories high, of brick, on stone foundation, and covered with slate. This shop is built in connexion with the bell-shop and boring mill, and covers the large iron overshot wheel that drives in part the machinery in those two shops."[10] The polishing shop was apparently 22 feet wide and 40 feet long.

Destruction of the paymaster's vouchers for the period 1852 to 1861 in the National Archives records during the 1940's make it impossible to trace repairs or alterations in detail. The absence of any further mention in the superintendent's

4. 3rd S.,F.10276, V.33, November 29,1949, for $ 9.75,To William Collins.
5.3rd. S., F. 10276, V.39, Dec. 11,1849, for $ 77.88.
6.3rd S., F. 10276, V.37, December 10,1849, for $ 160.00.
7. 3rd S. F. 10673, March 8,1850, for $ 40.84.
8. 3rd S., F.10673, V. 18, March 1,1850, for $ 2.80.
9. 3rd S., F. 11000, V. 46, June 21, 1850, for $ 20.00.
10. Serial No. 587, Document No. 1, p. 476.

annual reports for the years 1852 to 1860, however, suggests that no major repairs or alterations were made to the polishing shop during those years.

CONSTRUCTION OF THE POLISHING SHOP, 1849-50, Musket Factory
Bldg. No. 4 on 1859 Historical Base Map.

Projects	Costs	Description of Work
Foundations	$ 7.80	for excavating 26 cubic yards of earth.
	24.00	for 16 perches of stone masonry, foundation.
	31. 80	Paid to William Collins.
Bricks, making and laying of.	391. 27	for making 47,395 bricks.
	18,95	for delivering 47,395 bricks.
	238.58	for laying 47,716 bricks.
	5.62	for laying 45 lin. feet of brick cornice.
	12.54	for laying 96½ feet of cut stone coping and cornice.
	28.59	for services of mason, tender, mortar in making alterations.
	9.75	for service of same as above.
	705.71	Paid to William Collins.
Carpenter work	160.00	Paid to Patrick H. Kelly.
Cut stone	77.88	for 66 feet of cut stone coping.
Slating Roof	40.84	for slating 2,042 square feet of roof.
Copper gutters	2.80	for 28 feet of copper spouting.
Plastering	20.00	For plastering 80 square yards inside.
TOTAL	$ 1,039.03	Probably total cost: $ 1,700.00.

Of the record total of $ 1,039.03; $ 975.39 was spent in 1849 and $ 63.64 in 1850.

RECORDED EXPENDITURES

Year :	Polishing Shop
1845	-
1846	-
1847	-
1848	-
1849	975.39
1850	63.64
1851	0
TOTAL	1,039.03
Approp. For	1,700.00
For Machinery	

Description of the
Polishing Shop, Bldg. No. 4, 1849-50:

Location: Fourth building from the eastern or lower head of the southern line of workshops:

Map References: None.

Visual Evidence:

The structure can be seen on the following HFNHP Negatives: HF- 51 or HF-256, a lithograph made in 1857;Hf-30, photo taken in 1862. HF-355,taken about 1886, reveals that the Polishing Shop had been demolished by that date.

On the 1859 historical base map prepared in 1959, it was assumed that the polishing shop used the gable end walls of the Old Bell Shop and new Boring Mill as side walls. Under this plan the front and rear elevations of the Polishing shop would each be 22 feet wide and the shop,40 deep, would project slightly forward and backward from the 35½ feet wide gable end walls of the two larger shops. An examination of HF-51 and HF-30, however, in 1981, has suggested another possible arrangement; namely, that the polishing shop was built entirely on the south(or west) sides of the Old Bell Shop and Boring mill, partially overlapping perhaps the rear corner of each structure. Under this scheme , the polishing shop would be 22 feet wide, between the side walls of the two shops and run 40 feet along the north or east bank of the Armory canal. Based on the 1857 lithograph (HF-51), the north and south 22 feet end walls may have been only one-story in height, while the roof rose at such a pitch as to form a second story in the center of the 40 feet long elevations. The south or west gable end elevation, in the 1857 lithograph, at the 2nd story levels , appears to be adorned with the typical "Symington" brick parapet end wall that was crenelated and topped with cut stone coping.

History and Description:

The Polishing shop was designed and erected by Major John Symington in 1849-50 at an approximate cost of $ 1,700.00. The structure, two stories high, had brick walls and stood on a stone foundation. Forty by 22 feet in size, the shop covered a large iron overshoot water wheel that drove a portion of the machinery in the adjoining Bell or Finsishing shop and the Boring Shop. The gable roof was covered with slate and the gutters and downspouts were of copper. The polishing shop was probably located on the second floor of the structure.

The Polishing Shop was burned by Confederate troops on June 14, 1861 and the brick walls were probably levelled by Union troops, who were to utilized the adjacent Bell Shop and Boring Mills as large warehouses.

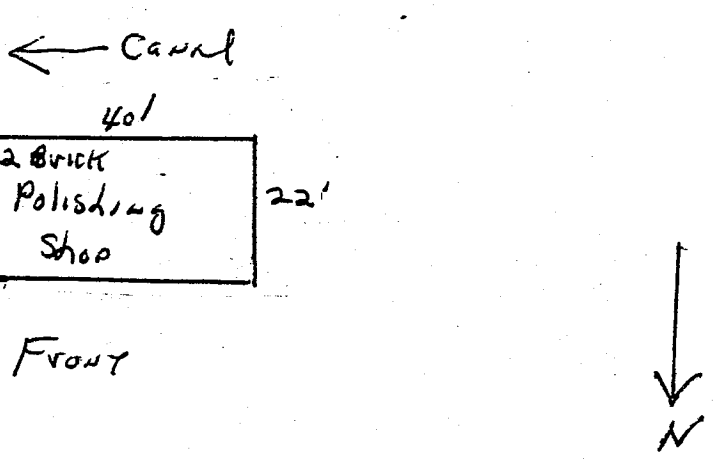
Bldg no 4

Polishing Shop

1849-50

Cost $1,700

Slate Roof



5. The New Boring Mill,1843-1844: (Bldg. No. 5)

The second large brick structure to be designed and erected by Major Henry K. Craig at the Harper's Ferry Armory was the New Boring Mill (Bldg. No.3 on Map No. 2 (1844); Bldg. No. 3 on Map No. 3 (1848), and Bldg No. 5 on the 1859 Historical Base Map. The new workshop replaced the Old Boring Mill, a two-story brick building ,measuring 120 by 30 feet in size, that had been erected in 1799-1800 as the first "Armory" or "Factory" of the plant.

The estimate for the Service of the Ordnance Department for the Year January 1,1843 to June 30,1844 requested the appropriation of $ 6,500 "for altering and rebuilding boring shop at musket factory", explaining "The present boring mill is too low between the floor and the ceiling and too narrow, in consequence of which the shop is dark and badly ventilated and machinery too much cramped. To put the present present shop in tolerable condition would require an outlay of $ 500 or $ 600".[1] Congress provided the requested $ 6,500 on March 1,1843.[2] The additional sum of $ 4,000 was requested"for completing the erection of a new boring mill" in the estimate of funds for the service of the Ordnance Department for the Fiscal Year commencing July 1, 1844 and ending June 30,1845.[3] Congress appropriated the $ 4,000 on June 17, 1844.[4] so that the total approximate cost of construction was about $ 10,500.

The Armory Paymaster's vouchers indicate that only a limited amount of work(about $ 852.27) was undertaken on the foundations of the new Boring Mill during the fall of 1843. $ 505.25 was expended to acquire 843 feet 9 inches of cut stone for use as cornice and water table on the building.[5] In addition, Edwin McGuigan excavated 270 3/4 cubic yards of

1. Harpers Ferry NHP Microfilm Reel No.20, Vol. 6, p. 643,644.
2. U.S. Statues at Large, Vol. V.p. 605.
3. Serial No. 439, Document No. 6, p. 94.
4. U.S. Statues at Large, Vol.5, p.698.

5. R.G. 217, 3rd Series, File 630, Voucher No. 101 dated December 2, 1843, to Timothy McBrierty, $ 244.40. for 407 feet 4 inches of cut stone; File 630, Voucher 102, December 9,1843, to Redmond Burke, $ 261.85,for 436 feet 5 inches of cut stone for the Boring Mill.

earth for part of the foundation for $ 43.22 and the mason Peter Litle[6] built 242 6/25 perches of dry wall at the Boring Mill.[7] Timothy McBrierty and Redmond Burke, who were providing the cut stone for the new warehouse, also furnished the cut stone for the new Boring Mill.

In March 1844 Superintendent Craig advertised in the area newspapers for a brick maker who was to provide "300,000 hard brick of the best quality". The first delivery of 50,000 was to be made by June 1 and this was to be followed by delivery of 50,000 brick[8] at 15 day intervals. The brick contract was awarded to William Lee, who made and delivered a total of 281,500 bricks as follows: 50,000 in August, 100,000 in September, 50,000 in October, and 81,500 brick in November. Lee received a total of $ 1,836.00 for these services in 1844.[9] During that spring an additional 1,440 feet 2 inches of cut stone water table, cornice, sills and lintels, as well as three door steps and 3 spout stone were purchased from Burke and McBriety at a cost of $ 725.08.[10]

The Old Boring Mill(Bldg. No. 3 on Map No. 1(1837-38) was demolished in July or early August 1844 to clear the site for the construction of the new mill. On August 19th the slater George W. Tacey (or Tracey?) was paid $ 39.04 for taking off 1,628 feet of old slate from the roof of the Old Boring Mill.[11] On August 15, the mason Peter Litle also received $ 137.83 for taking down the old Boring Mill and saving 137,836 old bricks and $ 31.50 for quarrying

6. Series 3, File 440-Voucher 72., dated Sept. 22,1843.
7. 3rd S., F-630-V. 27, dated November 28,1843.
8. 3rd S., F.970,V. 24, to A.S. Abell, March 2,1844, $ 8.67 for running adveristement.
9. 3rd S.,all to William Lee, File 1613-V. 18, Aug.20/44,for $ 325.00; F.1613-V. 24, for $ 325.00, Sept. 7,1844; F. 1934-V.33, Nov.7,1844 for $ 325.00; and F.1934-V.60, Dec, 12/4/44, for $ 536.00. File 1165, V.39, October 6,1844, $ 325.00 for 50,000 bricks.
10. 3rd S., F.-1165-V.8, April 16,1844, to Redmond Burke, $ 280.58,for 541 feet 2 inches cut stone, puls 3 door steps and 3 spout stones; F.1165-V. 35 to Timothy McBriety, June 14,1844, $ 444.50 for 889 feet of cut stone.
11. 3rd S., F. 1698, V.17, Aug.19,1844.

4 perches of heavy stone from the basin between the shops and then laying 22 perches of dry wall in the basin.[12]

Litle then worked from August through the end of October 1844 excavating the foundation and constructing the stone mortar masonry and dry wall foundations for the new mill, receivinga total of $ 1,717.25 for these contributions. This work included 511 8/27 cubic yards of excavation, building about 576 perches of mortar masonry wall, and erecting 57 perches of dry wall. In October he installed 51 feet 4 inches of cut stone, the steps to mill, 392 feet of cut stone for the head blocks of the water wheels, also 20½ perches of grouted wall for the head blocks and 102 8/25 perches of mortar wall for the head blocks. Cut stone lintels and sills were also set.[13]

In September 1844 an additional $ 702.71 was paid to Burke and McBrierty for 1,219 feet 7 inches of cut stone, some of which was also intended for use on the new warehouse and new proof house that were then under construction.[14]

The two-story brick walls of the Boring Mill were erected by Hunt and Bates, who were paid $ 430.51 on September 21, 1844, for laying 215,258 bricks in the walls of the mill.[15]

In August $ 576.48 was spent to purchase 32,027 feet of white pine lumber for use as joists in the Boring Mill.[16] The Armory carpenters, paid from days wages apparently, framed the roof and erected the wooden floors in the new mill, for no vouchers were found made out to carpenters for these services.

12. 3rd Series, F.1698, V. 14, dated August 15,1844.
13. 3rd Series,1613-V. 28, Sept.8,1844 to Peter Litle for $ 678.10; File 1698-V. 78, October 7,1844 to Litle for $ 632.22, and F.1934, V.25, dated 11/5/44, for $ 406.93.
14. 3rd Series, File 1613-V. 44, to Redmond Burke, 9/21/44, $ 539.68 for $ 980 feet 11 inches of cut stone; .F1698 V.-35, to Timothy McBrierty, $ 139.23 for 238 feet 9 inches of cut stone, Sept.13,1844; F.1934-V. 8m to R.Burke, Oct.28/44. $ 23.80 for setting 238 feet of cut stone in Boring Mill.
15. 3rd S., F.1698,V.46, to Hunt and Bates, 9/21/44, for $ 430.51.
16.3rd.S., F- 1698, V. 20, to A. Bowers, August 31,1844, for $ 576.48.

The carpenters had completed their task by October, for at the end of that month the slater William Bayley was paid $ 738.10 for providing 7,381 feet of slate and slating 73 81/100 squares on the roof of the new Boring Mill.[17]

The tinsmith Benjamin M. Snook made and put up 771 feet of "lead gutter" on the Boring Mill in September and 199 feet of "round copper spouting" on the structure in December 1844. He received $ 147.44 for these services.[18]

The ceilings of the new mill were plastered at a cost of $ 205.62. This total included $ 17.87 for 14,300 ceiling lath,[19] and $ 187.75 for the services of James Bowen, who in November plastered 1,825 1/9 square yards in the new mill and also put up 2,090 feet of joist stripes.[20]

Exclusive of the cost of the carpenter work, approximately $ 7,287.22 was spent on the construction of the new Boring Mill in 1844; with expenditures of 1843 included- $ 852.27, the grand total was more than $ 8,139.49.

In his annual report to the Secretary of War on the operations of the National Armories at Harper's Ferry and Springfield, dated January 6, 1845, the Chief of Ordnance, Lt. Col. George Talcott, informed Secretary William Wilkins, "A large workshop, 123 by 42 feet, two stories high, for barrel boring and other operations, has been constructed (at the musket factory) in place of a narrow and inconvenient shop, which had become much dilapidated."[21] The heating system of the completed mill was installed in the structure at a cost of $ 385.32 in the first quarter of 1845. This was comprised of 820 feet of stove pipe to distribute the heat from 10 cylinder

17. 3rd Series, F.1934, V. 5, to William Bayley, October 28,1844,for $ 738.10.
18. 3rd Series, To Benjamin M. Snook, F.-1698,V. 61, Oct.1,1844, for $ 124.13 ; F.1934,V. 32, Nov. 7,44, for $ 6.00; and F.2213,V.7, Jan.1845, for $ 17.31.
19. 3rd Series, F.1934,V. 23, to King and Pick (?),Nov.5,1844,for $ 17.87;
20. 3rd S. F.1934, V. 62, To James Bowen, Dec.6,1844,for $ 187.75.
21. Serial No. 464, Document No. 43, p. 2.

stoves, the latter including 6 large and 4 medium size stoves.[22]

Total cost of constructing the new Boring Mill, exclusive of the carpenter work, thus appears to have been about $ 8,327.95. The balance of some $ 976 was probably used to paid for the carpenter work and the cost of installing machinery. The new mill is shown on Map No.1, which was drawn in November 1844.

The work of installing the machinery continued into 1845 and in his first annual report for the fiscal year ending June 30,1845, Armory Superintendent Major John Symington, who had replaced Major Craig as superintendent in November 1844, reported of the Boring Mill; " A workshop of brick, on stone foundation, 122 by 42½ feet, two stories high,and covered with slate; bevel-geared (water) wheels, on solid cut-stone head blocks, under the lower floor, communciate motion to the lines of working shops on the two floors above.

" The various operations upon the barrel from the forged to the finished product will be done in this shop, in addition to other work; most of the machines for the purpose being already in position and in operation."[23] The mill would produce barrels for the new model percussion muskets that were just going into production.

Later in this same report, Symington described this machinery as follows: At the Musket Factory

1st. Under the first floor of new workshop (boring mill) is heavy and permanent bevel gearing, with the main driving drum; also about 49 feet of of large iron shaft, with spur and bevel-gearing, extending into the wheel house and connecting with the large iron water wheel, There is also 179 feet of iron and lead pipe, connected with a force pump, to supply water to the machinery for boring barrels.

22. 3rd Series, F.1934,V. 108, To Hazelwood, Fox, and Co., 1/7/45, for $ 351.60; F. 2213, V.38, To Hazelwood, Fox,& Co., March 29,1845, for $ 34.72.

23. Serial No. 470, Document No. 1, p.419. Note that Lt. Col. Taclott gave the dimension of this same shep as being 123 by 42 feet.

On the first floor. 96 feet of the main line of working shafts with drum pulleys, counter pulleys, and shafts in operation. The upper room is fitted up with an inspector's office, and work benches and vices on the sides, with tool and work chests for each filer. The working shafts, &c, for this floor are in progress. 24

A year later, in the annual report for the year ending June 30, 1846, Major Symington described the "Machinery constructed and put in operation during the year" in the Musket Factory Boring mill as follows:

1st. 1 backshot water-wheel,15 feet diameter, 10 feet wide, with penstock and geared gates; also shafting, bevel, and spur gearing; large driving drum, to give the machinery in new boring shop...

4th. In the new boring shop, on the first floor, 36 feet of main driving shaft,with the necessary hangers, drums, pulleys, &c.,fast and loose, for driving the several machines; also, 103 feet of cast-iron and lead pipe,to convey water to the barrel-turning machines. On the second floor,90 feet of main driving shaft, and 28 countershafts(73 feet), 2 perpendicular shafts (21 feet), for driving drilling machines: the whole with the necessary appendages.....

The whole of the shafting,&c., in the foregoing items, is made in the most substantial manner of wrought-iron, except the main shafts, spur and beven gearing of the large water wheel, which are of cast-iron." 25

24. Serial No. 470, Document No.I, p. 420.
25. Serial No. 493, Document No.1, p. 163. The wheel pit for the 15 foot water wheel had been excavated from solid rock. The structure had a breast-wall and forebay of masonry-see Serial No. 470,Doc.1,p. 419.

Bldg. No. 5 on 1859 Historical Base Map.

Construction of the Boring Mill, 1843-44

Project:	Cost	Description of Project
Excavation	$ 129.61	Foundations-820 cubic yards excavation of earth and 4 perches of heavy rock.
Stone Mason Work	$ 405.55 1,315.86 51.55	For erecting 321 6/25 perches of dry wall. for erecting 678 7/25 perches mortar masonry stone foundation walls. For erecting 20½ perches of grouted wall.
For cut stone:	1,934.04	for 3,503 feet 6 inches of cut stone for use as water table , cornice, lintels, sills, steps, and spout stones.
Tearing Down Old Mill	176,87	saved 137,836 brick and 1,628 feet of slate from old building.
Making and Delivering Brick	1,836.00	281,500 brick made and delivered.
Laying Brick	430.51	for laying 215,258 brick in walls.
Lumber	576.48	32,027 feet white pine for joists.
Carpenter work	?	for floors and roof.
Lath	17.87	14,300 ceiling lath
Plastering	187.75	for putting up 2,090 feet of joist strips. for plastering 1,825 1/9 square yards.
Slate & Slating Roof	738.10	For 7,381 square feet of slate and putting it on the roof.
Gutters and Spouting	147.44	For making and putting up 771 fee of gutters, lead, and 199 feet of copper spouting.
Heating System	386.32	for 820 feet of stove pipe and 10 cylinder stoves, 6 large and 4 medium size.
Approximate Total Cost	$ 8,327.95	(Maxinium- $ 10,500.00)

Repairs and Alterations to the Boring Mill, 1846-1851:

From 1846 to December 31,1851, a total of approximately $ 115.72 was spent making repairs or alterations to the Boring Mill. In 1846 6½ feet of copper spouting was added at a cost of $ .65.[26] In 1850 the brickwork was repaired for $ 3.50.[27] Also in 1850, the exterior brick walls, 644 square yards, were colored with one coat of cement wash.[28] In July 1851 lightning rods, consisting of three points with three leads to the ground were installed at a cost of $ 41.55.[29] Finally, in August 1851, the carpenter Jeremiah Fuss was paid $ 55.00 under a contract for making window frames, door frames, sash, door, and putting up a board partition wall in the Boring Mill.[30]

The Boring Mill is Bldg. No. 3 on Map No. 3 (1848).

26, 3rd S., F.4403, V. 22- To Denis Snook, Sept. 8,1846.
27. 3rd S., F.12168-V. 20, to William Collins, Nov.30,1850,for $ 3.50.
28. 3rd S., F. 11542, V. 12, To Francis Simmons, Sept.27,1850.
29 .3rd S., F. 12680,V.69-Decker and Robinson, July 3,1851.
30. 3rd Series, F, 12680, F. 10, to J.Fuss, Aug.8,1851.

Repairs to the Boring Mill, Bldg No. 5, 1852-55

The first floors of the Boring Mill and the adjacent Bell Shop were damaged in the great floor of April 1852. The estimate for the fiscal year July 1,1854 to June 30,1855 requested the sum of $ 1,800 for "re-flooring" the "lower floors" of these two buildings.[31] Money for this project was appropriated on August 5,1854.[32] This money was apparently used to pay for work completed, for in the annual report for the year ending June 30,1853, Armory Superintendent, Col. Benjamin Huger reported "New floors have been laid in the boring-mill and in the bell-shop; the excavation under the floors deepened some three feet, and the bottom graded and arranged to carry off the water wasting from the machines,&c., into the race ways."[33]

In the report for the year ending June 30,1854, the new superintendent, Major. W. H. Bell, wrote" Extensive improvements have been made to the main and counter lines of driving machinery in the first and second floors of bell shop and boring mill..." at the musket factory.[34]

Repairs to the Boring Mill, Bldg. No. 5, 1855 - 1860:

In the annual report for the fiscal year ending June 30,1856, Superintendent Henry W. Clowe noted that "94 feet counter shafting and machinery on second floor of boring mill so improved as to allow the removal of 115 7/12 feet of shafting, with pulleys, fixtures,&c, and simplify the machinery, econonmize oil and belting, and reducing the friction equal to the amount removed."[35]

In the report for the year ending June 30,1857, Clowe reported:

Fifty feet main line shafting, and 210 feet of counter shafting, of superior quality, finished bright, with cast iron pulleys, hangers, and Babbitt metal

31. Serial No. 714, Document 2, p.188,189.
32. U.S. Statues at Large, X,p.578/.
33. Serial No. 692, Doc.1, p. 277.
34. Serial No. 747, Document No. 1, p.361.
35. Serial No.876, pp. 388-389.

journal bearings or seats, have been completed and in operation on the first and second floors of the bell shop and boring mills, in the stocking shop; and on the first and second floors of the machine shop."[36]

RECORDED EXPENDITURES

Calender Year	Musket Factory boring Mill, 1843-44
1841	0
1842	1
1843	6,500.00
1844	4,500.00
To June 30, 1845	no
Estimated Cost	$ 10,500.00

APPROPRIATIONS FOR

Year	Bell Shop & Boring Mill
8/31/ 1852	
3/3 / 1853	
8/5/ 1854	$ 1,800
Total	$ 1,800

Year:	New Boring Mill
1845	368.91
1846	.65
1847	
1848	
1849	41.81
1850	18.52
1851	96.55
TOTAL	526.44
Approp.	

36. Serial No. 920, p.550.

Description of
Boring Mill, Bldg. No. 5, 1843-44 :

Location: Fifth building from eastern or lower head of southern line of workshops.

Map References: Bldg. No. 3 on Map No. 2(1844); Bldg. No. 3 on Map No. 3 (1848).

Visual Evidence:

Visual evidence in the form of drawings or photographs showing the Boring Mill is extremely limited. Best evidence or view is probably the lithograph by Ed Beyer. Ray & Son, Dresden, 1857-Harper's Ferry Armory from Magazine Hill" and published in Beyer's Album of Virginia, 1857, in which the Boring Mill can be seen in the distance(Harpers Ferry NHP Negative No. 256). Photographic views that show distant views of the ruined walls of the burnt out Boring Mill during the Civil War include Harpers Ferry NHP Negative No. HF- 30 ,made in 1862, and perhaps No. HF-38, taken about 1865 or 1866.

History and Description:

The new Boring Mill was designed and erected by Major Henry K. Craig in 1843-44 at an approximate cost of $ 10,500. The diminesions of the workshop are given as 123 by 42 feet or 122 by 42½ feet, the latter figures probably being the most accurate ones. The factory had stone foundations and brick walls that were two stories in height. Its gable roof was covered with slate and was provided with lead(or copper) gutters and copper down-spouts. The water table, cornice, window and door lintels and sills, and exterior steps were all of cut stone. Lithograph HF-256 indicates that the Boring Mill has flat arched windows and probably resembled the newly built warehouse(of which there are many photographic views) in its exterior appearance, except that the Mill did not have quadrant windows in the third story windows at the gable ends. HF- 256 suggests that the Boring Mill was at least 10 bays long by 3 bays wide.

The ceilings of the mill and perhaps the interior brick walls were plastered. The floors were wooden. There was a large end chimney centered at the east end and perhaps two smaller one at the west gable end. The heating system was comprised of 10 cylinder stoves with 820 feet of stove pipe.

A cast-iron water wheel, 15 feet in diameter and 10 feet wide, drove all the machinery in the Boring Mill.

Confederate troops burned the Boring Mill om June 14, 1861, but the brick walls remained standing(See HF- 30, taken October 1862). Union troops then appearntly reroofed the Boring Mill and used it as a warehouse in 1864 and 1865.(See Photos HF- 28 and HF- 38, taken in 1864 or 1865). Union troops than apparently leveled the walls to the ground. What may be the remains of the foundations of the Boring Mill and its 15 foot water wheel was described on an Ordnance Department inventory of the" Harpers Ferry Property - On Potomac Side(the U.S. Musket Factory)",made during the period 1865-69) as follows:[1]

> Cast Iron Overshot Wheel about 15 feet in diameter set in pit of masonry faced and coped with heavy dressed granite. Forebay of iron frame and wood over the wheel about 15 feet square. 4 cog wheels 5 ft. diam. each on heavy shaft of iron. 2 small cog wheels 3 ft. Two lines of wrought iron shafting about 10 feet long each by 8 inches.

1. National Archives Record Group 121, Washington ,D.C., Public Buildings Service, Harpers Ferry File No. 154, n.p., n.d., prepared ca.18865-1869. Cited from James P. Noffsinger,"Harpers Ferry,West Virginia...".pp.124-127. Building numbers added by C.W.Snell. Dimensions of the buildings as given in report are not very accurate. Nearly all structures listed were at least 35 feet wide and not 25 feet as is generally stated.

Bldg No 5

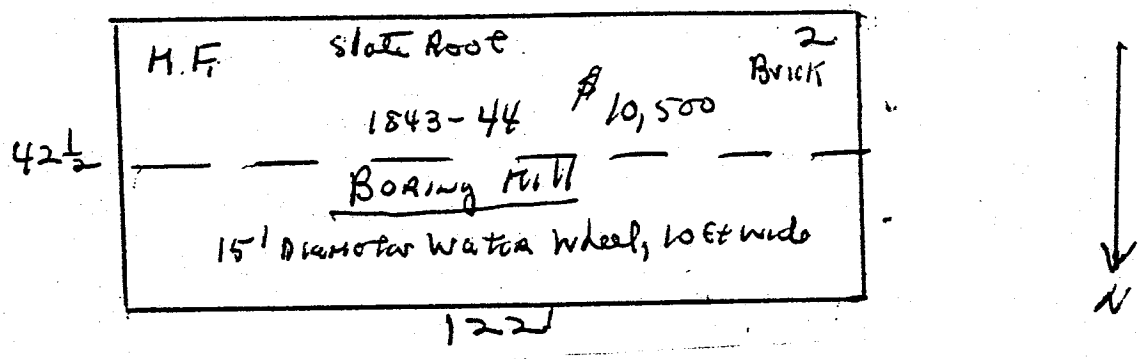
Boring Mill

1843-44

$10,500 Cost

Slate Roof

← Canal



Front

6. Stocking and Machine Shop, 1847-1850: (Bldg. No. 6)

The Stocking Shop (South wing) is Bldg. No. 4 on the Map. No. 3 (1848) and was built on the site of the Old Storehouse, Bldg. No. 4 on Map No. 2 (1844). The Stocking Shop is Bldg. No. 6A on the 1859 Historical Base Map. The Machine Shop or North wing, was built on the site of the old stocking shop, Bldg. No. 5 on Map No. 2(1844) and Bldg. No. 5 on Map No. 3 (1848). The Machine Shop is Bldg. No. 6B on the 1859 Historical Base Map.

In his estimates for the 1846-47 fiscal year, Major John Symington requested the sum of $ 15,200.00 for " rebuilding stocking and machine shop at the musket factory." This replacement was necessary, the superintendent explained, because: "The buildings now used for stocking and machine shops (Bldgs. No. 5 and No. 8 on Map No 3 (1848)) were built upwards of thirty years ago, (when machinery was not used), slightly, like common dwelling houses, and of bad materials. They are now in a ruinous state, and require to be propped and stayed to prevent their falling. Besides, they are so low on the ground that the driving machinery and lower floors, in high freshets, are several feet under water, interrupting the operations and ruining the machinery." In addition, Symington also requested that $ 3,700.00 be provided to manufacture the "line of working shafts,&c, in this shop at the musket factory."[1] Congress appropriated the requested $ 18,900.00 on August 8,1846.[2]

The new building, designed by Major Symington in the same architectural style as the other new workshops then under construction, was to consist of a center building with north and south wings.

During the period September 8,1846 to December 31,1846, there was spent a total of $ 5,051.04. Of this sum $ 4,602.06 was expended to purchase 3,586 feet of cut stone and 252,016 bricks, and $ 448.98 for constructing a wheel pit.

1. Serial No. 481, Document No.9, p.111, items 3 and 4. In addition, another $ 1,450.00 was provided to acquire "Governors to the water wheels", ITem No.14 .It was explained "The means for regulating the water upon the wheels according to the work in hand, is essential to the proper working of the machinery."
2. U.S. Statues at Large, IX, p.69.

The bricks and stone were not only intended for use on the proposed stocking and machine shop, but were also used on the new stock house and new forging or smiths shop that were being erected in 1846-47.

The materials were acquired as follows:

From Redmond Burke on September 8,1846, 3,586 feet 10 inches of cut stone for $ 2,217.60 consisting of:

1,519 4/12 superfical feet cut stone water table, for	$ 759.00
720 lin. feet cut stone cornice, for----------	482.40
798 10/12 lin. feet cut stone window sills----------	535.21
250 lin feet, cut stone coping----------	295.00
290 8/12 sup. feet, cut stone door steps----------	145.33
3,586 10/12 feet	$ 2,217.60 (3)

The bricks were purchased from the following people.

11,870 bricks from Richard John, Sept. 14,1846 for.....	$ 83.09 (4)
35,142 hard red bricks from Ellen Lynch, Sept. 21,1846.....	281.13 (5)
4,536 brick(3,600 good red bricks for $ 30.60, and 936 good arch and salmon bricks for $ 45.08) from John F. Wall, Sept. 25,1846 for.....	75.68 (6)
200,468 hard red bricks from William Collins on Sept.22 and November 4,1846 for.....	1,944.56 (7)
252,016 bricks	$ 2,384.46

The $ 448.98 for construction went to the stone mason Peter Litle on December 16,1846, or building what is believed to be the wheel pit and its foundation wall for the water wheel that was to turn the machinery in the new stocking house. If this theory is correct, then this construction was done at Bldg. 6B on the 1859 historical base map. Litle performed the following work on this project in 1846:

For excavation and removal of 209 cubic yards.....	$ 12.70
For building 139 18/25 perches mortar masonry.....	244.51
For 340 8/12 sup. feet rock facing wall.....	173.37
For 114 sup. feet dressed stone.....	18.40
	$ 448.98 (8)

(3) 3rd S. F. 4403, V. 27, Sept. 8,1846, for $ 2,217.60, to Burke.
4. 3rd S.F.4403, V. 36, to Richard John.
5. 3rd S., .F. 4403, V. 38, to Ellen Lynch.
6. 3rd S. V. 4403, V.46, to John F. Wall.
7. 3rd S., F. 4403, V. 39, to William Collins, Sept. 22,1846, $ 784.31 for 81,468 bricks; and F. 4837, V. 8, To W. Collins, Nov.11,846, $ 1,160.25 for 119,000 bricks.
(8) 3rd S.;F.4837, V.40, to Peter Litle, Dec. 16,1846, for $ 448.98.

Construction of the South Wing(Bldg. 6A)-The Stocking House and Wheel House(Bldg.6B), 1847-48:

Construction on the large south(or east) wing, which was to be the Stocking Shop, got underway in June 1847. On July 2, 1847 Peter Litle was paid $ 80.00 for taking off the slate roof, pulling down the two-story brick walls of Bldg. No. 4 on Map No. 2 (1844)- the Old Storehouse and Master Armorer's Office, and removing the material to clear the site for the construction of the south wing.[9]

The demolished building,a two-story brick building measuring 80 by 30 feet, had been erected by Paymaster John Mackey in 1799 for the first "Factory" or "Armory" for the musket factory.

Because the paymaster's vouchers for the period July 1,1847 to December 31, 1848, are missing from the National Archives Records, it is impossible to trace the costs of construction and amounts of material utilized in detail during this 18 month period. The records for 1849, however, indicate that the same men who built the new stockhouse and forging shop, namely masons Peter Litle and William Collins, etc., also erected the south wing or stocking shop.

In his annual report for the fiscal year ending June 30,1848, Major Symington reported on the progress of construction as follows:

"The south wing of new stocking and machine shop (Bldg. 6A on 1859 map) , 89 by 35½ feet, has been erected, (the foundation is of stone, cut-stone water table,) two stories, of brick, cast iron door and window frames, and sheet iron roof, with copper gutters. This shop is near its completion, and will be finished in a few weeks. Connected with this shop is the wheel house(Bldg. 6B on 1859 Map), covering the water-wheel and main driving gear, This is completed; it is of brick,

9.3rd S. F. 5623, V.48, Peter Litle, July 7,1847,$ 80.00.

" 18 by 26 feet, one story, on stone foundations, with cast iron frames, and covered with slate."[10]

Under the heading of machinery made, the superintendent further reported,

" 72 10/12 feet heavy main driving gearing, with heavy spur and bevel wheels, and 28½ feet of main line working shafts, seats and main driving drums; also have been put up in the new stocking shop." (11)

In the estimates for the 1848-49 fiscal year, Symington had requested the sum of $ 950.00 "for building a brick wheel house over the water wheel driving the machinery of the new stocking and machine shop at the musket factory." "The present shelter over this wheel and penstock," he continued," is a temporary rough-board shed."[12] Congress provided the requested amount on August 14,1848.[13] The cost of building the wheel house thus appears to have been approximately $ 950.00, and with this appropriation, a total of $ 19,850 had been provided for construction.

The paymaster's vouchers indicate that $ 843.76 spent putting the final touches to the stocking (south wing) shop in the spring of 1849.

This total included the following items:

To William Collins, February 21,1849, $ 25.30, for setting 175 feet of brick cornice for $ 21.00 and $ 4.30 for hauling and setting 500 brick. (14)

To Edward Tearney [illegible] partner of Peter Litle, May 19,1849, $ 9.75 for 4 days work of mason, $ 8.00,and 2 days work of tender, $ 1.75, for altering head blocks. (15)

The painter G. W. R. Seale received a total of $ 143.47 for painting some 1,224 square yards as follows:

181 square yards painted one coat.....	$ 18.10
988 8/9 square yards painted 2 coats.....	116.11
54½ square yards painted 3 coats.....	9.26
	$ 143.47 (16)

10. Serial No. 537, Document No. 1, p. 348. Item 4, musket factory.
11. Serial N o.537, Doc.1, p.346.
12. Serial No. 514, Document No.2, p.110-111,item No. 2.
13. U.S. Statues at Large, IX, p. 306.
14. 3rd S., F.9093, V. 23, to William Collins.
15. 3rd S.,F.9307, V.23, to Edward Tearney.
16. 3rd S., F.9093,V. 22, to G.W.R. Seale.

The carpenter Jesse Schofield received a total of $ 665.24 for executing the following carpenter work on the newly finished south(or east wing):

" For carpenter work of roof, including girders, ceiling joist & jack rafters: 3,500 feet @ 6¢ (87½ x 40 feet) = $ 227.50.
For 2nd floor, including girders, joist and flooring @ $ 5 3/4, (86 x 32 2/12 feet) = $ 159.04.
For 1st floor, including joist & floor, 2,698 feet, @ $ 4½ (85 8/12 by 31 6/12 feet)= $ 121.41.
For carpenter work of putting on ceiling, 5,243 fet @ $ 3 (86 by 32 2/12 feet and 78 by 31 6/12 feet) = $ 157.29.
Total of bill: $ 665.24. (17)

In his annual report for the year ending June 30, 1849, Superintendent Symington reported:" The south wing of new stocking and machine shop, at the musket factory, is completed, and the whole of the machinery (stocking) transferred to it (from Bldg. 5, the old stocking shop on Map No 3 ,1848), and in operation."[18]

With regards to machinery, he informed the Chief of Ordnance that "83 feet main line, and 253 8/12 feet counter driving machinery and fixtures, (have been) put up and (were) in operation in new stocking shop."[19]

Construction of the North wing or Machine Shop(Bldg. 6D), and Center Building (Bldg. 6C), 1849 - 50:

Construction on the north wing and center of this great building got underway in March 1849 . Edward Tearney took down the old stocking house(Bldg. No. 5 on Map No.2(1844) and Map No. 3(1848), removing the slate from the roof, timbers, and bricks, thus clearing the ground for the north wing. The old Stocking House, a two-story brick workshop, 111 by 30 feet feet, had been erected by Superintendent James Stubblefield and Paymaster Samuel Annin in 1808-09, as a tilt-hammer shop. About 1820 it had been converted into a stocking shop. By April 19, 1849, Tearney had completed the construction of the stone foundations for the wing and center and received a total of $ 1,024.65 for his services.[20]

17. 3rd S. F. 9093, V. 28, April 5,1849, for $ 665.24.
18. Serial No. 549, Document No.1, p.366. item 1.
19. Serial No. 549, Document No.1, p. 365.
20. 3rd S., F. 9307, V. 23, April 19,1849, for $ 1,024.65.

Tearney performed the following work for this money:

For taking down and removing materials of old stocking shop-----	$ 70.00
For excavating and removing 263 16/27 cubic yards of earth.....	79.08
For excavating and removing 8 10/27 cubic yards of hard rock....	7.32
For building 410 16/25 perches stone masonry wall.....	821.28
for hammered face wall, 426 sup. feet.....	42.60
For setting 221 3/12 feet cut stone water table.....	22.12
	$ 1,042.40
Minus $17.75 deducted for 71 perches of old stone wall used in the new foundation.....	-17.75
	$ 1,024.65 (21)

On January 1,1849 William Collins was paid $ 1,437.62 for making and delivering 172,532 bricks.(21A)

The carpenter William J. Rowe received $ 12.00 for putting up temprary stairs in the new building on July 7,1849.[22] The brick mason William Collins was paid $ 546.69 for performing the following work in June: "For laying 105,074 brick in the north wing and centre building of new stocking and machine shop from their basement to the bottom of the 2nd tier of joists..... $ 525.31
For setting 164½ lin.feet of cut stone sills..... 21.38
$ 546.69. (23)

About $ 3,021.96 had been spent on the construction of the north wing and centre building from January 1849 to June 30, 1849.

In his annual report for the fiscal year ending June 30,1849, Major John Symington described the progress of this construction as follows:

"The centre building for offices and north wing for machine shop (at the musket factory) is built up to the second floor. The dimensions of this building are: centre, 35½ by 48 feet,(enclosing water wheel;) wings, each 35½ by 89 feet, two stories, built of brick, on stone foundations. Iron door and window frame, with sheet-iron roof."[24] Under the heading of machinery, the superintendent stated that" 8 7/12 feet (of) counter machinery, driving, &c,(have) been put up in the machine shop."[25]

(21.A) 3rd S., F. 9093, V. 5, to William Collins, Jan.26,1849-$ 1,371.7 for 167,216 building brick and $ 66.45 for 5,316 long cornice brick, total: $ 1,437.62.

21. 3rd S., F. 9307, V. 23, April 19,1849, to Tearney.
22. 3rd S., F 9307, V. 77, to W.J. Rowe.
23. 3rd S. F. 9307, V. 80, To William Collins, July 10,1849, for $ 546.69.
24. Serial No. 549, Document No.1, p. 366, item 1.
25. Serial No. 549, Doc. No.1, p. 365.

The brick mason William Collins continued erecting the brick walls during the summer of 1849 and received a total of $ 592.36 for performing the following work on the north wing and center:

August 25,1849, for laying 100,530 bricks in the walls of the 2nd story of centre and west (or north) wing.....	$ 502.65	
for setting 334 4/12 lin feet of cut stone coping and sills.....	43.40	
For putting on 201 feet of brick cornice.....	25.12	
	$ 571.23	(26)
August 31,1849- For Scaffolding, cutting out window in gables and setting. Mason, 3 days= $ 6.00; tender 3/4 day =$ 0.75.....	6.75	(27)
October 10,1849- For altering walls.....	14.38	(28)
	$ 592.36	

In addition, Collins was paid $ 537.60 on August 31,1849 for making and delivering 64,000 brick to the building site.[29]

From the vouchers, it is apparent that William Collins laid a total of 205,604 in the two- story high walls of the center and north wing, set 498 10/12 lin. feet of cut stone coping and sills, and laid 201 feet of brick cornice.

The stone cutter Redmond Burke provided 105 lin. feet of additional cut stone coping for this building for $ 123.90.[30] Approximately $ 4,459.58 was expended on the construction of the north wing and center in 1849 and $ 1,684.26 to June 30,1850, so that the cost of the wing and center appear to have been more than $ 6,384.63.

The carpenter Jesse Schofield was paid a total of $ 1,408.34 for performing the following carpenter work on the north wing and center:

February 20,1850 for putting 6,110 feet of roof on.....	$	397.15
for putting 5,849 feet on lower floor.....		134.75
for " 4,215 7/12 ft, on upper floor...		242.39
8,097 ft. ceiling		242.91
for 37 steps finished.....		41.25

26. 3rd S., F. 9895, V. 20, August 25,1849, for $ 571.23.
27. 3rd S., F. 9895. V. 23, August 31,1849, for $ 6.75-part of a bill for $ 543.75.
28. 3rd S., F. 10276, V. 8, October 10,1849.
29. 3rd S., F. 9895, V. 23, Aug.31, 1849. The 64,000 brick cost $ 512.00 and the cost of transportation, $ 25.60.
30. 3rd S. f. 10276, Dec.11,1849, to Burke.

for 41½ feet skirting	$ 6.22
for making 46 window sills	23.00
2,397 feet rough garrett floors	29.96
for making 444 lights of square sash	33.30
for 78 lights of circular sash	6.63
for 2 inside doors,circular head, fitted with sash, frames, &c	70.00
For 2 inside doors, square heads, complete	50.00
for one window, circular head, complete	25.00
for one window, square, complete	15.00
for 3 small door frames and triming	6.00
for 1 double front door, &c faced with sheet iron(?)	12.00
for 4 clothes presses and one partition,down stairs.	32.00
For one partition up stairs	17.50
February 20,1850	$ 1,390.06 (31)
April 26,1850 For making 144 square lights of sash..	$ 10.80
For making 88 circular lights of sash	7.48
	$ 18.28 (32)
Total:	$ 1,408.34

The iron worker, William Volkmar, prepared and installed the sheet iron roof, 6,180 feet on the wing and center in September 1849, receiving $ 247.20 for this work.[33] The exterior brick walls of the Stocking and Machine shop were colored with a cement wash in October 1849 at a cost of $ 21.47.[34] In November 1849, $ 10.90 was spent for "plastering with cement" 121 7/9 square yards the wheel house(Bldg. 6B) for the shop.[35]

The painter G. W. R. Seale received a total of $ 387.30 for his work on the north wing and center. This included:

November 11-23,1849: For priming and glazing 2,910 lights of sash @ 5¢			$145.50(36
January 13,1850 For painting centre and north wing:			
95 5/9 square yards 3 coats	$ 15.90		
118 sq. yards 1 coat	5.90---	241.80(37	
1,760 sq. yards 2 coats	220.00		
	241.80	$ 387.30	

On March 1,1850, the tinsmith Henry W. Edwards was paid $ 29.47 for putting up 393 feet of copper spouting on the new building.[38]

31. 3rd S. V. 10673, V.15, February 20,1850, to Jesse Schofield, $ 1,390.06.
32. 3rd S., F. 11000, V. 10, April 26,1850, for $ 18.28.
33. 3rd S. F. 10276, V.1, To Wm. Volkmar, October 10,1849, for $ 247.20.
34. 3rd S., F. 10276, V. 16, to Francis Trimous, November 3,1849, for $ 21.47.
35. 3rd S. F. 10276, V. 45, to Robert F. Dowling, Dec. 24,1849, for $ 10.90.
36. 3rd S., F. 10276, V.29, Nov.23,1849, for $ 145.50.

(37) 3rd S. F.10276, V. 86, Jan.13,1850, for $ 241.80.
38. 3rd S., F. 10673, V. 18, March 1,1850, for $ 29.47.

On March 2, 1850 Mrs. Margaret Krepps was paid $ 3.90 "for making 39 cotton window curtains for the stocking and machine shop."[39] Finally, William Collins received $ 0.75 on June 26,1850, for sending a mason and tender part of a day to make minor repairs on the new wing.[40] In the annual report for the fiscal year ending June 30,1850, Major Symington wrote: "The centre building and north wing of the new stocking and machine shop, described in the last annual report, when partially completed, has been finished."[41] Under the heading of machinery, the superintendent also reported that " 126 feet main line of driving machinery, 133½ feet counter line of driving machinery, fabricated, and in operation in the new machine shop, Musket Factory."[42]

The cost of constructing the new stocking and machine shop must have exceeded the $ 19,850 that had been appropriated, for in his estimate for the 1850-51 fiscal year, Major Symington an additional $ 6,300 be provided, explaining that about $ 4,300 was needed to complete the structure and $ 2,000 to put up"the necessary driving machinery.[43] The requested sum was appropriated on September 28,1850.[44]

Probable costs of construction, 1846 to 1850 thus totaled about $ 26,150: This figure included $ 20,450.00 for the structure and $ 5,700.00 for the machinery.

From June 30 to December 31,1850, the sum of $ 117.55 was spent on the new shop. $ 109.50 was paid to color the exterior brick walls, 1,564 yards, with three coats of wash.[45] On November 30,1850, the mason William Collins received $ 8.00 for sending a mason and tender to work 2½ days making minor repairs.[46]

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39. 3rd S., F. 10673, V.20, March 2,1850, for $ 3.40.
40. 3rd S., F. 11000, V. 52, June 26, 1850, for 75 cents.
41. Serial No. 587, Document No.1, p. 476, item 1.
42. Serial No. 587, Doc. 1, p. 475.
43. Serial No. 568, Document No. 4, pp. 156-157,item 1.
44. U.S. Statues at Large, IX, ,p.507.
45. 3rd S. F. 11542, V.12, to Francis Sinnon, September 27,1850, for $ 109.55.
46. 3rd S., F. 12169, V. 20, Nov.30,1850, for $ 8.00.

Finally, the sum of $ 66.00 was spent on the new stocking and machine shop during 1851. Lightning rods- three points and three leads to the ground, were installed on the new workshop.[47]

Repairs and Alterations to the Machine and Stocking Shops, Bldg. No. 6), 1852 - 1854:

The destruction of the Paymaster's vouchers for the years 1852 to 1861, done by the National Archives staff in the 1940's, makes it impossible to trace in detail the repairs and alterations that were made to the stocking and machine shop after 1852. The superintendents's annual reports, however, reveal that the following work was done:

June 30,1852, the new superintendent Brevet Col. Benjamin Huger reported: "A new brick building on stone foundations, adjoining the new machine shop.(Bldg. No. 6D), and of the same style of architecture, has been erected as an office for the foreman of that shop."[48]

June 30,1854, Major W. H . Bell reported: "...some new and additional main and counter line put up in the new machine shop and stocking shop. Many machines transferred and put in position in stocking shop, to facilitate the operations."[49]

47.3rd S., F. 12680, V.69, to Decker and Robinson, July 3,1851, for $ 66.00.

48. Serial No.659,Document No.1, p.253, item.3.

49. Serial No. 747, Document No., p. 361.

Construction of the Stocking and Machine Shop, Musket Factory

(Stocking shop, 1846, center and Machine shop, 1849
(Bldg. 6A, 6B, Center, Bldg. 6C, Machine Shop, 6C on 1859 map).

Project	Cost	Description
For cut stone	$ 2,217.60	1846- 3,586 feet for water table, coping, sills.
	123.90	1849 105 feet for coping
	$ 2,341.50	3,691 feet.
For bricks	$ 2,384.46	1846 for 252,016 bricks
	$ 1,975.22	1849 for 236,532 bricks
	$ 4,359.68	488,548 bricks
Stone foundations, Stone mason:	488.98	1846 construction of wheel pit and foundations, Bldg. 6- , excavation 209 cubic yards; 139 18/25 mortar masonry erected; 340 8/12 sup.feet rock facing wall' 114 feet ,sup. dressed stone.
	80.00	demolishing old store house and Master Armorer's offic
	?	cost of excavation and construction of stone foundatic of south wing(Stocking Shop in 1847.
	70.00	cost of demolishing old stocking shop.
	972.20	cost of excavation and construction of stone foundatic of center and north wing(machine shop),1849. excavating of 263 16/27 cubic yards of earth, excavtion of 8 10/27 cubic yards of hard rock. Building 410 16/ perches of stone masonry foundation walls; 426 sup. feet of hammered face wall; 221 3/12 feet of cut stone water table laid.
	9.75	Other work in 1849.
	$ 1,563.38	To Peter Litle and Edward Tearney.
Laying Bricks:	?	1847-brick walls of south wing -1848
	25.30	1849-setting 175 feet brick cornice, south wing.
	1,027.96	1849 for laying 205,604 brick in north wing and cente
	64.78	1849 for laying 498 10/12 feet cut stone.
	25.12	1849 for putting up 201 feet of brick cornice, north wi
	.75	1850-other repairs.
	$ 1,164.35	for work as brick mason to William Collins.
Carpenter work joists, floors, roof, ceiling.	$ 665.24	1849 for carpenter work on south wing. Jesse Schofield
	$1,408.34	1849-50 carpenter work in north wing and center, to Jeese Schofield.
	12.00	Other, to Wm. Rowe, 1849. North wing.
	$ 2,085.58	
Iron roof:	?	1847-sheet iron roof on south wing
	$ 247.20	1849, for 6,180 ft sheet iron roof for north wing, center
Painting	$ 143.47	1849 for painting about 1,224 square yards, south wing.
	387.30	1849-50 for painting about 1,973 5/9 square yards and priming and glazing 2,910 sash, north wing & center.
	$ 530.77	
Copper gutters and douwn spouts	?	1847-for south wing
	29,47	1850-, 393 feet for north wing and center.
Cement wash	32.37	1849 walls of wheel house and new shop.
Total:	$ 12,354.30	Cost of structure: $20,450.00; machinery: $ 5,700.00

Repairs to the Machine and Stocking Shops, Bldg. No. 6, 1855 - 60:

In his annual report for the fiscal year ending June 30,1855, Superintendent Henry W. Clowe reported that " 10 feet, lineal, counter-line shafting"had been made ,"put up and in operations on the first floor of the machine shop. This shafting is of the latest and most approved style, finished bright, with cast-iron pulleys,gearing,and metallic journals."[50]

In the report for the year ending June 30,1856, Clowe noted: "11 feet counter shafting, fabricated, and put in operation, first floor of machine shop."[51] He also noted that "Machinery and fixtures ... for drawing head gates at ... the grinding mill had been installed. These are of cast iron, and of the most permanent and durable construction."[52]

He further recorded that"Very considerable improvements have been made on the stocking-table, and machinery attached to it, and the main line of shafting thereof, in the stocking shop."

In the report for the year ending June 30,1857, Clowe reported: Fifty feet main line shafting, and 210 feet of counter shafting, of superior quality, finished bright, with cast iron pulleys, hangers, and Babbitt metal journal bearings or seats, have been completed and in operation on the first and second floors of the bell shop and boring mills, in the stocking shop, and on the first and second floors of the machine shop."[53]

In the estimates for the 1860-1861 fiscal year Superintendent Alfred H.Barbour asked for $ 600 "for removing partitions on first and second floors of machine shop"; It was explained;"These partitions are found, from experience to be in the way."[54] Congress appropriated the desired sum on June 21,1860.[55]

50. Serial No.841,p. 556.
51. Serial No. 876,p. 388.
52. Serial No. 876,p. 389.
53. Serial No. 920,p.550.
54. Serial No.1043, p. 229, Item No. 5.
55. U.S. Statues at Large, XII, p. 66.

RECORDED EXPENDITURES

Year :	Stocking & Machine Shop
1845	-
1846	5,051,04
1847	80.00
1848	
1849	5543.05
1850	1,801.51
1851	66.00
TOTAL	12,541,60
Approp. For	20,450.00
For Machinery	5,700.00

APPROPRIATIONS FOR Bldg. 6

Year:	Machine Shop
3/3/ 1855	
8/30/ 1856	
3/7/ 1857	
6/12/ 1858	
3/3/ 1859	
6/21/ 1860	600
3/2/ 1861	
TOTAL	$ 600

Description of
Stocking House and Machine Shop, Bldg. No. 6, 1847-50:

Location: Sixth building from the eastern or lower head of the southern row of workshops.

Map References: Bldg. No. 4 on Map No. 3 (1848).

Visual Evidence: On the 1859 historical base map:

the Stocking Shop(south or east wing) is Bldg. 6A; the wheel house attached to the south or east end of 6A, is Bldg. 6B; the center building, attached to the north or west end of 6A, is Bldg. 6C, the office building; Bldg. 6D, the machine shop(north or west wing) is attached to the north or west side of Bldg. 6C, the office. Bldg. No. 6 can be seen is the following HFNHP Negatives: HF- 51 or 256(1857 lithgraph); HF-223, 1861 drawing; HF-30, 1862 photo. Photos HF-38 and HF 26, both taken in 1864 or 1865 reveal that Bldg. No. 6 had been demolished by that date.

History and Description:

The Stocking and Machine Shop was designed and erected by Major John Symington in the period 1847 to 1850 at an approximate cost of $ 20,450.00, with an additional $ 5,700.00 being spent for the machinery in the two shops; Total costs thus amounted to about $ 26,150.00 for the entire project. The building was comprised of three sections: the stocking shop in the south or east wing, an office building in the center, and the machine shop in the north or west wing. The entire structure stood on stone foundation, with cut-stone water table; the walls, two stories high, were of brick, with cut-stone sills and coping. The door and window frames were of cast-iron and gable roofs were covered with sheet iron. The gutters and down-spouts were of copper. Each wing measure 89 by 35½ feet and the center building, which covered a water wheel and contained offices, was 35½ feet wide and 48 feet deep, so that the center projected about six feet 3 inches beyond the both the front and rear elevations of the two wings. The over all length was thus about 213½ feet.

In addition, a wheel house for the water wheel driving machinery(Bldg 6B) in the stocking shop(south or east) adjoined the south wing at its south end. The wheel house was one-story brick on stone foundations, with cast iron door and window frames, measuring 18 by 26 feet, and its gable roof was covered with slate. HF-51 indicates that the wings were each seven bay long by three bays wide. The front and rear elevations of the center office building had three bays each. **Like other Symington-designed shop, the first story openings were set in recessed round arch** openings **and the flat arched windows of the second story were located in recessed** rectangular **panels. Crenelated parapet brick end walls, topped with cut stone coping also adorned the four gable end walls of the two wings and center building.**

About 10 p.m. on April 18, 1861, on learning of the approach of Confederate units, Lieutnant Roger Jones and his company of 44 U.S. soldiers set fire to the stocking shop and adjacent buildings. George Mauzy, an eyewitness of these events, reported that the Musket Factory workmen had putout fires and "fortunately the stock shop was saved with but little damage."

Confederate troops held the U.S. Armory from April 19 to June 14, 1861, after removing all the machinery and tools possible, they set fire to and destroyed the Musket Factory workshops, including the stocking shop, Bldg. No. 6, on June 14th. The ruined brick walls of the Stocking Shop are plainly visible in Photo HF- 30, taken in October 1862. Photos HF- 28 and 38, both made in 1864 or 1865, reveal that the walls of the Stocking Shop had been demolished by that date.

The following description, taken from an Ordnance Department inventory of the U. S. Musket Factory, made 1865- 1869, may relate to Bldg. No. 6, the Stocking and Machine Shop:[1]

Foundation of Grinding Mill, 80 ft. by 25 ft. Heavy & long dressed stone coping, 14 in. above ground. (Bldg.6A- Stocking Shop ?)

Iron Flume 4 ft. diameter well bolted about 35 feet long with perpendicular shaft of Turbine Wheel. Turbine Wheel probably burried /sic./ under ground.

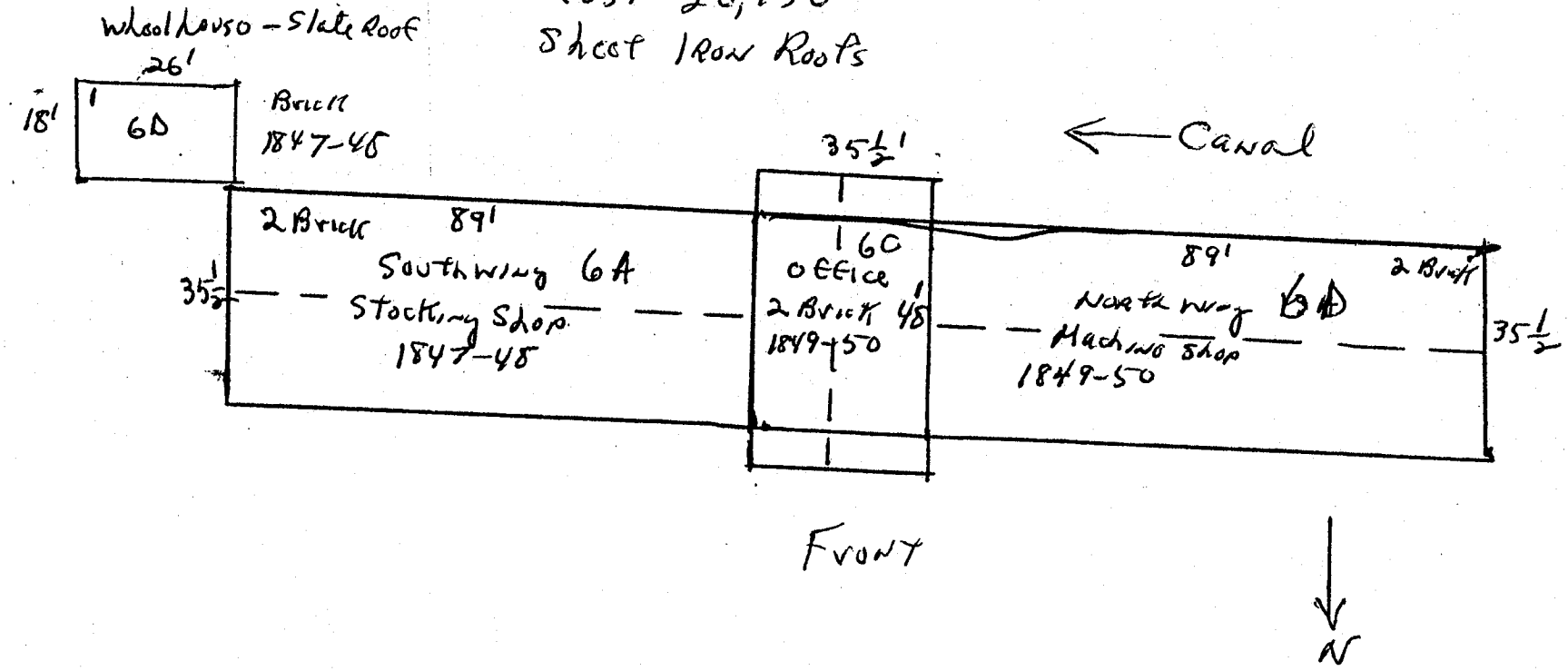
Old Machine Shop Foundation 80 ft. by 25. Masonry. (Bldg. No. 6D?)

1. National Archives Record Group 121, Washington ,D.C., Public Buildings Service, Harpers Ferry File No. 154, n.p., n.d., prepared ca.18865-1869. Cited from James P. Noffsinger,"Harpers Ferry,West Virginia...".pp.124-127. Building numbers added by C.W.Snell. Dimensions of the buildings as given in report are not very accurate. Nearly all structures listed were at least 35 feet wide and not 25 feet as is generally stated.

Bldg 6

Stocking Shop and Machine Shop

1847–50
Cost $26,150
Sheet Iron Roofs



7. Store House for Stocks, 1846-47: (Millwrights Shop, Bldg. No. 7):

The Storehouse for Stocks is Building No. 6 on Map No. 3(1848) and Bldg. No. 7,(then known as the Millwright Shop) on the 1859 Historical Base Map.

In his submission of November 30,1844, to the Chief of Ordnance, Major Symington had provided an"Estimate in detail for two lumber houses",(together with plan, No. 4) for the same." The superintendent estimated that the total cost would be $ 3,187.72 and arrived at these figures as follows:

214	yards of excavation, at 18 cents	$ 33.52
138	perches masonry laid in cement mortar, at $ 2	276.00
50,000	bricks laid in mortar one-third cement at $ 10.50 perM	735.00
34	feet of lumber, at 1½	510.00
134	feet of cut-stone water,at 60 cents	80.40
430	feet of cut-stone cornice, at 60 cents.	258.00
4,208	feet of slating, at 10 cents	420.80
800	lbs. nails, at 4½ cents	34.00
600	lbs. hinges and fastenings for doors, at 12½ cents	75.00
	Oil and paint	45.00
	Painting	65.00
	Carpenter's work	650.00
		$ 3,187.72 (1)

The superintendent, however, changed his mind and on April 15,1845 wrote to Chief of Ordnance, George Talcott,requesting and receiving permission to substitute a store house for gun stocks for the two proposed lumber sheds, adding $ 2,500.00 to the original estimate, thus increasing the total estimated cost to $ 5,687.72 for the larger structure.[2] Before the storehouse could be considered completed, Symington, in the estimates for the 1847-48 fiscal year found it necessary to request the appropriation of an additional $ 750.00 to purchase cast iron pillars to support the first and second floors of the structure.[3] Total cost of the storehouse for stocks was thus approximately $ 6,438.00.

(1) Serial No. 464, Document No. 43, p.15.

(2) Symington to Talcott, April 18,1845,on HFNHP Reel 23, Vol. 5, pp.420-421.

(3) Serial No.497, Document 3, p. 142.

The Armory paymaster's vouchers in the National Archives for the third quarter of 1845 are missing so the materials that were purchased to be used in the construction of the Stock House are not known. On November 11,1845, Redmond Burke was paid a total of $ 424.62 for providing a total of 422 8/12 feet of cut stone for use on the new charcoal house and the new stock house.[4] The order was made up of the following items:

72½ feet, superfial, of water table, for	$ 36.24
48 8/12 feet of cornice, for.....	32.60
301½ linear feet of coping, for.....	355.77
	$ 424,62

During the winter of 1845-46 the carpenter Jessie Scholfield was engaged in making window sash for the new charcoal house and new stock house. On April 8,1846 he was paid $ 148.59 for making 1,494 circular and 288 square sash for the stock house.[5]

The mason Peter Litle begain constructing the stone foundations, perhaps in March, and certainly in April 1846, for an May 2 he received $ 1,612.86 for accomplishing the following work:

1. Excavation of 1,189½ cubic yards of earth and removing from the foundation and basement of the stockhouse-	$ 356.85.
2. Excavation of 213 3/4 cubic yards of rock	10.97
3. for 555 perches of mortar wall, hewen stone, for foundation and basement.....	1,110.00
4. For 810 feet of hammered face of wall.....	81.00
5. for setting 27 lin. feet of water table	27.00
6. for labor of bailing water from the foundations, equal to 80 days work.....	64.00
7. For labor and ramming the same and the walls, and making concrete for foundation and walls, equal to 54 days work.....	27.00
Total Bill:	$ 1,692.92
Deducted $ 80.00 for 213 perches of stone	-80.00
Paid	1,612.86

[6]

4. 3rd S., F. 3122, V.27, Nov.22,1845, for $ 424.62.
5. 3rd S. F. 3858, V. 12, dated April 8,1846- $ 21.60 for 288 square and $ 126.99 for the 1,494 circular sash.
6. 3rd S. F. 3858, V. 19, May 2,1846, to Peter Litle for $ 1,612.86.

On May 2,1846, the armory purchased 4,536 lbs of cast iron window frames for use at stock house for $ 167.85 from Hugh Gilleece, who had produced them at his iron foundry on Virginius Island.[7]

William Collins erected the two-story high brick walls of the stock house in May 1846, receiving a total of $ 979.84 for providing the following services:

For furnishing lime, sand, labor, scaffolding and laying 155,317 bricks in new stock house.....	$ 901.12
For setting 292 feet cut-stone cornice.....	78.72
	$ 979.84 (8)

In June, Jessie Schofield was paid $ 160.00 for "framing and putting 16 girders into the first and second floors of the new stock house.:"[9]

By June 30,1846 , according to the Paymaster vouchers, a total of approximately $ 3,493.76 had been expended on the construction of the stock house. In his report for the fiscal year ending June 30, 1846, Major Symington informed Chief of Ordnance Talcott, in regard to the construction program at the Musket Factory: "3. Storehouse for stocks, of brick, on stone foundation, three stories- the lower (stone basement), partially under ground - 100 by 35½ feet, with cut-stone water table, sills, cornice, and coping; sheet iron roof and cast-iron door and window frames". "The roof and floors of this building have yet to be put on," he commented.[10]

In August 1846, the mason William Collins was paid $ 151.35 for providing an additional 12,000 bricks and laying 7,992 of them in the gable end walls of the stock house.[11] The tinsmith Dennis Snook reecived $ 51.00 in September for making and putting up 200 feet of copper gutters for $ 30.00.

7.3rd S., F. 3858, V. 43, dated May 2,1846, for $ 167.85.
8. 3rd S. F. 3858, V.54, June 2,1846, for $ 979.84.
9.3rd S. F. 3858,V. 69, June 23,1846, for $ 160.00.
10. Serial No. 493, Document 1, p. 164.
11. 3rd S., F.4403, V.18, dated August 31,1846, for 12,000 brick at $ 117.00 and $ 40.35 for laying 7,992 bricks.

116 feet of copper for $ 11.00, and making "4 heads of spouts," for $ 10.00.[12] The iron worker William Volkman also prepared and put on the sheet iron roof, 3,781 square feet, in September 1846 and received $ 151.24 for his services.[13] The work continued into November and December 1846.

Carpenter Jessie Schofield was paid a total of $ 194.32 for the following work:[14]

6,281 feet joists framed and put in.....	$ 94.21
6,281 feet of floor laid,,,,,.....	78.51
288 light sash made and fitted.....	21.60
	$ 194.32

The painters also finished their work: Robert W. Wilson painted the sheet iron roof and was paid $ 80.34.[15] John P. Kennedy painted 1,200 light sash in the new stock house and received $ 42.00 for his efforts.[16]

The final touches to the large storehouse were apparently done by the stone mason Peter Litle, who received $ 77.16 for installing the stone pillars and steps.[17] This work included the following tasks:

3 16/25 perches mortar masonry-platform & steps----	$ 7.28
setting 41 3/12 lin. feet of cut stone.....	4.12
setting 48 2/12 feet cut-stone plinth pillars	24.08
setting the above plinth.....	.93
8 flag stones set in plinth.....	6.00
22 days labor mixing and depositing concrete	19.25
3 days labor & service of horse & cart & driver...	4.50
6 days labor of a stone mason.....	12.00
	$ 77.16

Total expenditure on the new stock house in 1846 appears to have been about $ 3,516.55 and from 1845 to 1846, approximately $ 3,941.17, as recorded in extant vouchers.

In his annual report for the year ending June 30, 1847, Major Symington noted the completion of the building, writing:

12. 3rd S., F. 4403, V. 32, Sept.8, 1846, for $ 51.00.
13. 3rd S., F. 4403, V. 34, Sept.14,1846, for $ 151., 24.
14. 3rd S., F. 4837, V.37, Dec.15,1846, for $ 194.32.
15. 3rd S., F. 4837, V. 32, Dec. 8,1846, for $ 80.34.
16. 3rd S., F. 4837, V. 35, Dec. 14,1846, for $ 42.00.
17. 3rd S., F. 4837, V. 40, Dec. 16,1846, for $ 77.16.

"The new brick store-house for stocks (at the Musket Factory), 100 by 35½ feet, two stories high, with basement of stone, door and window frames of cast iron, and sheet iron roof; unfinished at the last report, is now completed and occupied."[18]

Repairs to the Store House for Stocks, 1847 to 1851:

The Paymaster's vouchers for the 3 and 4th quarters of 1847 and all 4 quarters of 1848 are missing from the records of the National Archives. There are therefore no extant records of repairs being made to the Stock House from 1847 to 1848. Minor repairs were made in 1849 and 1850. Henry W. Edwards was paid $ 1.31 in January 1849 for 3/4th days work repairing the gutters.[19] William Collins, the brick mason, received $ 1.75 for one-half days work of a mason, laborer, and ½ load of mortar in November 1850.[20]

In June 1851, lightning rods : two points and two leads to the ground, were installed on the stock house at a cost of $ 34.50.[21]

18. Serial No.503, Document No. 1, p.692
19. 3rd S. F. 9093, V. 7, January 29,1849, for $ 1.31.
20. 3rd S. F. 12169, V. 20, November 30,1850, for $ 1.75.
21. 3rd S. F. 12680, V. 69, to Decker and Robinson, July 3,1851, for $ 34.50.

Construction of Store House For Stocks, Musket Factory, 1846-47: (Bldg.7- 1859 Map).

Construction	Cost	Description of Work
Foundation Excavation	$ 356.85 $ 10. 97 $ 367.82	1,189½ cubic yards of earth 213 3/4 cubic yards of rock
Stone Foundation and basement walls	1,110.00 81.00 27.00 11.00 1,229.00	555 perches of mortar wall 810 feet of hammered face of stone wall setting 27 lin. feet of cut stone water table. Other costs
Stone steps and pillars in basement Total paid to stone Mason: $ 1,690.02	$ 7.28 4.12 25.01 6.00 35.75 $ 77.16	3 16/25 perches mortar masonry, platform & steps. setting 41 3/12 linear feet cut stone. setting 48 2/12 feet cut stone plith pillars setting 8 flag stones in pliuth. Other costs
Two story Brick Walls.	$ 1,072.47 78.72 1,131.19	for providing materials and laying 163,307 bricks for laying 292 lin. feet of cut stone cornice.
Cut stone	$ 424.62	For 72½ feet, sup. of water table; 48 2/12 feet of cornice, 301½ lin. feet of coping.
Iron	$ 167.85	4,536 lbs of cost-iron window and door frames.
Lumber	?	
Carpenter Work	$ 502.91	Making 288 square light, 1,494 circular sash, 288 sash made and fitted; 6,281 feet of joists framed and put in, 6,281 feet of floor laid. 16 griders framed and put in first & 2nd floors.
Iron Roof	$ 151.24	Preparing and putting on 3,781 feet of sheet iron roof.
Copper Gutters & Spouts	$ 51.00	200 feet gutters, 116 feet downspouts, 4 spout heads.
Painting	$ 80.34 42.00 $ 122.34	for painting 3,781 feet of iron roof. for painting 1,200 light sash.
Total Cost:	$ 4,225.13	-(probable total cost- $ 6,438.00).

Alterations to Stock-House, Bldg. No. 7, Musket Factory, 1852-54:

In his inspection report of the Harper's Ferry, dated July 20, 1852, Inspector of Arsenals and Armories, Lieutenant Colonel R.L. Baker, reported:

"The present stock house in the armory yard (Bldg. No. 7) was overflowed, and that building convenient and required for a work-shop, another stock-store should be put up on the ground above all floods (This was to be Bldg. No. 11)." 22

The estimates for the 1853-54 fiscal year thus included a request for $ 1,000 "for converting the present stock-house into a work-shop." It was explained that "The cellar and first floor of the present stock-house were completely overflowed in April (1852). The removal of old dwellings will afford a good site for building a safe storehouse for gunstocks (Bldg. No. 11), while the old one can be usefully converted into a work-shop." 23

The requested money was appropriated by Congress on March 3, 1853, 24 but was apparently not spent prior to 1855.

Remodelling of the Store House for Stocks into the Millwrights Shop, Bldg. No. 7, 1855 - 1860:

On March 3, 1855, Congress appropriated $ 363.00 to install a plaster ceiling and repair the floor of the store house for stocks. 1 The estimate requesting this sum explained the need as follows: "The present stock-house is found to be injurious in some degree (to the stock stored there) from dampness, owing to the condensation of vapor from a sheet-iron roof without ceilings, and from defective drainage and decayed floor. By the addition of the ceiling, and removing the floor and renewing, and the drainage, the dampness may be easily remedied." 2

In the estimates for the 1858-59 fiscal year, the sum of $ 11,103.00 was requested "For converting old stock house (Bldg. No. 7) into a work-shop." This was needed because ""There is a necessity for more shop room for the

22., Serial No. 659, Document No. 1, p. 250.
23. Serial No. 675, Document No. 2, p. 257, 258, Item No. 3.
24. U.S. Statues at Large, X, p. 217.

1. U.S. Statues at Large, X, p. 637.
2. Serial No. 781, Document No. 3, p. 238. Estimates for 1855-56 Bldg. No. 11, the new Stock House, under construction in 1854-55, had a slate roof.

manufacture of arms; and a new stock house (Bldg. No. 11) having been erected outside of the armory yard affords an opportunity of converting the building in the yard heretofore used as a stock house into a very suitable workshop. It is designed for files and putting in position the cutting and milling machines necessary for the work of machines."[3] The converted stock house was henceforth to be known as "the millwrights shop." Congress appropriated the desired amount for this project on June 12, 1858.[4]

Because of the destruction of the Armory Paymaster's vouchers for the years 1852 to 1861 by the staff of the National Archives during the 1940's, it is no longer possible to trace in detail the costs of construction, amounts of material and machinery purchased and used in the conversion, and the names of the men who did the work.

Under the heading of machinery "in progress of fabrication" in the annual report for the fiscal year ending June 30,1859, Superintendent Alfred M. Barbour noted that" 1 water-wheel, flume, shafting(main and counter,) with pits, head gates, fixtures, walling, &c. for converting the old stock-hous (Bldg. No.7) into a workshop" had been made.[5] The wheel and flume were apparently constructed of cast- iron.

In his report for the year ending June 30,1860, Barbour wrote: "The old stock-house(Bldg.No. 7) at the musket factory, has been converted into a workshop, but the necessary work has not yet been completed, to enable it to be employed as such."[6]

Plans for the conversion of the stock house to a millwrights shop were prepared by Superintendent Henry W. Clowe, but the execution of the work was done by Superintendent Alfred M. Barbour in 1859-60.

3. Serial No. 941, p.193.
4. U.S.Statues at Large Vol. 11, p.335.
5. Serial No. 1025,p.1113.
6. Serial No. 1079, p. 974.

RECORDED EXPENDITURES

Year :	Stock House
1845	424,62
1846	3,516.55
1847	
1848	
1849	1.31
1850	1.75
1851	34.50
TOTAL.	3,978.73
Approp. For	6,438.00
For Machinery	

APPROPRIATIONS FOR

Year	Stock House
8/31/ 1852	
3/3 / 1853	$ 1,000
3/5/ 1854	
Total	$ 1,000

APPROPRIATIONS FOR

Bldg.7

Year:	(Old Stock) Millwright Shop
3/3/ 1855	363
8/30/ 1856	
3/7/ 1857	
6/12/ 1858	11,103
3/3/ 1859	
6/21/ 1860	
3/27 1861	
TOTAL.	$ 11,466

Description of

Store House for Stocks, Bldg. No. 7, 1846-47:

Location: 8th from the eastern or lower head of the southern line of workshops in 1860.

Map References: Bldg. No. 6 on Map No. 3 (1848).

Visual Evidence: The Store House for Stocks, in its original form, can be seen in detail in HF NHP Negative HF-51 or 256 (1857 lithograph); and in slightly altered form, including extensions at either end to connect with adjacent buildings, in Photographs HF- 223, made in 1861; HF-30, made in 1862; and HF -38, taken in 1865 or 1866. The last item reveals that the ruined walls of this shop had been demolished by that date.

History and Description:

The Store House for Stocks was designed and erected by Major John Symington in 1846-47 at an approximate cost of $ 6,438.00. The two-story brick building stood on a one-story basement of stone, had cut stone water table, sills, cornice, and coping. Measuring 100 by 35½ feet in size, the stock house had cast iron door and window frames and its gable roof was covered with sheet iron. A plaster ceiling was installed under the iron roof on the second floor in 1855. The visual evidence indicates that in 1857 the storehouse was three bays wide and eight bays long.

The stock house had brick parapet end walls, with turrets at the corners; these were topped with cut-stone coping. The end walls rose above the ridge of the gable roof. The brick first story of the stock house was composed of a series of bays, each made up of a recessed panel set within a relieving round arch that rested on capped pilasters. Windows set within these arches were topped by round arches. Bays on the second story were comprised of a rectangular recessed panel and each panel contained a window with a flat arch.

The store house for stocks was remodelled into a work shop with water wheels in 1859-60 and renamed the Millwrights Shop. The cost of the alteration was about $ 11,103.00.

Confederate troops seized the U.S. Armory at Harper's Ferry early on the morning of April 19, 1861 and held the town for about two months. After removing all of the machinery and tools possible, they burned the Musket Factory buildings on June 14, 1861. Only the brick walls of Bldg. No. 7, the Millwrights Shop, were left standing. (See Photo HF- 30, taken in October 1862, in which the burned out walls of Bldg. 7 are plainly visible. Photos HF 28 and 38, both taken in in 1865 or 1866, reveal that the Union Army had levelled the walls of the Millwrights Shop by that date.

A Ordnance Department Department Inventory of the Musket Factory property, made in the period 1865-1869, described the state of the Millwright Shop as follows:[1]

Undershot Wheel. Iron shaft wooden frame wood nearly destroyed. 4 large cogs 6 ft. diam. 4 small cogs 3 ft. 2 drum wheels 5 ft. Shafts 2 10 ft. by 8 in. All set in bed of dressed granite blocks. 2 lateral shafts 8 ft. by 8 in. 2 Drum wheels & shafts 10 ft. by 8 in.

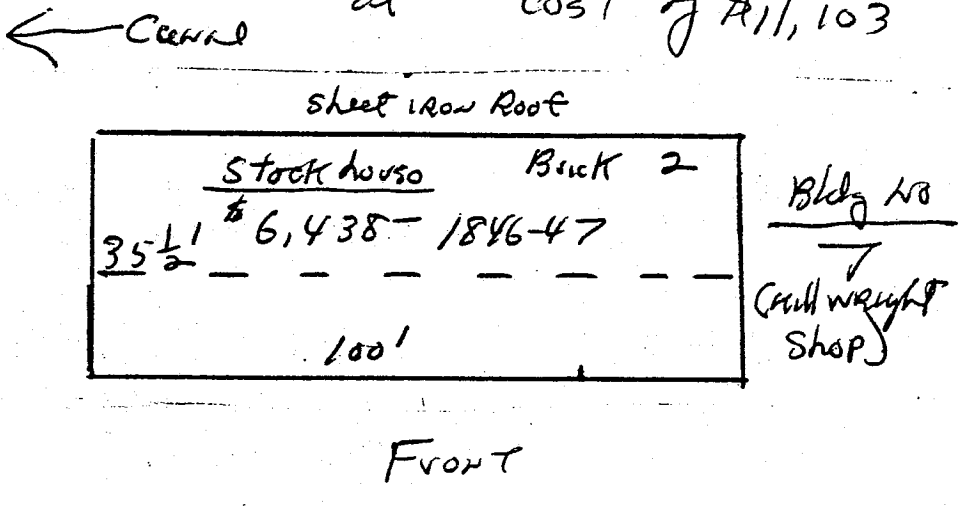
Foundation of Millwright Shop. 100 ft. by 25 ft. Masonry with dressed stone coping. (Bldg. No. 7)

Turbine Wheel in bed under ground & perpendicular shaft, 1 cog 3 ft. 1 cog 2 ft. Cast iron frame & fly wheel heavy 4 ft. drain 8 in. wide, and operating shaft. Masonry bed about 10 ft. square.

1. National Archives Record Group 121, Washington ,D.C., Public Buildings Service, Harpers Ferry File No. 154, n.p., n.d., prepared ca.18865-1869. Cited from James P. Noffsinger,"Harpers Ferry,West Virginia...".pp.124-127. Building numbers added by C.W.Snell. Dimensions of the buildings as given in report are not very accurate. Nearly all structures listed were at least 35 feet wide and not 25 feet as is generally stated.

Bldg 7

Store house for stocks 1846-47
Remodelled as millwright shop, 1859-60
at cost of $11,103



8. New Grinding Mill, Sawmill, and Planing Mill, 1850 - 51: (Bldg. No. 8):

This is Bldg. No. 8 on the 1859 historical base map, with 8A being the new Grinding Mill, 8B, the center building which contained the saw mill, and 8C, serving as the new carpenter shop.

In his annual report for the year ending June 30,1849, Major Symington reported that at the musket factory the old buildings were being torn down to clear the site for the construction of new ones, as the functions of the the old structures could be transferred to the new shops.[1] Old workshops demolished at this time apparently included the Old Carpenters Shop. Bldg. 7, erected in 1834(See Map 3 ,1848); Bldg. 8, the Old Machine Shop(1834), and the Old Grinding Mill,Bldg. No. 9, erected in 1831, (See Map 3 (1848)).

In the estimates for the 1849-50 fiscal year Superintendent John Symington requested the sum of $ 9,730 for"constructing a grinding mill, saw and planing mill." Explaining the need, he wrote: "This building, to accommodate the machinery and fixtures for the grinding, sawing, and planing, is necessary to replace the present make-shift structures, used for these purposes with great inconvenience and loss. The present grinding mill(Bldg. No. 9 on 1848 map) has its floor below the surface of the ground, and is covered during the freshets to a depth of sometimes five feet. The saws and turning laths are at present in the machine shop(Bldg. No. 8 on 1848 map), among filers and iron workers, for want of power and a better locality elsewhere; whilst the planing machinery is equally out of position in a shed put up on the side of one of the shops, and not well secured from the weather. The present structures are also much decayed, and are only kept in use by frequent repairs, to the delay of the operations of the armory.:"[2] In this same estimate, Symington requested the additional appropriation of $ 27,370 for machinery for the new grinding mill, saw and planing mill

1. Serial No. 549, Document No. 1, p. 365.
2. Serial No.538, Document No., 2, pp. 117-118, Item No. 1.

and also for the new barrel welding and tilt hammer shop he was hoping to build. Symington's original submission, dated February 4,1848, as is mentioned on page 146, itemized the cost of machinery of the tilt shop as totalling $ 25,470, leaving only $ 1,900.00 for the machinery to equip the grinding, saw, and planing mills. In the estimate presented to Congress, the machinery required for the grinding,saw and planing mill was described as follows:

"two turbine wheels. with iron feeding troughs and penstock, shafts, and bevel gearing; a main line of driving shafts, with pullies, hangers, belting,&c., for the grinding mill, and machinery with pullies &c, complete, for driving upright and circular saws, turning lathes, planing machine, and tenoning, grooving,and boring machines...." 3

The money requested for these projects was appropriated on March 3,1849.[4] Building materials such as cut stone and brick were purchased in 1849 and 1850 but actual construction on the grinding, saw, and planing mills did not actually get underway until the fall of 1850. Purchases of cut stone, all provided by Redmond Burke, were as follows:

July 24,1849	$ 39.00	-for 78 feet cut stone steps (5).
December 11,1849	189.90	for 316½ feet cut stone water table (6)
Decmber 2, 1850	391.31	for 33 ft.lin. stone water table got $ 22.11. (7)
		for 216 lin.ft. window sills, for $ 144.72.
		for154 4/12 lin. ft. coping, for $ 182.11
		for 84 9/12 ft sup. door sills and steps, for $ 42.37.
	$ 620.21	for 882 7/12 feet of cut stone.

On October 24,1850, the administrator of the estate of William Collins was paid a total of $ 542.24 for making and transporting the following brick:

$ 499.72	for making 55,750 bricks.
42.57	for hauling 106,444 brick for new grinding mill. (8)
$ 542.24	(8)

The stone mason apparently began construction on the foundations in September or October 1850, and the brick mason William Collins put up the walls

3. Serial No. 538, Document No.2, p.117,118, item No.3.
4. U.S. Statues at Large, Vol. IX, p.376.
5. 3rd Series F., 9895, V.8, July 24,1848, for $ 39.00.
6. 3rd S., F. 10276, Dec.11,1849, for $; 189.90. Voucher 39.
7. 3rd S., F. 12169, V. 4, October 10,1850.,for $ 542.24.

in October and November 1850.

Edward Tearney was paid $ 1,322.25 on December 20,1850 for his construction of the stone foundations. This included the following work:

$ 132.55 for excavating and removing 441 23/27 cubic yards of of earth for the foundation.
1.096.16 for constructing 548 2/25 perches of stone mortar masonry.
45.37 for 453 9/12 sup/ft. face hammered wall.
37.05 for setting 370 6/12 lin.ft water table and steps,cut stone.
10.12 for 4½ days work of stone cutter(corners of sills,&c).
$ 1,322.25 (8)

The brick mason William Collins received $ 877.00 for erecting the brick walls and the following work in November 1850:

$ 782.02 for furnishing labor, mortar, scaffolding, and attendents and for laying 156,405 bricks.
5.60 for hauling 14,000 brick from rifle factory to armory yard.
25.49 for setting 207 lin. ft, of brick cornice.
27.49 for setting 211½ lin. ft.of cut stone window sills.
20.02 for setting 154 lin.ft.of cut stone coping.
8.00 for four days work of brick mason
8.00 for 7 days work of laborer and 1 cart load of mortar.
$ 877.00 (9)

The carpenter Jesse Schofield was paid a total of $ 752.43 for executing the following work on the new shop:

$ 97.20 for making 1,296 square lights of sash and fitted up.
53.04 for making 624 circular lights of sash
$ 150.24 1,920 lights of sash. (10)
for carpenter work, fitting,working,and laying floor with griders, joists, two inch plank complete.
$ 112.07, 1st floor, 2,637 sq. feet. 2 inch plank.
63.53 2nd floor, 1,105 sq ft of 1½ inch plank.
65.79 ceiling, 2,193 square feet.
324.80 for framing and sheathing roof, 4,480 square feet.
36.00 for making,fitting,and hanging three outside doors.
$ 602.19 (11)
$ 752.43 Total.

8.3rd S., F.12169, V. 43, Dec.20,1850, for $ 1,322.25.
9.3rd S., F. 12169, V. 20, Nov.30,1850, for $ 877.00.
10.3rd S. F. 12169,V. 16, Jan.10,1851, for $ 150.24.
11. 3rd S., F. 12169, V. 26, April 14,1851, for $ 602.19.

George W. Tacey slated the roof of the new grinding, saw, and planing in December 1850 or early January 1851, receiving $ 97.93 for performing the following work:

$ 96.62 for putting 4,806 square feet of slate on roof.
1.31 for 3/4 days work putting snow board on the roof.
$ 97.93 (12)

Dennis Snook was paid $ 44.00 on January 20,1851 for putting the copper gutters and down spouts on the new shop at the following rates:

$ 27.00 for making 216 feet of copper gutter.
12.00 for making 120 feet of copper spouting.
5.00 for making 8 copper spout heads.
$ 44.00 (13)

Final touches were made to the shop in June 1851:

Meen and Brewing were paid $ 31.23 for carpenter work and plastering 1,041 feet of the ceiling in the center building.[14]

In May and June the stone mason Edward Tearney swung back into action to construct the two wheel pits for the new shop, receiving a total of $ 1,486.15 for the following construction:

$ 209.94 for building 139 24/25 perches of dry stone masonry for culvert at wheel pit.
31.50 for 63 sq.yards of stone flagging at bottom of wheel pit.
196.00 for 98 perches mortar stone masonry for wheel pit.
151.20 for 60 12/25 perches circular masonry for wheel pit.
114.75 for 114 3/4 ft,sup., circular cut stone, wheel pit.
246.66 for 109 17/27 cubic yards rock excavation for wheel pit.
99.33 for 331 3/27 cubic yards earth excavation for culvert walls & pit.
237.54 for 135 20/25 perches mortar stone masonry, for forebay and culvert walls.
137.50 for 275 ft. sup., hammered stone in forebay.
61.62 for 205 11/27 cubic yards excavation and puddling in forebay.
$ 1,486.15 (15)

12. 3rd S., F. 12169,V. 6, January 28,1851, for $ 97.93.
13. 3rd S., F. 12169, V. 77, January 20,1851, for $ 44.00.
14. 3rd S., F. 12680, V.52. June 30,1851, for $ 31.23
15. 3rd S., F. 12680, V. 33, June 24,1851, for $ 1,486.15.

