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A HISTORY OF THE PHYSICAL PLANT OF THE U. S. ARMORY AT HARPERS FERRY, VIRGINIA. ITS EVOLUTION AND DEVELOPMENT.

PART1
1794-1841
566Pages

Compiled by
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final draft

A HISTORY OF THE PHYSICAL PLANT OF THE U.S. ARMORY AT HARPER'S FERRY, VIRGINIA, ITS EVOLUTION AND DEVELOMENT.

PART I

1794 to 1841

By

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566 pp.

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PREFACE

During the years 1957 to 1961 approximately one score of detailed and documented historical reports were prepared by National Park Service Historians on various apaspects and phases of the physical history from 1796 to 1861 of the National Armory and its plant at Harper's Ferry, Virginia. There was no opportunity at that time, however, to write a master study that would incorporate and combine the mulitude of findings of these numerous specialized studies into one coordinated report that would provide an comprehensive overview of the origin, construction, repair, and development of all phases of the physical history of the plant of the U.S. Armory at Harper's Ferry. This is the purpose of the present report, in Volume I, to provide such an overview for the years from 1796 to 1841. Descriptions and locations of the buildings situated at the U.S. Musket Factory, on U.S. Arsenal Square, and at the U.S. Rifle Factory on Shenandoah, as they appeared in the years 1802, 1813, 1821, 1834, and 1841, will be found in the narrative. The problems of providing housing and constructing Armory Dwelling Houses are also considered, as is the construction and repair of canals and dams.

The present study, however, is more than a simple rehash of the old reports; it is in fact a complete restudy of the question using thousands of documents that were not available in 1957. This "new" evidence, the records of the Harper's Ferry Paymasters from 1817 to 1851, National Archives Record Group No. 217, is discussed in detail in the Biblography, p.547. Here it will suffice to say that the vouchers issued by the Paymaster to pay for construction and repair often contained information on cost, details of work, and the names of the builders that generally was not included in the correspondence and reports related to these projects. This data has enabled the present writer to fill in many details and to answer some questions on which there was little or no evidence in 1957.

Although a whole new element has been added to the physical history of the Harper's Ferry Armory by the recent findings, the writer was greatly assisted in his study and wishes to acknowledge his endebtedness to the solid studies produced by the National Park Service Historians during the years 1957 to 1961, namely, by Herbert L. Kissling, Philip R. Smith,Jr., Charles W. Snell, and Arthur L. Sullivan. The author further wishes to thank Park Librarian Hilda E. Staubs of Harpers Ferry National Park Staff for her cheerful and important assistance in 1979-80 in providing copies of many pages of documents from the Park collections that were vital in writing this study.

At the National Archives at Washington,D.C., the writer also wishes to acknowledge that valuable assistance that he received in 1979-80 from three Archivists, namely, Mr. William Sherman for documents in Record Group 217; and to Mr. Donald Helms and Mr. James Rush for records in Record Group No. 121.

In Volume II, it is planned to trace the physical history of the Harper's Ferry Armory plant from 1842 until its destruction in June 1861.

Charles W. Snell
Washington, D.C.
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CHAPTER I

I. Establishing the First National Armory- Springfield, 1793-95

In 1793 Europe was in flames: the revolution had taken place in France and its king had been guillotined; next France declared war on Great Britain and Spain and the war began to spread over Europe.

The United States Federal Government, just established under its new Constitution in 1789, was still offically an ally of France. In the treay of 1778 the United States had guaranteed French possession of her West India Islands. If the British navy attacked these islands, France would most certainly demand American assistance and it was difficult to see how the United States could honorably refuse to enter the war on the side of France.

The United States [illegible], militarily speaking, however, was a pitful, weak infant in 1793. In order to permit the nation to recover from the ravages of the War for Independence both the Continental and new Federal Governments had permitted the armed forces to lapse. The Continental navy, which had numbered 34 warships in 1777, had been disbanded in 1783. Men of the Continental armies, who had numbered more than 70,000 officers and men during the 1776 campaign, had returned to their firesides and many had sunk into their graves. The total strength of the United States Army, December 12,1795, was 3,228 and of this force, 2,251 officers and men, under the command of General Anthony Wayne were tied up on the western frontier for the purpose of suppressing a dangerous Indian uprising that had been in progress since 1791.[1]

In this dangerous situation President George Washington, his Cabinet, and the U.S. Congress took the first steps to recreate an army, a navy, and to fortify the coastal cities.

1. American States Papers- Military Affairs, I, p.109. Return of the present Military force of the United States, Secretary of War Thomas Pickering, Dec. 12,1795. Hereafter referred to as ASP.

As an early step in this process, Secretary of War Henry Knox, on December 14,1793,took a survey of revolutionary war ordnance, arms, stores and military then in the possession of the United States. He reported to Congress that as a result of "the casual circumstances of the late War,..these stores were accumulated principally at the following points, viz: New London, in Virginia; Philadelphia; West Point,on Hudson River (in New York); and Springfield, on Connecticut River(in Massachusetts); all of which, perhaps, excepting Springfield, are improper places for magazines."

"The important characteristics for magazines and arsenals," Knox continued," seem to be perfect security against enemies, internal and external. blended with an easy access by water. The expense of land transportation of heavy articles, for a series of year, compared with that by water, renders the latter quality indispensable for a magazine."

Knox then made the following three recommendations to Congress, writing:

"The situation of the United States would seem to require, that three capital magazines should be established permanently, one for the southern, one for the middle, and one for the eastern(New England) States, with such subdivisions as may be indispensable for general use.

"(2nd) It would also seem to be a dictate of sound national policy, that the United States should always possess one hundred thousand arms placed in their respective arsenals, and that the battering and field artillery and ammunition should be in ample proportion.

"(Finally) It is presumed that all the cannon, arms, and ammunition required by the United States, might be fabricated among ourselves. It is possible the expense may be greater than if the articles were

"inported, but this circumstance is not of such moment as to be compared with the solid advantages which would result from extending and perfecting the means upon which our safety may utlimately depend."[2]

Knox followed this up on March 4,1794, when he provided Congress with estimates for establishing two additional arsenals, in addition to the existing brick arsenal at Springfield, Massachusetts, totaling $59,000, or $ 29,500 for each, and also "An estimate of the annual expense of the institution of a National Armory, of one superintendent and seventy workmen, and thirty boys." The latter cost was placed at $ 22,865.00 per year and it was calculated that this force of 101 workmen would produce 4,200 muskets and bayonets a year.[3]

On April 2, 1794, President Washington approved "An Act to provide for the erecting and repairing of Arsenals and Magazines, and for other purposes." The law directed the President to establish three or four arsenals with magazines for the safe keeping of military stores in such places as will best accommodate the different parts of the United States. He could use the existing arsenals at Springfield, Massachusetts, and Carlisle,Pa. for this purpose if he so chose. The sum of 59,000 dollars was appropriated to erect and repair the arsenals.

Congress also directed "That there shall be established at each of the aforesaid arsenals, a national armory, in which shall be employed one superintendent, and one master-armourer(who shall be appointed by the President of the United States) and as many workmen as the Secretary for the department of war shall, from time to time,

2. ASP, I, p. 44. Knox to the President of the U.S.
3. ASP, I, p.65-66.

"deem necessary,so that the whole number at all the armories shall not exceed one hundred." The superintendent of each armory was to be paid $ 70.00 a month,and the master armorer was to receive $ 50.00. Congress appropriated $ 22,865.00 for defraying the expense of the national armories for one year. A superintendent of military stores, with a monthly salary of $ 125.00, was to be appointed by the President to serve in the War Department and to be responsible "to superintend the receiving, safe keeping and distribution of the military stores of the United States." Finally, Congress appropriated $ 340,000 for the purchase of arms, ammunition and military stores.[4]

Springfield,Massachusetts, was to be the site of the first National Armory. On February 1,1777, after carefully studying possible sites in New England, Brigadier General Henry Knox, Chief of the Continental Artillery, had submitted a report to General Washington recommending Springfield as "more convenient and much better calculated for a Elaboram and Cannon Foundry than any other place in the New England States." Endorsing Knox's suggestions, Washington forwarded the request to the Continental Congress for action.[5] On April 14,1777, the Congress accordingly resolved "that the resolution from the 27th of December last for erecting a Magazine and laboratory in the town of Brookfield, in the State of Massachusetts bay be repealed, and that, instead thereof, a magazine sufficient to contain 10,000 stands of arms and 200 tons of gunpowder, and a laboratory adjacent thereto, be

4. A U.S. Statues at Large, I, p. 352.

5. John C. Fitzpatrick, The Writing of George Washington,vol 7, p.145-146. Washington to President of Congress,February 17,1777.

"erected at Sprinfield, in the said state."[6]

On July 17,1777, the Continental Congress further directed "that a Foundry be established at Springfield, in the Massachusetts Bay for the casting of Brass Field Pieces, Howizters and Mortars."[7] Springfield functioned as an arsenal and magazine during the remainder of the War for Independence, storing arms, powder, making paper cartridges and casting brass cannon, but no small arms were produced.

In 1795 President George Washington and Secretary of War Henry Knox immediately chose Springfield to be a National Arsenal and also to be the site of a new National Armory which was to manufacture muskets. On December 12,1795, Secretary of War Timothy Pickering, in a report to the U.S. Senate on the progress of the search for new arsenal sites, wrote in regards to Springfield:

"Springfield, in the State of Massachusetts, was at once fixed on as a proper situation for the arsenal to be established in the eastern (New England) division of the States, Magazines,for military stores,had been formerly erected at that place. Some additional buildings have been made, and a number of workmen collected for the purpose of repairing and manufacturing. The former has been executed, and the latter commenced."[8]

The Ordnance Department records indicate that 28 workmen were assembled at the Springfield Armory in 1795 and that they were able to produce 245 muskets prior to December 31,1795.[9]

6. Journals of the Continental Congress, edited by Worthington C. Ford, Vol. VII, p 266, also see p. 139, for February 20,1777 report of Board of War on Washington's prpposal.
7. Ibid.,Vol. VIII, p.561.
8. ASP, I, p. 109-110.
9. ASP, I, 130-131;II,478 for number of arms. Vol.V,p.915,for number of workmen.

Despite the fact that Europe was at war, the United States in danger, and even through President George Washington used his utmost powers to quickly establish a second arsenal and the second National Armory at Harper's Ferry, Virginia, six more years were to pass and Washington was to be in his grave before the first arms were to be produced at the U.S. Armory at Harper's Ferry in 1801.

CHAPTER II

II. Acquiring the Site for the Second National Armory,

The one person who deserves the credit and/or blame for establishing an National Armory and Arsenal at Harper's Ferry is George Washington. Firmly convinced that the Valley of the Potomac would emerge as a major industrial and transportation center, supporting a large population, Washington hoped that the development of a U.S. Armory at Harper's Ferry would be an important contribution toward the rise of the new Federal City being planned on the Potomac at Washington, D.C., and that the manufacturing of arms at Harper's Ferry would help the Nation's new capital develop into a leading commercial city.

Washington had begun work on a project to develop the Potomac region in 1785. Under his energetic leadership, the Potomac Company, or offically, the "Potowmack Company,", was organized in Maryland and Virginia in May 1785, for the purpose of clearing and making navigable the Potomac River to its source. This vast project was an ambitious effort by private means to bind the West to the 13 original States by making the river an avenue of commerce for the back country. Washington became the first president of the company board and continued in that capacity until he became President of the United States in 1789; he continued to be interested in the affairs of the company until his death in 1799.[1]

Under acts and resolutions of Virginia and Maryland, canals were to be cut where necessary and locks and other works erected on both

1. Private individuals purchased 361 shares of stock at L 100 a share. The State of Virginia purchased 120 shares and Maryland later acquired 220 shares.

sides of the Potomac. Vessels drawing one foot of water, it was believed, would be able to navigate even in the dry seasions.

From Georgetown, D.C. to Harper's Ferry there were five falls through which navigation was impossible; at Little Falls, Great Falls, Seneca, Shenandoah, and House Falls. Work on clearing the river of obstructions began in August 1785 and continued for many years. By 1796, however, boats carrying from 100 to 120 barrels of flour passed from New Creek, 12 miles above Cumberland, the length of the Potomac to Great Falls, where locks were still under construction on the Virginia side. Here a portage of about half a mile was necessary, from this point the river was navigable, via the Little Falls canal, built in 1794-95, to the tidewater. The Potomac was to be open for its entire length when the canal and locks at Great Falls were completed in 1802.[2]

As part of his duties as president of the newly formed "Potowmack Company," George Washington visited Harper's Ferry in August 1785 and was much impressed by the water power potentials of the Potomac and Shenandoah Rivers at that junction of the rivers.[3] Ten years later, in 1795, acting as President of the United States, Washington was to personally select Harper's Ferry as the site for the Nation's second armory and arsenal. It would provide business for the"Potowmack Company", begin the

2. Snell, Charles W., "Site History of Great Falls, Maryland, and of the Chesapeake and Ohio Canal in the History of the United States," (NPS Typescript, for National Caital Team, Denver Service Center, August 15,1979), 59 pp.

3. Fitzpatrick, John C. editor, The Diaries of George Washington,1748-1799, II.p.401. He visited Harper's Ferry from August 6 to 9,1785 and stayed at Park Bldg. 1A, the Harper House during this period- the house was then a tavern.

industrialization of the Potomac Valley, and help foster the rise of new Federal City. But it was not to be an easy victory- it required four years of effort on Washington's part to spur the War Department on until the site was finally acquired.

The Search for a Armory Site on the Potomac

Following the passage of the Act of April 2,1794 for the establishment of Arsenals, the War Department dispatched engineers to search for the proper sites at which to locate the additional arsenals and armories authorizied by the 1794 law. Secretary of War Timothy Pickering, on December 12,1795, described the progress of this search to Congress as follows: "It having been determined to erect on arsenal on the Potomac, and another in South Carolina, the latter in a situation to and from which water transportation would be afforded, and the former in the vicinity of a number of iron works, the necessary orders were given in the year 1794 for exploring both countries. The agent,employed on the former, reported in the same year in favor of a siutation about twenty-five miles below the blue ridge(mountains), where a number of circumstamces inivited the establishment. In an undertaking, however, of such importance.and permannency, it was deemed expedient to make another examination. This was done last Spring(1795). The engineer (Col. Stephen Rochfontaine, a French engineer) employed, pursuant to his instructions, reported the situation of various places, where it would be practicable to erect the necessary works and magazines,with their respective advanatges and disadvantages; and at what prices they could probably be obtained. These were all extremely high; and one far exceeded the whole appropriation for all the arsenals proposed to be erected. For this reason another place, comprehending several lots of land, had the preference;and the requisite negotiations were begun for making the purchases. Before these were concluded, the attention of the Executive was called to another situation on the Potomac (at Harper's Ferry),possessing,with some difficulties to be encountered,apparently many important advantages. The engineer was again instructed to examine this place,from whence he has lately returned. The American gentleman (Col. Tobias Lear, a member of the board of directors of the Potomac Company),well acquainted with the country,and who assisted him in this(second) examination, was to have transmitted a survey of the place referred to, and of the adjacent waters on which the engineer's report would be completed. The survey has not yet been received,and the determination of the Executive is consequently suspended..."

After reporting to Congress that the engineer's report of the search for an arsenal site in South Carolina was also incomplete, Secretary of War Pickering continued:

"The prices of lands and mill seats,(for the latter must be comprenended in the plan of an arsenal,) so far exceeded those upon which the calculations were made, when the plan of erecting arsenals was projected,and rose so rapidly soon after, it is now found that the whole appropriation,for the

"the three or four arsenals which the Executive was authorised by law to erect,would be inadequate for a single new establishment. Hence,the principal object in the measures pursued during the last summer(of 1795), was to ascertain and secure the most eligible site on the Potomac, where magazines could be erected,and certain military stores be collected and safely deposited; and where, afterwards, the necessary works necessary, in the formation of all the implements of war, might be erected, as the requisite funds could be provided.

In a country where such establishments are unknown, and where the actual state of things admits of a suspension of some of them, consistently with the public safety, it would seem expedient to make an experiment with one in a central position. The obvious principles of economy recommend this caution; and the avoiding of defects likely to appear in a first attempt,and the probability of solid improvements, which experience would suggest,in a second, strongly enforce it... 4

Pickering's report to Congress, while accurate and general, omitted some interesting details of the search for an arsenal site on the Potomac. Apparently tiring of the games that the engineer had been playing in the exploration of sites on the Potomac, Washington intervened personally and directed the Secretary of War to acquire the necessary land at Harper's Ferry In his letter to Secretary of War Timothy Pickering dated September 16,1795, the President wrote:

4. American State Papers, Military Affairs, I, 109-110, hereafter: ASP.

Mount Vernon, September 16, 1795.

Sir: If, when this reaches your hands, there should be no contract or other obligation existing on behalf of the U. S. for the purchase of land on the Potomac, intended for the public Arsenal, I should wish all further negotiation in this business to be suspended until proper inquiries can be made and information obtained respecting the property at the junction of the Potomac and Shanandoah rivers in this State; for it has been represented to me, that this spot affords every advantage that could be wished for water works to any extent; and that no place is more capable of complete defence at a small expense. And I am also informed that from 800 to 1000 Acres of land might be obtained there on reasonable terms. The land at the junction of the two Rivers, including what is called Harper's ferry, has lately been leased for 7 years, and the lessee has the right of purchasing whenever it may be sold. Should this spot be fixed upon for the Arsenal, the Lessee will relinquish his title to the U. S. reserving only a small piece of the land for the purpose of building Stores and doing business. Six hundred Acres of land adjoining this tract is, I am told, offered for sale by Colo. Ball for fifteen hundred pounds Virga money. Colo. Ball has a lease of this tract for 70 years at £5 pr. 100 Acres, and a number of years have been already paid in the lease. The fee is in Genl. Henry Lee who I have no doubt will dispose of his right on very reasonable terms.

There is another small tract, with a saw mill upon it, adjoining the two foregoing, which I am told may be also purchased.

From my own knowledge, I can speak of the eligibility of this situation for a public Arsenal; but as I have never examined it very attentively, I am not able to speak so decidedly as to the advantages of erecting works there. These, however, I am told, are equal to any on the Potomac or its branches, having the advantage of a considerable fall in both Rivers, which may be brought to operate at this place. At any rate if the thing is open it may be well to have enquiry made and prices ascertained before it becomes known that this spot is in view. I am etc.[55] 5

5/Fitzpatrick, John C., editor, The Writings of George Washington (39 vols, Washington,D.C.,1930-44), Vol. 34,p.307-308. The "lessee" was probably John Wager,Jr. Col. Burges Ball was a close friend and relative of Washington. Ball's lease was to 600 acres of the 1,600 acre tract,known as the Friends Ore Bank,which was owned by "Light Horse Harry Lee- General Henry Lee. The U.S. was to purchase the 1,600 acre iron ore bank from Lee for $24,000 on May 8,1800, see ASP, I, p.285.

On September 28,1795, the President informed Pickering that he was sending out an unnamed gentleman (Col. Tobias Lear, a Georgetown merchant, close friend, and fellow director of the Potowmack Company,) to begin negotiations to buy land at Harper's Ferry, writing:

> Mount Vernon, September 28, 1795.
>
> Sir: Two letters from you, dated the 21st. instant, and one of the 23d, came to Alexandria by the Post on Friday.
>
> I will immediately set on foot an enquiry relative to the prospect of obtaining the lands sufficient for an Arsenal at the confluence of the Rivers Potomac and Shenandoah. From what I have heard of this site, and partly from what I know of it, it must be the most eligable spot on the whole river in *every* point of view, for a work of this sort. The object for which the enquiry will be made, can, and will be effectually cloaked by the Gentleman I shall employ to make it.

[6]

Data contained in Secretary of War Pickering"s later letter to Col. Tobias Lear, indicates that Lear successfully completed his mission in October 1795 and secured two options to purchase 482 acres of land at Harper's Ferry, one for 117½ acres from John Wager,Jr. for $ 6,066.66 and the other for 310 acres of land from Thomas Rutherford, Jr., for $ 10,000. Both of these options to buy were to expire in January 1796 if the bargins were not completed before these dates.[7]

This apparent progress, however, was checked when the French-Born engineer, Col. Stephen Rochfontaine, after having completed his search for Arsenal sites on the Potomac, returned to Philadelphia in October and it was discovered that he had not even mentioned Harper's Ferry in his report. Washington informed Col. Lear of this interesting

6. Writings of Washington, Vol. 34,318.

7. Pickering to Lear, January 28,1796 National Archives Record Group 153, Office of the Judge Advocate General, Military Reservation Division, Reservation File, 1809=19421 West Virginia, Box 44- Harpers Ferry.

development in a letter dated November 2,1795,commenting:

> It may not be amiss however, briefly to observe, that Colo. Rochfontaine (being in this city) was asked how it came to pass, as he had seen the site at the confluence of the Rivers Potomac and Shenandoah, he had made no mention of it in his general report? His answer was, there was no ground on which convenient buildings could be placed, and assigned other reasons in a written report, which he made. But since the receipt of your last, with a letter from Genl. Darke to the Secertary of War, I have suggested his going there again, in order to view the ground more accurately. This, if nothing more pressing should require his attendance in another quarter, will be the case. I shall defer therefore saying anything further on the subject till this matter is decided. If the Colo. goes at all, he will probably pass through George Town, and if it couid be made convenient for Colo. Gilpin (who understands the nature, and application of water well) and yourself, to accompany him, advantages, I am persuaded, would result from the journey. One of the Colos. objections to this site is, that no water work (on acct. of freshes) would be safe there. These lands, however, considering the reservations of the Ferries, buildings, &ca. will come much higher than I had any idea of.
>
> 8.

On November 2nd and 11, Secretary of War Timothy Pickering also wrote to Col. Lear and proposed that Lear take Rochfontaine to Harper's Ferry and guide the engineer around the site. Lear accepted this assignment on November 17.[9]

On November 30, 1795, Washington wrote again to Lear, commenting on this trip and also on the Potomac Company's progress on the river, writing

8. The Writings of George Washington, Vol. 34, 355-356. Col. George Gilpin was an Alexandria,va., merchant, a friend of Washington, and a member of the board of directors of the Potomac Company.
9. Harpers Ferry National Historical Park Mircrofilm Reel 21, vol. 7, pp. 700-701. Hereafter-HFNHP Micro.

I intended to have written to you by Colo. Rochfontaine, but he went off unknown to me. Upon a second view of the site at the conflux of the Rivers Potomack and Shenandoah, with the explanations he will receive from Colo. Gilpin and yourself, I hope and expect the advantages of that spot will strike him more favorable than was indicated in his report; and that something will be decided upon with precision.

It is with great pleasure I learn from your letter, that the River between the Great and little falls has been so much improved this fall; and that the prospect of getting some of the new shares subscribed for by the Maryland Assembly, is so good. I wish as good a disposition may be found in the other Assembly: but above all, that your means would enable you to proceed vigorously to the improvement of the navigation of the Shenandoah River: for that is the source from whence the wealth of the city is to be derived.

10

Thus as the Secretary of War mentioned in his December 12,1795 report to Congress, "The engineer was again instructed to examine this place,from whence he has lately returned," and in company with Col. Tobias Lear-"A American gentlemen well acquainted with the country." A good soldier-engineer Rochfontaine apparently revised his report to include the merits of Harper's Ferry that he had overlooked on his first visit. His revised report was received at some undetermined date, after December 12, 1795, but prior to January 28,1796.

On this latter date, Secretary of War Pickering was able to to inform Col. Lear:

10. The Writings of George Washington, vol.34, 380 381.George Gilpin of Alexandria,Va., was a merchant, close friend of Washington, and also a fellow director on the board of the Potomac Company.

"The President having examined a report from this department and the papers accompanying the same, relative to the site for an arsenal on the Potomac, and weighed the advantages & disadvantages of the several places contemplated for that object is of opinion that the situation in the fork at the junction of the Potowmac and Shenandoah rivers (at Harper's Ferry) is the most eligible, as combining the greatest advantages. He has consequently desired that I would cause measures to be taken immediately for purchasing the land and erecting the necessary works, in conformity to the act of Congress.

Continuing, Pickering then asked Lear to accept the task of buying the land, writing "I beg leave to command the business to your management, and request that you will immediately proceed to make the purchase of Mr. (Thomas) Rutherford (Jr.) and the Wagers (John Wager, Jr.).

"By your letter to the President of the 26th of October (1795) I conclude the 'saw mill tract which Bready agreed to sell to John Wager, junr.' is the same which in Col. Gilpin's sketch is called 'Harper"s Saw mill,' (Robert Harper's saw mill was located on the lower Hall Island on the Shenandoah River), and that this tract is necessary to obtain a complete command of the water of the Shenandoah; of course that it must be comprehended in your purchase....

Pickering also enclosed" the original agreements (options) of Mr. Rutherford and the Harpers (sic-Wagers). It had escaped my recollection that they had fixed the 7th & 10th of this month (January) to terminate their conditional obligations, until I since reexamined the papers on this subject, in forming my report to the President. I shall be very unhappy should this delay induce them to depart from their agreements. I am sure you will do whatever is in your power to establish them and complete the purchase."[11]

11. National Archives, Record Group 153, Office of the Judge Advocate General, Military Reservation Division, Reservation File, 1809-1942, Box 44, West Virginia.

Lear accepted his assignment on February 6,1796, and reported back to Secretary Pickering on February 26:

"I have the pleasure to inform you that I have concluded the Bargain with the Wagers and Rutherford for the property at the junction of the Rivers Shenandoah and Potomak(sic). And it is with peculiar satisfactinn I can add that it is obtained for the sum proposed in the Terms offered by them last Fall viz. 6666 66/100 Dollars for one(Wager) Tract and Ten Thousand Dollors for the other with a Relinquishment of some Reservations then proposed by the Wagers on the Ferry Tract making the whole much more favorable for the Public. I found more Difficulty in concluding the Bargin than in any Thing of a similar Kind that I ever unndertook and I am peculiarly happy in having effected it as it seems an Object of the First Importance for the Public.....

I enclose copies of the Agreements with the parties from which deeds may be drawn by the Attorney General of the United States....

"P.S. The two Tracts now agreed for(totalling 427½ acres) include the whole Fall of the Potomack and Shenandoah - of the former there may be 15 feet fall with the whole Weight of the water of the River - of the latter 25 Feet all the water of the River. I made no additional Agreement for adjoining lands(owned by General Henry Lee and leased in part by Burges Ball) as some peculiar circumstances were then in the way but I have no doubt of being able to obtain it for twenty Dollars an Acre..." 12

Sucess now seemed assured and on March 6, 1796, President George Washington informed his Secretary of State: "And I request you would concert measures with the Secretaries of War, and the Treasury if necessary, for proceeding vigorously and securely with the Arsenal at the confluence of the Potomac and Shanondoan (sic)." 13

But as at the Battle of Germantown, Pa., in 1777, when victory seemed within the General's grasp, success alluded him. The plan was good,

12. National Archives Record Group No. 153-Office of the Judge Advocate General, Military Reservation Division, Reservation File,1809-1942, Box 44-West Virginia. The final price paid JohnWager Jr. however was to be $ 7,016.66. The "adjoining land" was probably the 1,600 acre Friends Ore Bank, owned by Henry Lee.

13. The Writings of Washington, Vol. 34, p. 487.

but the execution was faulty. History repeated itself with regards to the arsenal on the Potomac.

In March 1796, Secretary of War Pickering informed Col. Lear that he had sent the agreements to the U.S. Attorney General to be drafted up into two deeds. On April 26, Pickering next enclosed the deeds for the signature of the Rutherfords and Wagers and transmitted money, at least $16,666.66 to Lear so that Lear could complete the transactions.[14] A delay of about two months followed, occasioned Lear reported, by the fact that the Wagers desired certain changes made after they had signed the deed. Changes that they had no right to make, Lear reported[15] as "no mention is made in the deeds."

On June 15,1796, John Wager,Jr. and members of his family signed a deed conveying about 117½ acres, including a 20 acre island in the Potomac River, fpr the sum of $ 7,016.66. But then somethng happened for which no explanation appears in the existing documentary evidence . Col. Tobias Lear failed to forward the Wager deed to Philadelphia and he also failed to close the deal with the Rutherfords. Perhaps he was ill, or more likely there was some difficulty with the sellers. A memorandum attached to the deed indicates that Lear paid the Wagers $6,666.66 on June 15,1796 and also $ 350.00 to make the grand total $ 7,016.66.[15a] Another addum to the deed states that "where Certain

14. HFNHP Microfilm, Reel 21, Vol. ., p. 700-701.
15. HFNHP Reel 21, Vol. 7, p. 702.

15.a. The additional sum of $ 350.00 probably covered the U.S. acquisition of a large, 100 foot long, one-story frame warehouse that stood at the head of the future U.S. Musket Factory yard and adjacent to the Wager Ferry Lot Reservation. The Wagers had erected this warehouse at some unknown date, after 1782 but prior to 1796.

"Causes have prevented the Recording of this annexed Deed" which was dated June 15,1796, the Wager now agreed that the non-recording did"not in any way Invalidate the same " and they further agreed that the effective date of the deed "shall be on the first day of February one thousand Seven Hundred and Ninety Seven Instead of the fifteenday of June One Thousand Seven Hundred and Ninety Six..."[16]

In any event, President Washington wrote Secretary of War James McHenry on January 11, 1797 requesting a summary report on the status of the funds sent to Lear to purchase the land at Harper's Ferry and whether the deeds had been received.[17]

Om January 13, the President, preparing to leave office and retire to Mount Vernon, wrote directly to Col. Lear on the subject and commented in part:

> Another subject indeed, has stimulated the present address. I have been asked, with a degree of solicitude from the War Office, to what cause is to be ascribed the non-execution, or not coming forward of the Deeds for the land, on which the Arsenal on Shanondoah is to be erected, as these were promised in a letter from you, dated early in August; since which, nothing has been communicated, and is embarrassing to that Department; as the necessary items, and information, cannot accompany the accounts of it, in the manner that is expected. On many accounts, I hope this matter will come forward without delay and particularly for the reasons I have mentioned. With sincere esteem &c.[18]

16. Copy of Deed in National Archives Record Group 121, Public Buildings Service, Entry No. 75- Warrenty Deeds and Correspondence,1796-1884, for Pubic Lands at Harper's Ferry, W. Va.

17. The Writings of Washington, Vol. 35, 361-362.

18. Ibid.,vol. 35, 366-367. On October 17,1797,Washington again wrote to Secretary of War McHenry to make certain that Col. Lear had duly settled his accounts for the land purchased at Harper's Fery, Ibid. 36,p.54."As I was, in some measure,the cause of his Agency in that business, I wish to know whether it is settled to your Satisfaction."

About one month later and apparently as a result of Washington"s letter, the Rutherfords signed their deed and received $ 10,000 on February 20,1797 and also, as has been noted, the deed with the Wagers was duly recorded in the city of Philadelphia on February 1,1797.[19] Thus as Washington left office on March 4, 1797, he had won a parial victory: 428 acres of land at Harper's Ferry had been acquired at a total cost of $ 17,016.66 to the United States as the site for an National Armory and Arsenal, but the President had been unable to have any improvements made at the site. It had taken three years to accomplish this much progress on the project. (See Map No. 1 for 1796-97 bounds of Armory lands).

The U.S. Armory and Arsenal at Harper's Ferry remained a paper project during 1797 due to the lack of funds.[20] International affairs, as in 1793, once again intervened to revive the Harpers Ferry project. France, under the Directory, abandoned the republican idealism of 1792, and began to expand French hegemony over Europe by force. French privateers were loosened to prey on American vessels and in June 1797 the Secretary of State reported that more than 300 American ships had been captured by French vessels. Once again America took steps to defend herself and soon began an undeclared war with France.

19. Deed from Rutherfords in National Archives Record Group No. 121, Public Buildings Service, Entry No. 75-Warrenty Deeds to U.S. Washington signed the deed on March 3,1797 and the deed was recorded in Berkeley County,Va., on September 24,1798. The Wager deed was recorded in Berkeley County, Va., on July 24,1797.