Finally, Lightning rods- four points and 3 leads to the ground, were installed on the new shop in June 1851 at a cost of $ 48.60.[16]

In his annual report for the fiscal year ending June 30,1851, Major John Symington described the new musket factory shop as follows:

New grinding and saw-mill and carpenter's shop has been erected, and is now occupied. This building 110 by 36 feet, is similar in style to the other new shops; it is of brick, on stone foundations, with cut-stone water table, coping, door and window sills, &c., cast-iron door and window frames, roof covered with slate, and gutters and spouts of copper. The centre building (one-third of the whole length) is of two stories; the wings of one story, One of the wings is the grinding-mill (the south or east wing,B.dg.8A), now in full operation; the other wing, with the centre building, will accommodate the saws, planing machine, wood-turning lathes, and other machinery necessary for making arms chests,&c. The turbine wheel now in operation (in the grinding mill) will suffice for the whole of the machinery of this shop."[17]

The turbine water wheel, complete with flumes, implements, main upright shaft and bevel gearing had been purchased from the Ames Manufacturing Company of Boston, Mass. on September 20,1850, at a cost of $ 2,000 plus about $ 45.74 for railroad freight.[18]

Of the water wheel, Symington wrote in his annual report : One new turbine wheel had been placed in position at the new grinding mill " and substantial wheel pits of masonry sunk, together with cast-iron head gates,set in solid walls of grouted masonry." One water-wheel regulator had also been placed in position complete. "Heavy foundation walls of masonry have been erected in the new grinding mill,to support the cast iron frames for the (grind) stones which have been transferred from the old to the new shop, and placed in position. New housing for the (grind)

16. 3rd S., F. 12680, V. 69, to Decker and Robinson, July 3,1851, for $ 48.60.
17. Serial No. 611, Document No.1, pp.458-459.
18. 3rd Series, F. 11542, V.10, September 20,1850, part of an order for 3 cast-iron water wheels, for $ 6,000.00 plus $ 137.24 for freight. The other two turbines were put in the tilt hammer shop for barrel welding.

"stones have been made and attached, and extensive repairs done to the fixtures generally of the mill, which is now in complete running order."[19]

Total recorded cost of constructing the new shop, excusive of machinery, to December 31,1851, was $ 5,822.04. Total cost of construction was probably about $ 9,730.00.

RECORDED EXPENDITURES

Year :	Grinding, Saw and Planing Mill
1845	-
1846	-
1847	-
1848	
1849	178.90
1850	3,132.85
1851	2,460.35
TOTAL	5,7772.09
Approp. For	9,730.00
For Machinery	1,900.00

APPROPRIATIONS FOR

Bldg.8

Year:	Grinding Mill
3/3/ 1855	
8/30/ 1856	
3/7/ 1857	
6/12/ 1858	
3/3/ 1859	800
6/21/ 1860	
3/27/ 1861	
TOTAL	$ 800

19. Serial No. 611, Document No. 1, p. 457.

CONSTRUCTION OF THE GRINDING MILL(8A,) Sawmill(Center-Bldg.8B), and Carpenters Shop(North Wing-Bldg. 8C), Musket Factory, 1850-51.

Project	Cost	Description of Work
For Foundation, Forebay, wheel Pit: To stone mason Edward Tearney	$ 2,808.40	For 109 17/27 cubic yards of rock excavation for 978 10/27 cubic yard of earth excavation for 842 9/25 perches stone mortar masonry. for 139 24/25 perches of dry wall masonry. for 728 9/12 sup. feet face hammered stone wall. for 485 3/12 lin. feet of cut stone, water table, steps, set.
To Brick mason William Collins	877.00	For laying 156,405 bricks in walls for laying 207 feet of brick cornice for setting 365½ lin.feet cut stone window sills and coping.
Stone Cutter Redmond Burke	$ 620.21	For providing 882 7/12 lin. feet of cut stone.
To brick maker William Collins	542.24	for making and delivering 55,750 bricks for transporting 106,444 additional bricks.
Carpenter Work Jesse Schofield, Meen & Brewing.	$ 783.66	For making total of 1,920 square and circular lights of sash;putting in 1st and 2nd floor flooring; 3,842 sq.feet of flooring, ceiling 3,234 square feet; framing and sheathing roof, 4,480 sq. feet, making 3 outside doors.
Slating: George W. Tacey	97.93	slating 4,806 sq.feet of roof.
Copper Gutters & Spouts, Dennis Snook	44.00	for 216 feet gutters, 120 feet spouts, and 8 heads for spouts.
Lightning rods	48.60	for 4 points and 3 leads, at 15 c per foot.
Total:	$ 5,822.04	Probable total cost: $ 9,730.00

Construction expenditures:

1849: $ 178.90

1850: 3,132.85

1851: 2,460.34

Total of cut stone used in construction of shop= 850 9/12 lin. feet.

Repairs and Additions to the Grinding, Saw, and Planing Mills, Bldg. No. 8, 1855 - 1860:

The destruction of the Armory paymaster's vouchers for the years 1852 to 1861 by the staff of the National Archives during the 1940's make it impossible to trace in detail the completion of the saw and planing mills in 1852 or of repairs or alterations made to the structure during this period.

The annual reports of the superintendents, however, do reveal that the following work was done to the work shop during the period 1852-1861.

In his annual report for the fiscal year ending June 30,1856, Superintendent Henry W. Clowe reported that"A portion of the floor in the carpenter's shop (north wing,Bldg. 8C),which was discovered to be very much decayed, has been removed, and new joists and floor put in."[20]

The annual estimates for the 1859-60 fiscal year contained a request for $ 800.00 "for adding to the length of the grinding mill (south wing, Bldg. No.8A) at the musket factory," explaining: "The building in which all this work for both factories is now done is entirely too small for the business, and is so constructed as to cause the machine grindstones to be dangerously crowded. The addition proposed will obviate these defects."[21] The appropriations for this fiscal year were approved on March 3,1859.[22] In the fall of 1860, a brick second story,matching in design the second story of the center, was added to the east wing, Bldg.8A, the Grinding Mill.

In a letter to Superintendent Alfred M. Barbour, dated August 30,1860, Master Armorer A.M. Ball informed Barbour that appropriation of $ 800.00 for lengthening the grinding mill had not been spent.[23]

19. Deleted.

20. Serial No. 876, Document No.1, p.389.

21 Serial No. 996, p.181, Item No. 3.

22. U.S. Statues at Large, Vol. XI, p.433.

23, Cited in Snell, Charles W., "Research Report: The Musket Factory Buildings and Grounds, Harpers Ferry Armory,1858-60,"p. 78.

Description of
Grinding, Saw and Planing Mill, Bldg. No. 8, 1850-51, 1860:

Location: Tenth building from the eastern or lower head of the southern line of workshops.

Map References: None:

Visual Evidence: The Grinding Mill, Bldg. 8A, was the east or south wing; the Saw Mill, Bldg. 8B, was the center section; the Planing Mill or Carpenter Shop, Bldg. 8C, was the west or north wing.

This workshop can be seen in the following

Harpers Ferry NHP Negatives: HF- 51 or 256, a 1857 lithograph which shows the structure in its original form; HF- 223, a 1861 print showing a corner of the revised(two story) south wing; HF-30 a photo taken in 1862 that clearly shows the changes made in 1860; HF- 38, taken in 1864 or 1865, and HF- 355, photo taken about 1886, showing that the structure had been demolished by that date.

History and Description:

The Grinding Mill, Saw and Planing Mill was designed and erected by Major John Symington in 1850-51 at an approximately cost of $ 9,730.00, exclusive of $ 1,900 for machinery. Its style of architecture was the same as that of the other workshops then being erected by Superintendent Symington.

The shop was 110 feet long and 36 feet deep. Its length was divided into three equal sections: the center was of two stories and the north and south wings of one story. The building was of brick, on stone foundations, with cut-stone water table, coping, door and window sills. The door and window frames were of cast iron; the gable roofs were covered with slate and the gutters and spouts were of copper. The structure was equipped with lightning rods. There were apparently two cast-iron turbine water wheels, one located in the south wing, the grinding mill, and the other in the north wing, the planing mill or carpenter's shop. The gable ends of the north and south wings, one-story in 1851, were each divided into three bays and brick parapet

crenelated end walls, topped with cut-stone coping, rose above the ridges of the gable roofs. The gable ends of the two-story center building were treated in like manner. The 110 foot east and west elevations were each divided into nine bays. All first-story bays contained a round arch that was supported by a capped pilaster. Round arch windows were located within the recessed panel that was set within each arch. Windows on the second story of the center building were topped with flat arches and set in reccessed rectangular panels. In the 1860 remodelling, a similar three-bay second story was constructed over the original one-story south wing, the grinding mill, at a cost of approximately $ 800. A new two-story shop, Bldg. No. 21, designed in the same style as the 1851 construction, was also erected in 1860 to connect the Grinding Mill, Bldg. 8A, to Bldg. No. 7, the Millwrights Shop.

About 10 p.m. on April 18,1861, on learning of the approach of Confederate troops, Lieutenant Roger Jones and his company of 44 U.S. soldiers set fire to the grinding mill, saw mill, carpenter shop or planing mill, Bldg. No. 8, and adjacent Musket Factory workshops. George Mauzy, an eyewitness of these events, reported: " The first named shops (the Carpenter shop-Bldg. 8C and grinding mill, Bldg. 8A] are also a perfect heap of ruins...." The ruined brick walls of Bldg. No. 8 can be seen in Photo HF- 30, taken in October 1862. The ruined brick walls of Bldg. No. 8 were still standing in 1865 or 1866(See Photo HF- 38). Photos HF- 355, HF-492, HF- 539, all taken about 1886, reveal that the walls of Bldg. No. 8 had been taken down to ground level by that date.

The Ordnance Department Inventory of the U.S. Musket Factory Property, made ca. 1865-69, describes Bldg. No. 8 as follows:[1]

Overshot Wheel. Iron shaft wooden frame braced &

[3]

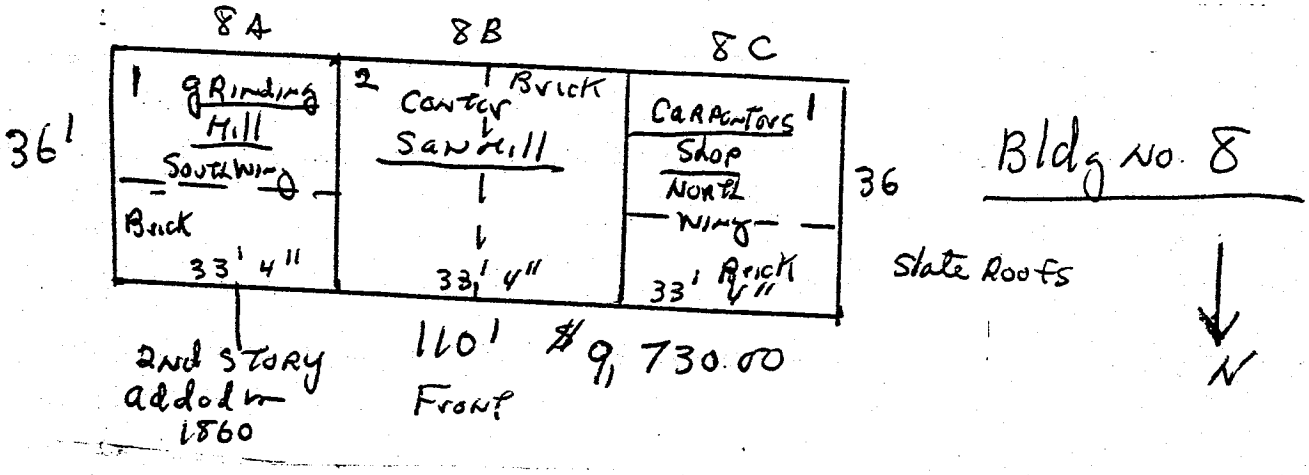
bolted with iron, journals broken & metal carried off. 6 large cogs 4 ft. diameter, 2 small do. 3 ft. Bed of masonry about 40 feet by 15 ft. 1 large cog about 6 feet, 2 small do. about 3 ft. Drum wheel 4 feet wrought shafts 12 feet by 8 in.

Foundation of Carpenter Shop 100 feet long about 30 feet wide. Part of dressed granite coping. (Bldg. No. 8)

1. National Archives Record Group 121, Washington ,D.C., Public Buildings Service, Harpers Ferry File No. 154, n.p., n.d., prepared ca.18865-1869. Cited from James P. Noffsinger,"Harpers Ferry,West Virginia...".pp.124-127. Building numbers added by C.W.Snell. Dimensions of the buildings as given in report are not very accurate. Nearly all structures listed were at least 35 feet wide and not 25 feet as is generally stated.

← Canal

Bldg 8


8A
8B
8C
1 Grinding Mill
South Wing
Brick
33' 4"
2 Brick
Center
Saw Mill
33' 4"
Carpenters 1
Shop
North
Wing
33' Brick
36'
36
Bldg No. 8
State Roofs
N
2nd Story addition 1860
110' Front
$9,730.00

9. Tilt Hammer Shop for Barrel Welding, 1849 - 1851: (Bldg. No. 9):

(Bldg. No. 9 on the 1859 Historical Base Map.)

In the annual estimate for the 1849-50 fiscal year, prepared by Major John Symington on February 4,1848, he requested the sum of $ 17,900.00" for constructing a barrel welding, tilt hammer, and swedging shop, 200 by 50 feet", built of brick on stone foundations and covered with sheet iron. Explaining the need for this new structure, he wrote:

> To replace the present barrel welding and tilt hammer shop(Bldg. No. Bldg. No. 11 on Map No. 3,1848), which has all the defects, but in a greater degree, of the other old shops,which have had to be reconstructed; being dark and badly ventilated, with its floor so low that every freshet covers it, some times to the depth of eight feet. There is also now a separate wheel and gearing for each hammer, eight in all, six of which are tub wheels, utterly useless when submerged, having thus lost 28 working days last year, and 52 the year before, besides considerable damage to the perishable parts of the machinery by the frequent floodings. The present forebays and penstocks supplying the wheels are of wood carried through the ground, and require frequent repairs, and entire renewal every few years. Whilst these repairs are in hand, a suspension of the manufacture of arms are necessary, causing embarrasment to the operations of the armory and much loss. This is a measure of pressing importance." 1

Symington also requested $ 27,370 to provide the necessary new machinry for this proposed barrel welding and tilt hammer shop, and also for a proposed new grinding mill, saw and planing mill. The machinery for the tilt hammer shop would require eight tilt hammers for welding barrels, rods, &c, including water power and gearing(estimated at $ 12,928.00); two double tilt hammers for drawing barrel plates and tilt iron and steel, with driving power and gearing(estimated at $ 5,372.00);large shears, with gearing($ 385.00); driving machinery for four sets of drop hammers for swedging components ($ 3,785.00); blow machine, includin water wheel and air pipes($ 2,550.00), and fitting up large grindstone and gearing($ 450.00), Total, $ 25,470, leaving only $ 1,900 for machinery in the grinding mill.[2]

The total estimated cost of constructing the tilt shop and equipping it with new machinery was thus $ 43,370.00. Congress appropriated this sum on March 3,1849. (3)

1. Serial No.538, Document No. 2, pp. 117,118, Item No. 2.
2. Serial No. 538,Document No. 2, pp. 117,118, Item No. 3. Symington more detailed estimate for machinery, dated Feb, 4,1858, is in the Park Files.
3. U.S. Statues at Large, IX,p. 376.

Work on the large new shop's foundations began in the spring of 1849, but because of some unknown cause, some of paymaster's voucher paying Edward Tearney were not paid until 1850 and 1851! Thus on December 20, 1850, Tearney was paid $ 1,338,02 for performing the following work "on new tilt Hammer shop, Musket Factory", probably in 1849, as follows:

$ 648.71	For excavating and removing 2,162 10/27 cubic yards of earth for foundation.
264.64	For constructing 132 8/25 perches stone masonry.
105.97	for 1,059 9/12 feet, superfical , face hammered wall.
51.95	for setting 519 6/12 lineal feet cut stone water table and step.
260.00	for 1,040 cubic yards filling in with earth for floor.
6.75	for 3 days work of stone cutter cutting corners of sills.
$ 1,338.02.	(4)

On June 30,1849, Major Symington, in his annual report for the fiscal year noted: "Tilt Hammer Shop, at musket factory has been commenced, about half of the excavation and stone foundation being done. The dimensions of this shop," he continued" will be 53½ feet by 188 feet, one story brick, on stone foundations. Iron door and window frames, with sheet iron roof."[5]

During 1849, however, only $ 506.08 was spent on the tilt hammer project. William Collins received $45.04 for hauling 112,639 bricks from the rifle factory to the musket factory for the new tilt hammer shop.[6]

The balance of $ 461.04 went to stone cutter Redmond Burke for providing 668 5/12 feet of the following cut stone:

$ 134.83	for 269 8/12 feet of water table.
137.27	for 116 9/12 feet of coping.
188.94	for 282 feet of window sills.
$ 461.04	668 5/12 feet (7)

4. 3rd S., F.12169, V. 43, dated Dec.20,1850, for $ 1,338.02.
5. Serial No.549, Document No. 1, p. 366, item No. 3.
6. 3rd S., F. 9895, V.23, August 31,1849, for $ 4.26,for hauling 10,666 brick; F. 10276, November 29, 1849, for $ 40.78 for hauling 101,973 bricks.

(7) 3rd S., F. 9895, V. 8, July 24, 1849, for $ 461.04.

Major construction probably resumed in April or May 1850.

On May 23,1850,Edward Tearney was paid $ 3,000.00 for constructing 1,500 perches of mortar stone masonry,"foundation walls in part of new tilt hammer shop.[8] The stone foundations were completed by May, for on June 26,1850, the mason William Collins erected the brick walls and received $ 1,224.81 for performing the following work:

$ 1,125.88, for labor, scaffolding, mortar, laying 225,166 brick @ $ 5 per M.
51.43 for setting 396 lin. ft.cut stone window sills and coping at 13¢ per foot.
47.50 for setting 380 feet of brick cornice @ 12½ ¢.
$ 1,224.81 (9)

In his annual report for the fiscal year ending June 30, 1850, Superintendent Symington reported of this construction:

"The excavation, stone foundation, and brick walls, with cut-stone coping, water-table, window and door sills of new tilt-hammer, and barrel-welding shop have been completed, and the roof is now being put on. This shop is 190 feet long by 53½ feet wide, of one story- floor to be laid with stone flagging, and roof (having a continuous ventilator along the ridge) to be covered with slate. The door and window frames are of cast iron."[10]

During the fall of 1850 the carpenter Jesse Schofield was paid $ 1,017.47 for performing the following carpenter work on the new tilt shop:

$ 724.03 for framing, putting on roof, 11,139 square feet.
79.86 for sheathing, 10,649 sq. ft. for slate roof.
$ 803.89- October 31,1850 (11)
129.60 for making 1,726 square light sash.
83.98 for making 988 circular light sash.
$ 213.58 July 10.1850 (12)
$ 1,017.47

8. 3rd Series, F. 11000,V. 31, May 23,1850, for $ 3,000.00.
9. 3rd S. F.11000, V. 52, June 26,1850, for $ 1,224.81.
10. Serial No. 587, Document No. 1, p. 476, Item 3.
11. 3rd S.,F. 12169, Oct. 31,1850, for $ 803.89. Voucher No. 9.
12. 3rd S., F. 12169, V. 16, July 10,1850, for $ 213.58.

Under machinery, the sum of $ 6,137.24 was expended on September 9, 1850, pay for three -turbine water wheels, cast-iron ,complete with flumes, implements,i main up right shafts and bevel gearing. These were made by the Ames Manufacturing Company of Boston,Mass., cost $ 2,000.00 each, and the cost of freight from Boston to Harper's Ferry was $ 137.24(13).

On August 10,1850, William Collins was paid $ 386.85 for making and delivering 47,178 bricks to the armory yard for use in the new buildings.[14] He was also paid $ 1.00 in November 1850 for sending a mason to do one half-days work in the new shop.[15] Redmond Burke was also paid $ 88.77 for providing 132½ additional feet of cut stone, as follows:

$ 45.89 for	68½ lin.ft of water table.
42.88 for	64 lin.ft of window sills.
$ 88.77	16.

The slater George W. Tacey received $ 319.14 in November 1850 for performing the following services:

Labor taking off slate roof of old shop(Bldgs. 7,8, and 9,Old Carpenter Shop, Old Machine Shop,and Old Carpenters Shop on Map No. 3 (1848), 10,328 square feet.....	$ 51.64
Labor slating 13,375 square feet roof of new tilt hammer shop:	267.50
	$ 319.14 (17)

$ 53.15 was paid to the tinsmith Henry W. Edwards for making putting gutters and down spouts on the new shop as follows:

To the estate of Henry W. Edwards,deceased, for making 380 feet of copper gutters.....	$ 15.20
For making 114 feet of copper spouting.....	11.00
For making 6 copper spout heads.....	3.75
	$ 30.35(18)

13. 3rd S. F. 11542. V.10, Sept.9,1850, for $ 6137.24.
14. 3rd S., F 11542, V. 4, Aug.10,1850, for $ 386.85.
15. 3rd. Series, F. 12169, V. 20, November 30,1850, for $ 1.00
16. 3rd S., F.12169, V. 27, Dec. 2,1850, for $ 88.77.
17. 3rd S., F. 12169, V. 24, November 27,1850, for $ 319.14.
18. 3rd S., F. 12169. V.14, Feb.13.1851, for $ 30.35.

To Alexander S. Vernon, December 3,1850, for putting up 380 feet of copper gutter,etc at new tilt shop.....$ 22.80 (19)

This evidence indicates that the new tilt hammer shop was up and roofed by December 1850. Much work remained to be down by the stome mason Edward Tearney, however, before the shop could function: two wheel pits for two water wheels and the stone forebay remained to be built and the stone flag floors were yet to be installed.

On April 21,1851, Tearney received a total of $ 3,209.38 for constructing the stone forebays, which involved the following construction:

For 205 9/25 perches mortar masonry.....	$ 359.38
For 561 superfical feet rock faced wall.....	280.50
for 259 22/27 cubic yards earth excavation.....	77.94
for 27 6/27 cubic yards earth puddling.....	8.16
For 229 20/25 perches cement masonry for wheel pit, tail race	459.60
For 186½ superfical feet circular cut stone,wheel pit.....	186.50
for 552 19/25 perches dry masonry wall.....	829.14
for 76 22/27 cubic yards of rock excavation.....	172.83
for 2,784 12/27 cubic yards of earth excavation.....	835.33
	$ 3,209.38 (20)

On June 24, Edward Tearney was paid $ 1,218.71 for building the foundation beds for the tilt hammer blocks. This involved the following construction:

For 472 24/27 cubic yards of earth excavation.....	$ 141.86
For erecting 478 15/25 perches mortar masonry of very heavy stone:	1,076.85
	$ 1,218.71 (21)

In June, lightning rods- four points and 3 leads to the ground-were installed on the new tilt hammer shop at a cost of $ 59.70.[22]

19. 3rd S., F. 12169,V. 28,Dec. 3,1850, for $ 22.50.
20. 3rd S., F. 12680, V. 5, April 21,1851, for $ 3,209.38.
21. 3rd S., F. 12680, V. 33, June 24,1851, for $ 1,218.71.
22. 3rd S. F., 12680, V. 69, To Decker and Robinson, July 3,1851, for $ 59.70.

On September 30,1851, Edward Tearney received $ 570.96 for putting the stone floor in the tilt hammer shop; this involved the following construction:

For 793 square yards of heavy stone flagging, floor.....	$ 396.50
For 59 19/25 perches mortar masonry.....	119.52
For 78 8/27 cubic yards excavation of earth.....	19.57
For 32 days of laborer drilling holes in walls	32.00
For 1½ days service of stone cutter drilling holes in walls..	3.37
	$ 570.96 (23)

Finally, the master carpenter Jeremiah Fuss was paid $ 24.00 for making two large doors: "made,fitted & hung at new tilt hammer shop, Musket Factory."[24]

Total recorded cost of construction (exclusive of water wheels and machinery) was approximately $ 12,958.34.

In his annual report for the fiscal year ending June 30,1851, Major John Symington reported: "New tilt-hammer and barrel-welding shop described in last report has been completed, and a portion of the machinery placed in position, including two iron turbine wheels, the whole of the main line of shafting, four trip hammers(belt) and one fan blast and pipe; the remaining machinery, &c., for this building, in in hand."[25]

Under the heading of machinery, the superintendent further remarked: "...two (turbine) water-wheels have been placed in position at the new tilt hammer shop; and substantial wheel-pits of masonry sunk, together with cast-iron head-gates, set in solid walls of grouted masonry; also (two) water-wheel regulators, placed in position, complete...

"The machinery for tilting and barrel-welding has undergone considerable repairs, as has also the pit-gears attached to replace those worn out. One fan blast has been placed in position in new tilt-hammer shop, together with fifty feet of pipe for carrying blast to forges..."[26]

23. 3rd S., F. 12680, V.54, Sept.30,1851, for $ 570.96
24. 3rd S. F. 13107, V. 42, Dec. 24,1851, for $ 24.00.
25. Serial No. 611, Document No.1, p.458, Item 1.
26. Serial No. 611, Document No. 1, p. 457.

Under machinery purchased, Symington listed:

3 turbine water-wheels, cast-iron, with cast-iron flumes, wrought-iron forebay and fixtures complete. (Purchased from the Ames Manufacturing Company, Boston, for $ 6,137.24).

2 fan-blasts, with 162 feet of 9-inch copper pipe.

3 regulators for water wheels.

1 large factory force-pump,(five plungers) with fixtures complete.[27]

Machine in progress of being fabricated included:

2 trip hammers for forging bayonet sockets, about two-thirds finished.

4 trip-hammers(belt) for forging musket barrels, about one-half finished.[28]

27. Serial No. 611, Doc. No.1, p.457.
28. Serial No. 611, Document No. 1, p.456.

Project	Cost	Description of Construction
Foundations	$ 648.71	For excavation of 2,162 10/27 cubic yards.
	3,264.64	For 1,632 8/25 perches stone mortar masonry walls.
	105.59	for 1,059 9/12 sup. feet face hammered wall.
	51.95	for setting 519 6/12 feet, lin. cut stone water table.
	260.00	for 1,040 cubic years of earth fill.
	6.75	for other costs.
	$ 4,338.02	cost of stone foundation
Forebay and wheel pits	$ 77.94	for 259 22/27 cubic yards of excavation.
	359.38	for 205 9/25 perches of mortar masonry wall.
	280.50	for 561 sup. feet rock faced wall.
	8.16	for 27 6/27 cubic yards earth puddling.
	459.60	for 229 20/25 perchs cement masonry, wheel pit, tail race.
	186.50	for 186½ sup. feet circular cut stone, wheel pit.
	172.83	for 76 22/27 cubic feet excavation of rock.
	835.33	for 2,784 12/27 cubic yards of earth excavation.
	829.14	for 552 19/25 perches of dry masonry wall.
	$ 3,209.38	for Forebay, wheel pits, and tail race.
Foundation tilt hammer blocks	$ 141.86	for 472 24/27 cubic yards of earth excavation.
	1,076.85	for 478 15/25 perches sup. ft mortar masonry wall of very heavy stone.
	$ 1218.71.	
Flagging Floors	$ 19.57	for 78 8.27 cubic yards of earth excavation.
	396.50	for 793 square yards of heavy stone flagging of floor.
	119.52	for 59 19/25 perches of mortar masonry.
	35.37	for 33½ days of labor drilling holes in walls.
	$ 570.96	
Subtotal:	$ 9,337.07	paid to stone mason Edward Tearney for above work.
Purchase of Cut Stone	$ 180.72	for 338 2/12 feet cut stone water table.
	$ 231.82	for 346 feet of cut stone will sills.
	$ 137.27	for 116 9/12 feet of cut stone coping.
	$ 549.81	for 800 11/12 feet: To Redmond Burke.
Making & Delivering brick	45.04	for transporting 112,639 bricks.
	386.85	for making & delivering 47,178 bricks.
	$ 431.89	for 159,817 brick, paid to William Collins.
Laying brick walls:	$ 1,125.88	for laying 225,166 bricks in walls.
	51.48	for setting 396 lin. ft. cut stone window sills, coping.
	47.50	for setting 380 feet of brick cornice.
	1.00	for other work.
	$ 1,225.81	paid to brick mason William Collins.
Carpenter work:	1,017.47	for framing roof, 11,139 square feet; sheathing roof for slating, 10,649 feet; making 1,726 square sash and 988 circular sash of light: To Jesse Schofield.
	24.00	for making two large doors, to Jeremiah Fuss.
	$ 1,041.47	
Slating Roof:	$ 51.64	taking 10,328 ft slate off roofs of old shops.
	267.50	for slating 13,375 feet roof of tilt shop.
	$ 319.14	paid to slater George W. Tracey.
Cooper Gutters and spouts:	$ 30.35	for making 380 ft copper gutters, 114 feet of copper spouting and 6 spout heads. To Henry W. Edwards.
	22.80	for putting up gutters, etc., to A.S. Vernon.
	$ 53.15	
Total:	$ 12,958.34	Probable total cost: $ 17,900.00

Construction of Tilt Hammer Shop for Barrel Welding, Musket Factory

Project	Cost	Description of work
Excavation	$ 172.83 1,780.96 $ 1,896.24	For 76 22/27 cubic yards excavation of rock. for 5,757 22/27 cubic yards excavation of earth. for excavation, paid to Edward Tearney
Stone Masonry	$ 5,279.99	for 2,605 21/25 perches of stone mortar masonry
Hammered Wall:	386.09	for 1,620 9/12 sup.ft of hammered rock wall.
Cut stone	238,45	for 706 lin.feet of cut stone laid.
Fill	260.00 8.16	for 1,040 cubic yards of earth fill. for 27 6/27 cubic yards of earth puddling.
Dry wall	829.14	for 552 19/25 perches of dry wall built.
Flag stone	396.50	for 793 square yards heavy flag stone paving.
Other Labor	42.12	for labor, drilling holes in walls, etc.
Total	$ 9,337.07	paid to stone mason Edward Tearney, 1849-51.

Recorded Expenditures

Year:	Tilt Hanner Shop
1845	-
1846	-
1847	-
1848	
1849	506.08
1850	7,398.86
1851	5,113.10
TOTAL	13,018.04
Approp For	17,900.00
For Machinery	25,470.00

Repairs to the Tilt Hammer Shop for Barrel Welding, Bldg. No. 9, 1852 - 1854:

Due to the destruction of the armory paymaster's vouchers for the years 1852 to 1861 by the staff of the National Archives in the 1940's, it is no longer possible to trace in detail the repairs and alterations that may have been made to the tilt hammer shop during this final period.

The superintendent's annual reports, however, do reveal that the following repairs and alterations were made during the years 1852 to 1861:

In the report for the year ending June 30,1852, Brevet Colonel Benjamin Huger noted: "The wood frames for belt tilt hammers have been found to stand much better than iron ones. They answer perfectly well. Solid platforms of stone masonry have been placed under these hammer frames and the two punching presses."[29]

In the annual report for the year ending June 30,1853, Superintendent, Huger reported: "In tilt-hammer shop, for foundations and fixtures for tilt hammers, there has been laid 29 perches of stone masonry, 245 by 2 feet, facing "stone dressed, and 167 yards of flagging."[30] Some of this work may have been done to repair damage caused by the great flood of April 1852.

In the estimates for the 1854-55 fiscal year the sum of $ 700.00 was requested to construct a pavement of stone flagging " in front of the boring mill(Bldg. No. 5 on 1859 map) and tilt shop." It was explained that 'this pavement is required for dry communication with these shops in wet weather.:"[31] Money for this estimate was appropriated on August 5,1854.[32]

29. Serial No. 659, Document No.1, P. 253
30. Serial No. 692, Doc. 1,p.277.
31. Serial No. 714, Document No. 2, p.188,189, item No.12.
32. U.S. Statues at Large, X, p. 578/.

Repairs to the Tilt Hammer Shop For Barrel Welding, Bldg. No. 9, 1855 - 1861:

In the annual report for the year ending June 30,1856, Superintendent Henry W. Clowe reported that"5 and 5/12 feet of counter shafting, for driving heavy drop-hammers in the tilt-hammer shop, fabricated and put in operation, and the hammers set up and put in operation."[33]

He further noted that machinery and fixtures for drawing the head gates at the tilt hammer shop had been completed."These are of cast iron, and of the most permanent and durable construction."[34]

33. Serial No. 876, p.388.

34. Serial No. 876,p. 389.

Description of

Tilt Hammer Shop for Barrel Welding, Bldg. No. 9, 1849-51:

Location: Eleventh building from the eastern or lower head of the southern line of workshops.

Map References: None.

Visual Evidence: The Tilt Hammer Shop can be seen in the following HFNHP Negatives: HF-51 or 256(1857 lithograph); HF-30, photo taken in 1862; HF-10, taken in October 1862; HF-355, taken about 1886; HF-539, taken in 1886; HF-492, taken from Loudoun Heights about 1880;

History and Description:

The Tilt Hammer Shop for Barrel Welding was designed and erected by Major John Symington in 1849-51 at an approximate cost of $ 17,900.00; in addition, about $ 25,470.00 was also spent to purchase and manufacture the machinery for this shop. The Tilt-Hammer Shop for Barrel Welding was a one-story brick structure on stone foundations, 53½ feet wide and from 188 to 190 feet long. The water table, sills, and coping were of cut stone; the door and window frames were of cast iron. The gable roof, covered with slate, was crowned by a ventilator that ran the full length of its ridge. The gutters and downspouts were of copper. Like the other Symington-designed shops, the brick walls of the Tilt Hammer Shop for Barrel Welding were divided into round arch bays and the gable end walls had brick crenelated parapet walls, topped with cut-stone coping, that rose about the gable roof. The gable ends were apparently three bays wide and the side walls were divided into ten bays.

The machinery in the structure was powered by two cast-iron turbine water wheels that had been manufactured by the Ames Manufacturing Company of Massachusetts. There were eight tilt hammers for welding barrels and ram rods; two double tilt hammers for drawing barrel plates and tilting iron and steel; four sets of drop hammers; a large shears; a blow machine; and a large grindstone.

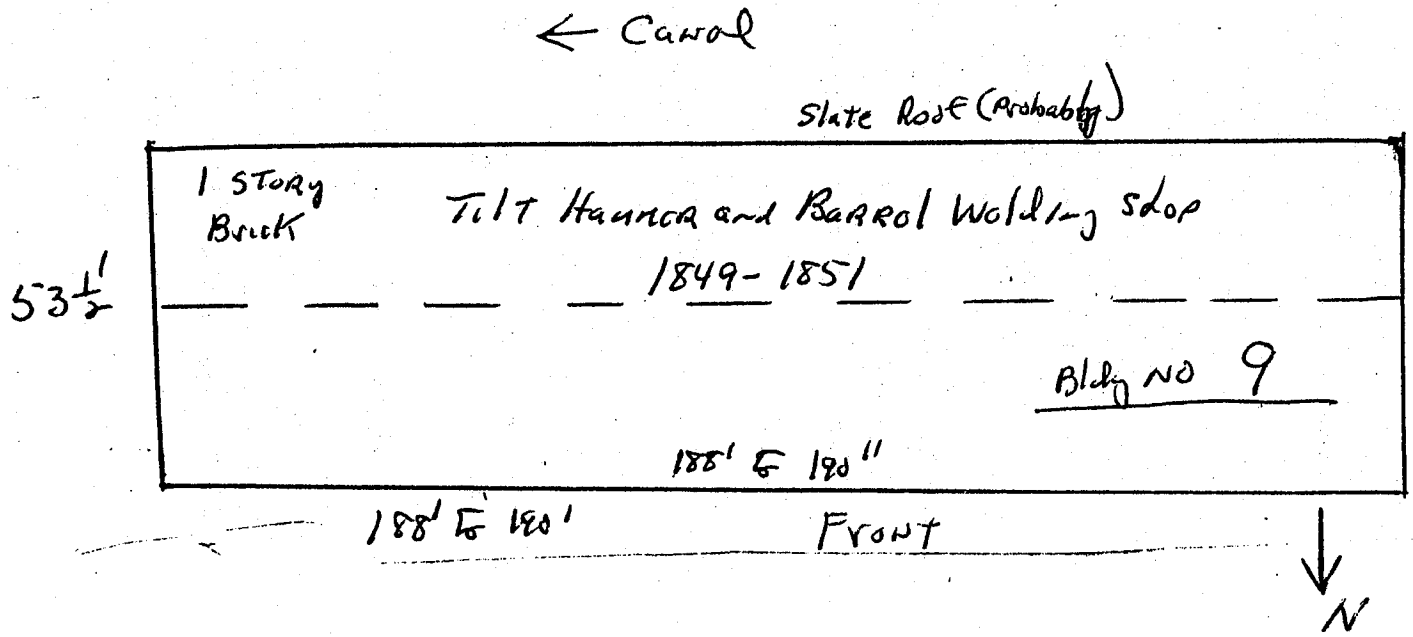
Confederate troops burned the Tilt Hammer Shop for Barrel Welding, Bldg. No. 9, on June 14, 1861, leaving only the one-story brick walls standing. The ruins can be seen in Photo HF- 30, made in October 1862. The brick walls are also visible in Photos HF- 355, HF- 492, and HF-539, all taken about 1886. It is thus certain that Thomas H. Savery, who purchased the Musket Factory tract and Bldg. No. 9 from the United States Government on October 22, 1884, must have demolished the ruined brick walls of Bldg no. 9 after 1886 and prior to 1892 (See Photo HF-99).

The Ordnance Department Inventory of the Musket Factory Property, made ca. 1865-69, describes what is probably Bldg. No. 9 as follows:[1]

> **Rolling Mill and Tilt Hammer Shop. Brick one story, on dressed stone coping to foundation. 17 iron window frames. Length of building 200 feet by 40 ft. 2 door frames iron. Large quantity dressed stone inside over surface of shop. No roof.**
>
> **Turbine Wheel & Flume. The latter about 30 feet length & 4 in. diameter. Iron frames & supports. Wheel & machinery burried /sic./ in ground similar to the one before described.**

1. National Archives Record Group 121, Washington ,D.C., Public Buildings Service, Harpers Ferry File No. 154, n.p., n.d., prepared ca.18865-1869. Cited from James P. Noffsinger,"Harpers Ferry,West Virginia...".pp.124-127. Building numbers added by C.W.Snell. Dimensions of the buildings as given in report are not very accurate. Nearly all structures listed were at least 35 feet wide and not 25 feet as is generally stated.

Bldg No 9


← Canal
Slate Roof (Probably)
1 Story Brick
Tilt Hammer and Barrel Welding Shop
1849-1851
53½'
Bldg No 9
188' E 190'
188' E 190'
Front
N

10. Lumber House and Coal Bin, Musket Factory,1848-49 (Bldg. No. 10):

The lumber house and coal bin is Bldg. No. 10 on Map No. 3(1848) and Bldg. No. 10 on the 1859 historical base map.

Major John Symington's estimate for the 1846-47 fiscal year requested the sum of $ 5,200.00 for the "erection of brick lumber house", explaining that "There is no building for this purpose at the armory, and one is wanted."[1] The requested money was appropriated on August 8,1846.[2] Because the paymaster's vouchers for the 3rd and 4th quarters of 1847 and all four quarters of 1848 are missing from the National Archives Records, it is impossible to trace the construction of this edifice in detail during this period.

Due to the heavy construction program on larger and more important buildings, it is probable that construction on the lumber house and coal bin did not get underway until the spring of 1848, and at the earliest, after July 1,1847. As we shall see, the stone foundations and stone-first story were constructed by Peter Litle and his partner Edward Tearney, and the brick second story by the mason William Collins. Superintendent Symington described the progress of construction of this storehouse in his annual report for the year ending June 30,1848, writing: "The new lumber house has been commenced, and the foundation and first story, which is of masonry, is now nearly up. The lower story of this building will be reserved as a place of deposite for bituminous coal; the dimensions are 77 4/12 by 53 8/12 feet."[3]

The brick second story was erected by William Collins in May 1849 and on June 9, he was paid $ 277.39 for laying 47,642 brick for $ 238.21 and $ 39.08 for setting 156 lin. feet of cut stone water table and 156 feet of cut stone coping.[4] On June 11,1849, Edward Tearney, acting as the administrator of

1. Serial No. 481, Document No. 9,pp. 111.112,Item 8.
2. U.S. Statues at Large, IX, p.69.
3. Serial No., 537,Document No.1, p. 348, Item 5, Musket Factory.
4. 3rd Series, F.9307, V. 35, To Collins, June 9,1849, for $ 272.71,and F. 9307, V. 80, to Collins, July 10, 1849, for $ 4.68- for charges omitted from V. 35.

his deceased partner's estate, Peter Litle, was paid $ 157.76 for the following work in the new lumber house:

filling in and paving, 53 ½ square yards.....	$ 33.43
paving with flag stones, 207 2/9 square yards.....	124.33
	$ 157.76 (5)

In his annual report for the fiscal year ending June 30,1849, Major Symington wrote: "Lumber house, musket factory, is completed except the slating of the roof, which is half done. Dimensions, 53 8/12 by 78 feet. The lower story is of stone, which includes and covers the bituminous coal bins; the upper story of brick, the openings having wooden frames fitted with blinds."[6] Shortly after writing this, in July 1849, a hurricane struck the musket factory yard and the incomplete roof was torn off the lumber house and its brick gable end walls in part demolished.

William Collins was paid $ 7.11 for laying 1,422 brick in rebuilding the gable ends.[7] Redmond Burke also provided 32 feet of cut stone coping to be used in the rebuilding for $ 37.36.[8] The original carpenter work and also the rebuilding of the lumber house was done by Patrick H. Kelly, who received a total of $ 390.00 for performing the following work:

For putting in girders and joists, laying one floor rough, framing and putting up roof, fitting and hanging blinds, doors, &c, for the sum previously agreed on----------	$ 380.00
Broken timbers, occasioned by the falling of gable end walls, removed and replaced by others, for.....	10.00
	$ 390.00 (9)

Finally, on August 9,1849, the slater George W. Tacey was paid a total of $ 109.41 for performing the following services:

5. 3rd S., F. 9307, V.36, June 11,1849, for $ 157.76.

6. Serial No. 549, Document No. 1, p.366. Item 2.

7. 3rd S., F.11000, V. 24, June 26,1850, for $ 7.11-He was not paid to this date, but must have done this work in July 1849.

8. 3rd S.F. 9895. July 24,1849, for $ 37.36.

9. 3rd S., F. 9307, V.79, July 9,1849, for $ 390.00.

For labor of taken off slate roof, 2,622 square feet, of the old stock house(Bldg. No. 12 on Map No.5, 1848, which was being demolished).....$ 13.11

For putting on the slate roof of new lumber house, 4,815 sq.ft.... 96.30

$ 109.41 (10)

In the estimate for the 1850-51 fiscal year Symington requested the sum of $ 495 " for repairing damage to the lumber house at the musket factory," explaining:" The end walls of this building were thrown down by a violent hurricane just as the roof framing was ready to be put on, and many of the timbe were broken..." [11] The money for this purpose was appropriated on September 28, 1850.[12] Prior to this, however, in his annual report for the year ending June 30,1850, Superintendent Symington reported:" The new lumber house,... described in the last report, has been completed."[13]

The total cost of constructing the lumber house and coal bin, 1848-1849, including the rebuilding, was approximately $ 5,695.00.

During the summer of 1850 $ 45.69 was paid to Francis Simmons for "coloring exterior(brick) walls of new lumber house with 3 coats of cement wash, 509 sq. yards.[14] During the summer of 1851, lightning rods- 2 points and 2 leads to the ground- were installed on the new lumber house at a cost of 15 cents per foot, total cost was $ 33.60.[15] Finally, on December 24,1851, the stone mason Edward Tearney received $ 6.75 for the services of a mason for three days, building steps at the coal house.[16]

The destruction by the National Archives staff during the 1940s of the Armory paymaster's vouchers for the years 1852 to 1861 makes it impossible to trace in detail any alterations or repairs that may have been made to the lumber house during this period. Judging from the superintendents' annual

10. 3rd Series, F. 9895, V. 17, August 9,1849, for $ 109.41.
11. Serial No. 568, Document No. 4, pp. 156,157, item 3.
12. U.S. Statues at Large, IX, p.507.
13. Serial No. 587, Document No.1, p.476, item 2.
14. . 3rd S., F. 11542, V. 12, Sept.27,1850, for $ 35.69.
15. 3rd S., F. 12680, July 3,1851 to Decker and Robinson, for $ 33.60.
16 3rd S. F, 13107, V.4, Dec. 24,1851, for $ 6.75.

reports, 1852 to 1860, however, it would appear that no major alterations or repairs were made during these years.

A Coal Scale and Shed, Musket Factory, 1849.

A minor structure erected for Major John Symington in the musket factory yard in 1849 at a cost of $ 85.02 was a coal scale and shed.

The stone mason Peter Litle received $ 45.52 for the following work:

$ # 4.31	for excavating 14 10/27 cubic yards of earth.
39.42	for erecting 26 7/25 perches of stone masonry.
1.79	for paving 14 3/9 sq.yards with brick.
$ 45.52	[17]

The carpenters Landerkin and Rowe were paid $ 39.50 "for making a wooden shed over the coal scale".[18]

The location of this scale in the musket factory yard is unknown. As the coal was delivered from barges that entered the armory canal, the scale was probably located near the armory canal and perhaps adjacent to the Lumber House and Bituminous coal bins, Bldg. No. 10 on the 1859 base map (Bldg. No. 10 on 1848 Map No. 3).[19]

17. 3rd Series, F. 9307, V. 36. June 11, 1849, for $ 45.52-money was paid to Edward Tearny as executor of Peter Litle, deceased.
18. 3rd., F. 9093, V.27, March 3, 1849, for $ 39.50.
19. 3rd S. F. 10276, V. 16, Nov.3, 1849, for $ 160.83.

CONSTRUCTION OF LUMBER HOUSE AND COAL BINS, MUSKET FACTORY, 1848-49

Project	Cost	Description of work
Excavation	?	Excavation for foundations, 1848- Peter Litle.
Foundation walls	?	erection of ? perches stone mortar wall for foundations.
Masonry walls of 1st story	?	construction ? perches of stone mortar walls of 1st story, Peter Litle.
Paving 1st story Floor	$ 157.76	Filling in and paving, 53½ square yards; paving 207 2/9 sq. yards with flag stones, to Peter Litle, deceased.
For brick	?	
For cut stone	37.36	32 feet of coping, replacement.
Brick mason	238.21	laying 47,642 brick, 2nd story.
	7.11	laying 1,422 replacement bricks
	245.32	49,064 brick
	39.08	for setting 312 lin. feet of cut stone (156 feet of water table and 156 feet of coping).
	285.40	Total to brick mason, William Collins.
Carpenter work	380.00	Contract for girders, joists, one rough floor, framing roof, fitting and hanging blinds, doors. etc.
	10.00	replacing damaged girders, etc.
	390.00	To carpenter Jesse Schofield.
Slating:	13.11	labor for taking 2,622 feet slate off old stock house.
	96.30	for putting 4,815 square feet slate on lumber house roof.
	109.41	To slater George W. Tacey (or Tracey).
Gutters & spouts	?	for ? feet of copper gutters and ? feet of copper downspouts.
Total:	$ 979.03	(Probably total cost: $ 5,695.00, including $ 495 for repai

RECORDED EXPENDITURES

Year :	Lumber House	Coal Scales
1845	-	-
1846	-	-
1847	-	-
1848	?	-
1849	971.92	85.02
1850	42.80	-
1851	40.35	-
TOTAL	1,054.87	85.02
Approp. For	5,695.00	0

Description of
Lumber House and Coal Bins, Bldg. No. 10, 1848-49:

Location: Seventh building from the eastern or lower end of the northern line of workshops.

Map Reference: Bldg. No. 10 on Map No. 3 (1848).

Visual Evidence: There are no known views or photgraphs of this structure. Located at the extreme western or northern end of the line of workshops bordering the Potomac River, the lumber house stood in an area that was not photographed or drawn. HFNHP Photographs which do show or come close to its site(without the structure being visible) include the following: HF=10, taken in 1862, what may possibly be one ruined wall can be seen); HF-9, taken in 1862; HF 83,taken about 1875; HF -492, taken about 1880.

History and Description:

The Lumber House and Coal Bins were designed and erected by Major John Symington in 1848-49 at a cost of approximately $ 5,695.00. The two-story structure stood on stone foundations, the first story, which contained bins for bituminous coal, had stone walls and a flagstone floor; the second story, which contained the lumber room, was of brick and its windows were adorned with blinds. The water table and coping were of cut-stone. The gable roof was covered with slate and the gutters and douwnspouts were probably of copper. If designed in the same style as the other new buildings then being erected, the stone first story contained round arches with recessed stone panels and the bays on the second brick story had windows with flat arches.

The lumber houses was 58 feet 8 inches wide and 77 feet 4 inches to 78 feet long.

Coal Scales Shed, 1849:

Location: Unknown, but perhaps adjacent to Bldg. No. 10, the Lumber House and Coal Bins, at the western or upper end of the Musket Factory yard.

Map References: None.

Visual Evidence: None.

History and Description: This wooden shed on stone foundations was erected by Major John Symington in 1849 in the Musket Factory yard to shelter the coal scales. Cost of construction was about $ 85.00. Size of the building is not known.

Confederate troops burned the Lumber House and Coal Bins, Bldg. No. 10, on June 14, 1861.

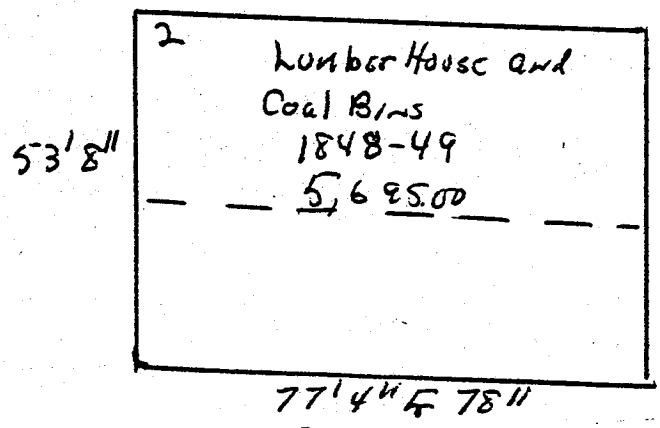
The Ordnance Department Inventory of the Musket Factory Property, made ca, 1865-1869, describes what is probably The Lumber House, Bldg.10 (the building is listed as standing near Bldg. No. 9), as follows:[1]

Walls of Arched Warehouse. All of masonry 1 story 70 ft. by 50 ft. (Bldg. 10) (Lumber House and Coal Bins)

This indicates that brick lumber room ,which formed the second story of this structure had been demolished. The one-story stone first story, with arches, the coal bin section, however, was still standing . What may be a wall of Bldg. No. 10 can be seen in Photo HF- 10, taken in October 1862. HF- 529 and HF- 492, both taken about 1886, indicate that the first-story stone walls of Bldg. No. 10 had been levelled by that date.

1.National Archives Record Group 121, Washington ,D.C., Public Buildings Service, Harpers Ferry File No. 154, n.p., n.d., prepared ca.18865-1869. Cited from James P. Noffsinger,"Harpers Ferry,West Virginia...".pp.124-127. Building numbers added by C.W.Snell. Dimensions of the buildings as given in report are not very accurate. Nearly all structures listed were at least 35 feet wide and not 25 feet as is generally stated.

Brick & Stone Slate Roof



Bldg No. 10

11. New Stock and Store House, Bldg. No. 11, (New Arsenal Site), 1854 - 55: (and Grounds):

The New Stock and Store House, Bldg. No. 11 on the 1859 historical base map is considered a part of the Musket Factory establishment even though the structure was not located in the factory yard, but on the south side of the armory canal, on the side of the hill between the canal and High or Washington Street.

In 1849, Col. Henry K. Craig had recommended that a new arsenal building to store muskets and rifles should be erected to replace the two original arsenals structure which dated from 1799 and 1806.[1]

As a result of the great and destructive flood of April 1852, it was decided to erect the new arsenal well above flood level, on the side of the hill overlooking the Musket Factory. The estimate for the 1852-53 fiscal year contained a request for $ 16,450 " for the erection of an arsenal, or storehouse for small arms." It was explain that the new building was needed because:

> The old arsenal is in a dilapidated condition, and is insufficient and unfit for the storge of small arms; the lower floor being subject to be flooded at high water. Its location is also bad; being in the business part of town (on Block A, Shenandoah Street), with private buildings in its immediate vicinity, and the Winchester railroad passing within 30 feet of its walls. The proposed building is to store finished arms, and will conveniently hold 80,000 stand. The proposed location for it is convenient to the other armory buildings, and remote from private property." [2]

Congress appropriated the money for this project on August 31,1852.[3] In the estimates for the 1853-54 fiscal year, Col, Benjamin Huger asked for an additional appropriation of $ 13,700" for completion of new arsenal and enclosing wall," explaining: "The old arsenal is dilapiated, and so low as always to be liable to inundation. It is on one of the lots (Block A,Shenandoah) not required for armory purposes, and will be sold. The plan of the arsenal building heretofore proposed will have to be enlarged to receive the property it was intended to store

1. Captain William Maynadier of Ordnance Office to Supt. John Symington, May 8, 1849, Harpers Ferry NHP Microfilm reel No. 19, Vol. 4, p.383.
2. Serial No. 633, Document No. 2, p. 212, Item No. 1.
3. U.S.Statues at Large, X, p. 107.

"in the old arsenal, and also muskets in the upper part, out of the reach of floods."[4] Congress also voted this money, on March 3,1853,[5] thus making a grand total of $ 31,150 available for this project.

Work on the site was underway in the spring of 1853 and on June 30,1853, Brevet Colonel Benjamin Huger described the progress in his annual report as follows: "To carry off water from foundations of new arsenal, the road above (High or Washington Street) has been graded and drains constructed; 419 feet of stone wall built, averaging 7 feet high by 4 thick."[6]

The new superintendent, Major William H. Bell, in his annual report of the year ending June 30, 1854, reported:

" New Arsenal: Foundation for this building nearly excavated. The lumber,cast-iron pillars, window and door frames, and roof irons purchased and delivered."[7]

In July 1854, however, Major Bell decided that the hillside would not be a suitable place to erect the new arsenal and recommended that it should be constructed on Old Arsenal Square, Block A, Shenandoah. In his inspection report, dated July 19,1854, Lieutenant Colonel R. S. Baker, Inspector for the Ordnance Department, concurred in and supported both of Huger's proposals regarding the proper site for the new arsenal.[8] Chief of Ordnance Col. Henry K.Craig approved the change in plans.

The estimate for the 1854-55 fiscal year thus contained a request for $ 8,000 "for building a new stock-house," explaining that "The cellar and first floor of the present stock-house (Bldg. No. 7) was covered with water during the last flood, in 1852. A large number of stocks have been collected

4. Serial No. 675, Document No. pp. 257-258, item No. 1.
5. U.S. Statues at Large, X, p.217.
6. Serial No. 692, Document No.1, p.277.
7. Serial No. 747, p. 361.
8. Inspection Report of Lt.Col. Baker, July 19,1854, Harpers Ferry NHP Photostaic Collection, Vol. 3, pp. 54-55.

"for seasoning, and a suitable building is required to keep them secure. The plan of the building will be furnished before the meeting of Congress."[9]

Also requested in this same estimate was $ 400 " for a post-and-rail fence to enclose arsenal grounds." "This was necessary." it was explained," to preseve the drains and slopes, which are liable to be injured by cattle."[10]

An additional $ 400 was desired "for drains and culverts", "To conduct water from the slopes and hill-sides, above the (Musket Factory) canal, to prevent wash, and to pass the water from the foundations of the arsenal and proposed stock-house."[11]

Congress appropriated the rquested total of $ 8,800 for these three related projects on August 5, 1854.[12]

Thus in August,1854, the plans to erect the proposed new arsenal on the hillside south of the new Tilt Hammer and barrel welding shop, Bldg. No. 9, were abandoned and Major William H. Bell prepared the plan for the actual structure, Bldg. No. 11, the Stock and Store House, which was to be constructed on the proposed arsenal site, in 1854-55.[13]

Master Armorer Samuel Byington, serving as acting superintendent, supervised the construction of the new stock house. On December 30,1854, Byington reported that the foundations walls and brick walls of the first story had been completed.[14]

He also informed Col. Craig that: "instead of putting a wooden fence on the ..... government line on Washington Street, I have constructed a permanent Stone- wall, ... from stone saved from the foundations of the buildings torn down by the U.S. on that line. This wall is a most useful improvement,as it widens the street about double its original width and secures the face of the hill below from the work of the hill."[14a]

9. Serial No. 714, Document No. 2, pp.188-189, item No. 2.
10. Ibid., item No. 7.
11. Ibid., Item No. 9.
12. U.S. Statues at Large, X, p.578.
13. Also see Smith, Philip R , Jr."Research Report- History of the Large and Small Arsenals, 1796-1869, Block A., Lots 2, 3,4, 5, 6, and 7, Shenandoah Street, Harpers Ferry National Monument, West Virginia,"(NPS typescript, Harpers Ferry NM, W.Va., April 29, 1959),pp.21-25.
14. Col. H.K. Craig to Master Armorer in Charge Samuel Byington, August 24,1854, Reel 19, V. 7, p.655; Byington to Craig, December 30,1854, Reel 25, Vol. 11, p.4, 7.
14a, Ibid.

In his first annual report, for the fiscal year ending June 30, 1855, the new superintendent, Henry W. Clowe wrote:

" New stock house. Commenced and nearly completed; of brick, 100 by 35 feet, two stories, covered with slate, on stone foundations, cut-stone water-table; the doors and window frames are of cast iron. This building only needs the painting "of the (brick) walls outside to complete it. The foundation is that which was reported last year as nearly excavated for the new arsenal."[15]

In his report for the year ending June 30,1856, Clowe recorded: "The new stock-house, reported as nearly completed last year, has been finished, and is now occupied."[16]

The cost of the new stock and store house was probably about $ 8,800.00. The gutters and downspouts were probably of copper.

15. Serial No.841, p.556.
16. Serial No. 876, p. 389

Year	New stock: House -grounds
8/31/ 1852	
3/3 / 1853	
3/5/ 1854	8,800
Total	$ 8,800

Bldg. 11

Year:	New Stock House & Grounds
3/3/ 1855	
8/30/ 1856	3,183
3/7/ 1857	1,000
6/12/ 1858	
3/3/ 1859	800
6/21/ 1860	
3/2/ 1861	
TOTAL	$ 4,983

The New Stock House, Bldg. No. 11, Grounds, Grading and Fencing, 1855 - 1860:

On April 23, 1856, a joint resolution was passed by Congress that authorized the Secretary of War to apply the proceeds, amounting to $ 33,725.27, that had been collected from the 1852 sale of U.S. lots and Armory dwelling houses to making improvements on the Armory land at Harpers Ferry.[17] On June 28, 1856, the Chief of Ordnance, Col. Henry K. Craig notified Superintendent Henry W. Clowe that the Secretary of War had approved the expenditures of the 1852 sale proceeds on 10 improvement projects, among which was Item No. 5, $ 1,000 "for enclosing grounds of new magazine (which was located on Camp Hill) and stock house. (Bldg. No. 11)."[18]

In the estimates for the 1856-57 fiscal year Superintendent Clowe also requested an appropriation of $ 3,183.00 for the following two projects on the new Stock House yard:

1. $ 1,324 "for enclosing new-stock-house," explaining: "This building is outside of the armory enclosure, on the south side of North Cliff street, and to protect it will require a fence on the north side next the street, and the adjoining grounds. It is proposed to construct it of a foundation of stone, with brick piers, coped with cut stone,

17. U.S. Statues at Large, Vol. 11, p.143.
18. Craig to Clowe, June 28, 1856, Reel 19, V.9, p.871.

"similar to the style of the opposite fence or railing, on the south side of the (musket factory) canal; wood railing and paling in the spaces between the their piers. The length will be about 675 feet."[19]

2. $ 1,859.00" for further grading and terracing the hill-side." Clowe explained:

> The appropriation heretofore made for this purpose will be all exhausted in the current fiscal year, and this sum will be further required to continue the grading on the plan proposed for this hill and the grounds adjoining the new stock house and new magazine. The heavy rains of the present summer have seriously broken up the irregular surface of these grounds, and will every year increase the gullies and deep washes, unless timely care is had in grading and terracing the portion liable to these damages; that portion of the hill-side on which the expenditure of the appropriation for the current year has been devoted has withstood the unusual rains remarkably well. "[20]

Congress appropriated the requested total of $ 3,183.00 on August 30, 1856.[21] With the money from the 1852 sale included, there was a total of $ 4,183 available for work on the new Stock House yard: $ 2,324 for erecting fences and $ 1,859 for grading.

Prior to the receipt of this money, Superintendent Clowe, in his June 30,1856 report, described the progress that had been made on the new Stock House area as follows:

> "The hill side of the reserved (U.S. owned) ground, lying immediately on and south of (North) Cliff street, overlooking the armory between Washington and Cliff street, has been graded and terraced as far as the ravine dividing this from magazine hill. The terraces have been planted with forest trees. This work embaces about 7,000 cubic yards of excavation and filling, 30 perches of stone masonry, and 430 lineal feet of walled culverts and drains."[22]

"Harper's Ferry Armory from Magazine Hill," a lithograph by Ed. Beyer and published in his Album of Virginia, Dresden, 1857 , deplicits accurately and in detail the hill side grading, planting, and also Bldg. No. 11, the Stock House.[23]

19. Serial No. 865, p. 244, 245, item No. 3.
20. Ibid., item No. 4.
21. U.S. Statues at Large, XI, p.150.
22. Serial No.876, p.391.
23. Harpers Ferry NHP Negative No. 51 or 256.

In his report for the fiscal year ending June 30,1857, Superintendent Henry W. Clowe reported: "A portion of the hill-side of the magazine grounds, has been terraced, graded, and drained, requiring 260 perches of masonry, 440 yards sodding with grass, and 3,342 yards of excavation and filling, with 60 panels post and board fence."[24]

In what proved to be his final annual report, dated June 30 1858, Clowe noted that " All the reserved grounds, including the area within the armory enclosure, the terraces below the new magazine, and in rear of the new stock house, have been carefully improved at considerable cost, and many of the streets graded and rendered easy of access and ordinary travel."[25]

In the estimates for the 1859-60 fiscal year the sum of $ 800 was requested "For new fence along Washington street and on the hill side at right angles therewith to North Cliff street." It was explained that "This fence is essential for the preservation of the grounds around the new magazine and new stock-house."[26] Congress voted the money for this project on March 3,1859.[27]

In his first annual report, dated June 30,1859, Superintendent Alfred M. Barbour noted that "The new stock-house has been fitted up for stocks."[28] No further work on the Stock House or its grounds were reported in the annual report for the fiscal year ending June 30,1860.

From August 5,1854 to 1860 the Armory spent some $ 15,833 on Bldg. 11 and its hillside site. This included $ 8,000 for building the new Stock House, $ 3,524 on fences and walls, and $ 4,359 on grading, planting, and drains.

24. Serial No.920, p.551.
25. Serial No. 976,p. 1319.
26. Serial No. 996, p. 181, 182, item No. 7.
27. U.S. Statues at Large, XI, p. 433.
28. Serial No. 1025, p.1114.

Description of
New Stock and Store House, Bldg. No. 11, 1854-55:

Location: On the south side of North Cliff(later Potomac) Street, directly south of Bldg. No. 9, the Tilt Hammer Shop for Barrel Welding.

Map References: None.

Visual Evidence: The new Stock House can be seen in Harpers Ferry NHP Negatives No. HF-51 or 256, a lithograph that was published in 1857, and in HF-10, a photograph that was taken in October 1862.

History and Description:

The Stock House was designed by Major William H. Bell in the same architectural style that Major John Symington had applied to all the major workshops and storehouses that had been erected at the musket and rifle factories during the period 1846 to 1851. Construction of the Stock and Store House was supervised by Master Armorer Samuel Bymington and Superintendent Henry W. Clowe, August 1854 to July 1855. The cost of construction was approximately $ 8,000; another $ 4,359 was spent on grading, planting, and draining the hill side site, and about $ 3,524 was expended on fencing and enclosing the Stock House and new Powder Magazine yards. Total cost of building on the hillside thus probably exceeded $ 15,833.00.

The Stock House was a two-story brick structure with a slate covered gable roof that was 100 feet long and 35 feet wide. Built on stone foundations, the edifice had cut-stone water table, sills, and coping. The door and window frames were of cast iron and the downspouts and gutters were of copper. The exterior brick walls were painted with " patent paint in oil."

The gable ends were divided into three bays and the long sides each had nine bays. These followed the typical Symington plan: Each first-story bay was comprised of a recessed panel that was sent within a relieving round arch that was supported by capped brick pilasters. Round arched windows or doors were set in each panel. On the second story, the recessed panels were set within flat arches and the windows were also topped by flat arches. Brick parapet end walls, adorned with recessed rectanuglar panels, crenelated, and

topped with cut-stone coping, rose above the ridge of the gable roof at each end of the Stock House.

Inside, cast-iron pillars were used to help support the load of the second floor. It is not known if the Stock House had a basement, if so, then cast iron pillars would also have located in the cellar to help support the load of the first floor.

Confederate troops burned the Musket Factory and Bldg. No. 11 on June 14, 1861. The ruined brick walls of Bldg. No. 11 can be seen in Photo HF- 10, taken in October 1862. The structure also appears on Map No. 8(1866). The walls were apparently reroofed by the Union Army for use as a warehouse during 1864-65. When Brigadier General Edward Ramsay inspected the Harper's Ferry Armory on July 27, 1865, he reported to Chief of Ordnance, Brigadier General A B. Dyer, that Bldg. No. 11, "the brick Old Stock House", was still standing on the south side of North Cliff or Potomac Street, just across from the Musket Factory yard, in fair condition. It was being used by the Ordnance Department and was known as Ordnance Department Warehouse No. 4.[1]

"Catalogue of the Harper's Ferry Armory Property to be sold by the United States on the 30th November, 1869, at the Town of Harpers Ferry, Va.," describes what is probably Bldg. No. 11 on Block AA, on Washington and Potomac Streets, Lot No. 10, as follows: "137 feet on Potomac street, 72 feet on Ridge Street, 290 feet on York Street, and 265 feet with Lot 9, SOAP FACTORY,"(See Map No. 5-1869) for location of Lot 10, Block AA.

1. Brig. E. D. Ramsay to Brig. Gen. A.B. Dyer, July 27, 1865, Harpers Ferry NHP Photostats, Vol. 4, pp. 50-67, and list of Buildings in Photostat Collection, Park Map Case, Drawer No. 10.

Lot No. 1, Block AA, Camp Hill, together with the "Soap Factory", Bldg. No. 11, was purchased by Thomas T. Earnshaw for $ 600.00 in December 1869.[2] Earnshaw, however, failed to pay for the property. In the sale of U.S. property at Harpers Ferry, held May 25, 1880, Lot 10, Block AA, was offered only for lease by the Solicitor of the Treasury Kennth Rayner.

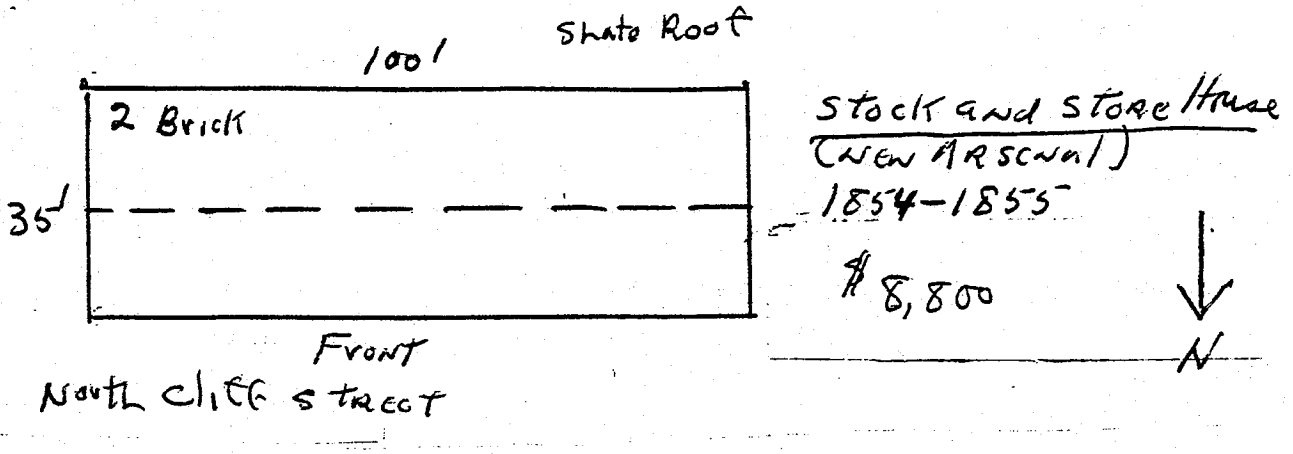
At the Public sale of U.S. Armory land held October 22, 1884, Lot 10, Camp Hill, Block AA, now described as vacant, was sold to James Conway and Edward Tearney for $ 100.00.[3] The United States issued the deed for Lot 10 when Conway and Tearney completed their payments on the property, on October 22, 1886.[4]

Building No. 11 thus apparently fell into ruin between 1869 and 1880 and had been demolished by 1884.

2. Serial No. 1580, pp. 6-7.
3. Serial No. 2387, Document No. 7, Part Q, p.293.
4. National Archives Record Group No. 121, Public Buildings Service, Entry 58, Warrenty Deeds to Lands conveyed by the Ordnance Department, III, 619.

Bldg No 11

High Street



North Cliff Street

Musket Factory

← Canal

Musket Factory yard

12. The New Warehouse for Iron, Steel, and other Supplies, 1841-43: (Bldg. 12)

This large two-story warehouse, built in 1841-43 of cut-stone and brick, was to be the first structure erected in a new generation of architecturally impressive and substantially-constructed workshops and storehouses that were to be built 1842-1861 to replace the earlier(1800-10) non-discript edifices at the U.S. Musket Factory and U.S. Rifle Factory. This new warehouse is Bldg. No. 10 on Map No. 2 (1844), Bldg. No.18 on Map No. 3 (1848), and Bldg. No. 12 on the 1859 Historical Base Map.

Major Henry K. Craig's estimates to the Ordnance Department for funds to construct the new warehouse have not been found. His estimate may have been attached to the Board of Inspection's Report of February 22,1842 and then been lost. As construction on the foundations was underway in November 1841, there is a possibilty that he was drawing on $ 3,400 appropriated by Congress on July 2,1836 to erect "a store house to contain condemned component parts of arms, defective materials, scraps, of stone, 80 by 30 feet, two stories high, with slated roof."[A]

The new warehouse was to be located at the eastern or lower head of the northern line of Musket Factory workshops and adjacent to the Potomac river wall. Extensive preparations, which apparently included extending the great stone river wall eastward and considerable filling behind the wall, were required to prepare the site for the construction of the foundations of the great warehouse. A total of $ 1,892.82 was

A. Estimate in Serial No. 288, Document No. 90, pp. 7, 8.

expended for this purpose in the 4th quarter(October-December) of 1841. The mason George Mattlingly received $ 1,833.82 of the total: $ 1,119.94 for building 756 18/25 perches of dry wall,the "foundation walls of a warehouse" and $ 507.88 for "filling in 2,412½ cubic yards of embankment "for foundations of a warehouse." The balance of $ 59.00 was spent to acquire 29½ barrels of cement for use on the project.[1]

On March 17,1842, the following "Notice to Builders" appeared in the Virginia Free Press:

Written proposals will be received by the Superintendent of the Harper's Ferry Armory until the 31st instant, for the erection of a BRICK WAREHOUSE, at Harpers-Ferry, Va...

The builder to furnish all materials and labor, such as Brick, Mortar, Stone Window Caps and Stools, Stone Door Caps, and Sills, Stone Cornice, and Staging.

The Brick, Lime and Sand to be of the best quality, and the stone to be hammered, either all lime granite, or the best quality of stone, found on the Government land at this place.

Builders will state their price per thousand for the brick work, and the price per foot (superficial) of exposed stone-work,specifying the different kinds of stone.

The work to be finished before the 31st July,1842, in the best manner, ,and to the entire satisfaction of the Superintendent of the Armory.

The building will be erected on a foundation already prepared, and will be 93 by 30 feet, two stories high, and the walls 18 inches thick... [2]

This advertisment indicates that the plans for the intended structure had been completed by March 1842, but for reasons that are not known, actual construction on the warehouse ceased until the fall of 1842, when the masons were paid a total of $ 279.42 for making further improvements to the foundation and the stone cutters received $ 843.49 for providing approximately 1,472 feet

1. National Archives Record Group 217, Washington,D.C. U.S. Treasury Department, Records of the Second Auditor, 2nd Series, File No. 6718-Voucher No. 84 to Mattingly dated Nov.22,1841; Voucher No. 85 to George Reynolds and Co. for cement, dated December 31,1841.

2. R.G.217- 2nd S., File 1837-Voucher No. 1- Bill from J.S. and H.N. Gallagher for $ 2.00 for Proposal,March 17,1842-apparently run for two weeks. Bill not paid until April 6,1843

of cut stone for use in the new building. George Lynch received $ 57.42 on September 19,1842 for making 287 cubic yards of "embankment at the east gable end of the warebouse;[3] on December 24,1842 the stone mason Peter Litle was paid $ 222.00 for building "148 perches of stone wall to protect the embankment at the gable end of new warehouse and connect the end of the river wall with the same."[4] This expenditure brought the cost of the foundation and site to $ 2,172.24. Of the cut stone, Redmond Burke & Co. provided 1,255.3 feet and received $ 713.49 for his work.[5] The balance, 216 and 2/3 feet was purchased from Daniel Pine for $ 130.00.[6] A total of about $ 1,122.91 appears to have been expended on the construction of the new warehouse in 1842. Included in one of Burke's orders were 44 window sills, totaling 291 feet of cut stone, and four door lintels, totalling 59.8 feet., also 124.8 feet of "bases."[7]

The stone cutter Redmond Burke delivered an additional 1,781 feet of cut stone in the fall of 1843 and was paid a total of $ 1,059.63 for his work. Included were 258 feet of cut stone for "underpining of the base of the warehouse;" 110½ feet cut stone for caps for quadrant and square windows (probably at third story levels of east and west gable ends), window sills at base basement of warehouse" "Door & window sills, caps, and door posts, and 427 feet 2 inches of stone cornice.[8]

Peter Litle, the stone mason, was paid $ 196.50 on November 28,1843 for "building 102 perches of mortar stone wall, part of foundation of warehouse, for setting stone underpining,and setting cut stone window and door sills.[9]

3. R.G.217-2nd series-File 7654-V. 66.
4. R.G. 217-2nd S-V. F. 8011-V. 95.

5. Record G.217 , 7654-V.1; 8011-V.90; 8011-V. 89; all 2nd S.
6. R.G.217- 2nd S., 7654-V. 68.
7. R.G. 217-2nd S., 8011-V. 89.
8. R.G.217-3rd Series, F. 187-V. 118; F.440-V. 73 and 74, Sept. 29/1843; July 11,1843; 630-V. 93, Nov. 3, 1843.
9. R.G. 217 -3rd S., 630-V. 27.

The stone cutters and stone masons appear to have received a total of about $ 4,272.86 for their contributions to the construction of the new warehouse from 1841 to December 31,1843.

The brick walls of the warehouse were erected by the brick mason John Lambaugh in the fall of 1843 for a total of $ 1,660.10. He furnished the materials, laid 168,072 bricks for $ 1,596.68 and also set 634 linear feet 3 inches of cut-stone cornice and "window and door caps" for the sum of $ 63.42.[10]

The vouchers of the Armory Paymaster apparently did not specify the carpenters who framed the roof and put in the flooring(they may have been carried on the regular Armory payrolls and paid a daily rate). Other vouchers however, indicated that 5,068 feet of yellow pine for use as joists in the new warehouse were purchased in October 1843 for $ 76.02.[11] Also acquired at a cost of $ 70.14 was 4,008 feet oak plank"for warehouse."[12] Total cost of lumber used in the construction came to about $ 146.16, exclusive of the services of the carpenters.

William Bayley slated the roof of the new warehouse, 3,920 square feet, in November 1843 and was paid $ 431.20 for providing the materials and doing the labor.[13] The tinsmith Benjamin M. Snook made and put up the copper gutters and down spouts on the new warehouse, receiving $ 130.97 for his services in December 1843.[14]

About $ 2,368.43 had been spent on the construction of the building during 1843 and the new warehouse appears to have been largely completed by December 31, 1843.

10. R.G. 217- 3rd S, F. 630-V.100-dated November 22,1843.

11. R.G. 217- 3rd series, 630-V. 3-Oct.23, 1843.
12. R.G. 217-3rd S. 630-V.98-November 24,1843.
13. R.G. 217- 3rd S.,630-V.24- November 24,1843.
14. R.G. 217- 3rd S..630-V. 48 December

Final touches costing a total of approximately $ 84.14 were made in 1844 to complete the structures. James Bowen was paid $ 72.39 on May 11,1844, for plastering 580 square yards"in upper room of warehouse, two coats"for $ 58.00 and $ 14.39 "for plastering lower room, 359 7/9 square yards, one coat."[15] Benjamin Snook put up some additional copper spouting for $ 4.00.[16] Stone cutter Timothy McBrierty was paid $ 6.00"for cutting 8 stone bases for columns in warehouse."[17] Stone cutter Redmond Burke, in October 1844, received $. 1.75 "for one days work drilling holes for door irons at warehouse."[18]

Total costs of construction, 1841 to 1844 were approximately $ 6,725.43, exclusive of the cost of the labor of the carpenters. With this item included, the total cost of erecting the new warehouse,1841-44, was probably about $ 7,100 to $ 7,200.

In a report to the Secretary of War dated January 6,1845, Lt. Col. George Talcott, Chief of Ordnance reported that"A storehouse of two stories, 93 by 30 feet, has been built for storing iron, steel, and other supplies, in a location (at the Musket Factory) much more convenient to the shops than the place formerly used for such purposes."[19]

Major John Symington, who followed Major Craig as Superintendent of the Harper's Ferry Armory in November 1844, also described the new warehouse in his first annual report of operations, July 1,1844 to June 30,1845, as follows:

15. R.G.217-3rd S., 1165-V. 21-May 11,1844.
16. R.G. 217-3rd S., 1165-V.90, July 9,1844.
17. R.G.217-3rd S., 1698-V. 35, September 13, 1844.
18. R.G. 217-3rd S., 1934-V.8, October 28,1844.
19. Congressional Serial Number Series-Public Documents of the United States, Serial No. 464, Document No. 43, p.2.

"A store-house of brick, on stone foundations, 93½ by 30 10/12 feet, two stories high, and covered with slate.

The two floors of this building have been fitted up with frames, racks, and shelves suitable for exhibiting the different varieties of stores deposited, the heavy articles on the lower floor, including all the sizes of iron and steel in separate lots." 20

As has been mentioned, the new warehouse appears as Bldg. No. 10 on Map No. 2(1844) and Bldg. No. 18 on Map No. 3 (1848).

Construction of Warehouse, Musket Factory,
1841- 1844 Bldg. 12 1859 Base Map.

Project	Cost	Description of Work
Embankments for Foundations	$ 565.30	For fill and embankments of earth 2,699½ cubic yards
Building dry Walls	1,585.41	1,083 2/25 perches of stone dry wall.
Foundation Mortar walls	153.00 24.95	for laying 102 perches of mortar masonry for setting stone underpinings.
Cement	59.00	for 29½ barrels of cement
To Cut stone masons	1,922.84	for providing 3,159 feet 3 inches of cut stone and other work by stone cutters.
Bricks	1,601.43 81.97	for providing and laying 168,072 bricks. for laying 634 feet 3 inches of cut stone cornice and setting door and windows sills.
Lumber	146.16	5,068 feet yellow pine for joists, $ 76.02. 4,008 feet of oak for flooring, $ 70.14.
Carpenter Work	?	Laying floors and framing roof.
Slating	431.20	providing and slating 3,920 square feet, roof of warehouse.
Gutters & Spouts	134.97	Making and putting up copper gutters and downspouts on roof.
Plastering:	72. 39	plastering total of 939 7/9 square yards: 580 yards, 2 coats in upper room, 359 7/9 yards one coat in lower room.
Total:	$ 6,778.62	Probable total cost: $ 7,100- $ 7,200.

20. Serial No.470, Document No. 1, p. 419.

Repairs and Alterations to the Warehouse, 1845 - 1851:

The warehouse is Bldg. No. 18 on Map No. 3 (1848).

In 1849 approximately $ 341.95 was spent making repairs to the warehouse.[21] This included $ 1.31 for repairing gutters; $ 12.00 for putting up handrail and banister stairs of storehouse;[22] 50 cents for one-fourth day work of brick mason;[23] $ 47.32 "for coloring [exterior] walls of storehouse with cement wash;[24] and finally, $ 281.32 for "filling in the "cellar of warehouse" with 398 3/4 cubic yards for $ 119.62 and paving ground floor, 269½ square yards" for $ 161.00.[25] In his annual report for the year ending June 30,1849, Major Symington described the work on the cellar of the warehouse as follows : "The wooden floor of [the] new storehouse, at the musket factory, being decayed, fell in; the damage has been repaired by filling in the space an average depth of five feet with quarry spalls, and covering with large stone flagging."[26] To recover the money that had been expended in repairing the wooden first story floor, the annual estimates for July 1,1850-June 30,1851 requested the sum of $ 505.00 to cover the cost of this construction.[27] Congress appropriated the requested amount on September 28,1850.[28]

Final changes to the building that can be documented from existing Armory Paymaster records occurred in June 1851, when $ 31.35 was spent to have lightning rods installed on the warehouse. Two points with two leads to the ground, 209 feet, were placed on the storehouse.[29]

21. R.G. 217-3rd S., 9093-V.7-Jan.27,1849-to Tinsmith Henry W. Edwards.
22. R.G. 217-3rd S., 9307-V. 77-July 9,1849-William J. Rose, Carpenter.
24. R.G. 217-3rd S.-10276-V.16-Nov. 3,1849-Fancis Trinmous.
23. R.G. 217-4rd S, 10276-V. 8-Oct.10,1849-William Collins,brick mason.
25. R.G.217-3rd S., F. 9307-V. 36- June 11,1849=To Edward Tearney, as executor of the estate of Peter Litle, decased stone mason.
26. Serial No. 549-Document No. 1, p. 366.
27. Serial No. 568, Document 4,p.156-157.For repairing the storehouse at Musket Factory -$ 505.00. The wooden floor of this building having fallen in from the decay of the timber, it becomes necessary to provide a new flooring,which is to be made permanent by filling in with quarry spalls to the level of the floor, and paving with rough flagging."
28. U.S. Statues at Large, IX, p. 507.
29. R.G. 217-3rd S., ‡2680-V. 69- July 3.1851 to Decker and Robinson, They charged 15 cents a foot. Total of bill $ 31.35.

Construction underway:

Calender Year	Musket Factory Warehouse, built 1841-44
1841	yes
1842	
1843	yes
1844	yes
To June 30, 1845	no
Estimated Cost	$ 7,200.00

Recorded Expenditures

Year:	New Warehouse
1845	
1846	
1847	
1848	
1849	342.64
1850	
1851	31.35
TOTAL	373.99
Approp.	505.00

Description of

Warehouse for Iron and Steel, Bldg. No. 12, 1841- 44:

Location: At the lower or eastern head of the northern line of workshops.

Map References: Bldg. No. 10 on Map. No. 2(1844); Bldg. No. 18 on Map No. 3 (1848).

Visual Evidence:

The description of the 1841-44 warehouse that follows is based on the documentary evidence presented above and on photographic evidence. The structure can be seen in the following historical photographs: HF- 64(1859) east and north elevations); HF-66 (1859) south slope of roof only; HF-492 (1861) east and north elevations; HF-49(1861),east and north elevations; HF- 30 (1862),west and south elevations; HF-27B (1864-65) closeup east and south elevations; HF-38 (1865-66); part of west and south elevations. HF- 355(ca.1880-86) showing warehouse had been demolished by this date.

History and Description:

The new warehouse was designed and erected by Major Henry K. Craig, 1844, at an approximate cost of $ 7,200.00. The structure measured approximately 93 feet 6 inches by 30 feet 10 inches, had stone foundations, and was two stories, brick, in height. Its gable roof was covered with slate and provided with copper gutters and downspouts. The water table, cornice, window and door lintels and sills were of cut stone. A series of stone columns in the original full basement supported the wooden floor of the first floor. When this floor decayed and fell in 1849, the cellar was filled in to about first floor level with quarry spall and then paved with large flag stones. The photographs reveal that the warehouse, at the second floor level, was three bays wide and seven bays long, thus apparently having a total of 20 windows topped by flat arches

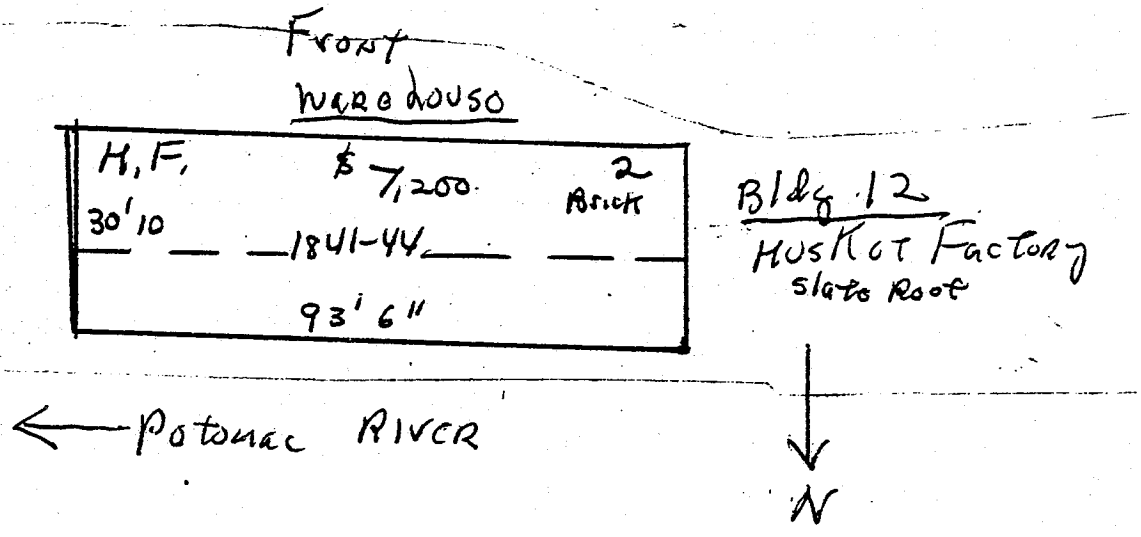
at the second story. Photographs prior to 1864-65(see HF-27B) do not provide very good views of the 1st story fenestrations, however, from what can be seen and the Voucher 8011-2nd series-V.89 to Redmond Burke, November 3, 1842, for 40 cut stone window sills and 4 door lintels, it would appear that that there were probably also 20 flat-topped openings on the first story. These were probably comprised of 16 windows and possibly four doors, with the entrances being located in the center bay of each elevation.

The east gable end had a small brick chimney and the third story levels of both gable ends were occupied three windows: one square centered window flanked by two "quadrant" or semi-elliptical windows.

The interior brick walls of the warehouse were plastered. The exterior brick walls were colored with "cement wash" after 1849 and the structure had two lightning rods after 1851.

Confederate troops burned the U.S. Musket Factory on June 14, 1861, but the warehouse appears to have escaped with little damage, at least to the exterior.(See Photo HF- 240, taken in late June or July, 1861). The warehouse still had its roof in October 1862(See Photo HF- 30). In 1864-65 the warehouse was covered with a temporary wooden roof (See Photo HF- 27, taken in 1864 -65) and was used as a supply depot by the Union Army. (Also see HF- 28 and 38).

Photo HF- 45, taken about 1884, reveals that the Ordnance Department had demolished the brick walls of the warehouse, Bldg. 12, to ground level by that date.


Front
Warehouse
H, F,
$7,200.
2
Brick
30'10
1841-44
93' 6"
Bldg. 12
Hosiery Factory
slate Roof
Potomac River
N

13. The Smiths or Forging Shop , 1845-48 (Bldg. No. 13):

a. North(or west) Wing and Center, 1845-1846

This is Building No. 17 on Map No. 3 (1848) and Bldg. No. 13A-North wing and 13B, Center, on the 1859 Historical Base Map. This gigiantic shop, about 280 feet long and 35½ feet wide, was the largest single building to be erected at the Harper's Ferry Armory and it was to be constructed in two stages: the North(or west) wing and center in 1845-46 and the South(or east) wing(Bldg. 13C on the 1859 base map) in 1847-48.

In his November 30,1844 estimates, Major John Symington had submitted a item: "Estimate in detail for reconstructing Smiths'forges" and "Plan No. 1" requiring a total of $ 13,500.00 for this project.[1] This construction,he estimated would require the following labor and materials:

2,452	cubic yards excavation of earth for foundation walls of building,at 18 ¢	$ 441.36
195	yards excavation of earth for foundation of forge fires,at 8 cents	35.10
1,761	perches masonry for foundation walls of building,laid in cement, at $2	3,522
300	perches masonry for foundation walls of forge fires, at $ 2.....	$ 600.00
718	feet of cut stone water table, at 60 cents.....	430.80
762	feet of cut-stone cornice, at 60 cents.....	$ 457.20
360	feet of cut stone window caps, at 60 cents.....	216.00
175,000	hard bricks,laid in mortar, one-third cement, at $ 10.50 per M.	1,837.50
88,000	feet of lumber, at 1½ cent.....	1,320.00
1,200	lbs. nails,at 4½ cents.....	51.00
900	feet of window glass, at 8 cents.....	72.00
12,050	feet of tinned sheet iron roof, at 10 cents.....	1,205.60
548	feet of copper gutter, at 70 cents.....	383.60
112	feet of copper spouting, at $ 1.05.....	117.60
	Lock,hinges, screws,&c. 28 sheet-iron hoods, pipes, and water-troughs for forges.....	550.00
	Oil and paint.....	115.00
	Carpenter's work.....	1,632.00
	Painting and glazing.....	125.00
	Transportation of materials,and contingencies.....	388.24
		$ 13,500.00

On March 2,1847, Congress appropriated an additional $ 4,500.00."for finishin the south wing of the smiths shop."[2] The estimate for 1847-48 requesting this sum, explained"Until this wing is finished,with its fan-blast to drive the forge fires, one of the old(Smiths) shops must be occupied,which is subject to

1. Serial No. 464, Document No. 43, p.13.
2. U.S. Statues at Large,IX, p.151.

" inundation at high water, and the additional expense of working the forges by hand bellows."[3]

In order to construct the north(or west) wing and center of the new Forging shop, two old smiths shops, both built in 1808-09, Blg. No. 7, 80 by 30 feet, and Bldg. 8, 120 by 30 feet on Map No. 2 (1844) had to be demolished to clear the site. Bldg. No. 9, the 130 by 30 feet Forging Shop, also built in 1808-09, on Map No. 2 would also have to be torn down later to clear the ground for the construction of the south or east wing. The old forging shops No. 7 and 8 on Map No. 2 were apparently demolished during the 3rd quarter (July-September) of 1845, for the bills for saving the old bricks and slate from their roofs, as well as demolishing the structures have not been found and hence were probably paid in the vouchers of the 3rd Quarter of 1845, which are missing from the records of the National Archives. The probable cost of tearing down these two large brick structure, judging by the extant voucher for demolishing Bldg. No. 9, was approximately $ 220.00

The stone mason Peter Litle must have begun excavations for the foundations of the north wing and center of the new smiths shop in the period June to September 1845, for on November 7 of that year he was paid $ 3,526.13 for completing the following construction:[4]

for deep excavation and removing the gravel,stone, &c. from the rear and end,foundations,smiths shop, 877 17/27 cubic yards....	$ 438.81
For excavation and removal of earth &c. from front and cross walls of smiths shop, 525 cubic yards.....	157.50
Rock face masonry in abutments of arches, 300 sup. feet at 50¢....	150.00
1,015 sup. feet of hammered rock.....	101.50
laying 144 feet cut stone in face of arches.....	86.50
1,281 19/28 perches of stone masonry laid in mortar 1/3 cement....	2,563.52
Hammered stone chimney stack(of center)base 48½ feet at 40¢..	19.40
Pumping water from foundations,122 days work at 87¢.....	106.75
Labor of mason 1½ day----------	2.25
	$ 3,526.13

3. Serial No. 497, Document No.3, p. 141-142.
4. 3rd Series, F. 3122, V. 17, Nov.7,1845, to Peter Litle for $ 3,526.13

The brick mason William Collins, must have begun his work in October and completed it in November, his two payments totalling $ 1,480.09 for this construction were made in early November and early December.[5]

In October Collins apparently completed the one-story north wing and in November part of the center building and its great 90 foot tall chimney stack

Collins provided the line, sand, labor and scaffolding for laying the brick as follows for:

North Wing	Centre and Stack	Total
Brick: 86,624 for $ 502.41	159,197 for $ 923.34	245,821 brick for $ 1,424.75
Cut Stone -cornice & coping. 279 2/12 ft- $ 44.00	88 8/12 feet for cornice 14.80	367 10/12 ft for 58.80
	Charges	Deduct $ 4.50 - 4.50
		Total,1845 $ 1,480.05

Some of the materials to be used in the construction of the shop must have been purchased during the 3rd quarter of 1845 and these vouchers, as has been mentioned, are missing. During the 4th quarter of 1845 the armory purchased a total of 112,000 hard bricks and 8,000 fire bricks from John Lambaugh and Thomas J. Lee for $ 891.50.[6] About 136,000 additional hard bricks and also the cast-iron door and window frames must have been been acquired during the 3rd quarter.

On November 22,1845, Redmond Burke was paid $ 122.66 for providing 245 4/12 sup. feet of cut stone, which included stone steps.[7]

In December, 3,649 feet of white pine planking was purchased for $ 100.34.[8] and 66 half boxes of 9 by 10 exterior glass for $ 366.75 and 12 half boxes

5. 3rd S., File 3122, V. 18, Nov.8,1845, for $ 547.07 and F. 3122, V. 35, December 4,1845, for $ 933.02.
6. 3rd S.3122,Vo. To John Lambaugh, Nov.8,1845-$ 542.00= for 66,000 hard brick at $ 462.00 and 8,000 fire brick at $ 80.00; F. 3122,V. 49, Dec. 18,1845 to John Lambaugh, $ 143.50 for 20,000 hard brick. F. 3122, V. 48, To Thomas J. Lee, December 12,1845, $ 208.00 for 20,000 brick delivered.
7. 3rd S., 3122, V. 27 ,Nov.22,1845, for $ 122.66 .
8. 3rd S., F 3122, V. 50, to John Gibson, Dec.18,1845, for $ 100.34.

of 10 by 12 inch and 8 by 10 glass for $ 60.90, total: $ 427.65.[9]

More than $ 6,768.37 was expended on the construction of the north wing and center of the forging shop in 1845.

Work was resumed on the structure in April 1846. 169,340 more brick were purchased for $ 1,506.07. This included 165,340 hard brick for $ 1,498.57 and 3,500"salmon and arch bricks" for $ 17.50.[10] 160 barrels of hydraulic cement were acquired for $ 240.00.[11] Working at his foundry on Virginius Island, Hugh Gilleece received $ 167.85 for casting forges for the new smith shop and also a cap for its chimney stack.[12] In April 1846 the carpenter Jesse Schofield was paid $ 192.15 for making 2,562 square light sash for use in the windows of the new shop. In May the brick mason William Collins completed his work on the center of the smiths shop and was paid $ 834.84 for accomplishing the following work:

In the chimney stack above the 40 foot level, to the top, laying 46,052 bricks at $ 10 per M.....	$ 460.52
for brick work in the residue of the chimney stack above the square of the building(center), horizontal flues, forges, and gables of the centre building: 55,767 bricks at $ 5.80 per M.....	323.44
for setting 243 feet cut stone coping, blocking & iron plate for cornice in the top of the chimney stack at 16 cents per ft..	38.88
For 4 days work of bricklayers & tender at $ 3 per day.....	12.00
while washing chimney stack with cement wash.....	---
	$ 834.84

From January to June 30,1846 an additional $ 2,940.91 was spent on the construction of the building and the total stood at approximately: $ 9,709.28.

In his annual report for the fiscal year ending June 30,1846, Major John Symington rendered a progress report on the construction of the north wing

9. 3rd S., F.3122, V.45, to H.J. and C.J. Baden, Dec.17,1845, for $ 427.65.
10. 3rd S. F. 3858, V.7, to William Collins, April 10,1846 for $ 526.50 for 54,000 hard bricks delivered; F.3858, V. 13, to Daniel Pine, April 18,1846 for $ 368.80 for 46,840 hard bricks at $ 351.50 and 3,500 salmon & arch brick,$ 1750. for $ 17.50. F.3858, V.26, to William Collins, May 6,1846, for $ 628.87 for 64.50 hard bricks.
11. 3rd S., F. 3858, V. 35, to George Shafer, May 19,1846,for $ 240.00.
12. 3rd Series, 3858, V. 43, May 4,1846, for $ 167.85.

"Forging shop(north wing) of brick, on stone foundation, one story, 122 by 35½ feet, with cut-stone water table, sills, cornice, and coping; cast iron door and window frames; sheet iron roof. Through the centre of this wing, there is a line of double forges for burning anthracite coal, under which are two horizontial flues leading to the main chimney stack. The centre building, for inspectors' offices and model and pattern rooms, is of brick, on stone foundations, two stories, 46 by 37 feet, with cut stone water table, sills, cornice, and coping; sheet iron roof; door and window frames of cast-iron. In the middle of the back (east or north) wall of this centre building is the main chimney stack, 90 feet high, 10 feet square at base and 6 feet at top; it is built upon a massive stone arch thrown across a tail race leading from one of the water wheels and waste dam of the canal. The other(South or east) wing of this structure has yet to be erected."[13]

Also manufactured at the armory for use in the new smiths shop in 1845-46, were " 1 turbine reaction water-wheel, with penstock and cast-iron gates,shafting and bevel gearing for driving the fan-blast,for smiths' forges, and grindstones" and "1 fan-blast for smiths' forges, with 35½ feet of shafting, in position, ready for use."[14]

The roof, gutters, down spouts, windows, and other work remained to be completed before the north wing and center were finally finished in 1846. In September William Volkman was paid $ 259.14 for preparing and putting on 1,491 square feet of sheet iron roof on the center and north wing.[15]

13. Serial No. 493, Document 1, p. 164.
14. Serial No.493, Doc. 1, p. 163.
15. 3rd S. F.4403, V. 34, Sept. 14, 1846, for $ 259.14.

The tinsmith Dennis Snook made and put up 328 ½ feet of copper gutter for $ 49.27, 95 feet of spouting for $ 9.50, and two head spouts for $ 5.00, total $ 63.77; also 14 feet of copper pipe for $ 5.25.[16] The brick mason William Collins received $ 49.53 for making final adjustments, which included $ 48.53 for laying 242 8/12 feet of cut-stone window sills and $ 1.00 for ½ days service of mason in walling up air flue of new smiths' shop to seal it again.[17]

In October, 1,440 lbs. of cast iron window frames and "pull plates" were purchased for $ 50.40.[18] The carpenter Jesse Schofield was paid $ 16.00 for fitting new light sash at the smiths' shop.[19] William H. Bowin (or Bowen) received $ 164.75 for plastering 159 square yards of the ceiling in the new shop in November.[20] The painters were also at work in November: $ 135.44 went to Robert H. Wilson for painting 6,374 square feet of the sheet iron roof of the forging shop,[21] while John P. Kennedy recived $ 50.25 for glazing 2,010 new light sash for this shop.[22]

In December 1846 Litle next received $ 43.88 for finding and laying 24 stones under each set of anvil blocks for $ 36.00; $ 7.58 for 15 2/12 feet of cut stone for chimney base, and 30 cents for setting 3 lin.

16. 3rd S., 4403, V. 32, Sept. 8, 1846, for $ 63.77; F. 4837, V. 83, Jan. 19, 1847, for $ 5.25, both to Dennis Snook.
17. 3rd S., F. 4403, V. 35, Sept. 14, 1846, for $ 48.53; and F. 4837, V. 26, Nov. 30, 1846, for $ 1.00.
18. 3rd S., F. 4837, V. 2, to Ross Winans, Oct. 10, 1846, for $ 50.40.
19. 3rd S., F. 4837, V. 37, Dec. [illegible], 15, 1846, for $ 16.00.
20. 3rd S., F. 4837, V, 25, Nov. 28, 1846, for $ 164.75.
21. 3rd S., F. 32, Dec. 8, 1846, for $ 135.44.
22. 3rd Series, F. 4837, V. 35, Dec. 14, 1846, for $ 50.25.
23. 3rd S. 4403, V. 28, Sept. 8, 1846, for $ 1,093.21.

feet of cut stone.[24] This completed the work on the building in 1846. Expenditures during 1846 amounted to approximately $ 3,763.32 and a total from 1845 to date of $ 10,531.69.

Approximately $ 132.45 was expended in the spring of 1847 to complete the north(or west) wing and center, thus bringing the total cost of construction to about $ 10,664.14. William H. Bowin(or Bowen) was paid $ 34.00 for plastering an additional 136 square yards in the new smiths shop and $ 98.45 was spent to purchase 1,405 feet of sheet iron"[25] for the floor of the smiths shop under the forges."[26]

Construction of the South or East Wing of the Forging Shop, 1847-48:

Construction of the South or east wing of the smiths shop got underway in March 1847. The stonemason Peter Litle demolished the old brick smiths shop Bldg. No. 9 on Map No. 2(1844), which measured 130 by 30 feet and dated from 1808-09, and received a total of $ 1,079.87 on April 10,1847 for this and the construction on the foundation of the new shop. Litle performed the following work:

Labor for taking off slate roof and removing old brick smiths shop	$ 110.00
For excavating and removing 475 23/27 cubic yards of earth, gravel and stones for foundation east(or south) wing @ 50 cents	237.92
For excavating and removing 10 25/27 cubic yards of earth for forge foundation	3.27
For erecting 319 16/25 perches of mortar masonry of foundation of heavy stone @ $ 2 per perche	639.28
For 600 sup.feet of foundation wall, face hammered	60.00
For setting 294 lin. feet of cut stone water table	29.40
	$ 1,079.87[27]

On April 10,1847 the brick mason and maker, William Collins, was also paid $ 292.50 for making and delivering 30,000 hard brick for use in the south wing."[28]

24. 3rd S., F.4837, V.40, Dec.16,1846, for $ 43.88.
25. 3rd S., F, 5623, V. 21, May 13,1847, for $ 34.00.
26. 3rd S., F. 4967, V.67, To Jacob Albertm April 24,1847, for $ 98.45.
27. 3rd S., F. 5623, V. 48, April 10,1847, for $ 1,079.87.
28. 3rd S. F. 5623, V. 1, April 10,1847, for # $ 292.50.

In his annual report for the fiscal year ending June 30,1847, Major John Symington described this construction as follows:

"At the Musket Factory.... The stone foundation, up to the water table of smiths' shop 121 by 35 feet, with the arched horizontal flues for forges, completed."[29] Total cost (recorded) of construction on the great shop,1846 to June 30,1847 was approximately $ 12,036.51.

The Paymaster's vouchers for the 3rd and 4th quarters of 1847 and all four quarters of 1848 are missing from the National Archives Record Group 217, so that the details of the construction of the south or east wing of the forging shop cannot be narrated. The same workmen who constructed the north and center of the structure, however, undoubtedly also built the south or east wing. Probably a total of about 100,000 hard bricks went into its one-story high walls. Total cost of construction of the two wings and center was approximately $ 18,000.00.

During the year ending June 30,1847, the superintendent also reported that 283 feet of 12 and 8-inch cast-iron air pipe, 750 feet of 4 and 3 inch cast iron water pipe, and 522 feet of lead pipe, jointed and laid, for conveying blast to forges and water through the armory yard, and to different shops, had been made and put into operation.[30] Much of this was probably for use in the new forging shop.

On June 30,1848, Major Symington recorded the completion of the Forging shop, writing: " Musket Factory: The south wing of new smith's shop, 121 by 35½ feet, one story brick, with cut-stone water table and cornice, cast iron door and window frames, and sheet iron roof, has been completed and is now occupied. The foundation for this shop was prepared during the previous year."[31]

29. Serial No. 503, Document No. 1, p. 692.
30. Serial No.503, Document No.1, p.691.
31. Serial No.537, Document No.1, p.348.

Among the machinery made during the fiscal year ending June 30, 1848, the superintendent reported that" 10 forge fires (were) completed, in new south wing of smith's shop, with cast iron hearths, coal, and water troughs." Also made were" 88 feet main branch cast iron air pipe, 8-inch bore; 30 feet main branch cast iron air pipe, 3-inch bore, with cast iron valve boxes and air chests. 262 feet lead pipe, for water, adapted to the ten new forges first mentioned."[32]

Repairs and Improvements to the Forging Shop, 1849 - 1851:

In 1849 a total of $ 328.48 was spent to make repairs and improvements to new forging shop. Of this sum, $ 153.92 went to purchase 2,368 lbs of sheet iron for floor of the new smiths shop;[33] $ 44.75 to color the exterior brick walls of the building with cement wash;[34] and $ 4.81 to repair the copper gutters.[35] The remaining balance of $ 125.00 was paid to the masons William Collins and Peter Litle (the latter dying during 1849), for making repairs to the forges and for stones for the anvil blocks.[36]

In 1850 a total of $ 124.28 was spent on the forging shop. Of this sum $ 109.75 went to the mason William Collins for repairs to the forges (Collins died in 1850)[37] and $ 14.53 to the tinsmiths Dennis Snook and Alexander S. Vernon, who repaired and put up 121 feet of copper gutter and put on 242 feet of sheet iron roof.[38]

32. Serial No. 537, Document No.1, p.346.
33. 3rd S.,F. 9093, V. 7, To Albert & Bro., April 1849, for $ 153.92.
34. 3rd S.,F. 10276, V. 16, To Francis Trimous, Nov.3,1849, for $ 44.75.
35. 3rd S.,F 9093, V. 7, To Henry V. Edwards, Jan. 27,1849, for $ 4.81.
36. 3rd S., F. 9093, V.23, To William Collins, 2/23/49, for 75 cents; F. 9307, V. 36, To Edward Tearney,partner andexecutor of the estate of the late Peter Litle, June 11,1849, for $ 9.00; To Wm. Collins, F. F.9037, V.35, 6/9/49, for $ 24.50; F. 9895, to W. Collins,V.23, 8/31/49, for $ 9.00; F.10276, V. 8, to W. Collins, 10/26/49, for $ 9.50; and F. 10276, V.33, to William Collins, 11.29.49, for $ 75.25.
37. 3rd S. F.11000, V.52, to William Collins, 6/26/50, for $ 4.00. F/11000,V.24, to W. Collins, 6/26/50, for $ 97.00; F. 12169. V. 4, to executor of Wm. Collins estate, 10/24/50 for $ 7.75; F.1219,V. 20, to estate, 11/26/50,for $ 1.00.
38. F. 12169, V.28, to Alexander S. Vernon, Dec. 3,1850 for $ 8.47-work on sheet iron roof and gutters; F. 12169,V.77, to Dennis Snook, 11/20/50,for $ 6.06.

In 1851 the sum of $ 327.39 was expended making repairs to the Forging shop.[39] This included $ 79.20 for 1,780 lbs of sheet iron for flooring; $ 80.00 for the painting and pointing of the 90 foot high chimney stack with three coats of paint;[40] $ 87.45 for putting lightning rods- 8 points and 4 leads to the ground, on the shop;[41] and $ 80.74 to Dennis Snook for taking off, altering, and putting up 367 feet of copper gutter.[42]

Summary Data on Construction of South Wing, 1847-48 *

Construction	Cost	Description of Work
Demolition	$ 110.00	for demolishing old smiths shop, saving slate, brick.
Excavation for Foundation:	241.19	for excavating 486 21/27 cubic yards of earth, gravel and stone
Basement masonry walls	639.28	for erecting 319 16/25 perches of mortar masonry of heavy stone.
Hammered stone	60.00	for 600 sup.feet of face hammered foundation wall.
Cut stone	29.40	for laying 294 lin. feet of cut stone water table.
Total:	$ 1,079.87	paid to stone mason Peter Litle for foundation work.

* Paymaster's vouchers detailing the construction, July 1,1847 to Dec.31,1848 are missin

39. 3rd S.,F. 12680, V. 35, to Robert & Magraw, June 27,1851, for $ 79.20.
40. F. 12680, V. 69, to Decker & Robinson, July 3,1851, for $ 80.00.
41. F. 12680, V.69, to Decker & Robinson, July 3,1851, for $ 87.45.
42. F. 12680, V. 72. to Dennis Snook, July 3,1851, for $ 80.74.

CONSTRUCTION OF THE NORTH(WEST) AND CENTER BUILDING, Forging Shop, MUSKET FACTORY, 1845-1847

Construction	Cost	Description of Work
Excavation for Foundations:	$ 438.81	877 17/27 cubic yards of earth, gavel, stone.
	157.50	525 cubic yards of earth, rock gravel.
	$ 596.31	1,402 17/27 cubic yards of excavation.
Basement masonry walls	150.00	for 300 sup.feet rock faced masonry in abutment arches.
	101.50	for 1,015 sup.feet hammered rock.
	86.50	for 144 feet cut stone laid in face of arches.
	2,563.52	for 1,281 19/28 perches of stone masonry in mortar one-third cement. Foundation walls.
	19.40	for 48½ feet hammered stone in chimney stack.
	109.00	Other labor costs
	$ 3,029.92	(minius $ 100.21 for charges from total).
Anvil Blocks 1st story	36,00	for laying 24 stones under anvil blocks.
	7.58	for cut stone, chimney base.
	.30	for laying 3 lin. feet of cut stone.
	$ 43.99	
Subtotal paid:	$ 3,570.01	to stone mason Peter Litle
Brick work	2,712.02	for laying 347,640 bricks.
	13.00	for other laborer.
	107.06	for setting 610½ feet of cut stone.
	2,832.08	paid to brick mason William Collins.
Tearing down old buildings	220.00	Estimated cost of tearing down two old smiths shops, saving bricks and slate.
Brick	2,397.57	For making and delivering 289.340 hard bricks.
Cut stone	122.66	For cutting and delivering 245 4/12 feet of cut stone.
Cement	240.00	for 160 barrels of hydraulic cement.
Lumber	100.34	for 3,649 feet white pine planking.
Carpenter work	208.15	for making 2,562 square light sash and fitting same.
window glass	427.65	for 78 half-boxes of panes for windows.
Iron roof	259,14	for preparing and putting on 1,491 square feet of sheet iron roof.
Iron widows frames	50.40	for 1,440 lbs cast iron window frames,etc.
	167.85	for 4,536½ lbs cost iron window and door frames.
Iron flooring	98.45	for 1,405 for sheet iron flooring,
Plastering	198.75	for plastering 295 square yards of ceiling.
Painting:	135.44	for painting 6,374 square feet of sheet iron roof.
	50.25	for glazing and painting 2,010 light sash.
	185.69	
Copper gutters	69.02	for 328½ feet copper gutters,95 feet down spouts, and 14 feet of copper pipe.
Total	$ 11,147.76	Total cost of construction,$ 18,000,1845-48.

Repairs to the Smiths or Forging Shop, Bldg. No. 13, 1852 - 1860:

In the estimates for the 1852-53 fiscal year, the sum of $ 3,100 was requested and received "for cast-iron forges for new smiths shop, and for filling in and flagging the floor"..."for the proper and permanent completion of the shop for smiths' work."[43] The estimate for the 1853-54 fiscal year also requested the sum of $ 2,500 "for paving smith's shop; sheet-iron stacks for 18 forges; repairing roof, and new ventilator". It was explained that "To make the smiths' shop complete, requires this additional work."[44]

In his annual report for the fiscal year ending June 30,1853, Armory superintendent Brevet Colonel Benjamin Huger reported of this work:

> New smith's shop and forging shop has been extensively repaired (The building was partly submerged in the great flood of April 20,1852). The floor has been removed, and the interior filled up with earth, and paved with brick and flagging; new cast-iron forges, with sheet iron stacks, put in; wind and water pipes laid complete, and new anvil blocks, placed on cast-iron chairs, set in stone foundations. A ventilator has been put on the whole length of the building, 216 feet; the roof altered and repaired; the foreman's office removed from centre of building, and a new one made in the end. 45.

Total cost of this work was probably about $ 5,600.00.

The destruction by the National Archives in the 1940's of the Armory Paymaster's vouchers for the years January 1,1852 to 1861 make it impossible to provide any additional details as to workmen, costs, and what minor repairs were made to smiths shop during the years 1852 to 1861. No major repairs or alterations, however, appear to have been made to the forging shop after June 30,1853.

43. Serial No. 633, Document No. 1, p. 212. Appropriation made August 31, 1852, see U.S. Statues at Large, X, p. 107.
44. Serial No. 675, Document No. 2, pp. 257-258; Money appropriated on March 3, 1853, U.S. Statues at Large, X, 217.
45. Serial No. 692, Document No. 1, p.276. The armory also made " 30 cast-iron forges, complete."

RECORDED EXPENDITURES

Year :	Forging or Smiths Shop
1845	6,768.37
1846	3,763.22
1847	1,504.82+
1848	
1849	328.48
1850	124.28
1851	327.39
TOTAL	12,036.41
Approp. For	18,000.00
For Machinery	

APPROPRIATIONS FOR

Year	Smiths Shop
8/31/ 1852	$ 3,100
3/3 / 1853	2,500
3/5/ 1854	
Total	$ 5,600

Description of

Smiths or Forging Shop, Bldg. No. 13, 1845-48:

Location: Second from the eastern or lower head of the northern line of workshops.

Map References: Bldg. No. 17 on Map No. 3 (1848).

Visual Evidence: The large Smiths or Forging Shop can be seen in the following HFNHP lithgraphs, drawings and photographs: HF- 51 or 256, 1857 lithgraph; HF-240(and blowup from, HF-492) made in June 1861; HF-49, photo taken June 1861; HF-30, taken in 1862; HF- 11,taken in October 1862; HF- 89- detailed sketch published March 11,1865; HF- 27B, photo taken in 1865; HF- 38, photo taken in 1865 or 1866; HF- 28, taken in 1865 or 1866; HF-355, taken about 1886; HF- 539, taken about 1886; HF-492,taken about 1880; and HF- 59, taken in 1889, reveals that all but the chimney stack had been demolished by 1889. Also HF- 45(ca.1886): and HF-113(ca. 1884-89).

History and Description:

The Forging or Smiths shop was designed and erected by Major John Symington in the period 1845 to 1848 at an approximate cost of $ 18,000. Additional alterations and repairs made in 1852-53 of about $ 5,600 increased the total cost of this workshop to $ 23,600. The forging shop was comprised of three sections: the west(or north) wing was of brick, on stone foundation, one story, 122 by 35½ feet; a center building, for inspectors' offices and model and pattern rooms, was of brick, on stone foundation, two stories, and 46 by 37 feet . In the middle of the back(east or north) wall of the center office building was the main brick chimney stack, 90 feet high, 10 feet square at the base and 6 feet square at the top. The great chimney was built upon a massive stone arch thrown across a tail race leading from one of the water wheels and waste dam of the armory canal. The third section, the east(or south) wing was of brick , on stone foundation , one story, 121 by 35½ feet. Through the

center of the north and south wings there was a line of double forges for burning anthracite coal, under which there were two horizontial flues leading to the main chimney stack in the center building.

The two wings and center section had cut stone water table, sills, cornice, and coping; the gable roofs were covered with sheet iron; the door and window frames were of cast iron. The gutters and downspouts were of copper.

Ths shop apparently had one turbine reaction water wheel, with penstock and cast iron gates, shafting and bevel gearing for driving the fan blast that serviced the smiths forges. The ceilings were plastered and sheet iron was apparently used for flooring under the forges in 1847-48.

In the 1852-53 alterations, the sheet iron floor was removed, the cellar filled in with earth , and then paved with brick and stone flagging . 18 new cast iron forges, with sheet iron stacks, were put in, as were new anvil blocks that had been placed on cast iron chairs that were set in stone foundations, Finally, a ventilator, probably 243 feet long, ran the full length of the ridges of gable roofs on the east and west wings,

Photographs reveal that the north and south wings were each three bay wide and 11 bays long . The facade of the centre building,37 feet wide, was divided into three bays and the length, 47 feet, projected a total of 11 feet 6 inches beyond the wings: probably about 2 feet in front and 9½ feet in the rear. The style of architecture matched that of the other factory structures that Symington had built or was then constructing. Each first-story bay of the wings and center consisted of a recessed panel that was set within a relieving round arch that was supported by a capped pilaster. This device, repeated 25 times on the 280 foot long front elevation of the forging shop, rendered the structure impressive in appearance. The three-bay wide second story front and rear elevations of the center structure were each comprised of

a recessed panel that was set within a relieving flat arch that was supported on capped pilasters, 1st story windows had round arches and second story windows flat arches. Parapet end walls, adorned with rectangular panels, topped with cut stone coping, and turreted at the corners, rose above the gable roofs of the ends of the two wings and also of the center building.

Confederate troops burned the U.S. Musket Factory on June 14, 1861, but Photo HF-49, taken in late June or July 1861 reveals that the Smiths Shop, Bldg. No. 13, escaped the flames with little or no damage apparent to its exterior and its roof was also intact. The roof still appears to be on the shop in October 1862 (See HF- 30). In 1864-65, a temporary wooden roof was placed on the Forging Shop by the Union Army (see Photo HF-27 and drawing No. HF-89, both made in 1864 or 1865) and the huge structure was used as a warehouse. (Also See HF- 28 and 38).

The Ordnance Department's Inventory of Musket Factory property describes Bldg. No. 13 as follows:[1]

Blacksmith Shop & Blast Furnace, about 250 feet by 30 feet. Chimney stack about 115 feet high & 10 feet at base all of brick. Partly under rough roof, one story high, 21 iron window frames remaining, 2 iron door frames. Granite foundation dressed coping, about 2 feet above ground.

(Bldg. 13)

(Also see page 252).

A series of photographs listed above show that the large Smiths shop's brick walls and it temporary roof stood largely intact from 1865 to 1884, when Thomas H. Savery purchased the Musket Factory tract and Bldg. 13. These pictures further reveal that Savery gradually demolished the Smiths Shop between 1886 and 1891.

1. National Archives Record Group 121, Washington ,D.C., Public Buildings Service, Harpers Ferry File No. 154, n.p., n.d., prepared ca.18865-1869. Cited from James P. Noffsinger,"Harpers Ferry,West Virginia...".pp.124-127. Building numbers added by C.W.Snell. Dimensions of the buildings as given in report are not very accurate. Nearly all structures listed were at least 35 feet wide and not 25 feet as is generally stated.

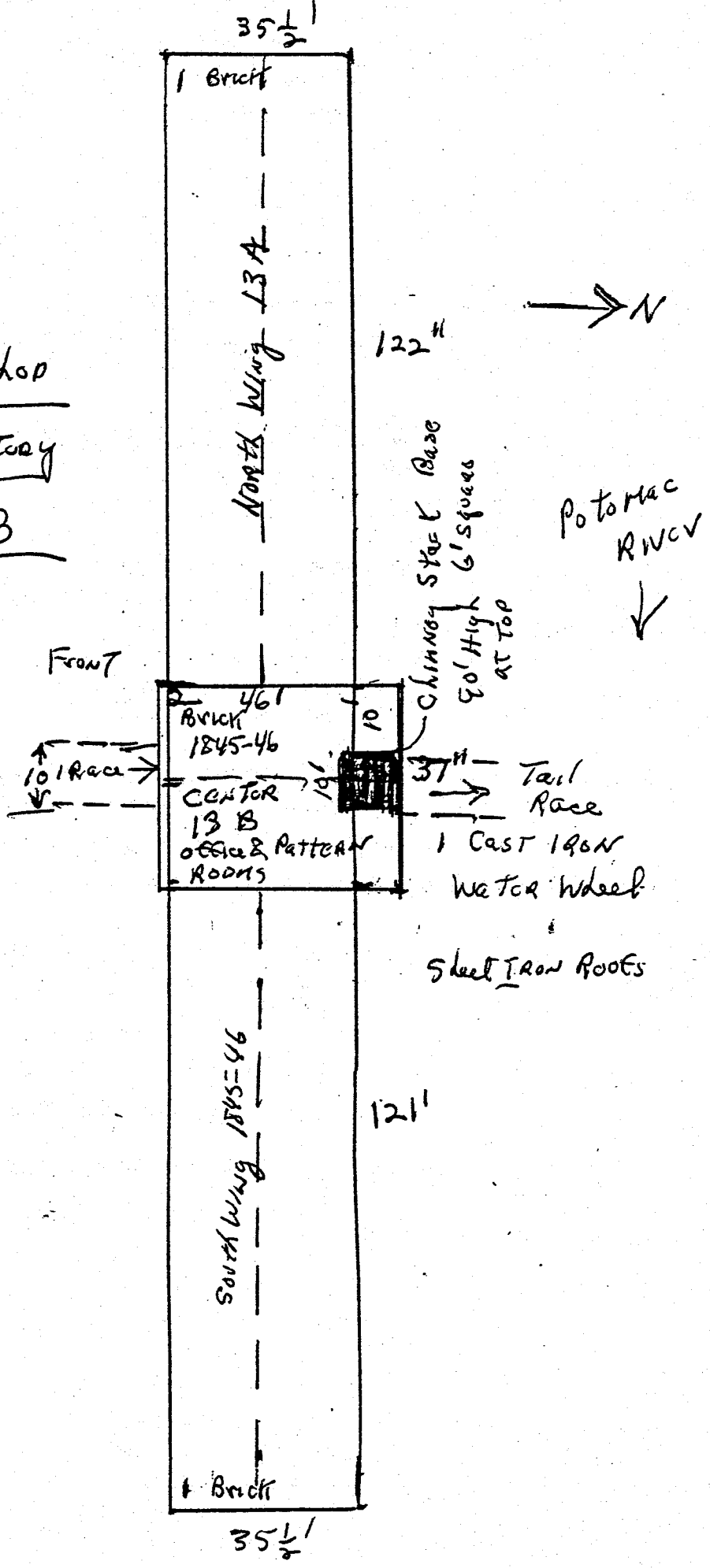
Smiths or Forging Shop

Musket Factory

Bldg No 13

1845–1848

#23,600



(Bldg. No. 14)

14. The new Annealing Shop and Brass Foundry, Musket Factory, 1851-52

The Annealing House and Brass Foundry is Bldg. No. 14 on the 1859 Historical Base Map.

By 1850, the Annealing Shop and Proof House, built of stone in 1834 at a cost of approximately $ 1,872.36 (See Bldg. No. 15 on Map No. 3 (1848)), was in such ruinious condition as to be no longer safe to use. Accordingly Major John Symington paid the brick mason William Collins $ 129.77 in June 1850 for constructing a temporary annealing furnace and also a charring furnace in the old smiths shop, Bldg. No. 16 on Map 3 (1848).[1] The superintendent described this construction in his annual report for the year ending June 30,1850 as follows: A double-annealing furnace and stack of brick-work, with cast-iron front, has been erected in one of the old smiths shops; also, in the same shop, a new charring-furnace (for leather), with cast-iron cylinder."[2]

In his estimates for the 1851-52 fiscal year, Major John Symington requested the appropriation of $ 9,550.00 "for erecting a new annealing furnace and brass foundry at the musket factory", explaining the need as follows: "The old annealing shop has,from necessity, been abandoned, the walls threatening to tumble down, and the floor flooded more or less, at every freshet in the river. Temporary structures for this work have had to be resorted to till suitable permanent ones, which are much wanted, can be constructed."[3] The requested money was appropriated on March 3,1851.[4]

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1. 3rd S. V. 24, to William Collins, June 26,1850 for 6½ days service of mason, tender, mortar; F. 11000. V.52 to Collins, June 26,1850, for $ 110.52. 20,249 brick apparently went into the new annealing furnace and 2,320 brick into the charring furnace. F. 11000 for $ 19.25,

2. Serial No. 587, Document No. 1, p.476, Item No. 6.

3. Harpers Ferry NHP Microfilm Reel No. 20, Vol. 7,p.694, Item No. 1.

4. U.S. Statues at Large, Vol. IX, p. 620.

This was the last structure at the musket factory to be designed and erected by Major John Symington.

Construction on the annealing house and brass foundry got underway during the summer of 1851. The stone cutter Redmond Burke was paid $ 412.89 for providing 453 3/12 lin.ft of cut stone and also steps for use as follows:

$ 191.16	for 162 feet of coping.
172.86	for 258 feet of window sills,
22.27	for 33 3/12 feet of water table.
24.00	for 24 cut stone steps.
2.00	for 1 day checking on steps.
$ 412.89	453 3/12 ft of cut stone. (5)

The stone mason Edward Tearney received $ 2,695.77 for executing the following construction on the foundations of the building:

$ 341.40	for 1,138 cubic yards of earth excavated.
101.40	for 507 cubic yards of earth excavated for foundations.
2,158.00	for building 1,079 perches of heavy mortar masonry, foundations
57,40	for 574 sup. ft. hammered face wall.
34.20	for 342 ft of cut stone water table and sills set.
3.37	for 1½ days service of stone cutter dressing water table.
$ 2,695.77	(6)

Major Symington described this work in his report for the year ending June 30,1851, writing. "The excavation and stone masonry for foundation of annealing shop and brass foundry, is nearly complete and ready for the brick masonry. This building will be 109½ by 36 feet, divided by partition walls into three compartments, and of the same style of finish as the other new shops."[7]

The one-story brick walls were erected by N.P. Haller(who had replaced the deceased mason, William Collins) in the fall of 1851 for the sum of $ 1,057.10. This work included the following items:

$ 995.10	for laying 165,850 bricks.
19.75	for laying 158 feet of cornice.(brick?).
20.41	for setting 157 feet of cut stone coping.
21.84	for setting 168 ft of cut stone window sills.
$ 1,057,10	(8)

(5).3rd Series, F. 12680 V. 23, September 1,1851, for $ 412.89.
(6) 3rd S.. F. 12680, V. 54, September 8,1951, for $ 2,695.77.
(7). Serial No. 611, Document No. 1, p. 459,item No. 4.
8. 3rd S., F. 13107, V.17, November 5,1851, for $ 1,057.10.

The master carpenter Jeremiah Fuss was paid a total of $ 695.28 for performing the following carpenter work on the annealing shop and brass foundry:

October 31,1851 -	$ 377.54	for framing, constructing and sheathing 5,207½ feet for roof. (9)
December 12,1851	41.25	for making 15 large window and door frames, set, with the center.
	13.50	for 9 small window and door frames, ditto.
	36.30	for three large doors & frames, fitted & hung.
	7.75	for 1 small door and frame ditto.
	62.40	for making 624 circular light sash.
	51.84	for making 527 square light sash.
	105.00	for three ventilators on the roof complete.
	$ 317.74	Dec.12,1851 (10)
	$ 695.28	

Total of recorded expenditures on the construction of this building in 1851 was approximately $ 4,861.04.

Destruction of the Armory paymaster's vouchers for the years 1852 to 1861 by the National Archives staff during the 1940's makes it impossible to trace in detail both the final completion of the Annealing Shop and Brass foundry in 1852 and any repairs or alterations made from 1853 to 1861.

In his annual report for the fiscal year ending June 30,1852, Brevert Colonel Benjamin Huger, the new superintendent, reported: "The new annealing and brass foundry, described in the last report as ready for the brick masonry, has been completed."[11]

The Annealing House and Brass Foundry had cut stone water table, coping, window sills; apparently wooden door and window frames; copper gutters and down spouts. Its gable roof, probably covered with slate, was crowned on the ridge with three ventilators, one for each of the three compartments below.

9. 3rd S.,F. 13017, V. 11, October 31,1851, for $ 377.54.
10. 3rd S., F. 13107, V. 42, December 24,1851, for $ 317.74.
11. Serial No. 659, Document No. 1, p. 253, item 1.

Construction of the Annealing House and Brass Foundry, Musket Factory, 1851-52. Bldg. No. 14 on 1859 historical base map).

Project	Cost	Description of Work
Foundations: Edward Tearney	$ 2,695.77	for 1,645 cubic yards of excavation of earth. for 1,079 perches of heavy stone mortar masonry. for 574 sup.ft. hammered face wall. for laying 342 lin.ft. of cut stone water table, sills.
For cut stone Redmond Burke	412.89	for 453 3/12 lin. feet of cut stone water table , sills, coping, and stone steps.
For brick walls N.P. Haller	1,057.10	for laying 165.850 bricks. for laying 158 feet of brick cornice. for setting 157 feet of cut stone coping. for setting 168 ft. of cut stone window sills.
For carpenter work Jeremiah Fuss	695.28	framing and sheathing, 5,207½ feet for roof. for making 15 large window and door frames for making 9 small window and door frames. for making and hanging 3 large and 1 small doors and frames. for making 624 circular and 527 square light sash. for making three roof ventilators.
For making Brick	?	?
For slating roof	?	? 1852
For gutters and down spouts:	?	? copper gutters and spouts ,1852
Building 2 brick annealing furnaces	?	? brick, 1852-53
Total:	$ 4,861.04	Probable total cost= $ 9,550.00

Improvements to the Annealing Shop and Brass Foundry, Bldg. No. 14, Musket Factory, 1852- 1860:

In his annual report for the year ending June 30,1853, Superintendent Huger wrote: "Two furnaces built, and six cast-iron forges and stacks put up in the tempering shop, with wind and water pipes laid complete. Floor paved with brick, and 20 square yards of flagging covering the wind and water-pipes between this building (Bldg. No. 14) and the forging shop. (Bldg. No. 13 on the 1859 map)."[12]

The superintendents' annual reports for the period 1854 to 1860 indicate that no further major alterations or repairs were made to the Annealing house and Brass Foundry during those years.

RECORDED EXPENDITURES

Year :	Annealing Shop &Brass Foundry
1845	-
1846	-
1847	-
1848	-
1849	-
1850	-
1851	4,861.04
TOTAL	4,861.04
Approp. For	9,550.00
For Machinery	

12. Serial No.692, Document No.1, p. 277.

Description of

Annealing Shop and Brass Foundry, Bldg. No. 14, 1851 -52:

Location: Third structure from the eastern or lower end of the northern line of workshops.

Map References: None.

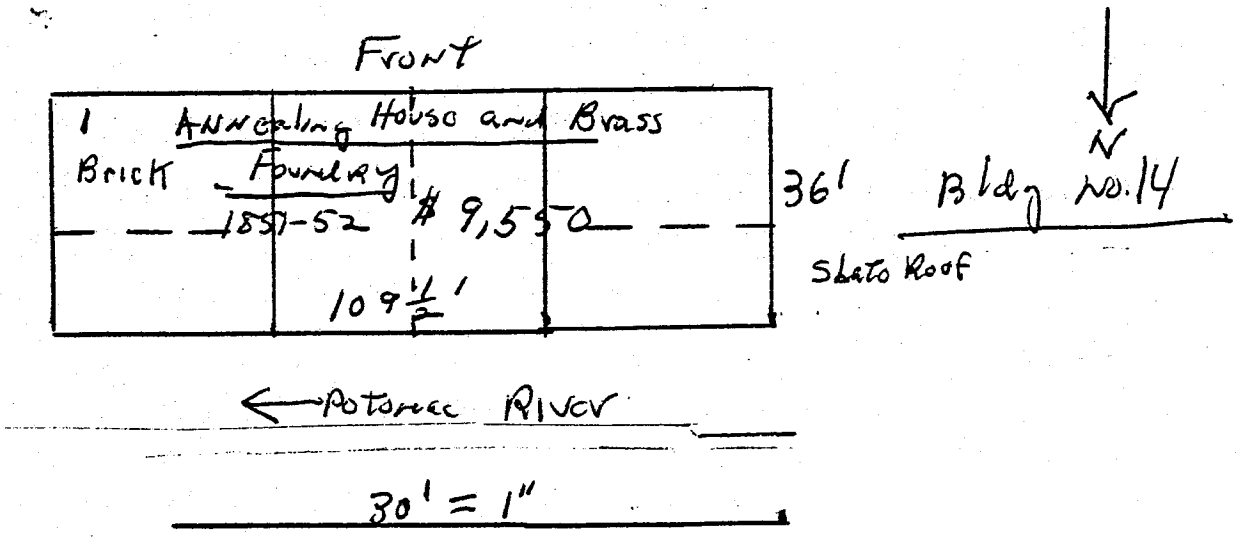
Visual Evidence: The Annealing Shop and Brass Foundry can be seen in the following Harpers Ferry NHP Negatives, Nos.: HF-51, or 256, a lithograph made in 1856; HF-492, a photo taken in June 1861; HF-49, a photo taken in June 1861; HF-30, a photo taken in 1862; HF- 11, taken in October 1862; HF-27B, a photo taken in 1864 or 1865; HF- 38, A photo taken in 1864 or 1865; HF-28, a photo taken in 1865 or 1866; and Photo HF-355, taken in 1886, reveals that the structure had been demolished by that date.

History and Description:

The Annealing Shop and Brass Foundry were designed and erected by Major John Symington in 1851-52 at a cost of approximately $ 9,550.00. The one-story structure had brick walls, stone foundations, cut-stone water table, window and door sills, and coping. The door and window frames were apparently of wood (otherwise of cast iron); the gable roof, covered with slate, had three wooden ventilators mounted on its ridge, one each for the compartments below. The gutters and downspouts of the roof were copper. Inside, two brick walls divided the building into three large rooms or compartments and the floors were paved with brick. Photographic evidence reveals that the 36 feet wide by 109½ feet long edifice was divided into three equal parts and that gable roof of the center ran at right angles to the two gable roofs covering the north and south compartments. The gable ends of the north and south compartments, and also the east and west gable ends of the center section, were all adorned with brick parapet walls that were crenelated, topped with cut-stone coping, and rose above their gable roof. This created the architectural impression of a center building 1½ stories high flanked on either side by a one-story wing. Two square chimneys, each perhaps 10 feet high, rose above the ridge line of the roof, each stack

being located over one of the brick interior partition walls. Each chimney apparently served one of the two annealing furnaces that were located in the building . The structure also held six cast-iron forges and their stacks. The north and south gable ends were were each divided into three bays and the 109½ foot length of the east and west elevations each had nine bays, with three bays each in the center and north and south wing sections. Each bay contained the usual Symington round arch that rested on capped **pilasters.** Recessed within this arch was a panel that contained a tall round arch window, a device that was used in all 11 of the large new brick structures that were erected by Major John Symington between 1845 and 1851.

Confederate troops burned the U.S. Musket Factory on June 14, 1861 and Photo HF- 49, taken in late June or July 1861, reveals that only the brick walls of the Annealing Shop and Brass Foundry were left standing after that fire. Photo HF- 30, taken in October 1862 also show the roofless shop. In 1864-65, the Union Army placed a temporary roof over the brick walls of Bldg. No. 14 and used the shop as a warehouse.(See Photos HF-27, HF- 28, HF-38, and Drawing No. HF- 89.) The brick walls of the Annealing House and Brass Foundry were levelled to the ground by 1886. (See Photos HF- 355, HF-492, and HF- 539, all taken about 1886).


Front
1 Annealing House and Brass
Brick Foundry
1851-52 # 9,550
109½'
36'
Bldg No. 14
N
Slate Roof
← Potomac River
30' = 1"

15. The New Proof House, 1843-44: (Bldg. No. 15):

The third new large brick structure to be designed and erected by Superintendent Henry K. Craig at the Musket Factory was the Proof House. This is Bldg. No. 14 on Map No. 3 (1848) and Bldg. No. 15 on the 1859 Historical Base Map. Sheet iron, a new building material, was used for the first time at Harper's Ferry in the construction of the Proof House.

Craig's preliminary estimates to the Ordnance Department specifically requesting funds to construct the proof house have not been found. It is possible, however, that the estimate for the structure was attached to the Board of Officers' Inspection Report of February 22, 1842, became detached when the report was printed and was lost.

Work on the structure probably got underway in May 1843, for on June 17, the mason George N. Lynch was paid a total of $ 695.03 for excavating 735 8/9 cubic yards of earth for the foundation and for erecting 432 3/4 perches of stone wall, the foundations of the new proof house.[1] The bricks, 115,297, were furnished and laid by the mason John Lambaugh in the two story high brick walls of this structure for $ 1,095.32. Lambaugh, for an additional $ 47.35, also set 475 linear feet of cut stone window caps, door sills, and cornice.[2]

Remond Burke provided at least 83 feet 3 inches of the 475 linear feet of cut stone used in the workshop at a cost of $ 35.65, the balance coming from the large orders placed with Burke and Timothy McBriety for cut stone for the new warehouse and boring mill.[3]

The carpenter bills for framing the roof and putting in the floors have not been found, suggesting that Armory carpenters, paid from day labor, did this work.

1. Record Group 217, 3rd Series, File No. 187, Voucher 110, to George N. Lynch, June 17,1843. He received $ 132.46 for the excavation and $ 562.57 for building the foundation walls.
2. 3rd S., F. 630, Vouch. 97-To John Lambaugh, Nov.11,1843, for $ 1,142.87.
3. 3rd S., F.440, V. 74, Sept.29,1843, for $ 25.25, for 62 feet 4 inches;

2,155 feet of yellow pine were acquired for $ 28.11 in October 1843, for use in "new building," perhaps the proof house.[4]

The new proof house was apparently ready to be roofed by October 1843, for on the 20th of that month G. & J. A. Sheenberger were paid $ 254.54 for providing 3,511 feet of sheet iron and roofing with it the proof house.[5] By mid December the tinsmith Benjamin Snook, assisted by two helpers, made and completed the installation of copper gutters and down spouts on the gable roof of the proof house, charging a total of $ 106.67 for these services.[6]

Expenditures on the structure, exclusive of the services of carpenters, in 1843, totaled approximately $ 2,248.47. An additional $ 81.98 was spent in 1844 to complete the building. The major item of the 1844 expenditure was $ 67.58, which was paid to James Bowen on May 3, 1844, for plastering 675 8/9 square yards of the interior of the Proof House.[7] Total cost of construction, 1843 to 1844, thus came to more than $ 2,330.45. In his annual report to the Secretary of War on the operations of the National Armories, dated January 6, 1845, Lt. Col. George Talcott, Chief of Ordnance, informed Secretary William Wilkins of the extensive construction that Superintent Henry K. Craig had accomplished at the Harper's Ferry Armory in the period 1843 to 1844. With regards to the proof house, Talcott wrote:

"A new proof-house has been erected, with rooms for loading and inspecting barrels, 70 by 30 feet, admirably well designed and suited to use; this is covered with a sheet-iron roof. The other new buildings (the warehouse and boring mill) are slated; and the whole are constructed in the most substantial manner, of durable materials, reflecting great credit on the officer

4. 3rd Series, F. 630, Voucher 8, to McPherson & ?..October 31,1843, a $ 28.11 item in a bill totaling $ 735.18.
5. " 3rd Series, F. 440, V. 53. dated Oct.20,1843.
6. " 3rd S. F. 440, V. 43, Sept. 30,1843,for $ 57.00; F. 630, V. 48, Dec.20, 1843, for $ 45.67, and F.1165,V.90, July 7,1844,for $ 4.00.
7. " 3rd S., F. 1165, V. 18, to James Bowen, May 3,1844, for $ 67.58.

"in charge of the establishment...." [8]

Construction of the Proof House, Musket Factory, 1843-44

(Bldg. No. 15 on 1859 Historical Base Map).

Project	Cost	Description of Project
Excavation for foundations	$ 132.46	Excavating 735 8/9 cubic yards of earth
Stone foundation walls	562.57	Constructing 432 3/4 perches of stone foundation walls. Stone mortar masonry.
Providing and laying brick	1,095.32	Providing and laying 115,297 bricks in walls.
Cut Stone:	35.65 47.35	for 83 feet 1 inch of cut stone, balance used from purchases for warehouse, boring mill. For setting 475 linear feet of cut stone cornice, window and door caps and sills.
Lumber Carpenter work	28.11 ?	For 2,155 feet of yellow pine for framing floors and roof. putting in floors and roof framing.
Roofing	254.54	for providing and installing 3,511 square feet of sheet iron roofing.
Gutters and spouts	106.67	for making and installing ? feet of copper gutter and ? feet of copper down spouts
Plastering	67.58	For plastering 675 8/9 square yards, ceiling and perhaps interior walls.
Total Cost	$ 2,330.25	Estimated total cost: $ 2,500.00

8. Serial No. 464, Document No. 43, p. 2.

Repairs and Alterations to the Proof House, 1845 - 1854:

In March 1850 the carpenter Patrick H. Kelly was paid $ 38.00 for making 10 large blinds and taking down roof and repairing the sheathing at the musket factory proof house.[8 A] In 1849 the exterior brick walls of the building were colored by Francis Trinmous with cement wash at a cost of $ 31.29.[9]

The Proof House is Bldg. No. 14 on Map No. 3 (1848).

Repairs to the Proof House. Bldg. No. 15. 1855-60:

In the annual report for the year ending June 30,1857, Armory Superintendent Henry W. Clowe reported" "the lower floor in the proof house, which was found to be very much decayed, was renewed,and new joists and floor put in."[10]

A 8.3rd Series, F. 10673, Vouch er 23, To Patrick H. Kelly, March 8,1850, for $ 38.00. $ 30.00 for making blinds and $ 8 for repairing Sheathing. Patrick H. Kelly, incidently had help build and was owner of one-half of Bldg. No. 38(Park Building) on Shenandoah Street.

9. 3rd S., F. 10276, V. 16, dated November 3,1849, for $ 31.29.

10.Serial No. 920, Doc. 1, p.551.

Calender Year	Musket Factory Proof House 1843-44
1841	0
1842	
1843	yes
1844	yes
To June 30, 1845	no
Estimated Cost	$ 2,500.00

RECORDED EXPENDITURES

Year:	New Proof House
1845	
1846	
1847	
1848	
1849	31.29
1850	38.00
1851	
TOTAL	69.29
Approp.	

Description of

Proof House, Bldg. No. 15, 1843-44:

Locations Fourth from the eastern or lower head of the northern line of workshops.

Map References: Bldg. No. 14 on map No. 3 (1848).

Visual Evidence:

Photographs that provide distant views of the Proof House are as follows: Harpers Ferry NHP Negative Nos. HF-51 or 256(1857 lithograph), HF- 49(1861), HF 30(1862), HF-11(1862), and HF- 38(taken ca 1865) The most important view, that which gives the most architectural information about the original appearance of the proof house is HF- 49, made in 1861 after Musket Factory buildings had been burned by the Confederates. Photograph HF-11, taken in 1862, suggests that either the ruined walls had been reroofed, or that a new structure, used as a warehouse had been erected on the proof house site by the Union Army in 1862. Re-roofing the brick walls would seem to be the most likely probability. HF-38, taken in 1865 or 1866, reveals that the ruined brick walls of the Proof House had been demolished by the date this picture was taken.

History and Description:

The new Proof House was designed and erected by Major Henry K. Craig in 1843-44 at an approximate cost of $ 2,500.00. The Proof House was 70 feet long by 30 feet wide, with a stone foundation, two-story high brick walls, and a gable roof that was covered with sheet iron. The structure had cut stone water table, cornice, window and door lintels and sills. Photograph HF- 11 indicates the Proof House was three bays wide and five bays long and that except for its iron roof, its exterior probably architecturally matched the new warehouse and new boring mill, which Craig also designed and erected 1843-44.

The windows of the Proof House like the other two new buildings, had flat arches and the floors were of wood. The ceilings, and perhaps also the interior brick walls, of the structure were plastered.

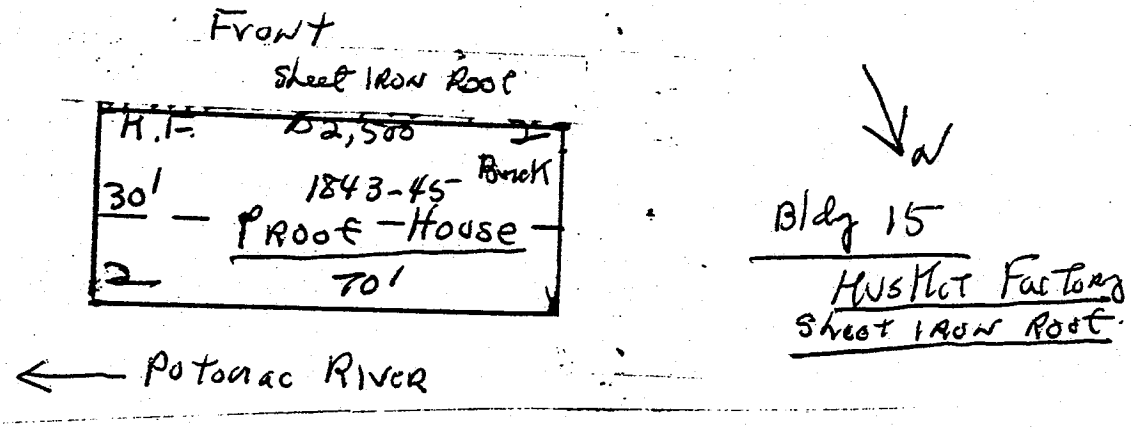
In 1850 10 large wooden blinds were made and added to the windows of the Proof House.

Confederate troops burned the Proof House on June 14, 1861, leaving only the brick walls standing (See HF-49, a photo taken in late June or July 1861). The structure appears to have been reroofed by the Union Army in October 1862(Photo HF- 11), but the Proof House walls had been levelled to to ground in late 1865 or 1866, when Photo HF- 38 was made.

The Ordnance Department Inventory of Musket Factory Property, made 1865-1869, described Bldg. No. 15, the Proof House, as follows:[1]

> Foundation of Proof Shop 100 feet by 30. Granite-dressed coping above ground about 10 inches.

1. National Archives Record Group 121, Washington ,D.C., Public Buildings Service, Harpers Ferry File No. 154, n.p., n.d., prepared ca.18865-1869. Cited from James P. Noffsinger,"Harpers Ferry,West Virginia...".pp.124-127. Building numbers added by C.W.Snell. Dimensions of the buildings as given in report are not very accurate. Nearly all structures listed were at least 35 feet wide and not 25 feet as is generally stated.


Front
Sheet Iron Roof
H.I.
$2,500
30'
1843-45
Brick
Proof-House
2
70'
Bldg 15
Musket Factory
Sheet Iron Roof
Potomac River

16. The new Charcoal House, 1845-46: (Bldg. No. 16):

This one-story brick structure, completed by June 30,1846, was the first shop to be designed and erected by Major John Symington in the new architectural style. The Charcoal House is Bldg. No. 13 on the 1848 Map, No. 3, and Bldg. No. 16 on the 1859 Historical Base Map.

Major Symington's detailed estimates, submitted to the Ordnance Department on November 30,1844, contained one for a Charcoal House to be built at a cost of $ 730.00. The estimated materials and work were as follows:

185 yards of exacavation, at 18 cents	$ 33.30
220 perches masonry laid with cement, at $ 2.	410.00
4,800 feet of yellow-pine plank, at 1½ cent	72.00
3,400 feet of yellow-pine timber, at 1½	51.00
249 feet of locust scantling at 5 cents	12.45
300 lbs. nails at 4½ cents	12.75
200 lbs. hinges and fastenings for doors, at 12½c	25.00
45 days carpenter's work, at $ 1.50	67.50
8 days calking and pitching roof, at 80 cents	6.40
Pitch and Oakum	9.00
	$ 730.00 (1)

This estimate, in the writer's opinion, however, appears to be for a stone and frame structure, and not for the brick storehouse that was actually erected.

Construction of the charcoal house got underway in the third quarter(July-September) of 1845. Unfortunately. the Paymaster's vouchers (File No. 2841) for the 3rd Quarter of 1845 are missing from the records of the National Archives so that the details relating to the construction of the stone foundations and brick walls are unknown. However, the stone foundations were probably built by

1. Serial No. 464, Document No. 43, p. 14.

Peter Litle and the brick walls by Williams Collins, the two masons who were doing most of this type of work for the Armory at that time. Judging by costs of building the foundation of the armory stable in 1847, which had the same size dimensions (35½ by 35½ feet) as the Charcoal House, the cost of building the 1845 stone foundation probably amounted to about $ 400.00. Peter Litle did the following work for a total $ 397.05 on the stable foundation in 1847:

Excavating and removing 115 23/27 cubic yards of earth, at 30¢ ---	$ 34.75
Erecting 162 3/25 perches of mortar masonry for foundation, @ $ 2.00 per perch----------	324.24
Setting 140 8/12 feet of cut stone watter table----------	14.06
Setting 48 feet of cut stone arching----------	24.00
Total: (2)	$ 397.05

That the stone foundations and brick walls were completed by the end of October 1845 is demonstrated by the fact that the carpenter Jesse Schofield was paid $ 15.84 " for framing & putting in 1,056 feet of floor and joists in new Charcoal House" in December 1845.[3] The tinsmith Dennis Snook was paid $ 18.68 for providing 18 feet 10 inches of copper gutters, 33 feet 8 inches of copper down-spouting, and two spout heads for the new charcoal house. In April 1846, Jesse Schofield received $ 68.83 for making 78 circular sash and 720 square light sash for the structure. William Volkman provided and put on 1,352 square feet of sheet iron roofing at a cost of $ 54.68.[5] The sheet iron roof was then painted by Robert M. Wilson for $ 28.73.[6]

2. 3rd Series, File 5623, Voucher 48, To Peter Litle, July 2, 1847, for $ 397.05, for foundations of armory stable.
3. 3rd S., F. 3122, V. 60, Dec. 12, 1845, for $ 15.84. to Schofield.
4. 3rd S., F. 3122, V. 79, January 3, 1846, for $ 18.68.
5. 3rd S., F. 4403, V. 34, Sept. 14, 1846, for $ 54.68.
6. 3rd Series, F. 4837, V. 32, December 8, 1846, for $ 28.73.

The Paymaster's extant vouches indicte that $ 15.84 was spent on the construction of the new Charcoal House in 1845 and $ 170.92 in 1846, making a total of $ 186.76. The total cost of constructing the structure, 1845-46, has been estimated at $ 1,200.00: $ 1,029.08 in 1845 and $ 170.92 in 1846.

Under the heading of"Buildings constructed" during the year ending June 30,1846, Major Symington reported: (1)" Charcoal house, of brick, on stone foundations, one story, 35½ by 35½ feet, with cut stone water table, sills, cornice and coping; cast-iron door and window frames; sheet iron roof; the interior divided into four compartments by 2-inch partitions."[7]

Major Henry K. Craig had first used sheet iron to roof the new Musket Factory proof house in October 1845, but Symington was the first to utilize cast iron door and window frames, in the third Quarter of 1845, in the construction of Armory buildings at Harper's Ferry.

Repairs and Alterations to the Charcoal House, 1847- 51:

The only known work down on the Charcoal House after 1846 occurred in 1849 when Francis Trimmous was paid $ 7.62 for coloring the exterior brick walls of the Charcoal House, 109 square yards, with a cement wash.[8]

7. Serial No. 493, Document No. 1, p.164.
8. 3rd Series, F. 10276, V. 16, dated November 3,1849, for $ 7.62.

RECORDED EXPENDITURES

Year :	Charcoal House
1845	(1,029.08
1846	170.92
1847	
1848	
1849	7.62
1850	
1851	
TOTAL	$ 1,207.62
Approp. For	1,200.00
For Machinery	

Description of
Charcoal House, Bldg. No. 16, 1845-46:

Location: Fifth from the eastern or lower head of the northern line of workshops.

Map Reference: Bldg. No. 13 on Map No. 3 (1848).

Visual Evidence:

The Charcoal House, Bldg. No. 16 on the 1859 map, can been seen in the following historical prints and photographs: HFNHP Negative HF-51 or 256, 1857 lithograph, showing western end and south slope of roof; HF-49, photograph taken in 1861, shows distant view of east gable end; this is the best picture of the structure. HF- 38, photo taken in 1864 or 1865, view of what is probably the roof of the Charcoal House, reroofed and apparently still standing at the end of the Civil War.

History and Description:

The Charcoal House was designed and erected by Major John Symington in 1845-46 at an estimated cost of approximately $ 1,200.00. The one-story brick storehouse stood on stone foundations and was adorned with cut-stone water table, sills, cornice, and coping; the building measured 35½ by 35½ feet in size; the door and window frames were of cast iron and the gable roof was covered with sheet iron.

Its interior was divided into four storage compartments by means of two two-inch thick wooden partition walls. Photograph HF -49, taken during the summer of 1861, after the Confederates had burned the Armory structures, reveals that the Charcoal House was probably three bays wide on its gable end and that each bay was comprised of a recessed panel set within a relieving round arch that rested on capped pilasters . The gable end were further adorned by brick parapet end walls that were turreted at the corners, topped with cut stone coping, and that rose above the ridge of the

sheet iron gable roof. Symington's use of this style was to be applied to all the brick shops and storehouses that were to be erected at the Harper's Ferry Armory from 1845 to 1861.

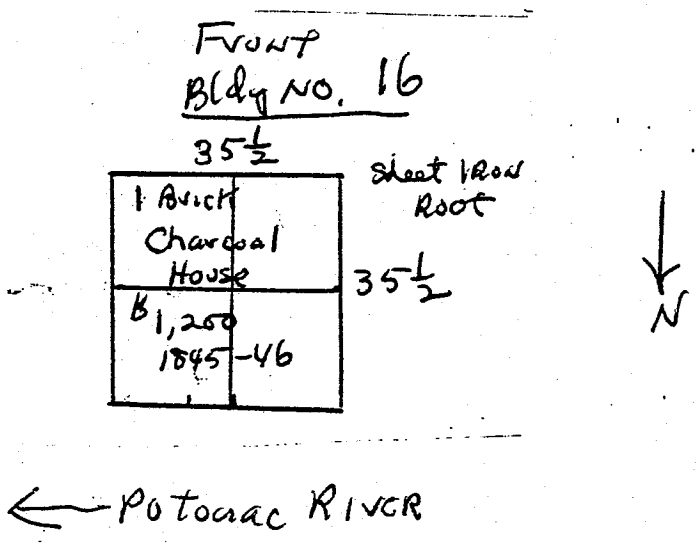
Confederate troops burned the Charcoal House on June 14, 1861, leaving only its brick walls standing. (See HF- 49, a photo taken in 1861) (Also HF- 30, taken in October 1862). The Union Army appaears to have put a temporary wooden roof on the brick walls of the Charcoal House in in 1864 and used the edifice as a warehouse(See Photo HF- 38, made in 1864 or 1865). Photos HF- 492 and HF- 539, about taken about 1886, reveal that Bldg. No. 16 had been demolished by that date.

The Charcoal House was probably levelled about 1866. The Ordnance Deparment Inventory of Musket Factory Property, made about 1865-69, describes what is probably the Charcoal House as follows:[1]

Foundation of building about 25 ft. square. No coping. (Bldg. 16? Charcoal House ?)

(Note: This might also be a description of the foundations of the Ice House, Bldg. No. 20, see page 246.)

1. National Archives Record Group 121, Washington ,D.C., Public Buildings Service, Harpers Ferry File No. 154, n.p., n.d., prepared ca.18865-1869. Cited from James P. Noffsinger,"Harpers Ferry,West Virginia...".pp.124-127. Building numbers added by C.W.Snell. Dimensions of the buildings as given in report are not very accurate. Nearly all structures listed were at least 35 feet wide and not 25 feet as is generally stated.


FRONT
Bldg NO. 16
35½
Sheet Iron Roof
1 Brick Charcoal House
35½
B 1,200
1845-46
N
← Potomac River

17. The Relocated Old(1822) Pay Office, 1858 (Bldg. No. 17):

1. Construction of the Pay Office, 1822

A new office for the Armory Paymaster was erected in 1822 at a cost of $ 500.00 at the northwest corner of Arsenal Square, fronting on Shenandoah Street and situated on Lot No. 2, Block B. The new Pay Office was a one-story brick house, 24 by 18 feet, with an eleven foot high ceiling, and with walls 14 inches thick. The roof was covered with wood shingles.[1]

The Paymaster vouchers indicate that the following two builders helped erect the Pay Office: On December 30, 1822, the mason Jonah Tompkins was paid $ 151.25 " for laying brick, 86½ days erecting the Paymaster's new office, the casehardening furnace, and making repairs to buildings."[2] On December 7,1822, the plasterer Roger Jones received $ 39.37 "for 22½ days work plastering the new Pay Office and other buildings.[3]

During 1822 the Armory also purchased a total of 29,000 brick for $ 191.50 for possible use in the new Pay Office from the following men:

Date Paid	Brick maker	Amount Paid	No. of Bricks	
8/24/22	William Read	$ 56.00	8,000	(4)
8/29/22	G. W. Mason	45.50	6,000	(5)
10/25/22	George Rowles	90.00	15,000	(6)
Total:		$ 191.50	29,000	

1. Superintendent James Stubblefield to Col. George Bomford, Chief of Ordnance, May 15, 1822, HF NHP Reel 21, Vol. 6, p.545; National Armory Accounts for 1822, National Archives Record Group 156, Entry 935, copy in Park Photostat Collections.
2. National Archives Record Group 217. Records of the 2nd Auditor of the Treasury, 1st Series, File 6606, Voucher C66.
3. Record Group 217, 1st Series, File 6606, Voucher 43.
4. R.G. 217- File 6410, V. C28.
5. R.G/ 217- File 6410, V. C38.
6. R.G. 217, File 6606, V. C3.

The Paymasters vouchers do not contain enough information to definitely identify the carpenter who did the carpenter work on the new Pay Office two likely candidates were William W. Fitzhugh,[7] and more likely, Charles Fouke and his team of apprentinces.[8]

The painter who painted the structure cannot be definitely identified from the data found in the pay vouchers. Total cost of construction, as has been mentioned, was $ 500.00 in 1822.

2. Repairs and Improvements to the Pay Office, 1823- 1841:

a. Slating the Roof, 1833:

The wood shingle roof of the Pay Office was recovered with slate in May 1833.[9] This lessened the danger of fire spreading from the Pay Office to the two brick Arsenals. This work was probably done by the slater William Bayley, who received a total of $ 365.58 for providing and slating the roofs of Armory structures during the second quarter of 1833,[10] and a grand total of $ 819.15 for these services during the entire year of 1833.[11]

b. Carpenter Repairs and Repainting, 1839:

In August 1839 the carpenter John Hyatt made the following repairs at a cost of $ 11.00 to the Pay Office: He made and hung two panel doors, repaired windows, and put a door on the wash house and also a lock with three bolts.[12] Also in August 1839, the painter John P. Kennedy received $ 35.92 "for painting 449 square yards in the Paymaster's office room."[13]

7. Vouchers to Fitzhugh, R.G. 217, 1st Series, File 62 74-V.C 28, and File 6410, V. C 36, Paid June 26 and August 28, 1822, totaling $ 67.50.
8. Vouchers to Charles Fouke and crew ,R.G. 217, File 6274, Vouchers C 15, C.81, totaling $ 207.90; 6606-V. C15, Nov.1,1822, File 6410 ,V. C14-Aug.16,1822, for 38 days work= $ 60.80; Dec 31, 1822- $ 51.20 for 30 days work, on File 6606, V. C76.
9. Superintendent George Rust, Jr., to Col. George Bomford, Chief of Ordnance, May 11,1833, HF NHP Reel 22, Vol. 14, p. 1393.
10. Record Group 217, 1st Series, File 17153.
11. R.G. 217, 1st Series, File 17644.
12. R.G. 217, 2nd Series, Voucher 50, File 3971, August 24,1839.
13. R.G. 217, File 3971, Voucher 48, dated August 23,1839.

c. Adding A Vault to the Pay Office,1840

In 1840 it was decided to add a brick vault to the rear(south) side of the Paymaster's Office to provide added security for the large sums of money that were regularly stored there. Lt. Col. George Talcott of the Ordnance Department turned for assistance to the Washington architect Robert Mills, who provided a floor plan, elevation, and specifications for the vault.(Map B and Map. C). Talcott forewarded the plans and specifications to Superintendent George Rust. Jr. on May 27,1840.[14] Mills received $ 10.00 for his services.[15] The fireproof vault was to be seven by five feet in size,with brick walls 2½ feet thick, iron doors, one story in height, and its gable roof was to be slated.

Construction of the vault got underway in the first part of August and the stone mason Andrew Cullen was paid $ 17.50 for 10 days work[16] in that month, apparently for laying the stone foundations of this structure. The brick layer Joseph Spencer received $ 51.75 for 29 days work from August 15 to September 30,1840; which included erecting the brick walls of the vault.[17] The structure was completed in September,as George W. Tacey (or Tracey)was paid on the 30th of that month the sum of $ 13.82 "for slating 616 feet of roof of the new vault."[18]

Spanish brown was used "for coloring outside of the vault."[19]

14. For the correspondence relating to the vault project see: Col. George Talcott to Supt. Lucas, May 8,1840, Reel 16 V. 1, p. 135; Lucas to Talcott, May 15,1840, Reel 12, V. 7, pp. 678-79. Lucas to Talcott, May 8, 1840, Reel 23, V.1, p.89; Talcott to Lucas, May 27,1840, Reel 16, V.L, p.141. The floor plan and elevations of the vault are enclosed in the last item.
This Robert Mills could not have been the noted American architect Robert Mills who had prepared the first design of the Washington Monument, also of the Treasury Building,etc, as the latter Mills had died March 3,1835.

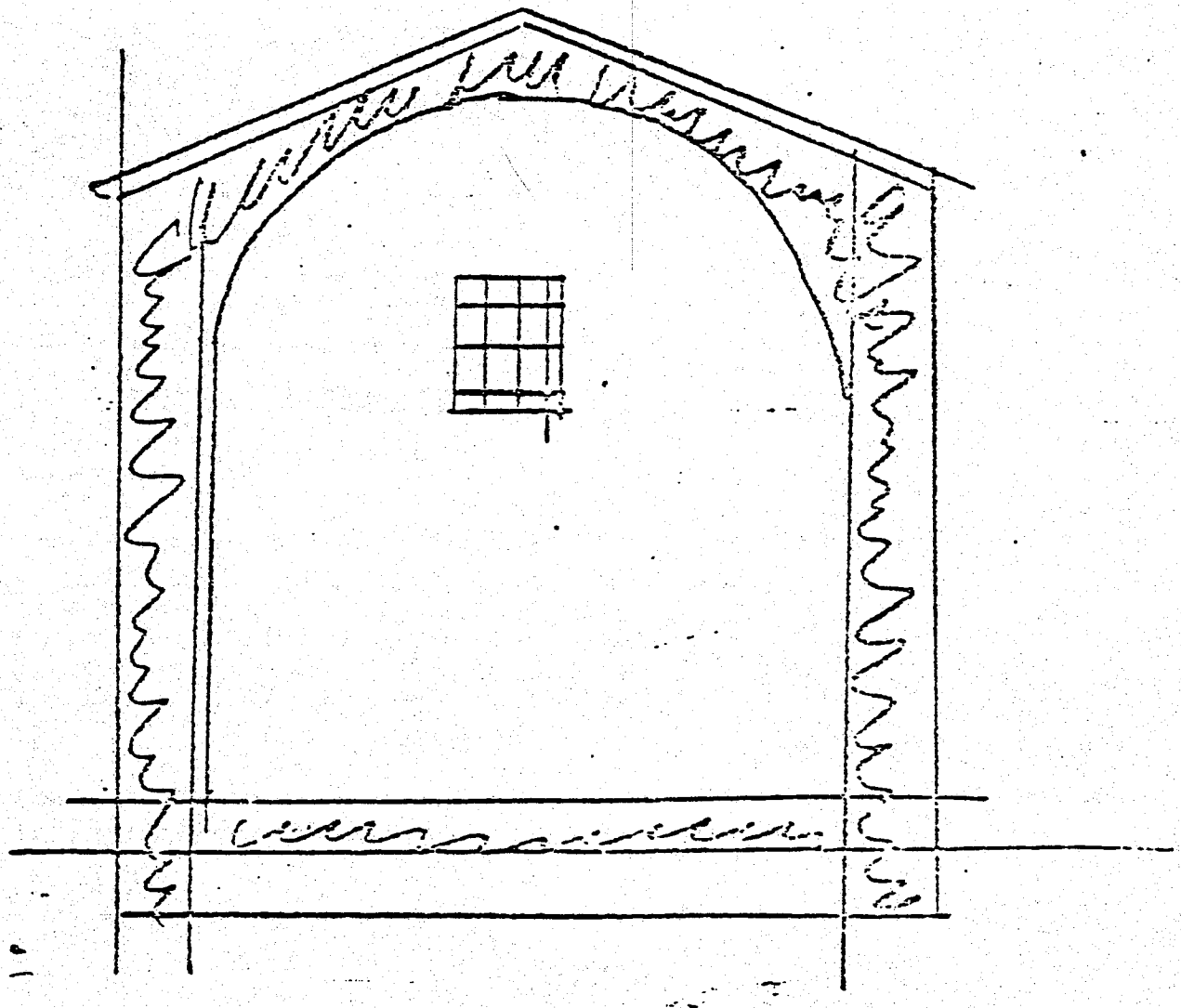
15. R.G. 217- 5252- V. 60, dated August 26,1840.

16. R.G. 217- 5252- Voucher 95, dated Sept.8,1840.
17. R.G. 217- 5252-V. 95- September 8,1840.
18. R.G. 217- 5252-V. 112-Sept. 30,1840.
19. R.G. 217- 5624- 82. To John Rockenbaugh, October 4,1840- 75 cents for 6 lb(?) spanish brown at 6½ cents.

Plan No. B

By Robert Mills,
May 1840

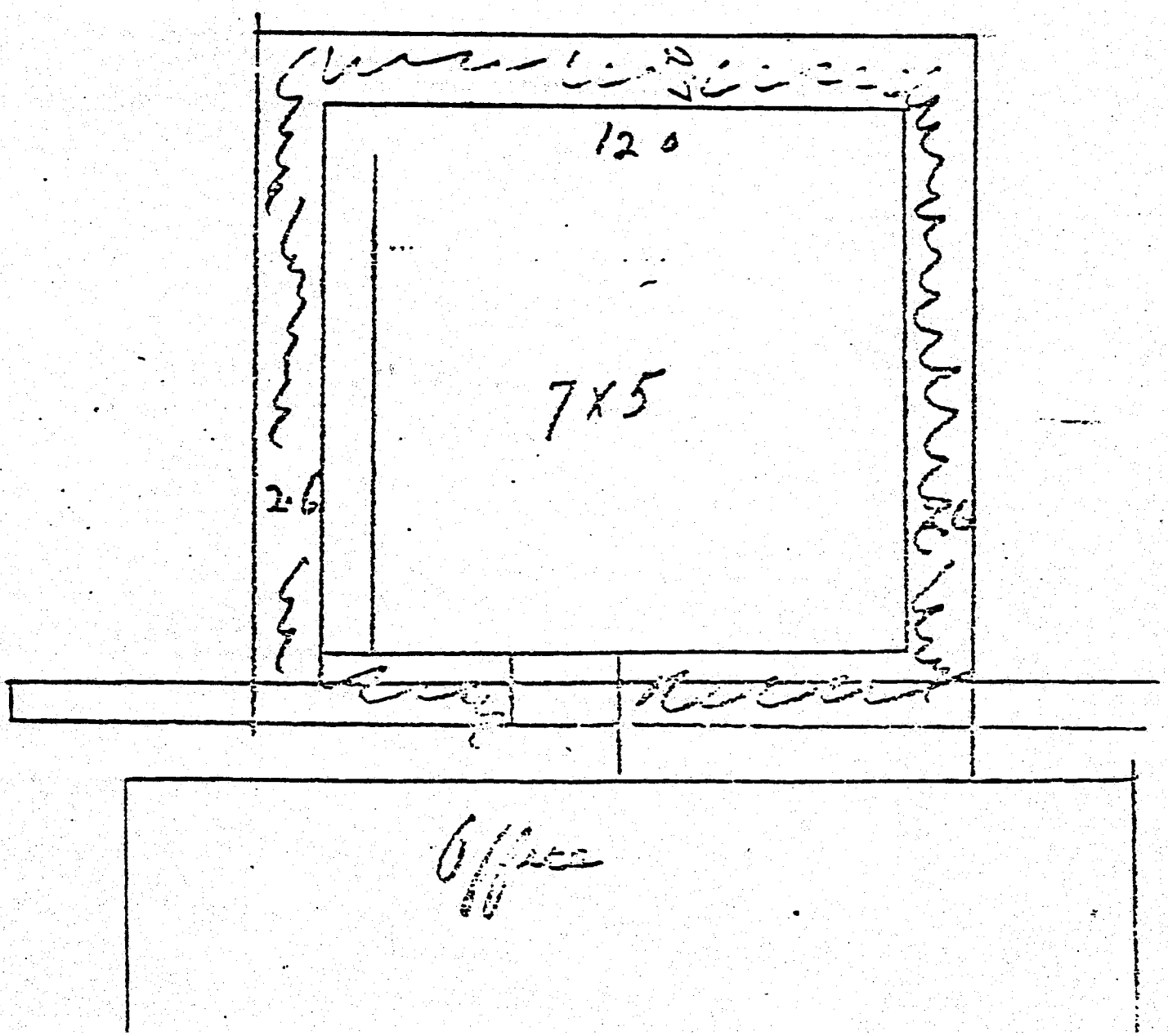
PLAN OF VAULT TO BE ERECTED ON PAYMASTER'S OFF
NATIONAL ARCHIVES R.G. 156
LETTER FROM COLONEL TALCOTT TO COLONEL
LUCAS, MAY 27, 1840.
R. 16, v. 1, p. 141



Plan No. C

Drawn by Robert Mills,
May 1840

PLAN OF VAULT TO BE ERECTED ON PAYMASTER'S OFFICE
NATIONAL ARCHIVES R.G. 156
LETTER FROM COLONEL TALCOTT TO COLONEL
LUCAS, MAY 27, 1840.
R. 16, v. 1, p. 141



On September 30,1840, Franklin Johnson was paid $ 140.00 for the use of and installing, September 1 to 12, the "Andrews Patent combination lock on the vault doors.[20]

The vouchers that can be definitely linked to the construction of the new fireproof vault in 1840 total $ 233.82.

The total amount of money spent for construction, repair, and improvement of the Pay Office from 1822 to 1841 exceeded $ 780.74. (Not included in this total is the cost of slating the roof in 1833, which is not known).

d. Repairs to the Paymaster's Office; 1842 - 1851:

A total of $ 11.84 was expended 1842-44 to make repairs to the Pay Office, Bldg. No. D on Map No. 3(1848).[21] The Paymaster's Vault was whitewashed in June 1844 at a cost of $ 1.97. In July 1844 the tinsmith Benjamin M. Snook made a smoke jack for the building, charging $ 9.00 and for 87 cents repaired the sheet iron chimney top and made one sheet iron fender for the office in January 1845.[22][23]

The Paymaster's extant vouchers for the years 1846 to 1851 do not indicate that any more repairs were made to the Pay Office during that period.

The grand total of money spent for repair and improvement from 1822 to 1851 was thus approximately $ 792.58.

20. R.G. 5252- 134., Sept. 30,1840.

21. R.G. 217, 3rd Series, File 1165, V. 55, to Jerry Harris, June 20,1844.
22. R.G. 217, 3rd S., File 1165, V. 90, to Benjamin M. Snook, July 9,1844, $ 9.00.
23. R.G. 217, 3rd S., File 2213, V. 7, to Benjamin M. Snook, Jan.1845, for 87 cents.

Expenditures for Repairs and Improvements
FOR PAymaster's Office, Arsenal Square,
1842 to 1851

According to vouchers of Armory Paymaster, National Archives Record Group No. 217.

Year	Paymaster's Office
1842	0
1843	0
1844	11.84
1845	
1846	
1847	
1848	
1849	Rented
1850	Rented
1851	Leased
TOTAL	

e. A new Armory Office Building, 1847-48:

In the estimates for the 1846-47 fiscal year Major John Symington requested and on August 8, 1846, Congress appropriated the desired sum of $ 850.00 to remodel the Superintendent's Old (1807-08) Residence, located in the Musket Factory Yard (See Bldg. marked "Paymaster's Quarters" on Map No. 2 (1844),p. 359, and Bldg. No. 1 on Map No. 3, p. 61.[24] The offices of the Armory Superintendent, Paymaster, and Master Armorer were to be located in the remodelled dwelling. In his annual report for the fiscal year ending June 30, 1848, Superintendent Symington reported that this work was complete and wrote:

24. Estimates in Serial No. 481, Document No. 9, pp. 111-112; Appropriation in U.S. Statues at Large, IX, p.69.

"The old quarters inside the armory yard have been suitably arranged for offices for the commanding officer, the paymaster, and storekeeper, and the master armorer.[25] by suitable alteration and repairs necessary to fit it for above named purpose."

With the opening of the new office building, the Old(1822) Pay Office and Old(1832) Superintendent's Office, both located on Arsenal Square, became surplus to the Armory's needs. (See Bldgs. D and A, Map 3 (1848).

f. Repairs to the Old Pay Office, 1852- 1861:

The destruction of the Armory Paymasters' vouchers for the years 1852 to 1861 by the National Archives staff during the 1940's makes it impossible to trace in detail any repairs or improvements that may have been made to the Paymaster's Old Office during the period 1852 to 1858. However, as the Paymaster relocated his office from the Arsenal Square structure to the remodelled Central Armory Office building in 1848, further expenditures on his former office on Arsenal Square were probably limited to routine repairs. The 1822 Pay Office was also rented out to private individuals from 1848 to 1858.

g. Removal of the Old Pay Office from Arsenal Square to the Musket Factory Yard,1858:

In April 1858, the Old Pay Office was removed from its original location on Lot 2, Block B, at the northwest corner of Arsenal Square, to clear the ground for the construction of new Quarters for the Armory Master Armorer(Armory Dwelling House No. 1- Park Bldg. No. 36) in 1858-59.[26] In his annual report for the fiscal year ending June 30, 1858, Superintendent Henry W. Clowe reported of this event: "The old 'paymaster's office' has been taken down, to make room for the master armorer's (new) quarters."[27]

25. Serial No. 537, Document No. 1, p.348.

26, Superintendent Henry W. Clowe to Col. Henry K. Craig, Chief of Ordnance, April 22, 1858, HF NHP Reel 27, Vol. 1, p. 48.

27 Serial No. 976, p.1319.

The Old Pay Office was moved intact, or if taken down, reassembled in the Musket Factory yard in 1858 at some undetermined site, but in the opinion of this writer, possibly located at the west end of the Armory Central Office Building (Musket Factory Bldg. No. 2 On the 1859 Historical Base Map and east of Musket Factory Bldg. No. 3- the Old Bell Shop). The Old(1822) Pay Office survived the Civil War and in July 1865 was described by Brigadier General Edward D. Ramsay in his inspection report as:

"Pay Office, Brick, 1 story, 18 by 28 feet, Ordnance Bldg. No.3, located in Armory enclosure, in good condition, used as Repair Shop."[28]

In September 1863, the Guard House of the U.S. troops holding Harper's Ferry may have been located in the Old(1822) Pay Office(or in the Central Armory Office Bldg. No.2), in the Musket Factory yard. The Guard House had a front room 18 by 18 feet in size, two back rooms, one 18 by 14 feet and the other 14 by 10, and a dungeon 10 by 7 feet. The "dungeon" was located in the Paymaster's Vault and was "burglar, air, and light proof."[29]

There are no known drawings or photographs of the Old(1822) Pay Office. However, if the writer's theory that the Old Pay Office was set in April 1858 at the west end of the Armory Central Office Bldg No. 2 is correct, then what may be a distant view of the Pay Office is afforded by Photo No. 9, (HF- 355, taken about 1886).

28. Brigader General Edward D. Ramsay's inspection report of July 25,1865, to Brigade General A.B. Dyer, Chief of Ordnance, Photostat Collection,Map Case, Drawer 10,Harpers Ferry NHP.
Brig. Gen. E.D. Ramsay to Brevet Major General A.B. Dyer,Chief of Ordnance, July 27,1865, Harpers Ferry NHP Photostats, Vol. 4, pp. 50-56.

29. M/ R. Missey,Medical Inspector, U.S.A., to Brig. Gen. Lockwood, Sept. 28, 1863, National Archives, Office of the Quarter Master General, Harpers Ferry Consolidated Correspondence File, 1794-1915, Box 377.

The Old Pay Office in the Musket Factory yard was demolished in the period 1887 -1892; after April 12, 1887, when Thomas H. Savery received his deed from the U.S. for the Musket Factory yard, buildings, and water power rights on the Potomac [30], and prior to 1892, when the Baltimore and Ohio Railroad Company relocated its main line tracks, Musket Factory Bldg. No. 2 was demolished, and Bldg. 1, the "John Brown Fort," was taken down to be sent to the World Fair at Chicago.

Location of the Original Foundations, Arsenal Square, 1959:

The brick foundations of the Old Pay Office of 1822, situated on Lot No. 2, Block B, Shenandoah and to the east of Park Bldg. No. 36- the Master Armorer's new(1858-59) Quarters, were accidently located in March 1959 when a hole was excavated for the new Park flag pole. The Park Flag pole erected in 1959 stood about in the center of the original foundations of the Paymaster's Arsenal Square Office.

30. National Archives Record Group 121, Public Buildings Service, Entry 58, Warrenty Deeds, Vol. III, p.624.

3. Use of the Old Pay Office, 1822- 1866:

The Old Pay Office, located on Lot No. 2, Block B, Shenandoah Street, at the northwest corner of Arsenal Square, served from 1822 to 1848 as the office and vault of the Paymasters of the U.S. Armory at Harper's Ferry, Virginia. National Armory Accounts for the years January 1,1822 to June 30, 1847, indicate that a grand total of $ 5,005,853.58 was paid out by the Armory Paymasters to cover the cost of the purchase of land, for the repair and improvements of buildings, canals, and dams, and for the manufacture of muskets and rifles.

The Armory Paymasters who utilized the 1822 one-story brick structure as their office include the following men:

1. John McGuire, 1822-23.
2. William P. Craighill, 1823-24.
3. William Broadus, 1824-30.
4. Daniel Bedinger, 1830-38.
5. Richard Parker, 1838-1847.
6. Edward Lucas, Jr. may have used the office briefly in 1848.

By June 30, 1848, as has been noted, the Paymaster had removed his office and accounts from the Arsenal Square structure to the remodelled Armory Central Office Building which was located in the Musket Factory Yard.[1]

During the years 1834 to 1837, the Pay Office had also served as the semi-annual meeting place of the Harpers Ferry Savings Institution.[2]

1. Serial No. 537, Document No.1,p.348. Annual report of Major John Symington for the fiscal year ending June 30,1848.
2. Notices for meetings in Virginia Free Press, April 17, 1834, p.3, c.2; and April 13, 1837, p.3, c. 3.