20. Congress only appropriated $ 40,000.00 for ordnance purposes,March 3,1797. (U.S. Statues at Large, 1, 508. Of this total, $ 18,743.80 was expended on operations at the U.S. Armory at Springfield, Mass. and $ 17,016.66 was needed to pay for the land at Harper"s Ferry.

In the period March 27 to July 16,1798, 20 acts of Congress were passed and approved by President John Adams for the purpose of consolidating and strengthening the national defense. A provisional army of 12 regiments was authorized and George Washington, with the rank of lieutenant general, took command of this force on July 2,1798. On May 3,1798 the Navy Department was established and on May 21, Benjamin Stoddert of Georgetown,D.C., was appointed to be first Secretary of the Navy.[21]

The course of world events once again returned Washington to a position of power and he ~~at once~~ pushed to construct the armory and arsenal at Harper's Ferry. On May 6,1798, Washington inquired of Secretary of War James McHenry what progress was being made, writing

21. Prior to this, American warships had been under the charge of the Secretary of War.

Mount Vernon, May 6, 1798.

Dear Sir: Amongst the variety of matters which have come before Congress for the purpose of preparation, in the dernier resort; in short as a salutary measure at all times, and under all circumstances; Arsenals and Cannon Founderies, have occupied its attention.

This leads me to ask what steps have been taken relative to the site for one at the Mouth of the Shanondoah? I will pledge myself that there is not a spot in the United States wch. combines more, or greater requisites for these, than that does; considered either as a place of immense strength against, and inaccessible by an enemy; although open to *inland* navigation in all directions, as well crosswise as to the Shipping Port at the Federal City, and water transportation to the Western Country; for its centrality among Furnices and Forges. for its inexhaustible supply of Water, having the *whole* River of Shanondoah as a resourse, and for the populous and plentiful country in which it lyes.

I do not suppose that a place of this importance, and which has already cost the United States several thousand dollars (to be possessed of the ground) has passed unnoticed; but not having heard it mentioned in the progress of the discussions, or that any thing has been done on the premises since the purchase of it under the former Act, has induced this enquiry; which you will answer, or not, as it suits your convenience, not doubting but that you have matters of more importance to attend to than the solution of my question.

22

This apparently touched a sore nerve of McHenry, for Washington in a letter dated July 5,1798 and marked private, wrote in part:

22. The Writings of Washington, Vol. 36, pp.253-254.

Mount Vernon, July 5, 1798.

My dear Sir: I am perfectly satisfied that the duties of your Office were not diminished by the business thrown upon it in the course of the present Session of Congress; and far was it from my wish to add to the trouble of them. I expected no more than a simple acknowledgment of my letters, and with respect to the proposed Arsenal at the confluence of the Potomac and Shenandoah, that you would have said it *had*, or had *not* been forgotten, according to the fact.

23

In August 1798, Secretary of War James McHenry took the first steps to activate the project at Harper's Ferry; on August 6 he appointed Joseph Perkin to the position of superintendent of the U.S. Armory at Harper's Ferry, and on August 30 he next appointed John Mackey to be Paymaster and Storekeeper at this post.[24] Finally, nearly five years after the passage of the Act of April 2, 1794, work on erecting the second National Armory was getting underway.

23. The Writings of Washington, Vol. 36, p. 318.

24. William Simmons to John Mackay, December 20,1799. Letter Book F, First Auditor's Accounts, National Archives Record Group 217, Records of the United States General Accounting Office, Washington,D.C. These are the dates when the men received their appoints.

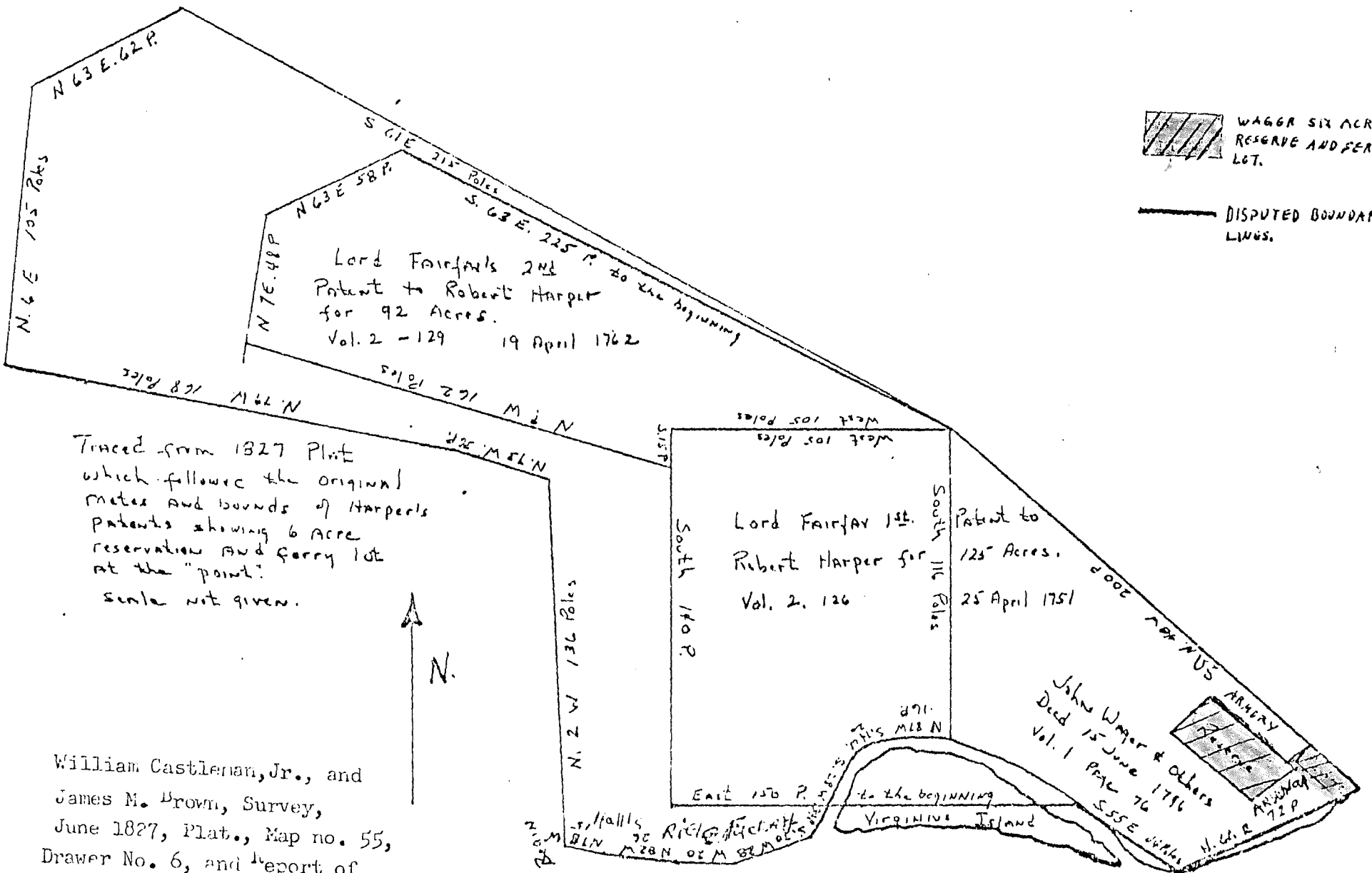
MAP No. 1

Plat of 1796-1797 boundaries
of U.S. Land at Harper's Ferry, Va.
made June 1827

by

William Castleman, Jr. and James M. Brown, Surveyors.

This survey represents an effort to run the U.S. boundary lines on the ground on the basis of the metes and bounds given in the 1796 and 1797 deeds.



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

24

III - Construction of the U.S. Armory at Harper's Ferry, Virginia, Stage One, 1798-1807:

Description of the Public Lands at Harper"s Ferry in 1798:

Harper's Ferry is located on a point of land situated between the confluence of the Potomac and Shenandoah Rivers, in a water gap that cuts through the Allegheny Mountain front. The Armory and town were to rise on the low-lying land near the tip of the peninsula, which projects between the rivers. To the south, on the south bank of the Shenandoah River, Loudoun Heights rises to a height of 1,080 feet above sea level; to the north, on the north bank of the Potomac Maryland Heights reaches a height of 1,448 feet; to west of the lower town rises Camp Hill, a plateau with elevation of about 400 feet, and a mile or two further is Bolivar Heights, which has an elevation of 668 feet above sea level. All of these heights were in heavy forest in 1798 and only four or five houses stood in the lower town of Harper's Ferry at the junction of the rivers. Until the 1830's, when turnpikes, railroads and canals reached Harper's Ferry, the Armory and town were isolated and far removed from the large industrial and commerical centers of 19th century America.

Of the approximately 435 acres presently comprising the upper(Camp Hill) and lower town of Harper's Ferry, the United States Government acquired 428½ acres in 1796-97 for a total of $ 17,016.66. Only SIX and 3/4 acres remained in private ownership,- all owned by John Wager, Sr.

Of the 428 3/4 acres of U.S. public land, 72 acres located on the low-lying land along the shore of the Potomac River, were to be used as the site for the U.S. Armory or Musket Factory. Another 13 acres, situated on what later became known as the Upper and Lower Hall Islands in the Shenandoah River, were to be utilized first as the site of Captain John H. Hall's Patent Rifle Factory, and later (during the 1840-50's) for site of the U.S. Rifle Factory. Approximately one acre, located on Blocks A and B, on the bank of the Shenandoah near its junction with the Potomac River, was to be used as an arsenal site, where the newly manufactured arms were stored. Of the 428 1/4 acres of public land, approximately 86 acres were thus to be devoted to Armory and Arsenal purposes, that is, the manufacture and storage of arms. The remaining 368½ acres, which included some low lying lands along the Shenandoah and the slopes and plateau on top of Camp Hill, were to be used as the sites of dwellings for the Armory workmen and their families.

Events were indeed to demonstrate that the United States had acquired too much land in Harper's Ferry, for there was no privately owned land available so that the workmen could buy their own lots and erect their own homes. Merchants also could not purchase plots on which to erect their stores. Fifty years were to pass before the Armory was able to solve these unusual problems by selling off at public auction a large part of the surplus lands for residental purposes.

The privately owned land consisted of two tracts located in the lower-lying area of the lower town and embaced the best sites for stores. One tract, containing six acres, was known as "The Six Acre Reservation," and the other, called "The Ferry Lot Reservation," had three-quarters of an acres. John Wager, Jr. and his neirs

were to maintain their complete monopoly of the ownership of private land in Harper's Ferry from 1796 until 1836. They leased out lots to merchants, as the population grew, at high ground rents, also specifying the type of structure the merchant must built under his lease, and in return guaranted that the merchant would have no competition in his particular line of business.[1]

1. The one exception to this statement is the Island of Virginius, about 13 acres of land located in the Shenandoah River. This island was claimed in 1816 and soon came under the control of four wealthy merchants, so in effect, the Wager land monopoly was not broken.

Construction of the Armory, 1798-1802

Joseph Perkin, the first Superintendent of the U.S. Armory at Harper's Ferry, had been born in England, where he learned his trade as a gun smith. He came to America about 1774 and during the War for Independence worked at the Rappahannock Forge near Falmouth, Va. manufacturing arms. In 1781 he moved to Philadelphia where he openned his gun shop, also serving as a part-time inspector for the Intendent of Military Stores. From 1792 to 1798 he served as Superintendent of the Federal depot of Continental military stores, left over from the Revolution, at New London, Campbell County, Va. When the U.S. Government closed this installation in 1798, Secretary of War James McHenry transferred Perkin to Harper's Ferry on August 6, 1798.[1]

In a letter of instruction to Perkin, dated August 6, 1798, McHenry ordered the newly appointed superintendent to Harper's Ferry to conduct a preliminary survey of the " Waters and grounds for erecting the necessary buildings and works for the establishment of an Armoury." The Secretary also sent James Brindley, a noted English-born engineer, to accompany Perkin and to make the survey. Brindley had come to America in 1786 to oversee the construction of an inland waterway connecting the Schuylkill and Susquehanna

1. These and further details on Joseph Perkins are to be found in Smith, Merritt Roe, Harpers Ferry Armory and the New Technology- The Challenge of Change (Cornell University Press, Ithaca and London, 1977), p. 37-38.

Rivers in Pennsylvania. Since his arrival he had also superintended several other river development projects. He had visited Harper's Ferry in 1786 as a consultant for the Potownack Company and had at that time impressed Washington with his knowledge of canal navigation.[2]

Brindley and Perkins arrived at Harper's Ferry in mid-August 1798 and spent about two weeks examining sites on both the Potomac and Shenandoah Rivers. They decided that the best site for the proposed Armory or U.S. Musket Factory would be on the banks of the Potomac. Having completed their survey, the two men returned to Philadelphia, where they prepared a report with their recommendations and estimates of the cost that was presented to Secretary of War McHenry in September 1798.

On August 30,1798 Secretary of War McHenry appointed John Mackey to be Paymaster and Storekeeper of the U.S. Armory at Harper's Ferry. Other than his foreign birth, outspoken Federalism, and friendship with McHenry, little is known about Mackey's life prior to 1798. He probably had served in some position under Samuel Hodgdon, the Intendent General of Military Stores in Philaldephia prior to his appointment to Harper's Ferry. Well-educated, Mackey had not quite succeeded in becoming a well-to-do gentleman. To his superiors, he was hard working, loyal ,and ingratiating. To friends he was gracious and urbane . To his subordinates he was arrogant, ill-tempered,and over bearing. Of the two chief officers of the Harpers's Ferry Armory, Perkins and Mackey, Mackey was to be the the dominant figure and the two men came to hate each other.[3] In practice Mackey was to take charge of the construction of the Armory at

2. GAO Record Group 217-Account' Office, War Department, Letter Book G'; Smith, Harpers Ferry Armory, 38-39. Daniel H. Calhoun, The American Civil Engineer(Cambridge, Massachusetts, M.I.T. Press, 1960),pp.11-12; Bacon-Foster, Corra,"Early Chapters in the Development of the Potomac Route to the West," Records of the Columbia Historical Society,vol. 15 (1912),167-169.

3. See Smith, Harpers Ferry Armory, 37-38, for further details on Mackey's character.

at Harper's Ferry, while Perkins' authority was limited to the repair and manufacture of arms.

Mackey arrived at Harper's Ferry on September 12,1798,eager to proceed with the new project. He had no instructions from the Secretary of War,however, and he also found that the new Superintendent, Perkins, had returned to Philadelphia. Nothing, if not resourceful, Mackey proceeded to develop his own plan for the new Armory, at least for the immediate future and on September 17, he informed Intendent General Samuel Hodgdon that the 100 foot long frame warehouse (bldg. No.11 on map No. 2),which Col. Tobias Lear had purchased from John Wager,Sr., on June 15,1796 for $ 350, and which stood at the eastern end of the proposed musket factory site, adjacent to the Wager Ferry Lot, was being converted into a temporary " "Armory" or factory where Superintendent Perkins and his armorers could work on weapons until the permanent structures were erected. Mackey estimated that this conversion would be done in three weeks. He also planned to erect a barracks for the armorers and other workmen to live in, as little or no housing was available in the tiny town of Harper's Ferry. Finally, he recommended that a second new frame structure be erected as a temporary arsenal or place to store arms, as there was no existing structure that could be used for this purpose.[4]

In his report of September 25, Mackey reported rapid progress: the walls of the barracks or living quarters were going up and he estimated the structure would be finished in another 10 days, if the weather cooperated. He had also assembled all the material to complete the new roof and to finish

4. Records of the Adjutant General's Office,National Archives Record Group 94, Hodgdon-Mackey Papers, in Harpers Ferry National Historical Park Photostatic Collection, Document No. 102, No. 1- hereafter refered to as HF- 102,No.1.

the necessary alterations to the interior of the frame warehouse. He estimated that the temporary armory would be ready for use in 10 days. He mentioned that the additional tools that he had ordered from Philadelphia had not yet arrived.[5]

Superintendent Joseph Perkins returned to Harpers Ferry in October 1798, bringing with him some 10 armorers who had formerly worked at New London, Virginia. These men went to work in the temporary Armory, the frame warehouse, reconditioning damaged arms shipped from depots in Carlisle, Philadelphia, and New London. Other than assisting an artillery officer named Major Louis Tousard conduct experiments with local iron ores for casting cannon, there was little for Perkins to do other than supervising the repair of small arms, and interviewing propective suppliers of the raw material that would be needed once the manufacture of small arms got underway.[6]

Construction was suspended with the coming of the winter of 1798-99, and the War Department accounts indicate that a total of $ 3,028.53 was expended in 1798 to convert the warehouse to an armory and to erect a barracks for the workmen.[7]

On February 21,1799, Paymaster Mackey wrote a letter to Intendent General Samuel Hodgdson that indicates that the Adams administration has as yet failed to formulate a firm plan of what was to be done at Harpers Ferry. Mackey posed 11 "Subjects relative to the Business at Harpers Ferry on which the decision of the Secretary of War is solicited:

5. HF-102- No. 2.
6. Smith, Harper Ferry Armory, p.40.
7. ASP, I4, 481.

"1. What are the Buildings that may be erected?

2. The scales(sizes of the buildings) can only be determined by fixing the number of Mechanics that may fill the Establishment.

3. What may be the site of the Buildings? This must be deter . . mined by the course of the Canal(which had not yet be fixed).

4. By what route may the Iron(needed to manufacture muskets) be transported(through a wilderness without roads) to Harpers Ferry?

5. Gunstocks- how many may be purchased of Ab[raha]m Shephard? *

6. Saw Mill(what to do with the old saw mill that had been erected by Robert Harper prior to 1782 on the Lower Hall Island-keep it or build a new one?).

7. Millwright(one probably needed to install waterwheels)?

8. Burning Bricks (which would be needed to erect the permanent Armory buildings).

9. Shall the providing of rations & materials(to the workmen) remain with the paymaster solely? When many Agents are employed to procure the same materials, and each acting without the advice or Knowledge of the others, loss & confusion must be the consequence- An instance of this occurrs in the Gun stock business.

10. The Secretary of War is requested to Sanction those occassional expenses which must be incurred by the paymaster when he rides abroad to purchase materials &C.

11. What are to be the accommodations of the Superintendent of Armorerers(sic) - in the rent of the house which he occupies (apparently rented from the Wagers) to be paid by the Government? and may a small Dwelling house be built for his use.

8

8. HF- Document 102-No. 3.

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*Abra_ha_m Sheperd had commandedthe 10th North Carolina Continental Regiment in 1777-78, during the War for Independence. He now lived at Shepherdstown, Va.

The failure to formulate a development plan for the Armory at Harper's Ferry was apparently related to the fact that the Adams administration had still not decided on how many arsenals and armories should be erected in the United States under the terms of the Act of April 2, 1794.

Responding to a series of questions asked by Secretary of War McHenry, Washington recommended that two of the eight regiments of provisional army should be stationed at Harper's Ferry; in regard to the number of arsenals the Government should estabish, Washington wrote:

> I proceed to the last of your questions, that which respects the stations for magazines. It is conceived that three principal permanent stations will suffice and that these ought to be Springfield and Harpers Ferry which are already chosen, and the vicinity of Rocky Mount on the Wateree, in South Carolina. These stations are in a great measure central to three great subdivisions of the United States; they are so interior as to be entirely safe and yet on navigable waters, which empty into the Ocean and facilitate a water conveyance to every point on our sea Coast. They are also in well settled and healthy districts of Country. That near Harpers ferry it is well known possesses extraordinary advantages for founderies and other manufactories of iron. It is expected that a canal will ere long effect a good navigation between the Wateree and the Catawba; which whenever it shall happen will render the vicinity of Rocky Mount extremely convenient to the supply of North Carolina by inland navigation. Pittsburg West Point in New York, the neighbourhood of Trenton in New Jersey and Fayetteville in North Carolina may properly be selected as places of particular and occasional deposit. Large Cities are as much as possible to be avoided. 9

9. The Writings of Washington, Vol. 37,41,44-45/

As a result of Washington"s recommendations, it was decided that three arsenals should be established, the additional one to be in South Carolina. Towards the end of July, however, McHenry raised the question in the Cabinet of whether a fourth arsenal should not be established and how far should they go with the buildings for the proposed Armory and Arsenal at Harper's Ferry. In letter dated August 1, U.S. Attorney General Charle Lee voted against establishing a 4th arsenal, but urged that the three authorized arsenals and the armories at Springfield and Harpers Ferry be expanded and improved, writing:

"Sir Philadelphia 1 August 1799
"1st. I am not satisfied that there is a necessity for establishing a fourth arsenal with magazines at the present time, when the three which have been established, are not carried to the extent of usefulness of which they are obviously capable. It appears to me to be an unnecessary expenditure of public money, because such an establishment will not for sometime to come be requisite, the three others answering all the present purposes.
"2d. The buildings and alterations at Springfield should be immediately commenced.
"3 The buildings at Harpers ferry should be prosecuted.
"4 The buildings at Rocky mount should be commenced.
"I have the honor to be very respectfully your most obedient servant.
"CHARLES LEE"

10

Secretary of the Navy Benjamin Stoddert replying on August 1, also voted to improve the three existing Arsenals and voted the two Armories, but to leave the establishment of the 4th arsenal to some future time, writing:

10.Steiner, Bernard C., The Life and Correspondence of James McHenry(Cleveland,Ohio, 1907), p.401.

"Navy Department
"1 August 1799.

"Dear Sir

"I am unwell & cannot attend the meeting without pain. I will however give you my opinion on the subject of a fourth Arsenal — for I presume it is a fourth — & that neither of the others are to be declined.

"If the three Arsenals already Fixed on, were completed & filled with Arms, I should suppose — it might be proper to establish a fourth a fifth & a sixth — provided there was money — but under present circumstances, I really think it will be most wise, to go on with great spirit, with the three already. determined on, and which, in my opinion are properly placed — One being to the East — One to the South — & one in the middle of the States — and to let a fourth alone, until these three are filled with arms.

"I think your submission contained a query, whether Work begun at Harpers Ferry should be finished — or whether addl. works should be made there.

"Judging as an officer of the United States, with a view to the Interest of the whole — & on this principle only, will I judge while I remain in office — it is most clearly my opinion, that the Arsenal at Harpers Ferry, should there be any difference in point of magnitude in the three, should be the more important — the Mother Arsenal. It is without comparison the most convenient of the three to the Western Country. It is more convenient than either of the other places to all parts of the States. It is nearly in the centre.

"Your submission also, If I recollect right, contained a quere — whether additional Works should be made at Springfield. There is no question with me, that all the works necessary to the object, should be made there, without hesitation or delay.

"To sum up in few words — my opinion is — that the three arsenals, in the places designated by the Genl. officers, viewing with a military Eye, the land, should be pushed with all possible vigor — and that, when money can be spared after filling these, it will be time enough to think of other Arsenals. Excuse my abruptness. I write in pain. I have the honor to be with great respect D[illegible] Yr mo Obedt Servt.

"Ben Stoddert.

11

Secretary of State Timothy Pickering and Secretary of the Treasury Oliver Wolcott, opposed McHenry's proposal to expand the proposed works at Harpers Ferry from a small arsenal to a large-sized Armory. Pickering, because he thought Springfield Armory plus the production of private contractors could meet all

11, Steiner, Life and Correspondence of James McHenry, 401-402.
Stoddert was from Georgetown, D C.

necessary demands for small arms, and Wolcott, because he thought it would cost too much money.[12] As Secretary of War McHenry had no reason to poll his fellow Cabinet members on the activities of his department, it is clear that he was uncertain as to the proper course regarding the development of U.S. Arsenals and Armories in 1798-99, thus accounting for the confused situation regarding the proper plan for the Harper's Ferry Armory. Returning to Harper's Ferry,

Mackey planned to design all of the buildings himself and felt no need for the services of an architect. As he envisioned the canal or raceway that was to provide the water to turn the Armory water wheels "to be nothing more then a common Water course of about 15 feet wide and 3 feet deep," he saw no reason to hire the services of a professional canal builder to supervise this work- this would just be a waste of the public money, as he could do this task. Mackay, however, was willing to have the engineer James Brindley come and lay out the course of the proposed canal and also to plan and construct the dam on the Potomac which would divert water into the Armory canal. In his letter of March 12,1799 to the Intendent General, the Paymaster thus wrote:

> "In my former letters I have urged the necessity of sending Mr. Brindley forward. Let me beg to obtrude once more my earnest request on you that nothing be left untried to have him on the ground about the 21st inst.
>
> All the materials for the building have been secured by contracts. Carpenters, Brickburners, Bricklayers are engaged - in a word every thing preparative to our operations is done, but the beginning cannot be made until the course of the Canal be accurately marked, for by this the site of the buildings is to be determined..." [13]

12. Smith, Harpers Ferry Armory, p. 36-37.
13. HF-Documents 102-No. 9.

Due to prior commitments in the East, Brindley did not reach Harper's Ferry until April 28, about one month later than hoped for. Once there, however, the engineer completed his survey quickly, staking out the limits of the Armory canal within ten days and then returning to Philadelphia. On August 9,1799, he returned to Harper's Ferry and with a small work crew, he completed much of the construction of the partial masonry structure of the Potomac dam in 64 days.[14] The dam, however, was not finished, because the Armory canal was not yet ready to receive the water. He returned to Philadelphia, leaving Harper's Ferry on October 22,1799.

Mackey probably began the construction of the brick Armory buildings on May 6,1799, the day that Brindley completed marking out the site of the Armory canal. Two months later, on July 10, the Paymaster boasted:.." We have at this time finished fully ½ of the Canal, and shall prosecute the Business with our utmost application & abilities to its final completion, which, we hope, it will be in our power to announce about the 1st of November next; at this time we cannot muster above 39 Men, it being harvest season. If we should be able to command 150 men for three months, there can be no doubt of our success...

"The Bank (of the canal), Mackey continued, in some parts is 27 to 38 feet wide at the base & 9 at the top, and from 9 to 13 feet high--nothing like this was contemplated (See his letter of March 12). Nevertheless I hope the estimate (of funds) will be equal to the whole.

Turning to the brick buildings, Mackey reported: "The (Smith) Shop is built, the Mill House and Factory half built, and the materials for the arsenal nearly in readiness. Everything goes on well..." [15]

14. Simmons to Perkin, June 1,1799, Letter Book F, First Auditor's Accounts; Accountant's Office, War Department, Letter Book G., Records of U.S. General Accounting Office, Record Group 217. Smith, Harpers Ferry Armory, 41-42.

15. HF-Document 102, No. 11. Mackey to Hodgdon, July 10,1799.

Six months later, on December 26, 1799, Paymaster Mackey triumphantly reported the progress on the construction of four Armory large brick structures, writing to Intendent General Samuel Hodgdon:

> The Smith shop and Factory are finished. The Arsenal is built but not entirely finished. Two upper floors are yet to be laid. All, even my numerous Democratic Enemies, agree that the Buildings are elegant.
>
> The Smith Shop is 80 by 26 ft. clear of the walls; The Factory 120 by 26 feet, and the Arsenal 120 by 27 feet within. The [smith] shop contains 10 forges, one of which is designed for a Tilt-hammer; The ground floor of the factory is designed for the boring, grinding & polishing machinery; the filers and stockers will occupy the upper floor. The Garret will receive Gun Stocks lumber etc. The Mill is almost built, but will not be put together until the Water is in the Canal. The Arsenal has three floors. This building stands within the confluence of [the Potomac and Shenandoah] Rivers.[33]

16

Unfortunately, Mackey conceded in this same report, the progress of the work on the canal had fallen fall behind his over-optomistic estimates in July 17 99. He now stated:

"The Bank & Walls of the Canal on the land, ½ mile in length are nearly done, but 3/4 of the whole is yet to be puddled. A third of the dam is done. 100 men in 3 months will complete the Whole. Mr Brindley has made many mistakes in his part of the business they are stated in my report to the Secretary. If I should continue here (which is very doubful) I shall renew our operations early in the Spring, so that we may have the business done about the middle of July.... 17

It is clear that from the start, and even in December 1799, Mackey had underestimated the degree of difficulty and amount of labor it would take to construct the large Armory canal. Mackey had contracted with three unqualified men to construct the canal. They included Abraham Shepherd

16. HF Document No. 102- No. 14.
17. Ibid.

a distinguished Revolutionary War officer from North Carolina, now a well-to do business man, community leader, and stauncn Federalist. Because of his advanced age and frail health, Shepherd made only occasional visits to inspect work on the canal. To supervise the actual construction, Mackey employed Robert Whittel, a local dry goods merchant. Whittel, who also knew nothing about canal construction, was assisted by John Tully as the on-the job foreman. Tully may have once worked as a laborer on the Potowmack Canal, but he was not trained in the technics of heavy construction that were required to build the Armory canal.[18]

Another problem was finding reliable workers willing to excavate the canal, which required long hours and back-breaking work in a hot, humid, and muddy ditch. The removal of large quantities of rock may also have been required and not included in the original estimates.

Thus on July 14,1799, Mackey reported " We have not been able to muster more than 50 labourers on an average since the Canal was commenced. We use every means in our power to allure(sic) them to...but such is the habitual laziness of the poor of this country that nothing but absolute want can drive them from home....[19]

Slave owners would not rent their blacks to perform this heavy labor because they considered their slaves too valuable to risk damage at such heavy work. Thus while good progress was made in erecting the buildings in 1799, the canal construction

18. HF-Document No. 103, No. 1 and 2, May 2,1799. Account"s Office, War Department Letter Book G, GAO-Record Group 217. Smith, Harpers Ferry Armory, 42-43.
19. HF-Document No. 103, No. 3.

program was far behind schedule. A total of $ 14,565.00 was expended on the construction program at Harper's Ferry Armory in 1799.[20] Since the armory was to depend upon the water conveyed by the Armory canal, or raceway, to power its machinery, no comprehensive manufacturing operations could be conducted until the canal was completed.

By January 1800, John Mackey was in difficulty; in addition to the failure of the canal construction program, his haughty treatment of both skilled and unskilled labor had resulted in a strike in February 1799. He also exhibited favoritism by awarding friends lucrative supply contracts. He clashed with Superintendent Perkin and his armorers and became involved in a mud-slinging political feud with the local supporters of Thomas Jefferson. In October 1799 General Washington complained that paymaster Mackey had failed to make adequate preparations for billeting three regiments of the provisional army on the public lands on Camp Hill, Harper's Ferry, for the winter of 1799-1800. Finally, William Simmons, the accountant for the War Department complained that the paymaster failed to keep systematic records and make monthly reports of his activities to the War Department.[21]

20. ASP, II,481.
21. Smith, Harpers Ferry Armory,46-48, with many examples given

Seeing the handwriting on the wall, Paymaster John Mackey submitted his resignation about January 23,1800, pleading ill health, and in April left Harper's Ferry for Philadelphia to settle his accounts with the War Department. On April 22,1800, Secretary of War James McHenry appointed Samuel Annin, of New Jersey and a former soldier in the Continental Army, to be the new Paymaster of the U.S. Armory at Harper's Ferry. Like Mackey, Annin was to have charge "of the Stores, together with the Superintendence of the erection of all the buildings, Dams & other business" at the armory.

Arriving at Harper's Ferry on May 1, Annin at once took charge of the construction program. The two brick buildings, - the Armory mill and the Arsenal, were completed during the Fall of 1800, as Annin first pushed work on the unfinished Armory canal. The Secretary of War"s letter of instructions gave Annin the authority to continue Col. Abraham Shepherd as the contractor in charge of construction if the Paymaster so desired. In reviewing Shepherd's accounts, however, Annin discovered that Shepherd had defrauded the Armory of $185 by falisifying pay vouchers for 37 days work on the canal during the summer of 1799. Shepherd was discharged at once and forced to make restitution. Annin, unable to find a suitable person to take charge, was thus forced to assume personal supervision of the canal.[22]

22. Smith, Harpers Ferry Armory, 48-49. Simmons to Annin, May 14,1800, July 24,1800, Letter Book G, Record of the U.S. General Accounting Office, Record June 1,1801 Group 217; Annin to William Eustis, June 10,1810, Letters Received Records of the Office of the Secretary of War, National Archives Record Group 107; Supt. James Stubblefield to Col. George Bomford, October 5, 1822, Letter Received, Records of the Office of the Chief of Ordnance, Record Group No.156. Henry Dearborn to Annin, May 11,1801, OSW, Record Group 107, Miscellaneous Letters Sent.