Use of the Former Pay Office, 1848 - 1866:

In March 1848, the former Pay Office was rented to T. J. W. Sullivan, who operated a men's ready made clothing and tailor shop in the building from 1848 to 1850.[3] Sullivan paid the Armory $ 27.50 per quarter in rent, or $ 110.00 per year.[4] In 1850 the lawyer Isaac Fouke rented the Old Pay office at $ 17.50 per quarter, or $ 70.00 per year, for use as his law office.[5]

In March 1851 the State of Virginia passed an act authorizing and incorporating the first town government for Harpers Ferry.[6] The first election of town officers- for mayor, recorder, and town councilmen was held in May 1851 and Jeremiah Fuss, a carpenter and master builder for the Armory, was erected the first mayor.[7]

The town offical applied to Superintendent John Symington on May 30,1851 for permission to use the Old Pay Office as the Town Hall. Major Symington issued the formal lease to the town officers on July 5, 1851.[8] The town government used the Old Pay Office from July 1851 to April 1858 as the mayor's

3. Sullivan's advertisements, giving his business and describing his location as in the "Old Pay Office," on Shenandoah Street, began running regularly in Virginia Free Press, March 18, 1848, p3. c1.; Also "List of United States Dwelling Houses at Harper's Ferrym June 30, 1848," Reel 18, Vol. 12, p. 1189.
4. June 30,1848 List of U.S. Dwelling House, Reel 18, Vol. 12, p. 1189.
5. "List of Dwelling Houses Belonging to the United States at Harpers Ferry, December 31,1850," page 1, Harpers Ferry NHP Map Case, Drawer No.4.
6. Virginia Free Press, March 21,1851, p. 2, c.5.
7. Virginia Free Press, May 9,1851, p. 2, c.2.
8. Town Officals to Major Symington, May 30,1851, Reel 24, V. 4, p.393; Symington to Chief of Ordnance, Col. Henry C. Craig, May 30,1851, Reel 24, V. 4, p.391; Craig to Symington, June 5,1851, Reel 19, V. 5, p.458; Symington to Craig, July 5, 1851, Reel 26, V. 2, p. 188. Lease to the Corporation of Harpers Ferry, July 5,1851, Reel 26, V. 2 , p. 189. Also Supt. Henry W. Clowe to Col. Craig, May 15,1855, Reel 25, Vol. 7, p.719.

office, council chamber, and the 1840 vault as the town jail. In April,1858, as has been mentioned, the Old Pay Office was removed from Arsenal Square to a site in the Musket Factory Yard. It is believed that the town offices were shifted in April 1858 to the Superintendent's Old Office, which was located at the northeast corner of Old Arsenal Square, at Lot 1, Block A, Shenandoah Street. What use the Armory made of the Old Pay Office in the Musket Factory yard from April 1858 to April 18, 1861 is not known.

Confederate troops captured the Harper's Ferry Army on 1 a.m April 19, 1861. During September 1863, as has been mentioned, the U.S. troops holding Harpers Ferry used either the Old Musket Factory Bldg. No. 2- the central Armory Office Building, or Musket Factory Bldg. No. 17- the Old (1822) Pay Office as a guard house and the Paymaster's old vault served as the "dungeon."[9]

Brigadier General Edward D. Ramsay's Report of July 27,1865, describing the "Pay Office.. located in Armory enclosure", as "Repair Shop" and "in good condition", indicates that from 1864 to 1865, while Harpers Ferry served as the main base of operations and supplies for General Sheridan's army, the Old (1822) Pay Office in the Musket Factory yard was used as a repair shop to recondition arms.[10] Brevet Major General A. B. Dyer, Chief of Ordnance, issued orders for the Harper's Ferry Repair shop in the old pay Office to close on March 9, 1866.;[11] On May 14,1866, General Dyer also recommended to Secretary of War E. M. Stanton that the Harper's Ferry Armory property be sold.[12]

As has been noted, the Old Pay Office was probably demolished in the period 1887- 1892.

9. See page 82.
10. Brig. Gen. E.D. Ramsay Inspection report of July 27,1865 to Brevet Major General A. B. Dyer, Chief of Ordnance, HF NHP Photostats Vol. 4,pp.50-56, His list of Armory structures in in Photostat Collections, Map Case, Drawer 10.
11. Benet, General Stephen V., ed. Collection of Annual Reports,,,,IV, p.1048.
12. Ibid., IV, p. 1049-1050.

Description of

Old(1822) Pay Office, Bldg. No. 17, 1858:

Location: Exact location in Musket Factory yard after 1858 is uncertain. However, the building may have been located at the west end of the Armory Central Office Building, Bldg. No. 2.

Map References: None.

Visual Evidence: No definite sketch or photograph of structure known. However, Harpers Ferry NHP Negative No. 355, a photograph taken about 1886, show a brick structure located at the west end of Armory Offices, Bldg. No. 2, which may be the Old(1822) Pay Office, Musket Factory Bldg. No. 17.

History and Description: The Old Pay Office, Bldg. No. 17, was erected by Superintendent James Stubblefield at a cost of $ 500 in 1822 to serve as the office of the Armory Paymaster. The edifice was located at the northwest corner of Arsenal Square on Lot No. 2, Block B, Shenandoah Street, where the office was to stand until April 1858.

The Pay Office was a one-story brick building with a wood shingle roof and measured 24 by 18 feet in size. The roof was slated in 1833 and in 1840 a one-story brick "fireproof" vault, five by seven feet, with walls 2½ feet thick and a slate covered-gable roof, was added to rear(south) elevation of the Pay Office. The cost of this addition was about $ 234. Armory Paymasters who used this structure are their office included the following men: John McGuire, 1822-23; William P. Craighill, 1823-24; William Broadus, 1824-30; Daniel Bedinger, 1830-38; Richard Parker, 1838-47; and perhaps Edward Lucas, Jr,, briefly in 1848.

By June 30,1848, Paymaster Lucas had relocated his office to the remodelled Armory Central Office Building, Bldg. No. 2 in the Musket Factory Yard.

From 1848 to 1851 the Armory rented the Old(1822) Office on Arsenal Square to private individuals. In 1848-49, T. J. W. Sullivan

leased it as a ready-made clothing and tailor shop. In 1850 it served as the law office of Isaac Fouke. From 1851 to April 1858, it was next leased to the town government of Harper's Ferry. During this period the Old Pay Office served as the town hall, office of the mayor, and vault was utilized as the town jail.

In April 1858, the Old Pay Office was taken down and apparently re-erected in the Musket Factory yard. The structure was removed from Arsenal Square in order to clear its original site for the construction of a new house for the Master Armory (Armory Dwelling House No. 1- present Park Bldg. No. 36).

During September 1863, as has been mentioned, the U.S. troops holding Harpers Ferry used either the Old Musket Factory Bldg. No. 2- the central Armory Office Building, or Musket Factory Bldg. No. 17- the Old (1822) Pay Office as a guard house and the Paymaster's old vault served as the "dungeon."

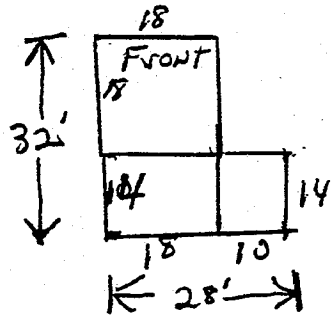
Brigadier General Edward D. Ramsay's Report of July 27,1865, describing the "Pay Office.. located in Armory enclosure", as "Repair Shop" and "in good condition", indicates that from 1864 to 1865, while Harpers Ferry served as the main base of operations and supplies for General Sheridan's army, the Old (1822) Pay Office in the Musket Factory yard was used as a repair shop to recondition arms. Brevet Major General A. B. Dyer, Chief of Ordnance, issued orders for the Harper's Ferry Repair shop in the old Pay Office to close on March 9, 1866.

The Old Pay Office, Bldg. No. 17, was apparently demolished in the period 1886-89.

Musket Factory

Relocated
in April 1858

Old Pay office 1863
(1822)



Bldg 17

18. The New Rolling Mill, Bldg. No. 18, 1853-54:

The vouchers of the Armory Paymaster relating to the construction of the rolling mill and for the period 1852 to 1861 were destroyed by a committee of the National Archives during the 1940's. This makes it impossible to trace the details of the cost of construction, amounts of materials used, as well as to identify the workmen who constructed in this large shop.

Major John Symington's estimates for for the 1848-49 had contained a request for $ 16,500 "for erecting a rolling mill at the musket factory." This building was needed, it was explained "To work up scrap iron into bars of suitable sizes for use in the shops. For want of a rolling mill the large amount of scrap iron annually made at the armory has to be sold for whatever it will bring. This iron is of the best quality, and the working of it into bars, fit for use, would make an annual saving of $ 1,500 or more. The estimate includes the necessary furnaces and stack, with water-wheel and stone forebay and machinery, to drive two pairs of rolls."[1] Congress appropriated the requested $ 16,500 on August 14, 1848,[2] but for reasons that that are not known, the rolling mill structure was not constructed during the 1848-52 period. The money, however, may be used to purchase or make machinery for the mill.

Col. Huger's estimates for the 1853-54 fiscal year included a request for $ 7,000: "For building a roll mill". He explained: this was needed "To work up scrap iron suitable for manufacturing. All the machinery and part of the material for this this object have been procured, and this amount is required for its completion."[3] The desired sum was appropriated by Congress on March 3,1853.[4]

The estimates for the 1854-55 fiscal year included a request for an additional $ 4,100 to purchase the following machinery for the rolling mill:

" $ 1,300 "for one heavy tilt-hammer". "This...is to be placed in the rolling mill, and will be required for drawing barrel plates and other heavy work."[5]

1. Serial No. 514, Document No. 2, pp. 110-111, Item No. 6.
2. U.S. Statues at Large, IX, p. 306.
3. Serial No. 675, Document No. 2, p.257,258, Item No. 2.
4. U.S. Statues at Large, X, p.217.
5. Serial No. 714, Document No. 2, pp.188-189, Item No. 1.

"$ 2,800" for a driving-wheel and a small wheel for blast," which were "Required for the rolling mill."[6]

The requested $ 4,100 was appropriated on August 5,1854.[7]

Finally, in the estimates for 1855-56 fiscal year, it was necessary to ask for $ 1,432 "for completing the exterior of the rolling mill." This money was needed "For completing walls for supporting embankment, filling in the same, and otherwise completing the exteriorof the rolling mill."[8] This sum was voted by Congress on March 3,1855.[9] The cost of constructing the rolling mill, 1853-1855 was thus approximately $ 12,532, but if the money from the 1848 appropriation is included, as it probably should be, the final total cost of the new rolling milling, including the machinery and structure, was probably about $ 29,032.

Preparation, which included clearing the site, for the new rolling mill was under way in the spring of 1853. In his annual report for the fiscal year ending June 30, 1853, Superintendent Benjamin Huger reported:

"The old tilt-hammer shop (at the Musket Factory, Bldg. No. 11 on the 1848 map, built in 1834-39 at a cost of $ 21,776) has been pulled down, and the (water) wheels, &c., removed; the wheel-pits penstocks, and forebays filled up; and all made ready for building the new rolling-mill on its foundations."[10]

The following year, Major William B. Bell announced the completion of and described the new workshop was follows:

"New Rolling Mill; 146 feet by 45 feet, one story of 16½ feet, built of brick, on stone foundation, covered with slate; paved with stone, and having two reverberatory furnaces, with stacks 45 and 40 feet high; two tilt-hammers, one forge, one large lathe for rollers, two trains of rollers, 13 and 8 inches; large shears, fan-blower, water-wheel, 15 feet cube. master wheel and gearing, pullies and other

6. Serial No. 714, Document No. 2, p. 188,189, Item No. 13.
7. U.S. Statues at Large, X, p. 578.
8. Serial No. 781, Document No. 3, p. 238, Item No. 1.
9. U.S. Statues at Large, X, p. 637.
10. Serial No.692,Document No. 1, p. 277.

"machinery, one large cast-iron flume from canal to forebay, is now completed, except the two tilt-hammers, part of the pavement, lathe and shears, forebay , part of machinery for driving fan-blower, which is not in position. It is expected that this mill will be ready for operations on or before the first of October next(1854)."[11]

Like the other new buildings at the Musket Factory, the rolling mill had cut stone water table, sills, and copings and the gutters and down spouts were of copper. Either Major John Symington or Brevet Colonel Benjamin Huger could have prepared the plan used in constructing the rolling mill, but photographs Harpers Ferry NHP Negative HF- 9 and 10, taken during the Civil War, reveal that new mill was designed in the same architectural style that Symington had been applying to the new shops going up at both the musket and rifle factories since 1846.

Repairs to the Rolling Mill, Bldg. No. 18, 1855 - 1860:

In his first annual report, dated June 30, 1855, Superintendent Henry W. Clowe reported that" A new office has been built in the rolling mill for the foremen." He also noted that:

"All the exterior grounds about the rolling mill have been graded, walled, and filled up with stone and earth. The house for the protection of the rolling-mill water-wheel has been built, with slate roof and brick walls. The embankment all around the mill on the canal side has been supported with a good dry wall, consisting of some 300 perch, and, where it was necessary, mortar or grouted masonry has been used. This dry walling is extended from the east end of the mill on the

11. Serial No. 747, Document No. 1, p. 361.

south side and gable end, where it terminates in the Potomac River, by a tail race for the outlet of the water from the wheel-pit. These exterior grounds are now fully completed."[12]

Under the heading of "Machinery fabricated and in progress," Clowe wrote:

"1 set of tools and fixtures for rolling and scraping iron, fabricated.
1 cast-iron forge for rolling mill, fabricated.
1 cast-iron furnace for rolling mill, fabricated.
1 water-wheel for rolling mill, finished and in operation.
1 forebay for rolling mill, cast-iron frame, columns, gates, gearing and planking, secured by iron bolts and screws.

Machinery for rolling mill, including the water-wheel and forebay, partially reported last year, has been completed and put into operation, and about ten tons of iron fabricated and rolled into suitable bars and shapes. Extensive improvements made on the shingling and drawing hammers, furnaces and fixtures. Fixtures and machinery for drawing head-gates at the rolling mill nearly completed."[13]

In the report for the fiscal year ending June 30,1856, Superintendent Henry W. Clowe reported that the last part of the work on the rolling mill had been completed, writing:

"Machinery and fixtures for drawing head gate at rolling mill, have been completed, and also, for drawing head gates at the tilt-hammer shop(Bldg. No. 9) and grinding mill(Bldg. No. 8A). These are of cast iron, and of the most permanent and durable construction."[14].

In his annual report for the fiscal year ending June 30, 1858, Superintendent Clowe noted that 64 perches of dry wall had been erected and 84 cubic yards of excavation had been done "for a cesspool, at the rolling mill."[15]

The estimates for the 1860-61 fiscal year requested $ 15,000 " To defray the expense of purchase and erection of barrel-rolling machinery;" It was explained, "This sum to be applied to objects of repairs and improvements heretofore authorized, but which are now delayed in consequence of the expenditure for the purchase and

12. Serial No. 841, p.557.
13. Serial No. 841, pp.555-556.
14. Serial No. 876, p.389.
15. Serial No. 976, p. 1319.

erection of new barrel-rolling machinery, deemed essential to the best interests of the armory, and not to be postponed."[16] The desired sum was voted by Congress on June 21, 1860.[17]

In his annual report for the fiscal year ending June 30, 1860, Superintendent Alfred M. Barbour reported: "Exentive repairs and improvements .....for furnace for barrel rolling, housings for barrel machines, main and counter line of machinery for barrel rolling and finishing shop..... and complete fixtures and machinery for rolling barrels, at a cost of over fifteen thousand dollars."[18]

16. Serial No. 1043, p.229, Item No.1,
17. U.S. Statues at Large, XII, p. 66.
18. Serial No. 1079, p.973.

Year	Rolling Mill (1)
8/31/ 1852	
3/3 / 1853	7,000
3/5/ 1854	4,100
Total	$ 11,100

Year:	Bldg. 18 Rolling Mill
3/3/ 1855	1,432
8/30/ 1856	
3/7/ 1857	
6/12/ 1858	
3/3/ 1859	
6/21/ 1860	15,000
3/27/ 1861	
TOTAL	$ 16,432

(1) An additional $ 16,500 had been appropriated to erect a rolling mill on August 14,1848. This money had apparently been expended to purchase building materials for the structure and to make necessary machinery for the mill. In 1855 an additional $ 1,432 was provided in order to complete the structure.

Description of
Rolling Mill, Bldg. No. 18,1853-54:

Location: At the extreme western or upper end of the northern line of workshops.

Map References: Built on the same site formerly occupied by the Tilt Hammer Shop for Barrel Welding of 1834-38, Bldg. No. 11 on Map No. 3 (1848).

Visual Evidence:

The Rolling Mill can be seen in the following Harpers Ferry NHP Negatives: HF- 11, distant view taken in October 1862; HF- 10, closeup, taken in October 1862; HF- 9, taken in October 1862.; HF- 83, taken about 1875; HF- 492, taken about 1880; and HF- 99, taken about 1892, showing the rolling mill rebuilt as a pulp mill.

History and Description: The Rolling Mill was probably designed by Brevet Colonel Benjamin Huger, but in the same architectural style that former Superintendent John Symington had been applying to all the new workshops that had been erected since 1846. The new Rolling Mill was constructed by Superintendent Huger in 1853-54.

The Rolling Mill was a one-story, 16½ feet high, brick shop on stone foundations. The building was 146 feet long and 45 feet wide and its gable roof was covered with slate. The water table, sills, and coping were of cut stone and the gutters and downspouts were of copper. The gable ends were comprised of four bays and the long sides were each divided into 14 bays. Centered on the south (canal) side was a low one-story brick wheel house with a slate covered gable roof. This structure covered the 15-foot cast iron water wheel that drove the machinery in the shop. Each bay was comprised of a round arch that was supported by capped brick pilasters. A recessed

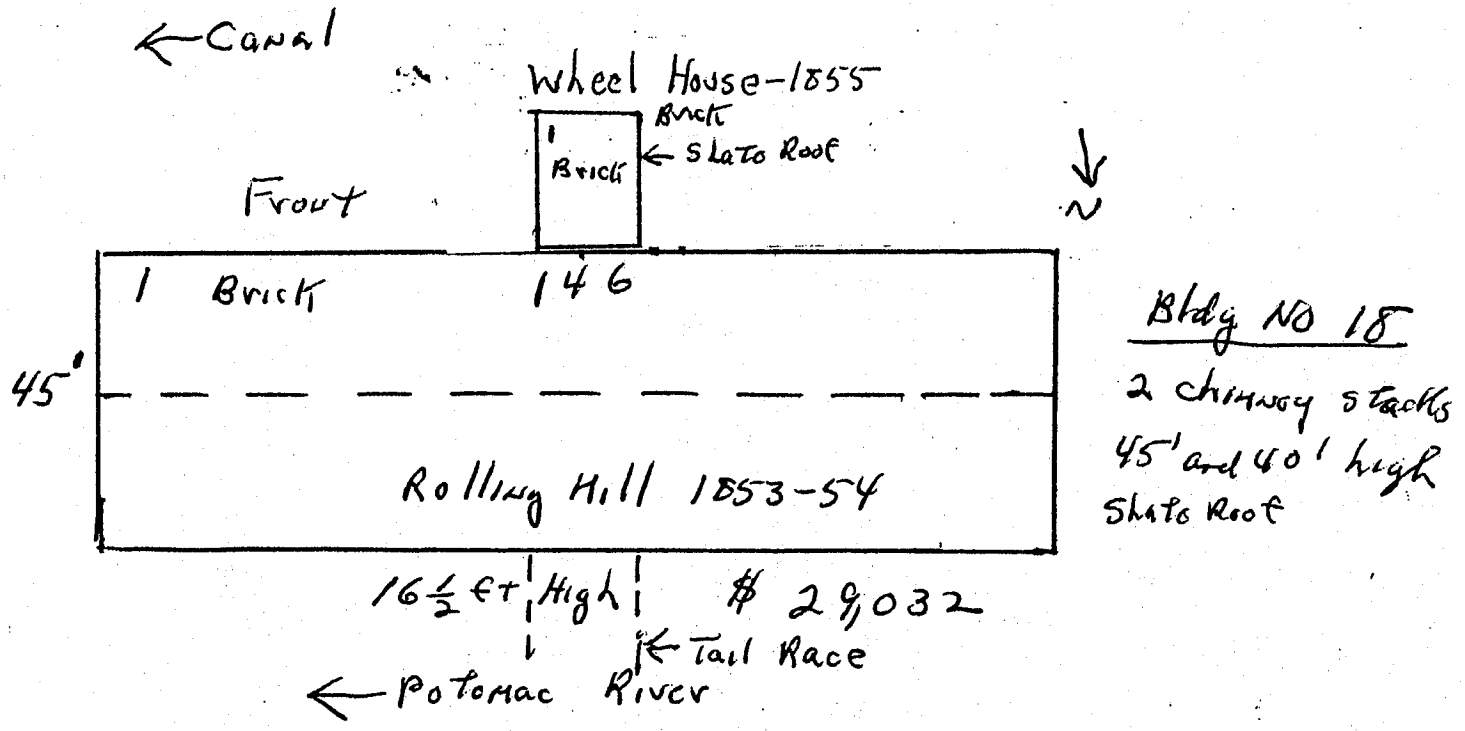
panel within each arch contained a round arch window or door. Brick parapet end walls, topped with cut-stone coping and crenelated, rose above the roof ridge at both gable ends of the main structure and also at the south gable end of the wheel house.

Inside, the floor was paved with stone. There were two reverberatory furnaces that were served by two brick chimney stacks that were 45 and 40 feet high; also one cast-iron forge, two tilt hammers, one large lathe for rollers, two trains of rollers, 13 and 8 inches in size, large shears, and a fan blower. A large cast-iron flume conducted the water from the armory canal to the forebay and the cast-iron water wheel was described as being '15 feet cube".

The Rolling Mill was burned by Confederate troops on June 14,1861 and only its brick walls were left standing. The roofless shop can be seen in Photos HF- 9 and HF- 10, both taken in October 1862. The brick walls were levelled by the Union Army during the Civil War. The Ordnance Department Inventory of Musket Factory Property, made 1865-69, described the Rolling Mill, Bldg. No. 18, as follows:[1]

> **Old Rolling Mill Shop Foundation. Stone coping dressed 200 ft. by 30 ft. Flag flooring many iron bolts.**
>
> **Overshot Wheel Wood frame. 15 ft. diameter. Large revolving shafts. Forebay 15 ft. square. Large masonry waste-way about 60 ft. by 15 ft. 20 ft. deep. Dressed stone facing and coping. Boiler iron supply pipe 25 ft. by 4 ft. Iron water gate.**
>
> **Iron Flume about 4 ft. diameter 20 ft. long. Iron water gate.**
>
> **Coping of Canal Wall blocks of dressed stones about 6, 8, 10 ft. long 8 in. thick. Stones well squared about 500 feet in length.**

1. National Archives Record Group 121, Washington ,D.C., Public Buildings Service, Harpers Ferry File No. 154, n.p., n.d., prepared ca.18865-1869. Cited from James P. Noffsinger,"Harpers Ferry,West Virginia...".pp.124-127. Building numbers added by C.W.Snell. Dimensions of the buildings as given in report are not very accurate. Nearly all structures listed were at least 35 feet wide and not 25 feet as is generally stated.


←Canal
Wheel House-1855
Brick
1
Brick
← Slate Roof
Front
N
1 Brick
146
45'
Rolling Mill 1853-54
16½ Ft High
29,032
← Tail Race
← Potomac River
Bldg NO 18
2 chimney stacks
45' and 40' high
Slate Roof

19. Lime House, Bldg. No. 19, 1852:

In his annual report for the fiscal year ending June 30,1852, Huger announced that"a new lime house,of wood" , probably one-story, had been erected at the musket factory.[1] This storehouse probably replaced the frame lime house that Major Henry K. Craig had built in 1844. The appearance and location of the lime house in the musket factory yard are not known.

Lime House, Bldg. No. 19, 1852:

Location: Unknown.

Map References: None.

Visual Evidence: None.

History and Description: The Lime House was constructed by Superintendent Benjamin Huger in the Musket Factory yard in 1852. This frame, probably one story, building replaced the earlier Lime House that had been erected in 1843.

The Lime House was burned and completely destroyed by Confederate troops on June 14, 1861.

1. Serial No. 659, Document No.1, p.253.

20. Ice House, Bldg. No. 20, 1853:

In his annual report for the fiscal year ending June 30,1853, Col. Huger noted, "An ice house has been built, 20 feet square by 13 feet high" at the Musket Factory.[2] The appearance and location of the ice house in the musket factory yard is also unknown.

Ice House, Bldg. No. 20, 1853:

Location: Unknown.

Map References: None.

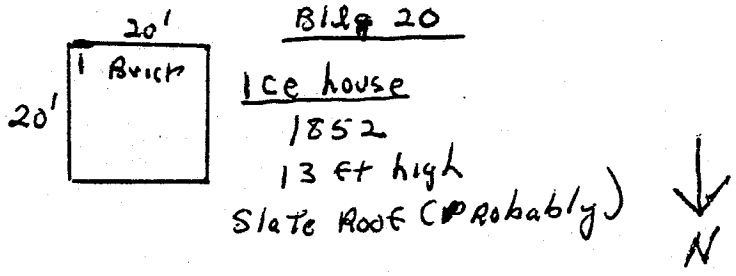
Visual Evidence: None.

History and Description:. The Ice House, a one-story brick structure, 20 feet square and 13 feet high, was erected by Superintendent Benjamin Huger in the Musket Factory yard in 1853.

The Ice House was burned by Confederate troops on June 14, 1861 and was apparently completely destroyed at that time.

(Also see page 221, Bldg. No. 16, Charcoal House, for a possible ca. 1866 description of the stone foundations of the Ice House, Bldg. No. 20).

2. Serial No. 692, Document No.1, p. 277.


20'
20'
Bldg 20
Ice house
1852
13 ft high
Slate Roof (Probably)
N

21. The New Connecting Workshop, Bldg. No. 21, 1860-61: (Located between Bldgs. No. 7 and 8):

The estimates for the 1860-61 fiscal year contained an item asking for $ 7,025 for making an addition to barrel-finishing shop (Bldg. No. 7); it was explained "This addition will connect this building (No. 7) with the grinding mill (Bldg. 8A)," and "under the same roof whereby a large amount of external transportation of components and materials will be avoided."[1] Congress appropriated the requested amount on June 21, 1860.[2]

The plan and itemized cost of materials needed in the construction of Bldg. No. 21 were worked out by Master Armorer Armistead M. Ball for Superintendent Alfred M. Barbour, at Barbour's request, on August 30, 1860, as follows:

"Estimate of Cost of Additional Building, connecting Grinding Mill (Bldg. 8A) and Barrel Finishing Shop (Bldg. No. 7), Musket Factory

90,000	bricks, layed @ $ 16 per M	$ 1,440.00
110	ft cut stone Water table @ $1 pr lineal ft	110.00
156	" " " Window sills @ $ 0.75 " "	117.00
258	yrds Earth Excavation @ 30¢ per yd	77.55
260	perches Cement walling @ $ 4.50 pr prch	1,170.00
12,000	lbs. Iron castings (window and door frames) @ 4¢ per lbs	480.00
258	yds Earth removed @ 25¢ per yd	64.62½
2,900	Ft Slate roofing, @ 9¢ per ft	261.00
18,000	ft sawed Timber at $ 16 ft	278.00
5,000	Ft 1½ inch plank, at $ 2 ft C	100.00
4,000	Ft 2 inch plank. @ $ 2 ft C	80.00
9,000	Ft 1 " " $ 2 " "	180.00
2,000	Ft 2 " " $ 3.50 "	70.00
600	Ft window glass @ 15¢ pr ft	90.00
230	ft. copper guttering @ 87½ ¢ per Lineal ft	192.50
	Hareware and Nails	80.00
	Painting, Glazing & Material	230.00
	Fitting up (iron) castings Window & Door Frames	120.00
	Irons for Roof. (A)	90.00
	Transportation of Lumber	100.00
	Labor of Out hands	20.00
	Carpenter Work	600.00
	Appropriated (June 21, 1860): $ 7,025.00	$ 5,950.67½

1. Serial No. 1043, p. 229, Item No. 4.
2. U.S. Statues at Large, XII, p. 66.

A. Perhaps for lightning rods.

In addition, Master Armorer Ball noted that there was also available an appropriation of $ 800.00,made March 3,1859, for making an addition to the grinding Mill,Bldg. 8A, that had not yet be used.[3] Thus a total of $ 7,825 was apparently available for construction that was estimated to cost only $ 5,951. The surplus from Bldg. No. 21 was apparently utilized to help construct Bldg. No. 22, as the estimated cost of Bldg. No. 22 exceeded the amount of money voted for that purpose.

The Chief of Ordnance, Col. Henry K. Craig, approved the plan and estimate for constructing Connecting Building No. 21 on September 7,1860.[4]

Because of the destruction of the Paymaster's vouchers and due also the the coming of the Civil War War in April 1861, causing Barbour to never write his annual report of operations for the fiscal year ending June 30,1861, there is now no information available on the progress of construction of Bldg. No. 21. The following Harpers Ferry NHP Negatives, however, reveal that a second brick story was added to the grinding mill, Bldg. 8A and that a two-story brick shop was erected that connected Bldgs. No. 8 and 7: HF- 223 a drawing published in Harpers Weekly entitled: "Harpers Ferry Armory as It Now Appears, July 20,1861 ", shows the Bldg. Tower, Bldg. No. 22, the Connecting Shop.Bldg. No. 21, and part of the new second story on Bldg. 8, the Grinding Mill. The new buildings were designed in the same style that Major John Symington had begun applying to the new Armory Buildings in 1846. HF- 30, a photo taken in October 1862, reveals that the details shown in HF- 223 are correct and also shows Bldgs. No. 8, 21, 7, 22, and 6 in detail. HF- 38, a photo taken in 1865 or 1866, reveals that Bldgs. No. 8,

3. Ball to Barbour, August 30,1860,Reel 27, V.9, p.822.823.
4.Craig to Barbour, Sept.7,1860, Reel 20, V. 4,p.351.

and 21 were still standing in ruined state, but that buildings No. 7, 22, and 6 had been demolished.

Judging by the visual visual evidence, the Connecting Shop was approximately eight bays long on its front (north) and rear (south) elevations.

APPROPRIATIONS FOR

Year:	Bldg. 21, Connecting Shop
3/3/ 1855	
8/30/ 1856	
3/7/ 1857	
6/12/ 1858	
3/3/ 1859	
6/21/ 1860	7,025
3/27/ 1861	
TOTAL	$ 7,025

Description of
Connecting Shop, Bldg. No. 21, 1860-61:

Location: Ninth building from the eastern or lower head of the southern row of workshops. The structure connected Bldg. No. 7, the remodelled Millwright Shop with Bldg 8A, the Grinding Mill.

Map References: None.

Visual Evidence:

Bldg. No. 21 can be seen in the following Harpers Ferry NHP Negatives: HF-223, a drawing made in July 1861; photos taken in October 1862 include HF- 10, HF-11, HF-30, HF-240, and HF-492; the structure was still standing in 1865-or 1866,see HF- 38; and HF-355, a photo taken about 1886, reveals that Bldg.No.21 had been demolished by that date.

History and Description:

The Connecting Shop was designed by Master Armorer Armistead M. Ball and constructed under the supervision of Superintendent Alfred M. Barbour in the period September 1860 to April 1861 at an approximate cost of $ 5,951. The edifice was probably not completely finished when the Civil War commenced.

The Connecting Shop was a two-story brick workshop 36 feet wide and apparently eight bays, or perhaps 88 feet long, that adjoined Bldg. No. 7 on the east gable end and Bldg. No. 8 on the west gable end. The Connecting Shop was designed in the same architectural style that Major John Symington had first introduced at the Harpers Ferry Armory in 1846 and had also been used when he designed and constructed Bldgs. No. 7 and 8.

The Connecting Shop, Bldg. No. 21, had stone masonry foundations, brick walls, cut-stone water table and window sills; and the door and window frames were of cast-iron. The gable roof, covered with slate, had copper gutters and downspouts, and also probably had lightning rods attached.

Gable ends walls of Bldgs. No. 7 and 8 also served as the gable end walls of Bldg. No. 21. The north(front) and south(rear) elevations of the Connecting Shop were each apparently divided into eight bays. The first story openings, which had round arches, were set in recessed round archs that were supported by brick capped pilasters. The second story windows, topped with flat arches, were located in recessed rectangular recessed panels, in the identical style that Symington had applied to adjoining Bldgs. No. 7 and 8. As a part of the 1860-61 construction, a second story of brick was also added to the Grinding mill, Bldg. 8A, the east wing of Bldg. No. 8.

In the normal practice of that time, the exterior brick walls of the Connecting Shop would also have reached several coats of oil paint.

Confederate troops burned the Connecting Shop, Bldg. No. 21, on June 14, 1861, and left only the two-story high brick walls standing. (See Photo HF- 223, a drawing made in July 1861, and the following Photos taken in October 1862: HF-30 and HF -240). The ruined walls of the roofless structure apparently stood, unused by the Union Army from 1861 to 1865. The roofless ruins of Bldg. 21, the Connecting Shop, are visible in Photo HF- 38, made in 1865 or 1866. The brick walls of Bldg. 21 were apparently levelled by the Ordnance Department about 1866. The Ordnance Department Inventory of Musket Factory Property, made 1865 to 1869, describes what is probably Bldg. No. 21, the Connecting Shop, erected in 1860, as follows:[1]

1. National Archives Record Group 121, Washington ,D.C., Public Buildings Service, Harpers Ferry File No. 154, n.p., n.d., prepared ca.18865-1869. Cited from James P. Noffsinger,"Harpers Ferry,West Virginia...".pp.124-127. Building numbers added by C.W.Snell. Dimensions of the buildings as given in report are not very accurate. Nearly all structures listed were at least 35 feet wide and not 25 feet as is generally stated.

Line of blast pipe 150 feet long by 10 inches under-
ground to blacksmith shop. Drum wheel in ground about
4 ft. diameter & part of shaft about 3 ft. long. Wooden
buckets all destroyed.

(Bldg. No. 21-
Connecting Shop?
1860-61)

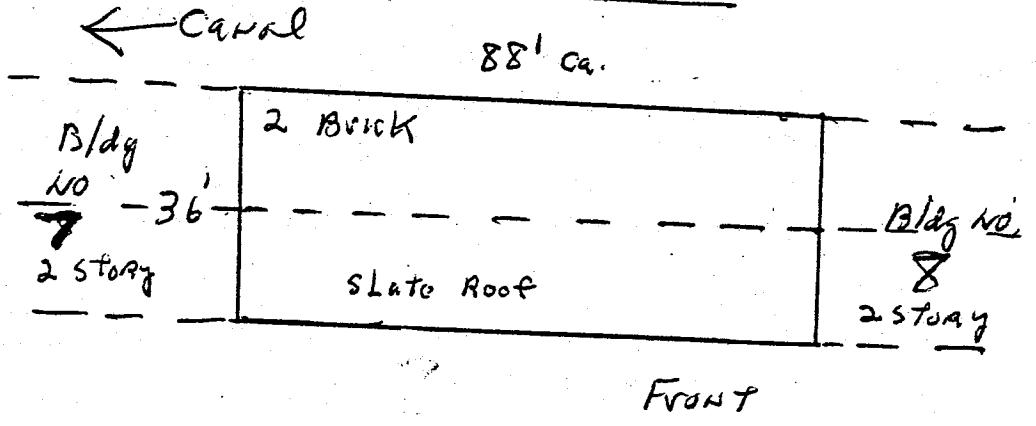
Foundation of Machine Shop built in 1857. Laid about 4 feet.
deep. Coping of dressed granite--length about 100 ft.
width about 25 feet. 2 iron cogs about 4 ft. in diameter
& shaft about 12 ft. by 8 in.

Two Granite-faced Waste-ways. Walls about 12 feet high.

Remarks: The blacksmith shop is Bldg. No. 13, the Smiths or Forging Shop. "The Machine Shop built in 1857" may possibly refer to Bldg. No. 7, the Storehouse for Stocks, erected 1846-47, and which was altered in 1859-60 at a cost of $ 11,103 from a storehouse into a millwrights shop with water wheel. Bldg. No. 7, however, was not built, but altered. Only Bldgs. No. 21 and 22 were constructed during the period 1857 to 1861.

Bldg 21

Connecting Shop



Erected 1860-61

Cost $5,951

Designed By Hastor ARMORER

ARMistead M. Ball

N

22. The New Bell Tower Workshop, 1860 - 61: (Bldg. No. 22)- (Located Between Bldgs. 6 and 7).

The estimates for the 1860-61 fiscal year contained a request for $ 6,025 for making an "Addition to the machine and stocking shop (Bldg. No. 6)," it was explained that "If this addition is authorized, the building (no. 6) will be connected with the barrel finishing (or Millwright Shop, Bldg. No. 7), and under the same roof, whereby a large amount of external transportation of components and materials will be avoided."[1] Congress appropriated the desired amount on June 21, 1860.[2]

The plans and itemized cost of materials and laborer need in the construction the Bell Tower, Bldg. No. 22, were prepared by Master Armorer Armistead M. Ball, at Superintendent Alfred M. Barbour's request, on August 30, 1860, as follows:

215,000	Brick laid @ 16 per M	$ 3,440.00
412	26/27 yds Earth Excavation @ 30 ¢ per yd	123.75
412	26/27 yds Earth removed @ 25¢ pr yd	103.75
352	10/25 perches Cement (foundation) walling at $ 4.50 pr perch	1,585.75
94	ft. (cut stone) water table @ 1.00 per lineal ft.	94.00
130	ft ft (cut stone) Window Sills @ 75¢ " " "	97.50
110	ft (cut stone) coping @ $ 1.00 per ft	110.00
13,000	lbs Iron Castings (door & window frames) @ 4¢ pr lbs	520.00
700	ft Glass (double) @ 15 ¢ pr ft	105.00
1,800	ft Slating @ 9 ¢ pr ft	162.00
150	ft Copper Guttering @ 87½ ¢ pr lineal ft	131.25
14,000	ft Sawed Timber @ $ 16 pr ft	244.00
4,000	ft 1 inch plank @ $ 2 pr ft	80.00
3,000	ft. 1 inch plank @ $ 1.50 pr ft	45.00
3,500	ft 2 inch plank, @ $ 2.00 " "	70.00
3,000	ft 1½ inch plank @ $ 2.00 " "	60.00
	Painting, Glazing & Materials	230.00
	Irons for Roof (Lightning rods?)	45.00
	Fitting up Castings (iron), Windows & Door frames	60.00
	Hardware & Nails	50.00
	Carpenter Work	650.00
	Transportation of Lumber	66.50
	Appropriated (June 21, 1860) $ 6,025	$ 8,073.50 [3]

1. Serial No. 1043, p.229, Item No. 3.
2. U.S. Statues at Large, XII, p.66.
3. Ball to Supt. Barbour, Aug. 30, 1860, Reel 27, V.9, p. 823.

Barbour and Ball apparently planned to pay for the cost overrun on Bldg. No 22, the Bell Tower by transferring surplus funds from the Connecting Shop, Bldg. No.21, project as follows:

For Bldg. No.	Appropriated	Estimated Cost
21	$ 7,825.00	$ 5,950.67½
Bldg. 22	$ 6,025.00	8,073.50
Total	$ 13,850.00	$ 14,024.17½

Col. Henry K. Craig, Chief of Ordnance, approved the plan for Bldg. No. 22 on September 7, 1860,[4] and construction apparently got underway at once.

Because of the outbreak of the Civil War in April 1861, Superintendent Alfred M. Barbour never wrote his report of operations for the fiscal year ending June 30,1861. Due to this, and also to the destruction of the Armory Paymaster's vouchers for the period 1852-1861, there is no longer any data extant on the progress of construction of Bldg. No. 22. Visual evidence, taken 1861-1865, however, reveals that Bldg. No. 22, the tall bell tower was erected in the period September 1860- April 1861. Historical prints and photographs made 1861 to 1865 showing the Bell Tower are as follows: HF- 223- a drawing published in Harpers Weekly in 1861 entilted: "Harpers Feery Armory as It now Appears, July 20,1861"; HF-240 and HF -492, both photographs taken in October 1862; HF- 30, also a photo made in 1862; HF-11, photo of October 1862; HF-10, 1862 photo. HF- 38, a photo taken in 1865 or 1866 reveals that Bldg. No. 7, 22, and 6 had all be demolished by that date.

4.Craig to Barbour, Sept. 7,1860, Reel 20, V. 4, p.351.

The photographs reveal that the Bell Tower, Bldg. 22 ,was three bays wide, three stories high, with a gable roof. The center bay of the north or front elevation was occupied by a slightly projecting square shaped bell tower that rose three full stories from the ground. The tower was then set or stepped back slightly, and the structure then rose another two stories. The top of the tower was adorned by a small turret at each of the four corners. Each elevation of the square belfry contained a tall round arched open window above which, in the fifth story, was set a small round open window,

APPROPRIATIONS FOR

Year	Bell Tower & Shop
3/3/ 1855	
8/30/ 1856	
3/7/ 1857	
6/12/ 1858	
3/3/ 1859	
6/21/ 1860	6,025
3/2/ 1861	
TOTAL	$ 6,025
TOTAL SPENT	

Description of
The Bell Tower Shop, Bldg. No. 22, 1860-61:

Location: Seventh building in the southern line of workshops from the eastern or lower head of that row.

Map References: None.

Visual Evidence:

The Bell Tower Shop can be seen in the following Harpers Ferry NHP Negatives: HF-240, drawing made in July 1861; photos made in October 1862 include HF- 240,492, HF -10, HF- 11, and HF -30;; and HF-38, taken in 1865 or 1866, reveals that Bldg. No. 22, the Armory Bell Tower, had been demolished by that date.

History and Description:

The Bell Tower Shop was a three story brick building that was adorned by a square and crenelated tower that rose to a height of five stories. The main shop was 36 feet deep and three bays, or about 33 feet wide, and was built so that it connected Bldgs. No. 6 and 7, using their gable end walls as the Bell Tower shop's side walls. It was designed in the same architectural style that Major John Symington had first introduced at the Harpers Ferry Armory in 1846. Like the other shops erected by Symington, the Bell Tower Shop had stone masonry foundations, brick walls, and cut-stone water table, window sills, and coping. The door and window frames were of cast-iron . The gable roof was covered with slate; it probably had lightning rods, and the gutters and downspouts were of copper.

The gable roof of Bldg. 22 ran at right angles to Bldgs. 6 and 7, and the gable ends of the Bell Tower, which formed the front(north) and rear (south) elevations of the new shop, were treated in the usual Symington manner, that is, with brick parapet end walls, topped with cut-stone coping and crenelated, that rose above the ridge of the roof at either end.

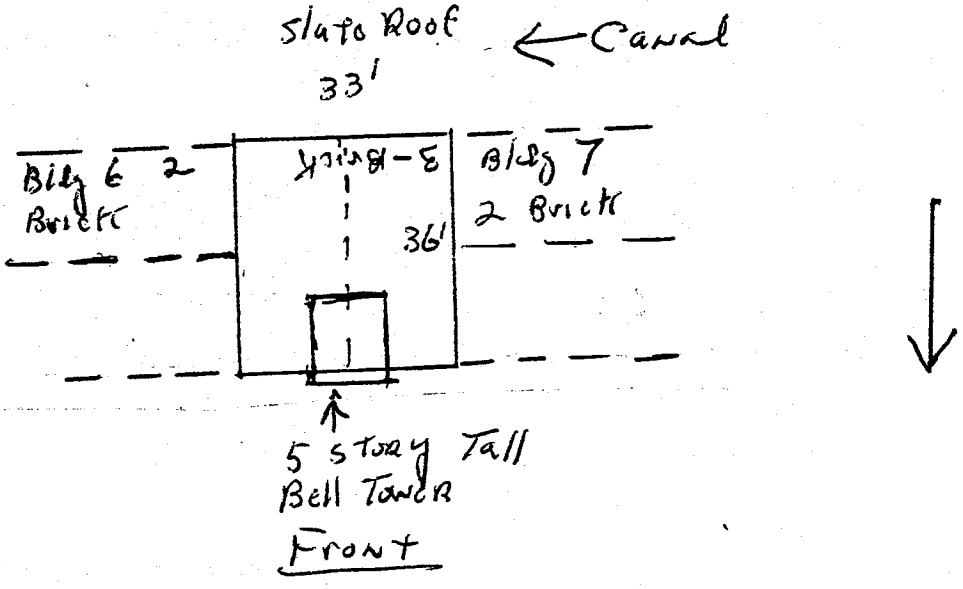
The center bay of the three-bay wide north or front facade was comprised of a square bell tower that rose to a height of five stories. The first story of the tower building contained a center door that was flanked on either side by the usual Symington, round arch window that was set within a recessed panel beneath a round arch that was supported by capped brick pilasters. Second and third story windows had flat arches that were set in recessed panels which also had flat arches. The front and rear elevations of Bldg. No. 22 thus blended perfectly with the facades of the adjoining Bldgs. No. 6 and 7 , which had both been designed and erected by Superintendent Symington.

At the fourth story level the square belfry was slightly set back. Each elevation contained one tall and open round arch window above which, at the fifth story level, was set a small and open round window. The top of the tower was adorned with four small turrets, one each set at a corner.

Under the normal practice of that time, the exterior brick walls of the Bell Tower, Bldg. No.22, should also have received two coats of oil paint. The roof also probably had lightning rods.

Confederate troops set fire to the Bell Tower Workshop on June 14, 1861 and left only the burned out brick walls of the shop and tower standing. The roofless structure can be seen in Photo HF- 49, taken in late June or July 1861 and also Drawing No. HF- 223. The ruined walls and tower were still standing in October 1862. (See Photos No. HF- 30,, HF - 11, and HF- 10. The tall tower and walls, however, had been levelled by Union troops, probably as a safety hazard, in 1864. (The tower is not to be seen in Photos HF-27, HF- 38, and HF-28, taken in 1864, 1865 and 1866).

Bldg No. 22
Bell Tower Workshop



Erected 1860-61
Cost $8,074
Designed By Master Armorer
Armistead M. Ball

23. Baltimore and Ohio Railroad Company Water Tower,1855-56:

On October 31, 1855, Mr. Henry W. Clowe, Superintendent of the Harpers Ferry Armory, informed Col. H. K. Craig, of the Ordinance Department, Washington, D. C.:

"The Baltimore & Ohio Railroad Company, by W. Bollman the Engineer having charge of such subjects, has made application to me, for permission to erect for the use of the Road a Water Tank, within the Armory enclosure, near the Road and in the corner, North of the Main Gateway, at a Point which was referred to me, in a personal interview with yourself.

"It is designed, I understand, to construct the building in such style, as to be ornamental, rather than otherwise, and to be complied with the condition of prompt removal hereafter, at the will of the Superintendent, who may direct it." 1

On November 2, 1855, Colonel Craig notified Superintendent Clowe:

"Before definite action is taken on the application of the Baltimore & Ohio Railroad Company for permission to construct a Water Station on the Armory grounds it will be proper to have a brief description of the structure showing its horizental area, its projection from Inner Line of R.R. Platform and its elevation. I understood you to say the Tank was to be supported on Stone or Iron Piers or Columns.

"The permission of the Secretary of War will be necessary, but I have no doubt it will be readily granted." 2

On November 5, 1855, Superintendent Clowe forwarded a drawing of the proposed water Station, "which belongs to Wm. Bollman, and is designed as the working plan for their employees," as requested. 3

On November 7, 1855, Col. Craig sent a copy of his report to the Secretary of War in regards to the B. & O. application, and with it returned the working drawing to Superintendent Clowe. Col. Craig remarked: "You will perceive that the permission granted with the limitations as will secure the right to require prompt removal of the structure at any time. In making the arrangement with the company, this right must be fully secured..." 4

1. National Archives. Microfilm Reel #25, Volume 7, page 650.
2. National Archives, Mirofilm Reel #19, Volume 9, page 808.
3. National Archives, Mirrofilm Reel #25, Volume 7, page 656.
4. National Archives, Microfilm Reel #19, Volume 9, page 810.

Col. Craigs' Report to Secretary of War Jefferson Davis, dated November 6, 1855, reads:

"The Baltimore & Ohio Rail Road Company have, through their Engineer, applied for permission to erect, on the public land at Harper's Ferry, and adjoining to their Rail Road Platform, near the point where the Road leaves the Armory ground a Building, in which to place a Tank for Water, for the use of their Motive Engines, and other purposes connected with the Road, precaution in case of accidental fires in the vicinity being one of them.

"The Building will stand on a base of about 17 feet square, with an elevation of about 36 feet to the Cornice; the basement, to the height of Rail Road platform, about 13 feet will be of brick; the superstructure of Timber; the whole ornamental; as will be seen in the drawing herewith transmitted. The tank will be supplied from the Armory Canal without cost to the Armory. The Building will, in no manner, affect injuriously the public interest, and it is recommended that the request of the Company be granted." [5]

On November 16, 1855, Superintendent Clowe and President V. Brooks of the B. & O. R.R. Co. entered into a formal agreement to erect the building described above, subject to the limitations specified by the Secretary of War. [6]

This water tower was constructed by the Baltimore & Ohio Railroad Company in 1856 and was standing at the time of the John Brown Raid. Fontaine Beckham, Mayor of Harpers Ferry and Agent of the R.R., was killed during the Raid while peering around the corner of the tower at the fighting.

In 1862, the President of the B. & O. informed the stockholders:

"February 7th, 1862. United States forces, under Col. Geary, crossed over into Harper's Ferry, and burned the Company's Hotel (located on Wager Lot 9), warehouse, ticket office (located on Wager Lot No. 1) and water station; also 38 panels, 570 feet in length, of wood work on the double track trestling, through the Arsenal (musket factory) and boatway bridge. This was the remainder of the Company's property in Harper's Ferry, not destroyed by the enemy." [7]

5. National Archives, Reel 20, Volume 3, pp.210-211; also Reel #25, Volume 7, pp.728-729.

6. National Archives, Reel #25, Volume 9, pp.936-937.

7. Thirty-Sixth Annual Report of the President and Directors to the Stockholders of the Baltimore & Ohio Railroad Company, for the Year Ending September 30, 1862. Baltimore, pp.49-50.

Description of Baltimore and Ohio Railroad Company Water Tower, 1856: (Bldg. No. 23)

Location: In the Musket Factory yard, at the lower or eastern head of the northern line of Musket Factory shops; at the east gable end of Bldg. No. 12, the Warehouse.

Map References: None.

Visual Evidence: Photos HF- 66 and HF-64, both taken in October 1859; HF- 49, photo taken in late June or July 1861. Photos HF- 11 and HF 30, both made in October 1862 and both documenting the fact that the Water Tower had been destroyed and its brick walls levelled.(Also HF-344,1861).

History and Description: The Secretary of War granted the Baltimore and Ohio Railroad Company permission to erect a brick water tower in the Musket Factory yard on November 7, 1855. The tower, perhaps designed by B. & O. engineer W. Bollman, was constructed by the company in 1856.

The building, about 17 feet square, was to be 36 feet high. Under the plan proposed, the first story, 13 feet high, was to be built of brick and the 23 foot tall superstructure, the water tank, of wood. Photographs taken in 1859 and 1861, however, reveal that the original plan was altered: the entire tower was constructed of brick and made much more decorative than first proposed. Two windows were introduced on the north and south elevations in the top story, the eaves line was marked by a strong cornice, and the tower was crowned with a hipped roof.

The water tower functioned from 1856 to February 7, 1862, when the building was destroyed by Union soldiers to prevent Confederate smipers from using the edifice as protective shelter.

MAINTENANCE PRACTICES ON MUSKET FACTORY BUILDINGS, 1842 - 1861:

A. Coloring Extrior Brick Shop Walls with Cement Wash, 1849-50:

The details of applying cement wash to the exterior brick walls of each musket factory building has been mentioned in the discussion of that edifice. Here is is noted that a total of $ 321.03 was expended on this project in in 1849 and 1850. Of this sum, $ 160.83 was paid to Francis Trinmous on November 3, 1849 for coloring a total of 3,480 square yards of brick wall.[3] The balance, $ 160.20, went to Francis Sinnons on September 27, 1850 for applying three coats of cement wash to 2,718 square yards of brick wall.[1]

In his annual report for the fiscal year ending June 30,1851, Major John Symington reported : "Two coats of patent paint, in oil, have been applied to the exterior walls of all the shops(except three not yet completed) and storehouses(at both the musket and rifle factories); also, to the commanding officer's, paymaster's, and master-armorer's quarters."[2]

Painting the Work Shops, 1853:

In the report for the yearing ending June 30,1853, Superintendent Huger mentioned that "Many of the buildings, machines,&C.," at the musket factory had been painted.[3]

Painting and Slating Roofs, Musket Factory, 1855-61:

In his annual report for the fiscal year ending June 30,1856, Superintendent Henry W. Clowe noted "The iron roofs on the shops(at the musket factory) have all been painted, and the slate roofs,(copper) guttering and spouting thoroughly repaired."[4]

1. 3rd S., F. 11542, V. 12, September 27,1850, for $ 160.20.
2. Serial No. 611, Doc.1, p. 459.
3. Serial No. 692, Document No. 1, p. 277.
4. Serial No. 876, p. 389.

In the report for the year ending June 30, 1858, Clowe reported that at the musket factory "All the workshops have been slightly repaired and the exterior [brick] walls painted."[5]

Finally, in the report for the fiscal year ending June 30,1859, Superintendent Alfred M. Barbour wrote: "All the shops at the musket factory have been more or less improved, including the painting of all [the cast-iron and wooden] window frames and sash."[6]

B. Improved Heating Facilities for the Workshops, 1850-51:

In his annual report for the year ending June 30,1851, Superintendent Symington reported "The facilities for warming shops have been very much improved at the musket and rifle factories, by 644 feet of sheet iron stove pipe, 11 inches in diameter."[7] Cast iron stoves were being made by Hugh Gilleece at his ffoundry on Virginius Island. On April 8, 1846, the Armory purchased three cast iron stoves from Gilleece for $ 55.16 "for heating armory shops."[8] On September 25,1850, the armory also purchased 775 feet of stove pipe from the tinsmith Alexander S. Vernon, for $ 50.37 :"for heating workshops."[9].

C. Lightning Rods on Musket and Rifle Factory Buildings, and on the Quarters of the Commanding Officer and the Paymaster, 1851:

The details and cost of placing lightning rods on each public building are discussed in each section dealing with structures at the Musket Factory.

Here it is noted that this work was performed by Decker and Robinson, who were paided a total of $ 597.75 for this service on July 3,1851. For this sum they

5. Serial No. 976, p.1319.
6. Serial No. 1025, p. 1114.
7. Serial No. 611, Document No.I,p. 457.
8. 3rd S., F. 3502, V.54, April 8,1846, for $ 55.16.
9. 3rd S. F. 11542,V.11, September 9,1850, for $ 50.37.

furnished the materials and placed in position on the public buildingsa grand total of 3,955 lineal feet of lightning rods and points at a charge of 15 cents per feet.[10] In his annual report for the fiscal year ending June 30, 1851, Superintendent John Symington noted that lightning rods had been attached to all of these public buildings.[11]

10. 3rd S., F. 12680, V. 69, for $ 597.75, part of payment totalling $ 677.75.
11. Serial No. 611, Document No. 1, p. 459.

HISTORIC GROUNDS REPORT FOR THE U.S. MUSKET FACTORY GROUND FEATURES AS OF 1859 - 1861

CHART NO. 4

APPROPRIATIONS FOR BUILDINGS AT U.S. MUSKET FACTORY, 1842- 1861

Year	New Buildings	Remodelling Old Bldgs.	Repair of Bldgs.	Total for Bldgs.	Gates and Walls	Grading	Pavement	River Wall	Purchase Land	Cistern	Total
1842											
1843	$ 6,500			$ 6,500							$ 6,500
1844	4,000			4,000							4,000
1845											
1846	24,100	850	12,900	37,850	350		450		48,261		86,911
1847	8,590		2,700	11,290	1,100			640	—		13,030
1848	19,150	850		20,000		500					20,500
1849	55,000	2,675		57,675					200		57,875
1850	7,180		1,000	8,180							8,180
1851	9,550			9,550							9,550
1852		3,100		3,100							3,100
1853	7,000	3,500		10,500							10,500
1854	12,900		1,800	14,700	7,000		700			1,000	23,400
1855	1,608		363	1,971					—		1,971
1856	223	1,000		1,223	8,906		560				10,689
1857		766		766	1,000						1,766
1858		11,103		11,103					—		11,103
1859	800			800	800						1,600
1860	28,050	600		28,650					—		28,650
TOTAL	$ 184,651	$ 24,444	$ 18,703	$ 227,858	$ 19,156	$ 500	$ 1,710	$ 640	$ 48,451	$ 1,000	$ 299,325

1. THE POTOMAC RIVER WALLS, 1837- 1861:

A. The River Wall for the Musket Factory, 1837-39:

The largest construction project at the Armory from 1836 to 1841 was the erection of a large river wall along the south bank of the Potomac at the Musket Factory.

In response to the request of the Ordnance Department, Congress appropriated on March 1, 1837, $ 40,628.00 for:

> /Constructing new land on the north side of the north line of Musket Factory shops, 1,624 feet long and 50 feet wide, by building into the Potomac River 50 feet, erecting a great stone river wall and embanking or filling in with earth behind the river wall.....

The estimated cost of this large project were calculated as follows:

FOR THE NATIONAL ARMORY AT HARPER'S FERRY, VIRGINIA.

A.—For constructing a river wall in the range of the shops on the Potomac 1,624 feet long, 9 feet at base and 3 feet at top, extending from the upper corner of the tilt-hammer shop to a point on the river near Doring's brick house, containing 6,246 perches of stone wall, at $2 45 per perch.....	$15, 302 00
For making the embankment to the same, containing 37,832 cubic yards, at 50 cents per yard...	18, 916 00
For constructing 619 feet of stone arching over tail races, water-wheels, sluices, &c., containing 792 perches, at $5 per perch	3, 960 00
For constructing 1,238 feet of stone walling, for the support of arches, 3½ feet thick, 6 feet high, making 1,000 perches, at $2 45 per perch.....	2, 450 00

Col. George Bomford, Chief of Ordnance, explained the purpose of this project to Congress as follows:[1]

> A.—The construction of a river wall along the range of shops on the Potomac river is rendered highly desirable, in consequence of the confined state of the buildings;—hemmed in on one side by the river, and by high and precipitous ledges of rocks on the other. Besides, it will the means of reclaiming a space of fifty feet wide by sixteen hundred and twenty-four feet long, in the rear of the shops, and render it available for building purposes.

1. Special Estimate for additional appropriations for the Service of the Ordnance Department during the Year 1837, dated Jan. 21,1837-in Serial No. 303, Document No. 107, pp. 2-3. Appropriation in U.S. Statuesat Large, Vol. 5, p.149, "Doring's brick house" was the store and dwelling of Richard D. Doran, which was located on Wager Lot No.11 in the Wager Ferry Lot Reservation. See Map No. 2 (1844), page 359.

The contractor for this project was the mason John Littlejohn, who supervised the construction of the river wall from 1837 until his death, probably in June 1839. Littlejohn and his men went into action in the last half of June 1837. He was paid $ 13,972.26 for his work in 1837, $ 6,081.09 in 1838.[2] and $ 1,710.26 for his construction in the second quarter of 1839.

The Paymaster's vouchers indicated that Littlejohn accomplished the following construction prior to his death.

Yaer	Total Due	River Wall		Embankment		Raceway Wall		
		Perches	Cost	Cubic Yards	Cost	Perches	Cost	
1837	$13,972.26	3,400	$ 5,900.00	21,470	$ 6,450.00	500	$ 1,125.00	(3)
1838	6,081.09	1,821	3,186.75	2,000	600.00	Culverts 1,000	$ 3,000.00	(4)
1839	1,710.00	-	-	700	210.00	500	1,500.00	(5)
Total	$ 21,763.35	5,221	$ 9,086.75	24,170	7,260.00	2,000	$5,625.00	

Comparing the perches of stone wall and cubic yards of embankment made by John Littlejohn and his men with the totals given for the project in the estimates(see page 265) suggests that 1,025 perches of stone river wall and 13,062 cubic yards of embankment yet remained to be constructed in June 1839. Littlejohn had completed perhaps two-thirds of the project.

2. Because Littlejohn's vouchers were suspended for some reason, his payments were delayed. Much of the work he did in 1837 was not paid for until 1838.

3. R.G. 217-file 1716- vouchers, 146D,147D, 148D, 149D for work in 3rd quarter of 1837-valued at $ 5,199.00; File No. 2364-vouchers 173 174, 175, 176, and 177, Abstract D, for work in 4th quarter of 1837. valued at $ 8,773.26, including a charge of $ 447.26 for use of 10 horses and seven carts on the project. Littlejohn's vouchers were suspended-not paid on time, but finally paid. Included in this work were making 1,320 perches of stone arches on the raceway; making 816 2/3 perches of stone wall to support the arches along the race way, making 3,500 cubic yards of embankment,apparently for these arches, and 1,208 perches 14 1/3 feet of river wall-see statement on Abstract D, File 2364 for $ 8,450.00 worth of work in 1837.

4. R.G. 217- 2729-Voucher 96C-August 31,1838 for $ 3,419.34-Abstract B.and File 3424-49E- Nov.30,1838, for $ 2661.75 to Littlejohn.

5. R.G. 217-3971-114-paid to Littlejohn's Administrator, filedJune 24,1839.

National Archives
Record Group No. 217, Records of the United States General Accounting Office, Washington, D.C. Records of the Second Aduitor:
from Paymaster of the U.S. Armory at Harper's Ferry, Virginia, Expenditures for Permanent Improvements

March 1,1837
Appropriated $ 40,628.00 in 1837.

POTOMAC RIVER WALL 1836- 1841

Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	TOTAL	Dec.31 Balance:
1836	a 0	b 0	c 0	0 d	0	0
1837	e	f	g 8,783.64	h 1,125.00	9,908.64	
1838	i	j 7,325.00	k 3,419.34	l 2,661.75	13,406.09	
1839	m 3,652.50	n 383.25	o 1,710.00	p 10,089.78	15,835.53	1,477.74
1840	q	r	s	t		
1841	u	v	w	x		
TOTAL					$ 39,150.26	

a. 20761 - 1st series
b. 20654 " "
c. 677 2nd Series
d. 761 " "
e. 951
f. 1423
g. 1716 Abstract D.
h. 2092
i. 2364
j. 2364
k. 2729
l. 3434
m. 3703
n. 3695
o. 3917
p. 4246
q. 4429
r. 4878
s. 5252
t. 5624
u. 5785
v. 6195
w. 6465
x. 6718 -2nd series.

Contractor John Littlejohn submitted his bills for construction at the following annual rates:

$ 13,972.26 for construction completed in 1837.
6,081.09 " " " in 1838
1,710.00 " " " in 1839
$ 21,763.35 for work completed by Littlejohn.

He was paid at the above annual rate.

The Armory spent $ 17,386.91 for day labor and supplies to complete river wall in 1838-39.

National Archives
Record Group No. 217, Records of the United States General Accounting Office, Washington, D.C. Records of the Second Aduitor:
from Paymaster of the U.S. Armory at Harper's Ferry, Virginia, Expenditures for Permanent Improvements March 1,1837
RIVER WALL AND COMPLETION OF Appropriated $ 47,284.00 in 1837
THE TILT HAMMER SHOP 1836- 1841

Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	TOTAL	Dec.31 Balance:
1836	a 0	b 0	c 4,916.74	d 0	4,916.74	2,198.26
1837	e 2,268.32	f 3,591.75	g 8,783.64	h 3,527.66	18,171.37	30,654.89
1838	i 228.27	j 8,738.64	k 3,419.00	l 2,661.75	15,047.66	15,835.53
1839	m 3,652.50	n 383.25	o 1,710.00	p 10,089.78	15,835.53	0
1840	q	r	s	t	0	0
1841	u	v	w	x	0	0
TOTAL					53,971.30	0

a. 20761 - 1st series
b. 20654 " "
c. 677 2nd Series
d. 761 " "
e. 951
f. 1423
g. 1716
h. 2092

i. 2364
j. 2364
k. 2729
l. 3434
m. 3703
n. 3695
o. 3917
p. 4246
q. 4429
r. 4878

Completion of Tilt Hammer shop- amount charged to materials during period June 30,1837 Dec.31,1837= $ 875.48.

$ 6,656.00 for Tilt Hammer Shop
$ 40,628.00 for River Wall

s. 5252
t. 5624
u. 5785
v. 6195
w. 6463
x. 6718

The Armory now decided to complete the remaining unbuilt third of the river wall and perhaps hired as day laborers, the master masons who had been working for the deceased Mr. Littlejohn. The Armory crew began work in October 1839 and completed the project by the 31st of December at a cost of $ 10,089.78.[6] Among the master masons employed on the Armory payroll at the rate of $ 2.00 per day, were Peter Litle(or Lytle), Edward Tearney, and Thomas Kirwan. Litle and Tearney were to form a partenership and become the chief stone masons during the reconstruction of the Armory in the 1840's and 50's. Kirwan and Tearney were to be active in Harper's Ferry after the Civil War.[7]

Total cost of constructing the river wall was probably about $ 40,000.00 as had been estimated.[8]

6. R.G. 217- File 4246-4th quarter of 1839. The cost of laboeer charged against the river wall account in October totalled $ 2,000.00. Thomas Mulligan was another master mason on this project.

7. Peter Litle and Edward Tearney were to erect one-half of Park Bldg. No. 44 in 1844. The remaining half of the structure,also built in 1844, was put up by Patrick H. Kelly, a carpenter employed on construction at the Armory.

8. The vouchers charged against this account by the Armory Paymaster,1837-1839, totalled $ 39,150.26, leaving a balance of $ 1,477.74 in the account. R.G. 217- 1716, 2092, 2364, 2729, 3434, 3703, 3695, 3917, and 4246.

B. The Baltimore and Ohio Railroad and the U.S. Musket Factory, 1838-41:

The Baltimore and Ohio Railroad completed its main line from Baltimore west to a point opposite to Harper's Ferry, on the Maryland shore of the Potomac River in December 1834 The company, however, found its way further westward along the north shore of the Potomac blocked by the C & O Canal Company. To proceed on to Cumberland, the railroad would have to cross the Potomac to the south or Virginia shore; in order to accomplish this the company had first to purchase from the Wager heirs the ferry rights to the Potomac; second, Virginia must pass a law which would permit them to enter and proceed westward through that State; third, they must construct a great railroad bridge over the river; and, fourth, they must obtain a right of way from the United States Government so that they could build their track through the U.S. Musket Factory yard to continue west up the south bank of the Potomac. All of this took time and about seven years passed before B & O RR line went beyond Harper's Ferry.

After the Armory's and Ordnance Department's experience with the operations of the Winchester and Potomac Railroad Company during the period 1836-38- as a constant fire hazard, the Chief of Ordnance and Superintendent of the Armory probably did not welcome the requests of the B & O for a right of way through the Musket Factory yard. Also the Armory had just spent $ 40,628.00 to erect a great stone river wall which gave them a new strip of land 1,624 feet long and 50 feet wide on the north side of the north line of factories. Now the railroad suggested that it would like to run its line (free of charge) over this new land. On November 5,1838, Secretary of War Joel R.

Poinsett and Louis McLane, president of the B & O. RR, entered into an agreement that granted the railroad a right of way through the Musket Factory, but the Ordnance Department had incorporated provisions that were intended to protect the U.S. property and that required additional construction by the railroad company the probably came to at least $ 50,000.00.

This agreement stated in part;(See Railroad Maps No. 1, 7, and 10.

The route (A and B) leaves the Railroad viaduct at or near second pier from the Virginia(south) shore and turns to the right up the Potomac until it acquires a direction parallel or nearly so to the new(Armory) river wall now being erected by the United States on the river side of the northern row of work shops belonging to the musket armory.

The outside of this wall is about forty feet from the river front of said workshop and its top will when finished, be about fourteen or fifteen feet above low water in the river- the space between the wall and the shops being filled up and graded as a street. The route for the Railroad having reached the United States property at the lower or eastern end of the wall just mentioned passes up the river on the outside of that wall with a view to the construction of an additional wall in the river parallel to the United States wall and about twenty feet there from ; this additional wall to be built by the company of such a height as may be necessary to guard against danger from high water to the superstructure that may be placed upon that wall: the United States wall being also raised by the company to such a height as may be deemed necessary for the same purpose: the part so raised not extending inwards from the outer face of the wall at its top more than five feet: the space between the two walls to be left open throughout -- for the passage of the water of the river: the road to be so constructed opposite the(new) tilt hammer shop as to leave a clear space of twenty feet between the road and the river front of the shop. Should the construction of the road be found to make the tilt hammer shop inconveniently dark, the railroad company shall make such changes in the manner of lighting the building as the Secretary of War may require so as to put it into as good condition in this respect as it is in at present. The entrance of the water of the river into the space between the walls above mentioned and its excit(sic) therefrom to be provided for by proper openings in the outer wall. The route after passing the tilt hammer shop ascends the river along the outer bank of the United States canal by a solid embankment and wall: the embankment of the railroad to be supported on the river side by a new wall to be founded on the bed of the river, the said embankment covering the present bank of the canal so as to have the benefit of it; if desired, in diminishing the quantity of earth and other materials to be supplied for the formation of the road bed.

As actually constructed, the line was to follow Route B, which the agreement described thusly:

> Route B is identical with Route A to a point west of the tilt hammer shop, and east of the present cross wall (in the canal) where it diverges from route A into the river (north) for the purpose of obtaining a suitable curvature to cross the United States canal at or near the said cross wall as represented in the drawing (see "Map shewing the routes surveyed for the Balt. & Ohio Railroad along the public grounds on the Potomac at & above Harpers Ferry upon which the Company have applied to Government for permission to locate and construct their road," Scale 400 feet to one inch, Signed Benjamin Latrobe, Engineer of Location & Construction, B & O. RR. (1)) and then returning southwardly cross the route A and the (Armory) canal at or near the said cross wall to the hillside on the southern margin of the canal; the grade of the road being so elevated as to give a clear hight (sic) at lease twelve feet above the present of the water in the canal and over the county road as it shall be located along the inner margin of the canal. The railroad after so crossing the canal and country road pursues the hillside upwards to the head gates and thier (sic) falls into route A ....
>
> (Here -" The route passes along the two precipitous points of rocks immediately above the head gates and subsequently, pursues the Virginia shore of the Potomac towards Elk Branch without interference with the intended location of the county road.") (See Map No. 1, page 358).

> The superstructions for the support of the railway upon the parallel walls above described on route A to consist of wooden tressels (sic) or pillars of brick stone or iron, as the company may prefer: the posts or pillars to be placed at least fifteen feet apart from centre to centre lengthwise of the road, and to be not more than eighteen inches in diameter; the supports to stand in two parallel lines one upon the Government wall raised as above mentioned and the other upon the parallel wall built by the railroad Company....
>
> In the construction of the river wall below or east of the tilt hammer shop by said company, there shall be left sufficient openings opposite each trail race from the water wheels of the armory to facilititate the discharge of the water therefrom and as auxiliary to the vent between the two parallel wall aforssaid.
>
> The water power privilege of the United States shall not be injured or obstructed, but passage shall be left for the water from the channel or the river near Striders warehouse above the public dam and at all other places and points specified and reserved between such warehouse and the falls immediately below the viaduct. .... 2 (See Map No. 1, p. 358).

(1) Original of Map in National Archives Record Group No. 121, Public Buildings Service Laminated map collection.
2. National Archives R.G. 121, Harpers Ferry Case No. 154.

Under this agreement, the B. &. O. Railroad Company constructed their great stone river wall at least twenty feet further(beyond the U.S./ wall) into the river. Erected in 1840-42, the completion of this second wall increased the original width of the U.S. Musket Factory yard by some 60 feet to its present-day width. The locomotives of the B. and O. R.R. entered Harper's Ferry in June 1841. During the next year the wooden trestles were constructed on top of the two river walls and in June of 1842, the engines were able to run as far west at Hancock.

For a "newly identified" B. &. O. Railroad Company map showing conditions in the Harper's Ferry Musket Factory yard ca. 1837-40, see Map No. 10, p.370. For the complete agreement text of the U.S. and Baltimore and Ohio Railroad Company of November 8, 1838, see Appendix No. 1, p. 338.

C. Musket Factory River Wall, 1842 - 1861:

Musket Factory Potomac River Wall, 1842

On March 28,1842 the mason George R. Riddle was paid $ 120.00 for building 60 perches of mortar masonry wall"connecting the Government river wall to the abutment of the B. &. O R.R. wall at the east(or south) end of said wall."[1]

Potomac River Wall, 1847- 48:

In 1846 the mason Peter Litle was paid $ 87.37 for repairing the river wall.[2]

The estimate for the 1847-48 fiscal year contained an item requesting $ 640.00 "for raising the river wall, grading grounds, gutters to shops, and stone steps to such of the armory buildings as require them." Symington explained the purpose was "To raise the area about the shops above the ordinary freshets, the river wall must be made about 2½ feet higher."[3] The money for this purpose was appropriated on March 2,1847.[4] The Paymaster's vouchers for the period July 1,1847 to December 31,1848 are missing from the National Archives files so that there is no record of details of this construction, its cost, or who did it.

1. 2nd S., F. 7045, V. 45, March 28,1842, for $ 120.00.

2. 3rd S., F.3858, V. 19, May 2,1846, $ 87.37 for building 58½ perches dry wall of heavy stone, repair of river or guard wall.

3. Serial No. 497, Document No. 3, p. 141, 142, item No. 4.

4. U.S.Statues at Large, IX,p.151.

Expenditures on

Year	For River Wall
1841	-
1842	120.00 (2)
1843	0
1844	0
Total Recorded	120.00
PROBABLE Total	

Year :	River Wall
1845	
1846	$ 87.37 (1)
1847	
1848	
1849	
1850	
1851	
TOTAL	87.37
Approp. For	640.00
For Machinery	

(1) National Archives R. G. 217, Records of 2nd Auditor, 3rd Series, File 3858, Voucher No. 19, paid to Peter Litle on May 5, 1846, for building 58½ perches of dry wall of heavy stone, repair of river or guard wall, $ 87. 37.

(2) R.G. 217, 2nd Series, File 7045, Voucher 45, March 28, 1842.

Summary History and Description of Potomac River Walls:

In the period 1837 to 1839, the U.S. Armory constructed a huge stone river wall along the south bank of the Potomac River in front of the Musket Factory at a cost of $ 40,628. About two-thirds of the wall was erected by John Littlejohn under contract and the remaining one-third by the Armory utilizing day labor. The wall was built into the river about 50 feet north of the northern line of Musket Factory workshops and the space between the wall and the shops was filled in with 37,832 cubic yards of earth to create a new strip of land about 50 feet wide and 1,624 feet long. The stone wall itself, containing 6,246 perches of stone, extended 1,624 feet from the western or upper corner of the Rolling Mill, Bldg. No. 18, eastward along the river front to a point opposite to Wager Ferry Reservation Lot No. 11. The river wall was nine feet thick at the base and three feet thick at the top. This mortar masonry wall was approximately 15 feet high above the low water mark and contained eight culverts for the tail races leading from the U.S. Musket Factory canal through the workshops. These eight culverts contained 619 feet of stone arching consisting of 792 perches of stone. The stone arches were supported by 1,238 feet of stone walling that was 3½ feet thick, six feet high, and contained 1,000 perches of stone.

In November 1838, the Secretary of War granted the Baltimore and Ohio Railroad Company a right of way 20 feet wide in the Potomac River along the river front of the the U.S. Musket Factory . Under the terms of this agreement, the railroad company was to built a great mortar stone wall, with its top about 14 or 15 feet above low water mark, about 20 feet north of and parallel with the Armory wall. The space between the two walls was left open for the flow of water. The railroad wall was also to contain vents for the eight culverts that carried off water from the tail races. The Musket Factory wall was completed in 1839. The railroad company built its parrallel wall in 1840-42. The construction of these two walls increased the original

width of the Musket Factory grounds by about 60 feet. In 1842, with the completion of the railroad wall, the Armory joined the lower or eastern end of its river wall to the railroad abutment with a mortar masonry wall containing 60 perches of stone, at a cost of $ 120.00. In 1847-48, the Armory also appears to have expended about $ 640 to raise the height of its river wall about 2½ feet, thus bringing the total cost of the Musket Factory wall to the U.S. to about $ 41,388.

As completed in 1842, the space between the two parallel river walls was open, but as we shall see, beginning in 1845, the Armory began gradually filling in this space in 1845 to create storage space under the trestles and by 1856 the area between the two walls had been completely filled in with earth and gravel.

Baltimore and Ohio Railroad Trestles on Top of the River Wall:

Under the agreement with the United States, the Baltimore and Ohio Railroad Company was permitted to erect trestles on top of the two parallel river walls to carry the main line of the railroad westward. The first trestles, about 20 feet wide, 15 feet long, and 12 feet high, were wooden and erected in 1841-42. In 1854-56 the company replaced these with new iron trestles which carried two tracks of the main line. Each of the iron trestles was 15 feet long, 20 feet wide, and about 13 feet in height above the level of the Musket Factory yard. There were 92 such trestles standing along the Musket Factory River front between the Rolling Mill, Bldg. No. 18, waste way at the western end and the Armory old Boating Landing at the eastern or lower end of the yard.

The iron trestle, 1,800 feet long at the U.S. Musket Factory and Ferry Lot Reservation, was built in 1855-57 at a cost of more than $ 17,358.62.[1]

1. Details on the B. & O. Railroad Company construction of the river wall, bridges over the Potomac, and iron trestles at Harpers Ferry will be found in Snell, Charles W.,"Historic Building Site Survey Report for Wager Lot No. 1 and the Bridge Lot,-The Baltimore and Ohio Railroad Company's Bridge and Buildings at Harpers Ferry, 1835 -1862 ,"(NPS Typescript, Harpers Ferry National Monument, West Virginia, September 22, 1958), 15-24; 31-33.

Confederate forces seized Harper's Ferry Armory on April 19,1861 and held the Armory and town until June 15. On June 14, they burned and destroyed the U.S. Musket Factory and B. &. O. R.R. Property. They were unable, however, to damage the great river wall.

In the fall of 1861, the President of the B. & O. sadly reported to his Stockholders;

"June 14th, 1861: Harper's Ferry covered wooden bridge, 7 spans, one of 122 feet, one of 76; four of 127, and one of 131 feet in length. Also flooring, railjoist, cross-ties, double track and iron hand railing of 70 spans, 15 feet each, on iron trestling, through arsenal (musket factory) yard, destroyed...

"June 20th, 1862, Winchester iron span, at Harper's Ferry, (wood work) burned, and engine 165 run through the bridge into Potomac River." [2]

2. Thirty-Fifth Annual Report of the President and Directors to the Stockholders of the Baltimore and Ohio Railroad Company for the Year Ending September 30, 1861. Baltimore, p.47.

2. Coal Bins Under the Baltimore and Ohio Railroad Tracks,. 1846 - 1851:

In November 30, 1844, submission of estimates for proposed construction, Superintendent John Symington had included an Plan(No.2) and "Estimate in detail for coal houses or bins(see plan No.2)" in the amount of $ 1,300.00.[1] An examination of this document reveals that it was proposed to erect a stone and brick structure, with a wooden roof. The superintendent did not build a coal house of this description, apparently because he devised what he considered to be a better plan. Thus in his annual report for the year ending June 30,1846, under the heading of construction at the Musket Factory, Symington recorded: "Coal bins and storerooms for heavy stores:

> Seventeen compartments, each 17 by 15 feet, have been constructed under the trestle work of the Baltimore and Ohio railroad, for storing anthracite and bituminous coal, and other heavy stores. The floors are of two-inch oak plank, and strong oak joist on heavy heavy oak sleepers; these rest upon stone piers...

He further reported: " 2,300 cubic yards of filling (have been made) under the trestle work of the Baltimore and Ohio Railroad, to make depositories for heavy articles- such as castings, grindstones, old iron, &c...:" [2]

This work was probably done during the 3rd quarter of 1845. (2A)

The stone mason Peter Litle was engaged in constructing more coal bins of this type during the fall of 1846, receiving a a total of $ 223.64 for building 45 20/25 perches of dry wall and 95 22/25 perches of mortar stone wall under the railroad tracks.[3] The 15 compartments formed a line 289 long by 15 ft wide The estimates for the 1847-48 fiscal year requested and received, March 2,1847, an appropriation of $ 1,800.00 "for converting into store rooms the space under the tressel-work of the railroad.," explaining that " This space may be advantageously converted into good storage places for coal, castings, grindstones, and other heavy articles, which are now exposed, and encumber the grounds around the shops."[4] On July 2,1847, Peter Litle was thus paid $ 168.72 "for erecting 112 12/25 perches

1. Serial No. 464, Document No. 43, p. 13.
2. Serial No. 493, Document No.1, p. 164.

2A. The vouchers for the 3rd quarter of 1845, in file 2841, are missing from the National Archives records so that no details on the cost of this construction are available.

3. 3rd Series, R.G. 217, File 4403, September 8,1846, for $ 109.05, V/ 28; and File 4837, V. 40, Dec. 16, 1846 for $ 113.59.

4. Serial No. 497, Document No. 3, p. 142. U.S.Statues at Large, IX, p.151 for

of dry masonry for storehouse,etc.under railroad tracks."[5]

The Paymasters vouchers for the 3rd and 4th quarters of 1847 and all four quarters of 1848 are missing, so that it is impossible to trace the construction of additional coal bins in detail during this period.

In the spring of 1849, Edward Tearney, partner of the lately deceased mason Peter Litle, was paid $ 51.85 for constructing coal bins under the tracks. This work included 3 12/25 perches of stone mortar masonry and 30 perches of dry wall.[6] In the annual report for year end June 30,1849. Major Symington reported: "A store room 15 by 45 feet has been constructed under the B. & O. railroad, for depoiste of scrap iron,steel,&c."[7] On December 10,1849, Edward Tearney was paid $ 221.44 for building 80 24/25 perches of dry wall and making 400 cubic yards of embankment for coal bins under the railroad tracks at the Musket Factory.,[8] thus bringing the total expenditures for construction of coal bins to $ 272.29 during 1849.

On June 30,1850, Superintendent Symington reported additional work,writing: "A number of permanent places of deposite for coal and other heavy articles,not liable to injury from weather, have been made under the superstructure of the Baltimore and Ohio railroad, by filling up with quarry rubble and flooring with rough boards."[9] In the estimates for the fiscal year 1850-51, the sum of $ 880.00 was requested for filling up low grounds and grading around the buildings at the musket and rifle factories, and for filling under the Baltimore and Ohio Railroad to make a depository for coal.[10] The money requested was appropriated on September 28,1850.[11]

5. 3rd S., F. 5623, V. 48, July 2,1847, for $ 168.72.
6. 3rd S. F. 9307, V. 22, May 19,1849 to Edward Teanry as executor of Peter Litle deceased, for $ 20.22; and F. 9307, V. 36, June 11,1849, for $ 31.63 to Tearney.
7. Serial No. 549,Document No.1, p. 366.
8. 3rd Series, F.10276,V.36, for$ 221.44
9. Serial No. 587, Document No. 1, p. 476.
10. Serial No. 568, Document No. 4, p.157,157.
11. U.S. Statues at Large, IX, p. 507.

Tearney went back to work constructing additional coal bins and on December 20,1850 was paid $ 401. 87 for this work which involved constructing 88 3/4 perches of stone masonry rubble for $ 133.12 and $ 268.75 for making 1,075 cubic yards of fill with earth and spalls.[12]

Symington described this construction in his annual report of June 30,1851 as additional bins made "by filling up with quarry rubble, covered with a rough floor of old plank."[13]

During the fall of 1851, Edward Tearney was paid a total of $ 245.20 for constructing more coal bins under the B. and O. railroad tracks at the Musket Factory For this sum he built 38 10/25 perches of heavy dry wall, erected 7 5/25 perches of mortar masonry, and filled in the space under the track with 700 cubic yards, enough for five bins.[14] In his annual report for the fiscal year ending June 30,1852, Col. Benjamin Huger reported of this work: " The open space under the trestle-work of the Baltimore and Ohio railroad, 13 feet deep, by 17, feet, has been filled in with rubbish and earth, for eight coal-bins, or places of deposite for other heavy materials."[15]

These eight coal bins, probably 15 feet wide, 13 feet deep, and 17 feet long, formed a line under the tracks that was 136 feet long.

12. 3rd Series,F. 12169, V. 43, Dec.20,1850, for $ 401.87.
13. Serial No. 611, Document No. p. 459.
14. 3rd S. F., 12680, V.54,Sept. 30, 1851, for $ 210.20, for 4 bins; also F. 13107., V.41, Dec.124,1851, for $ 35.00 for filling up space under railroad, quantity not given.
15. Serial No. 659, Document No.1, p. 254, item no.8.

CHART

National Archives Record Group No. 217- Records of the United States General Accounting Office, Washington, D.C. Records of Second Auditor: Reccords and Accounts from the Paymaster of the U.S. Armory at Harper's Ferry, Virginia, relating to expenditures for Permanent Improvements:

Construction of Coal Bins at the Musket Factory

YEAR	Cost	Perches Mortar Wall	Perches Dry Wall	Cubic yards embankment	No. of compartment built	Size in feet		
1842	-	-			0			
1843					0			
1844	-				0			
(1)1845	?	?	?	2,300	17	17 by 15	Vouchers missing for 3rd quarter	
1846	$ 223.64	95 20/25	45 20/25					
(2)1847	168.72	-	112 1/25	0	1(?)	store-house	vouchers missing for 3 & 4th quarters	
(3)1848	?				0		vouchers missing for all 4 quarters	
1849	272.29	3 11/25	110 24/25	400	store room coal bins	-15 by 45		
1850	401.87		88 3/4	1,075	?			
1851	345.20	7 5/25	38 10/25	850	5			
TOTAL:	$ 1,311.72	176 11/25	395 23/25	4,625	24 + ?			

(1) Vouchers for the 3rd quarter of 1845 are missing.
(2) Vouchers for the 3rd and 4th quarters of 1847 are missing.
(3). Vouchers for all four quarters of 1848 are missing.

More Coal Bins under the B.&. O. Railroad Tracks, 1852-1854:

Huger continued the practice begun by Major John Symington of constructing coal bins in the space between the Musket Factory and Baltimore and Ohio Railroad Company river walls, and under the railroad trestle that stood astride the two walls. In his annual report for the fiscal year ending June 30,1853, Col. Huger reported: "To fill up the open spaces under the Baltimore and Ohio railroad, 51 feet of dry stone wall built - 19 feet high and 4 feet thick - 6,500 cubic yards of filling, making coal bins and spaces under the trestle-work of the road."[16]

In the report for the year ending June 30,1854, Major William H. Bell wrote: "Thirty coal-bins, each about 15 by 17 by 29 [sic] (19 feet) feet deep, under trestle work of Baltimore and Ohio railroad, have been filled in with earth and made suitable for the reception of coal and other stores."[17] These 30 bins formed a line 510 feet long.

More New Coal Bins, Musket Factory, 1855-1861:

The estimates for the 1855-56 fiscal year asked for $ 176.00 "for fitting up three bins for scrap-iron under railroad near the new rolling mill (Bldg. No. 18)"; it was explained that "There is no covered place for scrap-iron at the present time, and in consequence the borings and turnings suffer great deterioration from the actions of the atmosphere; it is necessary to have them covered, and in a position convenient to be worked up in the rolling-mill, for which the above expenditure is required."[18] Congress provided the desired money on March 3,1855.[19]

In the annual report for the fiscal year ending June 30,1855, Superintendent Henry W. Clowe wrote: "A very considerable amount of filling in with stone and earth has been done in the armory yard to complete coal bins under the railroad."[20]

16. Serial No. 692, Document No.1, p. 277.
17. Serial No. 747, Document No.1 p. 361-362.
18. Serial No. 781, Document No.3, p.238, Item No. 4.
19. U.S. Statues at Large, X,p.637.
20. Serial No. 841, p.557.

In the estimates for the 1856-57 fiscal year, Clowe requested $ 223 "For filling ditch and completing six-coal bins, under Baltimore and Ohio railroad;" This was needed he explained because: "The open spaces under the trestle-work of the Baltimore and Ohio Railroad are fruitful sources of disease, being subject to the inundations of the river Potomac; great quantities of vegetable and other alluvia are deposited there at every rise in the river; and slowly decompose, tainting the atmosphere with the offensive effuvia. This condition of things can be remedied by filling up these spaces with earth and rock at the same time that ample receptacles of suitable dimensions and convenience can be afforded for coal and other heavy articles out of the way, and under partial protection from the weather, by the flooring of the trestle-work."[21]

Congress appropriated the requested amount on August 30,1856.[22]

In his annual report for the fiscal year ending June 30,1856, Superintendent Clowe noted that "some of the coal bins, under the railroad, have been raised, and stone walls built to support the embankments."[23]

There is no further mention of the building of an additional coal bins in the annual reports written after June 30,1856. It thus appears that approximately nine coal bins were built at a cost of $ 399 during the period 1855 -61.

From 1845 to 1856 more than 65 bins were constructed between the parallel Potomac River walls and under the railroad trestles for the storage of coal, scrap iron, steel, and other heavy stores. The bins were generally 17 feet long, 15 feet wide, and 19 feet deep. Gravel and earth were used to fill in between the walls. Heavy planking was used to form the floors and stone

21. Serial No. 865, p.245, 246, item No. 7.
22. U.S. Statues at Large, XI, p.150.
23. Serial No. 876, p.389.

RECORDED EXPENDITURES

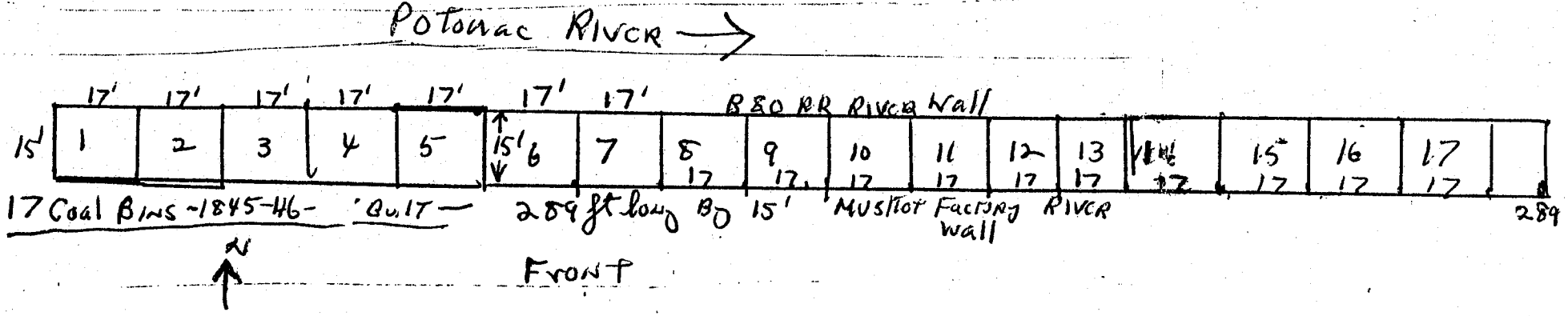
Year :	Coal Bins
1845	yes
1846	223.64
1847	167.72+
1848	
1849	272.29
1850	401.87
1851	245.20
TOTAL	1,311.72
Approp. For	2,680.00

APPROPRIATIONS FOR

Year	Coal Bins
3/3/ 1855	176
8/30/ 1856	223
3/7/ 1857	
6/12/ 1858	
3/3/ 1859	
6/21/ 1860	
3/27/ 1861	
TOTAL	$ 399
TOTAL SPENT	$ 399

dry walls were erected as partition walls. These bins formed a line about 1,150 feet long and the approximate total cost of construction was more than $ 1,701. The coal bins probably survived the Civil War in good shape and were probably not filled up with earth and rock until the last decade of the 19th century.

Photographs showing the Potomac River wall and B . & O. iron trestles at the Musket Factory include the following views: HF- 51, 1857 lithgraph; HF-66, 1859 photo; HF- 64, 1859 photo; HF-65-1859 photo of R.R. platform; HF- 49, 1861 June or July 1861 photo; HF-30, October 1862 photo; HF-11, October 1862 photo; HF-9, October 1862- track abobe Rolling Mill, Bldg. No. 18; HF-240, July 1861 photo; HF-40, July 5, 1863 photo; HF-28 and HF-38, photos taken 1864-66; HF-83, view of upper river wall and trestle, ca. 1875 - 1887; HF- 355, HF- 492, and HF 539, all taken about 1886; HF- 45, HF-113, ca. 1886-89; HF- 92, ca. 1896; HF- 99, ca. 1896, and HF- 96, ca. 1901.


Potomac River →
17' 17' 17' 17' 17' 17' 17'
B&O RR River Wall
15'
1 2 3 4 5 15' 6 7 8 9 10 11 12 13 14 15 16 17
17 17 17 17 17 17 17 17 17 17 17
17 Coal Bins -1845-46- 'Quit—
289 ft long BO 15' Mustor Facing Wall River
289
N
Front

3. New Horse Shed, (Bldg. No. 24), 1856:

In December 1851, Superintendent Brevet Colonel Benjamin Huger spent $ 104.72 to erect a "horse and carriage shed" in the Musket Factory yard, apparently near the main gates and Armory Central Office Bldg., Bldg. No. 2.

The foundations of the building were constructed by Edward Tearney for $ 27.72, who performed the following work:

$ 1.80 for excavating 6 cubic yards of earth
25.92 for erecting 17 7/25 perches of stone wall, foundation.
$ 27.72 (1)

The master carpenter Jeremiah Fuss received $ 77.00 for doing the carpenter work for constructing the new shed. (2)

In his annual report for the fiscal year ending June 30,1856, Superintendent Henry W. Clowe reported that"The horse shed, occupying a position in the armory yard, near the entrance gate, has been removed to a more suitable site, on a lot outside the yard,on North Cliff street [now called Potomac street], and disconnected with the armory." 3

In this same report Clowe also noted that a new horse shed "of smaller dimensions, inside the [Musket Factory] yard, under the Baltimore and Ohio railroad [trestles], has been put up." 4 The new frame structure was also probably located somewhere near the main(east or lower) entrance to the yard.

1.3rd S., F. 13107, V. 41, December 24,1851, for $ 27.72.
2. 3rd S, F.13107, V. 42, December 24,1851, for $ 77.00.
3. Serial No. 876, p.389.
4. Ibid., p. 389.

New Horse Shed, 1856: (Bldg. No. 24):

Location: Under Baltimore and Ohio trestle, which stood on top of the Potomac River walls, near the main (eastern or lower) entrance to the Musket Factory yard. The exact location of the horse shed in the yard is unknown.

Map References: None:

Visual Evidence : None.

History and Description: A new frame one-story horse shed, size unknown, was erected in the Musket Factory under the Baltimore and Ohio trestle by Superintendent Henry W. Clowe in 1856. The structure probably stood near the Armory Office Building, Bldg. No. 2. The 1856 structure replaced a horse and carriage shed that dated from 1851.

4. Musket Factory Yard Privies, 1849-51:

From 1849 to 1851 a total of approximately $ 111.17 was expended on the construction of privies in the musket factory yard.

On December 27, 1849, the carpenter Patrick H. Kelley received $ 18.00 for making doors, floors, and ceiling for the [probably brick] privy of the Public Offices (Bldg. No. 2 on the 1859 historical base map.) [1]

On September 30, 1850, the carpenter Jesse Schofield was paid $ 51.67 for "carpenter work building of one new privy for armory 18 by 7 feet with 7 stalls, including the removal of the old privy and constructing a new one in its stead, the same dimensions.:" [2]

In 1851 $ 42.50 was spent to erect a new privy. Of this total, $ 4.50 went to the stone mason Edward Tearney for providing the services of a stone cutter, who spent 2 days "cutting out wall under [B.&.O] railroad for new privy." [3] The balance, $ 37.00, was paid to the carpenter Jeremiah Fuss for "Construction of one new privy for shops, for $ 35.00; and $ 2.00 for repairing old privy for the shops." [4]

RECORDED EXPENDITURES

Year :	Privies	
1845		
1846		
1847		
1848		
1849	18.00	(1)
1850	51.67	(2)
1851	41.50	(3 and 4)
TOTAL	111.17	
Approp. For	0	
For Machinery		

For Privy at Armory Central Office Building, Bldg. No. 2, 1860, see page 62. Also page 60.

For Photo of this brick privy, see HF- 539, taken about 1886.

1. 3rd S., F. 10276, V.46, Dec. 27,1849, for $ 18.00.
2. 3rd S., F. 11542, V.14, September 30,1850, for $ 51.67.
3. 3rd S., F. 13107, December 24,1851, for $ 4.50.
4. 3rd Series, F. 13107, December 24, 1851, for $ 37.00.

5. Enclosing Walls and Gates, East, West, and South:

a. Musket Factory Main (East) Gate and Wall, 1843:

Major Henry Craig spent approximately $ 2,581.58 constructing an brick enclosing wall and gate with cut stone posts for the main entrance as follows:

To Redmond Burke, July 11,1843, $ 450.60, for cutting and setting 751 lin. feet of cut stone"for six columns,pedestal for gates leading to Armory shops." [1]

On June 28, 1843, the mason Peter Litle received $ 698.21 for executing the following work: on "Part of wall enclosing public grounds":

$ 16.92 for excavating 94.4 cubic yards of earth.
104.10 for erecting 83 perches 7 feet of dry rubble wall.
21.00 for erecting 14 perches of mortar wall.
130.20 for 217 lin. feet of cut stone water table for wall.
214.80 for 358 lin.ft of cut stone coping for wall.
35.89 for setting 358 ft of cut stone coping.
166.39 for furnishing and laying 18,488 bricks.
$ 698.21 (2)

On September 28,1843, Litle was paid $ 1,432.77 for work definitely connected with the" armory fence and gate". This included the following services:

$ 14.14 for 2,310 bricks.
104.20 for 83 9/25 perches dry wall for fence and gate.
22.68 for 16½ perches mortar wall.
361.60 for furnishing and laying 38,064 bricks.
836.35 for 1,394 3/12 feet of cut stone.
9.60 for 16 feet of cut stone.
84.20 for 842 feet ashlar and ?
$ 1,432.77 (3)

The solid brick wall may have flanked the north and south sides of the central east gate, walling off Wager Lots No. 11 and 12. The brick wall, however, probably extended from the southeast corner of the Musket Factory yard along the north side of North Cliff (later Potomac) Street to the vicinity of Bldg. No. 2, then the Superintendent's Residence (and later the Armory Central Office Building.) (See Map No. 11, September 1844, page 372).

1. 3rd S., F. 187, V. 118, July 11, 1843, for $ 450.60.
2. 3rd S., F 187, V. 112, June 28,1843, for $ 698.21.
3. 3rd S., F. 440, V. 39, September 28, 1843, the $ 1432.77 is part of a payment

TWO
U.S. MUSKET FACTORY GATE POSTS OF
CUT-STONE, ERECTED IN 1843

and salvaged from the Armory,
ca, 1891.

1981

Photo courtesy of Architect Archie W. Franzen,
Harpers Ferry National Historical Park, West Virginia

Probably Armory Superintendent Henry K. Craig, and certainly Superintendent John Symington had conceived a plan to develop the existing unimpressive east or main entrance to the Musket Factory yard into a formal and pleasing entrance. This was to be accomplished by purchasing Wager Lots 11 and 12, together with their large two and two-half story brick buildings, that greatly obstructed the original armory entrance. (For Craig's plan to solve the entrance problem, see Map No. 11 (1844).)

In a letter to Lt. Col. George Talcott, Chief of Ordnance, dated December 12, 1844, Major John Symington proposed a land acquisition program that would cost $ 50,261. Included in this total was the sum of $ 14,486.00 to purchase Wager Lots No. 11 and 12 and their structures so that the gate project could be implemented. Symington explained:

The Lots Nos 11 and 12(in the Wager Ferry Lot Reservation) are covered entirely with buildings occupied as stores. They are situated,as you will perceive on the plat(Map No 2), in front of the armory enclosure, and allowing only a narrow entrance to the armory. This approach is most generally filled with horses,wagons, &c., and the empty packages turned out from the stores, and is the usual mart where the country people exhibit their products for sale, rendering the place filthy, and frequently interrupting the entrance into the armory. [4]

CHART- LAND ACQUISITION, 1844- 1849

Wager Lot No.	Schedule A Estimate for Land	For Bldgs.	Total	Prices Paid For Land	For Bldgs.	Total	Date of Purchase
11	$ 2,286	$ 4,000	$ 6,286	-	-	-	Not brought
12 NE	1,600	1,600	3,200	1,833.35	3,166.00	4,999.35	9/15/47 7/29/48
12 SW	2,500	2,500	5,000	2,500.00	2,500.00	5,000.00	7/1/47
TOTAL:	$ 6,368	8,100	14,468	4,333.35	5,666.00	9,999.35	

4. Symington to Talcott, December 12,1844 , together with Schedules A and B, with estimated prices of land and buildings, in Serial No. 464, Document No.43, pp.6-8, 9-12.

The Ordnance Department's estimates for the 1846-47 fiscal year contained Symington's request for $ 50,261.00 to purchase land at Harper's Ferry.[5] Congress appropriated this desired sum on August 8, 1846.[6]

Although funds were appropriated on August 8,1846, the Armory was unable to begin purchasing any of the desired property until June 1847 for the following reasons:(1) Some owners were unwilling to sell at the established prices. (2) Since the Schedule A of estimated prices for lots and buildings had been submitted on December 12,1844, additional improvements had been made on three lots, thereby increasing their value. Their owners refused to sell unless they received an increased compensation of these improvements.[7] Finally, under the terms of the 1846 appropriations act, the entire area had to be acquired for the specific amount of $ 50,261, or not could be purchased at all. In this situation Superintendent Symington informed Chief of Ordnance Talcott on December 4,1846, the Armory could not legally purchase any portion of the desired land.[8]

These obstacles were surmounted: first, by having Congress pass a special act on March 3,1847, which authorized the purchases of parts of the desired land.[9] Second, by deciding to relinquish the plan to purchase Lots No. 30, 31, and 32, and a part of Lot 29. The money saved by not acquiring these lots could be used to meet the increased prices demanded on the other lots. It was believed that the deleted property was located so far from the Musket Factory workshops, that any structures built on those lots would not endanger the public buildings

5. Serial No. 481, Document No. 9, pp. 111, 112, item No. 19.
6. U.S. Statues at Large, IX, p.69.
7. Symington to Lt.Col. George Talcott,Chief of Ordnance, August 18,1846, Harpers Ferry NHP Microfilm Reel 23, V.7, p.679.
8. HFNHP, Reel 23, V.9, p.736,
9. Reel 20, Vol. 7, p.657. U.S Statues at Large, IX,p.151.

in case of fire. Secretary of War Wilkins approved the changes in plans for eliminating certain lots on April 29,1847.[10]

After the Hon. James M. Mason examined the titles and the Attorney General approved his report, the money to purchase the property was sent to Armory on June 6,1847.[11]

Wrought-iron Gates at the Main Entrance, 1846:

While the land acquisition problems were being resolved, Major Symington proceeded to manufacture the wrought -iron gates for the cut-stone gate posts that had been erected by Major Craig in 1843. In his report for the fiscal year ending June 30, 1846, Symington noted that there had been built:

"Wrought-iron gates, for the main entrance into the armory grounds: a large double and two large single gates."[12]

A Brick wall and Iron Paling Fence, Wager Lot 12, East Wall, 1849:

In the estimates for 1847-48, Symington asked for $ 1,100.00 "For enclosing wall and iron railing at the entrance of the armory yard," explaining that "The removal of buildings mentioned in Schedule A., attached to last year's estimate (building located on Lot No. 12) will leave this end of the yard open to the main street and without enclosure. It is proposed to enclose it with a low brick wall and cast-iron palings."[13]

The requested sum was appropriated on March 2, 1847.[14]

The acquisition of complete title to Wager 12 on July 29, 1849 at a

10. Reel 20,V.1, p.15.
11. Reel 23, V.9, p.826. Also see Sullivan, Arthur L.,"Historic Building Site Survey Report: Wager Lots No. 17 - 34, 1782-1869,Harpers Ferry National Monument, W.Va.(N.P.S. typescript, Harpers Ferry NM, W.Va., May 15,1959),.13-15.
12. Serial No. 493, Document No.1, p. 165, Item No. 12.
13. Serial No. 497, Document No. 3, p. 142, item No. 8.
14. U.S. Statues at Large, IX, p. 151.

total cost of $ 9,999.35 for the buildings and land enabled construction to get underway in 1849. The large brick stores on Lot 12 had to be demolished. Redmond Burke provided the cut stone for the entrance; Peter Litle constructed the stone foundations and the brick mason William Collins erected the brick walls.

Redmond Burke was paid $ 411.50 on July 24,1849 for providing the following "cut stone for entrance": (240 feet of coping and 24 feet of cut stone caps)

$ 96.00	for 64 feet cut stone coping,wide.
206.50	for 175 feet of cut stone coping. wide.
40.00	for 8 ft cut stone caps for piers.
60.00	for 15 ft cut stone caps for piers.
6.00	for 1 ft. cut stone cap for pier.
3.00	for cutting piers by the day, 1½ days.
$ 411.50 (15)	

In early June 1849, the stone mason Peter Litle received $ 84.40 for his services "on the enclosing walls of the armory yard:"

$ 27.25	for filling in with 136 8/27 cubic yards of earth. (Lot 12 cella ?)
6.11	for excavation of 20 10/27 cubic yards of earth.
44,04	for erecting 29 9/25 perches of stone mortar masonry.
7.00	for 70 feet of hammered face stone wall.
$ 84.40 (16)	

The brick mason William Collins, also in early June 1849, was paid $ 51.40 for building"the enclosing walls of the armory," as follows:

$ 30.20	for laying 7,550 bricks
20.95	for setting 159 10/12 feet of coping and water table.
.25	for hauling 2 loads of brick.
$ 51.40 (17)	

In his annual report for the fiscal year ending June 30, 1849, Symington reported: "The front enclosing wall of armory yard has been commenced, and 130 feet linear completed, round the site of one of the buildings recently purchased on lot No. 12."[18]

15. 3rd S., F. 9895, V.8, July 24,1849, for $ 411.50.
16. 3rd S., F. 9307, V. 36, June 11,1849, for $ 84.40-the money was paid to Edward Tearney as executor of the late Peter Litle estate.
17. 3rd S., F.9307, V.35, June 9, 1849 for $ 46.43, and F.9307,V. 80, July 10,1849, for $ 4.97.
18. Serial No. 549, Document No. 549, Document No.1, p.366, Item 6.

The demolished building on Lot No. 12 was large 2½ story brick structure with a wood-shingle covered gable roof and a full cellar. Erected by Joseph L. Russell and John A. Fitzsimmons in 1830-31, this was the first brick structure to be erected on privately owned land in Harper's Ferry. The double house, 60 feet wide and 30 feet deep, had contained two stores on the first floor and two dwellings on the upper floors.[19] The 136 8/27 cubic yards of earth fill provided by Peter Litle probably went to fill in the basement or cellar of the demolished stores.

The brick mason continued his work on the armory fence during the the summer of 1849 and on August 31,1849 was paid $ 429.07 for performing the following construction on the entrance:

$ 5.60	for excavating 28 cubic yards of earth.
44.04	for building 29 9/25 perches of stone masonry, foundation.
11.20	for hauling 28,000 bricks to site.
111.79	for laying 27,949 bricks in fence.
229.60	for making the 28,000 bricks.
26.84	for laying 206½ lin. feet of cut stone coping.
$ 429.07	(20)

A total of approximately $ 976.37 was expended to construct the front enclosing wall of the armory on lot No. 12 in 1849.

19. for detailed history of construction and use of Lot 12 building,1830-1848 see Snell, Charles W.,"An Historical Study of Wager Lot No. 12, 1830-1848, Ferry Lot Studies,"(NPS typescript, Harper Ferry National Monument, W.Va., September 24, 1958) 26 pages.

20. 3rd S., F. 9895, V.23, August 31,1849, for $ 429.07-

In his annual report for the fiscal year ending June 30,1850, Major John Symington described the new entrance as follows: "The front enclosing wall of armory yard has been finished; its extent, about 340 linear feet. The gate front is built with piers and low panels, the upper part of the panels fitted with iron railing to the height of the piers.

"The remaining portion of the wall is of brick, solid, on stone foundation; the height of the enclosure 9 feet; and walls coped with cut stone."[21] Harpers Ferry NHP Negative HF 90, a photograph taken in October 1859, provides an close and excellent detailed view of the entrance gate, iron fence, and solid brick enclosing wall that was built on Lot No. 12 in 1849.

The Armory was unable to purchase Wager Lot No. 11 and hence Symington's plan to construct a matching fence and wall across that property had to be deferred until 1855.

On September 1,1851 the stone cutter Redmond Burke was paid $ 6.00 for three days work repairing the cut stone of the enclosing walls of the armory yard.[22] On December 24,1851, the stone mason Edward Tearney received $ 14.06 for 6½ days labor of a stone cutter cutting stone for the support of a pillar.[23] This may relate to repair of one of the armory gate posts.

Major John Symington's plan of constructing a formal entrance to the musket factory yard from the Wager Ferry Lot had been half executed in 1846-1849 at a cost of approximately $ 11,100. Wager Lot No. 12 had been purchased at a cost of $ 9,999.35, the large brick stores on the property demolished, and an architecturally impressive gate erected and an entrance wall built on Lot 12. Symington was unable to complete the balancing entrance wall because he could not presuade the owners of Wager Lot No. 11 to sell.

21. Serial No. 587, Document No.1, p.476, item No.4.
22. 3rd S.F. 12680, V.23, September 1,1851, for $ 6.00.
23 3rd S.,F. 13102, V.41, December 24.1851, for $ 14.06.

Progress and Completion of the East Wall and Fence, Lot No. 11, 1853--1855:

The Armory superintendents who followed Major John Symington in that position did not forget his plan to construct a balancing formal brick wall and iron paling fence on Wager Lot 11, at the east entrance. Superintendent Brevet Colonel Benjamin Huger was able to induce the owners of the property to sell Lot 11 to the United States. On November 14,1853, Noah H. Swayne, the owner of the land, sold the lot, subject to the unexpired term of a 99 year lease held by the merchant Richard D. Doran, to the United States, for $ 2,500.00.[24]

On January 13,1854, the executor of the late Richard D. Doran's estate, Dr. Nicholas Marmion, sold Doran's 99 year leasehold and the title to the large brick building on Lot No.11 to the U.S. for $ 4,500.[25]

The large 2½ story brick building on Lot 11 had been erected by George Rust, Jr. and Robert Keyes in 1831-32. The edifice had two store rooms on the 1st floor and duplex dwellings or quarters on the upper floors.[26]

Major John Symington, on December 12,1844, had described the Lot 11 building as follows: "Double Brick building, 40 by 40 feet, 2 stories high, with finished garrett and shingled roof; cellar underneath; and open gallery in front; back buildings of brick, 2 stories; lower story occupied as store, upper story and garret as dwelling." He had estimated that the land could be purchased for $2,286 and the building $ 4,000, making the total estimated price $ 6,286.[27]

The total final price paid in 1853-54 was,as has been noted, $ 7,000.00.[28]

24. Deed of Bargin and Sale, November 14,1853, Deed Book 33,p389, Jefferson County Courthouse, Charles Town, W.Va.

25. Assignment of Lease, January 13,1854, Deed Book 34, p.1, Jefferson County Court House.

26. Snell, Charles W.; "An Historical Study of Wager Lot No. 11, 1831-1854, Ferry Lot Studies, Harpers Ferry National Monument, West Virginia,"(NPS typescript, Harpers Ferry NM,W.Va., September 23,1958)pp.5-6.

27. Serial No. 464, Document No. 43, p. 9, Schedule A, item No.1.

In the estimates for the 1854-55 fiscal year Major William H. Bell now requested $ 1,000 for "a wall and railing on north side of main gate, on the lot purchased of Noah H. Swayne [Lot 11]." He explain that this new wall and fence was "To correspond with the present wall and railing on the south side of the entrance [on Wager Lot 12]."[29] Congress appropriated the requested amount on August 5,1854.[30]

In his annual report for the fiscal year ending June 30,1855, Superintendent Henry W. Clowe reported: "The enclosing wall and fence on the north side of the main entrance gate to the armory yard, consisting of stone foundation, brick piers and panels, coped with cut-stone, and wrought-iron fence, resting upon the coping, is completed. This is similarly finished to that on the south side of gateway, completed some years ago."[31]

The total cost of erecting this formal entrance, which had been designed by Major John Symington in 1846, was approximately $ 19,601.04. This sum included $ 16,999.35 for purchasing Wager Lots 11 and 12 and the two large brick structures standing on those lots, and $ 2,601.69 for demolishing the two stores and constructing the formal gate and flanking walls.

In his report for the year ending June 30,1857, Clowe wrote: "The portion of armory yard lying northeast of entrance gate has been graded and laid off into a pasture, the borders sodded, and trees planted therein."[32]

28. This $ 7,000.00 came from the balance of $ 9,829.67 out of the August 8,1846 appropriation of $ 51,261 that had been provided to purchase land in the Wager Six Acre Reservation and Ferry Lot Reservation, Byrnes Island, and Dr. Nicholas Marmion's claim to houses located on Armory land.

29. Serial No. 714, Document No.2, p.188,189, item No. 5.
30. U.S. Statues at Large, X, p.578.
31. Serial No. 841, p. 556.
32. Serial No. 920, p. 552.

EXPENDITURES AND APPROPRIATIONS FOR
THE CONSTRUCTION OF THE FORMAL ENTRANCE
AND ENCLOSING WALLS, EAST(LOWER) END,
ON WAGER LOTS NO. 11 and 12,
1843 - 1855

Expenditures on

Year	Gates and Walls
1841	-
1842	-
1843	2,581.58
1844	0
Total Recorded	2,581.58
PROBABLE Total	

APPROPRIATIONS FOR

Year	Entrance Gate & wall	Purchase of Land for gate & wall
8/31/ 1852		
3/3 / 1853		(2,500)
3/5/ 1854	1,000	(4,500)
Total	$ 1,000	($ 7,000

Year:	Gates and Fences
1845	31.00 (1)
1846	
1847	
1848	
1849	976.37
1850	0
1851	20.06
TOTAL	$ 1,027.43
Approp.	(2) 1,450.00

(1) Stone cutter Redmond Burke was paid $ 31.00 on November 22, 1845, for providing four cut-stone posts to be used at the Musket Factory gates, National Archives R.G. 217, 2nd Auditor Accounts, 3rd Series, File 3122, Voucher 27.

$ 350.00 for west gate and fence, 1846;
$ 1,100.00 for east gate and wall, 1847.

Summary and Description of East or Main Entrance and Enclosing Walls:

The main entrance to the Musket Factory was located at the lower or east(or south) end of the yard and fronted on the Wager Ferry Lot Reservation a distance of approximately 175 feet. The formal entrance was constructed between 1843 and 1855 at a total cost, including the acquisition of Wager Lots No. 11 and 12, of about $ 19,601. The central gates and flanking walls extended from North Cliff or Potomac Street north across the width of the Musket Factory yard to the Potomac River wall. The gates consisted of one large double wrought-iron gate and two large single wrought-iron gates, hung in 1846, supported by six cut granite gate posts, the latter erected in 1843.

The walls on either side of the central gates consisted of high brick piers and low brick panel walls, mounted on granite bases and coped with brown stone. The upper open portions of the panels were fitted with 12 panels of iron paling fence to the height of the brick piers, making the total height of the brick wall and iron fence nine feet. The south portion of the brick wall and iron fence, extending about 340 feet linear feet and located on Wager Lot No. 12, was erected in 1849-50. The northe portion of the matching fence, situated on Wager Lot No. 11, was constructed in 1854-55.

The eastern entrance and enclosing walls apparently survived the Civil War in relatively good condition. A inventory of the Ordnance Department, made, ca. 1865 -69, described the main gate and walls as follows:[33]

> Front Wall of Government Yard, 12 panels of iron railing on granite base & brick with brick piers brown stone coping on piers. Double iron gates two in number. Heavy dressed gate posts of granite five in number.

33. National Archives Record Group 121, Washington ,D.C., Public Buildings Service, Harpers Ferry File No. 154, n.p., n.d., prepared ca.18865-1869. Cited from James P. Noffsinger,"Harpers Ferry,West Virginia...".pp.124-127. Building numbers added by C.W.Snell. Dimensions of the buildings as given in report are not very accurate. Nearly all structures listed were at least 25 feet wide and not 25 feet as is generally stated.

Photograph HF-90, taken in October 1859, shows that there were still six granite gate posts standing at that date, with three gates. Photograph HF- 27, taken in 1864 or 1865 reveals that there were five cut-stone gate posts standing and that the gates had been widened, probably to ease the flow of Quarter Master and commissary wagons into and out of the Musket Factory.

Visual Evidence on East Gate and Walls:

Photos HF- 90, 1859- gate and south wall on Lot 12; HF- 66, 1859, portions of north wall on Lot No. 11. HF- 27, 1864-65, excellent view of south(lot 11) wall and central gate. HF-18, taken 1864 or 1865 from Lot 11, looking south. HF-55, ca. 1873-75; HF- 379, 1882; HF-100, in 1889 flood; HF- 59, ca. 1890-91 ,fence almost gone; and HF- 92, ca. 1896, fence and gates completely gone. HF- 492, about 1886.

b. Musket Factory West (Upper) Gates and Enclosing Walls, 1846:

In the estimates for the 1846-47 fiscal year, Superintendent John Symington requested $ 350.00 for building a "Fence and gate at the upper end of the armory yard."[34] This entrance would be located at the northern or western end. Congress appropriated the desired amount on August 8, 1846.[35]

This fence and gate were probably constructed in 1846-47, although Major Symington made no further mention of the project in his annual reports. This fence and gate of 1846-47 were replaced by a brick pier wall and iron paling fence that was erected in 1854-55. Construction of this brick and iron enclosing wall is discussed in detail under the section that follows.

34. Serial No. 481. Document No. 9, p.111, item No. 12.

c. Enclosing Wall, South Side Musket Factory Yard, 1855 - 57:

The estimates for the 1854-55 fiscal year requested a total of $ 6,000 to wall and fence the armory canal. The money was to be used as follows:

1. "$ 5,000 " for a stone wall and iron railing along the south side of armory canal;" this was needed, it was explained "To secure the canal bank it is necessary to build a permanent wall, which, with an iron railing, would enclose the work on that [the street] side."[1]

2. $ 1,000 "For iron railing between railroad bridge and armory canal"; this was need "To enclose the west [or upper] end of the Armory yard."[2]

The desired $ 6,000 was appropriated by Congress for these projects on August 5, 1854.[3]

In his first annual report, for the fiscal year ending June 30, 1855, Superintendent Henry W. Clowe reported: "Enclosing wall and fence has been put up at the west [upper] end of the armory yard, near the rolling mill [Bldg. No. 18] on the west side, consisting of stone foundation, cut-stone coping, brick piers and panels, with wrought-iron fence, filling the space between the piers, and extending from the Baltimore and railroad track to the basin, leaving the waste-weir and gates within, and thus cutting off all communication with the armory yard from that side."[4]

Continuing, he also wrote: "The wall along the south side of the armory canal has been excavated for, and the foundation of stone completed about 1,365 feet in length. A portion of this wall is sixteen feet high, while the residue is from six to nine feet in height, with and average thickness of three feet. 1,365 feet of cut-stone caps for piers have been made ready to place upon the wall when the brick

1. Serial No. 714, Document No. 2, p.188,189, item No.3.
2. Ibid., item No.4.
3. U.S. Statues at Large, X, p.578.
4. Serial No.841, p.556.

"piers are built."[5]

In his estimates for the 1856-57 fiscal year, Clowe asked for $ 5,723.00 "for completing stone wall and iron railing on south side of armory canal;" he Explained "This sum is needed to purchase and set bricks for the piers, and base wall for the cut-stone coping. The foundation wall, with the needful cut-stone coping, is already prepared and paid for from the previous appropriation. The superstructure of panel brick-work has yet to be laid, which, together with the wrought-iron railing, now being made at the rolling-mill of the armory, from scrap of inferior quality, will require the above sum."[6] Congress voted this money on August 30,1856.[7]

The wall and fence along the south side of the armory canal, for which a total of $ 10,723 had been provided, was completed by June 30,1857; in the annual report of that date Clowe wrote:

"The enclosure on the south side of the armory, consisting of stone foundation, brick piers, cut stone caps and coping, wrought-iron railing between the piers and pickets, has been completed, except painting. The wall is now about 1,309 feet long.

"The stone masonry was done previous to the close of the fiscal year ending 30th June 1855; ... The brick and iron work was done in the last fiscal year."[8] In this same report, Clowe also noted that " 50,966 pounds of iron (had been) made and rolled from blooms for (the) fence."[9]

In his annual report for the fiscal year ending June 30, 1858, Clowe wrote: "The enclosing wall and iron picket fence, on the south side of the armory canal, has been painted its entire length."[10]

5. Serial No. 841, p. 557.
6. Serial No. 865, P.244,245, item No. 2
7. U.S. Statues at Large, XI,p.150.

8. Serial No. 920, p. 551.
9. Serial No. 920, p.549.
10. Serial No. 976, p. 1319.

APPROPRIATIONS FOR

Year	Enclosing South & West Walls
8/31/ 1852	
3/3 / 1853	
8/5/ 1854	6,000 (1)
Total	6,000

Year	Enclosing South Wall
3/3/ 1855	
8/30/ 1856	5,723
3/7/ 1857	
6/12/ 1858	
3/3/ 1859	
6/21/ 1860	
3/2/ 1861	
TOTAL	5,723
TOTAL SPENT	

(1) $ 1,000 for west or upper wall and $ 5,000 for south enclosing wall and fence.

Total for South Wall: $ 10,723.

The West(upper) and south enclosure walls apparently survived the Civil War in relatively good condition. The Ordnance Department Inventory of Musket Factory property, made ca. 1865-1869, describes the West and South Enclosure fences and walls as follows:[11]

"West Enclosure Wall and part of South Enclosure 46 pannels [sic,]
--iron pickets between brick piers

[2]

stone coping base of masonry about six feet high.

South Enclosure in part, about 500 feet in length rock base and solid brick above about eight feet high.

Long line of Masonry wall enclosure South (page 3).

Summary and Description of the South Enclosing Wall:

The Southern Musket Factory enclosing brick wall and iron paling fence was situated between the north side of North Cliff(later Potomac) Street and the south bank of the Musket Factory Canal. The south wall extended from the southeast corner of the yard, on Wager Lot No. 12, where it abutted on the east or main entrance enclosing wall, westward along the south side of the Armory Canal to a point opposite to the western(upper) gable end of the Rolling Mill, Bldg. No. 18. From the southeast corner westward to about the western(upper) end of Bldg. No. 3, the Old Bell Shop, a distance of approximately 440 feet, the wall was comprised of a solid brick wall, nine feet high, mounted on granite foundations and copped with brown stone. (See Photo HF- 539, taken about 1886). Most of this wall, containing more than 56,552 bricks, had been constructed in 1843 at a cost of $ 2,130.98. (See Chart)

From Bldg. No. 3 westward along the street to the western extermity of fence, opposite the southwest corner of Bldg. 18, a distance of approximately

11. National Archives Record Group 121, Washington ,D.C., Public Buildings Service, Harpers Ferry File No. 154, n.p., n.d., prepared ca.18865-1869. Cited from James P. Noffsinger,"Harpers Ferry,West Virginia...".pp.124-127. Building numbers added by C.W.Snell. Dimensions of the buildings as given in report are not very accurate. Nearly all structures listed were at least 35 feet wide and not 25 feet as is generally stated.

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1,365 feet, the South enclosing fence was comprised high brick piers between which were set low panel brick walls. These were mounted on cut granite foundations and coped with brown stone ; the average thickness of this wall was three feet. The upper portion of the panels, between the high brick piers, were filled in with wrought iron panels, numbering at least 46 , to form a wall and fence ranging from six to nine feet in height. 50,966 pounds of iron were made rolled from blooms at the Armory Rolling Mill for this wrought iron fence. The brick pier and iron panel fence was constructed 1855-57 at an approximate cost of $ 10,723. Total cost of erecting the 1,800 foot long fence. 1843-57, was about $ 12,854.

Summary and Description of Western or Upper Enclosing Wall:

The upper or western end of the Musket Factory yard was enclosed by a "fence and gate" in 1846 at a cost of $ 350. In 1854-55 this earlier fence was replaced at a cost of $ 1,000 by a brick pier and panel wall with wrought-iron paling panels set between the high piers. Like the Southern enclosing wall, the western brickwork stood on cut-granite foundations and was coped with brown stone. The western fence was located on the west side side of the Rolling Mill, Bldg. No. 18, at the west or upper end of the yard and extended about 100 feet from the Baltimore and Ohio Railroad track on the north to the Musket Factory Canal basin on the south, and also enclosing the canal's waste-weir and gates. Total expenditures for walls and gates at the western end of the Musket Factory yard from 1842 to 1860 was thus about $ 1,350. The 1854-55 fence was from six to nine feet in height.

Visual Evidence Relating to the Southern and Western Enclosing Walls:

a. Western or Upper Enclosing Wall: Photo HF- 9, taken October 1862, only known view (at a distance) showing western end of yard; HF- 10, Photo HF- 10, taken October 1862, closeup view of southwest(upper) corner of Musket Factory view and excellent view of south wall.

b. Visual Evidence of South Enclosing Wall: Photo HF- 51, lithograph published in 1857, shows both brick and iron panel fence, and solid brick enclosing walls; HF-10, taken October 1862, excellent closeup view of Southern fence and North Cliff Street, looking east. HF- 30, taken October 1862, show both brick and iron panel wall and solid brick southern eclosing walls; HF- 28 and HF-38, taken in 1864- or 1865, reveal that sections of the southern wall opposite to Musket Factory Bldg. No. 8 and Bldg. No. 15 (Brick pier and iron panel fence) have been removed. HF- 355, taken about 1886, shows that all of the brick and iron wall from a point opposite the eastern(lower) end of Musket Factory Bldg. No. 9 east to Bldg. No. 2 has been demolished. HF -539, taken about 1886, is an excellent closeup view showing the extant solid brick wall extending from Musket Factory Bldg. No. 1 westward to about opposite Bldg. No. 3, and looking westward up North Cliff Street. HF- 55., taken about 1873-75, shows the solid brick wall at its junction at the south-east corner with the east or front wall and opposite to Park Bldgs No. 8 and 9. HF- 99, taken 1892-95, reveals that the entire southern enclosing wall had been levelled by that date, that the Musket Factory canal had been filled in and a high earth embankment erected over that canal; also that the main line tracks of the B & O R. R. had been placed on top of the new embankment.

Approximate Cost of Constructing the East, South, and West Enclosing Walls:

East Wall and Main Gates:	$ 19,601.04
West Wall	1,350.00
Southern Wall	12,853.98
Total: 1843- 56:	$ 33,805.02
For Potomac River Wall, 1837- 51.....	41,475.37
Four sides yard:	$ 75,280.39

d. Enclosing Walls for the New Stock Grounds, Bldg. No. 11.

The hillside above Bldg. No. 11, extending from North Cliff Street south up to Washington or High Street, was extensively graded, terraced, and numerous and substantial stone walls were erected 1854-56 in an effort to prevent earth and rocks from washing down the slopes and thus block the flow of water in the U.S. Musket Factory Canal. In 1856-57 a enclosing wall about 675 feet long, consisting of tall brick piers and low brick panels, mounted on granite foundations and coped with brown stone, was erected on the south side of North Cliff Street to protect the Bldg. 11 grounds. The upper space between the brick piers were filled in with panels of of wood paling fence. The Stock House fence design matched that of the Musket Factory southern enclosing wall, except that iron paling panels were used in the latter and wood paling in the Stock House fence. The cost of this fence was approximately $ 2,324.

In 1858-60 a wood paling fence was constructed along Washington Street above and then extended at right angles from that street down the slope to North Cliff Street below. Cost of this fencing was about $ 800. From 1854 to 1860 about $ 3,524.00 was expended to enclose the New Stock House grounds. (See pages 172-174 for details.)

Visual Evidence Relating to New Stock House Grounds Fencing:

Photo HF- 51, a lithograph published in 1857, shows the new Stock House and its grounds; HF-10, a photo taken in October 1862, shows a portion of Bldg. 11, but the North Cliff Street wall can not be seen. HF- 539 and HF-355, both taken about 1886, show the general area of Bldg. 11 but no details.

CHART

EXPENDITURES ON MUSKET FACTORY ENCLOSING WALLS, 1842 - 1860:

YEAR	MAIN GATE-EAST WALLS	WEST WALLL	SOUTH WALL	ENCLOSING WALL TOTAL	Bldg.11 GROUNDS	TOTAL GRAND	POTOMAC RIVER WALL
1842							120.00
1843	$ 450.60		2,130.98	2,581.58		2,581.58	
1844							
1845	31.00			31.00		31.00	
1846	? (1)	350.00		350.00		350.00	87.37
1847	6,833.35*			6,833.35		6,833.35	640.00
1848	3,166.00*			3,166.00		3,166.00	
1849	1,100.00			1,100.00		1,100.00	
1850							
1851	20.06			20.06		20.06	
1852							
1853	2,500.00*			2,500.00		2,500.00	
1854	4,500.00*			4,500.00	400.00	4,900.00	
1855	1,000.00	1,000.00	5,000.00	7,000.00		7,000.00	
1856			5,723.00	5,723.00	2,324.00	8,047.00	
1857							
1858	*= for land.						
1859	(1) iron gates erected, cost unknown).				800.00	800.00	
1860							
TOTAL	19,601.04	1,350.00	12,853.98	33,805.02	3,524.00	37,329.02	41,475.37

6, Musket Factory Streets, Sidewalks and Street Lights:

In 1859, the U.S. Musket Factory had two parallel streets that ran from east to west the length of the yard. The original or oldest street, "Potomac Street", dating from the 1808-10 enlargement of the Musket Factory, was a central avenue, about 70 feet wide and was located between the north and south parallel rows of Musket Factory workshops and store houses. The second street, which had no name, dated from the 1837-39 construction of the Potomac River wall and was situated on the new land fill between that wall and the northern line of workshops. The newer street was from 40 to fifty feet wide. By 1856 both sides of Potomac Street appear to have been lined with trees and shrubs and sections of the yard were laid out in grassy plots and also planted with shrubs.(See HF- 51- lithograph published in 1857).

a. Work on Musket Factory Streets, 1827- 1842:

The first recorded efforts to improve the streets and sidewalks of both the U.S. Musket Factory and the town of Harper's Ferry were made in 1827-29. In 1827 $ 1,100 was spent " for turnpiking Shenandoah street & paving side walk on Potomac Street."[1] The Armory paymaster's vouchers indicate that $ 736.32 went to turnpike about 78 rods of Shenandoah Street, leaving a balance of $ 363.68 to pave the side walk of the Musket Factory street.

In 1829 a total of $ 103.83 was expended "for paving foot ways to Shops." The Armory paymaster's vouchers indicate that $ 59.33 of this total was used to pave 202 1/3 yards of gutters with stone along Shenandoah Street and that the balance, $ 38.25 went to the stone mason John Lackey "for 25½ days work making new pavement to the (Musket Factory) workshops."[2]

National Armory accounts for the years 1822 to 1831 thus indicate that a grand total of $ 401.93 was spent to improve the side walk at the Musket Factory

by paving it, probably with stone.

Improvements, 1830-35:

The Ordnance Department requested and Congress appropriated on May 14, 1834 the sum of $ 2,400.00 " for grading and paving Potomac Street between the public (Musket Factory) shops, and Shenandoah Street, and for painting sone of the public buildings. Col. George Bomford, Chief of Ordnance, explained the need for this work to Congress as follows:[3]

1. National Archives Record Group 217, Records of the 2nd Auditor of the Treasury Department, First Series.

1. This work was down as follows: By John Gust

File	Voucher	Date	Amount	Turnpike Shenandoah Street
11127	63B	May 15	$ 48.00	4 rods at $ 12.00 per rod.
11127	115B	May 30	156.00	13 rods
11127	160B	June 18	72.00	6 "
11622	73A	Aug. 16	63.00	10½ "
11622	158A	Sept. 7	36.72	3 rods and 1 inch.
12013	12A	Oct. 17	36.37	3½ rods
By John Gust, 1827			$ 377.09	40 rods and one inch.
By Patrick Landragen:				
11127	123B	May 31	$ 200.00	20 rods at $ 10.00 per rod.
11622	170A	Sept. 13	71.27	11 rods, 14½ feet.
11622	220A	Sept. 29	57.37½	6 3/4 rods.
By Patrick Landragen, 1827:			$ 328.64½	38 rods
Total by Gust and Landragen			$ 705.73	78 rods
By Michael Cook:				
11622	150A	Sept. 4	30.59	For 35 rods and 13 feet of gravelling on Shenandoah Street= $ 26.89 + 2½ days use of cart and horse= $ 3.75.
Gust, Landregen, & Cook:			$ 736.32	113 rods, 1827
Balance used on Potomac Street			363.68	
Total, 1827 projects:			$ 1,110.00	

2. F. 13478- V.60A- To Patrick Landragen, May 6,1829-$ 59.33, for paving the gutters along Shendnanoah Street on the U.S. land, making 202 1/3 yards at 25¢ per yard= $ 50.58 + Quarrying 36 perches of stone for use of the above at 25¢ per perch= $ 9.00. Total $ 59.33; 13750-V. 65A-To John Lackey, mason, Dec. 14,1829, $ 38.25, for 25½ days work making new pavement to the workshops.

2. Estimates for 1834, Harpers Ferry NHP Reel 20, Vol. 6, p. 590. The appropriation is in U.S. Statues at Large, Vol. IV, p. 675. The money is included in a lump appropriation totalling $ 8,589.87 that was headed erecting a store house for iron, etc.

> The paving of the streets was commenced at this Armory some time since (in 1827), but was discontinued before the shops were reached, where it was required as much or more, than at any other place. During the winter season, the streets are almost impassable, at times, from the depth of the mud.
>
> The painting of the public shops would contribute much to their preservation and add greatly to their appearance.

On July 7, 1834, Superintendent George Rust, Jr. entered into a contract with William Mc Donald, who agreed to complete the work by October 1, 1834.

The contract specified in part(with regards to the streets and sidewalks,) that McDonald was:

> to grade that portion of the (Shenandoah) street extending from the termination of the present pavement near the pay office (which was located on Lot 2, Block B, Shenandoah Street) to the pump on Potomac Street (which was then the street that ran down the center of the two rows of Musket Factory shops), and to McAdamize the same with twelve inches of good materials...
>
> The said McDonald further agrees to insert good and substantial curbstone whereever, the same may be required by the superintendent and to construct such culverts as may be necessary (under the direction of the Supert.) to convey the water to the river.

(4)

McDonald apparently made excellent progress, for on August 28, 1834 the Virginia Free Press of Charles Town reported:

> Gen. Rust, Supt. of Armory has had main street MacAdamized, and the sidewalks and gutters undergoing a very judicious alteration. The water from the (Camp) hill near the Harpers Ferry Hotel (which was located on Wager Lot No. 15, Subdivisions 1, 2, and 3, on the corner of High and Shenandoah Streets) is to be carried through the Arsenal lot to the (Shenandoah) river...

(5)

4. National Archives Record Group 156, Contract Book No. 13, p.233; HF NHP Photostat Collection, Vol. 1, pp. 30-31.
5, Virginia Free Press, August 28, 1834, p. 3, c. 1.

The Armory paymaster's vouchers reveal the William McDonald completed his contract on time and received a total of $ 1,516.49, September 30, 1834, for performing the following services:

grading and macadamizing 47 34/100 rods of Shenandoah Street.....	$ 1,212.53
Laid 104 67/100 perches of stone wall "at the wasteway".....	104.00
made 57 perches of culverts.....	85.50
Laid 335 1/3 feet of curb stone.....	104.00
Put down 32 feet of flagging(walks).....	8.00
Total, paid September 30, 1834:	$ 1,516.49 (6)

Contrary to the estimates, almost all this work appears to have been done to Shenandoah Street and little or none to "Potomac Street" in the Musket Factory.

Street Improvements, 1836 - 41:

The only effort made to improve streets in Harper's Ferry during the 1836-41 period occurred in August 1839, when Byrnes and Shields were paid $ 73.12 " for paving the Government proportion of the alley or county road, commencing on Shenandoah Street and running back [west] 230 feet, along the [southern] marign of the Armory Canal, being 117 square yards, at 62½ ¢ per yard."[7]

This payment indicates that the 15-foot wide alley that lay between the U.S. Musket Factory yard and canal, and the Wager Six Acre Reservation (Wager Lots 13, 15, subdivisions 1, 2, and 4, and Lots 16 and 17,] was macadamized in 1839. But no work appears to have been done in the Musket Factory yard.

6.R.G. 217, 1st Series, File 19021, Abstract E, with statement on grading work in August 1834; File 20041, Voucher A, September 30, 1834, with total bill.

7. R. G. 217, 2nd Series, File 3971, Voucher No. 54, dated August 26, 1839.

Brick Pavement in Front of Workshops, Potomac Street: 1842-54

In the estimates for the 1846-47 fiscal year Symington requested $ 450.00 for placing " brick pavement in front of shops,".[8] This money was appropriated by Congress on August 8, 1846.[9] This work ,however, may not have been done until 1849. On October 26,1849 the brick mason William Collins was paid $ 326.85 for the following work which may relate to the 1846 appropriation for paving:

$ 297.31	for making 36,271 bricks.
14.50	for hauling 36,271 bricks from the rifle factory to the entrance of the Armory yard.
10.54	for paving 84 1/3 square yards with brick.
3.00	for 1½ days services of a mason.
1.50	for 1½ days services of a tender.
$ 326.85	[10]

Pavement and Sidewalks, Musket Factory, 1855-1861:

In the estimates for the 1854-55 fiscal year Brevet Colonel Benjamin Huger asked for $ 700 "for pavement(stone-flag) in front of tilt shop(Bldg. No. 9) and boring-mill(Bldg. No.5)," he explained"This pavement is required for dry communication with these works in wet weather."[11] Congress appropriated the desired amount on August 5,1854.[12]

In the estimates for the 1856-57 fiscal year, Superintendent Henry W. Clowe requested an additional $ 560 "for continuing the flag pavement in front of workshops," he explained: "Besides improving the appearance of the armory yard,

8. Serial No. 481, Document No.9, p.111, item No. 13.
9. U.S. Statues at Large, IX, p. 69.
10. 3rd S.,F 10276, V.8, October 26,1849, for $ 326.85.
11. Serial No. 714, Document No. 2, p. 188,189, Item No. 12.
12. U.S. Statues at Large, X, p. 578.

this work seems to be necessary to afford comfortable passage from shop to shop of the workmen and other employed at the armory, and to finish the same in the style in which it has been commenced."[13] Congress voted the additional money on August 30,1856.[14]

Clowe described the results of this construction in his annual report for the fiscal year ending June 30,1857, writing: "About 196 square yards of heavy cut stone flag pavement, and 139 lineal feet of dressed curbing have been laid and set in front of and between several of the workshops in the armory yard."[15] In the report for the year ending June 30,1858, Superintendent Clowe reported: " 125½ square yards of paving, with large flagstones have been laid in front of the carpenters' shop [Bldg. No. 8C] and stock house [bldg. No. 7]."[16]

Total cost of this flag stone sidewalk, which ran from the tilt -hammer shop [Bldg. No. 9] east to the main entrance gates, was approximately $ 1,260.

Street Lights, 1853

In his annual report for the fiscal year ending June 30, 1853, Superintendent Benjamin Huger noted that " six cast-iron lamp-posts [had been] put up and furnished with lamps complete" in the Musket Factory yard. He also reported that " The roads in the armory yard [had been] graded and macadamized."[17]

13. Serial No. 865, p.245, 246, item No. 8.
14. U.S. Statues at Large, XI, p.150.
15. Serial No. 920,p. 551.
16. Serial No. 976, p. 1319.
17. Serial No. 692, Document No. 1, p. 277-278.

The six cast-iron lamp posts were apparently carried off during the Civil War, but the flag-stone sidewalk remained intact at the end of that conflict. The Ordnance Department Inventory of Musket Factory Property, made ca. 1865-1869, thus listed:

"Flag Stone Walk along fronts of buildings about 1/4 mile [1,320 feet] in length." (18)

Visual evidence relating to sidewalks, streets, and street lights:

The street, flagstone sidewalk, and cast-iron street light, all located at the main or east entrance can be seen in Photo HF- 90, which was taken in October 1859. Potomac Street, lined with small trees, is shown in a drawing published July 20, 1861, HF- 223; HF-30, a photo taken in October 1862, looks down on much of the central street. HF-39, a drawing published March 11, 1865, shows the flag stone side walk, and central street. HF-27, a photo made in 1864 or 1865, provides a long view of the flag stone walk looking west. Some small trees still stand in front of Bldg. No. 2, and the cast-iron street lamp near the main entrance in HF-90 above, is gone. Part of Potomac Street in the Musket Factory can be seen in HF- 28 and HF -38, both taken in 1865 or 1866. HF- 355, HF- 492, and HF- 539, all made about 1886, indicate that most of the flag-stone walk had disappeared by that date. HF- 55, taken about 1873-75, shows the sidewalk still in place in front of the "John Brown Fort."

Description of Sidewalk and Streets,1859:

A flag stone side walk, five feet nine inches wide, extended approximately one-quarter of a mile from the main or east entrance along the south side of Potomac Street. The two streets, about one-quarter of a mile in length and approximately 70 and 50 feet in width respectively, were macadamized in 1853. Six cast-iron street lamp posts were also spaced out along the side walk in 1853.

18. ,National Archives Record Group 121, Washington ,D.C., Public Buildings Service, Harpers Ferry File No. 154, n.p., n.d., prepared ca.18865-1869. Cited from James P. Noffsinger,"Harpers Ferry,West Virginia...".pp.124-127. Building numbers added by C.W.Snell. Dimensions of the buildings as given in report are not very accurate. Nearly all structures listed were at least 35 feet wide and not 25 feet as is generally stated.

RECORDED EXPENDITURES

Year :	Brick Pavement
1845	
1846	
1847	
1848	
1849	326.85
1850	
1851	
TOTAL.	326.85
Approp. For	450.00
For Machinery	

APPROPRIATIONS FOR

Year	Paving Walks
3/3/ 1855	
8/30/ 1856	560
3/7/ 1857	
6/12/ 1858	
3/3/ 1859	
6/21/ 1860	
3/2/ 1861	
TOTAL.	$ 560
TOTAL SPENT	$ 560

APPROPRIATIONS FOR

Year	Paved walks
8/31/ 1852	
3/3 / 1853	
8/5/ 1854	700
Total	$ 700

$ 1,710.00 Total.

7. Grading the Musket Factory Grounds, 1845- 1851:

In the reconstruction of the U.S. Musket Factory that took place between 1842 and 1852, the new buildings were constructed with higher foundations than the old shops in effort to put them above usual high water levels. This change led to considerable filling and grading of the grounds around the new edifices.

In the estimates for the 1848-49 fiscal year Superintendent Symington requested $ 500.00 "for filling up low grounds and grading the musket factory," explaining that "Much of the ground about the shops is under water at moderately high freshets, thus interrupting operations."[1] The desired sum was appropriated on August 14,1848.[2] This money was apparently held in reserve and not used until 1850. On December 20 of that year the stone mason Edward Tearney was paid $ 498.95 for "filling in and grading the armory yard"with 2,935 cubic yards of earth and spalls."[3] In his annual report for the year ending June 30,1851, Symington reported:" There has been much filling and grading of grounds, both at the musket factory and rifle factory, to an extent of 3,000 cubic yards."[4]

In his annual estimate for the fiscal year 1851-52, Symington asked for $ 1,200.00 "for filling up low grounds in the Armory yard, and filling up and grading grounds within the enclosure at the Rifle factory," explaining it was necessary" To complete the grading of the Armory yard and the leveling of the grounds about the new buildings at the Rifle factory,and to afford convenient places of deposite for Coal and other heavy articles."[5] The requested amount was appropriated by Congress on March 3,1851.[6]

1. Serial No. 514, Document No. 2, pp. 110, 111, Item No. 4.
2. U.S. Statues at Large,IX,p.306.
3. 3rd S., F. 12169, V. 43, Decemebr 20,1850, for $ 498.95. Tearney charged 17 cents per cubic yard delivered.
4. Serial No. 611, Document No.1, p. 459.
5. Harpers Ferry Mircofilm Reel 20,V. 7,p.694, Item 3.
6. U.S. Statues at Large, IX, p. 620.

An additional $ 431.50, was thus spent for the following grading during the period July 1-December 31,1851:

To William T. Daugherty, October 31,1851, $ 171.50- "for hauling and delivering into the armory yard 70 cart loads of river sands.. for grading the public ground at the musket factory".[7]

To Edward Tearney, December 24,1851, $ 260.00,"for filling up the Armory yard from the end of the Boring Mill [Bldg. No. 5 on 1859 map] to the upper end of new machine shop [Bldg. No. 6D on 1859 map], grading the roadway to the proper height, covering the culverts & drains and walling the same, for this sum previously agree on."[8]

Grading the Musket Factory Yard, 1852 - 54:

Following the April 1852 flood, the musket factory yard was cleaned up and many improvements were made. In his annual report for the fiscal year ending June 30,1853, Superintendent Benjamin Huger reported of this work: "The roads in armory yard graded and macadamized; grass plats filled up, graded, and sown with grass-seed; .... ."[9]

7. 3rd S., F. 13017, V.12, October 31,1851, for $ 171.50, Daughtery charged 25 cents per wagon load.
8. 3rd S., F. 13107, V. 41, December 24,1851, for $ 260.00.
9. Serial No. 692, Document No. 1, p. 277-278.

Grading the Musket Factory Yard, 1855-61:

In the annual report for the fiscal year ending June 30,1855, Superintendent Henry W. Clowe reported: "the grounds in front of the shops have to some extent been filled up and graded, to bring them to a uniform level with the portions heretofore completed."[10] In his report for the year ending June 30,1856, Clowe again noted" The armory yard has been filled and graded in some places..."[11]

In the report dated June 30, 1858, Clowe wrote: "All the reserved [U.S. owned] grounds, including the area within the armory enclosure, ... have been carefully improved, at considerable cost,..."[12]

Finally, in his annual report for the fiscal year ending June 30,1860, Superintendent Barbour wrote: "The grounds,generally, of the armory, comprising a considerable area, have all been kept in order and where improvements were necessary to preserve or add to their sightly condition,they were made."[13]

(For grading of the new Stock House, Bldg. No. 11, grounds, see pages 172-174).

10. Serial No. 841, p.557.
11. Serial No. 876, p.389.
12. Serial No. 976, 1319.
13. Serial No. 1079, p. 974.

RECORDED EXPENDITURES
FOR

Year :	Grading
1845	
1846	
1847	
1848	
1849	
1850	498.95
1851	431.50
TOTAL	930.45
Approp. For	1,700.00

(1)

(1) $ 500 in 1848; and $ 1,200 in 1851.

8. Cisterns, Pipes, and Pumps:

The first extant records relating to the digging of wells for the Armory date from 1826 . The"Statement of the expenditures at the U.S. Armory, Harper's Ferry, Va. and of the Arms &c made therein, during the year 1826," reported that $ 121.50 had been spent "for Digging two wells;" location of the wells, however, was not given.[1] The vouchers of the Armory Paymaster indicate that these two wells were sunk by Patrick Redmand, one in August 1826 for $ 89.50 and the other in October for $ 32.00. The latter included 16 feet of wall in the well.[2]

Pumps and water pipes during the 1820's were made by Humphry L. Hughes. On June 30, 1829, he was paid $ 201.78 for this services, which included the following items related to the Musket Factory: $ 150.08 "for boring 938 feet timber for conducting water for safety of Armory" and $ 30.00 for making " 6 hydrants."[3]

The first documented account of the construction of a well or cistern for providing drinking wall in the Musket Factory occurred in 1837.

On July 2,1836, Congress voted the sum of of $ 1,000.00 "for sinking a well and putting in a pump opposite the grinding mill." In justifying the request for this money to Congress, the Chief of Ordnance wrote:

> K. The sinking of a well is considered very necessary, in consequence of no pure water for use being within three or four hundred yards of the new tilt hammer shop, and many of the houses.../[4]

1. National Armory Accounts, National Archives R.G. 156, Harpers Ferry NHP Photostat Collection.
2. National Archives Record Group 217, records of the 2nd Auditor of the Treasury, 1st Series, File 10559, Voucher 46, and File 10604, Voucher No. 13A.
3. R.G. 217, File 13478, Voucher No. 235B.
4. 1836 Estimate, Serial No. 288, Document No. 90, p. 7,8.

The grinding mill, Bldg. No. 11 on Map No. 7 was located on the north bank of the Armory Canal in an isolated position about half way between the the new tilt hammer shop (Bldg. No. 13) and the Stocking Shop. (Bldg. No. 5 on the 1838 Map-Map No. 7, page 365).

The Paymaster's Account reveal that work on sinking the well got underway in the 3rd quarter of 1837 and was completed during the last quarter of that year; the total cost of the well was $ 731.31.

CHART

National Archives
Record Group No. 217, Records of the United States General Accounting Office, Washington, D.C. Records of the Second Aduitor:
from Paymaster of the U.S. Armory at Harper's Ferry, Virginia, Expenditures for Permanent Improvements

SINKING WELL AT THE GRINDING MILL — 1836- 1841 — $1,000.00 appropriated in1836

Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	TOTAL	Dec.31 Balance:
1836	a	b	c	d	0	1,000.00
1837	e	f 8.29	g 374.41	h 348.71	731.41	
1838	i	j	k	l		
1839	m	n	o	p		
1840	q	r	s	t		
1841	u	v	w	x		
TOTAL					$ 731.41	

a. 20761 - 1st series
b. 20654 " "
c. 677 2nd Series
d. 761 " "
e. 951
f. 1423
g. 1716
h. 2092
i. 2364
j. 2364
k. 2729
l. 3434
m. 3703
n. 3695
o. 3917
p. 4246
q. 4429
r. 4878
s. 5252
t. 5624
u. 5785
v. 5195
w. 6463
x. 6718 -2nd series.

On August 22, 1837, Charles G. Bragg was paid $ 60.00 "for making two pumps for Shenandoah and Armory, 60 feet." R.G. 217, 2nd Series, File 1716, Voucher 36A.

The Old Grinding Mill, erected in 1831, was demolished 1850 and Bldg. No. 8, the new Grinding Mill, Saw Mill, and Planing Mill was built on its former site. The fate of the 1837 cistern is unkown, but presumably the well remained in use.

Wells, Reservoirs, and Pipes: 1842 - 1844:

In 1843 a "reservoir." constructed of cut stone, was erected at some unknown location" between the Musket Factory shops." On November 3, 1843, the stone cutter Redmond Burke received $ 115.00 for providing 209 feet 3 inches of cut stone for this reservoir.[5] On September 29, 1844, Burke was paid $ 51.55 for setting 515 feet 6 inches of cut stone "in reservoir at musket factory."[6] On Jannary 18,1844, Rezin Daily was paid paid $ 17.50 "for cutting on public land and hauling to armory 20 pine logs for pipes to conduct water to reservoir between the shops."[7]

Lead and cast iron pipes, however, were coming into use during this period. On September 1,1843 1,004 llbs "medium lead pipes for conveying water into shops" were purchased for $ 56.26.[8] On April 5,1844, Hugh Gilleece, who operated a iron foundry on Virginius Island, sold 1,612 feet of "casing of iron for water pipes for pumps at Musket Factory," for $ 64.48.[9]

Wells, Springs, Pumps, and Pipe: 1845 - 1851:

In 1845 William Darke,Jr. was paid $ 75.00 for excavating 183 3/4 perches of rock and digging a well.[10] The location of the well is not known. In 1849 Peter Litle received $ 9.18 for building 6 3/25 perches of stone masonry wall "around spring in Armory."[11]

5. 3rd S. F.630, V. 93, November 3,1843, for $ 115.00
6. 3rd S., 1613, V. 44, September 21,1844, for $ 51.55.
7. 3rd S., F. 1165, V. 53, January 18,1844, for $ 17.50.
8. 3rd S., F. 440, F. 25, To Tatha(?) and Brother, Sept.1,1843, for $ 56.26.
9. 3rd S. F.970, V. 4, April 5, 1844, for $ 64.48.
10. 3rd S., F. 3122, V. 8, October 28,1845, for $ 75.00.
11. 3rd S., F. 9307, V.36, June 1,1849, for $ 9.18.The money was paid to Edward Tearney as the executor of the late Peter Litle.

In 1846 Ross Winas received $ 140.02 "for making pattern for water pipes", probably for cast iron pipes.[12] Log pipes were still in use: In 1849 William B. Brown & Son was paid $ 6.00 for three white oak pump logs 20 feet long "for repair of pumps."[13]

In the estimates for the fiscal year 1851-52, Major Symington asked for $ 3,220.00 for the "purchase of factory pumps and fixtures for the musket and rifle factories," explaining "This purchase is much required as the only reliable safeguard against fire occuring among the shops."[14] Congress appropriated the money for this project on March 3,1851.[15]

On January 27,1852, J. T. Ames Manufacturing Company of Boston, Mass., was paid $ 2,448.78 for making and delivering 62,188 lbs of cast iron pipe and one force pump for the rifle factory.[16]

Cistern for Drinking Water ,1852- 54:

In the annual report dated June 30,1853, Col. Huger wrote: "A cistern has been built at the musket factory, capable of containing 25,000 gallons of water, for use of the shops, &c."[17]

This perhaps cost $ 1,000 to build, for in the estimates for the 1854-55 fiscal year, $1.000 was requested "for building a cistern." The justification stated: "To supply the workshops with drinking water, which now has to be brought from a distance."[18] The Congress appropriated this sum on August 5,1854 and the money may have been used to pay for the cistern already built.[19]

12. 3rd S.,F.4837, V.2, October 10,1846, for $ 140.02.

13. 3rd S. F. 9307, V.46, June 28, 9, for $ 6.00.
14. Harpers Ferry NHP Microfilm Reel 20, V.7, p. 694, Item 2.
15. U.S. Statues at Large, IX, p. 620.
16. 3rd S., F.13017, V. 76, January 27,1852, for $ 2,448.78. The cost of the pump was $ 1,865.64 and the pipe $ 583.14.

17. Serial No. 692, Document No.1, p. 277.
18. Serial No. 714, Document No. 2, pp. 188,189, item No. 8.

19. U.S. Statues at Large, X,p.578.

Cisterns, 1855 - 1860:

The Superintendent's annual reports for the period 1855 to 1860 do not mention any further changes or improvements being made to Musket Factory wells and cisterns.

Improved Fire-Fighting Equipment, 1852-53;
Cast Iron pipes, Hydrants, and Force Pumps:

On June 30,1853, in his annual report, Brevet Col. Huger noted that "About 1,300 feet of 8-inch cast-iron pipe, with 9 hydrants attached, have been laid between the shops for conducting water(to extinguish fires) from the large force-pump to be attached to one of the water- wheels. This improvement will be completed the present summer." [20]

In the annual report for the fiscal year ending June 30,1854, Superintendent William H. Bell wrote: "One large force pump for throwing water in case of fire, completed with all its machinery, connected with the water wheel, with cast iron gearing." [21]

The inventory of Musket Factory Property, made for the Ordnance Department ca. 1865 -1869, lists "Two Cisterns". [22] The locations are not given, One, perhaps dating from 1837, may have been located near Musket Factory Bldg. No. 8 . The second cistern, probably constructed in 1852-53, location is unknown.

Items such as the force pump were probably carried off by the Confederate army in June 1861.

20. Serial No. 692, Document No.1, p. 277.
21. Serial No. 747, p.361.

22. National Archives Record Group 121, Washington ,D.C., Public Buildings Service, Harpers Ferry File No. 154, n.p., n.d., prepared ca.18865-1869. Cited from James P. Noffsinger,"Harpers Ferry,West Virginia...".pp.124-127. Building numbers added by C.W.Snell. Dimensions of the buildings as given in report are not very accurate. Nearly all structures listed were at least 35 feet wide and not 25 feet as is generally stated.

Expenditures on

Year	Reservoirs, Pipes
1841	-
1842	0
1843	171.26
1844	133.53
Total Recorded	304.79
PROBABLE Total	

APPROPRIATIONS FOR

Year	cistern
8/31/ 1852	
3/3 / 1853	
8/5/ 1854	1,000
Total	$ 1,000

Year :	Wells, Pipes
1845	75.00
1846	140.02
1847	
1848	
1849	15.18
1850	0
1851	2,448.78
TOTAL	2,678.98
Approp. For	3,220.00
For Machinery	

Sheet Total: $ 4,754.99.

EXPENDITURES AT THE MUSKET FACTORY,
1842 to 1860, FOR

Year	SIDEWALKS	GRADING	CISTERNS	PIPES AND PUMPS	TOTAL
1842					
1843			$ 115.00	56.26	171.26
1844			51.55	81.98	133.53
1845			75.00		75.00
1846	450.00(App)			140.02	140.02
1847					
1848					
1849	(326.85)spent	500.00	9.18	6.00	965.18
1850					
1851		1,200.00			1,200.00
1852		Big flood grading		Force pump 3,220.00	3,220.00
1853	Street Lights	grading			
1854	700.00		1,000.00		1,700.00
1855		grading			
1856	560.00	grading			500.00
1857					
1858					
1859					
1860					
TOTAL	$ 1,710.00	$ 1,700.00	$ 1,250.73	$ 3,500.26	$ 8,160.99

Manuscript Material:

National Archives Records, Washington, D.C.

The Confederate Army on April 19, 1861 captured the U.S. Armory at Harper's Ferry and held the place until June 15,1861. On their withdrawal on the latter date, they set fire to the U.S. Musket Factory buildings and thereby destroyed all of the original records at the Armory, which were on file in Musket Factory Bldg. No. 2, the Armory Offices. For this reason there is no collection of Harper's Ferry Armory records as such on file in the National Archives at Washington, D.C.

The originals of letters written by Harpers Ferry Armory Officers from 1798 to 1861 to the Secretary of War and Chief of Ordnance are still largely intact in the National Archives, but they are filed as they were received, when written, in the general filing systems of the Washington offices.

In 1957, Park Historians Herbert L. Kissling and Charles W. Snell, during a six week period, searched most of the central files in the National Archives for material relating to the history of the Harper's Ferry Armory from 1794 to 1869. Collected were 14,504 pages of documents on 14 reels of microfilm and 225 pages of photostated documents. Map, plans, prints and photographs in the National Archives collections relating to Harpers Ferry were also copied. Historians Kissling and Snell, in effect, thus recreated much the central Armory files that were destroyed in 1861.

The microfilm material was reproduced in the form of xeroxed pages and these were placed in loose leaf notebooks. These volumes and their pages were numbered and completely cataloged and indexed according to subject and these notes placed in a master card index system.

All persons interested in performing research on the Harpers Ferry Armory history from 1794 to 1869 would therefore do well to first examine this extensive centralized collection in Harpers Ferry National Park library to collect their data, and only then, if there are still some missing links, to attempt to located these items in the general files of the National Archives, Washington, D.C.

The following National Archives Record Groups were searched and data relating to Harpers Ferry collected in 1957:

1.Records of the Bureau of the Census: Population Schedules of the Census of the United States for the Years 1810 to 1870, for the towns of Harper's Ferry, Bolivar, and Virginius Island. National Archives Record Group 29 (274 pp. on one reel of microfilm in Park Library).

2. Records of the Office of the Chief of Engineers, National Archives Record Group No. 77 (Maps and reports relating to right of way for the Winchester and Potomac Railroad, 1834).

3. Records of the National Park Service, National Archives Record Group No. 79(Maps and reports of C. & O. and Shenandoah Canal Companies for constructing canal and locks on Shenandoah in 1803-1807.)

4. Records of the Office of the Quartermaster General, National Archives Record Group No. 92 (Civil War activities, 1861-66).

5. Records of the Adjutant General's Office, National Archives Record Group No. 94. (Civil War).

6. Records of the Office of the Secretary of War, National Archives No.107 (1794-1869).

7. Records of the Public Buildings Service, National Archives Record Group No. 121(1796-1887 records of the purchase of land for U.S. Armory use, and also of the sale of U.S. lots and houses, 1852, and 1869-1887.).

8, Records of the Office of the Judge Advocate General, National Archives Record Group No. 153.(Records and copies of deeds for the purchase of Armory lands and the sale of the same, 1796 - 1887).

9. Records of the Chief of Ordnance, National Archives Record Group No. 156. This Office or Department was responsible, under the supervision of the Secretary of War, for the operations of the Harper's Ferry Armory,1815 to 1887).

10. Records of the Office of the Inspector General, National Archives Record Group No.159. Has many inspection reports written after inspections had been made of the Harper's Ferry Armory.

Records of the U.S. Treasury Department and the U.S, General Accounting Office, The records of the Second Auditor of the Treasury, National Archives Record Group No. 217, Series Two and Three, 1817 to 1851:

This data is comprised of thousand of pages of documents that were prepared and submitted by the Harpers Ferry Paymasters for paying wages, for purchase of materials for manufacturing arms and for construction of buildings, dams, and canals. It includes armory pay rolls and rent rolls.

This vast collection was searched by Historian Charles W. Snell for data relating to the repair and improvements of the Harper's Ferry Armory from 1817 to 1851. Records for the years 1852 to 1861 were destroyed by the National Archives staff during the 1940's in order to save space.

Historian Snell's long hand notes, taken during June 1980, have been typed up and are available for study in the Harpers Ferry National Historical Park Library in the following typescript reports:

Snell, Charles W., compiler, "Extracts from National Archives Record Group 217, Records of the U.S. Treasury Department, The Records of the Second Auditor, 1817-1841, Relating to the U.S. Armory at Harper's Ferry, during the Years 1817 to 1841 for Repairs and Improvements of the Physical Plant." Two Volumes. Vol. I, 1817-1829; and Vol. II, 1830-1841, 337 pages. (June 1980)

Snell, Charles W.,"Extracts from National Archives Record Group 217, Records of the Second Auditor, Second and Third Series, U.S. Treasury Department, relating to Expenditures for Repairs and Improvements at the U.S. Armory at Harper's Ferry, Virginia, during the Years 1842 to 1860."(Typescript, October, 1980), Volume III, 259 pp.

Published U.S. Documents:

1. American State Papers- Class V, Military Affairs(7 volumes, Washington, D.C., 1832-1850) Indludes some correspondence of the Secretary of War, Ordnance Office, and Armory Superintendents. Many estimates and reports, for period 1793 to 1837.

All data relating to the U.S. Armories at Harper's Ferry, Virginia, and Springfield, Massachusetts, in these seven volumes was xeroxed by Historian Charles W. Snell in January 1980 and copies of the following report provided to the libraries of both parks:

Snell, Charles W., Compiler, "Data for Operations Histories of the United States Armories at Harper's Ferry, Virginia, and Springfield, Massachusetts, 1793 to September 30,1837, complied from American State Papers(7 volumes)," (National Capital Team, Denver Service Center, January 1980), 298 pp. in two Volumes. Vol.I(1793- 1828); Volume II, 1829-1837.)

2. The Serial Number of Public Documents of the United States published by the U.S. Congress, 1817- 1861:

This series, comprised of offical reports prepared by executive department and submitted to Congress and also of reports and correspondence of Congress, was published annually for the U.S. Congress, beginning in 1817. About 1,100 volumes cover the years from 1817 to 1861.

Most of the data relating to the U.S. Armories at Harper's Ferry and Springfield during the years 1817-1861 was xeroxed by Historian Snell in 1979 and copies of the following report provided to the libraries of both Parks:

Snell, Charles W. Snell, compiler,"Extracts from the Public Documents of the United States relating to the Operations and History of the National Armories, 1795 -1860, at Harper's Ferry and Springfield, Published by the U.S. Congress, 1817 -1861, in its Serial Serial(National Capital Team, Denver Service Center, January 1980), 701 pages, in four Volumes. (Vol. I, 1795-1834; Vol. II, 1835-1841; Vol. III,1842-1851; and Vol. IV, 1852- 1861.

3. Serial Number of Public Document of the United States, published by the U.S. Congress, 1866- 1887 :

The Congressional Serial Number series also contains correspondence and reports, 1867-1885, relating to the sale and disposal of U.S. Armory lands at Harpers Ferry, West Virginia. This data was xeroxed by Historian Charles W. Snell and copies of the following report provided the Harpers Ferry National Historical Park Library:

Snell, Charles W., Compiler, "U.S. Documents relating to the Disposal of U.S. Armory Lands at Harper's Ferry. West Virginia, 1867-1885," Volume III, 151 pages, of the three Volume study-"The Acquisition and Disposal of Public Lands at the U.S. Armory at Harper's Ferry, Virginia, 1796 - 1885,"(National Capital Team, Denver Service Center, December 1979).

4. Benet, Stephen V. ed. and compiler, A Collection of Annual Reports and Other Important Papers, Relating to the Ordnance Department. Taken from the Records of the Chief of Ordnance, from Public Documents. and from other Sources:.(4 vols, Washington, D.C., 1878 - 1890).

A rare book; Historian Charles W. Snell xeroxed 79 pages from this set and proved the Harpers Ferry National Historical Park Library with copies in one volume in January 1980.

5. Virginia Free Press. Charles Town. Virginia. 1824-1861: A weekly newpaper publishing Jefferson County news, 1824 to 1861. Available for use in Harpers Ferry National Historical Park Library on microfilm, nine reels.

6. The Spirit of Jefferson. Charles Town , West Virginia.1865-1955: A weekly newspaper publishing Jefferson County news,1865-1955. Available for study in Harpers Ferry National Historical Park library on 34 reels of microfilm. This set acquired in 1980.

7. U.S. Statues at Large, Volumes I to XII, contain laws, resolutions, and appropriations for the Harpers Ferry Armory, 1794 to 1861.

8. Registry of Deeds for Jefferson County, County Court House, Charles Town, West Virginia. Has: deeds and land records from about 1800 to date.

9. Noffsinger, James P., "Harpers Ferry, West Virginia- Contributions Towards a Physical History," NPS typescript, Eastern Office of Design and Construction, Philadelphia, Pensylvania, November 1958), 278 pp.

Has a 54 page general narrative history of Harpers Ferry,1719-1953; pp.55- 278 comprised of 36 documents transcribed from National Archives Records and copies of 12 historical maps(parts of) and and 10 19th century photographs of Harpers Ferry.

Books:

1. Barry, Joseph, The Strange Story of Harper's Ferry (1st printed in 1903; 3rd edition, Shepherstown, W.Va. 1959).

A school teacher, Barry was born and raised at Harper's Ferry; he was a boy prior to the Civil War and his history is usually accurate.

2. Smith, Merritt Roe, Harpers Ferry Armory and the New Technology - The Challenge of Change (Cornell University Press, Ithaca and London, 1977).

A excellent history of the development and production of small arms at the Harpers Ferry Armory, 1796 - 1861. Dr. Smith made very extensive use of the thousands of pages of documents collected in the Harpers Ferry National Historical Park library as well as of material in the National Archives at Washington, D.C.

NATIONAL PARK SERVICE RESEARCH REPORTS :

U.S. Musket Factory on the Potomac:

Barlow, W. Lewis, IV,"Historic Structure Report-Architectural Data Section for John Brown's Fort(Park Bldg. No.63), Harpers Ferry National Historical Park, Maryland- West Virginia,"(Historic Preservation Division, Denver Service Center, National Park Service, Denver Colorado, May 1976) 87 pp. 30 photos, 18 sheets of plans.

Fairbairn, Charlotte, "John Brown's Fort - Armory Engine and Guard House, 1848- 1961," (Park Bldg. No. 63),Harpers Ferry National Historical Park, West Virginia,"(NPS typescript, Harpers Ferry NHP, W.Va., August 15, 1961). History of structure.

Kissling, Herbert H., "The U.S. Musket Factory,1796-1835, Harpers Ferry National Monument,"(N.P.S. typescript, Harpers Ferry N.M, February 28, 1961), 117 pp.

Snell, Charles W., assisted by Philip R. Smith, Jr.,"Research Report The Musket Factory Buildings and Grounds, Harpers Ferry Armory, 1859 - 1860, Harpers Ferry National Monument, West Virginia," (N.P.S. typescript, Harpers Ferry NM, W.Va., April 27,19590, 84 pp. 3 maps, 18 photographs.

Snell, Charles W.,"A Physical History of the U.S. Musket Factory Plant, 1794-1885, U.S. Armory at Harper's Ferry, Virginia. Volume I, 1794 - 1841, Establishment, Construction, and Development of the U.S. Musket Factory, Harpers Ferry National Historical Park, West Virginia (NPS Typescript, National Capital Team, Denver Service Center, July 1981), 315 pages, 9 maps, and 2 illustrations.

Snell, Charles W., "A Physical History of the U.S. Musket Factory Plant, 1794-1885, U.S. Armory at Harper's Frry, Virginia. Volume II, 1841- 1885, Reconstruction, Destruction, and Disposal of the U.S. Musket Factory, Harpers Ferry National Historical Park, West Virginia,"(NPS typescript, National Capital Team, Denver Service Center, July 1981), 417 pages, 7 maps, and 33 Illustrations.

Snell, Charles W." Historic Structures Report for the U.S. Musket Factory Canal and Dam on the Potomac River, 1799 - 1884, Harper's Ferry Armory, Virginia, Historical Data Section. Harpers Ferry National Historical Park, West Virginia,"(NPS typescript, National Capital Team, Denver Service Center, June 1981), 143 pages, 8 maps, and 12 illustrations.

National Park Service Research Reports:

Main Entrance to Musket Factory via

Wager Lots No. 11, 12, and 13:

Snell, Charles W., "An Historical Study of Wager Lot No. 11, Ferry Lot Studies, Harpers Ferry National Monument, West Virginia,"(NPS typescript, Harpers Ferry NM, W. Va., September 23,1958), 21 pages and five maps. (1831-1854).

Snell, Charles W.":An Historical Study of Wager Lot No. 12, 1830-1848, Ferry Lot Studies, Harpers Ferry National Monument, West Virginia," (NPS typescript, Harpers Ferry NM, W. Va., September 24, 1958), 26 pages and five maps.

Snell, Charles W., "An Historical Study of Wager Lot No. 13, 1837-1856, Wager Six Acre Reservation Studies, Harpers Ferry National Monument, West Virginia,"(NPS typescript, Harpers Ferry NM, W.Va., September 25, 1958), 23 pages and seven maps

Baltimore and Ohio Railroad Water Tower in Musket Factory Yard:

Snell, Charles W.,"Historic Building Site Survey Report for Wager Lot No. 1 & the Bridge Lot - The Baltimore & Ohio Railroad Company's Bridge and Buildings at Harpers Ferry, 1835 - 1862, Harpers Ferry National Monument, West Virginia,"(N.P.S. typescript, Harpers Ferry NM, W.Va., September 22, 1958). 44 pages and nine mapsz

General Physical History of Armory (Musket Factory, Rifle Factory, U.S. Arsenal, Armory Dwelling Houses, Road, Streets, Bridges):

Snell, Charles W.,"A History of the Physical Plant of the U.S. Armory at Harper's Ferry, Virginia, Its Evolution and Development, 1794 to 1841, Harpers Ferry National Historical Park, West Virginia,"(N.P.S. Typescript, National Capital Team, Denver Service Center, Denver, Colorado), 566 pages 5 illustrations and 22 maps. Volume I of the three Volume history of the Armory from 1794 to 1885.

Snell, Charles W., "A Physical History of the Plant of the U.S. Armory at Harper's Ferry, Virginia, 1794 to 1885, Volume II, 1842 - 1851, - Reconstruction of the Armory, Harpers Ferry National Historical Park, West Virginia,"(NPS typescript, National Capital Team, Denver Service Center, April 1981), 346 pp, 4 Photos, and 11 maps.

Snell, Charles W., "A Physical History of the Plant of the U.S. Armory at Harper's Ferry, Virginia, 1794-1885, Volume III, Reconstruction, Destruction, and Disposal of the Armory, 1852 - 1885, Harpers Ferry National Historical Park, West Virginia," (NPS typescript, National Capital Team, Denver Service Center, April 1981), 406 pp, 31 photos, and 11 maps.

The Disposal of Armory Lands, 1866-1885:

Snell, Charles W., "The Acquisition and Disposal of Public Lands of the U.S. Armory at Harper's Ferry, West Virginia, 1796 - 1885, Harpers Ferry National Historical Park, West Virginia," (N.P.S. typescript, National Capital Team, Denver Service Center, December 19790 in Three Volumes: 388 pp.

Volume I: A Narrative History, 156 pages, including 10 property maps.

Volume II: Record of to Whom the United States Government issued deeds for lots and houses at Harpers Ferry for Armory land sold from 1852 to 1887. 81 pp, including 1 map.

Volume III. U.S. Documents relating to the Disposal of U.S. Armory Lands at Harper's Ferry, W. Va., 1867 - 1885. 151 pp., including 3 maps

U.S. Musket Factory and the John Brown Raid, October 1859:

Bearss, Edwin C., "Historical Base Map, Part of the Master Plan, Harpers Ferry National Historical Park, Harpers Ferry, West Virginia," June 1966 edition, 31 pages.

Bearss. Edwin C., "Historical Base Map-John Brown's Raid-Documentation-Movement Sheets, October 16-18, 1859, 6 sheets, Part of Master Plan, Harpers Ferry National Historical Park, Harpers Ferry, West Virginia," June 1966 edition, 42 pages.

John Brown's Raid, National Park Service History Series (Washington, D.C., 1973).

Oates, Stephen B., Oates, To Purge This Land with Blood: A Biography of John Brown (New York, 1970).

Quarles, Benjamin, Allies for Freedom: Black and John Brown (New York, 1974).

Villard, Oswald Garrison, John Brown, 1800-1859: A Biography Fifty Years After, (Boston and New York, 1911, 2nd edition, 1943).

Snell, Charles W., "Historic Structures and Grounds Report For U.S. Arsenal Square, Block A, Shenandoah Street, U.S. Armory at Harper's Ferry, Virginia, 1859-61, Historical Data Section. Harpers Ferry National Historical Park, West Virginia," (NPS typescript, National Capital Team, Denver Service Center, May 1981), 167 pages, 12 photos and 25 maps.

U.S. Musket Factory and Harpers Ferry During Civil War: (1861-65):

Pfanz, Harry W., "Special History Report: Troop Movement Maps, 1862, Harpers Ferry National Historical Park, Maryland-W. Virginia," (NPS, Denver Service Center, Colorado, March 1976), 94 pages.

Snell, Charles W., "The Fortifications at Harpers Ferry, Va., in 1861 and Jackson's Attack, May 1862. (Report on the Confederate and Federal Fortifications at Harpers Ferry, Va., April 18, 1861 to May 31, 1862) to Accompany Map No. I, dated Feb. 5, 1960) (Harpers Ferry NM, February 9, 1960), 114 pages.

Snell, Charles W., "A Report on the Federal Fortifications at Harpers Ferry, Va., and of the Confederate and Union Troop Movements during the Siege of Harpers Ferry, September 12-15, 1862, (To Accompany Map II, dated November 25, 1959) (Harpers Ferry NM, December 1, 1959), 82 pages plus Map II.

Snell, Charles W., "Harpers Ferry Becomes a Fortress, September 21, 1862 - October 6, 1863 (A Report on the Federal Fortifications at Harpers Ferry, W. Va., June 27, 1863 to Accompany Map III, dated December 11, 1959)." (Harpers Ferry NM, December 16, 1959) 83 pages.

Snell, Charles W., "Harpers Ferry Repels an Attack and Becomes the Major Base of Operations for Sheridan's Army, July 4, 1864 to July 27, 1865. (A Report on the Federal Fortifications at Harpers Ferry, W.Va., January 19, 1960)." (Harpers Ferry NM, January 21, 1960), 105 pages. (To Accompany Map IV).

Sullivan, Arthur L., "Harpers Ferry-April 18 - December 31, 1861, A Casualty of War," (Harpers Ferry NM, February 17, 1960), 118 pages. 14 photos.

Sullivan, Arthur L., "Harpers Ferry in the Civil War-1862," (Harpers Ferry NM, June 26, 1961), 57 pages, 23 photos.

APPENDIX NO. 1

November 5, 1838 Agreement and Grant of Right of Way through the U.S. Musket Factory Grounds at Harper's Ferry, Virginia, by the Secretary of War to the Baltimorr and Ohio Railroad Company.

National Archives, Washington, D. C. RG 121 Public Buildings Service, Harpers Ferry Case No. 154. (ms) (Copy dated 30 September 1873, Washington, D. C., of an Agreement between J.R. Poinsett, Secretary of War and Louis McLane, president of the B.&O. Company dated 5 November 1838) 13 pp.

Copied by James P. Noffsinger(1958), see "Harpers Ferry, West Virginia, Contributions Towards a Physical History," pp. 128 -134.

See Baltimore and Ohio Railroad Company Maps:

No. 1 (1837-38) p. 358.

No. 7 (1837-38) p.365.

No. 10 (1837-38) p. 370.

No. 8 (1866), p. 368.

UNITED STATES /Seal/ OF AMERICA

War Department
Washington City September 30th 1873

Pursuant to the Act of Congress of the 22nd February 1849, I H. F. Crosby Chief Clerk of the War Department in the absence of the Secretary of war, do hereby certify that the annexed document and chart have been truly copied from the originals on file in the Office of the Chief of Ordinance of

This department

/Seal of the Treasury Department U. S./

In witness whereof I have hereunto set my hand and caused the seal of the War Department to be affixed on the day and year first above written.

/signed/ H. F. Crosby
Chief Clerk

In the absence of the Secretary of War

/2/

Agreement:

The following agreement contains the terms and conditions upon which the Baltimore and Ohio Railroad Company shall be, and they are hereby, premitted /sic./ to construct that part of the main stem of the Baltimore and Ohio Railroad which is proposed to be constructed westward from the present viaduct at Harper's Ferry along and through the property of the United States at that place.

They have laid down two routes for the said main stem which are designated in the drawing and plan annexed hereto as a part hereof and lettered A. and B respectively, the description of which is as follows:-

The route A leaves the Railroad viaduct at or near second pier from the Virginia shore and turns to the right up the Potomac until it acquires a direction parallel or nearly so to the new

river wall now being erected by the United States on the river side of the northern row of work shops belonging to the musket armory.