Unable to secure the laborers necessary to dig the canal, ANNIN applied to Secretary McHenry for permission to employ soldiers of the three regiments under the command of Major General Charles C. Pinckney, who were still in their winter encampment on Camp Hill. McHenry applied for permission to hire the troops to President John Adams, who issued the desired order on May 22,1800.

In his orders to the troops, General Pinckeny announced:

> The President has directed that as many soldiers shall be employed on the Canal in the Vicinity of the camp as the good of the service will permit. The Major General has conversed with the superintendent of the works on this business and the superintendent is desirous of commencing next week with 50 soldiers as fatigue men and a proportionate number of sergeants. They will be allowed a Sixth of a Dolar per day and double rations of provisions per man. This is to be a weekly fatigue agreeably to the strength of the Different Regiments. Volunteers are to be preferred for this duty. 23

By June 1, this work force had been increased to 100 men and was making rapid progress in puddling and banking the canal. On June 14,1800, however, the provisional army was disbanded and Annin lost his large work force . Forced to relay on private labor again the construction of the continued during the work seasion of 1800 and into 1801.

In 1800 $19,552.33 was spent for new construction; as only two brick buildings, largely finished in 1799, were completed in 1800, most of this money must have been spent for building the canal and Potomac dam. In 1801, when the canal was finally finished, the total spent for new construction amounted to only $ 6,558.20. During this two year period the first

23. Steiner, the Life and Correspondence of James McHenry, p.424. Orderly Book Division Orders, May 22, 29,1800. Record of the Office of the Judge Advocate General, National Archives Record Group No.153.

moneys were also spent for repair of buildings, dams, and canals: $ 505.84 in 1800 and $ 728.69 in 1801.[24]

Thus in early 1801, with the Armory canal finally operative, and seven years after the Act of April 2,1794, the Nation's second National Armory began the production of muskets at Harper's Ferry. About 28 armorers, working under the supervision of Superintendent Joseph Perkin, were able to make 293 flintlock muskets in 1801.[25]

As soon as water was let into the Armory Canal, however, there was trouble. On August 4,1801, the Acting Secretary of War notified Annin that Superintendent Perkin had reported "that the works at Harpers Ferry are much impeded in their progress by the leakings of the Canal and that proper attention to a remedy is not paid."[26] Much of the money spent for repairs during the next few years probably went to try to make the canal watertight. New construction funds, not large until 1806-07, were expended to erect dwellings and storage structures.

On October 1801 Secretary of War Henry Dearborn authorized Superintendent Perkin "to the appropriate to the accommodation of yourself & family so much of the old frame building (which had been altered for use as a temporary armory or factory in 1798) at Harpers ferry, purchased from Col. Lear, as you may find necessary for your convenience, and to have suitable repairs made therein, which you estimate may be done at an expence not exceeding foun hundred

24. ASP, II, 481. and number of arms produced in 1801;
25. ASP, II, 481, for cost of construction, ASP, V, p.915 for approximate number of workmen in 1801.

26 4. HFNH Microfilm Reel 18, Vol. 1, p21.

27

" dollars..." This one story frame structure, 100 feet long, Bldg. No. 11 on map No. 2, was to be the home of Superintendent Perkin and his family from 1801 until his death in Dec. 1806. In the period 1801-02, Paymaster Samuel Annin constructed a new two-story brick house with a cellar and a kitchen adjoining. Measuring 28 by 19 feet in size, this was to be his residence from 1802 to 1815 (See Bldg. No. 16 on map No. 3.) p. 55.[28]

The total cost of construction of 21 buildings, a ~~dam~~, and canal at Harper's Ferry Armory, 1798 to 1801, was $ 43,704.06. The total sum spent during this same period for repairs was $ 1,234.50 thus making the grand total spent on construction and repair: $ 44,938.56. With the $ 17,016.66 spent to acquire the 428¼ acres included, for the armory site, the grand total cost of establishing and constructing the Harper's Ferry Armory, 1796-1801 was $ 61,955.22.[26]

27. NFNMP Micro. Reel 18, vol. 1, pp. 22-23.
28. See Bldg. No. 12 Description of Paymasters House, List of Public Buildings at Harper's Ferry, Virginia, January 1810,

The U.S. Armory and Arsenal at Harper's Ferry in 1802

The lettersof Paymaster John Hackey, the three detailed maps prepared by the Surveyor Nicholas King, in 1803 entitled " A Plan and Section of a Canal at the lower Falls of the Shenandoah, and its junction with the the public (Armory) Canal at Harpers Ferry and the necessary Locks, Surveyed and Levelled by N. King and L. Harbaugh for the U.S. and the Potomack Company, Feby. 1803; the engraving by J. Jeakes of W. Roberts drawing "Junction of the Potomac and Shenandoah, virginia," made in the period 1801 to 1805 (RG77, vegahoe No. HF- 21), together with archeological evidence discovered in 1959, form the basis of the following description of the plant of the Harpers Ferry Armory in 1802 (See 1803 Map Dr. 150 -Sheet 1- large scale map.)

All buildings marked with letters on map were the private property of John Wager, Sr., and were located on either his "Six Acre Reservation" or his 3/4th of an Acre "Ferry Lot Reservation."

All building marked with numbers were located on the public lands of the United States and were a part of the Armory plant.

Armory Building No. U.S. Musket Factory on the Potomac:

1. The Armory or Factory. A 2½ story brick structure with gable roof erected in 1799. Measuring 29 feet by 123 feet in size [with dimensions] ONLY EXTERIOR its wood shingled roof, [illegible]. This shop stood at the head(east end) of the line of workshops, located on the north bank of the Armory canal. 1799 dimensions were given as 26 feet by 120 feet ["clear of the walls"]

The first floor contained the water powered machinery for boring, grinding and polishing, with four water wheels The second floor was used by the filers and stockers, and the third floor or "Garret" was used to store gun stocks, lumber, tools, and other stores.

Bldg. No. 2, The Smiths Shop, located on the north bank of the Armory Canal, to the west of Bldg. No. 1 and second in line. The Smiths Shop was a 2 story brick structure with a wood shingled gable roof that was pierced by 13 chimneys. Erected in 1799, the Smiths Shop was 26 feet by 80 feet "cleared of the walls" [1799 dimensions], had 10 forges on the first floor, each with its own chimney, and workshops for filers on the second. 1811 dimensions given as 83 by 30 feet.

Bldg. 3, The Forge or Mill, located on the north bank of the Armory canal to the west of Bldg. No.2 and third in the line of work shops. The Forge, for heavy forging, was brick, probably story with a wood single gable roof and was about 26 feet by 30 feet. This shop had been built in 1799-1800., and its machinery was powered by a 8 foot breast-type water wheel with a fall of 12 feet. The three work shops had a total of five water wheels averaging 4.2 feet in breadth. The largest with an eight-foot wheel at the forging mill which supplied power to a tilt hammer for working iron and preparation barrel skelps for hand welders.[1]

Bldg. No.4 Coal House, located on north bank of Armory Canal, and to the west of Bldg. No. 3. Probably a one-story frame building used for storage of coal. Probably erected 1801-02. about 15 by 20 feet in size

Bldg. No. 5 - Proof House One story building, probably of frame and stone construction, erected 1801-02, and used to test muskets.

1. Data on machinery from Smith, Harpers Ferry Armory, p.50. "Mr. Brindley"s Sketch of the Wheels... Necessary for the Potomac Works," August 4, 1801, HFNHP Map Case. secretary of War Henry Dearborn to Supt. Perkin, Oct, 26, November 10, 1811, Misc. Letters Sent, Office of the Secretary of War, National Archives Record Group 107.

Bldg. 6 and 7, located on north side of High Street, on the side of Camp Hill, probably two public dwelling houses for armory workmen.

Bldg. 8- apparently frame, use unknown, might be an office for paymaster or superintendent, about 18 by 11 feet.

Bldgs. No. 9 and 10, apparently frame, use unknown, may be latrines. Bldg No 9 about 9 By 12 feet; Bldg 10 about 14 x 12 feet

Bldg. No. 11, Located near the entrance to the musket factory yard from the Wager Ferry Lot. This 100-foot long, one-story frame warehouse had been erected by John Wager, Sr. in the period 1782-1796 and was purchased by the U.S. in 1796. The structure was remodeled in the fall of 1798 for use as a temporary armory for factory until the permanament brick buildings could be constructed. In October 1801 the structure was remodelled at a cost of $ 400 for use as a the residence of the Armory Superintendent. This building thus served as the home of Superintendent Joseph Perkin from late 1801 until his death from "bilious fever" on December 1, 1806. The building was removed to a new location in September 1809 and rebuilt as two brick and frame two story dwellings.

Bldg. No. 12 The Arsenal, later known as the Old or Large arsenal, this 2½ story brick story were erected in 1799-1800 and measured 120 by 27 feet "Within". In 1802 its gable roof was covered with oak shingles and the west (front) slope of tne roof had a central pediment which was flanked on either side by three dormers. These roof features were to be removed by 1859. Archeological investigation reveal that the stone foundations were five feet deep and included a center stone wall that ran the entire length of the building. This latter feature was included to support the beams of the first floor, thus helping support the heavy weight of the arms that would be stored in the structure.

The building had no chimneys or fireplaces in order to lessen the danger from fire. The building was not painted.

The windows of the Large Arsenal were topped by round arches of brick. The north or front elevation was divided into three sections by means of a central pedimented pavilion, which may have, or appeared to, project slightly forward. The center section and the flanking wings, in turn, were each divided into three bays. The first story of each section contained a door in its center bay and a arched window in the flanking bays. Similar round arch windows occupied the nine bays at the second story level. The west end, Two Bays wide, had two arched windows each on the first and second story levels and a round window centered in the pedimented gable end at the third story level. The east end presumably had the same fenestration as the west end. There are no views of the south or Shenandoah River elevation; this side, however, probably had 18 arched windows.

The large Arsenal was to be used for the storage of arms from 1801 to 1852 or 1853.

Bldg. No. 13: A one-story frame Artillery Shed, probably erected in 1799-1800 when three regiments of the provisional army were encamped at Harper's Ferry and used to store the field artillery of these troops.

Bldgs. 14 and 15, one-story frame, probably privies.

Bldg. 16: The Paymaster's Residence, erected 1801-02, a two-story brick house, 28 by 19 feet, with a wood shingle gable roof, and an adjoining kitchen. (See Bldg. No. 12 on 1810 Bldg. List).

Bldg. 17- Frame building- perhaps the frame barracks erected in October 1798 to house the workmen who were to construct the armory buildings.

Bldg. No. 18- Probably a frame dwelling house for Armory workmen.

Bldg. 19 : Stable- Frame structure, one story.

Bldg. 20: Stable, Frame structure, one story.

Bldg. No. 21 Log House . Armory dwelling.

Bldg. 22. Saw Mill, located on lower Hall Island. Old one-story frame structure, erected by Robert Harper prior to 1782 and now used as the Armory sawmill.

Bldgs. 23 and 24: Located on Upper Hall Island, frame or log buildings. Bldg. 23 was (the larger of the two), perhaps a barn. Bldg. 24 was the former residence of Robert Harper and the house in which he died in 1782.

Located on Camp Hill, but not shown on King's 1803 map, were many log huts that the soldiers had erected to use during the winter of 1799-1800. Armorers were using some of these log houses as residences in 1802. Also located on Camp Hill was one brick magazine for the storeage of gunpowder.

Musket Factory Plant 3 brick work shops, 2 storage buildings, 1 office, total, six buildings.

Arsenal Square: 1 brick arsenal and one storage shed, total, 2 structures.

On Hall Island, Shenandoah, barn, house and sawmill, total 3 bldgs.

Dwellings, eight (including one brick house).

Stables, three

Unknown use structures- 4

Total: 24

A Curious Federalist Purchase-
The Friends Ore Bank and Keep Tryste Furnace Tract, 1800.

In 1800 the United States Government spent a total of $66,000.00 to purchase two tracts of land located on the Potomac River just to the northwest of the Armory land.[1] These deals appear to have involved some Federalist hanky-panky and although not included as part of the Armory lands at the time, they were later (in 1869) charged against the Armory. On May 8, 1800, General Henry Lee, in consideration of payment of $ 24,000, conveyed to "the United States," all the iron ore...with all the rights, &c, necessary for digging, raising and removing the same, in a certain tract of land known as' Friends 'ore bank', excepting so much thereof as has been conveyed by said Lee to John Potts and others."[1] This was the same land that the War Department had been looking at in 1795 and is mentioned in Washington's letter of September 16, 1795 to Secretary of War Timothy Pickering (see page 11). On June 20, 1800, John Potts, George North, and William Wilson, of Berkeley County and Alexandria, Virginia, on receiving $ 42,000.00, conveyed to "John Adams, President, &c. his successors... the right of digging ore from 'Friends' ore bank' held under said Henry Lee &c" and 221 acres of land and the iron furnace buildings thereon known at the "Keep Tryste Furnace."[2] This tract was located on the Elk branch stream.

(See Map 22, p. 438 for location of iron ore land.)

1. National Archives Record Group 121, Public Buildings Service, Entry 75, Warrenty deeds. The deed was recorded in Philadelphia, May 9, 1800.
2. National Archives R.G. 121, Entry 75. Also see ASP, II, 285, and I, 159.

The reason given for the purchase of this property was to ensure an supply of iron for use at the Armory. As late as January 12,1837, no ore had ever been dug at the Friends Ore Bank for Armory purposes. The United States also did not utilize the Keep Tryste Furnace. During the period 1800 to 1819 the Armory leased out the Furnace lands and buildings.[3] On March 3,1819, an Act of Congress authorized the sale of the 221 acre furnace tract and on on September 21,1819 John Preacher purchased the Furnace Tract from the United States for $ 15,000.[4] This sale reduced the 1800 expenditure for this Potomac land from $66,000 to $ 51,000, but the 1,600-acre Friends Ore Bank remained the property of the U.S. Government to 1869.

3. In June 1809 the "furnace farm" was leased to a "Mr. Jesse Moore", Paymaster Samuel Annin to War Deparment, June 30,1809, HFNHP Reel 18, Vol. 4,p.386.

4. U.S. Statues at Large.Vol .3,p.521.

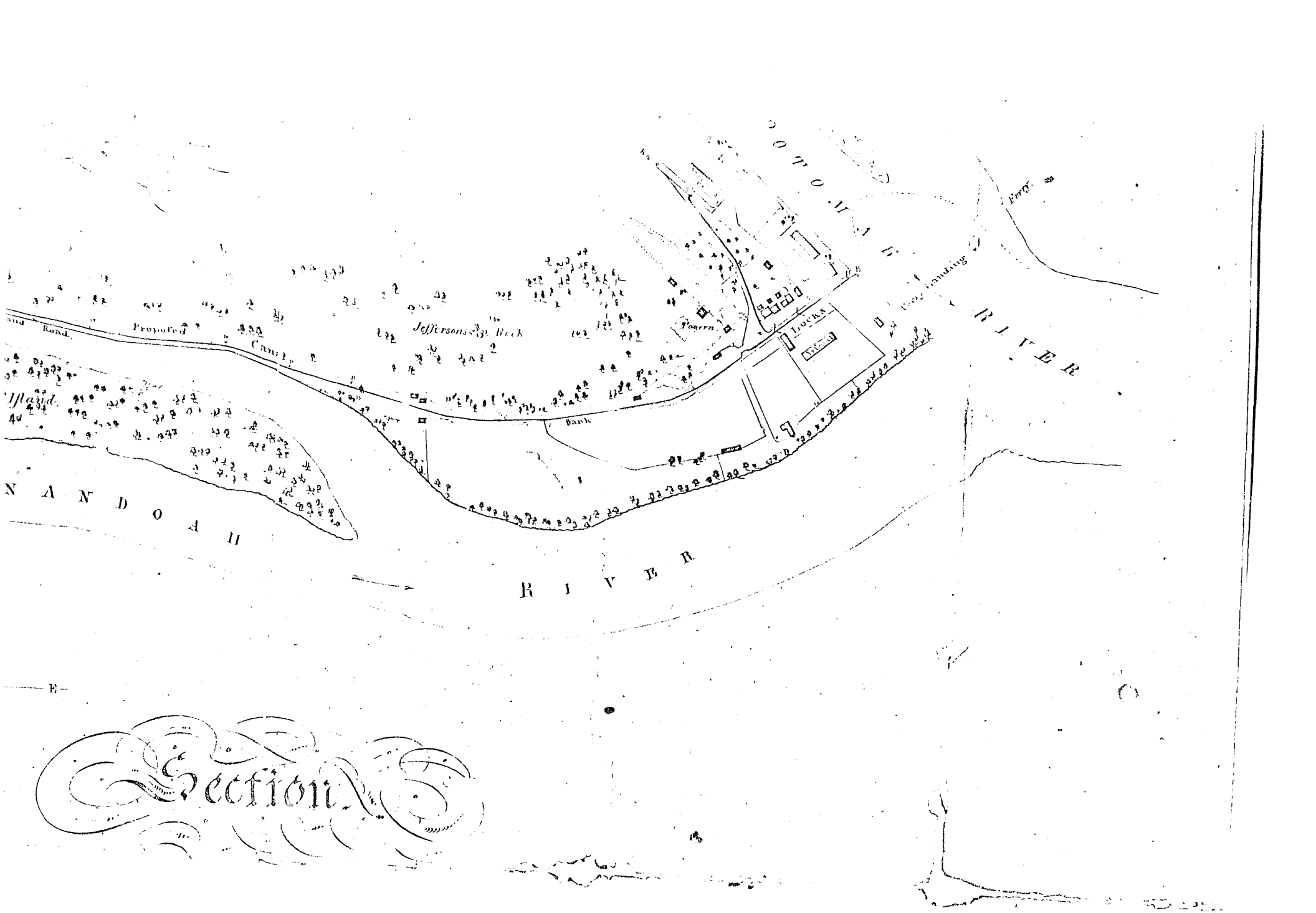
MAP NO. 2

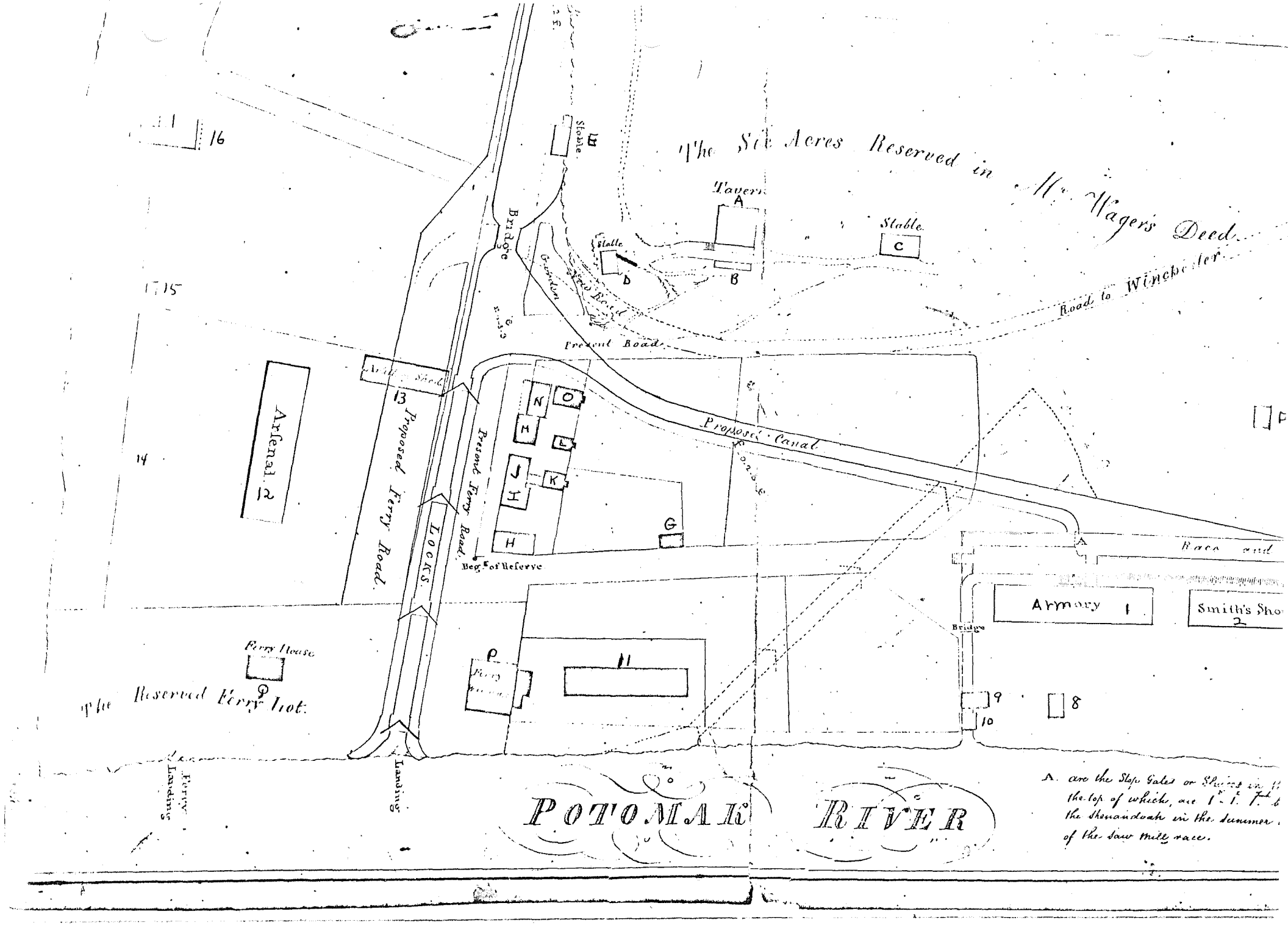
"Plan of the proposed junction of the CANAL, at the lower Falls of Shenandoah, with the Public Canal at HARPER'S FERRY, and the necessary Locks for descending into the Potomak River. Surveyed & leveled by N. King & L. Harbaugh, Feby. 1803, for the Public & the Potomak Company. Scale 4 perches to an Inch." National Archives Record Group No. 77- Records of the Office of the Chief of Engineers, Fortification Files, Drawer 150, Sheet 2, Cartographic Division, National Archives, Washington, D.C.

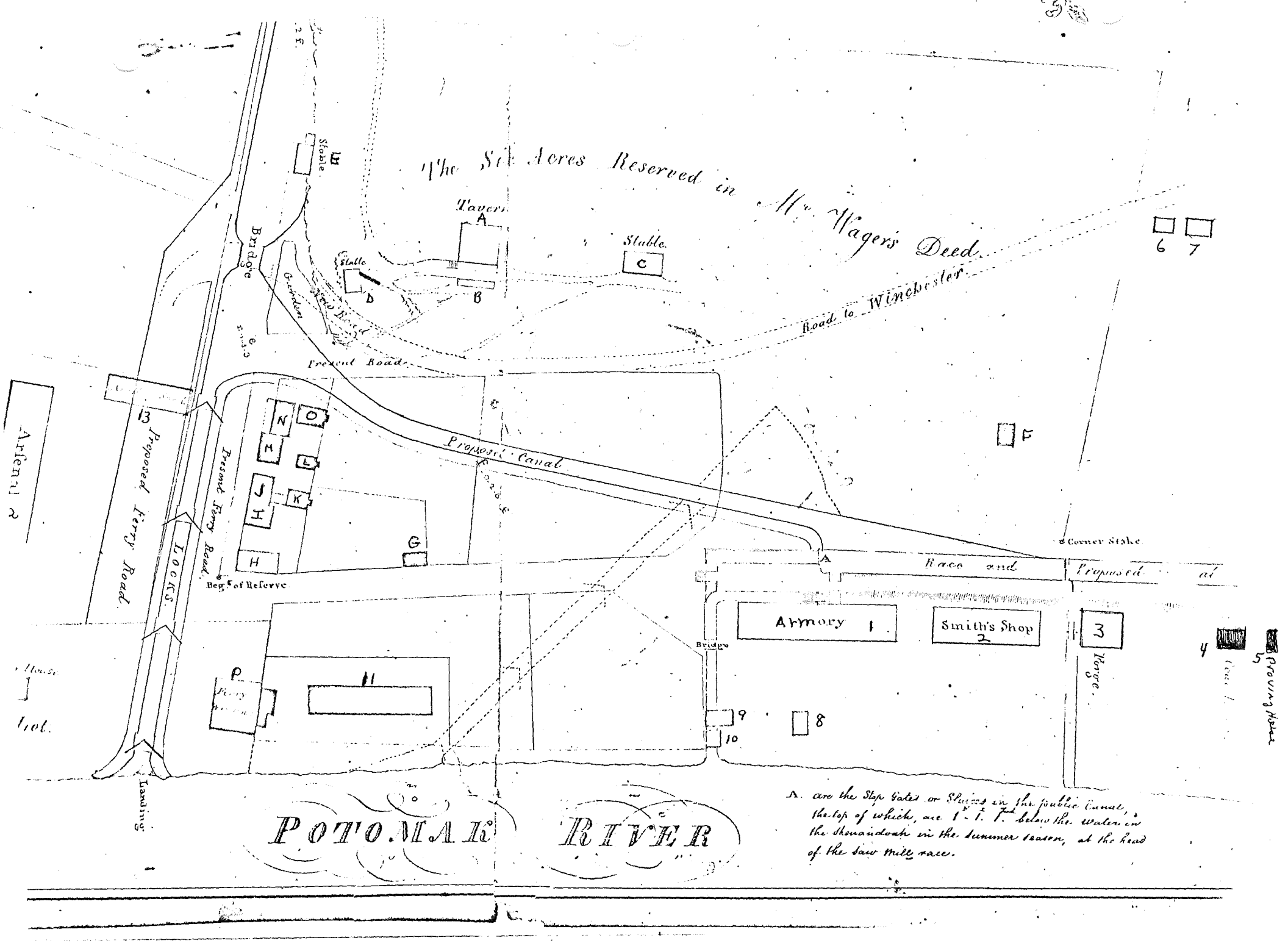
Numbers added to map by writer. Buildings with numbers are Armory structures and located on U.S. Lands.

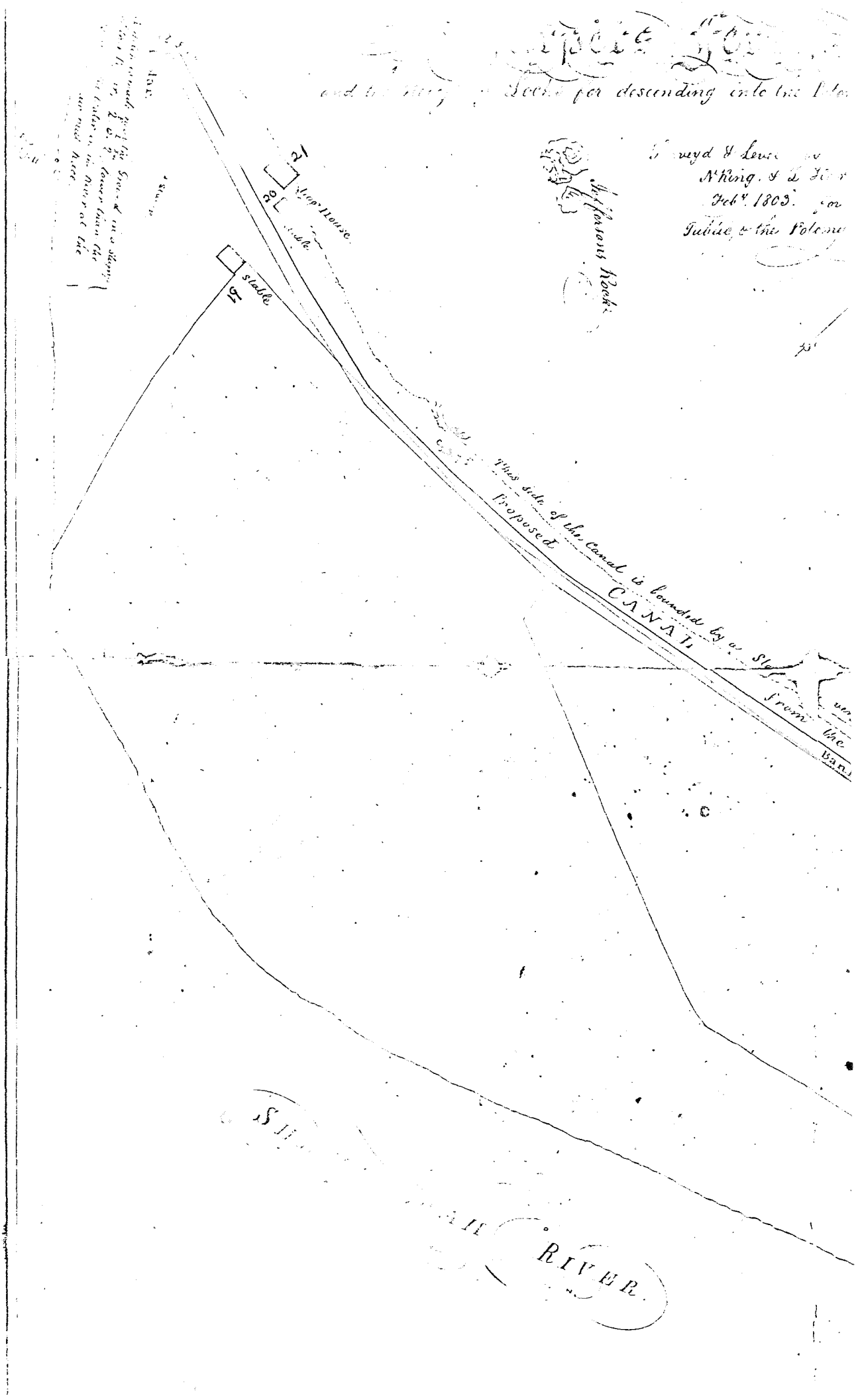
Buildings marked with letters are privately owned by the Wager family and are located within the Six Acre Reservation or the Wager Ferry Lot Reservation.