The outside of this wall is about forty feet from the river front of said workshop and its top will when finished, be about

[3]

fourteen or fifteen feet above low water in the river the space between the wall and the shops being filled up and graded as a street. The route for the Railroad having reached the United States property at the lower or eastern end of the wall just mentioned passes up the river on the outside of that wall with a view to the construction of an additional wall in the river parallel to the United States wall and about twenty feet therefrom: this additional wall to be built by the company of such a height as may be deemed necessary to guard against danger from high water to be superstructure that may be placed upon the wall: the United States wall being also raised by the company to such a height as may be deemed necessary for the same purpose: the part so raised not extending inwards from the outer face of the wall at its top more than five feet: the space between the two walls to be left open throughout — for the passage of the water of the river: the road to be so constructed opposite the tilt hammer shop as to leave a clear space of twenty feet between the road and the river front of the shop. Should the construction of the road be found to make the tilt hammer shop

[4]

inconveniently dark, the railroad company shall make such changes in the manner of lighting the building as the Secretary of War may require so as to put it into as good a condition in this respect as it is in at present. The entrance of the water of the river into the space between the walls above mentioned and its excit /sic./ therefrom to be provided for by proper openings in the outer wall. The route after passing the tilt hammer shop ascends the river along the outer bank of the United States canal by a solid embankment and wall: the embankment of the railroad to be supported on the river side by a new wall to be founded on the bed of the river, the said embankment covering the present bank of the canal so as to have the benefit of it: if desired, in diminishing the quantity of earth and other materials to be supplied for the formation of the road bed. When the route reaches the head gates of the canal it crosses the canal upon an oblique line by a bridge with a wooden superstruction of two spans of about one hundred feet each, the pier of the bridge being in a line with the pier of the head gates

and consisting of an extension of the same eastwardly, and the abutments of the bridge being so far apart as to embrace the entire present width of the canal and also a sufficient space on the southern side of the channel by which the river enters the canal just above the head gates to allow of the passage of the proposed couty road under the railroad along the inner margin of the channal and near the level of the water: the elevation of the said road being made sufficient at this point to give it a clear height of at least twelve feet above the county road. The route passes along the two precipitous points of rock immediately above the head gates and subsequently, pursues the Virginia shore of the Potomac towards Elk Branch without interference with the intended location of the county road.

Route B. is identical with route A. to a point west of the tilt hammer shop, and east of the present cross wall where it diverges from the route A. into the river for the purpose of obtaining a suitable curvature to cross the United States canal at or near the said cross wall as represented in the drawing and then

returning southwardly crosses the route A. and the said canal at or near the said cross wall to the hillside on the southern margin of the canal: the grade of the road being so elevated as to give a clear hight /sic./ at least twelve feet above the present of the water in the canal and over the county road as it shall be located along the inner margin of the canal. The railroad after so crossing the canal and country road pursues the hillside upwards to the head gates and thier /sic./ falls into route A.

The superstructions for the support of the railway upon the parallel walls above described on route A. to consist of wooden trassels /sic./ or pillars of brick stone or iron, as the company may prefer: the posts or pillars to be placed at least fifteen apart from centre to centre lengthwise of the road and to be not more than eighteen inches in diameter; the supports to stand in two parallel lines one upon the Government wall raised as above mentioned and the other upon the parallel wall built by the railroad Company.

The option is given to the said

[7]

company to take either of the routes above indicated, provided, however, that should the United States pay to the said company the difference between the cost of constructing the route "A", and the route "B" to be ascertained by a careful survey before commencing the construction of the road, then the said company shall take the route "A" and construct their road thereon. And in case the Secretary of War should require it the wall to be built by the said company above the tilt hammer shop shall be solid and sufficiently puddled to prevent breakage from the canal, so as to make it serve not only as the support of the said railroad but as the river wall of the embankment of said canal, the said company in this event having the privilege of using the materials of the present [sic.] wall as far as may be done without endangering the canal.

In the construction of the river wall below or east of the tilt hammer shop by the said company, there shall be left sufficient openings opposite each tail race from the water wheels of the armory

[8]

to facilitate the discharge of the water therefrom and as auxiliary to the vent between the two parallel walls aforesaid.

The wate[r] power privilege of the United States shall not be injured or obstructed, but a free passage shall be left for the water from the channel or the river near Striders warehouse above the public dam and at all other places and points specified and reserved between such warehouse and the falls immediately below the viaduct.

Should the said company desire to take materials from the ground belonging to the 'United States' they shall be permitted to do so free of expense at such places as may be disignated [sic.] by the superintendant [sic.] of the Armory or premitted [sic.] by the Secretary of War.

The road through the United States property shall be constructed at the minimum elevation not exceeding the hight [sic.] of the present viaduct as far as the tilt hammer shop, and the parapet wall disignated [sic.] on the drawing shall be constructed of good mortar masonery.

The said company shall allow the

[9]

United States to construct and keep up forever a depot with suitable tracks switches and turnabouts to be connected with the said road and the second story of a warehouse proposed to be erected by the United States.

Should the said company be required by the Secretary of War so to do, they shall remove at thier [sic.] own expense two wooden buildings marked 'x' and 'y' on the drawing from thhr [sic.] present position to such place as the Secretary of War may direct.

The tresael [sic.] work of the said road shall be terminated west of the tilt hammer shop at the point marked 'B' on the drawings, and the said company shall, if required by the Secretary of War construct, opposite, the waste way, a culvert to facilitate the escape of surplus water and the drainage of the canal.

There shall be left at the cross wall aforesaid a sufficient space for the site of a saw mill in reference to the future erection of which the said company shall construct a culvert suitable for a waste way and tail race for the accommodation of said mill.

In the event of the selection of the

[10]

line 'B' the said company shall fill up the space between that line and the canal wall from the point where the line diverges from the wall to that where it again intersects the wall so as to render the reconstruction or repairs of the wall unnecessary.

The said company shall locate and execute all the parts of thier [sic.] work in such manner as shall cause the least denger or injury to the United States property and any practicable alternation consistent with the proper and judicious location and construction of the said road, that may enhance the value of the property of the United States and that shall be required by the Secretary of War shall be made by the said company the additional expense thereof being paid by the United States.

In locating and constructing the said road particularly the walls, abutments and piers, at and near the present viaduct and the eastern boundary of the property of the United States, the said company shall locate and construct the same so as to produce the least possible dimination [sic.] in the width of the

[11]

river consistant [sic.] with the security of the said walls,

abutments, and piers.

In the construction of those portions of the said road between the points indicated on the drawings at 'K' and 'L' the superintendent /sic./ of the Armory may exercise such supervision and control as may be necessary to prevent the filling up or obstruction of the canal bed of the river, and site for the county road.

In the use of the road authority to construct which along and over the property of the United States is hereby conceded on the terms herein set forth, it is expressly, stipulated that the cars of the said company shall not be left standing on the track in front of the work shops of the Armory so as to obstruct the light and air.

It is further stipulated that should the said company deem it their interest to use wood instead of stone coal as the fuel of thier /sic./ engines and damage should be done thereby to the property of the United States, the said company will become the insurers, and will be answerable and responsible for the same.

In testimony whereof and for the

/12/

Purpose of granting to the said company the privileges aforesaid upon the terms aforesaid. Joel R. Poinsett, Secretary of War of the United States hath hereto set his hand and for the purpose of signifying the assent of the said company to the said terms and binding them to the fullfilment /sic./ thereof Louis McLane the president of the said company hith hereto set his hand and caused the corporate seal of the said company to be affixed hereunto.

Dated this fifth day of November in the year eighteen hundred and thirty-eight.

J. R. Poinsett

Louis McLane

/SEAL/

/BALTIMORE
AND
Ohio R.R./

Witness to signature of Louis McLane
Jno H. B. Latrobe

Witness to signature of J. R. Poinsett
Jno. T. Cochrane "

United States of America)
) S. S.
District of West Virginia)
)

I, Jasper G. Moore, Clerk of the District Court of the United States for the District of West Virginia, do certify that the foregoing is a true copy of the record in the case of the United States of America & others against the Baltimore & Ohio Rail Road, Company, lately depending in said Court at Wheeling in said District, Except the Evidence in said cause and the Photographic Map used at the sale of the said Harpers Ferry property.

In testimony whereof I hereto set my hand and the Seal of said District

Court at Wheeling in said District

this 8th day of May A.D. 1876

and in the 100th year of the Independence of

the United States of America.

Jasper G. Moore, Clerk

D.C. U.S D. W.Va.

APPENDIX NO. 2

ESSAY ON MAJOR JOHN SYMINGTON AS ARCHITECT AT THE HARPER"S FERRY ARMORY, 1844 - 1851

by

Charles W. Snell

Major John Symington as an Architect:

Major John Symington continued that practice that had been instituted by Major Henry K. Craig, namely, of insisting that the new buildings being erected at the Musket and Rifle Factories be constructed of the best materials and of the finest workmanship . Thus the 14 major workshops and storehouses designed by Superintendent Symington from 1845 to 1851 had excellent stone foundations of mortar masonry; their solid upper walls were built of brick and were trimmed with cut-stone water table, window and door sills, and coping. The door and window frames were generally of cast-iron. The gable roofs of these structures were covered with either slate or sheet iron to lessen the danger from fire. The shops were also protected by lightning rods and roofs had copper gutters and down spouts. The exterior brick walls were also painted with two coats of oil paint and the edifices were heated by means of cost-iron coal stoves and tin and sheet iron stove pipes.

Symington applied an uniform architectural style to the exterior of his workshops and storehouses, thus rendering these structures impressive. He further used a basic floor plan that he used, with variations, in designing eight of his largest new workshops. His standard plan was for a rectangular-shaped edifice that was subdivided into three sections consisting of a center and two flanking wings. Each section had a gable roof, but the roof of the center building was set at right angles to the gable roofs of the two wings, and the center section also often projected to the rear. The plan was flexible as to length, width, and height.

Symington's three-part structures varied length from 60 to 280 feet and in the width of the wings from 35½ to 36 feet. The number of stories in these three-part buildings also varied as follows: All three-sections of Musket Factory Blg. No. 14 and Rifle Factory Bldgs. No. 5 and 6 were one-story in

heights. Musket Factory Bldgs. No. 8 and 13 had two-story center sections with flanking one-story wings. Finally, Musket Factory Bldg. No. 6 and Rifle Factory Bldg. No. 3 were two-stories in height in all three sections.

The exteriors of these eight- three-part buildings as well as those of the six that he designed on a simpler rectangular floor plan were treated architectural in the same manner . The gable ends of all these edifices as well as the front and rear gables of the centers of the three-part structures were adorned with brick parapet walls that were crenelated, capped with cut-stone coping, and that rose above the level of the ridges of the roofs.

The first stories of all these Symington-designed buildings were subdivided into arcaded bays. Each bay was comprised of a round arch that was supported by capped brick pilasters. Recessed within each bay was a brick panel that usually contained either a round-arched window or door. The second stories of the two-story edifices were subdivided in rectangular bays with flat arches which were also set between brick pilasters, Recessed within each of these bays was a brick panel that contained a window that was topped with a flat arch.

All of the later major structures to be erected at the U.S. Musket and Rifle Factories at Harpers Ferry from 1852 to 1861 were to be designed in this same architectural style.

At the Musket Factory, Major Symington designed and constructed 10 major and one minor buildings. At the Rifle Factory he designed four major shops, erected three of them, and also built one minor edifice.

From July 1, 1845 to December 31,1851, Major John Symington was to spend a total of $ 384,153.24 for repairs and improvements at the Harper's Ferry Armory. Of this sum about $ 200,321 was expended at the Musket Factory and approximately $ 189,851 was for buildings and the balance for the armory canal and dam. About $ 83,095 was spent for improvements at the Rifle Factory, of this $ 81,550 was for buildings and grounds and the remainder for the Shenandoah canal and dam. Expenditures on the two canals came to $ 9,110, on the two dams, $ 2,500, and $ 34,995 was spent on Armory dwelling houses. A total of 27 buildings were added to the Armory rolls by Symington, 19 by construction and eight by purchase.

At the Musket Factory, Symington designed and constructed 11 workshops and storehouses, 10 of them major, and one of them, minor structures. He also remodelled two of the old pre-1842 buildings at the Musket Factory for continued use.

At the Rifle Factory Superintendent Symington designed and constructed three major and one minor structures, and he also prepared the plans for a fourth important workshop that was constructed after he had left.

Finally, he designed and erected two large dwellings houses for the Commanding Officer and Paymaster at a cost of $ 21,709, also buillt one stable for the armory, one market house for the town, and acquired eight well-built dwelling houses for use as residences for the armory officers and workmen.

APPENDIX NO. 3

CONSTRUCTION DATA ON WORKSHOPS AND STOREHOUSES ERECTED AT THE U.S. MUSKET FACTORY AND U.S. RIFLE FACTORY, HARPER'S FERRY ARMORY, VIRGINIA, 1842 - 1851

US. MUSKET FACTORY AT HARPER'S FERRY, VIRGINIA, 1842 - 1851

BUILDINGS	Cubic Yards Excavation: Earth-Rock	Perches of Mortar Stone Masonry	Perches of Dry Wall	Superfisal Ft. Hammered Stone Wall	Lineal Feet of Cut Stone	No. of bricks used in walls	perches of grouted wall	cubic yards of embankment	feet of brick cornice	Paving, square yds. Flagstone	Dates of Construction	Bldg. No.
ANNEALING FURNACE -BRASS FOUNDRY	1,645	1,079	0	574	667	1 story- 165,840	0	0	158	20	1851-52	14
TILT HAMMER SHOP FOR BARREL WELDING	5,834 17/27	21/25 2,605	552 19/25	2,793 3/12	1,092	1 story- 225,166	0	1,040 (fill)	380	793	1849-51	9
Boring Mill	824	678 7/25	321 6/25	0	1,675 6/12	2 storys- 215,258	20½	0	0	0	1843-44	5
POLISHING SHOP	26	16	0	0	96 6/12	2 storys- 47,716	0	0	45	0	1849-50	4
Engine and Guard House			0			Brick-1 story			70½		1847-48	1
Charcoal House	115 23/27	162 3/25	0			Brick , 1-story					1845-46	16
Lumber House	1st story and foundation	of stone			306	47,642 - 2nd story,	1st story of stone			207 2/9	1848-49	10
Grinding, Saw & Planning Mill	1,088	842 9/25	139 2/25	728 9/12	850 9/12	2 story center 156,405	, 2 one-story wings		207	Remodelled 1860-61	1850-51	8
Office Building						Brick-remodelled	1story wing 2 story	Bilt.1808-09 as Supt.'s residence, enlarged 1828-29			Remodelled 1847-48	2
Proof House	735 8/9	432 3/4	0	0	475	115,297 -2 storys					1843-44	15
Rolling Mill		yes	300			brick- 1 story	16½ ft high yes			yes	1853-54	18
Smiths Shop	2,363 8/27	2,147	0	1,963	1,309 8/12	347,640 2-story	center, 2 one-story wings				1845-48	13
Stock House & Millwright Shop	1,402 ½	555	0	810	608 5/12	161,309 2 story				Remodelled 1859-60	1846-47	7
New Stock & Store House						brick - 2 story					1854-55	11
Stocking & Machine Shop	480 26/27	550 9/25	0	1,168 5/12	934 1/12	355,604 - 2 storys					1847-50	6
Warehouse	0	102	1,063 2/25		3,120	168,072 -2 storys		2,699½ fill	in 1849----->	269½	1841-44	12
Coal Bins	0	124	380 9/25		188 8/12	0 Under B.R. trestle		4,475 fill			1846-56	-
TOTALS	14,339 4/27	9,132 14/25	2,457 10/25	8,037 5/12	11,323 7/12	2,005,949+	20½	8,214½	583	1,000 2/9	1842-51	-
Bldg. 21	258	260			266	90,000 2 stories -		-	-	-	1860-61	21
Bldg. 22	412 26/27	352 10/25			334	215,000 2 story plus tower		-	-	-	1860-61	22
Stables	115 23/27	162 3/25			70½	brick- 1 story	plus loft				1847-48	-
Bell or Finishing Shop						brick. 2 -storys				remodelled 1849-50	1809-11 1824,1839 1849-50	3

U.S. MUSKET FACTORY AT HARPER'S FERRY, VIRGINIA, 1842-1851

Buildings	Copper gutters & spouts, ft.	Slate Roofs sq. ft	Sheet Iron Roofs	Sash	Windows	Doors	Flooring	framing of roof, feet	Plastering, square yards	Lightning Rods, 1851	Probable Cost
Annealing Furnace Brass Foundry	Yes	Probably		3 ventilators, wood	Wood frames 20	wood frames 4	brick	5,207½		probably	9,550.00
Tilt Hammer-Barrel Welding	380-G 114.S	13,375	-	1,726 sq.s. 988 circ.s.	iron frames	Iron fames 2	Flagstone	11,139		4 points	43,370.00
Boring Mill	771 G 199 S	7,381	-		wood frames	wood frames	wood		1,825 1/9	3 points	10,500.00
Polishing Shop	28 G	2,042	-		wood frames	wood frames	wood		80		1,700.00
Engine and Guard House	copper	slate	-		wood frames	wood frames	brick				(1,540.00)
Charcoal House	18' 10"G 33' 8" S	-	1,352	720 sq. 78 circ.	iron frames	iron frames	wood 1,056				1,200.00
Lumber House	Yes	4,815	-		wood frames & blinds	wood frames	Flag stone 1s wood- 2nd			2 points	5,695.00
Grinding, Saw & Planing Mill	216 g 120-S, 8-H	4,806	-	1,296 sq 624 cir.	iron frames	iron frames	wood	10,415		4 points	11,630.00
Office	Yes, in 1841	slated, 1841	-		wood frames	wood frames	wood	new wood front porch		2 points	(850.00)
Proof House	copper	-	3,511		wood frames & 10 blinds, 1850	wood frames	wood		675 8/9		2,500.00
Stock House & Millwright Shop	200-G 116-S, 4-H	-	3,781		iron frames	iron frames	wood			2 points	17,541.00
Stock & Stores	copper	slate			iron frames	iron frames	wood			probably	(8,000.00)
Stocking-Machine	393 ft.	-	6,180		iron frames	iron frames	wood			3 points	26,150.00
Warehouse	copper	3,920	-		wood frames	wood frames	4,008 ft. oak		939	2 points	7,200.00
Coal Bins	-	-	-		-	-	-	-	-	no	3,079.00
Smiths Shop	328-G 95 -S	-	6,374	ventilator-wood, 243 ft	iron frames	iron frames	1853 brick-stone	Sheet iron floor originally	295	8 points	23,600.00
Totals	1,941-G 677-S	36,339	21,198					26,761½	3,815		174,105.00
Bldg. 21		2,900	-	600 ft. glass	iron frames	iron frames	wood			yes	(5,951.00)
Stable	copper	slate	-		wood frames	wood frames				no	(2,000.00)
Bldg. 22	150 ft	1,800	-	700 ft. glass	iron frames	iron frames	wood			yes	(8,073.00)
Bell Shop	yes-1849	yes, 1825	-		wood frames	wood frames	wood			2 points	alterations 5,475.00
Rolling Mill	copper	slate	-		iron frames	iron frames	flag-stone			probably	(12,532.00)

$ 215,086.00

U.S. RIFLE FACTORY, HARPERS FERRY, VIRGINIA, 1842-1851

BUILDINGS	Cubic Yards Excavation-Earth-Rock	Perches of Mortar Stone Masonry	Perches of Dry Wall	Superfiscal Ft Hammered Stone wall	Lineal feet of Cut stone	Number of brick in walls	Perches of grouted wall	cubic yards embankment	feet of brick cornice	Paving	Const. Dates	Bldg No.
Annealing Furnace -Proof House	259 8/27	203 14/25	0	0	367 11/12	98,883 1 story	-	-	118 10/12	-	1851-52	5
Barrel Drilling & Finishing Shop		yes			yes	Brick, 2 story plus tower					1859-60	9
Coal House		yes			Yes	Brick - 1 story-15 ft.high.					1853-5	7
Filers Shop	851	58	86	0	147 7/12+	37,291 1st story-stone 2nd story-brick					1843-44	1
Finishing & Machine Shop	1,150 9/27	555	351 19/25	0	yes	brick- 2 story		214 3/27-puddling			1847-48	3
Engine House					0	Wooden, probably 1 story					1843	0
Machine Shop		yes	yes		yes	brick-2 story					1852-53	6
Stock House		876			no	2 story stone-remodelled		Built as smiths shop in 1819, remodelled in 1854.			1854	8
Store House					no	remodelled - 2 story, stone		Built ca. 1826 as Hall's Office and storehouse. Remodelled		brick	1853	10
Tilt Hammer & Smiths Shop.	1,728 21/27	1,545 20/25	275 5/25	2,330	809 9/12	139,239	71 17/25	60 18/27 ~~364 10/27 641~~	175	275 sq.yds.	1849-51	4
Proof House					no	wood & stone, 1 story					1845	2
TOTALS	3,989 9/27	2,362 9/25	712 24/25	2,330	1,323 3/12+	275,413+	71 17/25	638 21/27	175	275	1842-51	-

U.S. RIFLE FACTORY BUILDINGS, HARPER'S FERRY, VIRGINIA, 1842-51

BUILDINGS	Copper Gutters-spouts	slate roof, feet	sheet iron roofs	sash	window frames	door frames	flooring	framing roof, feet	plastering	Lightning rods, 1851	Probable Cost
Annealing Furnace & Proof House	Yes	Probably slate	-	2 ventilators 130 clr.	shutters and blinds 16 wood	4 wood	brick	2,302		probably	5,100.00
Barrel Drilling &Finishing Shop	Yes	slate	-		cast iron	cast iron	wood			probably	(15,820.00
Coal House	yes	0	iron		wood	wood	probably wood			no	($ 650.00)
Filers Shop	yes	slate			wood	wood	wood		ceilings plastered		1,000.00
Finishing & Machine Shop	yes	0	iron	838 sash	cast iron	cast iron	wood			4 points	26,880.00
Engine House		slate			wood	wood	wood				
Machine Shop	yes	Probably	-		cast iron	cast iron	wood			probably	(16,980.00)
Bldg. 8 Store House	probably	ca.1829 slate	-		wood	wood	wood		Orig.Cost- 18 about $ 1,000	9 no	remodeled ($ 450.00)
Tilt Hammer & Smiths Shop	172-G 79-S	5,286	-	3 ventilators wood	cast iron	cast iron	brick 4,378 ft	4,875		3 points	22,100.00
Proof House	probably	slate	-		wood	wood	wood				(750.00)
TOTALS		6,100									90,180.00
Bldg. 10 Store House	probably	slate	-		wood	wood	wood	remodelled		no	(450.00)

APPENDIX 4

SEE MAP NO. 6 for 1885 Survey Map.
page 364.

National Archives Record
Group No. 121-Public
Buildings Service- Entry
75, Tray No. 2.
Washington, D.C.

The United States of America to Thomas H. Savery: 72 acres.

Survey of "Potomac Property" [U.S. Musket Factory Grounds] at Harpers Ferry, W. Va., by S. Howell Brown, S., J.C., March 28,1885.

Beginning at a point on the bank of the Potomac River at the corner of one of the Wager Lot Reservations in line with the stone wall at the lower end of the Armory Yard (see Fig. 1 in the plat hereto annexed) running thence with the stone wall, S 43° W 4.8 poles to an angle in said wall(fig.2) thence continuing with the wall in part, following along the north line of Shenandoah Street S 51° 45" W 9.8 poles to the corner of the Armory Yard wall at Potomac Street, being at the line of the Wager Six Acre Reservation (fig. 3) thence along the southwest side of wall, with said Potomac Street, N 49° 15 ' W 33.9 poles to an angle in the same (fig. 4) thence N 45° 15' W 32.3 poles to another angle (fig. 5) thence N 43° W 41.6 poles to the west side of the upper column on the said wall (fig. 6) thence crossing Potomac Street and running with the line of a lot [the Bluff Lot] sold by the United States to Alexander Murphy S 45° W 16.7 poles to a stone in the north line of Ridge Street (fig. 7) thence with said line N 76° 30' W 17 poles to a stone at the intersection of the same with the east line of Lancaster Street(fig. 8) thence with it, N 13° 30' E 8 poles to a stone at the terminons of said street (fig 9) thence with the back line of the Seminary[school] Lot and of Blocks U,T, and S N 76° 30' W 66.5 poles to a stone (fig.10) thence again with the rear line of Blocks S and R N 74° 30' W 42.9 poles to a stone at the east line of Taylor Street (fig. 11) thence extending said line N 15° 30' E 2 poles to a s tone (Fig. 12) thence following the street lines N 26° W 3.5 poles to a stone (Fig. 13) thence N 16° 30' W 3.8 poles to a stone in a ravine at the east line of Putnam Street (Fig. 14) thence with said line N 30° 30' E 16 poles to the Baltimore and Ohio Railroad at the east end of the culvert wall (Fig. 15) thence along the railroad N 60° W 3 poles to a stone above the west side of the culvert wall, at the north line of Van Wert Street (Fig 16) thence with the said street lines S 70° W 5.3 poles to a pine tree (Fig. 17) thence N 80° W 8 poles to a stone (Fig. 18) thence N 70° W 13 poles to a stone (Fig. 19) thence

N 64° 30' W 9.5 poles to a stone (Fig. 20) thence N 57° 30' W 19.95 poles to a stone (Fig. 21) thence N 65° W 10.9 poles to a stone (Fig. 22) thence N 72° W 14.1 poles to a stone (Fig. 23) thence N 74° 30' W 26.1 pole to a stone at the east line of Cambridge Street (Fig. 24) thence extending said street line N 15° 30' E 6.5 poles to a stone at the termination of said street and the beginning of North Cliff Street (Fig. 25) thence following the north side of the last named street N 55° 30' E 11.3 poles to an iron bolt in a rock (Fig. 26) thence N 29° W 15 poles to a stone (Fig. 27) thence N 34° W 9 poles to a high rock (Fig. 28) thence N 51° 30' W 10 poles crossing a small stream of water in a deep ravine to a iron bolt in a rock just north of said stream, it being 5.7 poles above the face of the culvert, through which the streams passes under the Baltimore and Ohio Railroad (Fig. 29) thence N 38° 30' W 13 poles to a pine tree (fig. 30) thence N 65° 30' W 11 poles to a stone (Fig. 31), thence N 85° W 23.75 poles to a stone (Fig. 32) thence N. 77° 30' W 10.9 poles to a stone (Fig. 33) thence S 73° 15' W 11.8 poles to a stake (Fig. 34) thence S 60° 15' W 15.1 poles to a stone (Fig. 35) thence S 68° W 10.34 poles to a stone in the original Patent line, now the line of Samuel W. Strider (Fig. 36), thence with said line N 7° E 42 poles to a stone on the bank of the Potomac River (Fig. 37) thence down the river with the meanders thereof, following the color line on the Plat, embracing the Canal, wagon road, and Baltimore and Ohio Railroad, to the place of Beginning, containing 71 acres.*

Given under my hand the 28th day of March 1885.

S. Howell Brown S[urveyor] J[efferson] C[ounty].

* in a revised map prepared Dec. 10, 1885- Brown estimated the acreage at slightly more than 72 acres.

APPROPRIATIONS, 1842-1861, FOR REPAIRS AND IMPROVEMENTS, HARPER'S FERRY ARMORY.

Objects of Appropriations	U.S. STATUES AT LARGE	DATES OF APPROP.	AMOUNT
26. Repairs, improvements, and new machinery at Harper's Ferry Armory	5 Stat. 509	8/23/42	$ 30,000.00
27 Repairs, improvements and new machinery at Harper's Ferry armory.....	5 Stat.605	3/1/43	30,500.00
For fiscal year ending June 30, 1845:			
28. Repairs, improvements, and new machinery at Harper's Ferry Armory.....	5 Stat.698	6/17/44	12,000.00
FOR FISCAL YEAR, June 30,1846:			
29.Repairs and improvements and new machinery at Harper's Ferry Armory.....	5 Stat. 747	3/3/45	18,000.00
For 1847 fiscal year:			
30. Repairs, Improvements, and new machinery at Harper's Ferry Armory.....	9 Stat. 69	8/8/46	128,361.00
For 1848 fiscal year:			
31. Repair, improvement, and new machinery	9 Stat. 151	3/2/47	17,770.00
For 1849 fiscal year:			
32. Repairs, improvements, and new machinery	9 Stat. 306	8/14/48	53,091.00
For 1850 fiscal year:			
33. Repairs, improvements and new machinery	9 Stat. 372	3/3/49	62,680.00
34. Purchase of a lot of ground at Harper's Ferry contiguous to the public buildings	9 Stat. 372	3/3/49	200.00
For 1851 fiscal year:			
35. Repairs, improvements, and new machinery	9 Stat., 507	9/28/50	50,560.00
For 1852 fiscal year:			
36. Repairs, inprovements, and new machinery	9 Stat., 620	3/3/51	23,100.00
For 1853 fiscal year:			
37. Repairs, improvements, new machinery	10 Stat. 107	8/31/52	28,950.00
38. Damages at Harper's Ferry caused by flood of April 19 and 20,1852	10 Stat., 217	3/3/53	20,000.00
For 1854 fiscal year:			
39. Repairs, improvements, new machinery.	10 Stat., 217	3/3/53	43,500.00
			63,500.00

APPROPRIATIONS FOR REPAIRS AND IMPROVEMENTS, 1842 to 1861, Harper's Ferry Armory:

Purpose of Appropriations	U.S. STATUES AT LARGE	Date of Approp	AMOUNT
For 1855 fiscal year: 40: Repairs, Improvements, new machinery at Harper's Ferry Armory.....	10 Stat.578	8/5/54	$ 35,100.00
For 1856 fiscal year: 41: Repair, Improvements, new machinery	10 Stat 637	3/3/55	32,673.00
42. New Machinery	10 Stat 637	3/3/55	20,000.00
			$ 52,673.00
43. Purchase of lots and Improvements at Harper's Ferry Armory *(1) **For 1857 fiscal year: From proceeds of 1852 sale.**	11 Stat. 143	4/23/56	33,725.27*
44. Repairs, improvements, new machinery **For 1857 fiscal year.**	11 Stat.149	8/30/56	38,892.00
For 1858 fiscal year: 45. Repair, improvements, new machinery	11 Stat. 203	3/3/57	34,970.00
For 1859 fiscal year: 46. Repair.improvements, new machinery	11 Stat. 335	6/12/58	101,907.00
For 1860 fiscal year: 47. Repairs, improvments, new machinery	11 Stat. 433	3/3/59	55,000.00
For 1861 fiscal year: 48.Repairs and improvements	12 Stat 66	6/12/60	65,500.00
For 1862 fiscal year: ** 49. Repairs, improvments, new machinery at narper's Ferry Armory	12 Stat. 202	3/2/61	$ 64,500.00

** Confederate troops seized the narpers Ferry Armory on April 19, 1861.

(1)* Item 43 was not an appropriation, but authorized the Armory to use $ 33,725.27 collected from the 1852 sale of public lots and houses at Harper's Ferry to make programed repairs and improvements in the town.

Total Appropriated, 1842-61:	$ 967,194.00
Moneys from land sales, 1856	33,725.27
Total available:	$ 1,000,919.27

Actual amount of money from the proceeds of the 1852 sale made available for improvements by the Secretary of War on June 28, 1856, was $ 36,606.70, so the total amount of money available for Repairs and Improvements, 1842-1861 was $ 1,003,800.70 .

MAP NO 1

"MAP Shewing the Routes surveyed for the BALT. & OHIO RAIL ROAD along the public grounds on the Potomac, at & above Harper's Ferry upon which the Company have applied to Government for permission to locate and construct their road. Scale: 400 feet = 1 inch. Signed Benj. H. Labrobe, Engineer of Location and Construction, Balt. & Ohio R.Rd.." No date, but prepared in 1837 and used to accompany an agreement between the U.S. and Railroad dated November 3,1838.

National Archives Record Group No. 121, Public Buildings Service, Harpers Ferry Laminated Material, Map No. 3. Drawer 5, Portifolia No. 6. Washington, D.C.

Section of map showing buildings of the U.S. Musket Factory on the Potomac:

Numbers added by author.

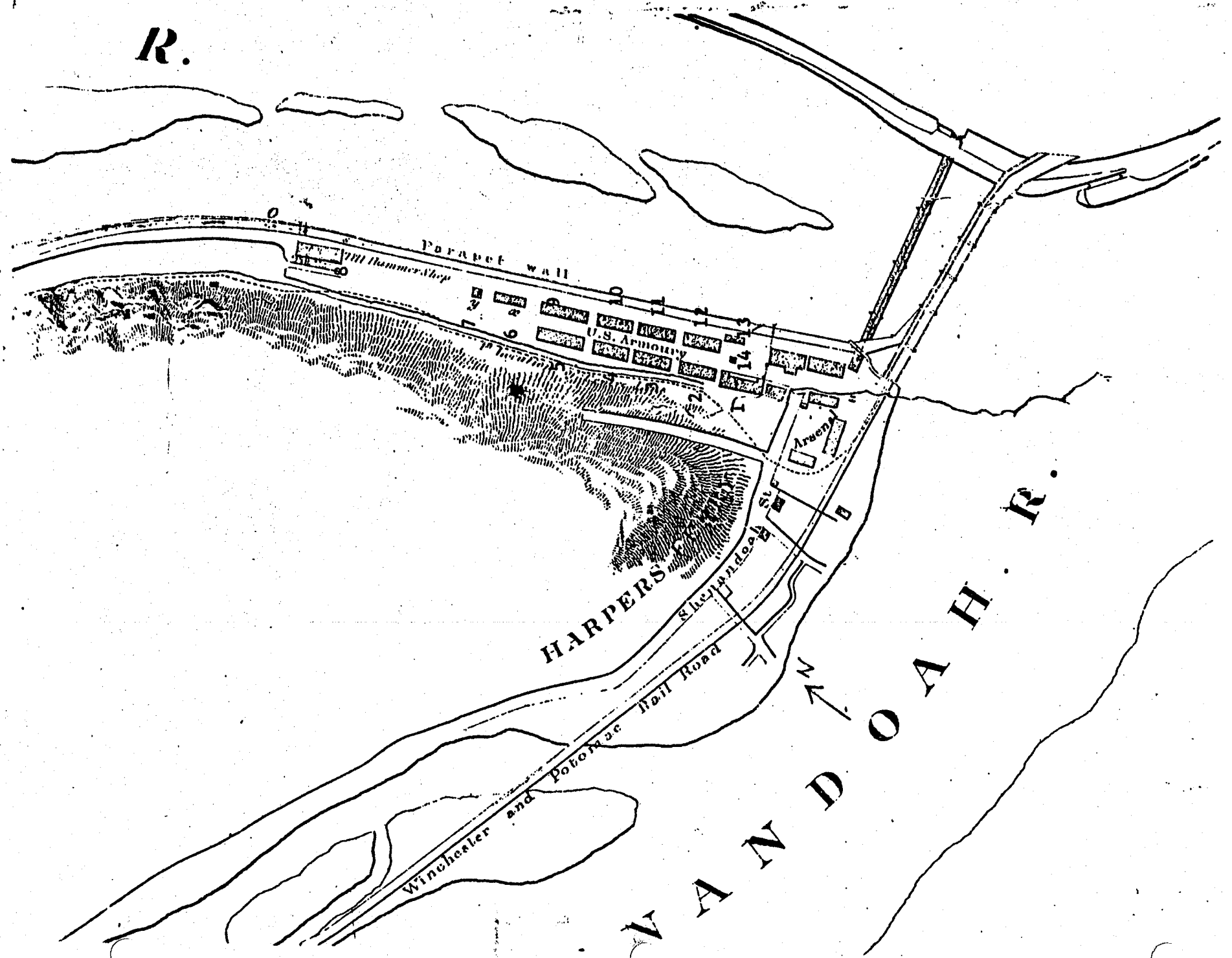
Musket Factory Bldgs.

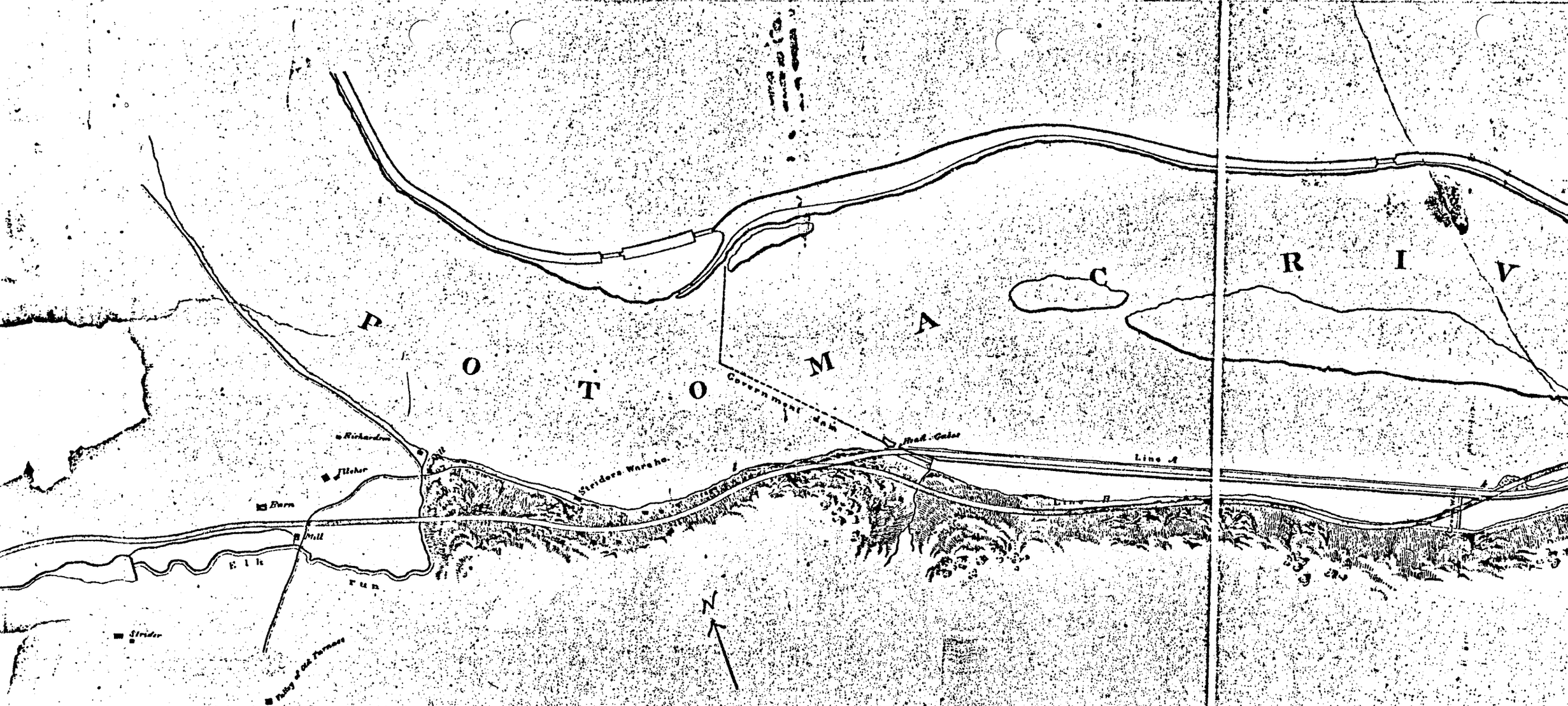
No. 1 Superintendent Rust's Residence. 1808-09.
No. 2 The Bell Shop , 1809-10. Water wheels & machinery
No. 3. Boring Mill,1799-1800,water wheels & machinery.
No. 4. Storehouse, 1799-1800. No water wheels or machinery.
No. 5, Stocking Shop,1808-09, water wheels and machinery.

No. 6. Store House for Stocks. 1832.
No. 7. Perhaps Store House for Charcoal,1828.
No. 8. Tilt Hammer and Forging Shop, erected 1834-38.
No. 9. Annealing Furnace and Proof House, 1834.
No. 10. Smith's Shop, 10 forges, erected 1808-09.
No. 11. Smiths's Shop, 16 forges, erected 1808-09.
No. 12. Smiths's Shop, 16 forges, erected 1808-09.
No. 13 Store House for Condemned Parts,1837 ? or Store House for Iron,1834?
No. 14. Capt. John H. Hall's Browning Shop.

Musket Factory Shops under Construction in 1837 included:

1. Store House for Condemned Parts, stone, 2 stories, 80 by 30 feet, with slate roof. Cost, $ 3,400.00
2. Forge for Scrap Iron, cost $ 5,000.00
3. Coal House at the Tilt Hammer Shop, 30 by 20 feet. 10 feet high, cost $ 650.00. Stone.
4. Polishing Shop
5. Tempering Shop
6-7. 2 Houses for Fire Engines.


R.
Parapet wall
U.S. Armoury
Arsenal
HARPERS FERRY
Shenandoah
Winchester and Potomac Rail Road
SHENANDOAH R.

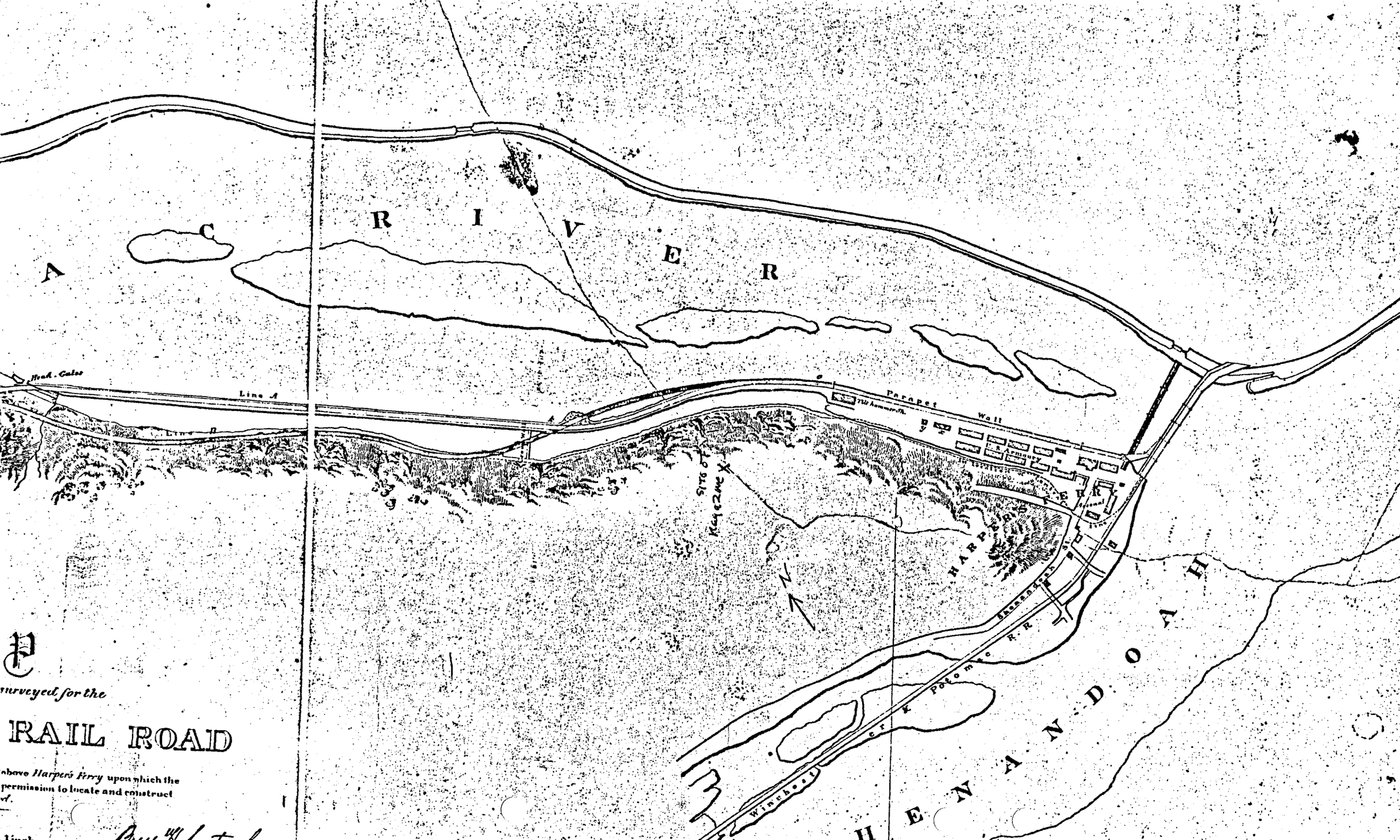


MAP

shewing the routes surveyed for the

BALT. & OHIO RAIL ROAD

along the public grounds on the Potomac, at ~~Babovo~~ *Harpers Ferry* upon which the Company have applied to Government, for permission to locate and construct *their road.*



P

urveyed for the

RAIL ROAD

above Harpers Ferry upon which the
permission to locate and construct
of.

MAP NO 2

"MAP of the Relative Position of the Reserved (Wager-owned Six Acre Reservation) Land & Public Works at HARPERS FERRY, VA., 1844." ((Copy prepared by Major John Symington, Superintendent of the Harper's Ferry Armory, March 22,1847).

National Archives Record Group 121, Public Buildings Service, Harpers Ferry Laminated Material(Drawer No. 5, Portfolio No. 1).

Section of Major Symington's detailed map.

Bldgs. in the U.S. Musket Factory, 1844

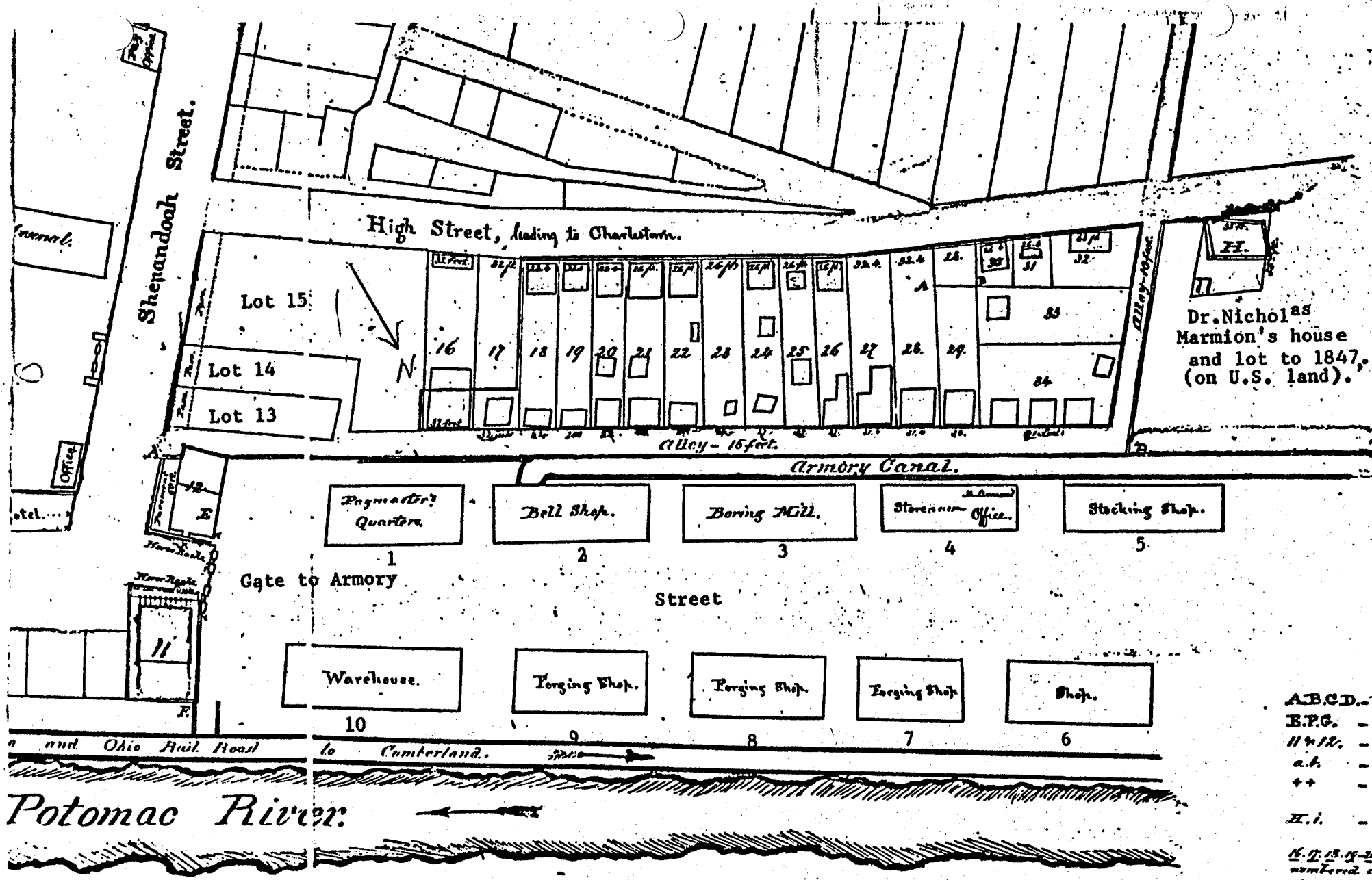
1. Paymaster's Quarters (Residence of the Superintendent 1808-09 to 1November 1844).

2. Bell Shop, erected 1809-10, water wheels and machinery. 131 by 45 feet, 2 story. brick.
3. Boring Mill, a new workshop erected in 1843-44 on the site of the 1799-1800 armory. Had water wheels and machinery. 122 by 42½ feet, 2 story brick.
4. Store House, also Master Armorer's Office. Old Smiths' shop erected in 1799-1800 but converted to use as a storehouse by 1821. No water wheels or machinery. 80 by 30 feet, 2 story brick.
5. Stocking House, erected in 1808-09, water wheels and machinery. 111 by 30 feet, 2 story, brick.
6. "Shop", Annealing Shop and Proof Shop, 1834. 125 by 45 feet, 1834.
7. Forging Shop., erected 1808-1809, 10 forges, 80 by 30 feet, 2 story brick.

8. Forging Shop, erected 1808-09, 16 forges, 120 by 30 feet, 2 story, brick.

9. Forging Shop, erected 1808-09, 16 forges, 130 by 30 feet, 2 story brick.

10. Warehouse, new, 1843-44, 93½ feet by 30 10/12 feet, 2 story, brick,for storing iron and steel,.



1844 MAP

A.B.C.D.–
E.F.G. –
11 & 12. –
a.b. –
++ –
H.i. –

/ Copy /

MAP NO. 3

MAP OF HARPER"S FERRY, VA.,prepared in Compliance with Letter to Major(John) Symington, April 22,1848," Drawn by S. Howell Brown, Surveyor, in 1848. Scale 165 feet to the inch. Original linen map, only existing copy.

Harpers Ferry National Historical Park Map Collection, Map No. 77.

On this map of great historical value, Brown shows and names the U.S. Armory buildings in the Musket Factory, the U.S. Rifle Factory, and the U.S. Arsenal. Location of springs, pumps, stables, woodyards, firehouses, schools, and churches are also indicated. In 1851 Major John Symington revised and updated the section of the 1848 map relating to the Island of Virginius. These revisions were made in red ink on the linen map in 1851.

The dates of construction given after the names of buildings have been added by the writer. The number and name of each structure, however, was placed on the map by Brown in 1848.

SECTION OF THE MAP SHOWING THE U.S. MUSKET FACTORY BUILDINGS:

Structures marked "old" by Brown appear on Maps No 4 (1834), No. 5 and 6 (1837), and No. 7 (1844), and thus help to determine of the use of the unmarked buildings on the earlier maps.

In 1837-1839, the original width of the Musket Factory yard was increased by approximately 70 feet by building two great stone river walls north into the Potomac and then filling in behind them with earth and stone .

The line of old(1799-1810) of workshops situated along the north bank of the Armory canal and also the general level of the Musket Factory yard was very low and the grounds and floors frequently overflowed during river freshets. In the general rebuilding of the Factory that got underway in 1845, the new workshops had high stone foundations and the ground level was considerably elevated by much filling and grading.

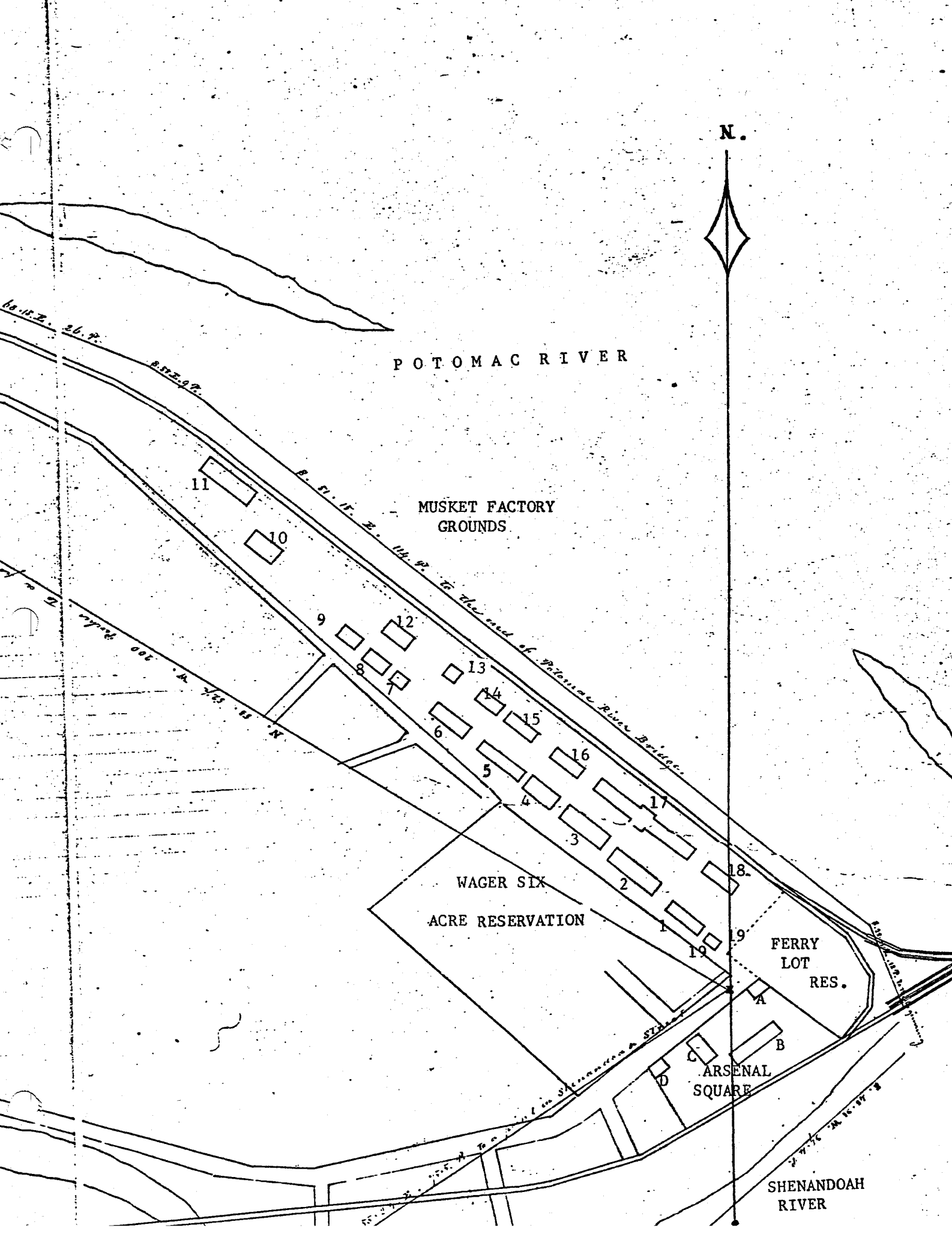
MAP NO. 3

LEGEND FOR S. HOWELL BROWN"S

MAP OF HARPER"S FERRY, 1848

U.S. MUSKET FACTORY
BUILDINGS-1848:

1. Offices (1808-09,remodelled in 1847-48).
2. Bell or Finishing Shop (1809-10).
3. Boring Mill (1843-44).
4. Stocking Shop - New (1846-47).
5. Stocking Shop - Old (1808-09).
6. Stock Store House- New (1846-47).
7. Carpenters Shop - Old (1834).
8. Machine Shop - Old (1834).
9. Grinding Mill - Old (1831).
10. Coal Bin and Lumber House (1848-49).
11. Barrel Welding and Tilt Hammer Shop (1834-38).
12. Stock Store House-Old (1832).
13. Charcoal House - New (1845-46).
14. Proof House - New (1843-44).
15. Annealing Furnace - Old (1834).
16. Smiths Shop - Old (1808-09).
17. Smiths Shop - New (1845-48).
18. Warehouse -New (for iron and steel,1843-44).
19. Engine and Guard House- New (1847-48).


N.
POTOMAC RIVER
MUSKET FACTORY GROUNDS
WAGER SIX ACRE RESERVATION
FERRY LOT RES.
ARSENAL SQUARE
SHENANDOAH RIVER
11
10
9
12
8
13
14
15
6
16
5
4
17
3
2
18
1
19
19
A
B
C
D

MAP NO. 4

MAP OF HARPERS FERRY , 1852

Prepared by S. Howell Brown,

Dated April ,1852 and approved by Secretary of

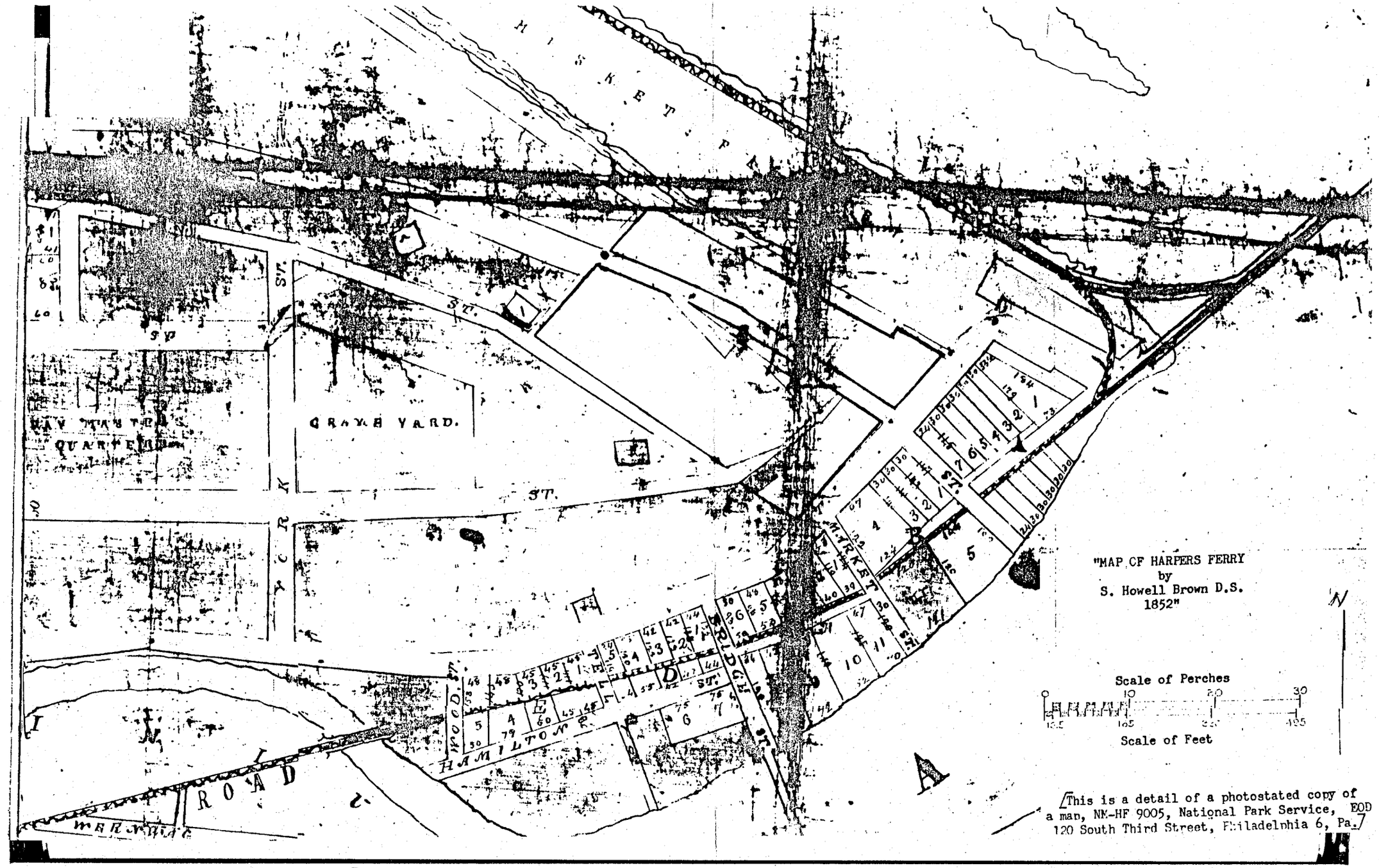
War Conrad on June 10,1852.

Brown prepared this plat, subdividing the U.S. land at Harper's Ferry, Virginia, into house lots for the public sale of U.S. land that was held August 31 and September 1 and 2, 1852. Brown was paid $ 340.00 on July 1,1852 "for 42½ days surveying and Dividing the U.S. land at Harper's Ferry into Lots & constructing 3 maps of the same, including the services of chain carriers, Paper for Maps, and stakes for corner of lots @ $ 8.00 per day."

This map illustrates the relationship of the Musket Factory's main entrance to the Wager Ferry Lot Reservation and Six Acre reservation in 1852.

Wager Lot 12 had been purchased by the Armory and included in the entrance to the Musket Factory. Wager Lot 11 (on bank of Potomac, on the other hand is still in private ownership and projects to help block the main entrance.

Note also how North Cliff Street(now called Potomac Street) has been widened through the Six Acre Reservation land to create a fire lane to a point near the junction of the street with Shenandoah Street. Here Wager Lot No. 13 is still in private ownership and projects to leave the 15-foot wide old alley at this original(1796) size.



This is a detail of a photostated copy of a map, NM-HF 9005, National Park Service, EOD 120 South Third Street, Philadelphia 6, Pa.

MAP NO. 5

MAP OF HARPER'S FERRY - Plate of Harper's Ferry Armory Property laid off into Lots for Sale in Pursant to the Act of December 15, 1868," Scale: 165 feet to inch.

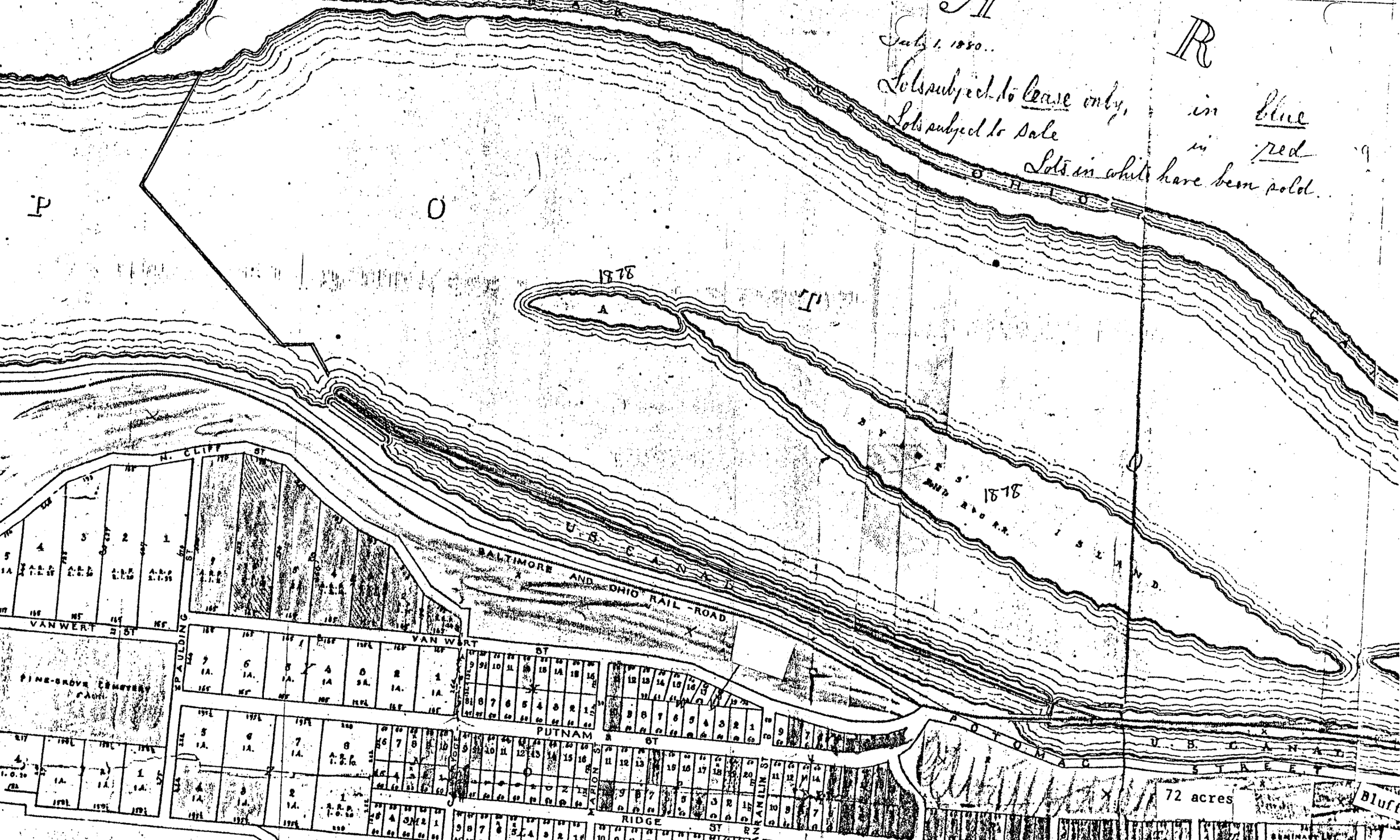
by

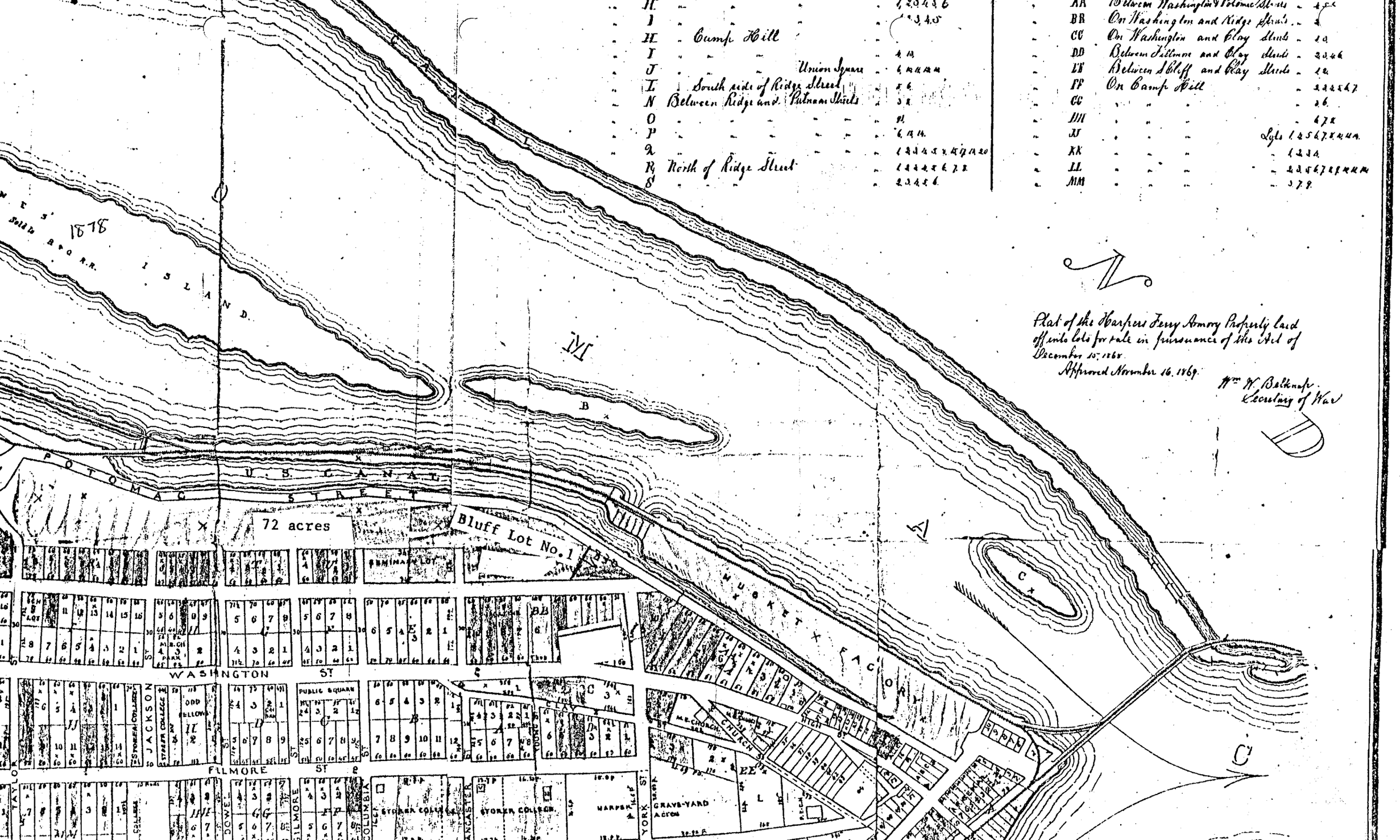
S. Howell Brown, November 1, 1869.

Approved by Secretary of War William W. Belknap, November 16, 1869

National Archives Record Group No. 121, Public Buildings Service, Entry 76, Deeds from the United States Ordnance Department, 2 vols., Washington, D.C.

This map shows the old U.S. Musket Factory dam across the the Potomac River but fails to include the partially completed new dam of 1859-60.


July 1. 1850.
Lots subject to lease only, in blue
Lots subject to sale in red
Lots in white have been sold.
1878
1878
N. CLIFF ST
VANWERT 2 ST
VAN WERT ST
PAULDING
PINE GROVE CEMETERY
BALTIMORE AND OHIO RAIL-ROAD
U. S. CANAL
PUTNAM ST
RIDGE ST
POTOMAC STREET
72 acres


Camp Hill
Union Square
South side of Ridge Street
Between Ridge and Putnam Streets
North of Ridge Street
Plat of the Harpers Ferry Armory Property laid off into lots for sale in pursuance of the Act of December 15, 1868.
Approved November 16, 1869.
Wm W. Belknap
Secretary of War
1878
POTOMAC STREET
U. S. CANAL
72 acres
Bluff Lot No. 1
MUSKET FACTORY
WASHINGTON ST
FILLMORE ST
JACKSON
PUBLIC SQUARE
STORER COLLEGE
GRAVE-YARD
MARPER
YORK ST
M.E. CHURCH
CHURCH
HIGH ST

MAP NO. 6

Survey of the "Potomac Property", U.S. Musket Factory at Harper's Ferry, W. Va., 71 Acres.

Prepared by S. Howell Brown, March 28, 1885.

Also shows old and new U.S. Armory Potomac Dams.

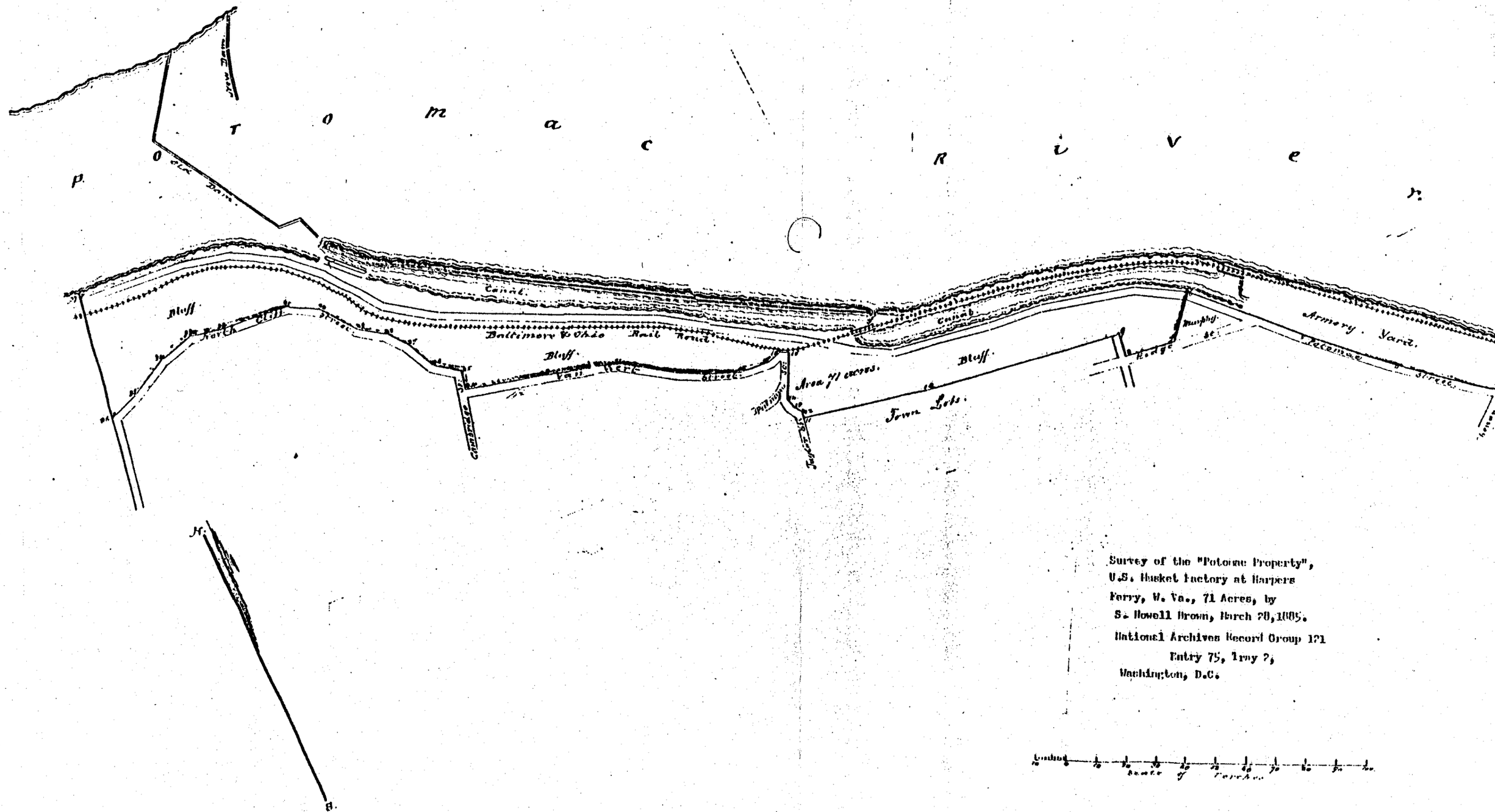
Show bounds of the property purchased by Thomas H. Savery from the U.S. on October 22,1884, for $ 25,100.

Brown recalculated the acreage as containing 72, not 71 acres, as written on the map.

The United States issued the deed to Savery for this property on April 12,1887.

National Archives Record Group 121, Public Buildings Service, Entry 75, Warrenty Deeds and Correspondence, 1796-1884, for for Public Lands of the U.S. Armory at Harpers Ferry,Va., Tray No. 2, of two trays. Washington, D.C.

For the written description of the boundaries of the Musket Factory property see Appendix No. 4, page 354.



Survey of the "Potomac Property",
U.S. Basket Factory at Harpers
Ferry, W. Va., 71 Acres, by
S. Howell Brown, March 20,1865.
National Archives Record Group 121
Entry 75, Tray 2,
Washington, D.C.

MAP NO. 7

Map No. 2- Sketch showing two practicable locations for the Balto. & Ohio R. Road through the village of Harper's Ferry, 1838

Scale 100 feet to inch. Ordnance Office, Drawer 5, Portfolio 1 No. 5, no date, but drawn in 1837-38.

Photostatic copy of this map received from Vicksburg NHP in 1958. Location of the original map is unknown.

Harpers Ferry National Historic Park Map No. 35, in Map Case Drawer No. 12.

Legend for Map No. 2 -1837-38 Sketch showing two practicable routes through the village of Harpers Ferry. (Legend prepared by Historican Charles W. Snell, 1981).

Numbered buildings owned by the U.S. Armory; lettered building owned by private individuals.

MUSKET FACTORY BUILDINGS, 1837-38

1. Superintendent's House, 1808-09. 2-story, brick.

2. Old Bell(Finishing or Turning) Shop, 1809-10, 2-story, brick, 131 by 45 feet. Projecting wing to south may be the Polishing Shop (24),erected 1837.

3, Old Boring Mill, 1799. 2-story, brick, 120 by 30 feet.

4. Store House and Master Armorer's Office, 1799, 2-story, brick, 80 by 30 feet.

5. Old Stocking Shop, 1808-09, 2-story, brick, 111 by 30 feet.

6. Additions to Old Stock Shop probably include: Shop for Half-Stocking Machinery, 1827-28, 2-story brick, 20 by 30 feet, plus 1837 addition.

7. Perhaps Fire Engine House, frame, 1837, or Tempering Shop, 1837.

8. Perhaps Fire Engine House, frame, 1837

9. Carpenters Shop, 1834, 1-story, stone.

10. Machine Shop, 1834, 1-story, stone.

11. Grinding Mill, 1831 , 1 -story, stone.

12. Coal House, 1837. One story (10 feet high, stone, 30 by 20 feet.

13. Tilt Hammer Shop for Barrel Welding, 1834-37. One-story, stone.

14. Waste Weir for U.S. Musket Factory Canal.

15. Probably Store House for Stocks, 1832. Stone, 65 by 30 feet. 1-story.

16. Perhaps Store House for Charcoal, 1829, frame, one-story.

17. Annealing Shop and Proof House, 1834, one-story, stone.

18. Smiths or Forging Shop, 1810-12, 2-story, brick, 80 by 30 feet. 10 forges.

19. Smiths or Forging Shop, 1808-09, 2-story brick, 120 by 30 feet. 16 forges.

20. Smiths or Forging Shop, 1808-09, 2-story, brick, 130 by 30 feet. 16 forges.

21. Perhaps Store House for Iron and Bin for Coal, 1834, brick, 1-story.

22. Perhaps Store House for Condemned Component Parts of Arms, Scraps, 1837-38, 2-story, stone, 80 by 30 feet.

23. Captain John H. Hall's Browning Shop,, 2-story, wood, 18 by 18.Office of Armory Superintendent, ca. 1817 to 1832.

Buildings on U.S. Arsenal Square

24. Large Arsenal, 1799-1800. 2-story, brick, 125 by 32 feet.

25. Ice House, probably frame, about 24 feet by 24 feet.

26. Small Arsenal, 1806-07, 2-story, brick, 68 by 36 feet.

Privately Owned Buildings on Wager Ferry Lot Reservation:

A. Lot No. 12 Occupied by two two-story brick stores, with dwellings on the upper floors . Northern structure 35 by 30 feet, building owned by Richard B. Doran and ground by Gerard B. Wager; Southern building, 25 by 30 feet. Building erected in 1831.

B. Lot No. 11. Two-story duplex building 40 by 40 feet, with two stores on first story and residences on the upper floors, built 1831-32.

C . Lot No. 10: Two-story stone house about 40 by 29 feet, built 1837-38, containing a story and dwelling, and, or a small frame building with two small shops dating from 1830. In 1843 Benjamin M. Snook's tinsmith shop was located in the wooden shop on Lot 10.

D. Lot No. 9. 2½ story stone house, 40 by 24 feet. Store and dwelling.

E. Lot No. 8. Vacant in 1837-38.

G. Lot No. 7. Three-story brick hotel, 14 rooms, built by James Foley, master carpenter, 1837-38 45 by 29 feet.

H. Lot No. 6: Three-story brick hotel , 14 rooms, built by James Foley, carpenter for Gerard B. Wager in 1837-38 , 45 by 29.

Buildings on G and H known as the U.S. Hotel in 1839, operated by James Foley.

I. Wager Lot No. 2, owned by Gerard B. Wager. Probably a small frame shop.

J. Wager Lots 4 and 5: Tavern - western half on Lot No. 5, a three-story brick Hotel, the National Hotel, erected by Samuel Gibson in 1834, also containing a store; eastern half on Lot No. 4, a two-story stone house built by the Wager family ca. 1825-30, owned by Gerard B. Wager.

K. Wager Lot No. 15. Old frame Harper's Ferry Hotel. Subdivision 1,2 3 of Lot 15.

L. Wager Lot No. 14, in part, service building for hotel?

M. Wager Lot 15 ,service building for hotel? Subdivision 2 or 3 of Lot 15.

N. Wager Lot 51, 2½ story brick building, shop and dwelling, 1832.

O. Wager Lot 15, two small frame shops, probably. Subdivision 1 of Lot 15.

P. Wager Lot 15, subdivision 4, Stable, possibly located on Wager Lot No. 16.

Occupied by Government

Work Shops

Tavern

Arsenal

Superintendant Health

Street

Wharf

Rail Road

Back Rd

Shamrock River

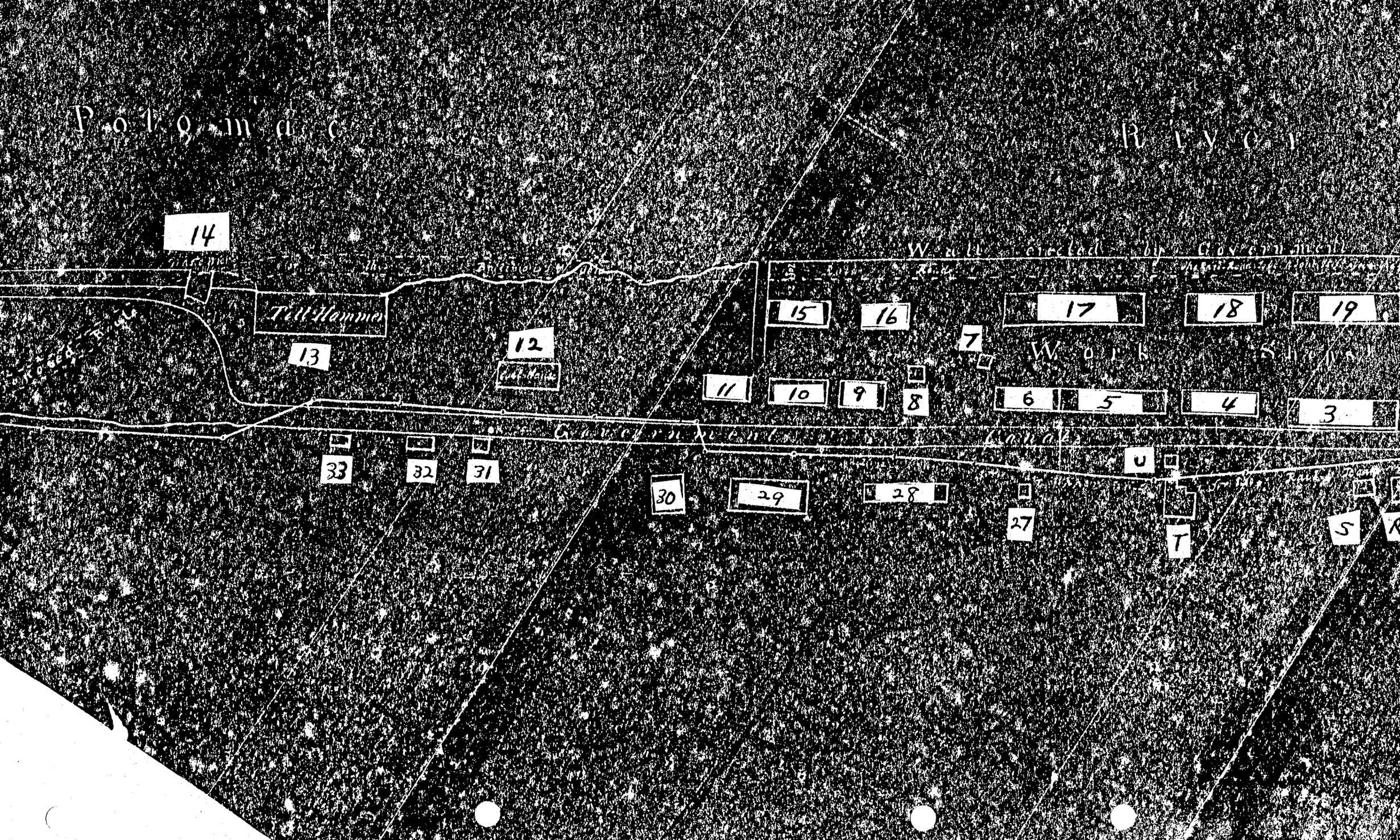
17 18 19 20 21 22 23

A B C D E F G H I J

1 2 3 4 5 6 7 8 9

K L M N O P R S T U

24 25 26 27


Potomac
River
14
Tell Hammer
13
12
Tell Hammer
15
16
17
18
19
7
Work Shops
11
10
9
8
6
5
4
3
33
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S

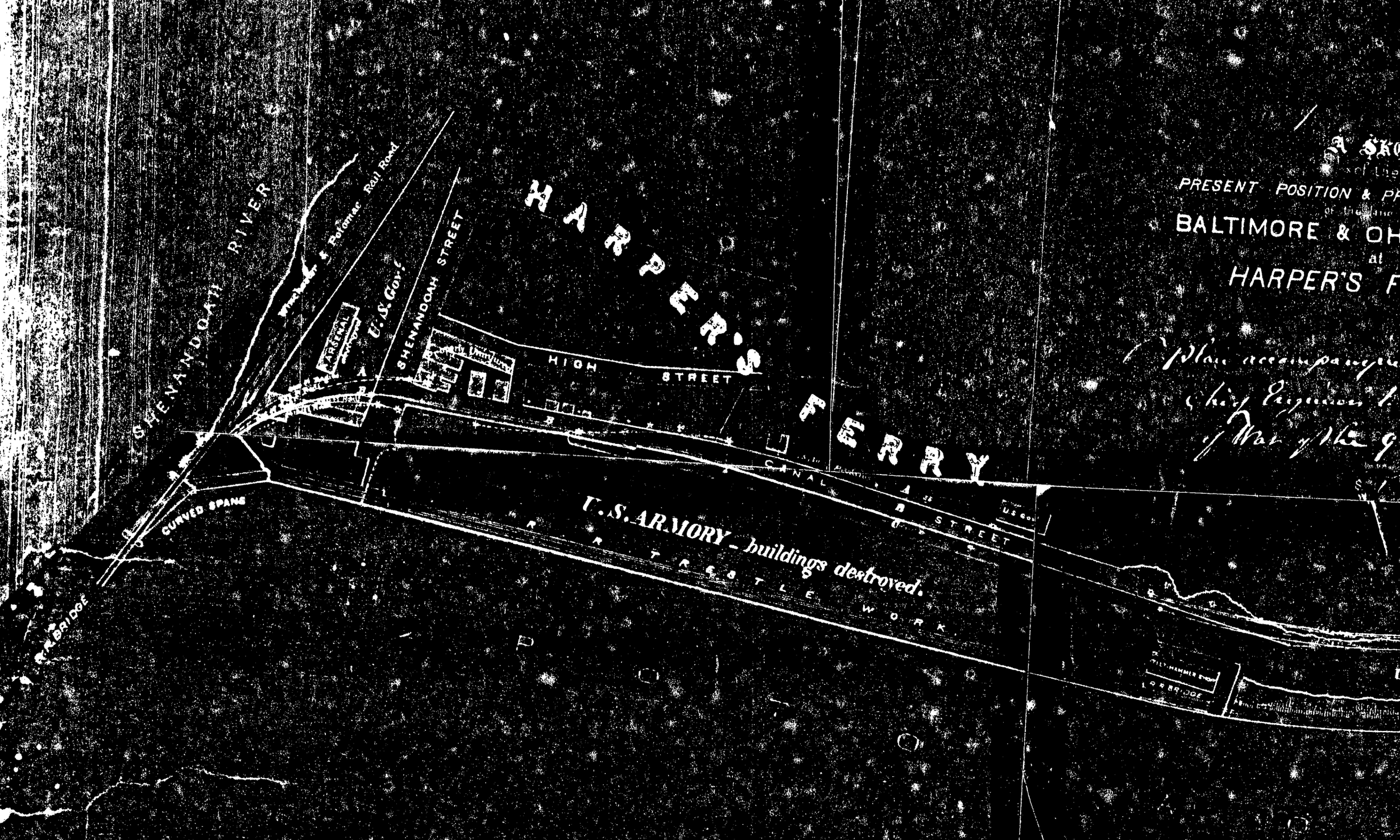
MAP NO. 8

A Sketch of the Present Position & Proposed Alteration of the line of the Baltimore & Ohio Railroad at Harper's Ferry. Plan accompanying letter of the Chief Engineer to the Secretary of War of the 9th of May 1866 . Richd. Dalafield, Bvt. Majr. General & Chief Engineer, U.S. A..

From National Archives, Washington, D.C. Record Group No. 77, Drawer 150, Sheet 74.

Harpers Ferry National Historical Park Map No. 36, Park Map Case, Frawer No. 12.

Map shows location of Large Arsenal(destroyed) on Arsenal Square, also of U.S. Musket Factory Tilt Hammer Shop (Actually the Rolling Mill),Bldg. No. 18; and of Bldg. No. 11, New Stock and Store House, the latter located on the south side of "Canal" (North Cliff or Potomac) Street.


HARPER'S FERRY
SHENANDOAH RIVER
Potomac Rail Road
U.S. Gov.t
ARSENAL
SHENANDOAH STREET
HIGH STREET
CANAL
B STREET
U.S. ARMORY - buildings destroyed.
TRESTLE WORK
CURVED SPANS
R.R. BRIDGE
PRESENT POSITION & PR
BALTIMORE & OH
HARPER'S F

MAP NO. 9

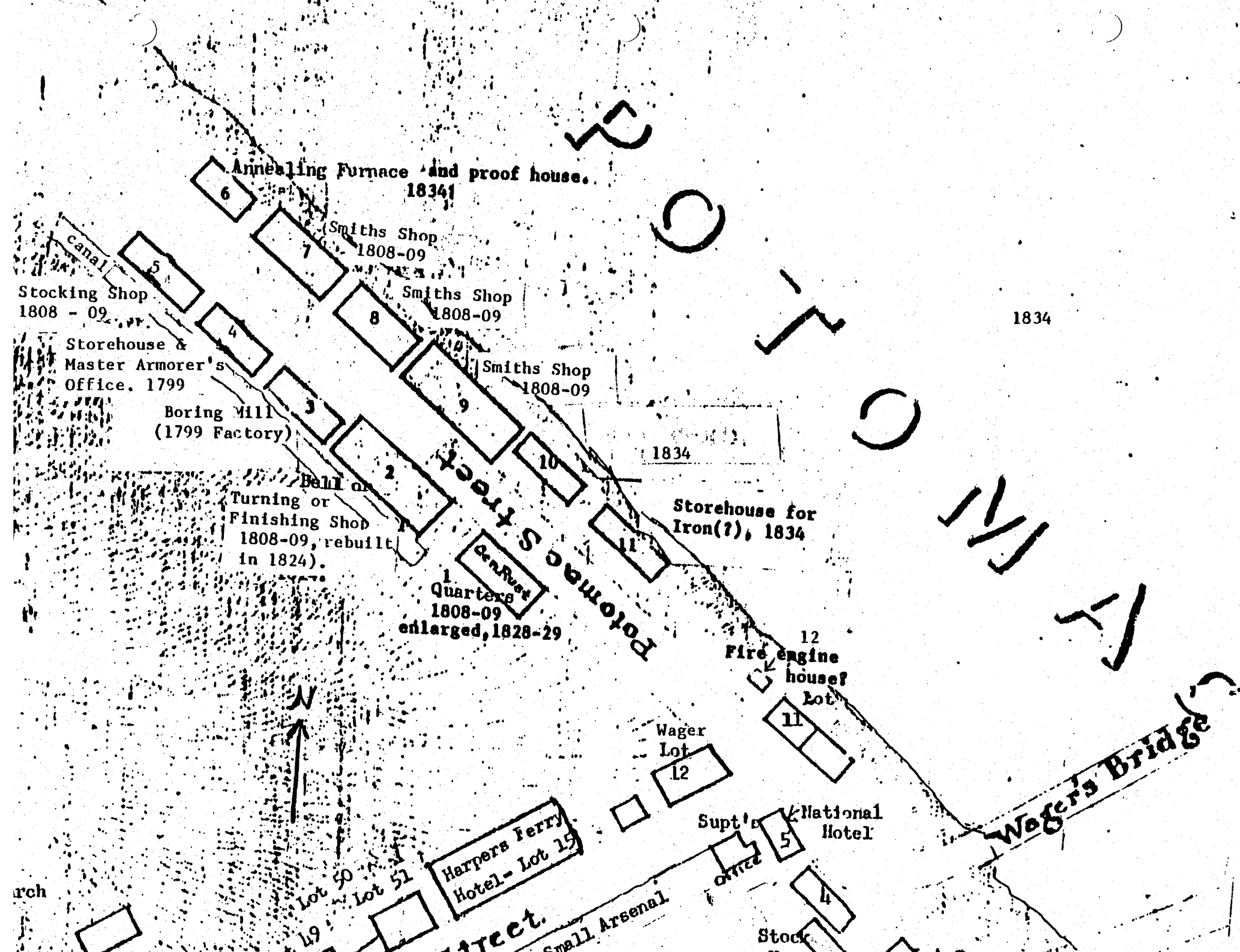
Map of Harper's Ferry Shewing the Location of the Winchester and Potomac Railroad, No. 2, Drawn by Lieuts. White, Allen, and R. S. Smith, U.S Army. Under the direction of James Kearney, Lt. Col. and T.E. Scale 100 feet to one inch. Approved by President Andrew Jackson, 27th January 1835.

National Archives Record Group 77, Records of the Office of the Chief of Engineers, Fortifications Map File, Drawer 150, Sheet 82, part 2, in Cartographic Division, National Archives, Washington ,D.C.

Data for this map was collected in 1834 and reflects conditions not later than October 1834.

Detail of section of map showing some of the shops and buildings in the U.S. Musket Factory along the Potomac River.

Of the Musket Factory Buildings shown on this map, only two - Bldg. No. 1, Superintendent George Rust, jr.'s Quarters, and the adjacent Bell (or Finishing or Turning) Shop, were still standing on April 18, 1861.


Annealing Furnace and proof house. 1834?
6
7
Smiths Shop 1808-09
canal
5
Stocking Shop 1808 - 09
Smiths Shop 1808-09
8
4
Storehouse & Master Armorer's Office. 1799
Smiths Shop 1808-09
9
3
Boring Mill (1799 Factory)
10
1834
2
Bell or Turning or Finishing Shop 1808-09, rebuilt in 1824).
Storehouse for Iron(?), 1834
11
Potomac Street
Canal
1 Quarters 1808-09 enlarged, 1828-29
12
Fire engine house? Lot
11
Wager Lot
12
Supt's
National Hotel
5
Harpers Ferry Hotel- Lot 15
Lot 50
Lot 51
49
Small Arsenal
4
Stock
Potomac Street
Wagers Bridge
N

MAP NO. 10

MAP AND PROFILE of a line surveyed for the BALTIMORE AND OHIO RAILROAD Ascending the Potomac Along the Tow Path of the Canal Belonging to the Government Works in HARPERS FERRY.

No scale and No date printed on map. Ca., 1837-40.

Signed in ink "Road Office B & O R.R. or W. N. Bolling, Engineer, B. &. O. R.R.
Dated Oct. 24th 1840

U.S. Department of Interior, National Park Service, Eastern Office of Design and Construction, Philadelphia, Pa. Map No. NM- HF- 9001.

This map is presented on page 260 of James P. Noffsinger's "Harpers Ferry, West Virginia, Contributions Towards a Physical History,"(November 1958), as showing conditions in Harpers Ferry on October 24, 1870(not 1840), "just after the flood of September 30,1870, which lasted two days and washed away the covered bridge belonging to the railroad." (The covered bridge belonging to the railroad had been blown up by the Confederates in June 1861).

A comparison of Map No. 9 with Railroad Maps No. 5 and 6 (drawn in 1837-38) pages 181 and 182 ,reveals that Map 9 is a more detailed drawing showing the same problems relating to a right of way through the U.S. Musket Factory grounds.

The U.S. Musket Factory buildings, the Wager (covered) toll bridge, and the B.&. O. R.R. Potomac Bridge are identical on all three maps.

Assuming that October 24th 1840 is the correct date, then Map No. 9 would have been a detailed, accurate, and up to date map that would have been highly useful to the B.&.O. engineers who were constructing a stone river wall along the front of the Musket Factory to carried the main line west.

Assuming that October 24th, 1870 is the correct date, then Map No. 9 was useless and outdated, having no relation to existing conditions. Everyone of the U.S. Musket Factory buildings shown on Map No. 9 had been demolished by the Armory during the years 1842-1851 and these old shops had been replaced by new and much larger workshops. The new workshops were burned by the Confederates in June 1861, but the ruined brick and stone walls of most of these structures were still standing in 1870. None of these1842-51 buildings are shown on Map No. 9. There was also only one iron combination railroad- toll bridge over the Potomac in 1870 and this structure does not appear on Map No. 9.

For these reasons it is suggested that Map No. 9 was drawn ca. 1840 rather than 1870.

Legend for Map No. 10 (Prepared by Charles W. Snell, 1981)

10. Not known.

9. Coal House, 1837.

8. Tilt Hammer Shop for Barrel Welding, 1834-37.

7. Probaby Charcoal House, 1828.

6. Probably Store House for Stocks, 1832.

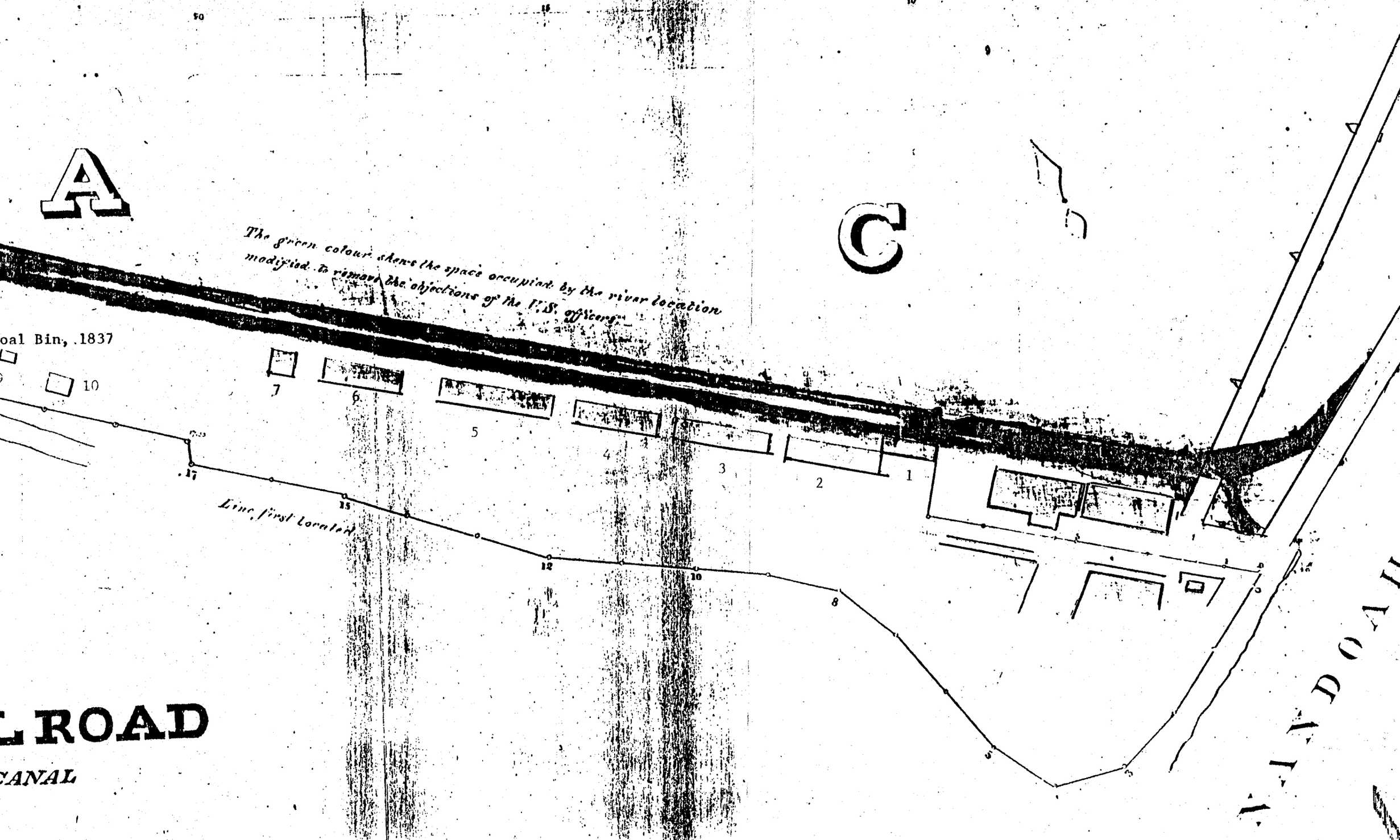
5. Annealing Shop and Proof House, 1834.

4. Smiths Shop, 1810, 80 by 30 feet.

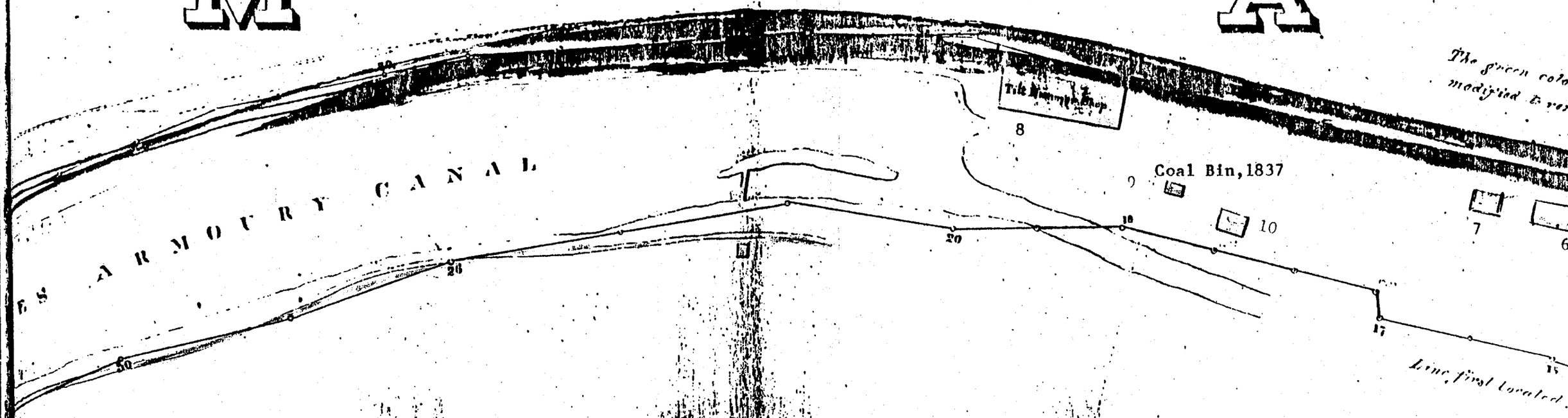
3. Smiths Shop, 1809, 120 by 30 feet.

2. Smiths Shop, 1809, 130 by 30 feet.

1. Perhaps the Store House for Iron, 1834.


A
C
The green colour shews the space occupied by the river location modified. To remove the objections of the U.S. Officers
oal Bin, .1837
10
7
6
5
4
3
2
1
17
15
12
10
8
Line, first Located
L ROAD
CANAL

M A



MAP AND PROFILE

of a

line surveyed for the

BALTIMORE AND OHIO RAIL ROAD

ASCENDING THE POTOMAC ALONG THE TOW PATH OF THE CANAL

Belonging to the Government Works in

MAP NO. 11

1844

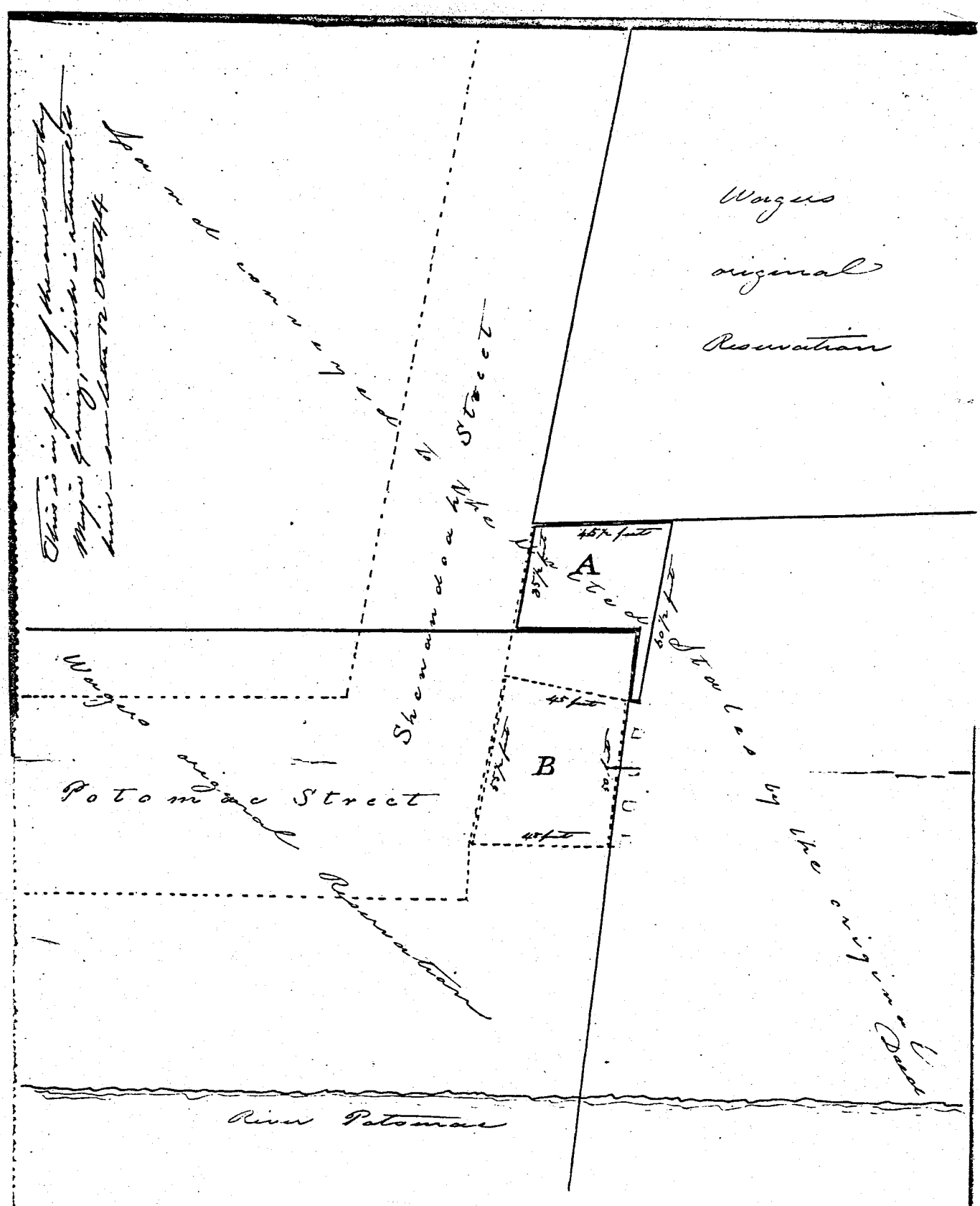
"Plat of Land to be Exchanged by the United States and the Wager Family at the Junction of Potomac and Shenandoah Streets, Harpers Ferry, Va.," September 9, 1844. Plan prepared by Major Henry K. Craig, Superintendent of the Harper's Ferry Armory

From National Archives, Washington, D.C.. Record Group 156, Ordnance Department, Letter Received, C-139, September 9, 1844. Harpers Ferry National Historic Park Map No. 68, Park Map Case, Drawer No. 4.

This plat illustrates an unexecuted plan developed by Major Henry K. Craig to improve the main (lower or east) entrance to the U.S. Musket Factory by giving Lot A (Part of Wager Lot 12 and the 15 foot wide alley between Lots 12 and 13) to the Wager family in exchange for Lot B, which included the northern part of Lot No. 12 and the extant street leading into the Musket Factory Yard.

This plan, if carried out, would have have widened the exisiting narrow street leading to the Musket Factory. This idea was changed by Major John Symington in his letter to the Chief of Ordnance dated December 12,1844 (See Map No.2, page 359) to an outright purchase by the United States of Wager Lots 12 (A) and 11, which hended in the street leading to the Musket Factory(See text page 291).

On Map No.11, five of the six cut stone gate posts that formed the entrance to the yard, erected by Major Craig in 1843, are shown on the west(right)side of Plot B.



A. The part included in full red lines is to be conveyed to Wagers. It is the part described in the Deed as number A. B. & C.

B. The part included in dotted red lines is the part to be conveyed by Wager, in exchange, for the Avenue or Street

PHOTOGRAPH NO. 1

HARPER'S FERRY ARMORY FROM MAGAZINE HILL, 1856

Lithograph by Ed Beyer, Ray & Son, Lith, Dresdin, 1857
From Beyer's Album of Virginia, published in 1857.

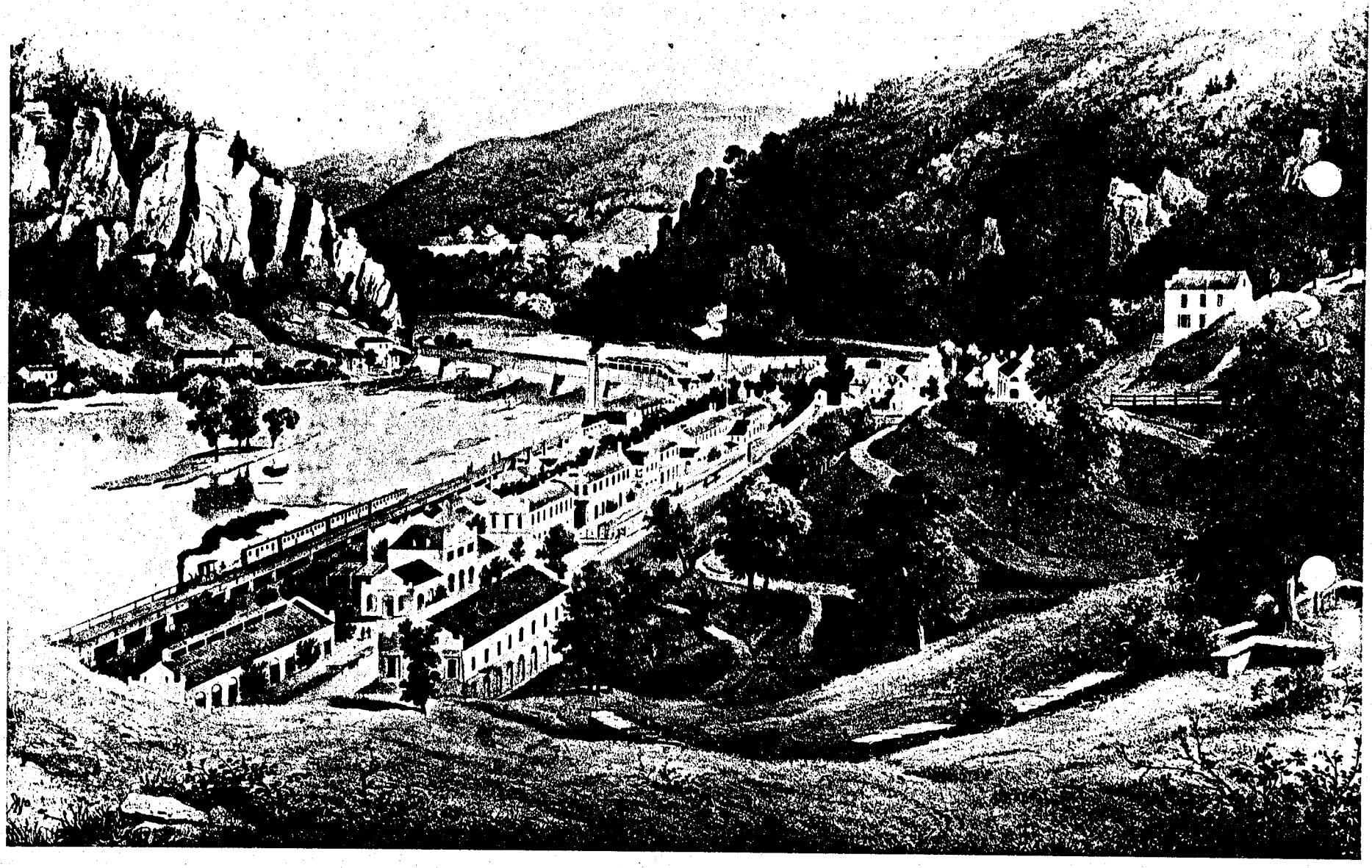
Harpers Ferry National Historical Park Negative No. HF - 51,

At the foot of the terraced hill is North Cliff Street(later known at Potomac Street), running east and west. On the north(far) side of North Cliff Street can be seen the U.S. Musket Factory Canal, also running east and west. Note the bridge over the canal, also two people in a boat on the canal, and to their right, a wall on the dividing line between the south bank of the canal and North Cliff Street. The bridge may be the structure that was replaced in 1856-57.

The Musket Factory Buildings are as follows: At the foot of the hill and on the south side of north Cliff Street, Bldg. No. 11, the Stock and Store House erected in 1854-55.

In the Musket Factory Yard, on the north side of the canal and to the left of Bldg. 11, is Bldg. No. 9, one-story, the Tilt Hammer Shop for Barrel Welding, built in 1849-51. Moving to the right along the north side of the canal, Bldg. No. 8, the Carpenter Shop, Saw Mill, and Grinding Mill, constructed in 1850-51; next Bldg. No. 7, the two-story Store House for Stocks, erected in 1846-47; Bldg. No. 6, the Machine Shop, Office and Stocking Shop, a two-story, three part shop erected in 1847-50; Bldg. No.5, the Boring Mill, a two-story edifice constructed in 1843-44; Bldg. No. 4, the Polishing Shop,built in 1849-50; Bldg. No. 4, Old Bell or Finishing shop, two-story, with cupola on its roof, erected in 1809-10 and remodelled in 1825 and 1848. At the far end of this southern line of shops can be seen the Armory Office Building, Bldg. No. 2, constructed as the Superintendent's Residence in 1808-09 and remodelled in 1847-48 as an Office.

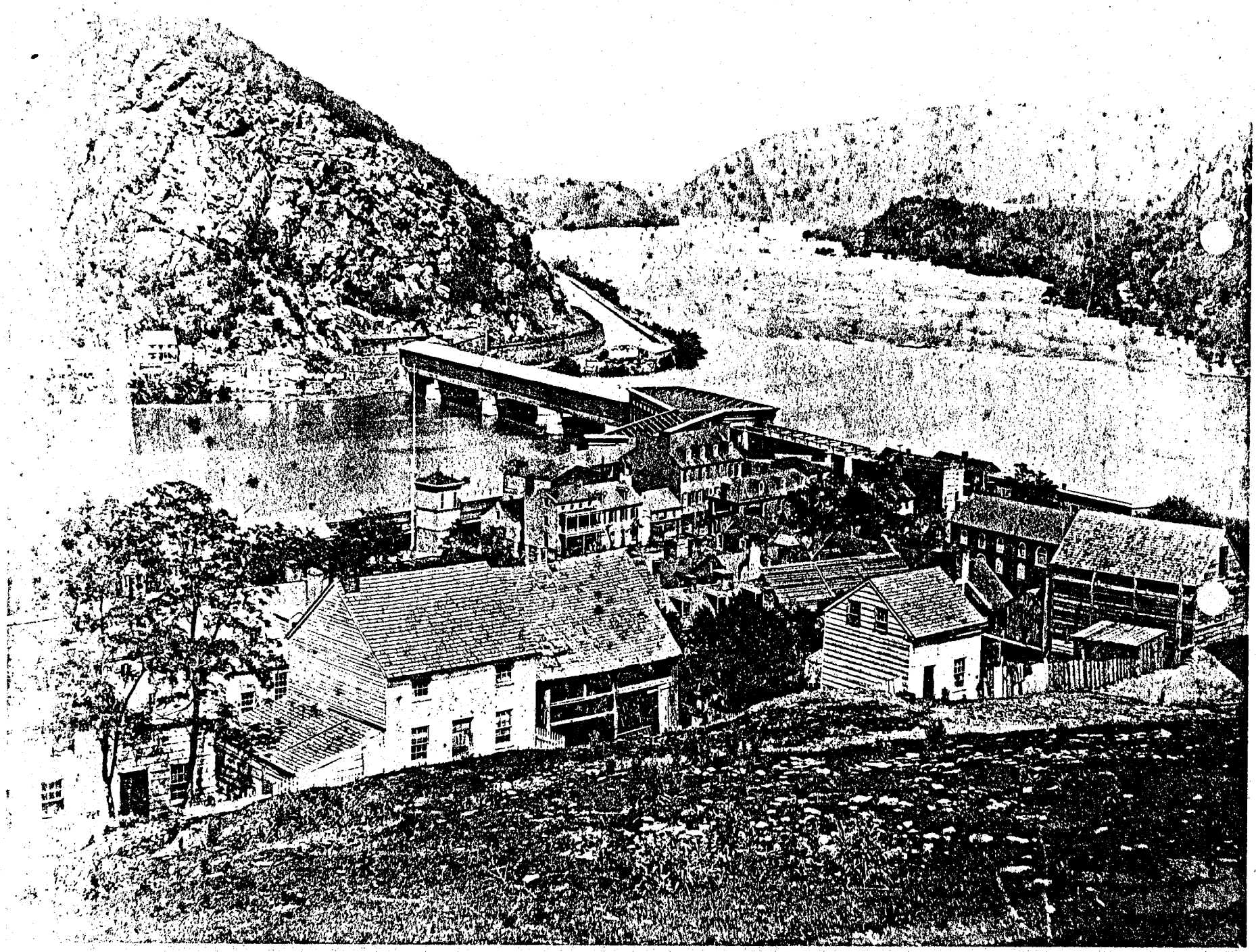
The northern line of shops, fronting on the Potomac River and the B. &. O. R.R. trestles, reading from left(west) to right(east) include the following buildings: Bldg. 16, Charcoal House, one story, erected in 1845-46; Bldg. No. 15, Proof House, two stories, constructed in 1845; Bldg. No. 14, the Annealing Shop and Brass Foundry, a one story structure divided into three parts, with two chimneys, built in 1851-52; Bldg. 13, the giant three-part Smiths or Forging shop with a 90 foot tall chimney, erected in 1845-48. Finally, at the eastern head of the line is the Warehouse, Bldg. No. 12, two-stories, constructed in 1841-44.



HARPERS FERRY FROM CAMP HILL, 1859

Harpers Ferry Negative No. HF-66.

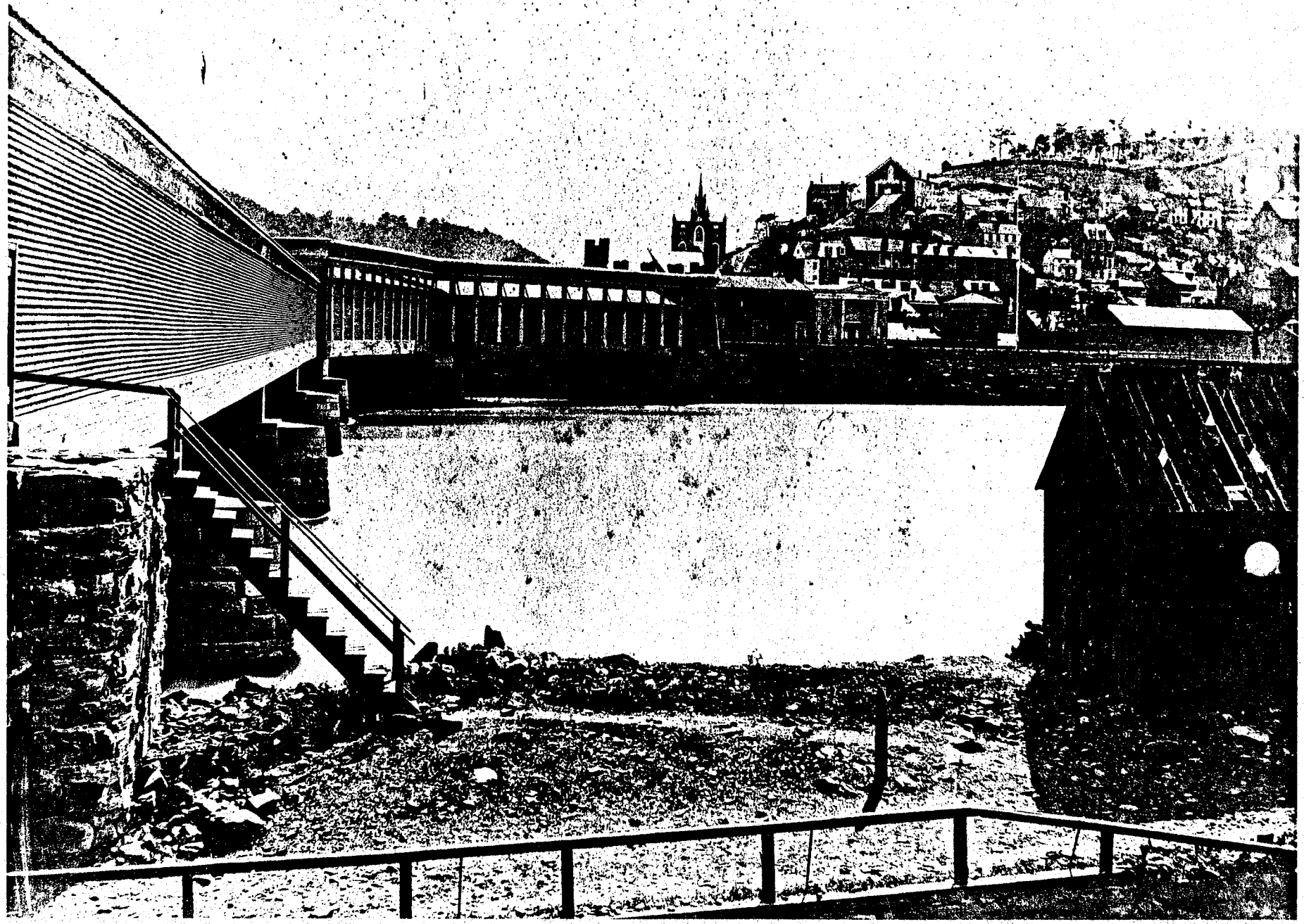
At the left of the photograph and at the foot of the hill may be seen the roof of Bldg. No. 3, the Bell or Finishing Shop which has a cupola on its roof. Moving to the right and crossing the musket factory street, is visible the roof of Bldg. No. 13, the Armory Warehouse. Moving to the right, is to be seen the iron trestle of the B&O Railroad, then the tall Armory Flag Pole, and finally, the B&O brick water tower which was located just inside the limits of the Armory yard. A portion of the Armory entrance fence and gate, as well as trees, are visible by the water tower. The large two story brick building with arched windows to the right of the photograph, is the large Arsenal which was situated in the old Arsenal Square.



HARPERS FERRY FROM THE MARYLAND SHORE, 1859

Harpers Ferry Negative No. HF-64.

To the left is the wooden B&O RR across the Potomac; to the right of the bridge is to be seen a portion of the Wager House Hotel; next the Potomac Rests urant (with pillars); then the roof of a stone house located on Wager Lot No. 10; the roof of Armory Bldg. No. 1, the Engine and Guard House; then the B&O brick water tower, and Armory flag pole. To the left of the flag pole and in thedistance, is to be seen the roof of Armory Bldg. No. 2, the Offices. To the right of that structure stands Bldg. No. 3, the Bell or Finishing Shop. To the right of this, near the River Wall, stands large Bldg. No. 12, the Armory Ware House; and to the right ofthis is visible a small portion of Bldg. No. 13, the Smith Shop. Note the trees growing in the Armory yard by Bldg. No. 12.

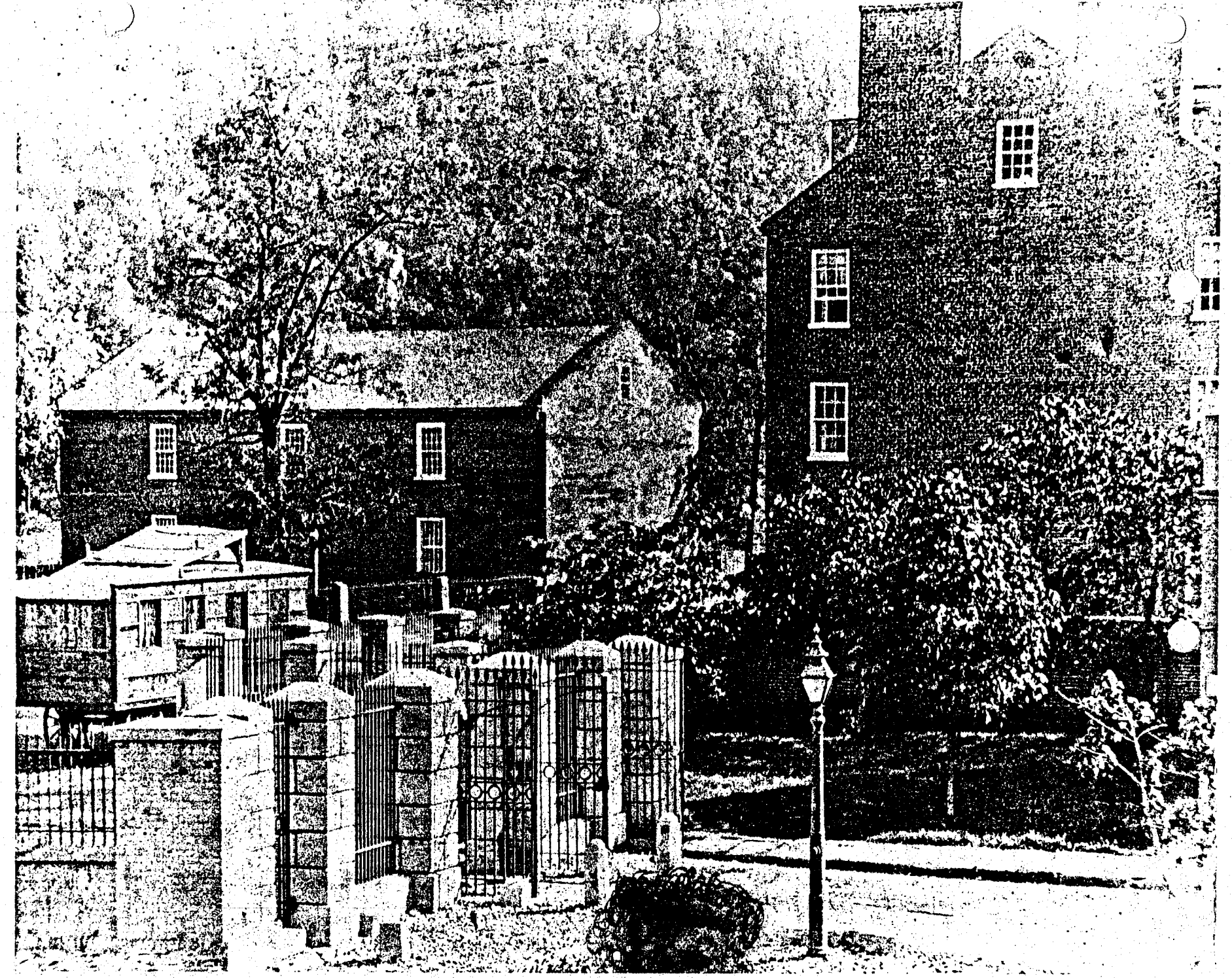


FORMAL ENTRANCE TO MUSKET FACTORY YARD, 1859

Harpers Ferry Negative No. HF-90.

In the left foreground is the formal entrance to the Armory yard, including iron gates, piers, brick walls and iron panels. Note grass and trees planted in yard, also the flag stone side walk, Macadamized street, and iron street light. The large brick building across the street to the right, is Monument Bldg. No. 8. To the left, and across Shenandoah Street, stands the small Arsenal, located in the old Arsenal Square. Note the brick and iron fence surrounding the arsenal yard.

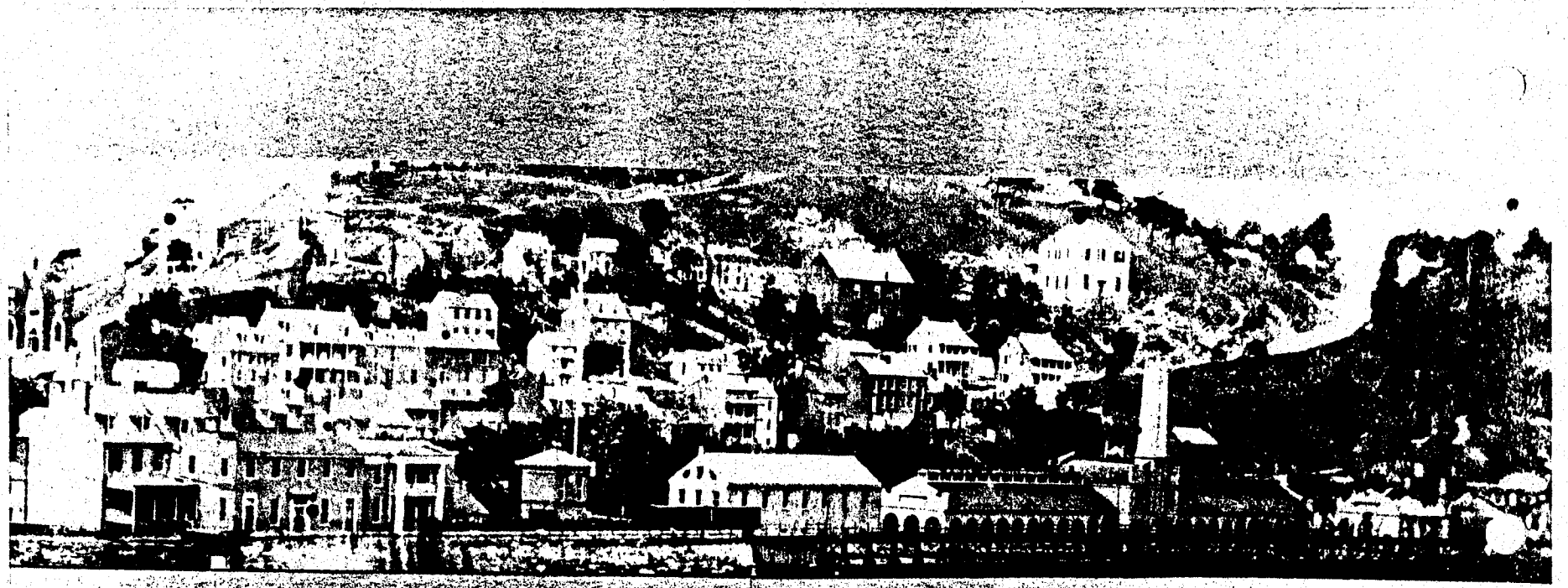
The head of a boy has been inked out at the bottom of the photo, just the left of the street light. For an uncensored version of this same photograph, see Negative HF- 625, which was added to the Park Collections in 1961.



HARPERS FERRY IN JUNE, 1861, FROM THE MARYLAND SHORE

Harpers Ferry Negative No. HF-432.

This photograph is a blow-up made from Negative HF-240. Left to right on river wall: Wager House Hotel; Potomac Restaurant B&O Water Tower; Bldg. 13-Armory Warehouse; Bldg. 13-Smith Shop; Ruins of Bldg. 14-Annealing Shop and Brass Foundry. In rear of 14 may be seen great bell tower erected between Bldgs. No. 6 and 7 in 1859-60. Note iron trestle of B&O situated on top of river wall.

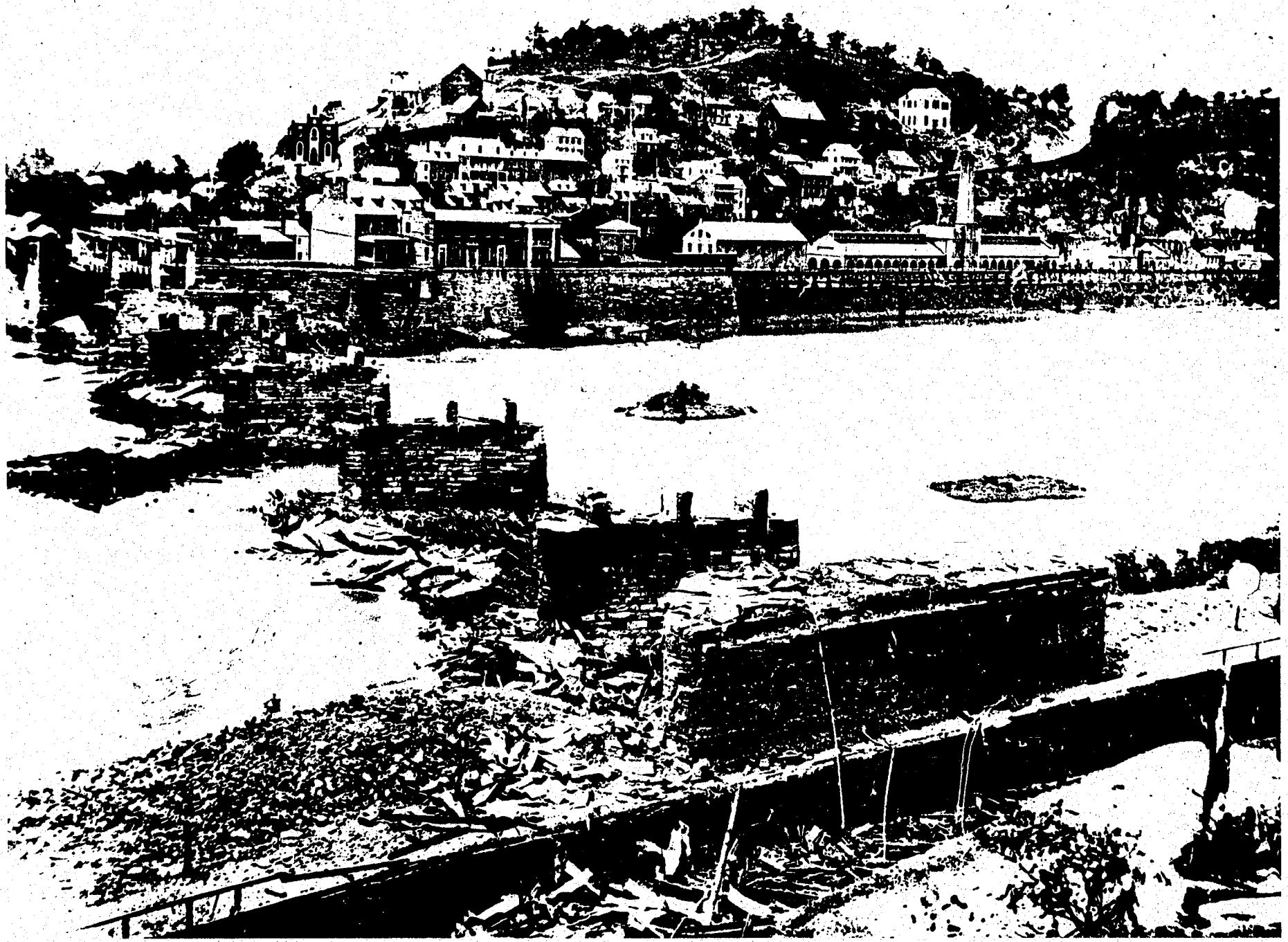


No. 6

HARPERS FERRY IN JUNE, 1861, FROM THE MARYLAND SHORE

Harpers Ferry Negative No. HF-48.

Reading from left to right along Potomac River wall: 1st, Iron Winchester Span of B&O Bridge, next B&O RR Depot, then Wager House Hotel, B&O Potomac East/ arant; then B&O Water Tower, Armory Flagpole, iron trestle of B&O; Old Boat Landing (below two railroad cars). Note also culverts in the River Wall for the tail races from the Armory shops; just to right of box cars are Bldg. 12, the Warehouse; then Bldg. 13-the great Smith Shop; next Bldg. 14-the Annealing Shop and Brass foundry. In the rear of 14 and towering over it, may be seen the tall bell tower erected in 1858-60, which was situate between Bldgs. 6D and 7; to the right of the tower is also the upper story of Bldg. 8. Returning to Bldg. 14 on the river edge, next in line is Bldg. No. 15-the Proof House, and then Bldg. No. 16, the Charcoal House. The Confederat forces have just evacuated Harpers Ferry and have burned Musket Factory Shops No. 6, 7, , 9, 11, 14, 15, 16, 17 and 18.



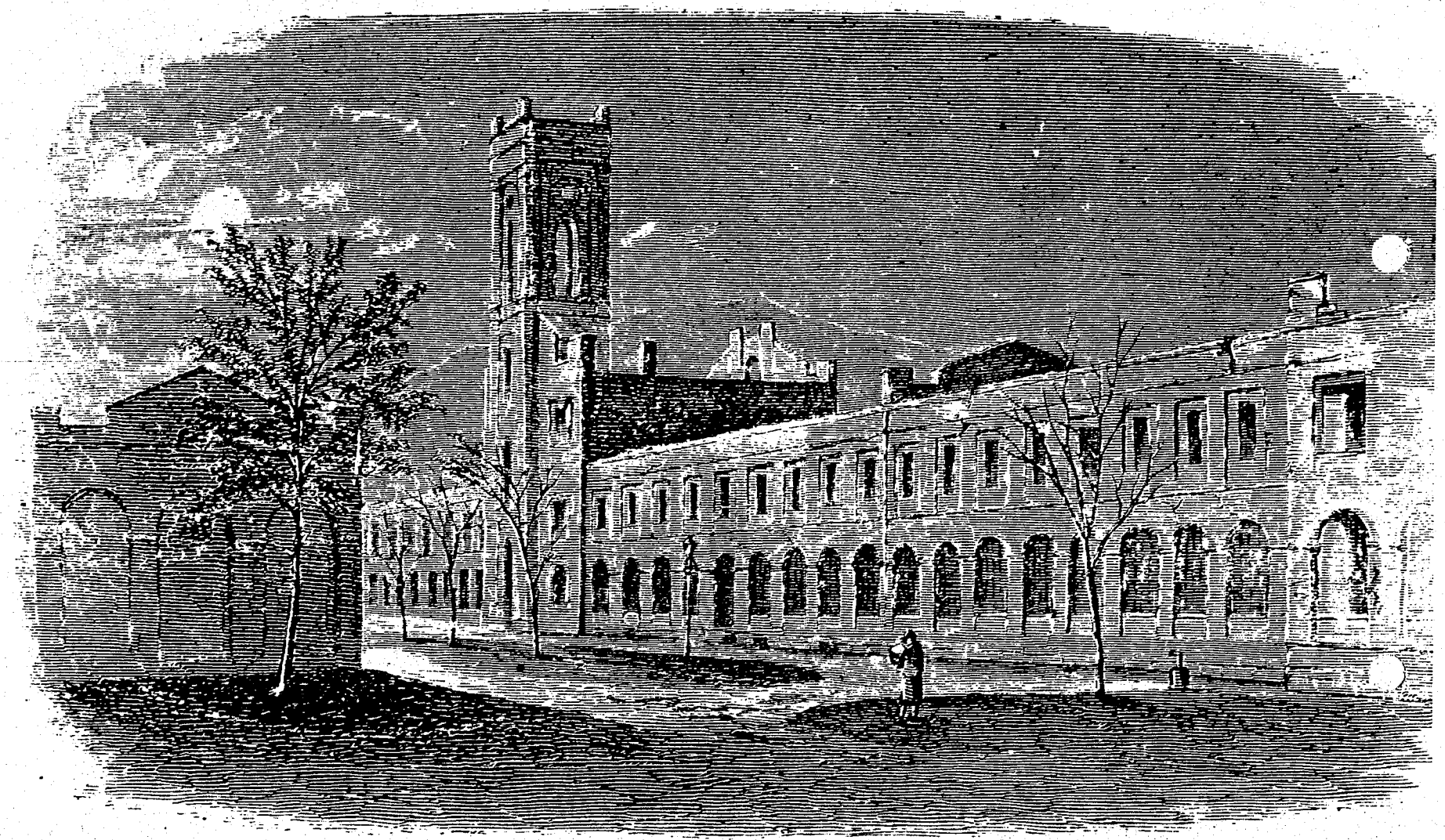
No. 7

HARPERS FERRY ARMORY AS IT NOW APPEARS, JULY 20, 1861

From Harpers Weekly, Vol. 5, 1861, page 455.

Sketch shows Musket Factory Bell tower erected in 1859-60., Bldg.
No.22. To the left of the tower and connected with it, is Bldg. No. 6D, the Machine Shop. To the right of the tower is Bldg. No. 7, the Millwright Shop; then a two story section that was erected in 1859-60 to connect -The Connecting Shop, Bldg. No. 21.
Bldgs. No. 7 and 8. At the right edge of the sketch may be seen a small portion of Bldg. No. 8, the Grinding Mill. A second story was added to the grinding mill in 1859-60. Note the flag stone walk, the iron street light, and trees planted along the street. To the left of the photograph is to be seen the end wall of what is probably Bldg. No. 16, the Charcoal House.

HF - 223.



HARPER'S FERRY ARMORY AS IT NOW APPEARS.

No. 8

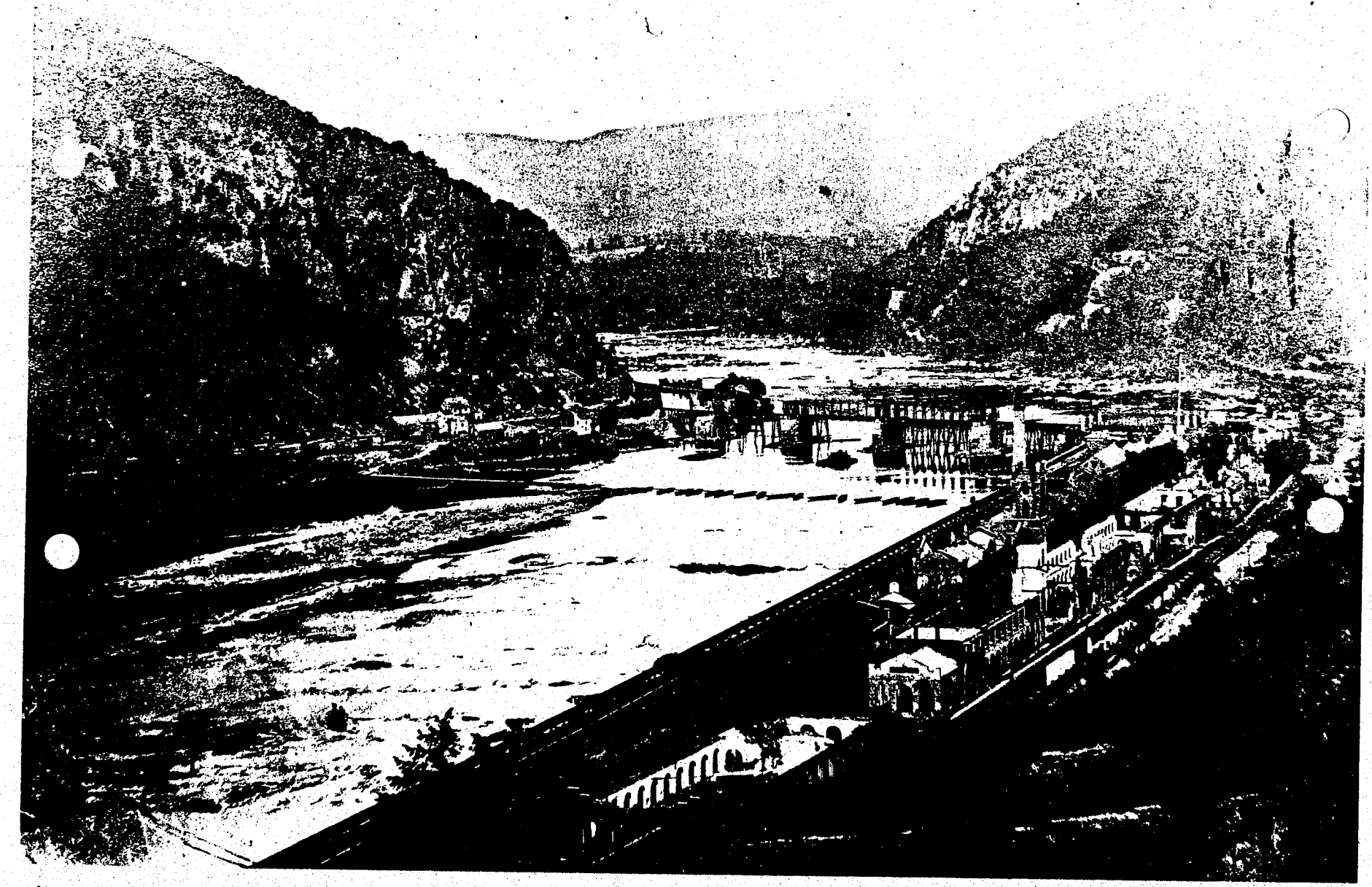
HARPERS FERRY ARMORY IN 1862, FROM MAGAZINE HILL

Harpers Ferry Negative No. HF-30.

Beginning at the bottom left center of photograph; ruined wall of Bldg. No. 10, Armory Lumber House and Coal Bin; next Bldg. No. 9, Tilt Hammer and Barrel Welding Shop. Note Armory Canal, brick wall and iron fence along Potomac Street, also note trees growing in Musket Factory yard. Next to 9, is Bldg. No. 8C-one story Carpenter shop; then 8B, two story Saw Mill; then Bldg. 8A, the Grinding Mill, with the second story that was added in 1859-60; then two story section added in 1859-60 connecting 8 to Bldg. No. 7, the Millwright Shop; then two story section, with bell tower, added in 1859-60, connecting Bldgs. No. 7 and 6D, the Machine Shop; then 6C, the Office, projecting towards the Canal; next 6A, the Stocking Shop; the projection at end of this is the one story wheel house, 6B; then Bldg. No. 5, the Boring Mill; Bldg.4, the Polishing Shop; and Bldg. No. 3, the Bell Shop; all two story structures.

Crossing the street, and moving from right to left: Armory Flag Pole-moved to new location; then B&O Water Tower near Potomac; Bldg. No. 12, Armory Warehouse; Bldg. No. 13, Smith Shop; Bldg. No. 14, Annealing Shop and Brass Foundry, one story with two chimneys, then Bldg. 15, the Proof House; and ruined walls of Bldg. No. 16, the Charcoal House.

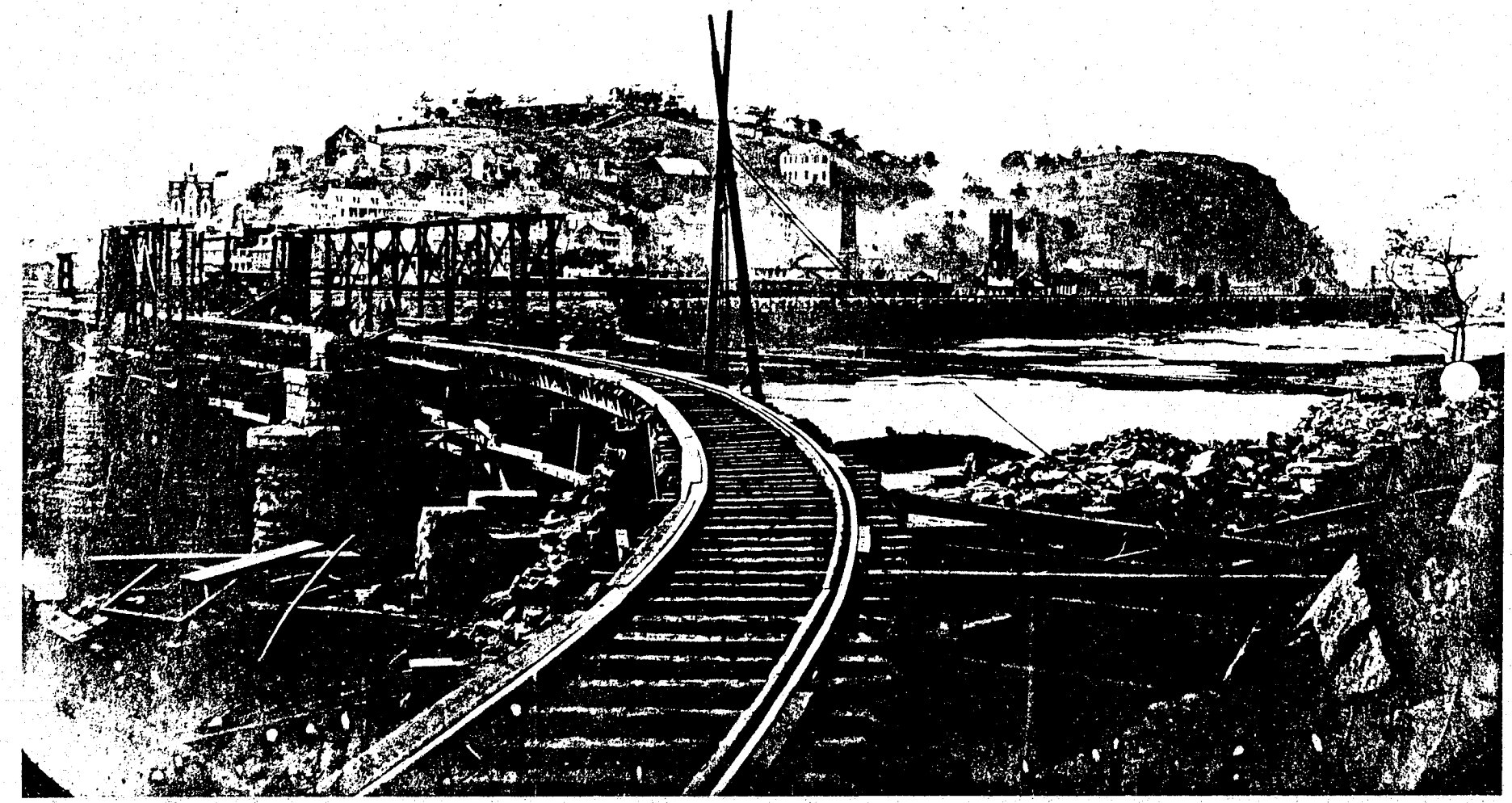
Note two tracks of B&O on iron trestle. Pontoon bridge, on Harpers Ferry side, lands at the Old Boat Landing in Musket Factory wall.



HARPERS FERRY, OCTOBER, 1862, FROM MARYLAND SHORE

Harpers Ferry Negative No. HF-11.

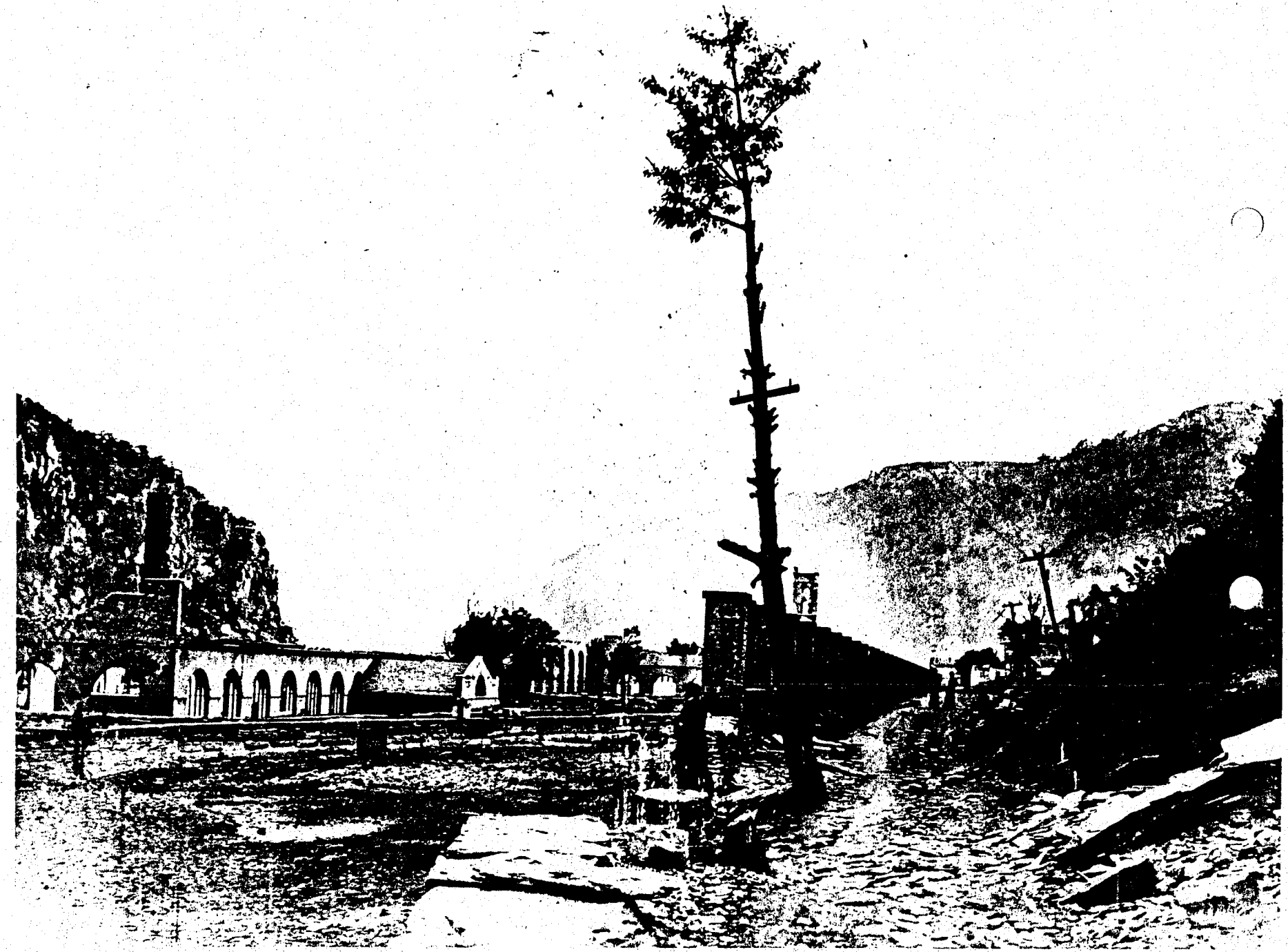
Bldg. 1, the wooden cupola of the Engine and Guard House, may be seen through the bridge; by river wall, roof of Bldg. No. 12, the Armory Warehouse, has been burned off; next Bldg. 13, Smith Shop, roofs on the one story wings of this structure have also been burned. Then Bldg. No. 14, Annealing Shop and Brass Foundry; Bldg. No. 15, Proof House; Bldg. No. 16, Charcoal House; moving to right of trees, ruins of Bldg. No. 18, Lumber House and Coal Bin; then to far right of photograph, ruins and 45 foot stack of Bldg. No. 18, the Rolling Mill.



Harpers Ferry Armory, October 1862

Harpers Ferry NHP Negative No. HF - 10.

To the left of the Photograph are the stone retaining walls of the Armory Canal, and beyond these are the ruins of the one-story brick wall of Bldg. No. 18 (with chimney stack), the Rolling Mill. To the right of this are the story-story high ruined wall of the Lumber House and Coal Bin, Bldg. No. 10; to the right of this can be seen the one-story brick gable end wall of Bldg. No. 9, the Tilt Hammer Shop and Barrel Welding Shop. Above the fence rises the tall tower of the Bell Tower Shop, Bldg. No. 22, erected in 1860-61. The tall brick wall with panels of iron paling fence was erected along the south side of the Armory Canal(or along the north side of North Cliff Street) at a cost of $ 10,723 in 1855-57. At the far end of North Cliff Street can be seen the rear elevation of Park Bldgs. No. 8 and 9. To the right of the right and just beyond the telegraph pole, can be seen the ruins of Bldg. No. 11, the new Stock and Store House, built in 1854-55.

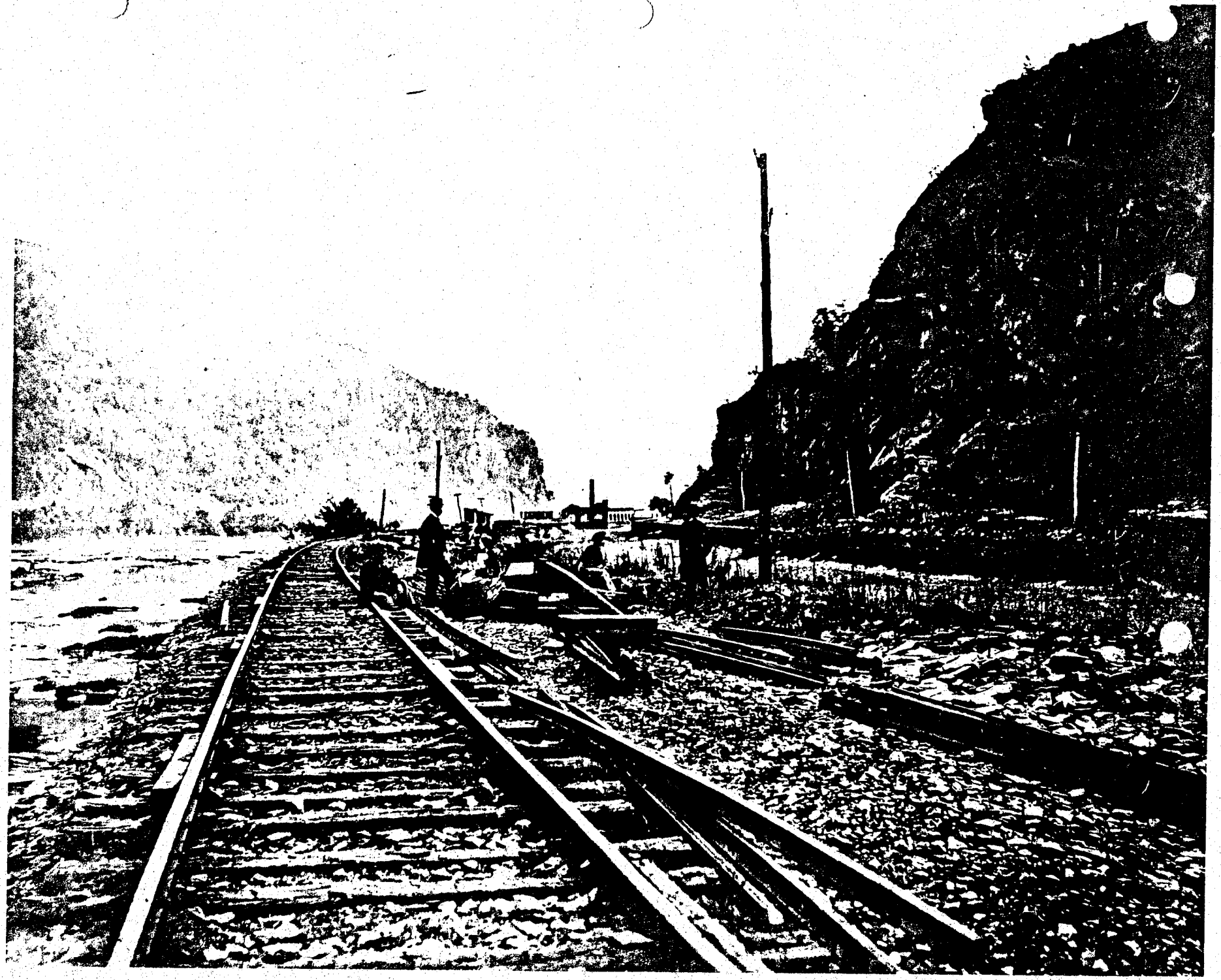


No. 11

HARPERS FERRY ARMORY, OCTOBER, 1862

Harpers Ferry Negative No. HF-8.

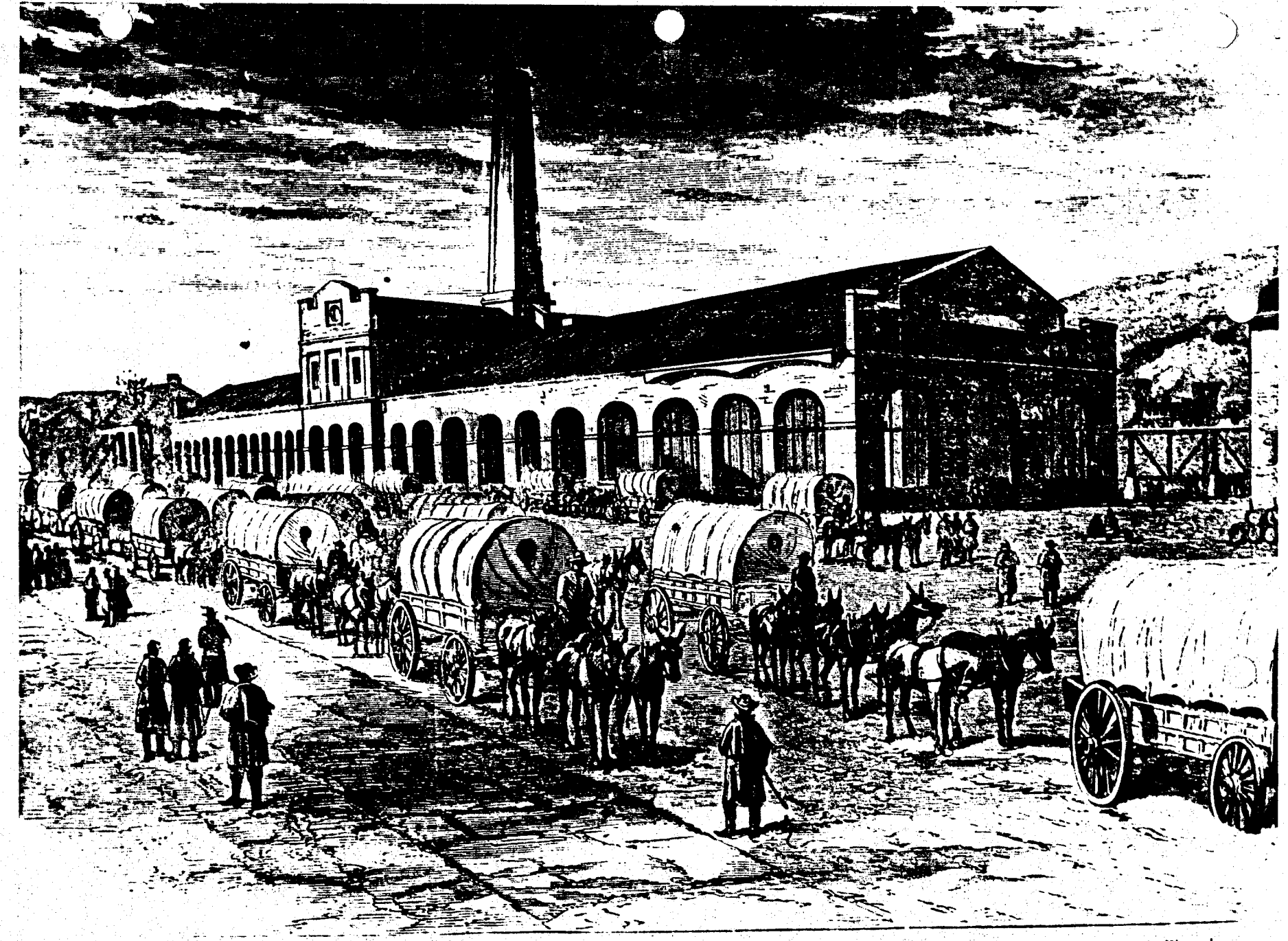
To the left of the railroad track is the Potomac River. In the center, at a distance, are the ruins and one stack of Bldg. No. 18, the Rolling Mill. To the right is the Armory Potomac Canal. A county road also runs along the base of the high cliffs at the right.



UNITED STATES ARSENAL (ARMORY) AT HARPERS FERRY, NOW USED FOR QUARTER MASTER'S STORES FOR SHERIDAN'S ARMY. Sketch by A. R. Waud, Published March 11, 1865.

From Harpers Weekly, March 11, 1865, page 152.
Harpers Ferry Negative No. 88.

The great building in the center, with a temporary roof, is Bldg. No. 13, the Smith Shop. To the left of 13, stands Bldg. No. 14, the Annealing Shop and Brass Foundry, also re-roofed. To the right of 13 may be seen a corner of Bldg. No. 12, the Warehouse. Note the flagstone walk in the left foreground of the sketch.



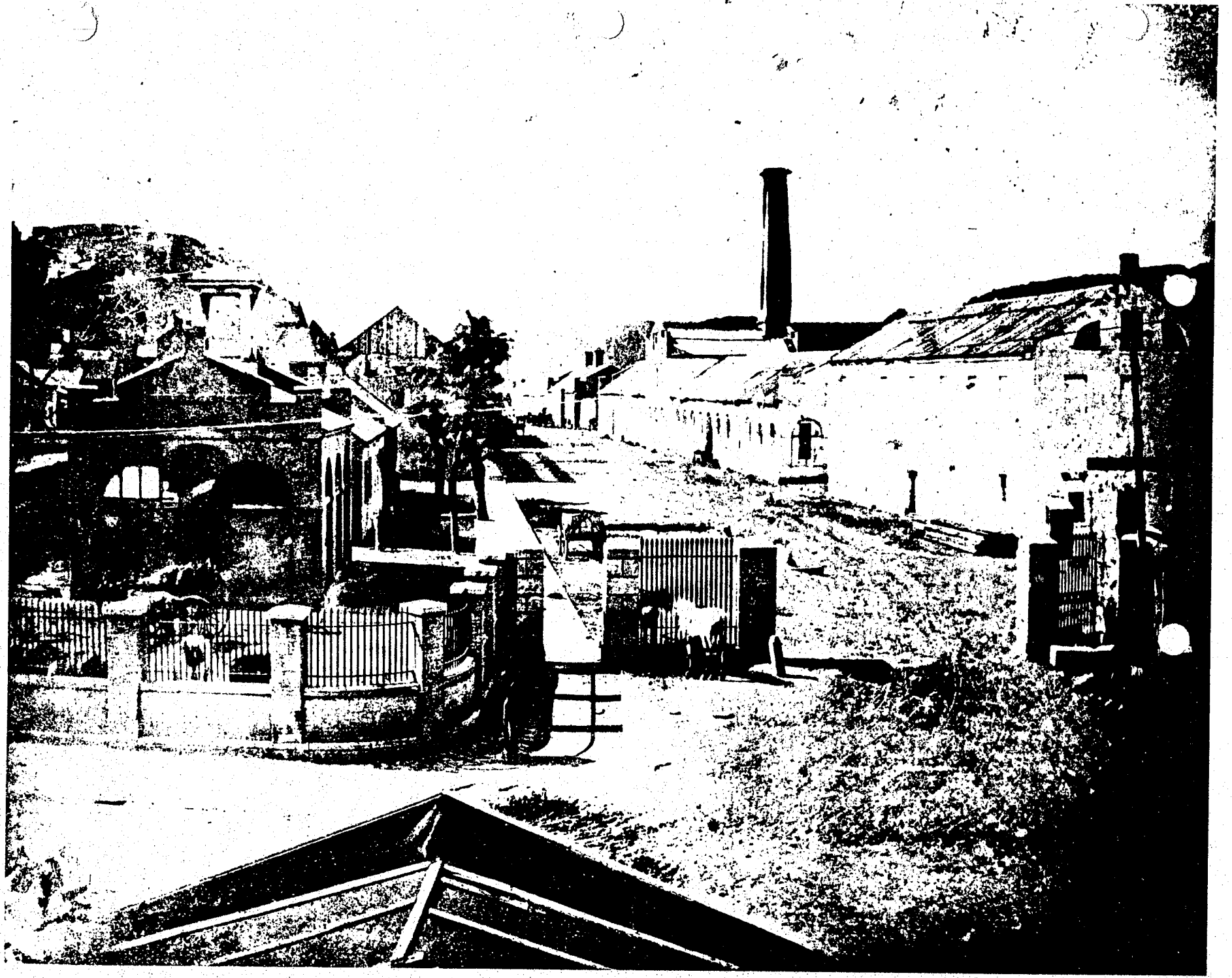
UNITED STATES ARSENAL AT HARPERS FERRY, NOW USED FOR QUARTER-MASTER'S STORES FOR SHERIDAN'S ARMY.—[SKETCHED BY A. R. WAUD.]

No. 13

HARPERS FERRY ARMORY, 1865

Harpers Ferry Negative No. HF-27B.

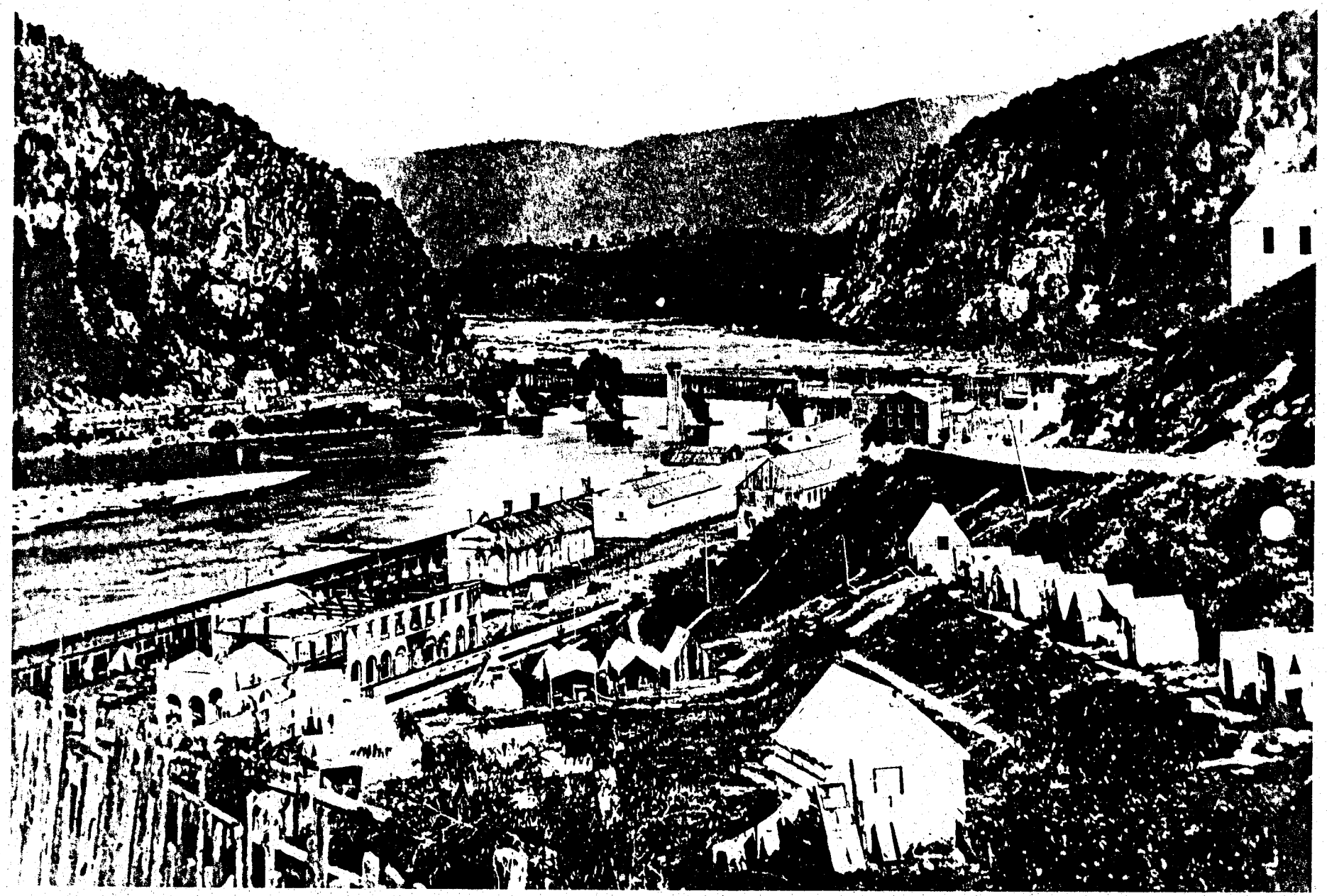
In the foreground is the main entrance to the Musket Factory, with iron gates, brick walls and iron fences. To the left of the photograph is: first, Bldg. No. 1, Engine and Guard House; next the one story brick Bldg. No. 2, Armory Office; beyond this is the two story Bldg. No. 3, the Bell or Finishing Shop. Note the flagstone sidewalk and the trees growing by Bldg. No. 2. Crossing the Musket Factory street, to the right of the photograph: first in line is Bldg. No. 12, the Armory Warehouse; next Bldg. No. 13, the Smith Shop; then in the distance, with two small chimnies, Bldg. No. 14, the Annealing Shop and Brass Foundry. In far distance, Bldg. No. 15, Proof House. The shops have had temporary roofs placed on them to serve as a Quarter Masters Depot.



HARPERS FERRY ARMORY FROM MAGAZINE HILL, 1865 OR 1866

Harpers Ferry Negative No. HF- 38.

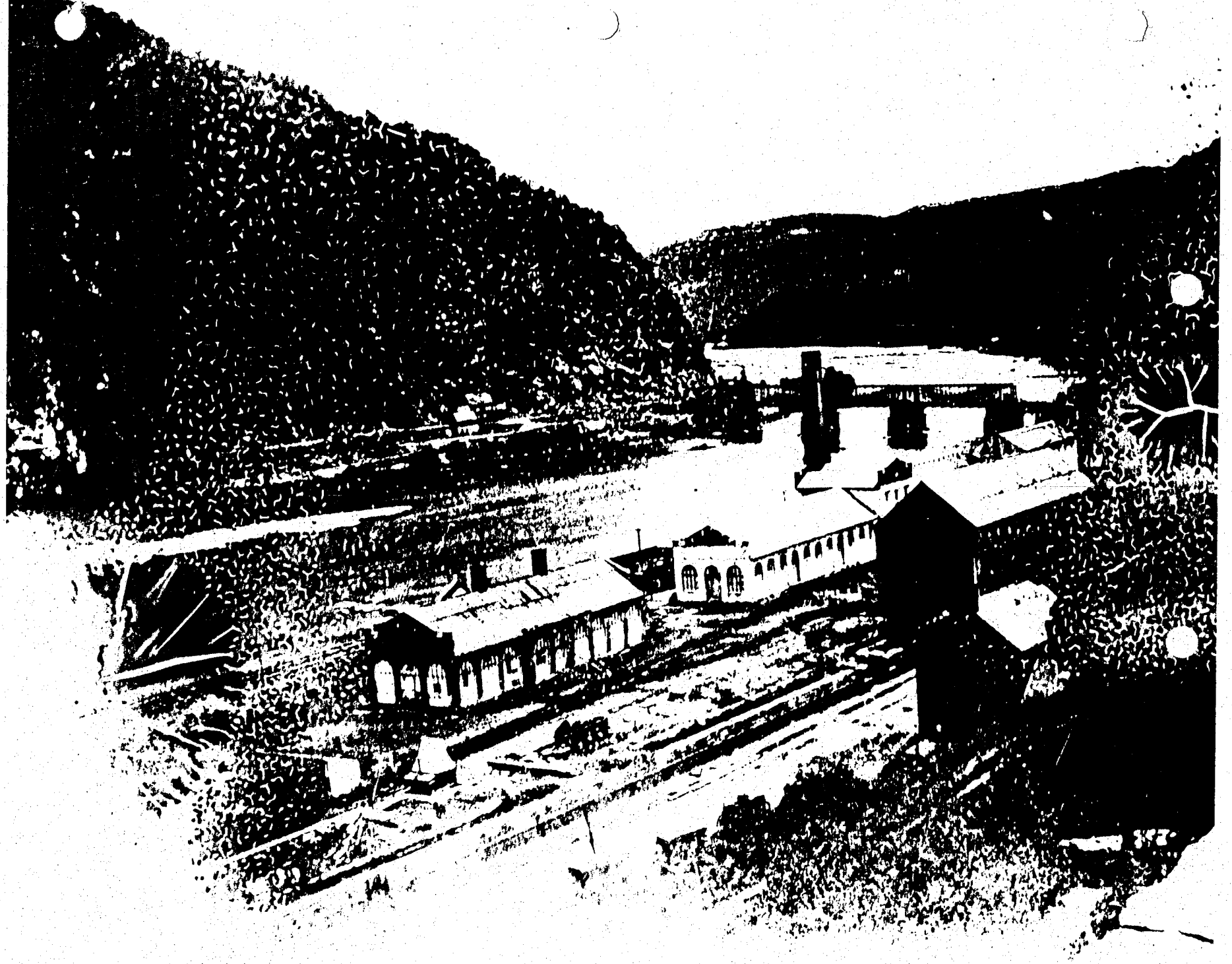
Along Potomac River wall, from left to right; first Bldg. No. 14, Annealing Shop and Brass Foundry; then Bldg. No. 13, the Smith Shop; and Bldg. No. 12, the Warehouse. The large two story building across the Musket Factory street and to the right, is probably Bldg. No. 5. the Bell or Finishing Shop. Armory Canal is to be seen in the foreground. In the lower left-hand corner, on the north side of the Armory Canal is Bldg. 8C, one-story west wing of Bldg. 8, the Carpenter Shop wing, the projecting two-story center, is Bldg. No. 8B, the Saw Mill, the next three bays to the right of the center is Bldg. 8A, the grinding mill. The Grinding Mill was erected as the one-story east wing and its second story was added in 1860-61. The remaining six bays of the two-story shop to the right of the Grinding Mill is a portion of the Connecting Shop, Bldg. No. 21, erected in 1860 to united Bldgs. No. 8 and 7. Bldg. No. 7, the Millwright Shop(converted from a stock house), the Bldg. No. 22, the Bell Tower Shop, constructed in 1860, and Bldg. No. 6, the Stocking and Machine Shop, have been demolished by this date.



HARPERS FERRY FROM MAGAZINE HILL, ABOUT 1865 or 1866

Harpers Ferry NHP Negative No. HF- 28.