Armory
Road from Winchester
Tavern
Jefferson's Rock
Canal
RIVER

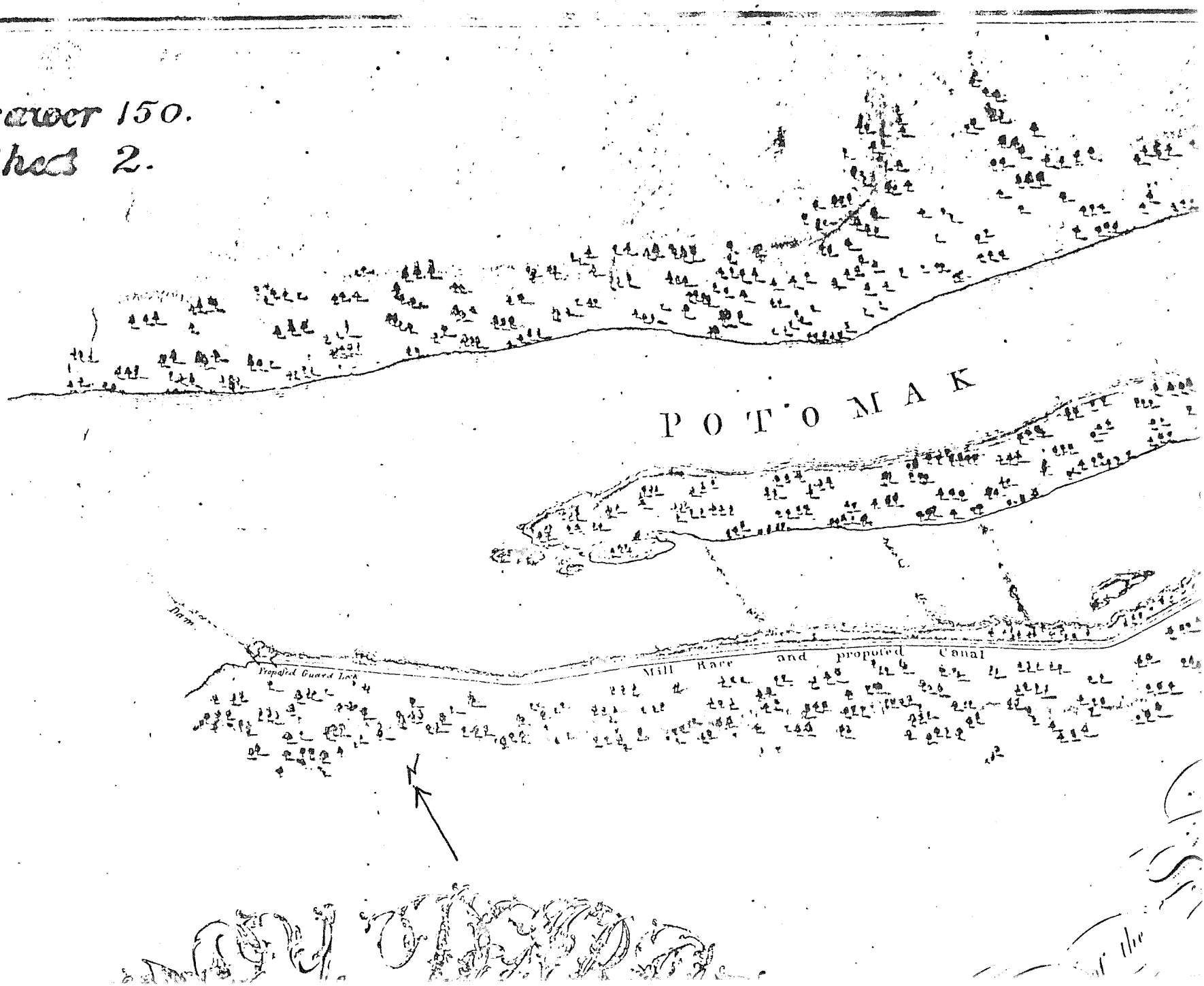

Proposed
Canal
Jeffersons Brick
Tavern
LOCKS
Bank
Island
R I V E R
R I V E R
Section


The Six Acres Reserved in Mr. Wagers Deed
Tavern
A
Stable
C
B
Stable
D
Bridge
Present Road
Road to Winchester
Stable
E
Present Road
Proposed Canal
Proposed Ferry Road
Present Ferry Road
Locks
Beg.g of Reserve
N
O
M
L
J
K
H
H
G
Arsenal
12
13
14
15
16
Armory
1
Smith's Sho
2
Bridge
Race and
11
P
Ferry House
Q
The Reserved Ferry Lot
9
10
8
Ferry Landing
Landing
POTOMAK
RIVER
A. are the Slop Gates or Sluices in the
the top of which, are 1' 1" F.t b
the Shenandoah in the Summer
of the Saw Mill race.


The Six Acres Reserved in Mr. Wagers Deed
Tavern
Stable
Stable
Stable
Bridge
Garden
Road to Winchester
Present Road
Proposed Canal
Proposed Ferry Road
Present Ferry Road
Locks
Beg.g of Reserve
Corner Stake
Race and
Proposed
Armory 1
Smith's Shop 2
Bridge
Race
Proving House
Arsenal
Lot
Landing
POTOMAC RIVER
A. are the Stop Gates or Sluices in the public Canal, the top of which, are 1 F. 1 F. below the water in the Shenandoah in the Summer season, at the head of the Saw Mill race.


Surveyed & Lev
N. King. & A. Fi
Feb.y 1803.
Jubilee & the Volcano
Hessians Rocks
21
20
Dep.t House
Stable
Stable
this side of the canal is bounded by a
proposed
CANAL
from the
Ban
RIVER

Drawer 150.
Sheet 2.



IV. Construction and Repairs, 1802 - 1807

Establishing Harpers Grave Yard, 1803:

During the period 1751 to 1782, the land in Harper's Ferry that was to be purchased by the United States Government in1796-1797 for the use of the Armory, was owned by Robert Harper. In his will of 1782, Harper divided this land among his heirs and specified that they should use four acres to establish a grave yard in which Harper was to be buried. His heirs sold all the Harper land, except for six and 3/4 acres, to the United States in 1796-97 and failed to establish the cemetery. John Wager, Jr., one of Harper"s heirs, died in 1813 and the administrator of his estate noticed the failure to execute all of the provisions of Harper's will. He reported this oversight to Paymaster Samuel Annin and suggested the United States title the 428 acres of land formerly owned by Harper might be invalid if the cemetery was not established in accordance with the terms of the will. Late in 1803 Annin thus had a four acre plot near the top of Camp Hill surveyed on U.S. lands and established as Harper's Grave Yard.[1]

[1] Annin to Secretary of War, January 1804, reporting this action and the reasons of it, HFNHP Reel 18, Vol. 2,174. This 1803 survey is recorded in Deed Book 3, p.108, Jefferson County Courthouse, Charles Town, W.va.

A Magazine for Gunpowder: ,1803:

On July 12, 1802, Secretary Dearborn ordered Paymaster Annin to construct a magazine for the storage of gunpowder on the summit of Camp Hill, writing.

You will please to take measures for procuring forty five thousand brick of a good quality, with stones proper for door frames. the door to be six feet by two and a half in the clear. The Magazine should be placed on the eminence proposed by General Irvine, and on that part of it which is nearest to the public works within twenty feet of where the delivity commences, near to a single Oak tree which you may recollect I noticed on examining the hill as I returned from the place. [7]

Dearborn planned to send a workman to erect the magazine when the material was ready.. Construction, however, was postponed by the Secretary in November 1802.[8] On March 21,1803, Dearborn ordered Annin to proceed with the construction of the brick powder magazine as quickly as possible.[9] The magazine was erected on Magazine Hill, overlooking the U.S. Musket factory below, in 1803.

Footnotes 2 - 6 eliminated

7. HFNHP Reel 18, vol. 1, 28.
8. HFNHP Reel 18, Vol. 1. p. 31.
9. HFNHP Reel 18,Vol. 1,p.31.

By 1805, however, the brick roof was apparently leaking and the Paymaster proposed a wooden roof.

In a letter written in 1805, the Secretary of War informed Annin: " I cannot agree to have the Magazine coverdd with a wooden roof. If the rough casting (on the brick roof?) cannot be made durable (waterproof?), I would instead of it, having merely a very thick coat of paint well put on. Should the mason work be well and faithfully erected. I presume the roof or dome will not admit air through it, after being covered with a thick paint of Spanish Brown with linseed oil.

"Whoever put on the rough casting,ought to take it off, at his own expense, and clean the roof fit for painting." 10

In October 1805 Annin received instructions to have the dome of the magazine taken down next spring and rebuilt by a Mr. Ty Monahan who had been selected for this purpose by the War Department. 11

The rebuilding was not accomplished, however, for on April 16,1807, the Paymaster reported "The Magazine remains unfinished, the builder there Mr. Momahan deceased about the time he calculated upon finishing it. I fear the plan, although expensive, will not answer the purpose. " 12

On May 15, 1807 the War Department ordered Annin to repair the leaking magazine roof, directing "The roof or dome of the magzine

> magazine must be taken off and a new one put on constructed of bricks moulded for the purpose and pointed with Mr, Foxalls cement. The bricks should be moulded as to prevent any horizontal space on which the rain can lodge...13

The correspondence on the construction of the magazine suggests that although this brick structure with brick roof or dome, was completed in 1803, it was never used for its intended purpose, the storage of gunpowder, because of moisture in the building and its leaking roof.

10. HFNHP Reel 16, Vol. 1, p.24.
11. HFNHP Reel 16, Vol. 1, p.27.
12. HFNHP Reel 18, Vol. 3, p. 219.
13. HFNHP Reel 18, Vol. 1, p.53-54. The detailed instructions on how to rebuilt the roof are included in Kissling, Herbett H., "Harpers Ferry Musket Factory,1796-1835), p.26.g

Construction of a Second Arsenal, 1806-1807

The major Armory building constructed during the 1802-07 period was a second arsenal, which we will call the "Small Arsenal," in contrast to the "Large Arsenal," which had been erected in 1799-1800. Secretary of War Henry Dearborn provided Paymaster Samuel Annin with the orders to construct and also with the specifications for the Small Arsenal. In a letter, dated April 7, 1806, the Secretary wrote:

> As an additional building appears necessary of storing arms and other military stores, at Harper's Ferry Arsenal, you will please to take the required measures for erecting a well constructed edifice with brick Walls of the following dimensions, viz: Sixty four feet in length, and thirty two feet in breadth, exclusive of the thickness of the outerwalls, the heighth of the stories to coorespond with the present building (the Large Arsenal).
>
> The foundation is to be laid with Stones, two and a half feet below the surface of ground. the top of the lower floor of the building to be, at least, three feet above the earth, and substantially supported by stone columns; the foundation above the ground should have two air holes on each side, and one at each end, grated, with perpendicular bars of iron. (that is, six cellar windows).
>
> There should be no chimneys (to eliminate all danger from fire).
>
> The upper story should be supported by two tiers of wooden columns set over the stone abutments (in the cellar) which support the under (first) floor.
>
> The roof should not be heavy, this pitch will be seen in the sketch of the building which I will send you.
>
> The principal timber for supporting the floors should not be less then twelve inches square, and not more than six feet three inches from each other. The scantling for the floors should be six inches square, and placed not more than two feet from each other..." 14

Proof that the Small Arsenal had been completed in 1806 is to be in a letter from James Stubblefield, the newly appointed Superintendent of the Armory, dated April 16, 1807, to the Secretary of War. In this memorandum, Stubblefield wrote:

6. Dearborn to Annin. April 7, 1806, HFNnP Mico. Reel 16, V.1, p.37.

"In my letter of yesterday I omited mentioning the necessity of a new covering to the(Large) Arsenal, the present one being made of oak shingles every heavy storm the water runs down upon the arms and injures them exceedingly. Could we have such a roof as is on the new(Small) Arsenal...(which was probably made of cypress shingles). 7

The interior dimensions of the Small Arsenal, as given in the the 1806 specifications, were 64 feet in length by 32 feet in width, exclusive of the width of the outer walls. The exterior dimensions of the Small Arsenal, as given in 1810, were 68 feet by 36 feet, thus indicating that the brick walls of the Small Arsenal were about two feet thick.[8]

The two arsenal buildings were painted for the first time in 1820 and the wood shingle roofs were replaced by slate roofs in 1825.[9]

The Small Arsenal, as constructed in 1806, was a two-story brick structure, 68 feet by 36 feet in size, with a full cellar and gable roof that was covered with wood shingle, probably cypress, roof. The brick walls were two feet thick and there were no chimneys or fireplaces in order to reduce the danger from fire. There were two rows of stone columns in the cellar and also probably two tiers of wooden columns on the first floor to give further support to the floors on which the heavy arms were stored. The length of the Arsenal fronted east towards the Potomac River; this elevation was divided into three bays. On the first story, the center bay was occupied by entrance to the structure and each of the flanking bays contained one window. The second story contained three windows that were located above the first story openning. (See Photo HF-90-taken 1859). These windows had nine over nine lights and were topped by

7. Annin to Dearborn, April 16,1807, HFNHP Micro.Reel 18,V.3,p.219.
8. "Public Buildings at Harper's ferry in Virginia, 1st January 1810. National Archives Record Group 107, War Department, Secretary of War, Letter Received, A-29, from Samuel Annin, March 17,1810-Photostat, in Harpers Ferry NHP Map Case, Drawer No.9.
9. Annin to the Secretary of War, February 18,1820, Reel 21, V.4, p.341; 1825 Reel 12, V. 1m p.84. National Archives Record Group 156, Ordnance Department, National ArmoryAAccounts, Entry 935,1795-1831, for 1825.

flat brick arches. The north narrow end, fronting on Shenandoah Street, was pierced only by one small window, which located high in the end wall near the peak of the gable roof. No prints or photographs have been found which show the openings on the south and west walls. The west or rear wall, however, was probably divided into three bays like the east elevation, and contained six windows. The south end wall also probably had only one small window located high near the roof peak, as in the north wall. Archeological investigation has revealed that there were two windows in the south cellar wall, and probably two more in the north or Shenandoah end wall. (Only one of the north windows still exists). The long west cellar wall contained three windows. The east (front) cellar wall, near the southeast corner, contained the stairs leading from the exterior down into the cellar. The remainder of the east wall (which is missing) probably contain one cellar window located near the northwest corner. while the center of the east wall would have been occupied by the steps leading to the first floor.

The Small Arsenal, built in 1806, was used for the storage arms until April 18,1861, when Lieutenant Roger Jones, U.S. Army, burned the Small Arsenal, with the 4,287 arms then in storage, to prevent these weapons from falling into the hands of the approaching Confederate troops.[10]

10. William Maynadier, Lt. Col., Ordnance Department, to Secretary of War Simon Cameron, Nov. 16,1861, in Stephen V. Benet, ed., A Collection of Annual Reports and Other Important Papers Relating to the Ordnance Department...(vol. IV, 1044.

PHOTOGRAP NO. 1

" Junction of the Potomac and Shenandoah, Virginia."
drawn by W. Roberts, Esqr and engraved by J. Jackes.
Courtesy of Library of Congress.

Harpers Ferry NHP Negative No. HF -21

This accurate view was drwwn after 1800, when the Large Arsena l, visible in the center of this picture, was completed, and prior to 1806, when the Small Arsenal(not visible was built.

The Large Arsenal is shown with a central pavilion, dormer windows, and pointed arch windows. The pavilion and dormer features were later eliminated when the roof was rebuilt and slated. To the right of the arsenal, almost hidden by trees on the bank of the Shenandoah River, stands the two-story brick quarters of the Paymaster and Military Storekeeper, which was erected in 1801-02. To the left of Arsenal, located on Arsenal Square and fronting on Shenandoah Street, is a one story structure that may be the artillery shed that is shown on Map. No. 1. To the left of this shed, on the side of the hill in the Six Acre Reservation stand buildings of the Wager Family. The large two-story houses is Bldg. 1A, Robert Harper's ca. 1782 tavern. The large two-story structure to the left of Bldg. 1A, located on the banks of the Potomac River, is probably the brick Armory or Factory, Bldg. No. 1 on the 1803 map. (Map No. 2, p.55.)

NOT

The total number of arms produced at Harper's Ferry, from 1801 to December 31, 1807, and available for storage in the Arsenals, was 10,050 arms. This figure included 3,155 flinklock muskets, and 2,880 pistols, and 4,015 flintlock rifles.[11]

Expenditures for new construction and repairs during the period 1802 to December 31, 1807 were as follows;[12] totalling $ 48,742.83

Year:	New Construction	Repairs	No. of Armorers	Built
1802	$ 4,698.92	$ 1,512.97	20	
1803	4,905.13	1,715.32	37	Magazine
1804	4,159.25	2,624.46	51	
1805	2,696.15	2,117.34	67	
1806	12,329.20	1,856.43	71	Small Arsenal
1807	8,543.50	1,584.16	87	
Total: 1802-07:	$ 37,332.15	11,410.68	48,742.83	
Total 1798-1801	43,704.06	1,234.50	44,938.56	
GRAND TOTAL: 1798-1807:	$ 81,036.21	12,645.18	93,681.39	

The operating plant of the U.S. Armory at Harper's Ferry in 1807 was thus comprised six brick buildings, namely: two arsenals for the storage of arms; on the Potomac an Armory (or Factory) and a Smith's Shop, and a Forge Shop, and on Magazine Hill overlooking the U.S. Musket Factory, a magazine with a badly leaking roof. In addition,

11. ASP, II, 481.

12. Expenditures from ASP, II, 481; number of workmen from ASP, V, 915.

one-story
there were at least three smaller structures, probably frame. These included a Coal House used for the storage of coal and a Proof House for testing muskets, both located in the U.S. Musket Factory yard on the Potomac River. The third building, a one-story frame saw mill, about 16 by 50 feet in size, stood on the Lower Hall Island in the Shenandoah River. Erected by Robert Harper prior to 1782 and acquired by the Armory with the purchase of the land in 1797, this old saw mill represented the only use the United States had made of the water power of the Shenandoah from 1798 to 1807.

Besides the nine building comprising the operating plant of the Armory in 1807, there were also residences for the Superintendent and Paymaster of the Armory, the Master Armorer, and a few of the public
mechanics. The exact number of dwellings then available is not known.

The Potowmack Company and the Public Land at Harper"s Ferry,1806-10.

In 1802 the Potowmack Company finally completed its project begun in1785, of rending the Potomac open to navaigation by boats of shallow draft, by removing obstructions in the river and by-passing falls with a series of short canals and locks. In 1803 they began work on a similar project to improve navigation on the Shenandoah River. In February 1803, Leonard Harbaugh, the engineer who had supervised tion
the construct of the Potomac Company canals and locks at Little and Great Falls,1794-1802, and the surveyer Nicholas King, visited Harper"s Ferry and drafted a detailed map in three sheets for a series of locks and canals to be constructed through the public lands of the Armory. Their plan, entitled "Plan and Section of a Canal at the Lower Falls of the Shenandoah,and its junction with the public (Armory) Canal at Harpers Ferry,and the necessary Locks, Surveyed and Levelled by

" N. King and L. [illegible] Harbaugh for the U.S. and the Potomak Company, Febry,1803,"[1] called for the construction of a canal through the public lands of the U.S. Armory at Harper's Ferry, beginning at the Halls Islands and following the general course and the same space now occupied by Shenandoah Street. Two locks were called for, an upper set at the Hall Islands, and the lower setm located [illegible] in the present street between the Large Arsenal site and the present sites of Bldgs. No. 9,10,11,and 12. The Shenandoah canal was to have continued northward and have opened into the Potomac. The plan also suggested that the Armory canal or raceway be enlarged and improved so that it could be used by boats and that the Armory canal be extended eastward to form a junction with the proposed Shenandoah canal. If this Armory canal had been constructed, the Chesapeake and Ohio Canal, in 1833, might not have constructed its locks and canals on the north side of the Potomac, opposite to Harper's Ferry. Probably because the proposed Potomac Canal would greatly interfered with the manufacture of arms at the Musket Factory, and probably also [illegible] because of opposition from the Wager family over which this canal must pass, the Potomac Canal idea was dropped completely and never built. Because of this and also probably because of the great cost of construction, the Shenandoah Canal plan was also revised. As constructed, the Shenandoah Canal was built [illegible] only across or through the

1. Three sheets: Sheet 1, in National Archives Record Group 79, Records of the National Park Service, C & O Canal; Sheets 150-1 and 150-2, in National Archives Record Group 77- Fortifications File-Harpers Ferry.

the Halls Island lands, where two, the Upper and Lower, locks were constructed, below or south of the Hall Islands, a river channel that passed along the west side of Virginius Island was improved and used until it reentered the main river at the north or lower end of Virginius Island. On March 3,1806, President Thomas Jefferson and the president and directors of the Potomac Company entered into an agreement which reads in part: "whereas the said Company are anxious to improve the Navigation of the River Shenandoah by means of a Canal to be taken out of said River upon the Ground belonging to the U. States and Continued down to a point at or near the old Saw Mill upon the Said Grounds, where it is proposed to descend by means of Locks into the bed of the River. In consideration whereof they agree that the U. States may have the full use and benefit of the Surplus Water in said Canal..." In return the U.S. granted the Company the right and privilege "of cutting making and Keeping in Repair at their own proper and exclusive expence a Canal." The U.S. also granted the right of "digging and taking Stone Rocks and gravel from such parts of the public land as Shall not be injurious to the United States... also the Right of making keeping in Repair and using towing passages on the banks of the said Canal,...together with the use and occupancy at all times of a sufficient Space of Ground on each side of the Locks as shall be proper for a Toll house and other necessary use of said Locks..."[1]

1. Record of the Judge Advocate General, National Archives Record Group No. 153, Military Reservation Division,,1809-1942, Reservation File, West Virginia, Box 44, also on HFNHP Micro. Reel 22, Vol. 13, 1265-67.

The Potomac Company completed the construction of this Shenandoah Canal and its two locks in 1807. The 1807 map, prepared by Samuel Annin, shows how the canal and locks were actually built on the U.S. lands on the Hall Islands[2] in 1806-07.

The construction of the Shenandoah Canal in 1806-07 probably improved the water power potential of the Hall Islands (Compare the 1803 and 1807 maps).

2. 1807 Plat- Map No. 44, Drawer No. 11, Harpers Frry NHP Park map case. Also Secretary of War to Samuel Annin, April 21, 1807, HFNHP Reel 18 ,V. 1, p.50, and Secfetary of War to Annin, May 14,1807, Reel 18, V.1, p.52.

MAP No. 3

"Plan and Section of a Canal at the lower Falls of the Shenandoah, and its junction with the public Canal at HARPER'S FERRY, and the necessary Locks. Surveyed & levelled by N. King, and L. Harbaugh for the U.S. and the Potomak Company. Feby. 1803. Surveyed and drawn by N. King. Scale 16 perches to an inch.

National Archives Record Group 79. Records of the National Park Service, Cheseapeake and Ohio Canal, No. 1. Cartographic Division, National Archives, Washinggon, D.C.

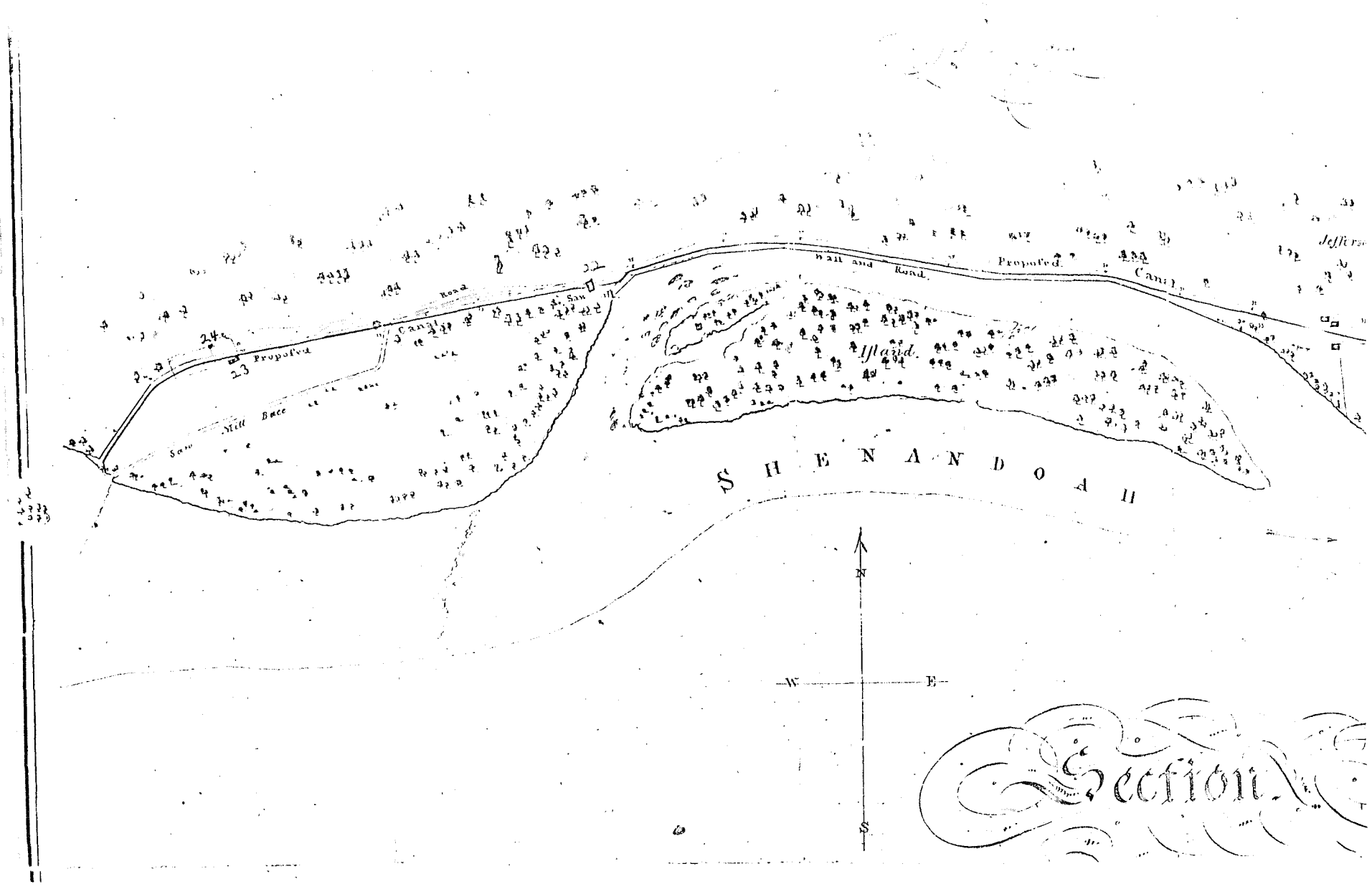
Buildings with numbers are Armory structures standing on U.S. land. Numbers have been added to map by author.

Extract from map showing the Hall Island in the Shenanoah River.

Bldg. No. 22- Armory sawmill, which had been erected by Robert Harper prior to 1782.

Bldg. No. 24, frame or log residence. The home of Robert Harper and the house in which he died in 1782.

Bldg. No. 23, frame or log building, probably a barn, erected by Harper prior to 1782.


Road
Saw Mill
Proposed
Canal
Island
Wall and Road
Proposed
Canal
SHENANDOAH
N
W
E
S

MAP NO. 4

Plat of Hall Island, 1807-"Plat No. 62[illegible]"

(Showing the Shenandoah River, the newly constructed Shenandoah Canal and locks running through the Hall Island, the house were Robert Harper died and the location of his saw mill and [illegible] flour mill).

Plat accompanied the letter of Paymaster Samuel Annin pf the Harper's Ferry Armory to the War Department, dated May 14,1807, Original in [illegible] National Archives Cartographic Division, Washington, D.C., in Record Group 77, Records of the Chief of Engineers, Dr, 118-62, Map No. 43. Also on Harpers D Ferry National Historical Park Microfilm Reel No. 18, Vol. 1, p.52(letter).

Scale: 8 perches to one inch.

71

L807 Plat

Explanation of the Plat

A. The beginning, at which place is three sycamores; - the leased land comes to these trees and no lower down the river.

B. Shews where the Canal takes the water out of the river.

D. The Dwelling house occupied by Leonard Harbaugh.

E. Shews the way the waste water is carries off from the canal.

F. Shews a situation where a mill may be built, to work two pair of six feet stones, and supplied with water by leading it along the old saw mill race to P and then by cutting a new race along the dotted lines to F, at which situation ten feet of fall may be had and a sufficient supply of water at all times without interfering with the supply of the Canal at B.

G. G. Shews the new Saw mill, supplied with water from the Canal; at which place a mill ought to be built to work two pair of Six feet stones, with ten feet head of water.

H I K Shews a Lock Gate, and the 1st and 2nd lock.

M. Shews a situation for a Mill seat that may work two pair of Six feet stones, which may have 17 feet head and fall of water, and be supplied by taking the water from the canal at the saw mill, G, [illegible] along the dotted lines to L, and there carrying it across the canal in a trunk: and if delivered on an overshot wheel the tail water cannot impede the boats passing up or down.

N. Shews where another Mill might be built to work two pair of Six feet stones, to be supplied with water in the same manner with the last, and have the same head of water.

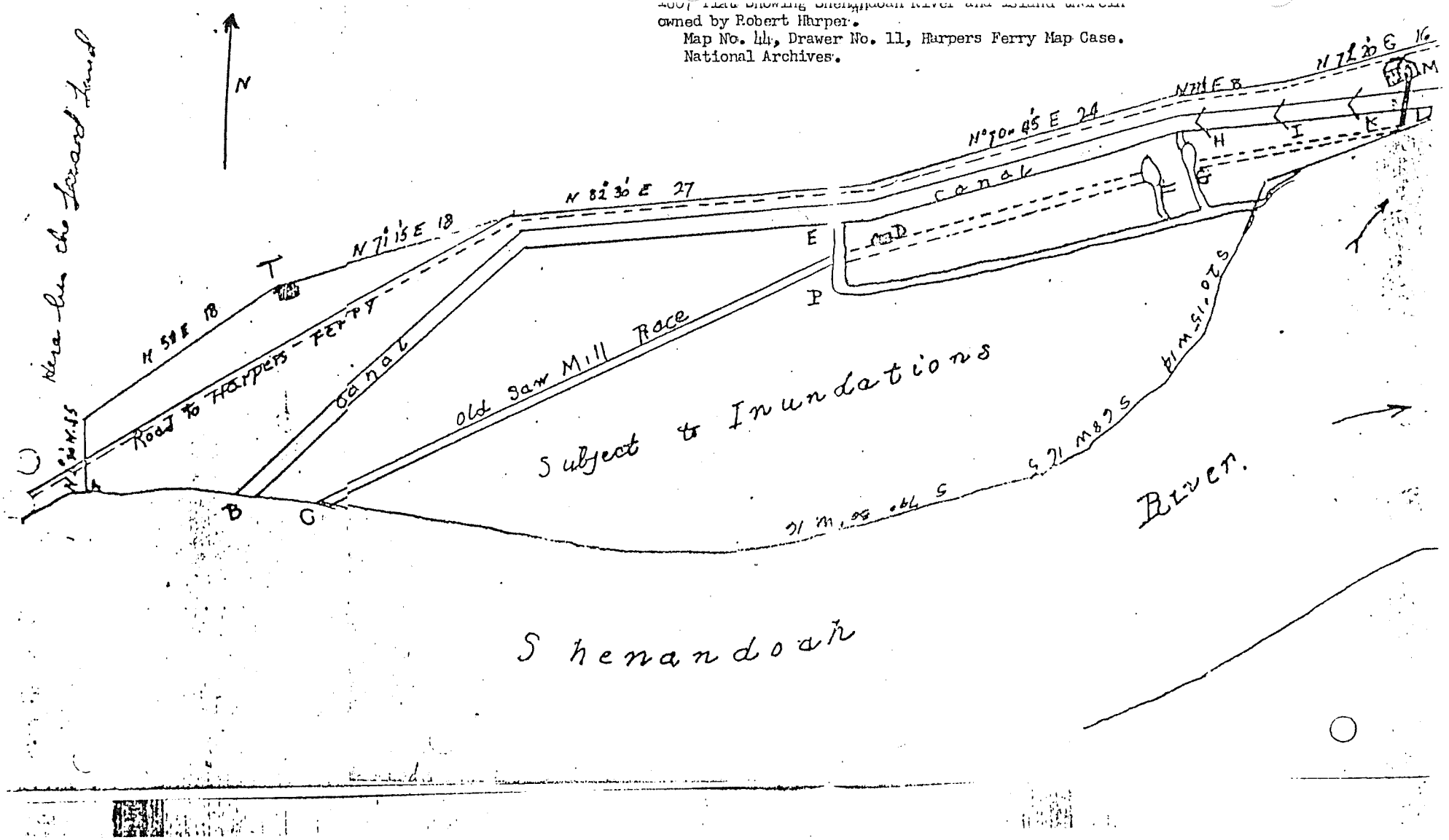
T. Shews the Dwelling of Harper Dec.

XY The dotted line, shews where a dam might be made across that part of the river and the water in the time of a flood turned the other way; leaving an apperture in the dam to let enough through to supply the Boats passing: which would prevent the mills below the locks being stopped by back water.

The lines shaded yellow shew the road to Harpers Ferry.

laid down by a scale of 8 perches to an inch.

4007 Plat showing Shenandoah River and Island owned by Robert Harper.
Map No. 44, Drawer No. 11, Harpers Ferry Map Case.
National Archives.