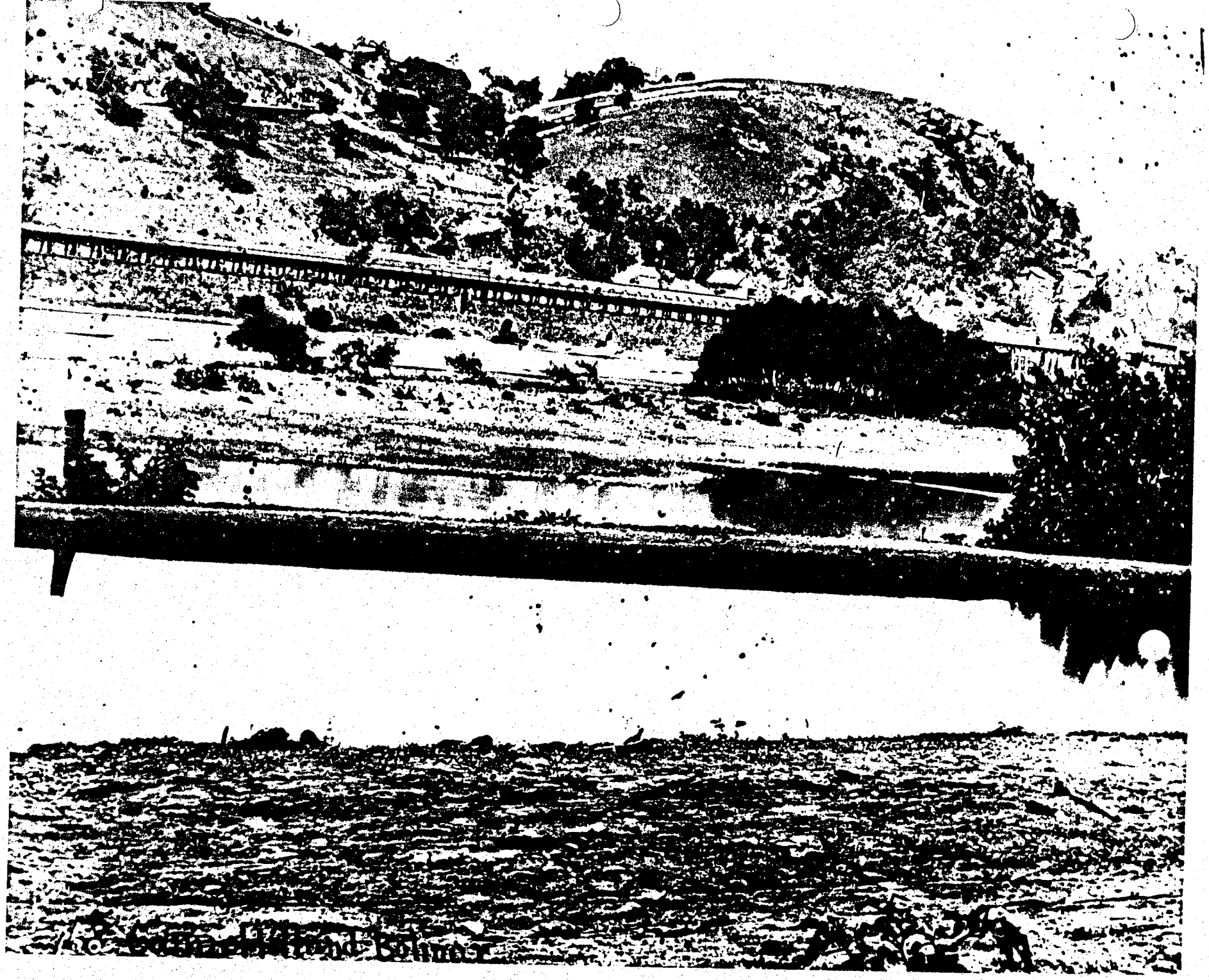
Along the Potomac River Wall in center distance, reading from left to right: first Bldg. No. 14, Annealing Shop and Brass Foundry(with two chimney stacks); then Bldg. No. 13, the Smiths or Forging Shop; and the roof and gable end of Bldg. No. 12, the Warehouse. The large two-story shop across the street from Bldg. No. 13 is probably Bldg. No. 5, the Boring Shop. Bldgs. No. 6, the Machine and Stocking Shops, the Bell Tower Shop, Bldg. No. 22, and Bldg. No. 7, the Millwright Shop, which once stood along the north bank of the Armory Canal, to the left of the Boring Shop, have all been demolished. The two-story building on the south side of North Cliff or Potomac Street, near Bldg. 5, the Boring Mill, is probably Armory Dwelling House No. 20, Located on Wager Lot No. 27.



CAMP HILL AND MAGAZINE HILL ABOUT 1875 FROM THE MARYLAND SHORE

Harpers Ferry Negative No. HF-83.

To the left of the photograph is Camp Hill, with Washington Street or High Street climbing the heights. Note the terracing and walling on the hillside below Washington Street. The hill to the right of the photograph is Magazine Hill. Note the Potomac River wall, with a culvert for tail race of an Armory shop in foreground. Behind the culvert and to the right of it, stands the ruins of the Bldg. No. 18, Armory Rolling Mill; to the right of this may be seen some wooden trestling of the B&O Railroad along the Armory Canal.



No. 17

HARPERS FERRY MUSKET FACTORY YARD ABOUT 1886

Harpers Ferry NHP Negative No. HF- 355.

In the foreground is North Cliff or Potomac Street, with the Armory canal running along its north side. The one-story brick shop in the lower left-hand corner is Musket Factory Bldg. No. 9, the Tilt Hammer and Barrel Welding Shop. Note that except for three brick piers on North Cliff Street side of the canal, the fine brick pier and iron paling fence that once guarded the south bank of the canal, has been demolished. Note the iron trestle and track of the B. & O. Railroad standing on top of the Potomac River Wall in the distance. In the right center is the great Smiths or Forging Shop, Bldg. No. 13, with its 90 foot tall chimney stack. Note that Bldg. No. 12, the Armory Warehouse, which once stood to the right of Bldg. No. 13, has been demolished. Also Bldg. No. 14, the Annealing Shop and Brass Foundry, which once stood just to the left of Bldg. No. 13, has also been torn down.

Along the north bank of the Armory Canal, Musket Factory Bldgs. No. 8, the Carpenter Shop, the Sawmill, and Grinding Mill; Bldg. No. 21, the Connecting Shop; Bldg. No. 7, the Millwright Shop, Bldg. No. 22, the Bell Tower Shop; Bldg. No. 6, the Machine and Stocking Shops; Bldg. No. 5, the Boring Mill; Bldg. No. 4, the Polishing Shop, and Bldg. No. 3, the Old Bell Shop, have all had their ruined walls levelled. At the far right, on the north bank of the Canal, can be seen what may be Bldg. No.17, the Old Pay Office, relocated from Arsenal Square in 1858, then Bldg. No. 2, the Armory Office Bldg., and finally the Engine and Guard House, with the wooden cupola on its roof, Bldg. No. 1.

The MUSKET FACTORY YARD FROM LOUDOUN HEIGHTS ABOUT 1886

Harpers Ferry NHP Negative No. HF- 492.

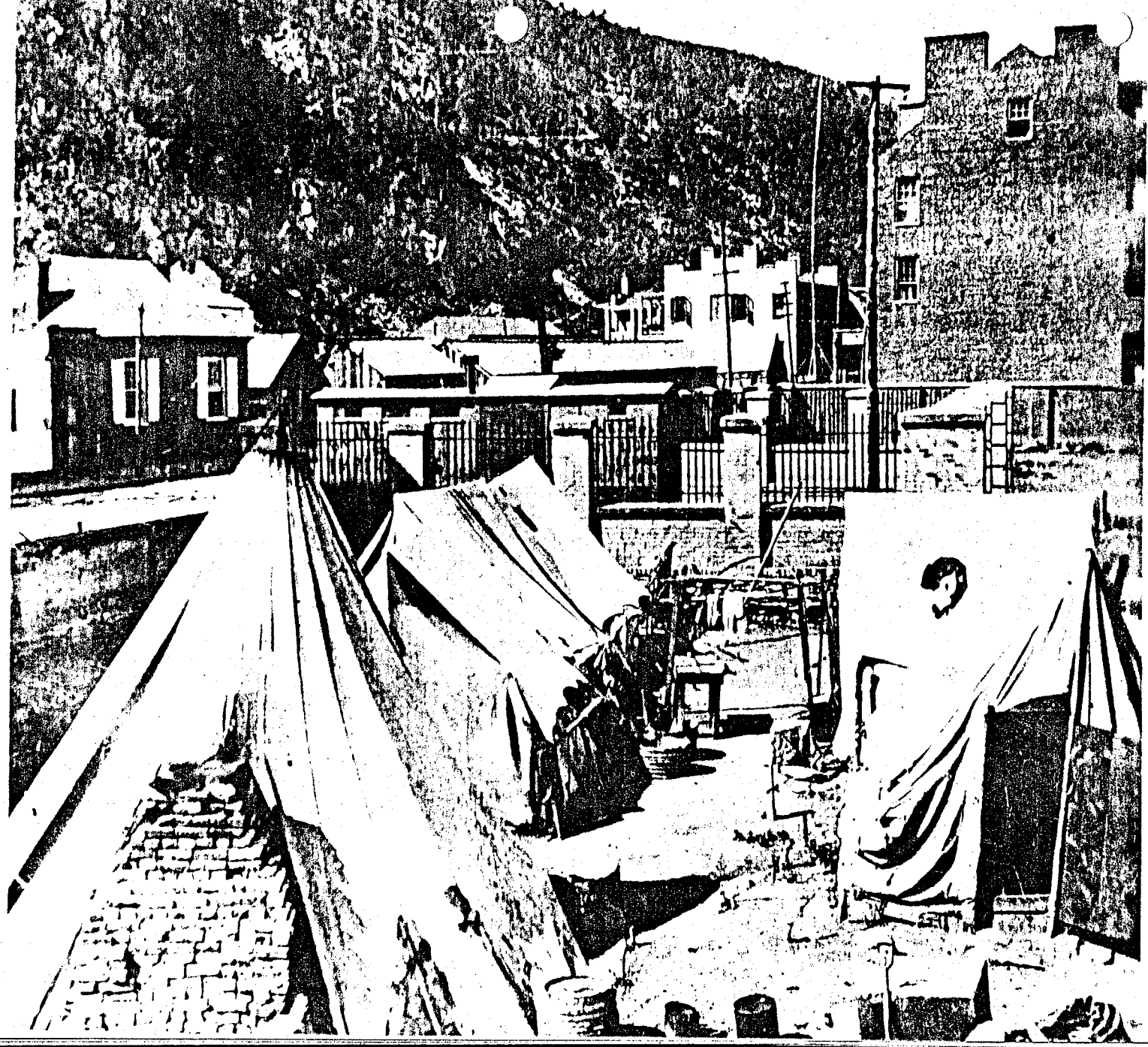
The Musket Factory yard stretches along the south bank of the Potomac River to the right of the photograph. All of the Musket Factory Shops and Storehouses have been demolished except the following structures: Bldg. No. 9, the Tilt Hammer and Barrel Welding Shop, standing on the north bank of the Armory Canal in the distance. In the far distance, on the south bank of the river, perhaps the ruined walls of Bldg. No. 18, the Rolling Mill; 3. The large Smiths Shop, Bldg. No. 13, with its 90 foot chimney stack. 4. Armory Office Bldg. No. 2, and 5. the John Brown Fort-Bldg. No. 1, the Engine and Guard House, with a wooden cupola on its roof. A few of the stone piers of the armory entrance gate are also still in place. The hipped roof one story house on the northeast corner of Old Arsenal Square, Lot 1, Block A, Shenandoah Street, is probably the Armory Superintendent's Old Office .

"CONTRABAND CAMP -HARPER'S FERRY, VIRGINIA

Harpers Ferry NHP Negative No. HF - 18
(U.S. Signal Corps Collection, National Archives Still Picture Section- from estate of Captain James Bown Johnston, 8th Michigan Cavalry.)

Photo probably taken in 1864 or 1865.

The tent camp of the escaped slaves is located on Wager Lot No. 11 just inside the main gate and entrance wall of the Musket Factory Yard. The hipped roof one-story brick building across Shenandoah Street to the left, is the Superintendent's Old Office, located on Lot 1, Block A., Shenandoah Street; the four or five one-story frame buildings located to the right of the Old Office, on Lots 2 to 7, Block A, are temporary structures erected by the Union Army, perhaps by the Military Railroad Corps. To the right of these, the two-story brick house is Armory Dwelling No. 1(Park Bldg. No. 36), the Master Armorer's new Quarters, which was built in 1858-59. The large three and one-half story brick building at the right, at the junction of Shenandoah and North Cliff(or Potomac) Streets, is Park Bldg. No. 9.



JOHN BROWN'S FORT, 1873-75.
HARPER'S FERRY, W. VA.

Harpers Ferry NHP Negative No. HF - 55

This photograph was probably taken in 1873-75. Musket Factory Bldg. No. 1, the Engine and Guard House, known as the "John Brown Fort," after the October 1859 raid, is the one-story brick building in the right center, with the wooden cupola on its roof. To the right of the "Fort" stands a part of the former kitchen wing of the Superintendent's Old Quarters, which was remodelled into an Armory Office Bldg., Bldg. No. 2, in 1847-48. Between Musket Factory Bldg.s No. 1(Park Bldg. No. 63) and No. 2, can be seen Park Bldg. No. 7, Frederick A. Roeder's White Hall Tavern. The large three and one-half story brick building to the left of the "Fort" is Park Bldg. No. 9 and the three-story rear brick service wing is Park Bldg. No. 8. Gilbert Brothers Drug Store is located in 9.

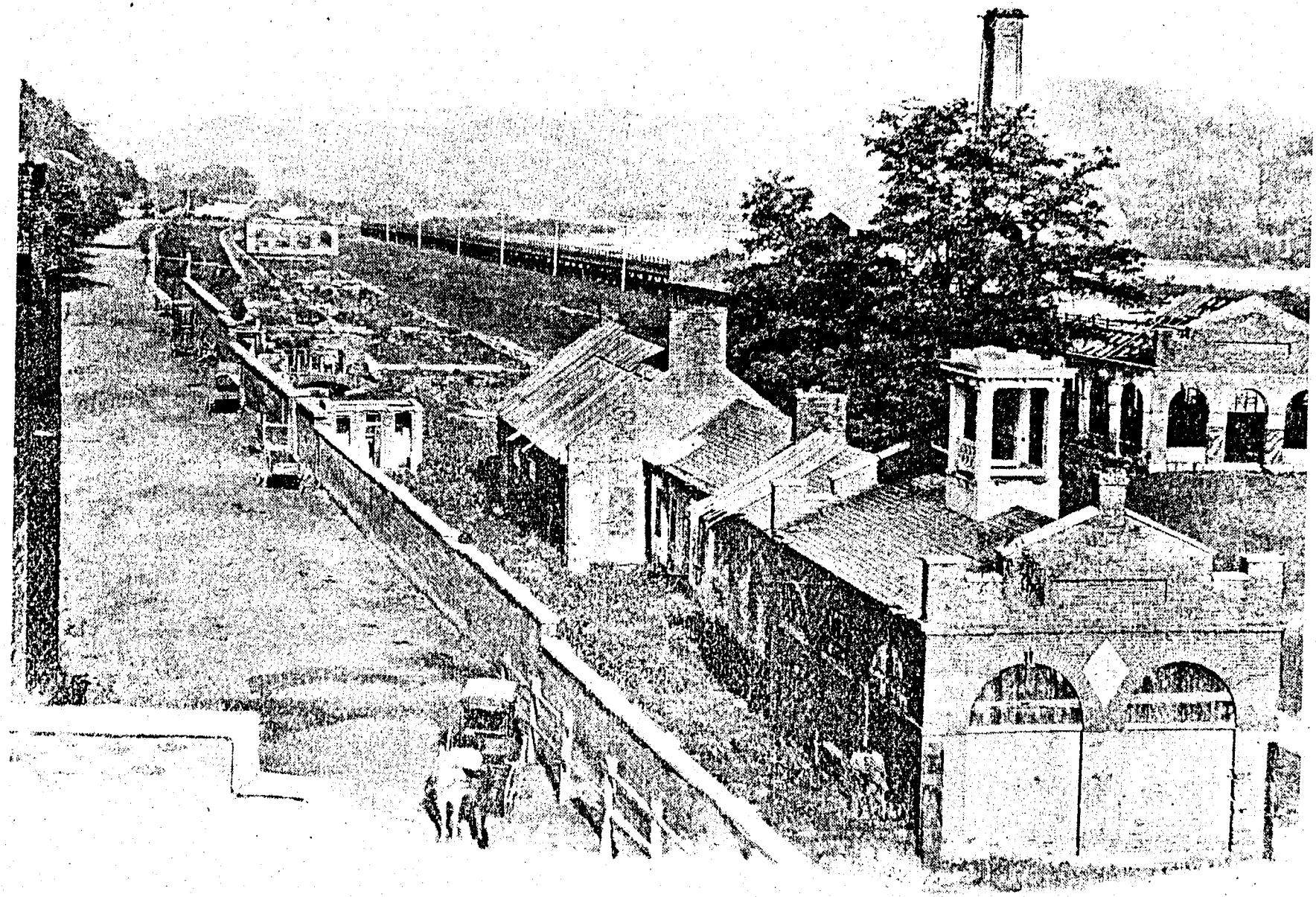
In the foreground, to the left, can be seen the main gate and entrance walls to the Musket Factory Yard, which were located on Wager Lots No. 11 and 12.

JOHN BROWN"S FORT AND THE OLD ARSENAL BEFORE THEY WERE REMOVED. Photo taken in 1886.

Harpers Ferry NHP Negative No. 539.

To the left is North Cliff or Potomac Street; to the right are the remains of the brick enclosing wall along the south side of the Musket Factory yard and Armory Canal. In the center distance are the one-story ruined brick walls of the Tilt Hammer and Barrel Welding Shop, Musket Factory Bldg. No.9. To the right of this is to be seen the iron trestle and main line west of the B. &. O. R.R., standing on top of the stone Potomac River wall. Behind the tree to the right, can be seen one ruined wing and the 90 foot tall chimney stack of Bldg. No. 13, the Smiths or Forging Shop.

In the right corner foreground is the east and south(rear) elevations of the John Brown Fort, Musket Factory Bldg. No. 1, the Engine and Guard House(Park Bldg. No. 63), with the wooden cuplola mounted on its roof. To the left of the "Fort" is Bldg. No. 2, the Armory Office Building, the former Superintendent's 1809 residence, which was remodelled for use as a office in 1847-48. The long one-story service wing to the main dwelling was added in 1828-29. The one-story ruined brick building, with three doors, located to the left of the main Office Building and abutting on the brick enclosing wall, is probably the "new priv y at offices " that Superintendent Alfred M. Barbour reported as being completed in his annual report for the fiscal year ending June 30, 1860.



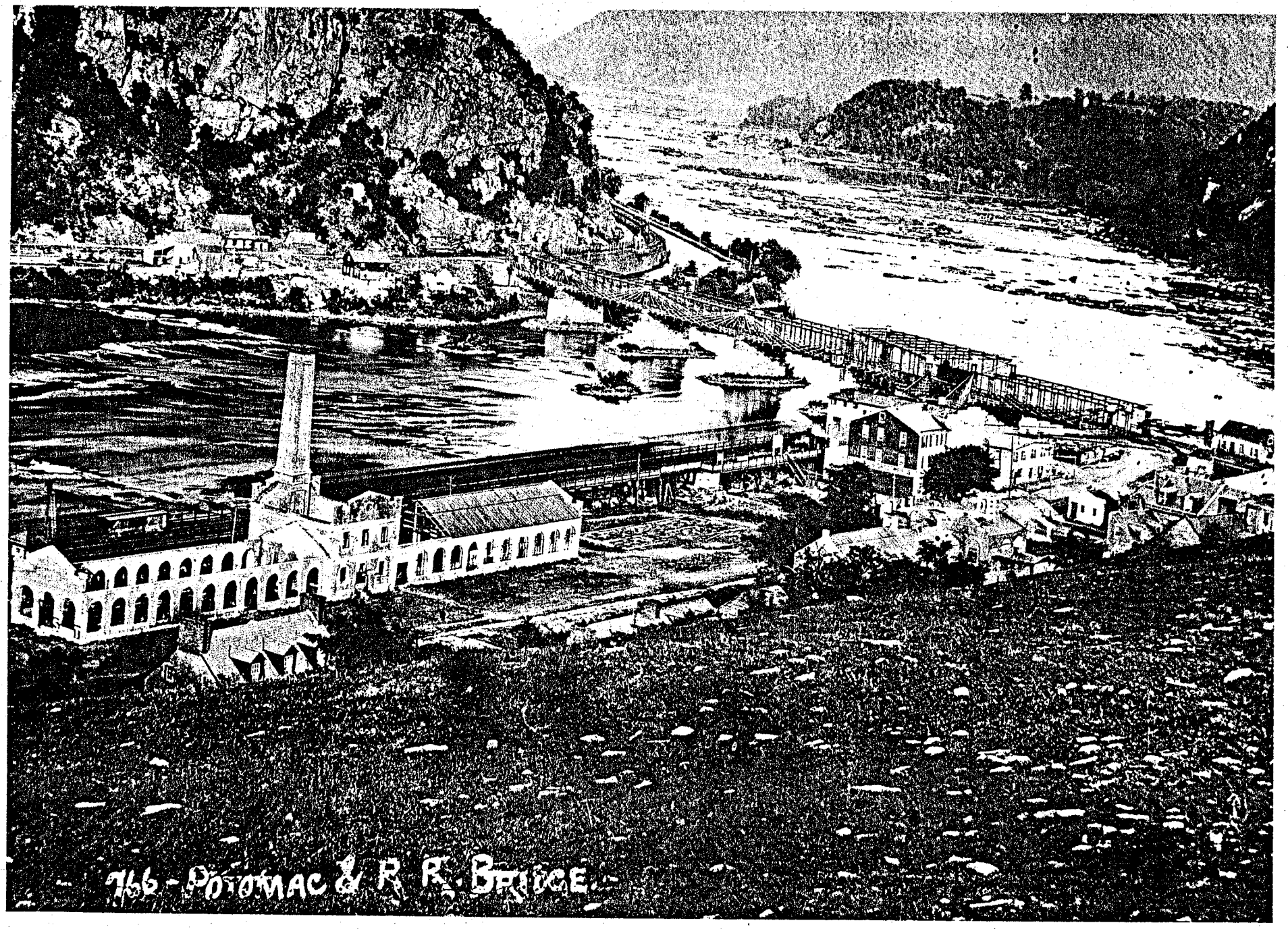
JOHN BROWN'S FORT AND THE OLD ARSENAL BEFORE THEY WERE REMOVED.

MUSKET FACTORY YARD, 1884 -1889

Harpers Ferry NHP Negative No. HF -45

At the left, an excellent view of the huge Smiths or Forging Shop, Musket Factory Bldg. No. 13. At the foot of the hill to the right can be seen the John Brown "Fort" (Park Bldg. No. 63), with a wooden cuploa on its roof, still standing on its original site. This is Musket Factory Bldg. No. 1, the Engine and Guard House. To the left of Bldg. No. 1 can be seen the roof of the Armory Office Bldg., Bldg. No. 2. The one-story house to the right of the "Fort", on the opposite side of Shenandoah Street, is probably the Superintendent's Old Office, which was located on Lot 1, Block A, of Old Arsenal Square. Just to the right of the "Fort" on the opposite side of North Cliff or Potomac Street can be seen dormer windows that were located in the roofs of Park Bldg. No. 8 and 9.

To the right of the Smiths Shop, Bldg. 13, can be clearly seen the stone foundations of Musket Factory Bldg. No. 12, the Warehouse. (See HF- 113, following page) for a continuation of this view to the right).



National Park Service

HF-45

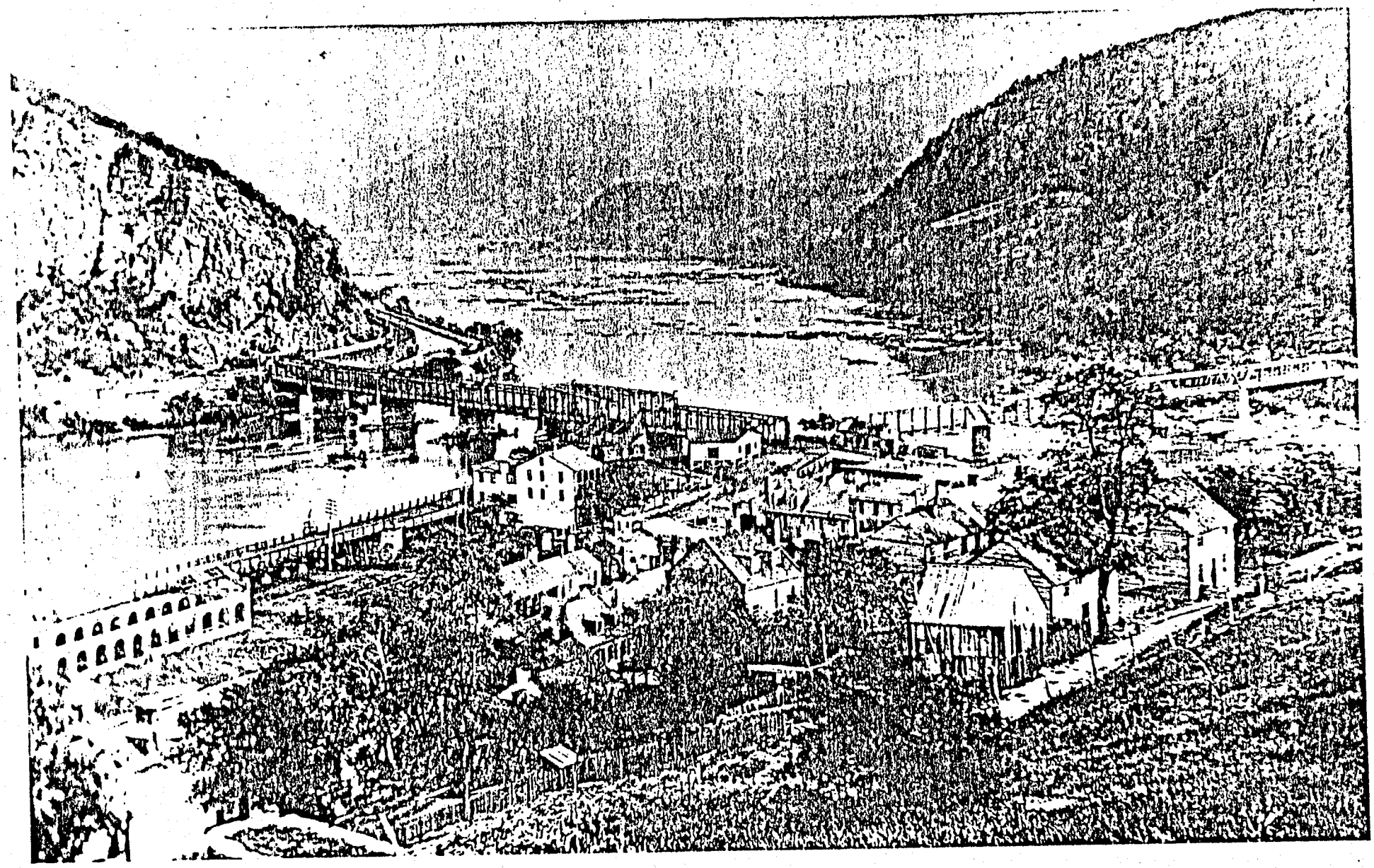
The remains of the U. S. Armory, circa 1882

MUSKET FACTORY YARD, 1884 - 1889

HF- 113, Harpers Ferry NHP Negative.

This photograph was probably taken on the same day as the preceeding photo, HF- 45.

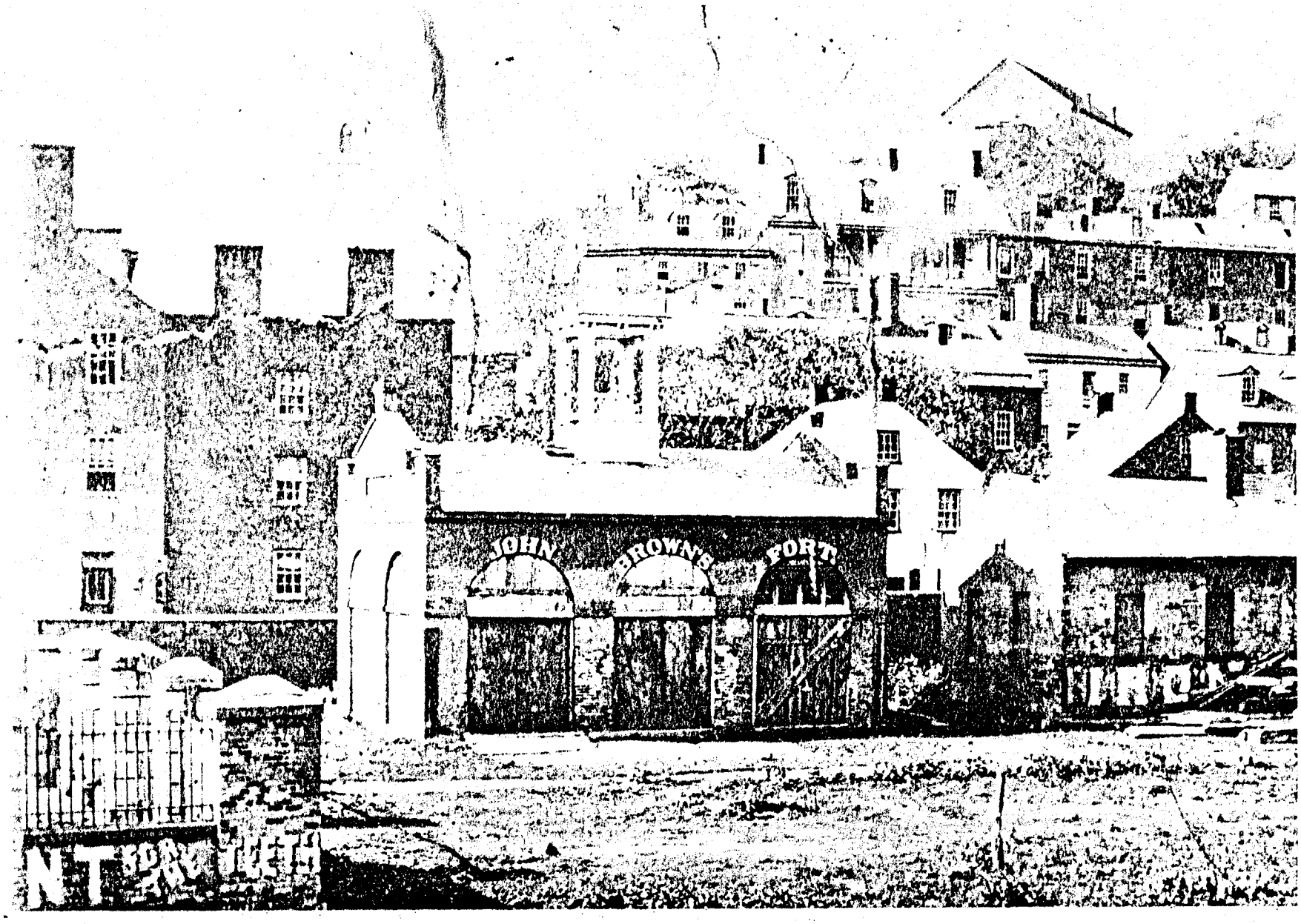
At the left can be seen the east wing of the large Smiths or Forging Shop, Musket Factory Bldg. No. 13, to its right are the the stone foundations of Musket Factory Bldg. No. 12, the Warehouse. On the opposite side of the Musket Factory Street is the "John Brown Fort,"(Park Bldg. No. 63), with the wooden cupola on its roof. This is Musket Factory Bldg. No. 1, the Engine and Guard House. To the left of Bldg. 1 is the Armory Office, Musket Factory Bldg. No. 2.



JOHN BROWN'S FORT, HARPERS FERRY, 1882

Harpers Ferry NHP Negative No. HF - 379.

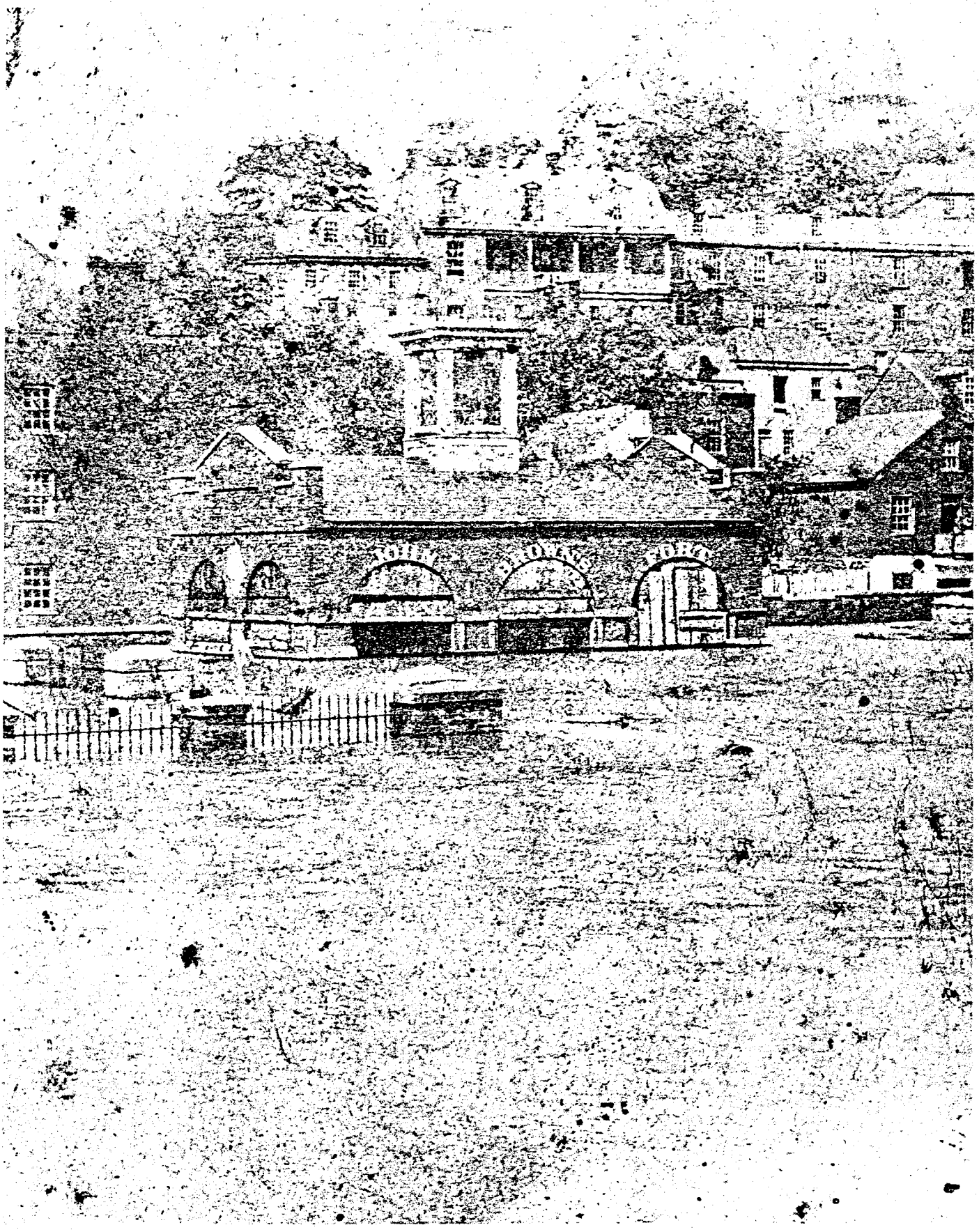
In center, the south(side) and north(front) elevations of Musket Factory Bldg. No. 1, the Engine and Guard House, also known as the "John Brown Fort," (Park Bldg. No. 63). To its right is the one-story rear wing of Armory Offices, Musket Factory Bldg. No. 2. Note that the Armory Gates and entrance walls, brick, with iron paling fence, at the left, is intact. This indicates that the property was still owned by the U.S. Government and this photo was taken before the U.S. sold the Musket Factory yards and its buildings on October 22, 1884.


JOHN BROWN'S FORT

The John Brown Fort in the 1889 Flood

Harpers Ferry Negative No. HF - 100.

The "John Brown Fort (Park Bldg. No. 63 and Old Musket Factory Bldg. No. 1, the Engine and Guard House), stands in the center half- submerged by waters of the 1889 flood. Note that to the right of the "Fort", the Armory Office Building. Bldg. No. 2, has been demolished, thus opening up the view to Park Bldg. No. 5, which is located on the south side of Potomac Street. Note to the left, the stone piers of the main entrance gate and the brick enclosing walls, with iron paling fence, appear to be largely intact.

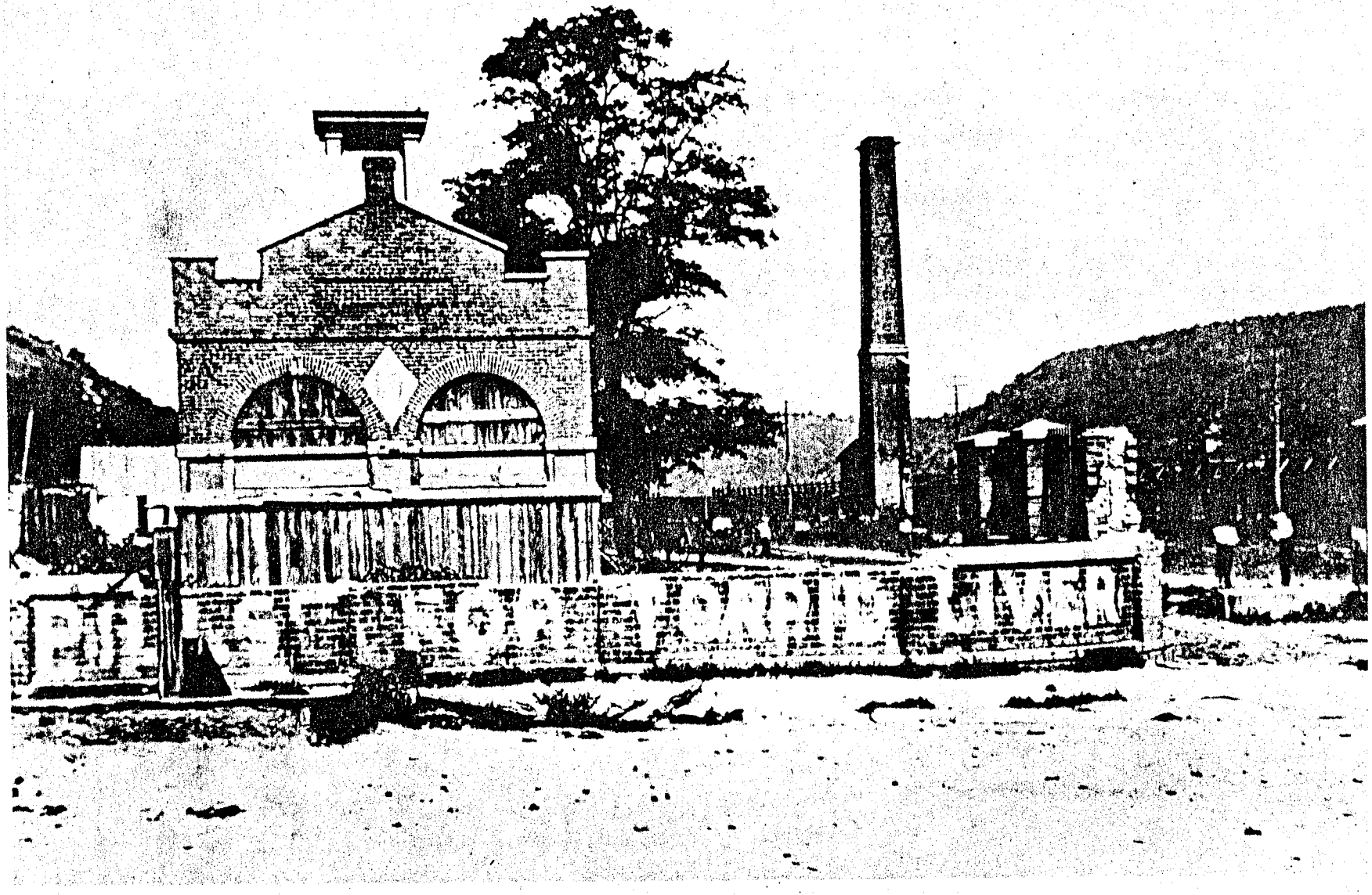


JOHN BROWN FORT, Ca. 1890-91.

Harpers Ferry NHP Negative No. 59

At the left is the east(side) elevation of the "John Brown Fort" (Park Bldg. No. 63), old Musket Factory Bldg. No. 1, the Engine and Guard House, still standing on its original site. To the right can be seen the 90 foot tall chimney stack of Bldg. No. 13, the Smiths Shop. The two wings and center buildings of this Forging Shop have been demolished.

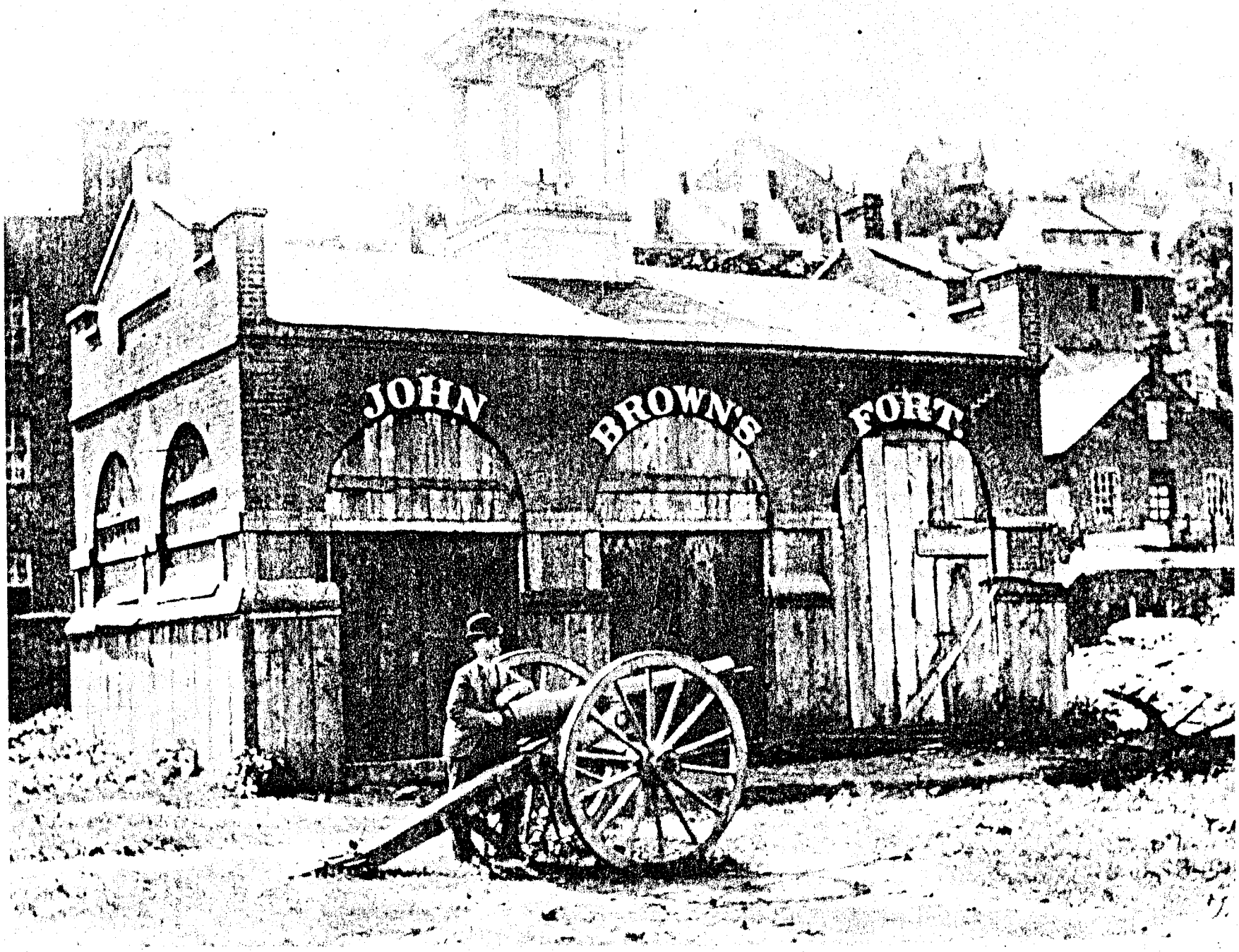
Note that the iron paling fence and the iron gates of the Musket Factory Main gate and entrance walls are missing. These were purchased by Alexander Murphy of Harpers Ferry to protect his coal yard. The original iron fence and stone gates still stand on the Murphy heirs' Buena Vista farm near Harpers Ferry in 1981.



The JOHN BROWN FORT, 1890-92

Harpers Ferry Negative NO. HF- 190.

East(side) and north(front) elevation of Park Bldg. No.63, the old Musket Factory Bldg. No. 1, the Engine and Guard House, better known as the "John Brown Fort". Note to the right that Armory Office Bldg., old Musket Factory Bldg. No. 2, has been demolished. The removal of the Offices opened up the excellent view of Park Bldg. No. 5. which stands to the right of the "fort" and on the south side of Potomac Street.

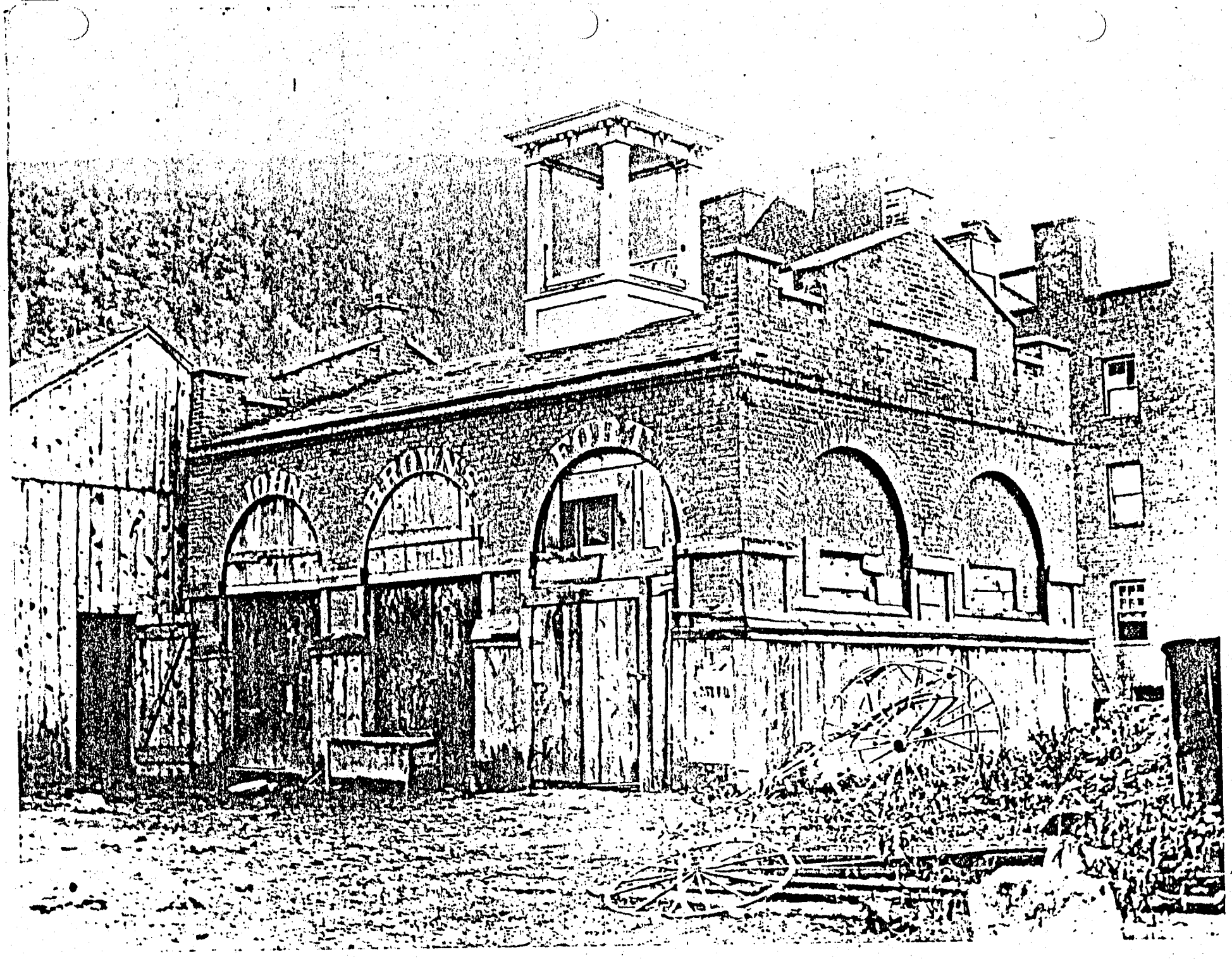

JOHN
BROWN'S
FORT.

No. 28

JOHN BROWN" FORT, 1890-1892

Harpers Ferry NHP Negative No. HF- 495.

A view of the north(front) and west(side) elevations of the John Brown Fort(Park Bldg. No. 63), the old Musket Factory Bldg. No. 1, the Engine and Guard House, which had been built in 1847-48. To the right of the "Fort" can be seen Park Bldg. No. 8, the rear 3-story brick service wing to Park Bldg. No. 9.


JOHN BROWN'S
BODY

No. 29

MUSKET FACTORY YARD FROM LOUDOUN HEIGHTS, 1892 - 1896

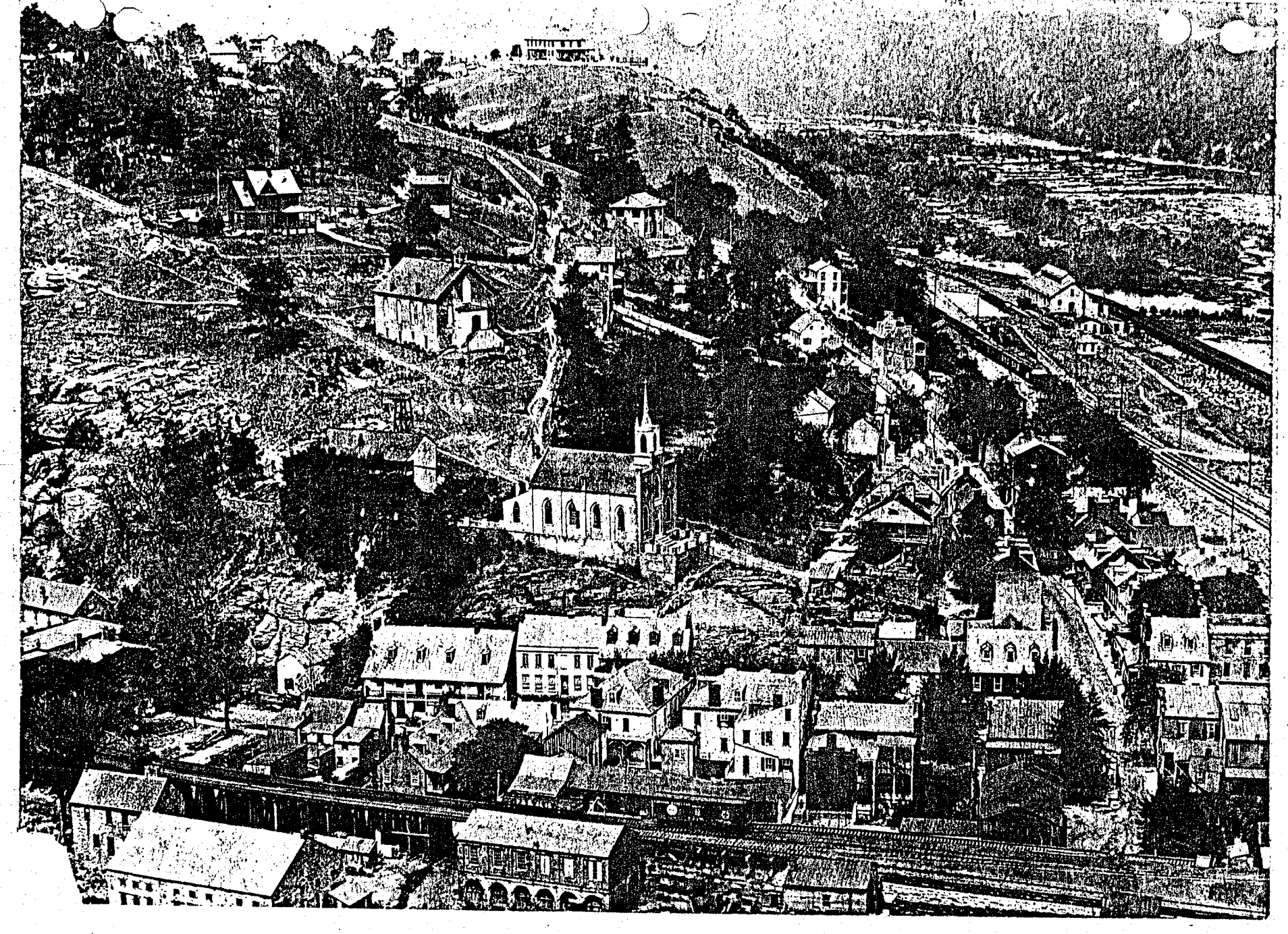
Harpers Ferry NHP Negative No. HF - 99.

This photograph was taken after 1892 because the B. &. O. R.R. has started to relocate its main line (see upper right) from its iron trestle on top of the Potomac River Wall, to a new location on top of the Armory Canal, which had been filled in and covered with an embankment. The photo was also taken prior to 1896, because St. Peter's Roman Catholic Church stands in the center of the picture in its original format. The remodelling of the church to its present form began in 1896.

Thomas H. Savery's pulp and paper mill,erected after 1887, can be seen in the upper right hand corner of the photo, adjacent to the iron railroad trestle. It stands on the approximate site of the Rolling Mill, Bldg. No. 18.

High Street comes down the hill at the right, the second house from that street,standing on the south side of Shenandoah Street, is Armory Dwelling House No. 1(Park Bldg. No. 36), the Master Armorer's new Quarters, built in 1858-59. To its left stands Armory Dwelling House No. 2, the Master Armorer's Old Quarters(Park Bldg. No. 34-35), built 1812. House No. 2, a two- and -one-half brick house in 1859, was greatly remodelled into a three and one-half story structure in 1870-72. Id Indemiately

Directly south(below) Armory Dwellings No. 1 and 2, on the south side of the Winchester and Potomac Railroad tracks stands the large town Market House, designed by Major John Symington and erected in 1846 - 1847 . This is the large two-story brick building with an arched first story.



MUSKET FACTORY YARD FROM LOUDOUN HEIGHTS, 1896 - 1901

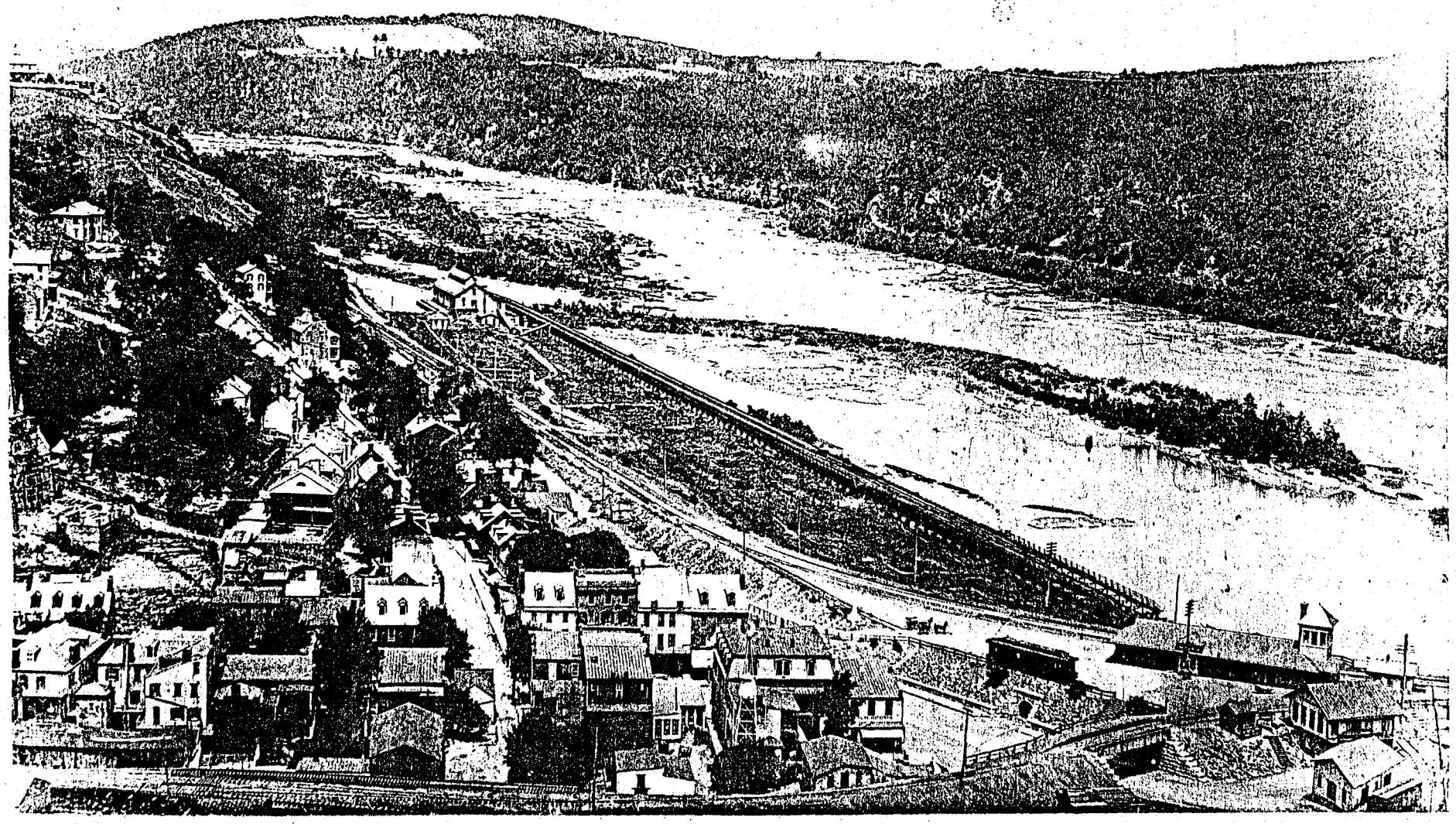
Harpers Ferry NHP Negative No. HF- 92

This photograph was taken after 1896, because the remodelling work is in progress on St. Peter's Roman Catholic Church at the right side of the photograph. The picture was taken prior to 1901, because Park Bldg. No. 3, fronting on High Street in the center of the photo has not yet been rebuilt into its present format.

The Baltimore and Ohio Railroad main tracks west have been shifted from their 1838 position on the iron trestles atop the stone Potomac River wall to a new location on top of the old Armory Canal along the south side of the Musket Factory Yard. The canal has been filled in and an embankment rises over it on which the tracks stand. The small white stone monument near the approach to the new railroad station(with several horses and carriages adjacent) marks the original site of the "John Brown Fort'(Park Bldg. No. 63- the Old Musket Factory Bldg. No. 1- Engine and Guard House).

At the far or upper end of the Musket Factory yard, adjacent to the iron trestles, can be seen Thomas H. Savery' pulp and paper mill, which is built on the approximate site of Muskat Factory Bldg. No. 18, the Rolling Mill.

High Street comes down the hill in the center. All the structures situated to the right of that street and on the south(lower) side of Shenandoah Street are located on Old Arsenal Square, Lots No. 1 to 7, and were constructed after 1870. All of these commerical structures were demolished by the National Park Service in 1958 in order to restore Old Arsenal Square.



MUSKET FACTORY YARD FROM MARYLAND HEIGHTS,
1896 - 1901

Harpers Ferry National HP Negative No. HF- 96.

This photograph was taken after 1896, because remodelling work which started on St. Peter's Roman Catholic Church that year, is in progress. The picture was also taken before 1901, because Park Bldg. No. 3, fronting on High Street, has not yet been rebuilt in its present format. This work took place in 1901-02. In the left foreground can be seen the lower end of the Musket Factory yard, the stone river wall erected 1837-40, and the iron trestles of the B. & O. Railroad. In the center is the new railroad station and the new railroad bridge across the Potomac. The older Potomac bridge is in the lower left hand corner, as is the Shenandoah Toll bridge.

The small white stone marker near the approach to the station(between Park Bldgs. 9-8 and No.7) marks the original site of the "John Brown Fort" (Park Bldg. No. 63- the Musket Factory Bldg. No. 1- Engine and Guard House), from its construction in 1847-48 to its removal in 1892.

The mass of commerical structures on the south(left)side of Shenandoah Street and above(or west) of the Winchester and Potomac Railroad line, are located on Old Arsenal Square, Lots No. 1 to 7, Shenandoah Street. All of these buildings were constructed between 1870 and 1880.

On the shore off the Shenandoah River can be seen old Armory Dwelling House No. 43, the greatly remodelled First(1803) quarters of the Paymaster, and just above and to the right of it, the large two-story brick Market House, which was built by Major John Symington in 1846-47 for the use of the town.

Returning to the Musket Factory Yard, the stone foundations of Bldg. No. 12, the Warehouse, and of Bldg. No. 13, the large Smiths Shop, can be seen running parallel with the river wall.

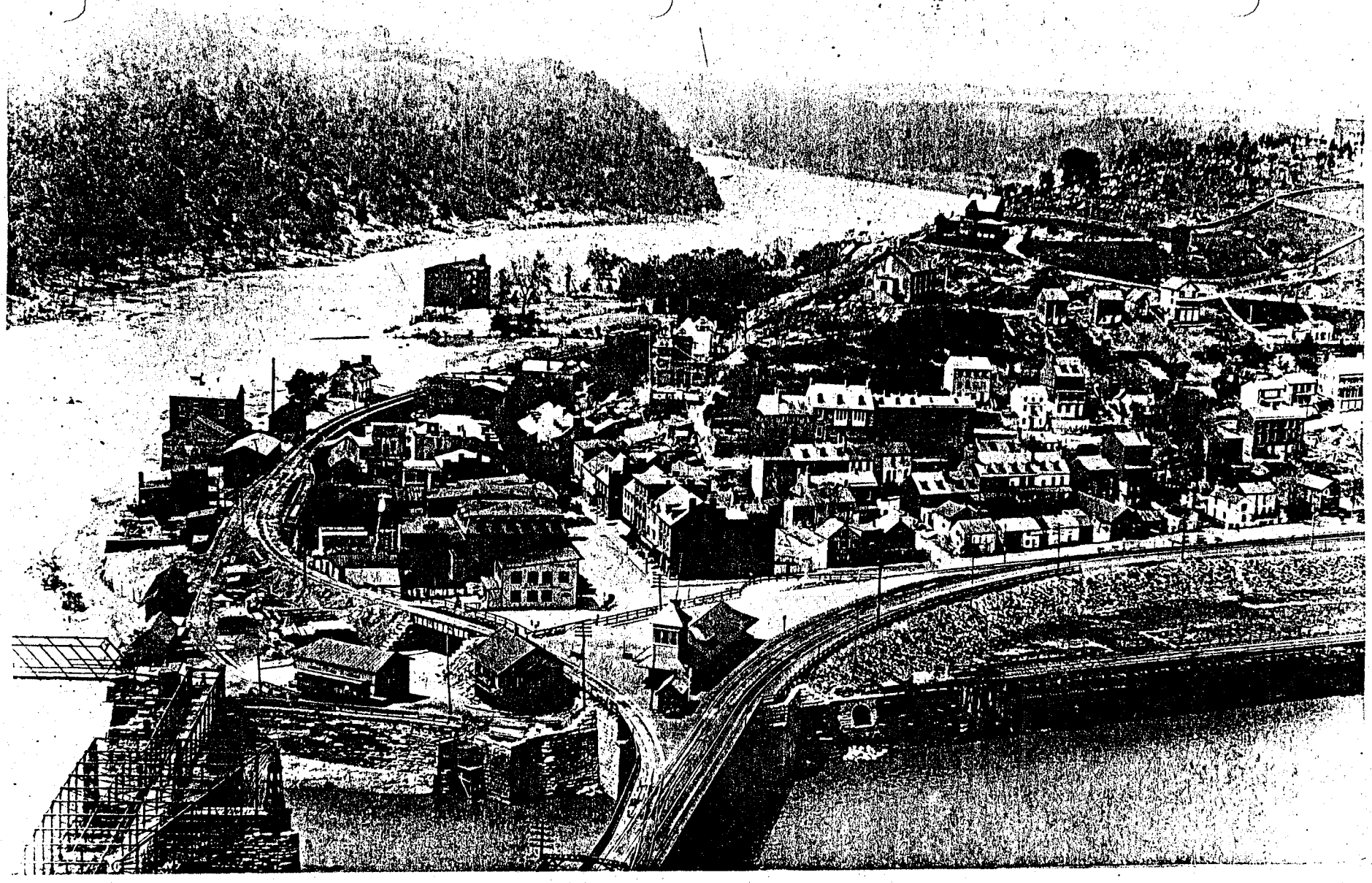


Photo No. 32

Harper's Ferry Potomac Bridge, 1859

Harpers Ferry National Historical Park Neg. HF -65

This view, probably taken in October 1859, was made from the wooden platform on top of the Baltimore and Ohio Railroad iron trestle that stood astride the B.&O and U.S. Armory river walls. The view looks east along the river front to the B.&. O. wooden railroad and toll bridge.

Buildings of the C. &. O. Canal are visible on the far(Maryland) side of the river.

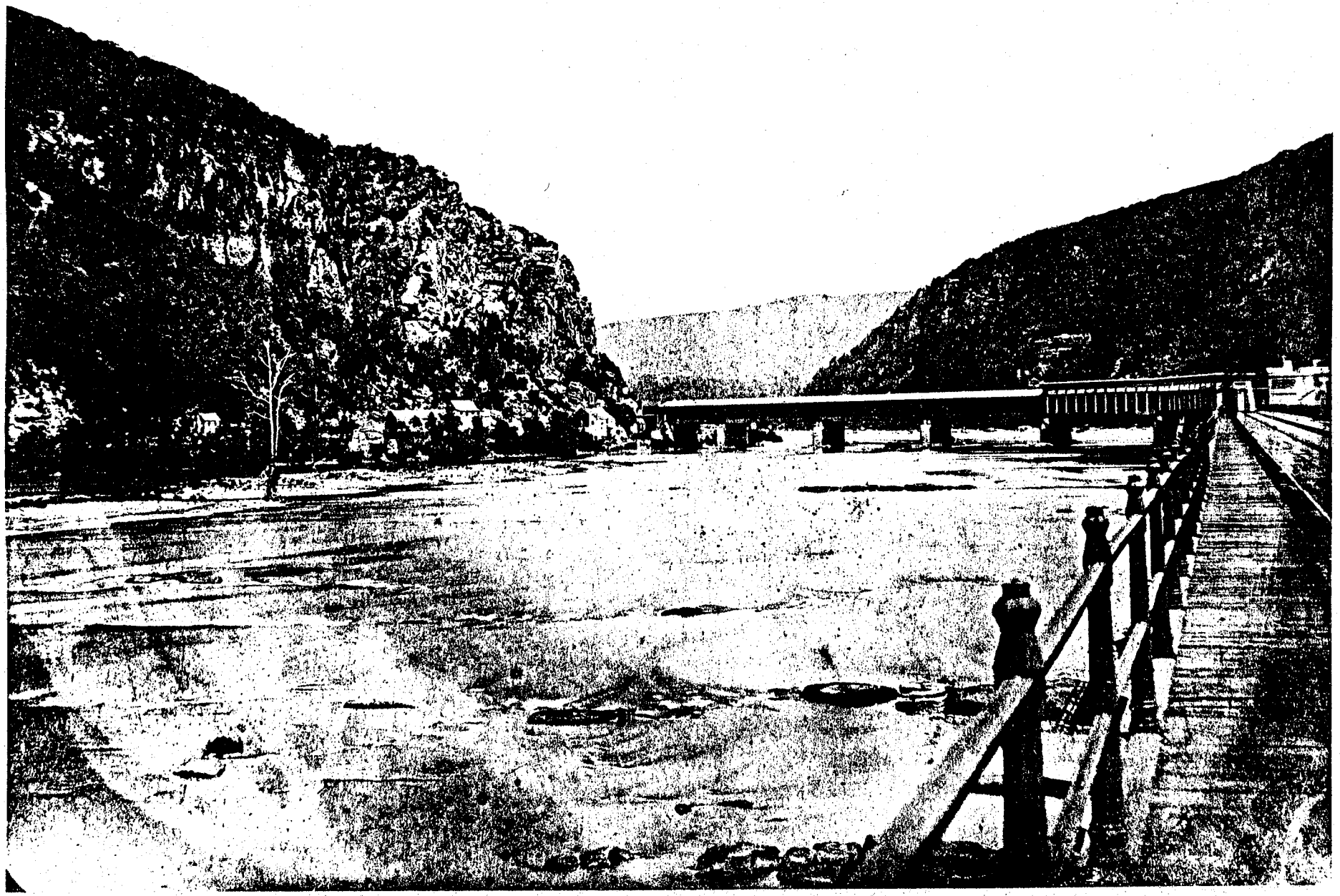


Photo No.33

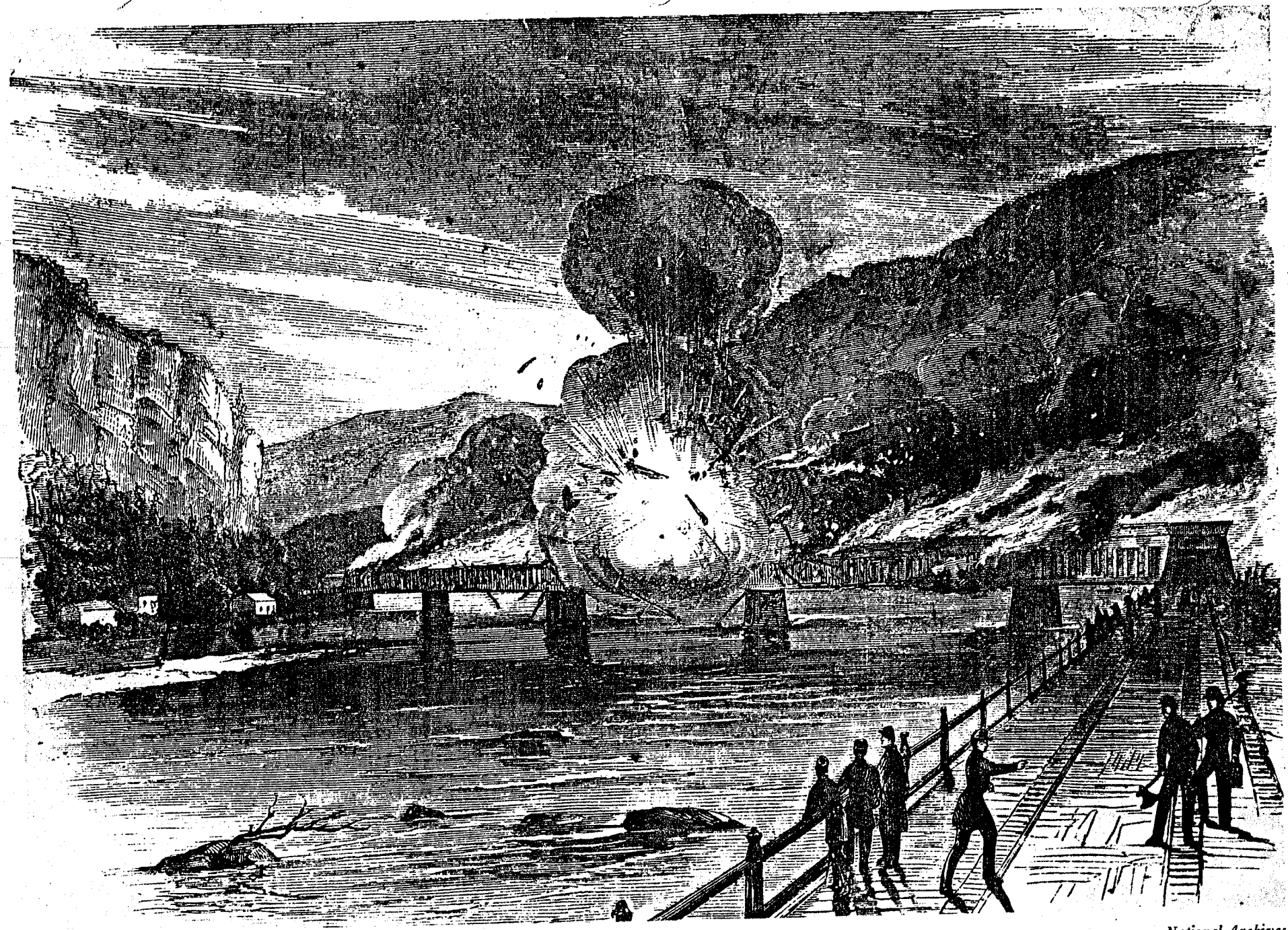
"Destruction of the Railroad Bridge over the Potomac River, at Harper's Ferry, by the Rebels, June 15, 1861"

From Harper's Weekly, June 6, 1861, page 429.

Harpers Ferry National Historical Park Neg. HF -102

The destruction actually took place on June 14, 1861.

View made from top of B.&. O. trestle looking east towards the wooden bridge.



National Archives

Destruction of the '-oad bridge by the Rebels (June 14, 1

HF-102

From *Harper's Weekly*, July 6, 1861

PHOTOGRAPH NO. 34

The U.S. Musket Factory at Harper's Ferry, Virginia, ca. 1820.1

Undated painting by an unknown 19th century Maryland artist. Original in Maryland Historical Society Collections, Baltimore, Md.

Harpers Ferry NHP Negative No. HF- 628

This undated painting portrays the U.S. Musket Factory buildings along the Potomac in in detail and with considerable historical accuracy. The two lines of large brick two-story workshops shown indicates that this painting was completed after 1813, when these structures finished. The cupola shown on Bldg. No. 2(see below)-The Bell Shop" was added to the roof of that building in March 1825, suggesting that this painting was made in the period 1825-1829, prior to completion of Wager family toll bridge across the Potomac . The toll bridge is missing from this view,

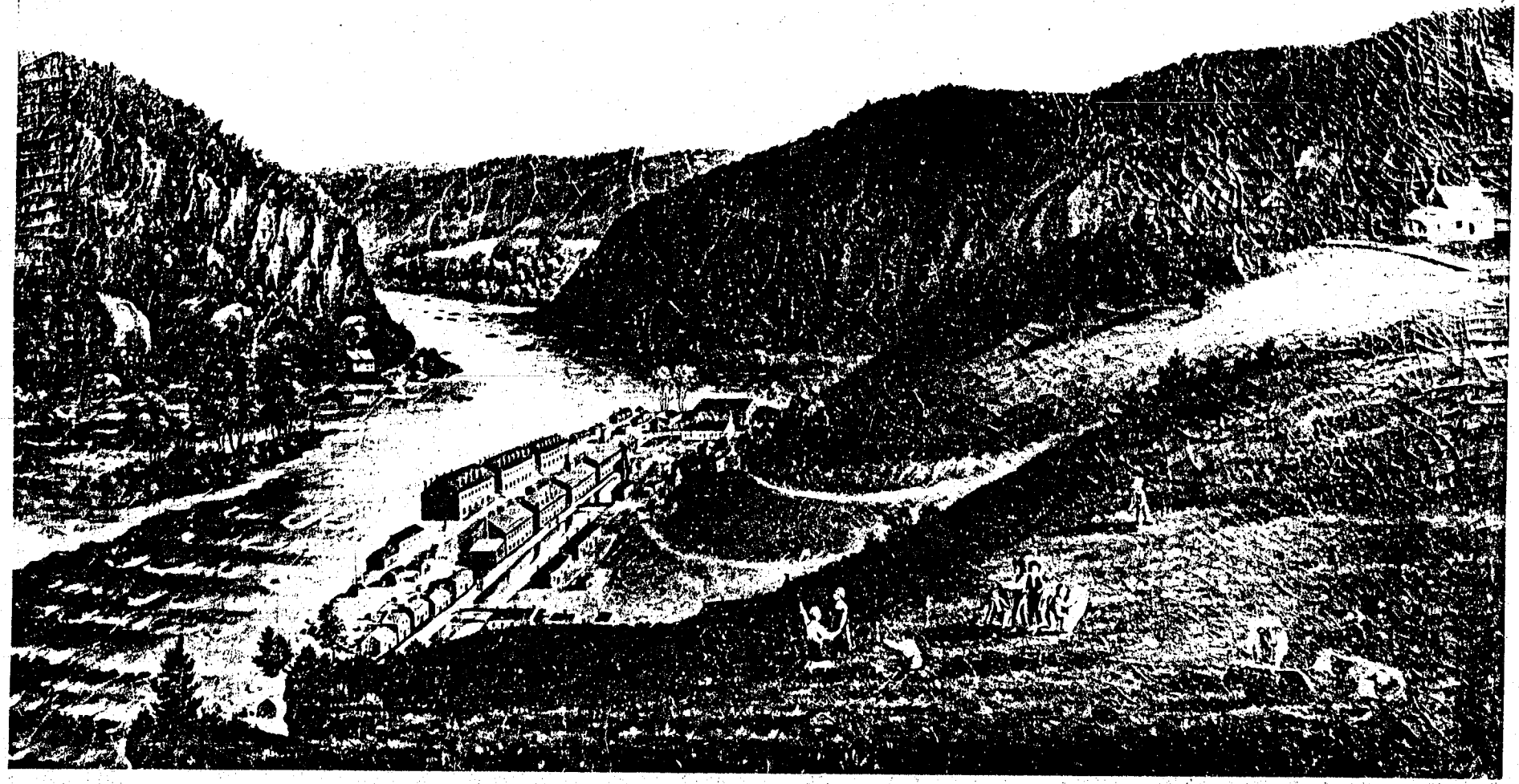
Southern line of large brick- two-story workshops fronting on the bank of the U.S. Armory Canal: reading from left(west) to right(east):

No. 5 (erected 1809-09 ,Stocking Shop, 111 bu 30 feet. Water wheel and machinery.
No. 4 (built: 1799-1800 as smiths shop, note 5 chimneys(five on each side) for ten forges., In 1821, this shop was being utilized as a storehouse. 80 by 30 feet. No machinery.
No. 3 (erected in 1799-1800 as the armory or factory, with water wheels and machinery, 120 by 30 feet. Note the cupola on its roof.) The Boring Mill in 1821.
No. 2 (built 1809-10 was the finishing shop, had water-wheels and machinery. Known as the "Bell Shop" after 1825, 131 feet by 45 feet, the largest workshop.)
No. 1 (lower two story brick house at east head of line, 36 by 30 feet, erected 1808-09 and the residence of Superintendent James Stubblefield, 1809-1829.)

The Northern line of Armory work shops(three large two-story brick buildings fronting and the bank of the Potomac River) reading from left(west) to right(east).

Shop No. 6- Built 1808-09 as a smiths and filing shop, 80 by 30 feet, note 16 chimneys(eight on each slope of gable roof) for 16 forges.
No. 7 -Erected 1808-09 as a smiths and filing shop, 120 by 30 feet; note the 16 chimneys (eight on each slope of gable roof) for 16 forges.
No. 8- erected in 1808-09 as a smiths and filling shop, 130 by 30 feet; note the 16 chimneys (eight on each slope of gable roof).
These three shops did not have water-wheels or machinery.

406



PHOTOGRAPH NO. 35

"View of Harper's Ferry, Va. (From the Potomac Side)", 1834-37.
Published by Currier & Ives, 152 Nassau Street, New York City.

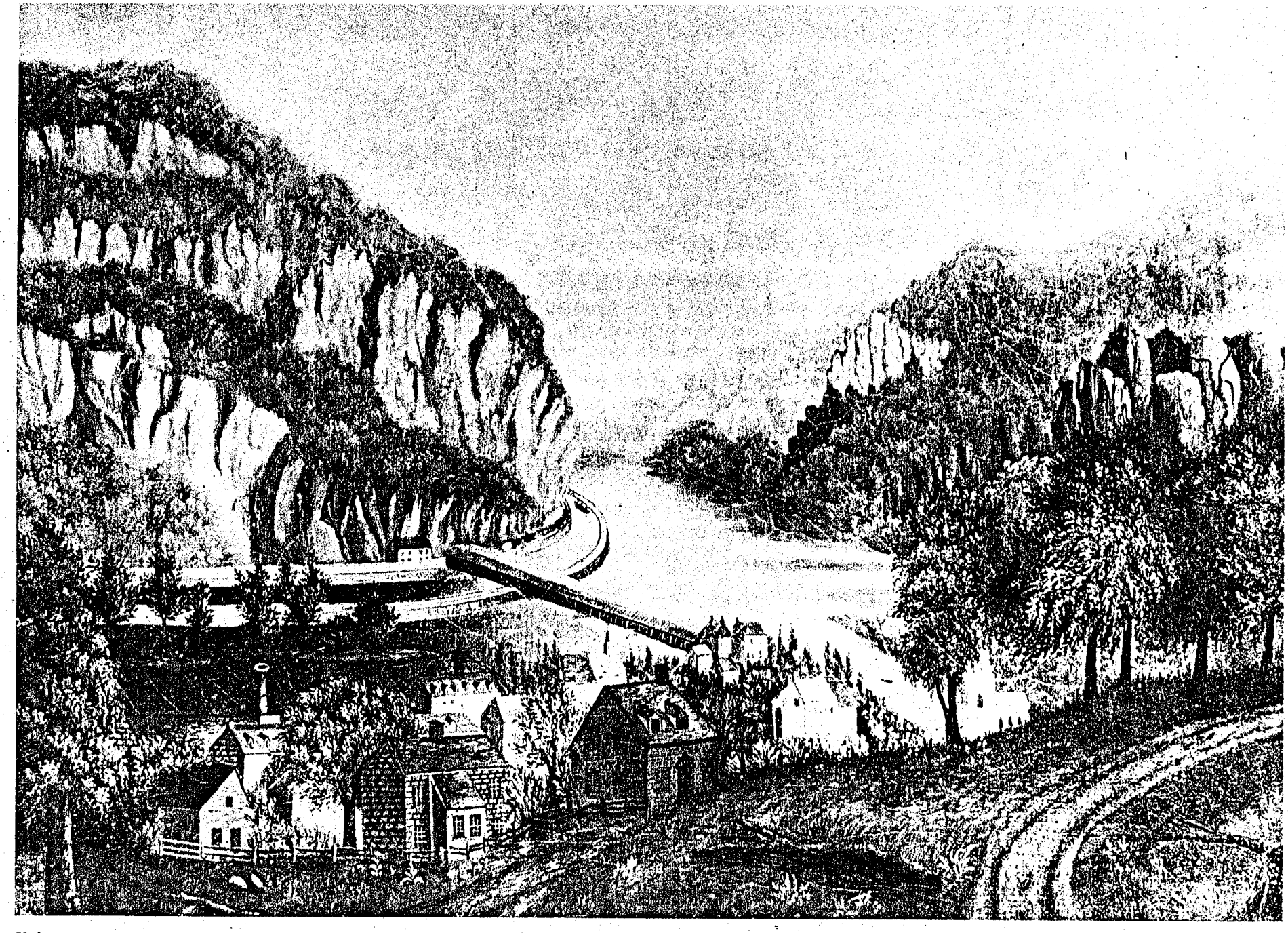
Harpers Ferry NHP Negative No. HF - 23

The fact that both the C. &. O. Canal and the B. &. O. Railroad are visible on the far side of the Potomac River indicates that this view was drawn after December 1834, when the railroad track arrived at a point opposite to Harper's Ferry. The wooden covered toll bridge across the Potomac River was owned by the Wager family of Harper's Ferry. The absence of a second bridge over the Potomac, built by the Winchester and Potomac Railroad Company, 1835- 1837, suggests that this picture was drawn prior to 1837.

This engraving gives a generally accurate impression of Harper's Ferry: some details are quite accurate (Note to the Catholic Church in right foreground, Park Buildings 1A and 1B on some closer structures, but less accurate on buildings in the distance. This drawing, however, is the most accurate of the view of Harper's Ferry that were published in the 1830's.

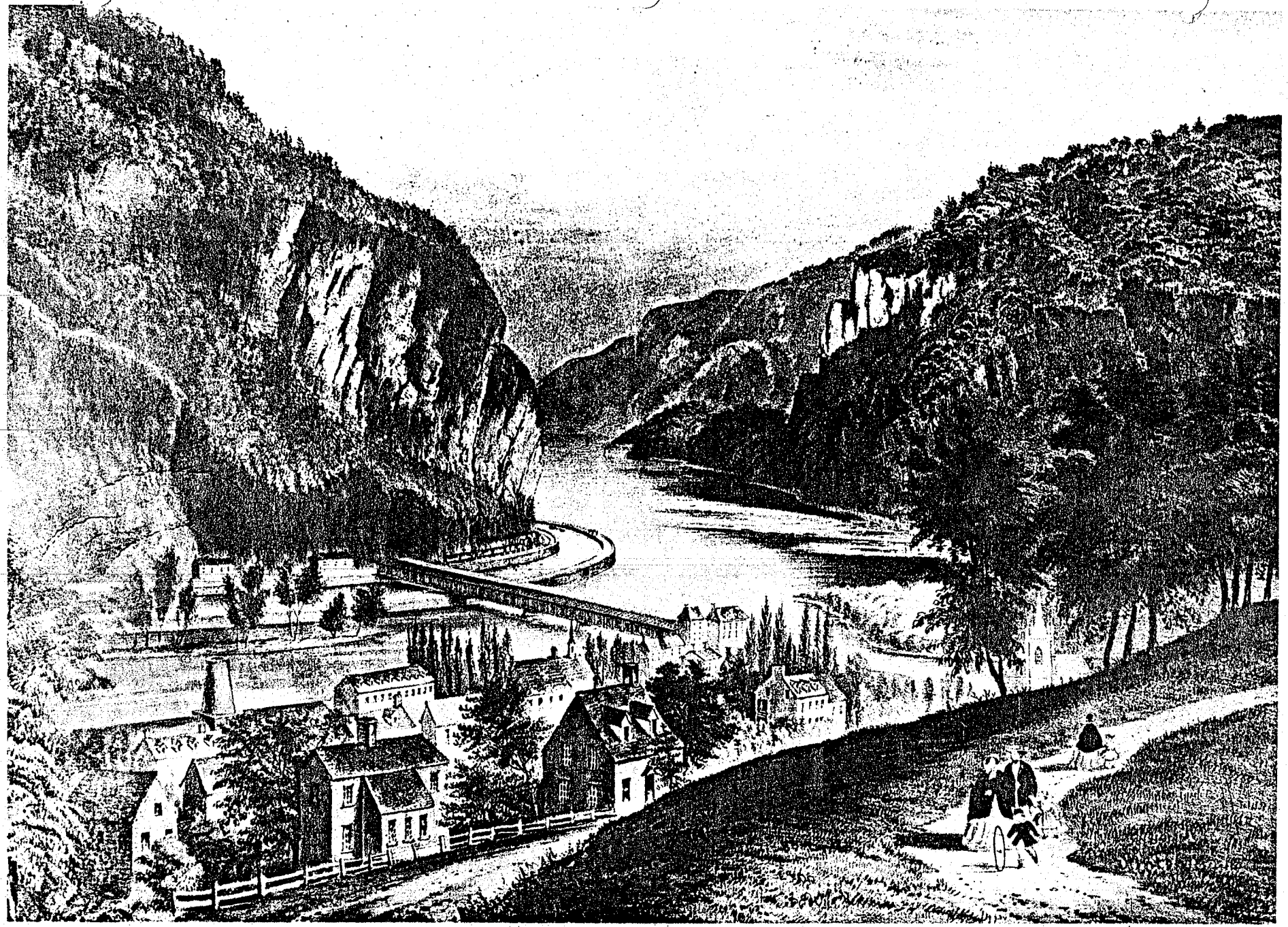
Near the south bank of the Potomac, near lower left hand corner are shown some of the Armory or U.S. Musket Factory workshops. The large and long shop with a huge stack is probably the Bldg. No. 2, "the Bell Shop, erected in 1809-10 and rebuilt with this large chimney following a fire in 1824.(1) Just to the right of the Bell Shop is the roof of Bldg. 1, Superintendent George Rust's Jr.'s quarters. Above his house can be seen a large two and one-half story brick Armory building, Probably Bldg. No. 11 on the 1834 Map. This may have been the new storehouse for iron that was built in 1834. This is the only known 1830 view of Bldgs. 2 and 11.

(1). Annual Report of Operations for Year ending June 30,1848: "A large chimney stack of masonry in the Bell Shop, to accommodate a forge fire on each floor, has been taken down...." Serial No. 537, p.347.



Unknown

This 1826 painting was the basis for the 1857 Currier and Ives lithograph (opposite).



HF-23

Currier and Ives, 1857.

August 28, 1981

Memorandum

To: Architect Archie W. Franzen, Harpers Ferry NHP

From: Historian Charles W. Snell, National Capital Team, DSC

Subject: Draft of Historic Structures and Grounds Report for the U.S. Musket Factory, 1859-61.

Enclosed is a copy of the draft of the "Historic Structures and Grounds Report for the U.S. Musket Factory, 1859-61, U.S. Armory at Harper's Ferry, Virginia, Historical Data Section, Harpers Ferry National Historical Park, West Virginia," (August 1981), 407 pages, 15 maps, and 36 photos. 22 building plan sketches. This study provides historic structure reports for 24 buildings that were standing on the Musket Factory grounds in 1859-61 and also revises the 1859 historical base map for the Musket Factory(1959-map). This report is the fourth and last of a series of four studies devoted to the physical history of the U.S. Musket Factory from 1751 to 1885. These provide data on 79 buildings.

Charles W. Snell

Charles W. Snell
Historian

Enclosures.

AUG 31 S 55 AM '81

August 28, 1981

Memorandum

To: Architect Archie W. Franzen Part II

From: Historian Charles W. Snell, National Capital Team, DSC

Subject: Draft of Historic Structures and Grounds Report for the U.S. Musket Factory, 1859-61.

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