V. Stage Two- Enlargement of the Armory, 1808-1813:

World events, for a third time, were to affect the development of the U.S. Armory at Harper's Ferry. Thomas Jefferson, who had taken office as President of the United States on March 4,1801, had a phobia against "standing armies", and at once reduced the army of 5,000 men to 3,000; in like manner he permitted the U.S. Navy to decline and rot. The militia of the States, he pronounced, would be the savior of the Nation in the event of war, however, he took no steps to insure that the militia were well armed, well trained, and well led.[1] In 1803, moreover, the Napoleonic wars were resumed in Europe. Both France and Great Britain clamped further restrictions on the neutal carrying trade in order to deprive the other of the means of war. Once again American merchant vessels were caught in the middle of this struggle and were roughly treated by both sides. On June 22, 1807, the U.S. frigate Chesapeake, commanded by Commodore James Baron, was stopped by the British frigate Leopard just outside the three mile limit off Norfolk Roads, Va.. The British commander demanded that four sailors aboard the Chesapeake, who, he claimed, were deserters be returned. When Baron refused, the British opened fire, killing three and wounding 18. By force the four alledged deserters were also removed. The American people were outraged by this attack.

Jefferson decided to use the economic power of the United States to punish both belligerents and to bring the two superpowers to their knees. The Embargo Act of December 22,1807 accordingly ordered a cessation of

1. It is difficult to conceive how Thomas Jefferson could have honestly believed that poorly trained, badly armed, and poorly led militia could be the savior of anything! In 1780-1781, as Governor of Virginia, Jefferson had twice observed British troops, in small numbers, sweep across and ravage Virginia without loss to themselves. In both cases the Virginia militia proved to be useless and Jefferson had to flee for his life and also quit as governor in June 1781 in the middle of one such attack.

almost all land and seaborne trade with all nations. This act, while failing to have any desired effect on the European powers, did manage to reduce New England and New York to economic ruin and it brought New England almost to the verge of revolution. Depression also spread to the other regions of the United States. On March 1,1809, Jefferson signed a new non-importation act that repealed of 1807 Act and reopened the trade with all of the nations of the world except France and Great Britain. It also authorized the President to proclaim a resumption of trade with these two superpowers in the event that one or the other, or both, agreed to stop violating neutral rights.

By early 1808, President Jefferson and his Cabinet finally reached the decision that it might be wise rearm! In a series of appropriation bills, the Republican administration made a 180 degree turn and voted to increase the army to 10,000 men. Eight new regiments, including five of infantry, one of riflemen, one of light artillery, and one of light dragoons, or cavalry, were to be added and $ 2,000,000 was provided to accomplish this expansion. Another $ 850,000 was voted to construct gunboats (instead of the warships that should have built); $ 1,000,000 was also appropriated to erect coastal fortifications at the chief ports and another $ 200,000 to allotted to help arm the militia.

A total of $ 748,642.05 was appropriated for Ordnance purposes as follows: $ 80,000 for the regular expenses; $ 218,642.05 for arsenals, armories, and arming the fortifications; $300,000 to purchase arms from private contractors; $150,000 to purchase saltpeter and sulpher to make gunpowder, and finally, $ 200,000, as has been noted, to arms the milita.[1]

1. U.S. Statues at Large, II, 470,473,490, March 3, March 11, April 23, April 25,1808.

Enlarging the Armory :

Joseph Perkin, the first superintendent of the Armory, died on December 1,1806. Secretary of War Henry Dearborn selected James Stubblefield, a gunmaker and resident of Stevensburg, Culpeper County, Va., to be the second superintendent of the Harper's Ferry Armory. The commission, which carried a salary of $ 1,050 a year, was issued in April and Stubblefield and his family arrived at Harper's Ferry to take up residence on May 14,1807.

As a result, no doubt, of the Chesapeake-Leopard affair, the War Department was considering by the fall of 1807 how to increase the production of arms at the National Armories. In late October Superintendent Stubblefield informed the War Department that if they added 35 feet to Armory(Bldg. No. 1 on the 1803 map) and 20 feet to the Smiths' Shop(Bldg. No. 2 on the 1803), there would be enough space to employ "up to 100 hands."[2] On November 11,1807, the War Department directed Paymaster Samuel Annin"to please adopt measures for making an addition of 35 feet to the Armory and Twenty to the Smiths' Shop, also an additional water wheel and such other apparatus as may be necessary, the whole to be constructed under the direction of Mr. Stubblefield."[3] On May 25,1808 and before approved work on the proposed additions to the shops could have gotten underway, the War Department authorized Stubblefield to arrange for and construct whatever additional buildings that he thought were necessary and to do it as quickly as possible[4]

2. Stubblefield to War Department, Oct. 1807, HFNHP Reel 18,Vol.3,p. 286.
3. HF NHP Reel 18, Vol. 1, p.63.
4. Reel 18, Vol. 1, p.74.

Because the sky was now the only limit on the construction of new workshops, Stubblefield dropped his plan to erect additions to the two older Armory shops and instead built completely new ones.[5]

With some $ 218,000 available for use at the arsenals and armories, the War Department now hoped to double the production of small arms at the Springfield and Harper's Ferry National Armories. On June 3, 1808, Secretary Henry Dearborn explained his plan to Stubblefield, writing:

> It has been determined to enlarge the Armoury Establishment both at Springfield & Harpers Ferry, & I have given Mr. Annin directions to commence the erection of the necessary buildings, water works, machinery & Apparatus without delay & to have the whole performed on such dimensions & in such manner, as he and you shall agree on generally. For the machinery etc. you will from time to time furnish him with sketches, drawings or directions which he will follow.
>
> It is desirable that the buildings & machinery should be such as may be sufficient for as many workmen, as would be necessary for the manufacture of from 15 to 20,000 muskets annually & a due proportion of Rifles, Pistols & Swords.[6]

In the period 1808-1809, Superintendent James Stubblefield designed and Paymaster Samuel Annin erected seven new brick workshops, thus bringing the total number of such factories to nine. Five of the new shops were constructed at the U.S. Musket Factory on the Potomac, thus increasing the number of brick shops at that establishment to seven. Two of the new brick shops were erected on the Lower Hall Island in the Shenandoah River, thus marking the first use of the water power of that river to manufacture arms.

In addition, Annin also rebuilt the Armory dam on the Potomac 1808. Early in the year he had reported that the Potomac Dam, built in 1799-1800,

5. The 1810 list of public buildings gives the same dimensions as the Armory and Smiths' Shop had in 1799, thus indicating that the proposed extensions were not erected in 1808.

6. HFNHP Reel 18 vol. 1, p.77.

might fail at any time, due in part he thought to poor materials that been used in the original construction. After consulting with Stubblefield, Annin informed the War Department that he had decided to built a new dam approximately six to eight feet below the existing structure. The new dam was to use the old dam to the extent of securing the two together with "bolts and ties of locust".[7] On November 14,1808, Annin reported that the old Potomac dam had actually given way as feared, and that he was now superintending the construction of the new one.[8]

The detailed plans and specifications for the Armory structures erected in the 1808-1813 period have not been found in the National Archives but the general scope and progess of this Stage II enlargement of the U.S. Armory at Harper's Ferry is reveal by the figures for expenditures for new construction and repairs during those years.

7. HPNHP Reel 18, vol. 3, p.255.
8. HFNHP Reel 18, vol. 5, p.411.

EXPENDITURES, 1808 to 1813: (9) Total: $ 139,144.77.

YEAR	New Construction	Repairs	no.of workmen	no. of new Arms made:
1808	$ 40,655.32	$ 2,356.87	153	5,259
1809	37,231.26	2,732.21	197	7,348
1810	14,192.90	2,448.55	209	9,400
1811	9,125.06	3,048.36	210	10,000
1812	11,032.48	2,732.58	208	10,200
1813	10,560.83	3,028.35	210	9,000
1808-1813:	$ 122,797.85	$ 16,346.92	$ 139.144.77	51,207
1798-1807	81,036.21	12,645.18	$ 93,681,39	10,050
grand TOTAL 1798-1813	$ 203,834.06	$ 28,992.10	232,826.16	61,257

Although the original plans for the buildings no longer exist, the following two lists provide considerable data, including the dimensions, number of stories, materials constructed of, and the use made of all Armory structures in 1810 and 1811:

(1)"Public Buildings at Harper's Ferry in Virginia , 1st January 1810," prepared by Samuel Annin, Military Storekeeper,[10]

(2) "Public Buildings at Harper's Ferry in Virginia, 1st October 1811." prepared by Samuel Annin, Military Storekeeper, 11.

9. Expenditures and Arms made from ASP, II, 481; Number of workmen from ASP,V, 915. In 1811 $ 2,000 of the funds for new construction were used to erect six new brick dwelling houses for armory workmen.

10. National Archives Record Group 107, Secretary of War Letters Received, A-29(5),submitted by Samuel Annin,March 17,1810. Photostat of list in Park Library Collection.

11. National Archives R.G. 107- Sec. of War Letters Received, A-72 (5), submitted by Annin,Oct.28, 1811. Photostat of list in Park Library.

Buildings at the U.S. Musket Factory on the Potomac River.

Here there were two rows of great brick shops, arranged symmetically in parallel rows with a street about 70 feet wide between them. There were a total of 10 shops in 1811, eight of brick and two of wood. These were located on the north bank of the Armorv Potomac canal and ran parallel with that canal from east to west.

The Southern Line of Workshops (located on north bank of Armory Canal and reading from east to west):

Our No.	1811 List No.	Material Built Of	Dimensions in Feet	No. of Stories	Remarks
2	8	Brick	131 by 45	2	1st story a finishing shop, water wheel, machinery & storage room for musket stocks. 2nd floor- Superintendent's Office, store room, a filing shop, and a room used as a meeting or church room. [Constructed in 1809-1810]
3	3	Brick	123 by 29	2	Used in 1811 for different machinery for manufacturing arms. (Water wheel [This is the "Armory" or "Factory", erected in 1799 and Bldg. No.1 on the 1803 Map.]
4	6	Brick	83 by 30	2	1st story had 10 Smiths forges, each with a chimney; 2nd floor used as a filing shop. (No water wheel or machinery. [This is the "Smiths Shop" that was built in 1799 and is Bldg. No. 2 on the 1803 map.].
5	7	Brick	101 by 30	2	1st story tilt shop, with water wheel and machinery, also store room for iron. 2nd floor used in 1811 to provide lodging rooms for the workmen. [Built in 1808-09]

The four brick structures, beginning with No. 2 and running west to Bldg. No. 5, formed the southern line of Musket Factory workshops. The shops abutted on the north bank of the Armory Canal so that water from the canal could turn the water wheels in Shops No. 2, 3, and 5. Our Bldg. No. 1, of course, at the eastern head of this line of workshops, was the Superintendent's Quarters, built in 1808-09, two stories, and brick.

The following four brick buildings formed the second or northern line of workshops at the Musket Factory. They stood on the bank of the Potomac River and ran parallel to the southern line. The number read from west No. 6 to east (No. 9)

The Northern Line of Workshops(on the Bank of the Potomac River-low number at western end of line, reading east to high number):

Our No.	1811 list No.	Materia Built of	Dimensions in feet	No. of Stories	Remarks:
6	13	Brick	25 by 25	1½	1st floor used as foundry, 2nd floor used for lodging rooms for workmen. (Erected 1808-09-this is probable location)
7	27	Brick	83 by 29	2	1st story had 10 Smiths forges, each with its own chimney; second story still unfinished in 1811.(Built in 1809-10-no water wheel or machinery. Stood opposite to Bldg.No. 4.)
8	5	Brick	123 by 30	2	1st story-16 smiths forges,each with on chimney. 2nd floor intended for use as filing shop, but used in 1810-1811 as lodging rooms for workmen. (Built 1808-09, no water wheel or machinery, stood opposite to Bldg.3)
9	4	brick	131 by 30	2	1st floor-16 smiths forges,each with chimney; 2nd floor used as stocking shop.(Erected 1808-09. No water wheel or machinery, Stood opposite to Bldg. No. 2).

The roofs of all eight brick workshops were covered with wood shingles in 1811.

On march 15,1810, Paymaster Annin wrote to the War Department requesting permission to a portion of one workshop for religious services, explaining:

"As a society(at Harper's Ferry) we labor under great [illegible] 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 [illegible] advantages that would result from having the Gospel statedly preached among us. We only ask permission to occupy about 40 feet, either [illegible] of the 1st or 2nd story. The Building is 131 feet in length. "[12]

12.HFNHP Reel 18, Vol. 5,p. 497.

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. 7(or 8 on the 1811 list).[13]

Also located in the U.S. Musket Factory Yard and probably situated at the western end of the southern line of brick workshops were the following two structures:

Our No.	1811 No.	Materials	Dimensions in Feet	No. of Stories	Remarks
10	25	Wood	26 by 19	one	Carpenter Shop (Built 1808-09).
11	36	Wood	44 by 19	one-low.	Lumber room for carpenter work (built in 1808).

ARMORY WORKSHOPS LOCATED ON THE LOWER HALL ISLAND IN THE SHENANDOAH RIVER, 1811

Our No.	1811 No.	Materials	Dimensions in Feet	No. of Stories	Remarks
12	9	Brick	80 by 45	one	Machinery for heavy grinding-barrels, &c. (Built in 1808-09).
13	10	Brick	45 by 45	one	Tilt shop calculated for 4 hammers-only 2 in operation in 1811. (Built in 1808-09).
14	0	wood	(50 by 16)	(one)	New Saw Mill [erected ca.1807-to Replace Harper's old mill.]

13. HFNHP Reel No. 18, V. 2, p.112.

ARSENALS, ARSENAL SQUARE, BLOCK A, SHENANDOAH STREET, 1811

Our No.	1811 No.	Materials	Dimensions in Feet	No. of Stories	Remarks
15	1	brick	125 by 31½	two	Used as Depository for Arms (built 1799-1800-Large or Old Arsenal-see 1803 map)
16	2	brick	68 by 36	two & cellar.	Used as depository for Arms. (Small or New Arsenal, built in 1806).

Between 1801 and December 31,1813, a total of 61,257 new small arms had been manufactured at the U.S. Armory at Harper's Ferry and passed through the doors of these two arsenals. Records indicate that in 1812-1814 the Harper's Ferry Arsenal shipped 27,500 flinklock muskets, 1,000 flintlock rifles, 500 carbines, and 500 pistols, together with 500 cartridge boxes, 30,000 cartridges, 10,000 flints, and 100 cavalry swords to Knoxville, Tennessee, and to Pittsburg, Pennsylvania; in all, 29,500 firearms were sent to support the war effort, leaving about 31,757 arms still in storage at Harper's Ferry, not including the arms produced in 1814.[14]

17. The MAGAZINE, CAMP HILL

In 1803, as has been noted, the Armory erected a brick magazne on what became known as "Magazine Hill", Camp Hill, for the storage of gunpowder. Because of its leaking brick roof, which they were unable to make water tight, the magazine proved to be unsuitable for this purpose. The brick magazine in not carried on either the 1810 or 1811 lists of public buildings. On March 24, 1810, the War Department ordered Paymaster

14. ASP, II, p.514. Report of Peter Hagner, Third Auditor's Office, Treasury Department, to Congress, September 7,1822.
The cost of transporting the material west and south was $ 18,720.77.

Samuel Annin that "A small magazine of wood, ten feet square and eight feet studs (that is, eight feet high), should be erected, as soon as practicable, on or near the site of the old (brick and leaking) one, and the powder removed into it as soon as it is completed."[15] This small wooden magazine, which we have numbered Bldg. 16, was undoubtedly erected in 1810 but the structure is not included on the 1811 list of Public Buildings at the Harper's Ferry Armory.

The remaining 20 Armory structures that were included on the 1811 public building list, were dwelling houses that had been erected 1798-181 to house Armory officers and workmen.

ARMORY DWELLING HOUSES and the Housing Problem;

Eight days after his arrival at Harper's Ferry, Superintendent James Stubblefield commented to the War Department on the serious housing problems he found at the Arnory, writing on May 22,1807:

"There at are 5 or 6 very good steady workmen who have been employed in this armory for a considerable time, have married and settled themselves. They are very solicituous (sic) to be furnished with housing by the public as those they at present occupy they are obliged to pay (to the Wager family) a very exorbitant rent for, and in part have no houses at all & the payment of rent reduces their pay below others of equal abilities."[16]

Plans to double the production of arms and to increase the number of workmen to achieve this purpose, of course, further aggravated the tight housing situation at Harper's Ferry. Stubblefield thus

15. HFNHP-Reel 18, v. 2, p.112. In 1821 the dimenisons of the one story wood magazine are given as 18 by 18 feet.
16. HFNHP Reel 18, Vol. 3, p.281.

informed Secretary of War Henry Dearborn on April 4,1808:

"Agreeable to your order I have increased the number of Armorers,by which we are very much crowded, and have agreed with several more very good workmen, but for want of accomidations(sic) they cannot come on to business."[16]

On April 12,1808, Secretary Dearborn directed Paymaster Annin:

"to erect on the hill nigh the Magazines a building 60 feet in length 32 feet in width & 1½ stories in height, the walls to be brick, for the accomodation of the workmen at the Armory at Harper's Ferry."[17]

This order probably resulted in the construction of Bldg. 6 (or 17 on the 1811 list), which was occuped by eight families in 1811.(see below).

When Stubblefield arrived in Harper' Ferry in May 1807,he was offered the use of former Superintendent Perkin's residence, the one-story frame warehouse at the head of the Armory street, which nad been converted into a temporary armory in 1798 and then into a residence. Stubblefield declined this house and expressed a desire to reside on Camp Hill. On May 27, Stubblefield was granted permission by the Secretary to live in a house on Camp Hill of his choice, provided that he could put the building in livable condition for not more than $ 300.00.[18] This suggests that the large brick house on the 1810 list of public buildings in which Superintendent Stubblefield was living in at that date, must have been constructed in 1808-1809.

In April 1810, Stubblefield informed the Secretary of War:

Mr. Wickham(Master Armorer) will hand this to you,who waits on you for permission to have a house built convenient to the Armory. His accommodations at present is very indifferent(see House No. 22 on

16.HFNHP Reel 18, Vol. 3, p.290.
17.HFNHP Reel 18,Vol. 7,p.73.
18. HFNHP Reel 18, Vol. 1, p.55, 56.

the 1810 list of buildings) and inconvenient to the works- more especially in the winter season- the roads in general is excessive bad, and it is necessary for him to continue in the Armory until 6 o'clock at night.

Turning to the housing for the armorers, Stubblefield reported: "There is at present a number of married workmen in my employ waiting accommodation- You will therefore highly oblige me by informing whether or not they may expect to be furnished with houses..." The Superintendent then suggested that it "would be advisable to exact a moderate rent, in proportion to the accommodation and expend it in accomodating others. There is at present a considerable degree of Jelously(sic) among the hands, as some accommadations is unavoidably better than others."[19]

On January 26,1811, Stubblefield submitted " An estimate for the cost of six (brick) Dwelling houses for Armorers, $ 2,000, to the War Department for approval.[20] The War Department granted the requested approval on January 29,1811,the Secretary writing: "You are authorized to make contracts for erecting them on the best terms you can obtain, but not exceeding $ 2,000 dollar for the whole of building."[21] These six brick houses were constructed in 1811 and appear on October 1,1811 list of public buildings.

On January 24,1812, the Secretary of War ordered Paymaster Annin: "to require and collect such rent as you may think reasonable for the houses occupied by the Armorers at Harper's Ferry, charging rents from the 1st January 1812, and appropriate the proceeds of such rent to necessary repairs of the Public buildings-rendering an account of the same."[22]

19. HFNHP-reel 18, Vol. 5, 419, Letter dated April 7,1810.
20. HFNHP Reel 18, Vol. 5, p.446.
21. HFNHP Reel 18,v. 2,p. 128.
22. HFNHP-reel 18, Vol. 2,p.149.

The construction of seven brick houses for the Armorers in the period 1808-1811 did not solve the housing problem at Harper's Ferry. Many of the workmen, particularly the single men, were housed on the upper floors of the Armory workshop, as Paymaster Samuel Annin reported on March 13, 1813 to Secretary of War John Armstrong:

"At present a part of the workshops are occupied as lodging rooms by single men(mechanics)-this is found dangerous, and also inconvenient, as the rooms are wanted for the purpose they were designed; this induced me last fall to make some preparations toward a building intended to be 16 by 160 feet, one story high, to be divided into 10 apartments and to accommodated 50 to 80 men.

It is also needful to provide for some that have families, for by experience we find they are the men most to be relied on, some good mechanics have left us, meeting with better accommodations es elsewhere, especially at Pittsburg. " 23

Secretary Armstrong refused to approve this plan and the intended apartment house was never erected.[24]

Paymaster Annin renewed his appeals to Secretary War Armstrong for permission to erect additional housing on November 2,1813 and again on July 26,1814 and on each occasion was turned down.[25]

The census of Harper's Ferry for 1810 reveals that the population then numbered 751 and was made of 661 whites and 90 black slaves. There were 386 white males, of whom about 210 were employed at the Armory, and 275 white females. There were listed 100 heads of families.[26] The October 1, 1811 list of Public Buildings indicates that 41 families were housed in the 20 Armory dwelling houses. Some of the remaining 59 families may have been renting houses that were owned by the Wagers and located on the Six Acre Reservation tract, but the majority of Armory families

23. HFNHP Reel 13, Vol. 1, p.2.
24. HFNHP Reel 13, vol. 1, p.88- Annin's letters indicates that he began construction on the apartment house, but stopped shortly after it got underway, when Secretary Armstrong refused to approve the project.
25. HFNHP Reel 13, vol. 1, p.31-32; p.88.
26. Records of the Bureau of the Census, National Archives Record Group 29, Population Schedules of the Census of the United States for the Year 1810- on HFNHP Mircofilm Reel in Park Library.

not housed in the offical 20 public dwellings were "accommodated with log houses, or huts, which were built by the Army in 1799 (on Camp Hill) Other huts have been rebuilt in more convenient situations, which now are generally indifferent."[27] The unmarried men, as has been noted, were lodging in rooms on the second floor of the Armory workshops.

ARMORY DWELLING HOUSES, OCTOBER 1, 1811

Our No.	1811 No.	Material Built of	Dimensions in Feet	No. of Stories	Remarks
1	11	Brick	36 x 29	2, with cellar kitchen.	For Superintent- (Built 1808-09- and located east of Armory Bldg. 1 U.S. Musket Factory.)
2	12	Brick	28 by 19	2 and cellar, adjoining kitchen.	For the Paymaster. (Built 1801-02, located Lot 5, Block B, Shenandoah Street.)
3	14	Brick	30 by 20	one	For mechanic (Built prior to 1810).
4	15	Brick	20 by 18	one, with cellar kitchen.	For a mechanic, (Built prior to 1810).
5.	16	Brick	20 by 18	one & cellar kitchen.	For a mechanic (Built prior to 1810).
6	17	Brick	64 by 21	two	for eight families. (Built in 1808). (located on Camp Hill).
7.	18	Stone & Frame (listed as frame in 1821)	94 by 21	two	for ten families. (This may have been the barracks, erected in October 1798.)
8	19	Frame	70 x 18	one, with cellar	For three families.- millwrights & carpenters (built prior to 1810).
* 9	20	Brick & frame (listed as fame in 1821)	40 by 20	two	for one family. (Erected prior to1796, rebuilt in 1809.)
* 10	21	Brick & frame (listed as frame in 1821).	40 by 20	two with cellar	for two families (erected prior to 1796, rebuilt in 1809).

27. Statement made by Paymaster Samuel Annin on the List of Public Buildings, January 1, 1810 and October 1, 1811. In 1810 31 families lived in the 14 Government Dwelling House then available. In 1811 the number of families increased to 41 and the number of dwellings to 20.

* Buildings No. 9 and 10 were the one-story frame warehouse, 100 feet long, which had been erected by John Wager prior to 1796. In 1798 it was converted into a temporary Armory or factory; in 1801 it was converted into a residence for Superintendent Perkin, where he lived to 1806. Sept. 1809 the house was removed from the head of the Armory Street and rebuilt as two houses.

ARMORY DWELLING HOUSES, 1811 (Continued):

Our No.	1811 No.	Material Built of	Dimensions in feet	No. of Stories	Remarks
11	22	Frame	24 by 14	one	for the Master Armorer (Built prior to 1810).
~~12~~	23	Frame	26 by 16	one	for mechanic (prior to 1810 built.)
13	24	Frame	26 by 19	one	By the carter (built prior to 1810)
14	28	Log (boarded)	26 by 18	two & shed	for three families, located on Camp Hill (built prior to 1810).
15 to 18	~~29~~ 30 31 32	brick	22 by 18	one & cellar kitchen	four one family houses built in 1811.
19	33	Brick	24 by 16	one & cellar	for mechanic, built in 1811.
20	34	Brick	26 by 16	two	for mechanic, built in 1811.

Total: 20 dwellings providing housing for 41 families in 1811. 210 workmen.

TYPES OF U.S. DWELLING HOUSES, 1811

Material	Two Story	two story & cellar kitchen	two story, cellar & adjoining kitchen	One story and cellar k itchen	one story	TOTAL
Brick	2	1	1	7	1	12
Brick & Frame	1	1				2
Stone & Frame	1					1
Frame				1	3	4
Log (boarded)			1			1
TOTAL:	4	2	2	8	4	20

Leases of U.S. Lands and Buildings, 1807-1813:

A. The Beall Lease, 1807-1810.

On June 8, 1807, the Secretary of War sent Paymaster Annin a copy of a lease that he had issued to Mr. Theodore Beall for the use of the 100 foot long one-story structure that stood at the head of the Armory Street (see Bldg. No. 11 on the 1803 map).[1] This building had been constructed by John Wager, Sr. prior to 1796, converted for use as a temporary armory or factory in October 1798, remodelled in 1801 for a residence for Superintendent Joseph Perkin, who resided there until his death in December 1806, and was empty in the spring of 1807, when Superintendent James Stubblefield chose to live on Camp Hill rather in Perkin's former dwelling.[2]

The Secretary informed Annin that the lease was to be for two years and 10 months, "unless the property should sooner be wanted by the United States, it is understood that he is to pay a rent in proportion to the extension of the term."[3] Beall moved into the house shortly after this and when it was found that the structure was larger then Mr. Beall needed, the War Department next sanctioned renting of the unused portion to a Mr. Worthington, " until by the increase of workers, it will be required for other purposes."[4]

1. HFNHP Reel 18, Vol. 1, p.58.
2. HFNHP Reel 18, Vol. 4, pp.389-390- Annin, in a letter to Secretary of War William Eustis, written in 1809, gives a detailed history and description of the warehouse from 1798 to 1809.
3. HFNHP Reel 18, V. 1, p.58.
4. HFNHP Reel 18, vol. 4, p.386.

The War Department soon discovered it was easier to get Col. Beall into, then out of a public house. When the Armory work force was being doubled in 1808-09, On June 30,1809, Annin reported to the War Department; "I called on Mr. Theodore Beall for the rents due for the house & lot he now occupies- at the same time informed him that the house was to be removed, and requested him to make arrangement for other accommodations. No attention has been paid by Beall to these requests.."[5]

In urging the removal of this structure, Annin explained to the Secretary: "It stands in the centre of the Armory Street; if it should take fire(which there is a great cause to fear) many valuable Armory buildings might be reduced to ashes, the risk is much greater than the value of the building - in my opinion it ought without delay to be removed- if it cannot entire(which I fear it cannot, being badly put together in the first instance, and going thro' so many changes, nearly all the inner braces are cut) it may be taken down and the materials secured under cover until a more convenient time for erecting them into suitable building for mechanics. When it is removed Mr. John Wager Jr. the present proprietor of the reserve lots & ferry intends to remove his warehouse and other building that are situate at the head of the Armory Street(See Bldg. P on the 1803 map); which will be a great accommodation,as it will make a complete opening."[6]

5. HFNHP Reel 18, Vol. 4, p.386.
6. HFNHP Reel 18, Vol. 4, p.389-390.

Annin continued to put pressure on Beall to move, but in order to accomplish the project of removing the structure, he had to make a compromise with that gentleman. The Paymaster thus reported on November 24, 1808: "In September I removed the house occupied by Mr. Theodore Beall. In order to have opportunity of doing so peaceably I thought it advisable (sic) to promise him the occupancy of a part thereof after removal, without which I believe he could not have been persuaded to have left it. His lease will expire on the 31st March next (1810), he hath not paid any rent."[7]

The 1810 and 1811 lists of Public Buildings indicate that the materials of the old frame warehouse were used in 1809-10 to erect two brick and frame structures, each 40 by 20 feet and two stories high. The 1810 list also indicates that Mr. Beal was still living in Bldg. No. 20 (our No. 9), and that he was still in that structure in October 1810.[8] Superintendent Stubblefield complained that

The Secretary of War authorized Stubblefield to order Beall out of his leased house.[9] The October 1, 1811 list of Public Buildings shows that Beall had departed by this date and that mechanics then occupied the dwelling.

B. The Potomac Company Lease, 1811-1827:

In June 1811, the Potomac Company applied to the War Department for permission to lease two lots, one located at the Keep Tryste Furnace tract on the Potomac River above (West of) Harper's Ferry and the other located on Shenandoah Street in Harper's Ferry.[10]

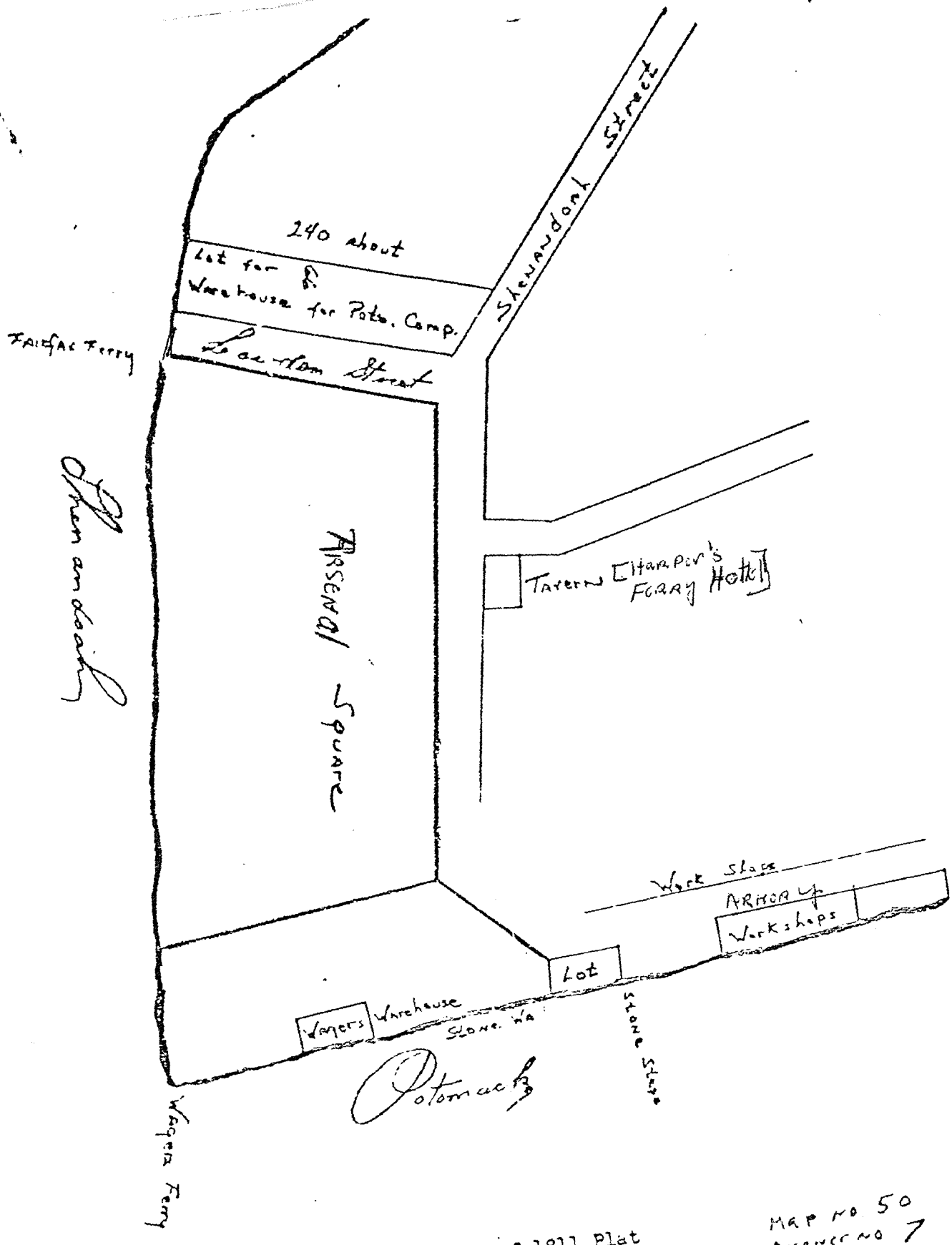
The War Department directed Paymaster Annin to so "divide the

7. HFNHP Reel 18, Vol. 5, p.413.

8. HFNHP-reel 18, Vol. 5, p.431. September 8, 1810-Stubblefield informed the War Department that three families could be put in Beall's house, if he got out.

9. HFNHP Reel 18, V. 2, p.120-121.

10. Reel 18, Vol. 2, p.140-War Department to Annin June 6, 1811.



Tracing of 1811 Plat

MAP NO 50
DRAWER NO 7

"vacant lots as to accommodate the said company..."[11]

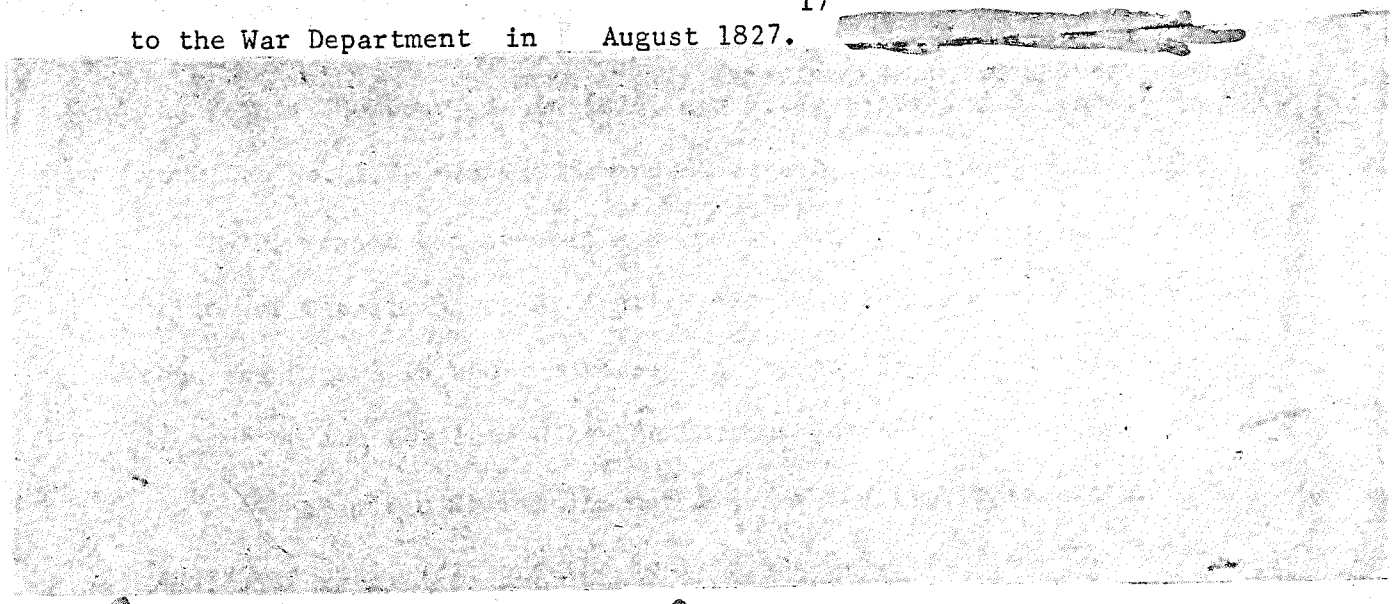
On September 4,1811. Annin advised Secretary of War William Eustis: " I am requested by Mr. Josias Thompson to send the (two) plats by him made of the lots laid off at this place,& at Keeptryste for the accommodation of the Potomac Company which you sent me..."[12] The two plats show that the Company was given a lot in Harper's Ferry fronting 65 feet on the south side of Shenandoah Street and extending from that street to the bank of the Shenandoah River, about 240 feet. The lot was located on the west side of "Loudoun Street," later known as "Globe Inn Alley"(in 1834), and after 1847 as"Market Street." A comparsion of the dimensions of the 1811 leased land with the 1852 and 1869 maps of Harper's Ferry reveals that the granted lot embaced all of Lot No1, Block C, Shenandoah Street(which had a 43 foot frontage on Shenandoah Street, 23 feet of Lot No. 2, Block C, and practically all of Lot No.11, Block C(which had 67 frontage on the Alley south of the railroad).

In October,1811, the War Department instructed Annin to calculate what he thought "ought to be the annual rent of the lots proposed to be leased to the Potomac Company,...calculating the lease for 7 or 10 years.[13] Annin's reply has not been found, but the lease was grantted to the Potomac Company in 1811.[14]

In 1812 the Potomac Company constructed a "wooden warehouse" located on the river on Lot 11, Block C,"used by the Potomac Company for storing flour..."[15] The 1811 lease also contained a provision

11. HFNHP Reel 18, V.2, p.140, June 6,1811.
12. HFNHP REEL 18,Vol. 6,.p.566.
13. HFNHP Reel Reel 18, Vol. 2,p.146.
14. HFNHP Reel 13, Vol. 2, p.116.
15. ASP,V, p. 145, also Reel 17m,v. 3, p.237.

"that no fireplace, chimney, nor flue shall be put in any building, and no fire should be kept on the lot," of the Potomac Company.[16] This was done to protect the arsenal buildings from fire. What is believe to be the "old warehouse" appears on the 1834 railroad maps of Harper's Ferry-and judging from this evidence, the one-story frame warehouse was about 32 feet by 60 feet in size. The Potomac Company surrendered their lease for Block C, Lot 11, with its warehouse, to the War Department in August 1827.[17]



C. The Joseph S. Annin Lease, 1812-1818:

On April 12,1812, Paymaster Samuel Annin addressed Secretary of War William Eustis, writing: "The bearer hereof, Joseph S. Annin is desirous of opening a Druggists shop at this place. Will you be pleased, Sir, to grant him permission to erect a small brick building for the purpose in some convenient spot where it will not interfere with any of the public works. It appears necessary to have a store of this kind in a place like this, it would very frequently save the trouble & expense of sending a distance for a Physician. General Dearborn when Secretary of War granted me permission to procure for my Son Doctor Annin (who then kept a Druggist shop) medicine for all the Armorers, chargeable to the United States. He has since

16. Reel 14, Vol. 8, p.766- Col. George Bomford, Chief of Ordnance, to Supt. George Rustm, July 24,1830.
17. Reel 14, V.6, p. 571, Col. Bomford to Supt. Stubblefield, Aug.14,1828.
18. Reel 22,V.7, pp.690-694-James D. Wager to Secretary of War P. B. Porter, January 19,1829; Col. Bomford to Supt. Rust, July 24,1830, Reel 14, V. 8, p.766.

removed to Battletown, 20 miles distant, and for a considerable time no medicine has been furnished them at the public expence. My son Joseph lived some years with his Brother and attended to the shop & therefore is acquainted with the business. It would be a very great accommodation to the Mechanics again to be furnished with medicine, and very useful to the neighnourhood generally. Be pleased, Sir, to take it into consideration, and I doubt not you will grant the request." [1]

On May 12, 1812, the Secretary of War approved this request, writing: "You may authorize Mr. Joseph Annin to erect a small brick building for an Apothecaries' shop, provided it will not in any way interfere with the public works..." [2] Dr. Joseph Annin constructed Park Bldg. No. 35 on Lot 3, Block B, Shenandoah Street, in 1812 as his drug store and residence. His house, a 2 story brick structure measured approximately 23 by 34 feet in size.

Samuel Annin, who had served as Paymaster and Military Storekeeper at the Harpers Ferry Armory from May 1,1800, retired on May 15,1815, because of ill health. Annin left the Paymaster"s House, which he had erected in 1801-02 on Block B, Lot 5, and went to reside with his son in Park Bldg. No. 35, living there until he and his son left Harpers Ferry in 1818. At that time they offered to sell the structure at cost, $ 2,500.00, to the United States. This offer was accepted by the Government in 1818, but due to error, the sum of $2,500 was not credited to Samuel Annin's accounts with the United States Treasury until 1821. [3] In the meantime, however, beginning in 1818, the Armory occupied Annin's (residence) Park Bldg. No. 35, and used it as a residence for the Master Armorer of the Armory. [4]

1. HF NHP Reel 18, Vol. 7, p.626.
2. Reel 18,V. 2, p.157.
3. Reel 14, V. 3, p.288-Col. George Bomford to Supt. Stubblefield,Oct.11,1821.
4. Reel 21, V. 5,p.447.Supt. Stubblefield to Bomford, Oct 9,1821.

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on

The Acquisition of Timber Rights, Loudoun Heights, 1813.

Wood to heat the Armory workshops and the homes of the mechanics, and also to produce the charcoal used in smelting iron in the Armory furnaces, was necessary in large quantities after the Armory began manufacturing arms in 1801. The woodlands situated on the south side of the Shenandoah River, opposite to Harper's Ferry, and owned by Fernando Fairfax, were used as early as 1809 as a source for the Armory wood supply. A contract between Fairfax and the Armory, dated December 3,1808, permitted the United States in consideration of $ 1,400.00 paid to Fairfax, to cut 1,400 cords of wood on the latter's Loudoun Heights woodlands.[1]

In February 1811, Fairfax offered to sell this woodland tract to the United States for $10 per acre, pointing out that this acquisition would ensure a long term supply of wood for the Armory from a most convenient location.[2] Paymaster Annin, after inspecting the land, recommended its purchase, noting: "the part of the mountain nearest to this place is a very steep, & exceedingly rocky, and it will be very difficult to make roads by which wood may be brought from the top of the mountain; but in a few years there will be no alternative- much more charcoal is used at the works now, than two years ago, than was calculated on- no supply can be counted on from Maryland (Heights area) which formerly was the case..."[3]

The correspondence between the War Department, Samuel Annin, and Fernando Fairfax, including several surveys that were made

1. nFNmP Reel 18, V.4, p.375-376, for contract.
2. Reel 18, Vol. 9, p.889-890. Fiarfax to Secretary of War William Eustis, February 12,1811.
3. reel 18, Vol. 9, p.916. Annin to Secretary Eustis, April 10,1811.

of the woodland tract, took up several years. Finally, on August 20,1813, the United States and Fairfax reached an agreement. In return for $ 20,860.62, Fairfax conveyed to the United States the perpetual right to cut wood and timber for the Armory on a tract of 1,395 5/8 acres of mountain land laying on the south side of the Shenandoah River.[4]

Following the purchase of the Fairfax woodland tract in 1813, it was the practice of the Armory to hire wood cutters to fell and collect firewood on the mountain land. These men lived in cabins that they erected on the public lands on Loudoun Heights. By 1829 the Armory was obtaining all of its firewood and charcoal from the Loudoun Heights tract. On October 23,1829, Superintendent Thomas Dunn estimated that about 2,000 wagon loads of wood were cut on the tract and brought across the Shenandoah River by ferry for use in the Armory workshops and also in the homes of the Armory employees.[5]

By 1835 the task of obtaining wood and charcoal was contracted out to individuals who hired wood cutters and also hauled the firewood to the Armory. Henry Wade held this contract in 1835.[6]

Armory Superintendent, Major John Symington, in 1845, estimated that about 500 cords of firewood had been cut annually for use at the Armory. On September 25, 1845, however, Symington

4. Deed Book 8, p.63, Jefferson County Courthouse, Charles Town,W.Va., Also deed in National Archives Record Group 121, Public Buildings Service, Entry 75. Copy of deed also on HFNP Reel 24, Vol. 8,pp. 549-555.

5. Dunn to Col. George Bomford, Oct.29,1828, Harpers Ferry NHP Reel 22, Vol. 6, p. 520-522.

6. Contract with Henry Wade, February 20,1835, Harpers Ferry Photostat Collection, Vol. 1, p. 34. Also see Lt.Col. Talcott ordnance Department to Supt. Edward Lucas, Dec 23, 1840, HFNHP Reel 19, Vol. 1, p.20.

advised George Talcott, Chief of Ordnance: "As I have introduced coal stoves, for greater safety and cleanliness for heating the (Armory) shops, a fourth of that quanity (or about 125 cords)[7] will suffice for the other purpose for which is required."

in January 1856 the need for firewood was further reduced by the issuance of coal to Armory workmen for use to heat their homes. Col. Henry K. Craig, Chief of Ordnance, thus informed Armory Superintendent Henry W. Clowe on January 23,1856:

"You are authorized to furnish such of the employees as need it, a supply of coal to be paid for by them at a price to cover the cost and expense of the coal delivered at Harper's Ferry Armory."[8]

7. Symington to Talcott, Sept. 25,1845, Harpers Ferry Reel 23, Vol. 6, p. 542.
8. Craig to Clowe, January 23,1856, Reel 19, Vol. 9, p. 837.

Value of the Armory Plant, December 31,1813.

Under the system of accounting used at that time, the value of the physical plant of the U.S. Armory at Harper's Ferry ,Virginia, December 31,1813, consisting some 35 structure, exclusive of the powder magazines, would have been represented as follows:

For New Construction, 1798-1813:	$	203,834.06
For Repairs, 1798-1813:		28,992.10
For Buildings,Canal,Dams,	$	232,826.16
* For land,1796-1813: 1,822 acres:		37,877.28
Total:	$	270,703.44

Bldgs. 35,plus powder magazine.

* Land, 1,822 acres, exclusive of the 1600 acres Friends Ore Bank and the 221 acre Keep Tryste Furnace Farm. The $ 66,000.00 expended to purchase these two tracts in not included in the above above total for land.

CHAPTER VI

MARKING TIME, 1814 to 1821:

The figures for construction and repairs at the National Armory at Harper's Ferry for the eight-year period, 1814 to 1821, which follow, totalling $ 90,438.47 reveal that except for the years 1819 to 1821, very little new construction was undertaken at the Armory. The very large sums spent for making repairs also suggests that the Armory's physical plant was wearing out rapidly. A number of small store houses and workshops were built at the Musket Factory and several small workshops were built or remodelled on the Shenandoah and turned over to John H. Hall in 1819 for the manufacture of his patent rifle. No major Armory structure, however, was erected during the 1814-1821 period.

Year	EXPENDITURES FOR New Construction	Repair	No. of Workmen	No. of Arms produced
1814	$ 1,681.23	$ 3,755.91	210	12,000
1815	0	3,244.72	202	6,848
1816	2,984.12	4,758.88	222	8,468
1817	4,939.64	4,360.25	231	11,239
1818	4,563.24	4,340.33	237	12,592
1819	9,554.05	4,782.27	247	10,344
1820	16,934.50	5,164.52	271	11,649
1821	12,018.57	7,356.24	251	10,320
1814-21:	$ 52,675.35	$ 37,763.12	90,438.47	83,460
1798-1821:	$ 256,509.41	$ 66,755.22	323,264.63	144,717

The Ordnance Department is Established and Takes Command.

From 1796 to 1814, the superintendents of the National Armories at Harper's Fery and Springfield had reported directly to the Secretary of War. An Act of Congress, approved Februar 8, 1815, however, reorganized the War Department and made the Ordnance Department, under the supervision of the Secretary of War, repsonsible for the operations of the two National Armories and also of the ten U.S. Arsenals and Depots then extant. (1)

The Ordnance Department was first established in 1812 as a part of the War Department for the inspection and distribution of military arms and supplies. The Ordnance Department, under the able leadership of Col. Decius Wadsworth, had distinguished itself during the War of 1812. Wadsworth remained in command of the reorganized Ordnance Department in 1815 and directed its operations until his retirement in 1821. During this same period he was ably assisted by Lt. Col. George Bomford, who seceeded to the command in 1821 and directed its operations until his retirement in 1842.

Construction and Repair at the U. S. Musket Factory: and Arsenals:

During the period July 1,1817 to December 31,1820, Superintendent James Stubblefield spent a total of $ 908.73 on having the Musket Factory workshops and the two Arsenal buildings painted.[2] In a letter to Col. Wadsworth dated February 19,1820, Stubblefield reported of this: "I had the Arsenals and Workshops painted(last year), which were suffering for it, <u>having never been painted before...</u>"[3] In this work, the shingle roofs and woodwork of the brick buildings were painted.[4] By 1818 Arsenal Square was enclosed, for Charles Fouke, one of the chief carpenters of the Armory, was paid $ 6.00 on March 31, 1818 for "resetting and hanging the gates of the Arsenal Yard."[5]

3. Harpers Ferry National Historicl Park Microfilm Reel 21, Vol. 4,pp.341-342.
4. R.G. 217- F. 908- V. 33 to Leonard Sadlor, Sep.t 20,1817.
5. R.G. 217, F.1162-V. 54.

(1) Including the U.S. Arsenals at Harper's Ferry and Springfield Armories there were a total of 12 Arsenals in 1816. The other 10 arsenals were are follows: 1. Newport, Kentucky; 2. Rome, N.Y.; Watervliet, N.Y.; Pittsburg, Pa.; 5. Watertown, Mass.; 6. Frankford, Pa.; 7. Baltimore, Md., 8, Greenleaf Point, D.C.; 9. Richmond, va., and Augusta, Ga. <u>ASP,</u> II, 476-477.

(2.)Records of the Second Auditor of the Treasury Department, First Series, in National Archives Record Group, No. 217, Records of the U.S. Treasury Department, Washington, D.C. File No. 907-Vouncher 21;F.908-V.33;1162-V.6 and V.32; f. 3122- v.41, v. 74; f. 3266- v. 44, v.81.; 4490-v.23,27, # 93; and V. 4591-v. 44. The painters were, Daniel Carty,1820-$ 274.75; Jonathan Nixon, 1819-20, $ 173.38; Leonard Sadlor, 1817-20, $ 373.25; Joshua J. Rowles, 1817, $ 51.50; and John Sellers, 1818, $ 14.00.

On February 20,1820, the mason Henry James was paid $ 10.56 for laying 21 1/3 perches of stone wall about the Arsenal Yard."[6]

A number of small workshops and storehouses were erected at the U.S. Musket Factory on the Potomac: the mason Henry James erected "Pudling furnace for welding barrels & Scrap Iron at the Armory," in 1818.[7] Stubblefield reported of this in early 1820: "In the last year we purchased bar & land Iron to the amount of $ 25,000 and also completed our pudling Furnace & Forge and made 60 tons of bar Iron, out of borings, trimmings of the (musket) barrels...."[8] He also complained " I was compelled to build a new (Store) House for charcoal, the old one having fallen down..."[9] The Charcoal House was a one-story frame structure, 111 by 30 feet, and valued at $ 400.00 in 1821.[10]

Also erected prior to 1819 were a proof house and annealing house, both of which stood in the Musket Factory Yard and on the bank of the Potomac River. By the 1819 the river had started to undermine the foundations of these two structures . Stubblefield reported in early 1820 of this problem, writing: " We had also to finish a stone wall on the (Potomac) River(to keep) the Bank from washing on which our proof House and annealling Fires stood & had been undermined by the high water, which cost several hundred dollars (to build.)"[11]

The proof house was a one story wood and stone building 14 by 12 feet

6. R.G.217, f.3563-Voucher 24.To Col. Wadsworth, Feb.19,1820.
7. R.G. 217, F. 1418- V. 35, Sep.11,1818- James was paid $ 130.00 for this construction. He did further work at the structure in 1819 two hollow smiths forges"on the improved plan" ,March 19,1819 for $ 50.00-F. 2336-v.21; and spent 17½ days work repaiding the puddling furnace, receiving $ 35.00 for this work on Oct. 19,1818-F. 3266-V. 13.
8. HFNHP Reel 21, Vol. 4, p. 341-342.
9. Ibid.,
10. ASP, II,482.
11. HFNHP Reel 21, Vol. 4, p.341=42- To Col. Wadsworth Feb.19,1820.

in size and valued at $ 200.00.[11]

A small tempering shop, wood, one-story, 25 by 16 feet and valued at $ 200.00 ,had apparently been erected at the Musket Factory in 1817.[12] Built in 1819 at the Musket Factory were a new Coal House, a one-story wood building, 30 and 30 feet and valued at $ 400.00.[13] and a new saw mill for the Armory on the banks of the Potomac.

The old saw mill, located on the Shenandoah, was turned over to Captain John H. Hall in 1819 for use in manufacturing his patent rifle. On August 2,1819 Superintendent Stubblefield requested permission from the Chief of Ordnance to spent up to $ 250.00 to built the necessary replacement saw mill on the Potomac.[14] Col. Wadsworth granted this request on August 19,1819.[15]

Construction on the new saw mill got underway in September 1819 and on October 14, Andrew Lang was paid $ 15.50 for 15½ days labor excavating for the foundation wall of the Potomac Sawmill.[16] On October 14,1819 the masons William McKinny and George Buffington were also paid $ 215.25 for laying " 287 perches of stone wall for the Coal House and a guard wall"and for the "pitt and foundation for a sawmill on the Potomac."[17] James Huston did the millwright work on the sawmill, charging the Armory a total of $ 242.00 for the services of his assistant and himself for 121 days work.[18] Total cost of construction of saw mill,including the foundations of the new coal house, came to about $ 472.75.

11. ASP, II, p. 483.
12. Description from ASP.II,483. R.G. 217-File 908, Voucher 49 to Charles Fouke, $ 83.25, Aug. 21,1817 for carpenter work eer ctin a "Small Shop for barrels".
13. Description of,ASP,II, 483. Construction of Coal House from RG 217-file 3266-Voucher, 21, October 14,1819.
14. HFNHP Reel 13, V. 3, 230-231.
15. NFNHP Reel 14, Vol. 3, p.220.
16. R.G. 217- File 3266, V. 20;
17. R.G. 217, 3266-V. 21.
18. R.G. 217-f. 3266-V. 65-paid Nov. 30,1819.

Construction at the Hall Rifle Factory on the Lower Hall Island

On March 19,1819, Captain John H. Hall signed a contract with the United States to produce 1,000 of his patent breechloading rifles at Harper's Ferry . He was to receive a royalty of $ 1 for each weapon produced and a salary of $ 60 per month from the Ordnance Department. Hall arrived at Harper's Ferry in April 1819. In his letter of instructions to Stubblefield regarding Hall, Col. Wadsworth wrote:

"It is my wish the regular business of the Armory should be as little interrupted as possible by the arrangements for Mr. Hall's rifles and no more than it must unavoidably be in consequence of taking off some of the Hands to Work under him. As to the erection of new Buildings for machinery and workshops it is out of the question because such an object was not contemplated in the Estimates and appropriations (for 1819), and we have not money to spare for new Buildings. If you can arrange at any of the workshops so as to apply additional machinery to some of the Water Wheels I have no objection to its being done. As it is not expected any more hands will be employed than were before, I do not perceive that more Shop room will be needed..." [18]

Captain Hall, however, thought otherwise, and notified Wadsworth on May 3,1819, that he would need some new buildings, writing:

'Mr. Stubblefield as well as myself is convinced that the erection of proper buildings and machinery on the (Lower Hall Island on the) Shenandoah will be more compatible with the public interest, in point of economy, as well as in other respects,then establishing my works at the shops on the Potomac where they must be placed unless such buildings and machinery are permitted..." [19]

Col. Wadsworth acceded to Hall's request and directed Superintendent Stubblefield to prepare an estimate for use in the 1820 estimates for Hall's buildings.

18. HFNHP Reel 14, Vol. 3, p. 211.
19. HFNHP Reel 14, Vol. 3, p.218.

Stubblefield responded on August 2, 1819, writing:[20]

"Agreeably to your request I herewith enclose you an estimate of the probable cost of the buildings, which Mr. Hall wishes to be built for workshops, dwelling houses, &c....

HARPER"S Ferry, 2nd August 1819. Estimate of the probable amount of the cost of the following buildings for the manufactory of Mr. John H. Hall's Patent Rifle.

1st. Fitting up the old saw mill [erected in 1806-07.] & a water wheel to the same.....	$ 600.00
2nd. Building a stone black smith shop.....	600.00
3rd For the erection of 3 dwelling houses for the accommodation of his hands.....	1,350.00
4th. For the building of a new Saw Mill on the Potomac....	350.00
	$ 2,900 .00

Col. Wadsworth approved this construction program on August 19, 1819, informing Stubblefield: ".... You are hereby authorized to execute what is proposed, taking care not to let the Expenditure exceed $ 3,000.00."[21]

Work on Hall's two shops got underway at once; the new building, the smiths shop, was a two-story stone structure, 30 by 30 feet in size and valued $ 1,000.00, the old frame saw mill, a one story building 50 by 16, was converted into a Hall's machine shop, with the machinery being driven by a water wheel. The machine shop was valued at $ 500.[22]

The smith shop was apparently built by the mason Edward Harding, who was assisted by three tenders, namely James Carter, James Catin, and Samuel Downney.[23] They received a total of $ 719.38 for their mason work.

20. HFNHP Reel 13, V.3, p.230-231.
21. Reel 14, Vol. 3, p.220.
22. ASP, II, 482- description of 1807 inventory of buildings.
23. R.G. 217-f. 3266, v. 66-Edward Harding, who was one of principal masons of the armory was paid $ 608.88 for laying 876 perches of stone wall on Nov.30, 1819- he probably built the smith shop. The three tenders who definitely worked on this shop were paid as follows: f.3266-11-James Carter, Oct.9, 1819-$ 47.00 for 47 days work; Samuel Downney, Oct.19, 1819-$ 15.00 for 15 days work; and 3266-V. 50, James Catin, Nov.12, 1819-$ 48.50 for 48½ days work.

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In addition, the mason Jonah Tompkins was paid $ 11.00 for "5½ days work on building the chimneys to the new Smiths shop on the Shenandoah."[24]

The carpenter work on the the two shops and probably also on the three small dwelling houses that were erected was executed by Charles Fouke and his two journeymen, John Little and John Setlocro, who received a total of $ 396.00 for a total 229 2/3 days of labor during August, to December 1819.[25] John A. Bennett and H. C. Shannon were paid $ 86.62 " for plastering 609 yards in the Public Work Shops (at the Musket Factory) & on the Shenandoah.," on November 12, 1819.[26] Jonathan Nixon, who was paid $ 50.75 on November 11,1819, may have done the painting and glazing on the Hall Island buildings.[27]

Robert Painter did the millwright work, converting the old saw mill into Hall's principal machine shop . He received $ 207.97 for his services on December 31,1819. The voucher paying him itemized his work as follows:

"For making a water wheel for a new workshop

12 feet (in diameter)	at $ 3.50 p.ft.		$ 42.00
making a cog wheel 7 feet9in diameter)	at $ 4.00 " "		28.00
making 2 head blocks	" $ 2.00		4.00
" 4 spur blocks	75 cts.		3.00
" 1 large shaft 22 feet long at	$ 1.50		33.00
" 1 " 19½ " " "	$ 1.25		24.37
" Breast, shoot & gates			18.00
" 2 Turning Lath frames at	$ 5.00		10.00
23 3/4 days work	at$ 1.92		45.60
		$	207.97(28)

24. R.G. 217.F. 3266- V. 28, paid, Oct. 21,1819.
25. R.G. 217- f.3266,Voucher 104,paid Dec.31,1819.To Charles Fouke,"for 104 days carpenter work performed in the months of Augt.,Sept., Octr., Novr., & Decr. on the public work shops,&c,on the Shenandoah at $2 per day= $ 208.00"
99 2/3 days performed by John Little as Journeyman at $ 1.50 p. day= $ 149.00'; for 26 days performed by John Setlocro as jounryman at $ 1.50 p day= 39.00."
Total paid, $ 396.00.
26. R.G. 217, f.3266-V. 49.
27. R. G. 217, f. 3266-V. 44.
28. R.G. 217-f. 3266-V. 95.

John H. Hall's Patent Rifle Factory, consisting of two workshops, was thus completed and in operating order by December 31, 1819. The total of charges for the services of masons, carpenters, plasters, painters, and the millwright did not exceed $ 1,466.72 in 1819.

The major construction program at the Rifle Factory in 1820 involved construction of two stone bridges, one over a tail race of workshop and second over the Shenandoah Canal. This construction, executed in the fall of 1820 by mason Jonah N. Tompkins with rock quarried by Thomas McKinney, cost $ 230.12.

Tompkins completed the first bridge in October 1820, when he was paid $ 39.00 " for laying 78 perch of stone wall in a bridge over the tail race of one of the water shops(there were only three) on the Shenandoah."[29] The second bridge was completed by December 23,1820, when Tompkins was paid $ 96.12"for laying 120½ perches of stone wall in a bridge over the canal on Shenandoah " and for " 20½ days laying brick in the arch of the above bridge."[30] McKinney received a total of $ 95.00 for quarrying and providing 237½ perches of stone for the bridge projects.[31]

No new construction was undertaken at the Rifle Factory in 1821. The Ordnance Department records indicated that a total of $ 3,869.44 was expendited for construction at the Hall Rifle Factory from 1819 to 1821 as follows:

1819:	$ 3,748.40	
1820:	121.04	
1821:	0	Total: $ 3,869.44.[32]

29. R.G. 217- f.4490,-V. 6.dated Oct.15,1820.
30. R.G. 217- f. 4591-v. 2.
31. R.G. 217- f.4490-v. 15-Dec.17,1820-$ 55.00"for quarrying 137½ perches of stone for building a bridge over the trail race of the water shop on the Shenandoah"; and f. 4591-v.15-Dec.27,1820-$ 40.00 'for quarrying 100 perch of stone for building a bridge over the canal on the Shenandoah."
32. Entry 935, National Armory Accounts.

The Second Auditor of the U.S. Treasury Department, W. B. Lewis, in his November 16,1835 report to Congress on the expenditures at the Harper's Ferry Armory and the Rifle Factory from 1796 to Dec. 31,1834, on the other hand, wrote that the total expenditures at the rifle factory for" Buildings, millwright work" from 1819 to 1821 inclusive" was $ 4,130.14.[33], a difference of only $ 260.70 from the Ordnance Department Accounts.

33. ASP, V.923. By including the cost of constructing the new Armory sawmill on the Potomac against the rifle factory, which amounted to approximately $ 472.75, payments for construction labor at the rifle factory, 1819-20 came to about $ 2,169.59. R.G.217-f.3266-v.99, dated December 31,1819 paid Thomas Morgan and W. Harbert $ 256.00 "for quarrying 640 perches of stone for erecting a arnory shop and a dwelling house." This may have been used at the rifle factory.

Building a Third Potomac Dam, 1820 - 1821

Chief of Ordnance, Col. Decius Wadsworth inspected the Harper's Armory Ferry in 1817 and reported to the Sectetary of War, in part, on October 14,1817:

"..The Armory at Harper's Ferry labours under two principal Difficulties, one is the Want of a Supply of Grindstones and the other a Deficiency of Water at some Seasons of the Year....

The deficiency of Water at Harper's Ferry may be remedied by the building of a new dam across the Potowmac (sic). The present dam was defectively built at first (in 1799-1800) and a considerable unusual Expence is now incurred to keep it in order." [1]

Two years later, on September 30, 1819, Col. Wadsworth requested Superintendent Stubblefield

"to furnish me an Estimate of the probable Expense of building a new Dam on the Potomac to ensure a better Supply of Water to the Armory. In the course of the month of October I expect to be called on for the Estimates for the Ordnance Service in the year 1820, and I wish to provide for the building of a new Dam in the Estimates. [2]

Three weeks later Stubblefield submitted the estimate for the dam, writing:

"Enclosed you will receive the Estimate for building a new dam across the Potomac (Sic) River for the purpose of throwing in a sufficient quantity of Water for the Armory. I am of the opinion that it will take the Ten thousand dollars to make a dam that will withstand the Ice and drift wood which runs down the River in time of high Water. It will be needful to make use of a quantity of Iron for bolts, to secure the timbers to the Rocks, &c, The River is about Eleven hundred feet in width- a temporary dam can be built for much less money but to make every thing permanent it cannot be done for less than that sum..... [3]

Col. Wadsworth's upped Stubblefield's estimate to $ 15,000 and his estimate for 1820 included "For building a dam across the Potomac Harper's Ferry... $ 15,000." [4]

1. HFNHP Reel 13, V. 2,p.172-180.
2. . Reel 14, v. 3, p. 225-226.
3. reel 23. Vol. 4, p.319.
4. . Reel 20, V. 5, p.319.

On January 25,1820, Wadsworth reported to Secretary of War John C. Calhoun regarding the dam project, writing:

"...The old Dam is much decayed, & a considerable Expense is incurred every Year in repairing it. The Work done every Summer in repairing this Dam is Constantly destroyed in the Floods of the Succeeding Winter. A new Dam is therefore required to be Solidly & permanently built; & it is Contemplated to place a little lower down, So that no interuption may take place in the business of the Armory while the new Dam is building.

Mr, Stubblefield the Superintendent Estimates a Sum of $10,000 to be Sufficient for building a new Dam. My own opinion is that from 12 to 15 thousand Dollars will be required. The operation ought to be completed in a Single Season, and it is by no means advisable to have the work Stops for want of Funds after it shall have been Commenced. The Dam in Contemplation will not interrupt the navigation of the Potomac." [5]

The appropriation bill containing the money for the new dam did not pass Congress until April 14,1820,so that work on the project did not get underway until the summer of 1820. [6]

On July 22,1820, Col. Wadsworth advised Superintendent Stubblefield:

In the last and present Month I have directed $ 18,000 to be remitted for the Monthly expenses of the Armory, of which $ 14,000 for the Ordinary expenses, $ 2,000 for building a new Dam, and $ 2,000 for Mr. Halls Patent Rifles. Your Estimate for rebuilding the Dam was I think $ 10,000. As I understand from you it will not be completed in the present year, I presume $ 6,000 towards rebuilding the Dam will be as much as you with require this Season.

The Balance will be reserved to complete the Work next year. If you want more than $ 6,000 for rebuilding the Dam this Season you must inform me in Time." [7]

On July 22,1820, Stubblefield entered into a contract with John Lowstetter of Jefferson County to construct 300 feet of the proposed dam at the rate of three dollars for each perch"when the wall shall be completed".

5. Reel 19, V.12, p.1197.
6. U.S. Statues at Large,III,p.563.
7. Reel 21, V., p.513.

The contract specified that the "wall in the Potomack River" was to be "Three hundred feet in length & not less than eight feet thick at the bottom nor less than six feet thick at top & to be of the proper height to answer for turning a sufficiency of water into the Canal. " The contractor was to quarry and lay the stone used in the dam.[8]

In October 1820, Stubblefield reported to Col. Wadsworth that he had spent about $ 8,000 on the construction of the dam and would probably need an additional $ 500 to complete work this year. He wrote that he had used large stones in the dam rather than timbers as originally proposed, because it had been impossible to get a sufficient supply of timber down the river in time to be used in the construction. The summer of 1820 was a very dry one and with the river at the lowest level ever known, the Superintendent reported that he had pushed the construction further than orginially planned. In October 1820, he announced that the principal part of the new dam was built and stated that it was the most substantial in the United States and perhaps even in the world.[9]

The remaining section of the dam was completed in 1821 by the 1820 contractor. John Lowstetter filed a claim for additional compensation for the work done in 1821, which caused Stubblefield to comment and provide additional information on the nature of the 1821 construction:

> "Some time after he (Lowstetter) had commenced working under the latter contract (a 1821 contract that paid at the same rate as in the 1820 contract), he proposed to me to change the nature of the contract stating that he would prefer doing the work by the job, that is to say he would complete the balance of the Dam for two

8. Reel 21, V.5, pp.516-517.
9. Reel 21, Vol. 4, p.371-372.

thousand dollors and have the work all done in the course of the year 1821. I accordingly acceded to his proposal and agreed to give him the above sum thinking at the time that the part of the Dam remaining to be finished would be something less than Seven hundred Perch. But when the work was done I found it would measure nine hundred perch and that Mr. Lowstetter would suffer considerable loss by changing the nature of the contract.

I then agree to pay him by the Perch at the rate which had at first proposed, which was the same price he had received for the part that was built in the year 1820 & which I thought was a fair and equitable price. This made his work (in 1821) amount to $ 2,700 which was seven hundred dollars more than I was bound to pay him agreeable to contract.

Mr. Lowstetter also built a great quantity of stone work in a wall for the support of the Bank of the (Armory) Canal and filled in the bank of the same with gravel &c...."

Stubblefield stated that Lowstetter had executed this work in a "substantial & workmanlike manner," as stated in the contracts and that he had also been paid in accordance with the terms of those contracts [10]

The chart on the following page shows the fiscal record of payment to the contractor John Lowstetter and others who were working on the Potomac dam, lock, and canal in 1820. The vouchers indicate that at least $ 4,967.58 was expended on the project in 1820 and that 2,040 perches of stone were placed on the dam. Of this total of stone, Lowstetter placed 1,299 2/3 perches and was paid $ 3,949.0 for his his work. The vouchers for the payments to Lowstetter for his work on the dam in 1821 are missing from the files. However, if Superintendent Stubblefield's statement in his letter quoted above is correct, Lowstetter was paid $ 2,700.00 for laying 900 perches of stone on the dam thus bringing the total payments made to him, to $ 6,649.00 and the total of stone placed on the dam to about 2,940 perches. The vouchers and Stubblefield's letter suggests that the cost of rebuilding the Potomac Dam in 1820-21 probably did not exceed $ 11,200.

10. Reel 21, Vol. 5, pp. 513-515.

Record Group 217:

File No.	Voucher No.	
4490	87	To John L[illegible] Lowstetter, Sept. 30,1820-$ 3,000.00, for building 1,000 perches of stone wall on the Potomac Dam.
4490	41	To John Lowstetter, Nov.4,1820, $ 550.00 for 166 2/3 perches of stone work on the dam, with 500 square yards of embankments and 200 bushels of lime.
4591	9	To John Lowstetter, Dec.27,1820. $ 399.00 for building 133 perches of stone work on the Potomac Dam.:
Subtotal	1821:	To John Lowsteller, $ 3,949.00 for 1,299 2/3 perches of stone wall on dam and 500 cubic yards of embankment.
4490	40	To Edward Harding, Nov. 4,1820,$ 300.00 for laying up 600½ perches of stone wall on the dam and lock
4490	45	To Hyram Kerney, Nov.7,1820-$ 70.00 for laying 140 perch of stone wall on the dam.
4490	53	To William McKinney, Nov.17,1820- $ 386.00 for quarrying 772 perches of large stone for the Potomac Dam.
4490	81	Sept.28,1820- $ 33.75 for use of cart and wagons,10 days, hauling rocks to the dam.
4591	24	To William McKinney, Dec. 28,1820, $ 57.00 for 38 days work laying stone on the dam and lock walls.
4591	37	To William Park, Dec. 30,1820, $ 32.88 for boring 3,288 inches in rocks laid on the dam.
4591	38	To Thomas Morgan, Dec. 30,1820, $ 16.08 for boring 1,608 inches in rock to be laid on the dam.
4591	46	To John Upperman. December 30,1820, $ 79.50, for 53 days Carpenter work making the lock gates.
4830	3	To Henry James, mason, Jan.4,1821, $ 53.37 for 30½ days dressing rock for locks and repairing the furnance.
TOTAL,	1820	$ 4,967.58 for 2,040 perches of stone, 500 cu.yds.embankment.
1821		$ 2,700.00 900 perches of stone, apparently paid to John Lowstetter in 1821.
Approximate Total 1820-1		$ 7,667.58 2,940 perches of stone.

Construction of Additional Armory Dwelling Houses:

The shortage of housing for Armory workmen and their families remained a serious problem for the next twenty years: The number of armorers in-creased from 202 men in 1815 to 253 by 1820, thus keeping up the demand for additional quarters. In 1814 and again in 1815 Superintendent James Stubblefield and Paymaster Samuel Annin had appealed without success to the Secretary of War for money to erect more dwellings for the married men and an apartment building to house the single men.[1] The officers of the newly reorganized Ordnance Department, who took charge of the operations of the two national armories and the U.S. arsenals, however, apparently lent a more sympathic ear with regards to the housing situation at Harper"s Ferry. On May 6,1816, Superintendent Stubblefield thus wrote to Lt. Col. George Bomford, the second in command in the Ordnance Department:

> "From the conversation that passed between you, Colonel Lee and myself, respecting the building houses for the accommodation of the Armorers at this place, you observed that I should lay out $ 4,000 in building the same, I have engaged the workmen and they have commenced, on very reasonable terms. I have therefore to request that you will order the Pay Master at this place, to pay to my Order such sums, as may be necessary to complete the above object. 2

1. Annin to Secretary of War John Armstrong, July 26,1814, Reel 13, Vol. 1, p.86; Stubblefield to Secretary of War James Monroe, Jan. 30,1815, Reel 21, Vol. 1, p. 93.

2. Reel 21, V. 2, p. 128

On June 10,1816, Stubblefield again wrote to Bomford,

"I have contracted with the Brick Maker, and set him to work. I trust, Sir, this will meet your approbation, and that you will be pleased to cause such funds to be placed in the hands of the Pay Master at this place, to defray the expenses. Annexed you will see and Estimate of the expenses of erecting the above buildings.

The stone and brick work of a House twenty-four feet by Eighteen and Eight feet pitch.....$ 160
Timber, Plank, & carpenter work for the above complete..... $ 200
$ 360

" ..On Consulting with Colonel Lloyd Beall (the new Paymaster who had replaced Samuel Annin on his retirement in 1815) he joins me in the Opinion that twelve houses of the above description ought to be built this present season. [3]

On July 8, in a progress report, Stubblefield reported

"...I have the foundations of Six building 18 by 24 feet laid with stone - 100 thousand brick in readiness to commence the walls & the carpenter work for the same in forwardiness... [4]

There was apparently some opposition in the Ordnance Department to this project, for on August 1,1816 Superintendent Stubblefield and Paymaster Beall joined in a request stating "that ten, or twelve, small buildings, for the use of the Armorers' Accommodation, are absolutely necessary..." [5] The Armory inventory of buildings, prepared in 1821, indicates that 11 one-story brick house, 18 by 24 feet in size, were actually erected in 1816. The estimated value of these 11 structures was placed at $4,400, indicating that they each cost approximately $ 400 to build in 1816. [6]

2. Reel 21, V.2, p.128.
3. Reel 21, V.2, p.129-130.
4. Reel 21, V. 2. p.119.
5. Reel 21, V. 2, p. 136.
6. ASP II, p.482. R.G. 217- File 908-Voucher 38. On March 21,1817 the mason Edward Harding was paid $ 412.97 for quarrying, loading, hauling and laying 183½ perches of stone work in the foundations of 11 new buildings at $2.00 per perch.

On March 24, 1818, the Armory paid Jacob Coons, Sr., a mason, $ 487.50 for erecting a stone dwelling house.[7] On August 19, 1819, as has been mentioned ,Col. Wdsworth, the Chief of Ordnance, authorized the expenditure of $ 1,350.00 for the construction of three dwelling houses for the accommodation of workmen at John H. Hall's new patent rifle factory on the Shenandoah.[8] These three houses, costing about $ 450.00 each, were erected in the period 1819-20 on the Hall Island at the upper end.[9]

The total of new Armory dwelling houses erected in the period 1814 to 1821 thus appears to have been about 15 and probable total expenditure for the construction of these residences was approximately $ 6,237.50

When these 15 houses are added to the 20 public residences listed on the October 1,1811 inventory of Armory buildings, plus a residence that was purchased from Paymaster Samuel Annin , one would expect to find a total of 36 dwelling houses listed on the comprehensive inventory of Armory buildings that was compiled for the Ordnance in November 1821. When we examine this inventory, however, was discover that the actual reported total was 87 dwelling houses plus two school houses , not 36!

It was soon revealed that in the period 1812 to 1821, in order to retain his work force and thus maintain production and because he could not obtain enough funds from the War Department to erect adequate Government housing, Superintendent James Stubblefield had granted permission to his workmen, without the knowledge of the Ordnance Department, to build their own dwellings on the Armory lands , and to make their own repairs and

7. R.G. 217- File 1162- Voucher No. 19.
8. Reel 13, v. 230-231, Reel 14, vol. 3, p.220.
9. R.G. 217- file 3266, Voucher No. 99- Dec. 31,1819-$ 256.00 paid to Thomas Morgan and W. Harbert for quarrying 640 perches of stone for erecting a work shop and a dwelling house &c for the use of the U.S. Armory at 40 cts per perch. This was probably for the stone smith shop for Hall and also for a stone dwelling house for his employees on the Hall Islands. 3266-99- On December 31,1819, John Wood was paid $ 139.00 for quarrying stone, 349 perches at 40 cents a perch, for building a dwelling house. The stone walls of these two houses were probably erected by Edward Harding, who was paid $ 608.88 on Nov. 30,1819 for laying 876 perches of stone wall, but his voucher does not specify what the walls were for- File 3266- V. 66. One of the houses was probably built of wood.

improvements to the Armory dwelling houses that they lived in. In defense of this decision, Stubblefield was to point out that he really did not have much choice. The Wager family ownership of all available private land in Harper's Ferry made it impossible for workers to purchase their own house lots on which to erect their homes

Purchase of the Ferry Rights on the Shenandoah River, 1818

The ferry rights across the Shenandoah River at Harper's Ferry were owned by Ferdinando Fairfax and the ferry apparently began operating in 1811. On December 17,1810, Fairfax granted a 10 year lease to the Shenandoah Ferry to Job C. Harding, effective January 1,1811. Fairfax gave Harding $ 250 and permission to cut the necessary timber on his woodland on the south side of the Shenandoah to built a ferry boat, a ferry house, kitchen, and stable. Harding, on his part was to pay an annual rent for 50 dollars a year for the first five years and an annual rent of $120 for each of the remaining five years. On January 2, 1812 Paymaster Samuel Annin was authorized by the Secretary of War "to pay the ferriage of public property across the Shenandoah At a reasonable rate taking into consideration the right of the U.States to the landing on the Harper"s Ferry side."

In 1818, after much correspondence on the subject, the United States decided to purchase the Fairfax Ferry across the Shenandoah. In recommending this acquisition , Superintendent James Stubblefield informed the Ordnance Department that he was then paying out $ 250 annually for the ferrying of "public waggons & hands" across the Shenandoah. Job C. Harding was still operating the ferry under his ten year lease in 1818. In April 1818 the surveyor Jno. Mathias made a plat of the Fairfax Ferry lot on the south side of the Shenandoah.

On October 27, 1818, in consideration of $ 5,000, Fairfax conveyed to the United States his ferry lot "containing sixty eight acres and eighty square perches... together with the Ferry & the Buildings, and every other right..." and the remainder, rents, issues & profits thereof, subject to the tenure of Job Harding (if he rightfully may or can hold) under a certain agreement made with him by the said Fairfax, for a short term therein expressed (to January 1, 1821)."[5]

Job Harding and his wife continued to operate the Shenandoah ferry under a leasing arrangement with the United States until 1826. On February 11, 1827, Roswell Lee, the acting superintendent at the Harper's Ferry Armory, informed Col. Wadsworth, "The Shenandoah Ferry belonging to the U. States at this place, has for a number of years (since 1811) been kept by a Mr. (Job C.) Harding, & after his death by his widow & she recently died. The terms on which they occupied it ... was, they furnish their own Boats and cross all the teams loaded for the U. States Free..."[6]

With the ferry lot addition, the total acrage of the U.S. Armory at Harper's Ferry, Virginia was increased to 1,890 acres (or 1,886 acres with the four acres used for the Harpers Graveyard excluded).[7]

1. Reel 18, V, 8, p.739-740.
2. Reel 18, V.2, 148.
3. Reel 21, V.3, p.215-16. Stubblefield to Bomforf, Jan.21,1818. R.G. 217-file 907-Voucher 80- To Job Harding, $ 62.50 for quarter-annual rate of $ 250.00 for ferrying Armory wood carrying wagons.
4. Photostat of plat is in HFNHP Map Case, Drawer 7, Map No. 56.
5. National Archives R.G. 121, Public Buildings Service, Entry 75.
6. Reel 22, Vol. 1, p.85.
7. Also, not included is the 1,600 acre Friends Ore Bank.

Harper's Ferry in 1820:

The population of Harper's Ferry in 1820 totaled 1,377 persons, as compared with 751 people in 1810. Of the 1820 total, 1,255 were white and 122 black. There were 196 families in 1820, as compared with 100 in 1810. Of the 681 white males in 1820, 253 worked as armorers at the U.S. Musket Factory and 18 at the Hall Rifle Factory.[1] There were 87 dwelling houses standing on Armory lands in 1820, as compared with only 20 in 1810.

Documentary Sources for a Detailed Description of the Physical Plant of the U.S. Armory at Harper's Ferry, December 31,1821.

Two documents, an oil painting, and a series of six detailed topographical maps, all prepared in the period 1821 to 1834, when also considered with the 1810 and 1811 list of public buildings at the Armory, provide a considerable amount of data on the nature of the structures that comprised the physical plant of the national armory at Harper's Ferry in 1821. A brief description of this key source material follows:

1. A sharp-eyed traveler visited Harper's Ferry on June 21,1821 and wrote a detailed account of his inspection of the Armory. His letter is useful in locating the sites of all the major buildings, when used in conjunction with the other evidence.[1,2]

2. "A Statement of the Number and Dimensions of the Buildings at the U.S. Armory at Harper's Ferry, Virginia, together with the Material of which they are built, and their estimated Value," dated November 30,1821, and published in American State Papers, Military Affairs, II, 482-483. This is a detailed inventory of the Armory's 113 building and also of the public lands. (See Appendix I).

1. National Archives R.G. 29, Records of the Bureau of the Census, Population Schedules of the United States, 1820.
2. "Description of Harper's Ferry, Virginia, written Satturday June 21,1821," copied from a manuscript that was owned in 1958 by Mrs. E. Bruce Allen of Moorefield, W. Va.

3. An Oil Painting by an unknown Maryland Artist of the U.S. Musket Factory at Harper's Ferry ,Virginia, undated but painted about 1826. The original of this painting is in the collections of the Maryland Historical Society at Baltimore, Md. (Harpers Ferry NHP Negative No. 628). (See Photo No. 2, p. 152).

4. A Series of six detailed Topographical maps that were prepared by the Topographical Engineersof the U.S. Army in 1834 :

"Map of Harper's Ferry, Shewing the Location of the Winchester and Potomac Railroad, Drawn by Lieuts White, Allen and R. S. Smith, U.S. Army, under the direction of James Kearney, Lt. Col. and T.E.," Approved,agreeably to the joint resolution of Congress of the 27 January 1835 and as located & indicated by the parallel black lines marked a b c d e f g. h, Andrew Jackson." Scale 100 feet to the inch. Maps No. 1 and 2. These are the final and finished maps; showing conditions in Harper's Ferry, that was approved by the President of the United States on January 27,1835. Map No. 1 shows the land along the Shenandoah River from Strider's Mill north to and including the upper Hall Island. No. 2 show conditions from the Upper Hall island north to the junction of the Shenandoah River with and also the main structures located in the U.S. Musket Factory on the Potomac. Dr. 150- Sheet 82- 1 and 2.

The four maps, also prepared by Lieuts. White, Allen, and Smith in 1834, are the preliminary and work maps from which Maps No. 1 and two next were prepared: The working maps are:

Map A- Plot of Harpers Ferry Exhibiting the limits of the grounds requisite for the passage of the Winchester & Potomac Rail Road through the town . Scale 100 feet to the Inch. MAP A- Dr. 150-sheet 78-1

"Map B - Plot of Harpers Ferry Exhibiting the limits of the ground requisite for the passage of the Winchester & Potomac Rail Rail through the town. Scale 100 feet to the inch." Map B- Dr. 150-Sheet 78-2.

Map B. is of special interest because the engineers penciled in lightly notiations regarding some of the houses in the right of way. These penciled notes do not reproduce in xeroxing.

Maps A and B show conditions from the junction of the rivers along Shenandoah Street west to the lower end of Virginius Island.

"Map C- A Plot Exhibiting the limits of the grounds requisite for the passage of the Winchester & Potomac RailRoad through the Islands adjacent to Harper's Ferry, Scale 100 feet to the inch." Map C- Drawer 150, Sheet 78- 4.

This plan shows conditions on the Islands of Virginius, the two Hall Islands(the upper one of which is mislabelled "Throps"), and Throps(which is mislabeled Strider"s Island).

"Map D- Plot of Harper's Ferry shewing the Profile of the Line of the Winchester & Potomac Rail Road through Harper's Ferry." Map D- Dr. 150- Sheet 78- 3.

This plan shows the profile of the islands in the Shenandoah, depth of the channels, as well as the profile of the railroad, which was to be elevated in part.

All four of the working maps had been completed by October 7, 1834 and all six maps are now located in National Archives Record Group 77, Records of the Office of the Chief of Engineers, Fortifications Map File. in care of the Cartographic Section of the National Archives, Washington, D.C.

A DESCRIPTION OF THE PHYSICAL PLANT OF THE NATIONAL ARMORY AT HARPER'S FERRY, VIRGINIA, in 1821:

1. The U.S. MUSKET FACTORY ON THE POTOMAC, 1821:

The 1821 visitor reported: " The public buildings of the workshops (at the U.S. Musket Factory), built of brick, two stories, stand in two straight lines, leaving between them an area of about 70 feet, and forming a handsome street. Above (west of) these buildings, a canal, at the head of which is a dam. this water for use of the shops. The public buildings are thirteen (including the structures at the Musket Factory, on Arsenal Square, and at the Hall Rifle Factory)- eleven of brick, one stone and one frame..."

Of the buildings at the Musket Factory, he further noted that they "contain machinery for various purposes, and are (generally) 130 ft. by 30 ft." in size.

SOUTH LINE OF MUSKET FACTORY SHOPS, ADJACENT TO THE ARMORY CANAL, SHOPS NO. 1 to 5,(reading from East to West:

Our No.	1811 No.	1821 dimension in feet	No. of Stories	Material	Value	Remarks
1.	11	36 by 30	2 + cellar	Brick	$ 3,000	Supt's Quarters. built 1808-09.
2.	8	131 by 45	2	Brick	$ 15,000	Workshop,built 1809-10, as finishing shop, had water wheel.Known as Bell Shop after 1825.
3.	3	120 by 30	2	Brick	$ 10,000	Workshop(built 1799 as Armory or Factory)known as Boring Mill,had water wheel.
4.	6	80 by 30	2	Brick	$ 6,000	Storehouse in 1821 (built 1799-1800 as Smiths Shop with 10 forges & 10 chimneys,)
5.	7	111 by 30	2	Brick	$ 8,000	Workshop in 1821(stocking shop)(built in 1808 09 as Tilt Hammer shop) had water wheel.

NORTH LINE OF MUSKET FACTORY SHOPS, ADJACENT TO POTOMAC RIVER, AND RUNNING PARALLEL WITH SOUTH LINE(Reading from west to east).(Shops set opposite to each other according to length so as to match.)

6.	27	80 by 30	2	Brick	$ 6,000	Workshop for Smiths in 1821(built 1810-11 as smiths and filing shop) had 10 forges & 10 chimn no water wheel.
7.	5	120 by 30	2	Brick	$ 10,000	Workshop(for smiths in 1821)(built in 1808-09 as smiths & filing shop had 16 forges & 16 chimneys, no water wheel.
8	4	130 by 30	2	Brick	$ 12,000	Workshop(for Smiths in 1821.)(Built in 1808-09 as smiths shop & stocking shop).had 16 forges 16 chimneys, no water wheel.

The estimated total value of the seven major brick shops located in the U.S. Musket Factory Yard was placed at $ 67,000.00.

In addition to the large brick workshops, there were 10 lesser Armory shops and storehouses, chiefly built of wood, in 1821 that may have been located in the U.S. Musket Factory Yard. The exact location of the structures, all of which had been built after October 1,1811, has not, in many cases, been established:

Our No.	Dimensions in feet	No. of Stories	Material	Value	Remarks
8.	18 by 18	1	Wood	$ 150	Draw-grinding shop,probably located on Armory Canal-sou line,with water wheel.
9.	14 by 12	1	Wood & Stone	$ 200	Proof House,located on bank of Potomac,north line of shops.
10.	30 by 30	1	Wood	$ 400	Stone Coal House,built 1819 Musket Factory yard.
11.	25 by 16	1	Wood	$ 200	Tempering Shop,built 1817, Musket Factory Yard.
12.	120 by 16	1	Wood & Stone	$ 1,000	Iron Storehouse,Musket Factory Yard.
13.	111 by 30	1	Wood	$ 400	Charcoal House,built 1819, Musket Factory yard.
14.	50 by 24	1	Wood	$ 250	Timber Shed(possibly locate on Arsenal Square).
15.	18 by 18	2	Wood	$ 500	Supt.Office,probably locate in center of Mukset Factory Street opposite to his residence.
16.	12 by 12	2	Wood	$ 300	Fire Engine House and Lodging Room, U.S. Musket Factory.
17.	36 by 24	1	Wood	$ 250	Stable,probably located on bank of Shenandoah Rive
Value of 10 structures:				$ 3,650	
Value of 7 large brick shops:				$ 67,000	
Total Value of 17 Musket Factory Bldgs.				$ 70,650	

In addition there were several structures at the Musket Factory, that for some reason were not included on the 1821 inventory. These included (1) a brick puddling furnace for welding barrels and scrap iron, erected in 1818;(2) a brick annealing furnace erected prior to 1819 and located on the bank of the Potomac,(3) and a new saw mill with water wheel erected in 1819 and probably located on the bank of the Armory Canal. The cost of constructing the saw mill, a one -story stone and frame building came to approximately $ 472.75.

ARSENAL SQUARE, BLOCK A, SHENANDOAH STREET 1812 1821:

Visiting Arsenal Square in 1821, our traveler reported: "Two of the (11 Armory brick) buildings, one with dimensions of 125 X 32 feet, with arched windows (the Large Arsenal), the other 68x 36 (feet, the Small Arsenal) are arsenals for the deposit of arms manufactured, consisting of rifle, muskets and some pistols which are handsomely arranged and make a fine show."

Of the total of 144,717 arms made at Harper's Ferry from 1801 to 1821, 105,217 would have been stored in the two arsenal buildings on Arsenal Square in 1821. The 39,500 weapons that had been dispatched from Harper"s Ferry, had been shipped out as follows: 1812 :

1812- 23,500
1814 6,000
1817- 2,000 rifles to Pittsburg.Pa.
1818 8,000 muskets to Pittsburg

Total 39,500 weapons. (1)

The total cost of shipping these arms from Harper's Ferry was reported to be $ 21,568.44.[2]

Our No.	1811 No.	1821 Dimensions in Feet	No. of Stories	Estimated Value	Remarks
1	1	125 by 32	2 & cellar (sic-no cellar) brick.	$ 12,000	(Built 1799-1800- Large Arsenal) Located Lots 2,3,4,5, Block A.
2	2	68 by 36	2(sic-plus cellar)Brick	$ 8,000	(Built in 1806- Small Arsenal. Located Lot 7,Block A.
3.	0	18 x 18	1- Wood	$ 150	(Located on Magazine Hill,erected after 1810 for powder storage
Three Buildings:			Value:	$ 20,150.00	

1. ASP, I,773; ASP II,514.
2. ASP, II,481.

ARMORY BUILDINGS ON LOWER HALL ISLAND,1821:

Our 1821 traveler also inspected John H. Hall's Rifle Works and the other Armory buildings on the Lower Hall Island in the Shenandoah and reported:

"On the Shenandoah are four buildings, two brick(Armory workshops), one stone, and one frame(the latter two being John H. Hall's Work shops). One(brick) contains three hammers, one (brick) for forging and two tilt hammers. One (frame) is used for small machinery such as turning etc. and one(stone) is a blacksmith shop."

THE WORKS ON THE SHENANDOAH:

Our No.	1811 No.	1821 Dimensions in feet	No. of Stories	Material	Value	Remarks
1	9	85 by 40	1	Brick	$ 6,000	Workshop of Armory(built in 1808-09 with machinery for heavy grinding). 3 hammers in 1821.Water wh.
2	10	45 by 45	1	Brick	$ 4,000	Workshop of Armory(built 1808-09 as tilt hammer shop. Had two hammers working in 1810).Water wheel and 2 hammers in1821
3.	0	50 by 16	1	Wood	$ 500	Old armory sawmill dating back ca. 1807)Converted in 1819 to principal machine shop of John H. Hall,had new 12 ft dia. water wheel.
4.	0	30 by 30	2	Stone	$ 1,000	New blacksmith shop erecte in 1819 for John H. Hall's Rifle Factory.
Total: 4 Shenandoah Shops:					$ 11,500	

ARMORY DWELLING HOUSES, 1821

The 1821 inventory of Armory buildings indicates that there were a total of 87 Armory dwellings and two school houses on the public land. Althrough the dimensions and estimated value of these residence are listed, the locations of these structures is not given.

Material	2story & cellar	2 story	one story	Total No.	Total Value
Brick	3	4	15	22	$ 20,700
Stone	1	0	2	3	2,200
Wood	0	6	56	62	24,650
Total	4	10	73	87	47,550

By value:

Material	2story & cellar	2 story	one story	total	
Brick	4- $9,200	3 - $ 4700	15- $ 20,700	22-	$ 20,700
Stone		1 - 800	2 - 1,400	3-	2,200
Wood		6 - 8,200	56 - 16,450	62-	24,650
Total	4 - $9,200	10 - $ 13,700	73 - $ 38,550	87-	$ 47,550

Both school houses were one-story frame buildings, one measuring 40 by 20 feet, was valued at $ 550 and the other, 24 by 16 feet in size, was valued at $ 250. Total Value-89 bldgs. $ 48,350.00

SUMMARY-STATE OF THE US ARMORY AT HARPER'S FERRY, VIRGINIA, 1821

	No.	Value
U.S. Musket Factory Building:	17	$ 70,650.00
Hall Island Workshops	4	11,500.00
Total: Worshops:	21	$ 82,150.00
Arsenals & Magazine	3	20,150.00
Working Plant of Armory	24	$ 102,300.00
Armory Dwellings	87	47,550.00
School houses	2	800.00
Churches	0	0
Total Buildings:	113	$ 150,650.00 *
Value of Dams, Canals: bridges, roads	-	105,000.00
Value of 1,890 acres, including the Shenandoah Ferry		42,877.28
1796-1821, GRAND TOTAL: PLANT:		$ 298,527.28
Expenditures for repairs:		66,755.22
Total, 1796-1821:		$ 365,282.50

Armory Expenditures

For Machinery.....	$	40,000.00
For tools,horses,wagons..		20,000.00
Total-Musket Factory	$	60,000.00
For [illegible] and Machinery for making the John H. Hall Patent Rifle, 1819-21.....$		12,247.44
Grand Total:	$	72,247.44

* Total does not include value of Armory sawmill, about $ 472.75, or of a puddling furnace, and annealing furnace.

New Problems arising from the U.S. leases of Armory Lands and Private buildingsbeing erected on U. S. Land:

James Stubblefield

When [illegible] Armory Superintendent permitted merchants to erect stores on the public land for the purpose of introducing competition and thus reducing the prices charged Armory workmen, Catharine Wager, the widow of John Wager, Jr., filed a memorial and petition with Congress, requesting that an law or order be passed forbiding the Armory superintendent to lease public lands for such uses. In this document, Mrs. Wager wrote; in 1821:

"that Col. Tobias Lear, when in treaty (in 1795-96) with the Wagers to purchase this land for the United States, represented that the United States wished to erect upon the land the buildings and works necessary for the manufacturing of arms, and that the government did not intend to establish and keep stores and taverns on said land further than necessary for the carrying on the works; and that by the Wagers reserving the exclusive right of keeping the (Potomac) ferry, and also the six acres for a residence and for store houses and taverns, that those reservations would become immensely valuable on account of a town, or village growing around and about the public works; that, influence by those representations, the Wager sold the land at a price considerably . . below its real value.

She further stated "that all the reservations (or terms) were inserted in the deed except the exclusive right to keep taverns, and erect stores houses and establish stores; that these reservations omitted in the deed, were, about the time the deed was executed (June 15, 1796, or February 1, 1797), or some short time afterwards, inserted in a separate instrument of writing)

"executed and delivered by Tobias Lear on behalf of the United States, to John Wager, Jr.; that the last mentioned paper remained in the possession of John Wager, Jr., until his death, in the year 1813,when the same disappeared,either by accident, or in a manner unaccountable to the memorialist; that since the death of John Wager Jr. taverns and stores have been established, to the great injury of the memorialist, upon the lands of the government purchased by the Wagers.

She then asked"of Congress the passage of some law or resolution which will secure to her, and the heirs of John Wager, Jr., their rights and privileges reserved in the deed or instrument of writing which is lost or destroyed..."

Her written petition was also supported by several affidavits to the same effect.

The Committee of the House of Representative accepted these statements as correct and recommended that a bill be passed for the relief of Mrs. Wager.[2] Such a bill, however, failed to pass Congress.

Part of her statement is probably correct; Lear and the Wagers did bargin and in his letter of February 26,1797 to the Secretary of War, Lear also wrote of "a Relinquishment of Some Reservations then proposed by the Wagers on the Ferry Tract making the wnole much more favorable for the Public." Lear may also have pointed out to the Wagers the advantages of having a monopoly of the ownership of private land in Harper's Ferry if the armory was built, in order to induce the Wagers to sell. However, neither the offical U.S. Government copy of the deed or the deed recorded in Berkeley County,Va. contain the document that Mrs. Wager alledged that Col. Lear wrote as a separate document to confirm the Wagers' exclusive rights to stores and taverns.[3]

Mrs. Wager's petition does show, however, that the Wager family did pursue a consistent policy in regards to the management of their land at Harper's Ferry from 1796 to 1836.

2. Serial No.57, Report No.68, 16th Congress,2nd Sessiion, 1820-1821, House Reports, Vol. 1, Report No. 68, 2 pp.

3. On May 15,1823, a Mr. W. Wade(?) made a search of the private papers of the"late Col. Tobais Lear" and made a summary of the correspondence relating to Lear's negoiations with the Wagers. The special agreement that Mrs Wager alledged Lear had written in 1796 was not found in Lear's papers. HFNHP Microfilm Reel 21, Vol. 7, pp. 700-702

The "lease" that Mrs. Wager complained of in 1821 were as follows:

Leases of U.S. Lands and Buildings, 1814-21:

A. The Potomac Company Lease: 1811-1827

As has been noted, the Potomac Company received a lease from the War Department in 1811 for a lot of land that later became known as Lots 1 and 11, Block C, Shenandoah Street. In 1812 they erected a large one-story warehouse about 32 by 60 feet in size, which was used to store flour, on Lot 11, and retained their lease to that plot until 1827.

B. The William Graham Lease, 1818-1836:

About 1818, Lot 1 of Block C, Shenandoah Street, was occupied by William Graham and by 1820 he had erected a two-and one-half story stone store and dwelling that fronted on Shenandoah Street. In the rear of the store, also located on Lot 1, but fronting on "Loudoun" or "Globe Inn Alley," was a large two-story brick boarding house also constructed by Graham prior to 1828. In his report to the Ordnance Department on Buildings erected by private individuals on Armory Lands, by people not connected with the armory, dated February 22, 1829, Stubblefield wrote that the Potomac Navigation Company had leased Lot 1, which they had never utilized, to Graham.[1] While this is not impossible, it would appear to be more probable that Superintendent James Stubblefield himself permitted his friend Graham to built on Lot 1, Block C, under an unoffical arrangement.[2] The United States was not to regain control of Lot 1, Block C, until 1837, when it paid $ 4,000 to the Graham heirs to obtain title to the stone and brick structures on lot No.1.[3]

1. ASP, IV, 145.

2. In 1826, Charles Staley, an armorer who had been discharged by Stubblefield, charged that the Superintendent had permited Graham to rent the U.S. sawmill at $ 100 a year even though another person had offered Stubblefield $ 300 for the same franchise. See Smith, Harper s Ferry Armory, p.163.

3. Reel 12, Vol. 5, pp.473-476, Supt. Edward Lucas, Jr., to Col. George Bomford, January 11, 1839.

C. The Jamieson Lease, 1816-1836:

In early February 1816, William H. Crawford, Secretary of War, granted Basil Williamson, who had leased the Harper's Ferry Hotel from the Wager family and operated this inn from 1803 to 1815, a lease for one acre of Armory land on which Williamson proposed to erect his own establishment. The politically powerful Wager family at once protested the granting of the lease and the Secretary of War, accordingly, on April 21,1816,canceled Williamson's lease.[4]

Meanwhile, also in 1816, the President of the United States granted a "Major Jamieson", a veteran of the War of 1812, a lease for a small lot of land located on the side of Camp Hill, adjacent to the U.S. Musket Factory on the Potomac. Jamieson erected a wooden storehouse and dwelling on his lot in 1816. In 1816 Basil Williamson leased this structure from Jamieson and operated it as a tavern.[5] The United States did not regain control of this lot until 1837, when it purchased title to a stone store house and the lease from William Anderson for $ 1,200 that Anderson had purchase from Jamieson about 1830.[6]

Stubblefield's report to the War Department, dated April 8, 1820, that " There is now two stores on the public land at this place, one is kept on the Lot leased to the Potomac Company (William Graham's store)," and the other by Jamieson, thus appears to be accurate.[7]

4. Secretary of War William H. Crawford to Paymaster Major Lloyd Beall, April 22,1816, Reel 16, V. 1, p.95; also Crawford to Beall, February, 8, 1816, Reel 16, Vol.1, 93. Beall to Crawford, February 13,1816, Reel 13, V. 2, p. 149-150.

5. Beall to Crawford, April 28,1816. Reel 13,p. 152. Stubblefield to Col. Wadsworth. September 19,1818, Reel 14, V. 2, p.163; Col. Bomford, at Acting Superintendent R. Lee, April 30,1827, Reel 14, V. 6,p.514.

6. Supt. Edward Lucas, Jr. to Col. George Bomford, January 11,1839, Reel 12, Vol. 5, pp. 473-476; Also ASP, IV, p. 145.

7. Reel 21, V.4, pp. 345-350.

CHAPTER VII

END OF THE STUBBLEFIELD REGIME, 1822 - 1829

The annual reports for the years 1822 to 1829 reveal that a total of $ 85,240.67 was expended for construction and repair and that a total of 59 buildings were erected for the Armory(exclusive of Hall's Rifle Factory) during those years. A closer analysis of these reports ,however, indicates that only 35 of the new structures were actually new buildings and the remaining 24 new edifices were additions that were made to older structures. Thus the total number of Armory building on December 31,1829, was about 148 structures and not 172 buildings, as it might appear if one added the reported 59 new structures to the 113 edifices extant in 1821. No major or large workshops were erected at the Musket Factory during the years 1822 to 1829.

Expenditures for Construction and Repair,1822 to 1829, were as follows: Armory

Year	New Construction	Repair	New Struct.	New Bldgs.	No. of Workmen	No.of Arms
1822	$ 5,134.75	$ 350.00	6	6	237	10,000
1823	11,037.80	0	5	5	253	12,200
1824	16,271.96	0	17	7	280	11,559
1825	4,101.50	2,171.50	4	2	272	14,000
1826	9,847.66	431.97	4	3	221	8,720
1827	7,550.87	1,519.87	9	1	239	13,020
1828	6,533.00	5,500.00	7	6	217	10,000
1829	14,631.82	157.33	7	5	205	8,895
1822-29	$75,109.36	$ 10,130.67	59	35	-	88,394
1796-1829:	$ 331,618.77	$ 76,885.89		148	-	233,111 (1)

During this period a limited number of artisans executed most of the construction and repair work for the Armory. This group included the following chief workmen:

Trade	Name	Years Active	Value of Work
Carpenters	Bateman, William	1823-1826	$ 862.20
"	Curry, Joseph	1828-29	$ 1,083.85
"	Downey, Joel	1824 -25	$ 912.35
"	Foley, Michael	1827-28	442.25
"	Fouke, Charles	1817-1826	$ 3,946.71
"	Hill, Jacob	1823- 1828	381.59
"	Krby, William	1818-22	350.47
"	Markell, John	1824-1829	$ 1,468.12
"	O'Neal, Francis	1825- 1829	$ 1,124.77
Masons	Bond, George W.,	1829	681.75
"	Cook, Michael	1827-32	377.37
"	Coons, Philip	1826-29	1,276.18
"	Cotter, Martin	1824-33	493.78
"	Garrett, Johnson	1829	375.00
"	Gust, John	1824-29	1,160.96
"	Harding, Edward	1817-1829	6,429.19
"	James, Henry	1818 - 21	1,618.08
"	Johnson. John	1828 -29	1,713.48

1. Data from National Archives Record Group 156, Entry 935,-War Department, Ordnance, National Armory Accounts for Harper's Ferry, 18 1795-1831, for years 1822 to 1829. Photostatic copies in Park Collections. Number of Work men from ASP, IV,915.

Trade	Name	Years Active	Value of Work
Masons	Lackey, John	1823- 1830	$ 838.71
"	Landragen, Patrick	1825- 29	628.40
"	McKinny, William	1817 - 29	937.33
"	McNulty, James	1821-29	$ 4,050.64
"	Randall, George	1827	307.18
"	Spencer, Joseph	1826-29	4,117.75
"	Strider, Philip	1823- 27	1,032.63
"	Tompkins, Jonah N.	1817 -24	817.68
"	Walsh , Michael	1823-28	1,816.96
"	Wernwag, Lewis	1825-29	2,155.82
Millwright-	Lowstetter, John	1820-25	6,819.86
"	Painter, Robert	1819-20	1,060.15
Painters	Bowin, William	1824-29	1,085.29
"	Carty, Daniel H.	1820	274.75
"	Hay, Henter	1825-29	353.15
"	Sadler, Leonard	1817-21	463.97
"	Thomas, Jacob R.	1822-24	397.18
Plasters	Bennett, John A.	1820-21	264.77
"	Bulter, William	1823-25	568.88
"	Dill, Abram	1817-18	162.62
"	Gallaher	1825-29	921.75
Slaters	Bayley, William	1827-29	380.10
"	Preston, Anthony	1825-26	2,323.42
"	Steele, James	1828	Records incomplete

The chart which follows shows how the money expended for the services of artisans to erect buildings and make repairs by trade during the years 1817 to 1830.

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:

EXPENDITURES FOR SERVICES AND LABOR FOR REPAIRS AND IMPROVEMENTS, 1817 to 1830

	YEAR	Carpenters	Masons (including stone)	Painting and glazing	plastering and lathing	shingling and slating	Millwright work	Total on Labor	Total for Materials (estimated)	Total Labor & Material
(1)	1817	$ 599.95	$ 712.21	$ 334.60	$ 142.75	$ 95.00		$ 1,884.51	$ 7,405.38	$ 9,299.89
	1818	576.88	634.00	57.75	119.10	50.94		1,438.67	7,464.66	8,903.33
	1819	1,099.27	2,469.16	309.30	86.62	107.99	458.97	4,531.31	9,804.96	14,336.27
	1820	902,14	5,987.21	207.08	331.71	39.56	277.47	7,745.17	14,433.87	22,099.02
	1821	395.01	649.34	90.72	25.81	48.07	474.74	1,683.69	17,691.22	19,374.81
	1822	579.00	4,771.22	271.50	264.85	4.00	539.93	6,430.50	-945.75	5,484.75
	1823	1,171.44	3,196.60	157.43	213.23	134.93	549.37	5,758.30	-143.50	11,037.80
	1824	1,366.48	1,693.27	433.53	169.43	52.00	760.86	4,475.57	10,124.43	16,271.96
	1825	1,706.90	1,396.00	319.97	263.61	1,008.71	497.75	5,192.94	-48.56	6,273.00
	1826	373.75	3,257.38	184.18	131.48	1,467.00	1,433.70	6,847.49	3,432.17	10,279.63
(2)	1827	1,137.71	5,297.84	197.31	344.64	380.20	80.00	7,437.70	-86.83	7.550.87
(3)	1828	419.74	1,087.61	59.96	87.50	126.55		1,781.36	10,251.64	12,033.00
	1829	3,271.22	6,943.38	655.79	307.45	608.96		11,786.80	2,464.84	14,789.15
	1830	128.23	9,591.07	31.31	89.32			9,839.93	3,477.19	14,431.93
	TOTAL:	$ 13,727.72	$ 47,686.29	$ 3,310.43	$ 2,577.50	$ 4,123.91	$ 5,072.79	$ 76,498.64	$85,890.20	172,165.41

(1) 3rd and 4th quarters only of 1817.
(2) 1st quarter of 1827 missing.
(3) 1st and 2nd quarters of 1828 missing.

Paid to workmen for repairs and improvements they made to Armory Houses, $ 9,776.51.

National Armory Accounts for the Years 1822 show that the construction and repair funds were expended on buildings and canals and dams (to which has been added similar expenditures on buildings at the Hall Patent Rifle Factory), as follows:

	For PERMANENT IMPROVEMENTS AT THE ARMORY				PERMANENT IMPROVEMENTS HALL FACTORY	
Year	For Buildings	For Dams and Canals	No. Bldgs	Armory Total	No. Bldgs	Bldgs, Dams, and Canals
1822	$ 2,800.00	$ 2,684.75	6	$ 5,484.75	0	$ 42.18
1823	8,758.30	2,279.50	5	11,037.80	0	37.44
1824	15,87196*	400.00	17	16,271.96	0	1,518.66
1825	5,411.50	861.50	4	6,273.00	5	1,035.81
1826	5,199.91	4,229.72	4	9,429.63	0	222.30
1827	4,880.00	1,519.87	9	6,399.87	2	5,751.00
1828	3,400.00	6,633.00	7	10,033.00	1	5,665.93
1829	7,785.20	7,003.95	7	14,789.15	0	3,425.96
Total:	$ 54,106.87 *	$ 25,612.29	59	$ 79,719.16	8	$ 17,699.28 (2)

*Includes $ 5,000.00 spent to rebuilt workshop damaged in fire of May 1824.

Value of Plant in 1821 and 1829:

ARMORY	1821	1829	RIFLE FACTORY 1821	RIFLE FACTORY 1829
Number of buildings	113	172	2	10
Value of Buildings	$ 150.650.00	$ 199,756.87**	$ 4,130.14	$ 21,568.72
Value of Canals, dams	$ 105,000.00	$ 130,612.29	0	0
Value of Plant:	$ 255,650.00	$ 330,369.16	$ 4,130.14	$ 21,568.72
Value of Machinery	$ 72,247.44	$ 76,248.44	$ 12,247.44	$110,649.58
Value of Land, 1,890 acres	42,877.28	$ 42,877.28	0	0
TOTAL:	$ 370,774.72	$ 449,494.88	$ 16,377.58	$ 131,218.30

(2) National Archives R.G. 156, Entry 935. ** this total, 1829, has had $ 5,000.00 deducted from it as the cost of replacing the work shop damaged in the fire of 1824.

An analysis of the construction program of the Armory for the period 1822 to 1829 reveals that the $ 83,720.16 was expended for the following projects(see Chart No. 1): page 140.

For erecting new workshops and storage buildings:	$ 12,341.23
For repairing workshops and arsenals	9,424.74
For constructing river walls	2,869.30
For constructing and turnpiking roads and paving sidewalks, and constructing one bridge	2,118.82
For acquiring building materials	4,307.56
For purchase and making of new machinery	10,038.77
For making and laying of water pipes for fire protection , digging wells	693.21
For the construction, repair, and improvement of dwelling houses	25,495.01
For the improvement and repair of dams and canals	16,431.52
TOTAL:	$ 83,720.16

Approximately $ 16,969.64 was expended on the construction of 32 new buildings(See Chart No.2), as follows: (page 141).

For erecting 5 new workshops:	$ 5,527.68
For building 6 storage buildings	4,150.00
For constructing two offices	700.00
Armory plant: 13 buildings	$ 10,377.68
For new dwelling houses, 19 bldgs.	$ 5,547.76
Total 32 new structures	$ 15,925.44
In addition: making additions to 35 dwelling houses.....	$ 8,394.16 (1)
New construction,buildings	$ 24,319.50

(1) See Chart No. 3) Page 198.

CHART No. 1

Construction and Repair Program, Armory, 1822-29 (Entry 935)

YEAR	Construction Shops	Repair Shops	Bldg. Walls	Roads & Bridges	Dwelling Houses	Dams & Canals	Bldg. Materials	Machinery	Water Pipes	TOTAL
1822	$ 2,000.00	350.00	100.00	-	600.00	2,434.75	-	-	-	$ 5,484.75
1823	200.00				8,558.30	2,279.50				11,037.80
1824	500.00	5,000.00	400.00		5,371.96			5,000.00		16,271.96
1825	-	1,520.00	350.00		3,881.50	521.50				6,273.00
1826	794.77	1,746.20	1,427.80		1,172.75	165.54	3,393.37	1,087.77	491.43	10,279.63
1827	2,700.00		200.00	1,419.87	1,980.00	100.00		1,151.00		7,550.87
1828	1,650.00		300.00	333.00	1,450.00	5,500.00		2,800.00		12,033.00
1829	4,496.46	808.54	91.50	365.95	2,480.50	5,430.23	911.19		201.78	14,789.15
TOTAL	12,341.23	9,424.74	2,869.30	2,118.82	25,495.01	16,431.52	4,307.56	10,038.77	693.21	83,720.16
Hall's Rifle Shop, 1822-29										17,699.28
GRAND TOTAL									$	101,419.44

Ordnance Department Reports, 1822-29, indicate that a total of $ 85,240.67 was expended for repair and improvement at the Harper's Ferry Armory during this period. The above chart, also based on Ordnance Department records and accounts, shows how $ 83,720.16 of the total was spent.

CHART NO. 2
Construction of New Buildings, U.S. ARMORY AT HARPER'S FERRY, 1822-1829

Year	Workshops		Storage Bldgs.		Offices		Dwellings		Total	
	No.	Cost	No.	Cost	No.	Cost	No	Cost	No.	Cost
1822	1	150.00	2	1,200.00	1	500.00	2	600,00	6	2,450.00
1823	1	200.00					4	1,500.00	5	1,700.00
1824			1	500.00			5	1,600.00	6	2,100.00
1825							2	700.00	2	700.00
1826	1	481.22							1	481.22
1827	1	1,200.00							1	1,200.00
1828		500.00	2	950.00	1	200.00	3	450.00	6	2,100.00
1829	1	2,996.46	1	1,500.00			3	697.76	5	5.194.22
TOTAL	5	5,527.68	6	4,150.00	2	700.00	19	5,547.76	32	15,925.44

Construction and Repair at the U.S. Musket Factory, 1822-29:

The annual reports indicate that the following improvements and repairs where made at the U.S. Musket Factory plant on the Potomac during these years:

In 1822 three sheds were erected over the principal water wheels for the purpose of keeping stoves to prevent the wheels from freezing- The cost of this work was $ 150.00. The sheds apparently covered the water wheels of the turning shop(our Bldg. No. 2-see page 123), the boring mill (our Bldg. No. 3), and the stocking shop(our Bldg. No.5).

A new shop for turning and tempering lock springs was erected in 1822 at a cost of $ 150.00, suggesting that this new structure was a small frame shop. A stone wall was also constructed so that a shed could be erected over the annealing furnace. The cost of this work amounted to $ 100.00 and an additional $ 350.00 was expended making repairs to three workshops. The total for the Musket Factory in 1822 thus came to $ 770.00 and provided one new shop, small, and four smallsheds.

In 1823 $ 200.00, only was spent to erect a new "House for annealing gun barrels at the Musket Factory". The price indicates that another small workshop must have been built. No other money was expended for construction or repair of buildings at the Musket Factory in 1823.

In May 1824 a fire swept through one of the large brick workshops, probably Our Bldg. No. 2(or Bldg. 8 on the 1811 list)(See page 123), destroying the machinery, but leaving the walls standing. Superintendent James Stubblefield reported this disaster to the Ordnance Department 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 howver been considerable and will very much impede the operations of the armory until they can be replaced." (1)

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.[2]

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." [3]

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.[4]

The total cost of rebuilding brick workshop in 1824 came to $ 10,000, of which $ 5,000.00 was for reconstruction and $ 5,000.00 was for new machinery and tools. No structures were erected at the Musket Factory in 1824, or in 1825. In the latter year, however, a total of $ 1,520 was spent "slating the roof of the public buildings," suggesting perhaps that slate may have been used to cover the rebuilt roof of the fire damaged workshop.[5]

On March 9, 1825, the carpenter John Markell was paid $ 151.77 for furnishing the material and building a cupola on one of the public workshops and hanging a bell therein."[6] This cupola was apparently constructed on the roof of Our Bldg. No.2(No. 8 on the 1811 inventory) for this shop was henceforth referred to as " the bell shop."

Expenditures in 1826 consisted of:

one new shop for draw-grinding.....[6A]	481.42.
Repair of buildings.....	339.20
Amount paid to Thomas Copeland and Son, making machinery.....	850.00
building a guard wall above the shops.....[7]	144.30
Constructing new wells, shafts, &c.....	369.93
Laying 295 ½ perchases of stone for Coal House[8]	202.35
Laying 148 perches of stone for annealing house[9]	111.00
New pump, repairs, &c.....	92.77
Making aqueduct machinery.....	145.00
	$ 2,735.97

(1). HFNHP Reel 21, Vol. 5, 423-424.
2. RReel 14, Vol. 4, p.386.
3. Reel 21, V. 7 p.741.
4. Reel 14, Vol. 4, p. 392-393.
5. R.G. 217- File 9057-Voucher 45A and F. 9310-V. 58A, dated April 20 and Aug.26,1825 respectiv ly was paid a total of $ 916.42 for slating 85 squares on the roofs of the public buildings.
6. R.G. 217- File 9057- Voucher 103A.
6A.-Mason Daniel A.Weed was paid $400.00 on October 30,1826 for erecting walls of a 2 story building 18 by 27 feet, furnishing lime & 155 perches of stone @$1.25=$193.75-Digging cellar, 45 cubic yards @ 206= $9.00
6A.Continued-for timber, plank and other material=$197.25-F10559-V. 12.
7. R.G. 217- File 9851 1st series, V-88A. To Philip Coons, March 31,1826- $ 156.30 for quarrying, hauling, and laying 260½ perches of stone in a wall above the work shops on the Potomac.

The 1826 program apparently produced three small stone buildings., including a stone grinding mill.[11]

The construction program for the Musket Factory in 1827 was charged a total of $ 2,351.00 the following items:

Building a new two-story brick workshop, 20 by 30 feet in size, to house the newly acquired half-stocking machinery at a cost of $ 1,200.00.[10] This shop, which had a water wheel,was located on the north bank of the Armory Canal, apparently at the western end of the southern line of workshops, adjacent to the west end of Bldg. (our No.)- 7- the Stocking Shop. Half the cost of purchasing the half stocking machinery, that is, $ 800.00 of the total of $ 1,600.00 owed, was paid in 1827 and Thomas Copeland and Sons were paid $ 351.00 for making new machinery to be used at the Musket Factory . This total expenditure of $ 2,351.00 in 1827 thus produced one new small two-story brick workshop.

11.R.G.217-File 12579-V. 47A.James Bodin,Nov.15,1828, was paid $ 71.37 for "roughcasting walls of the annealing shop, half turning shop(grinding mill),and coal house , 571 square yards at 12½ cents= $ 71.37

10. Continued: F. 12013- V. 60- To Edward Harding, Nov. 7,1827-$ 289.54 for 320 perch and 24 feet of stone wall at the grinding mill and at the building for the use of the half=stocking machinery. 12013-V. 58A- To Horace Crossman, Nov.7,1827-$ 80.00 for 40 days work putting up machinery in the half-stocking shop. 12013- V. 62A. To Leonard Cutter, Nov. 7,1827-$ 68.47 for helping to put up machinery in half-stocking shop. 12013-V. 66A- To Hiram Carney, Nov. 8,1827-$ 31.87 for 16 days work laying brick, with tender helping for half stocking shop. 12013-V. 88A- To Michael Walsh, Dec. 5,1827-$ 96.62, for hauling and laying 34 perches of stone in tail race of half-stocking shop. 12013-113B-John Landragon, Dec.21,1827-$ 24.31 for quarrying 97½ perch of stone for tail race of half stocking shop.

8. R.G. 217- File 10604-1st Series V. 1A- To Philip Coons, Aug.19,1826- a total of $ 302.10, for quarrying, hauling,and laying 273 perches of stone in a building for the Coal House- $ 191.10; for quarrying, hauling and laying 148 perches of stone in a building for annealing, case hardening, and tempering ramrods- $ 111.00- Total $ 302.10.

9. Ibid.

10. R.G.217-1st Series, F. 12013-V. 4A- To George Rolls, October 11,1827- $ 100.00 for 16,667 brick to erect a shop for the new half-stocking machinery. File 12013-V. 15B- To Philip Strider, October 18,1827- $ 39.00 for 6,000 brick for use in new shop for half-stocking machinery. F.12013-V.49A- To John Lackey, Nov.2,1827- mason, $ 28.00 for quarrying, hauling and laying 6 1/3 perch of stone for new foundation of shop for half stocking machinery, also trail race for same .

Expenditures charges to repair and improvements in 1828 totaled $ 4,587.96 for Musket Factory items and included the following items:

1.for new machinery for turning and milling compoent parts of arms.....$ 2,000.00

2. for building a brick addition to the dwelling house occupied by the Superintendent(Bldg. No. 1 at the east head of the southern line of workshops)..... (1,000.00) [12]

3. For erecting a small stone watch house..... 200.00

4.For building a stone partition wall which ran along the south bank of the U.S. Armory Canal to mark the boundary between the U.S, land and the Wager family's Six Acre Reservation..... 300.00

5. For constructing a frame charcoal house..... 750.00

6. For erecting a wooden stable, ... 200.00

7. For forbay, waterwheel, and fixtures for the half-stocking machine(the half balance not paid for in 1827)..... 800.00

8. Amount spent towards beginning the construction of a new trip hammer shop near the west end of the Musket Factory Yard and along the north bank of the Armory Canal..... 500.00

One stone and two frame buildings erected in 1828: $ 4,750.00*

The construction costs; of these three structures came to $ 1,150.00 .

12. The Vouchers for the 1st and 2nd quarters of 1828 are missing, but R.G. 217- file -12579- V. 2- To Edward Harding, Oct.3,1828- $ 34.50 for 16 days work in paving watch house and putting up stone wall at the dwelling of the Supt.

* not including $ 1,000 spent on Supt.'s dwelling house.

Construction projects at the Musket Factory in 1829 totaled $ 4,587.96 and included the following items:

(Not counted in this total was an additional $ 1,429.75 that was spent on mkaing further improvements to the Supt.'s quarters, Bldg. No. 1 in the Yard).

1. For continuing the construction of the new tilt hammer shop--$ 2,996.46. This money went into stone walls along the canal at the site where it was proposed to erect the shop.

2. Continuing construction on the stone partition wall marking the boundary line between U.S. land and the Wager Six Acre Reservation..$ 91.50.

3. Erecting a Proof and Engine House 1,500.00

Total, 1829- 1 new building, cost $ 1,500.00 $ 4,587.96

John Johnson[12] was the mason who built the stone partition wall.

Martin Cotter was the masons who worked on the construction of the brass[13] new stone "Engine House, foundry, and Proof House.

12. R.G. 217-File 12908- V. 78-March 31,1829- To John Johnson, for mason work, quarrying, hauling 145 perches of stone for erecting a wall on the line between the U.S. and the Wager heirs, foundation=$ 72.50- additional items brought the total to $ 91.50.

13. R.G. 217 File 12908-50A Feb.20,1829-$ 20.00 20 perches of stone. 13478- 22A- April 22,1829- $ 104.06- laying 166½ perches stone wall. 13626- 29A Aug. 25,1829- $ 23.59- For trowel dashing Engine House, foundry, and proof house exterior, 109 yard 4 feet and 5 inches at 12½¢ per yard=$ 13.68; for rough coating the same inside- 123 yards, 8 feet 7 icnhes = $ 9.91. The mason Michael Walsh also provied 21 perches of stone for the building in December 1828 at a charge of $ 10.50- see 12579- V. 44A and 114.

Total expenditures at the U.S. Musket Factory for repairs and improvements from 1822 to 1829 amounted to $ 27,066.70. Included in this total was $ 8,494.13 spent to erect 10 new buildings and to start work in 1828-29 on a new tilt hammer shop.

	New Shops erected at Musket Factory, 1822-29	Total on Improvements
1822:	Shop for turning and tempering lock springs, $150.	$ 770.00
1823	Shop for Annealing Gun Barrels, $ 200.00	200.00
1824	0 (rebuilding large workshop, $ 5,000 for structure and $ 5,000 for machinery)	10,000.00
1825	0 shops	1,671.77
1826	Draw grinding shop, 481.42. Coal House 202.25 Annealing House 111.00	2,735.97
1827	Half stocking shop, 1,200 (also 1,600 in 1827-1828 for machinery)	2351.00
1828	watch house, 200.00 Charcoal house 750.00 stable 200.00	4,750.00
1829	Proof and engine house, $ 1,500.00 Constructing new tilt hammer shop, 1828-29, still incomplete in 1829- $ 3,499.46	4,587.96
TOTAL:	10 new buildings, plus one incomplete: $ 8,494.13	$ 27,066.70

A Boundary dispute with the Wager Heirs

In 1822, Catherine Wager, the widow of John Wager, Jr., claimed that the stone wall [illegible] then being built by Superintendent James Stubblefield, enclosed a portion of the Wager Ferry tract and she also asserted that the U.S. Canal, which ran between the Wager Six Acre Reservation and the U.S. Musket Factory southern line of workshop, infringed upon the Wager Six Acre Reservation.[1]

In an effort to settle the dispute, Mrs. Wager selected McPherson, the Jefferson County surveyor, to run the lines on the disputed boundaries as given in the 1796 deed. McPherson completed his work on October 7, 1822, but his findings, which supported the claims of the Armory, failed to satisfy Mrs. Wager.[2]

Repeated agitation on this question on the part of Mrs. Wager induced Superintendent Stubblefield on March 31,1823 to seek the assistance of the Ordnance Department in resolving this problem. As a result, Lt. Burdine of the U.S. Army Topographical Engineers was ordered to Harper's Ferry to run a second survey in September 1823.[3] Taken ill at Harper's Ferry, Lt. Burdine hired a surveyor to accomplish his task. The second survey, completed by October 1,1823, found that not one of the corner of the Six Acre Reservation corresponded with any other corner as given in the deed and by plotting, it was discovered that the Six

1. Catherine Wager to Stubblefield, May 3,1822, Reel 21, V.6,p.539.
2. Stubblefield to Col. George Bomford, Ordnance Department, October 7, 1822, Reel 21, Vol. 6, 559-560.
3. Bomford to Lt, Burdine, Sept. 12,1823, Reel, V. 4, p.368.

Acre Reservation was apparently lacking a small portion to complete the six acres.[4] Mrs. Wager wanted to extend the lines northwards towards the U.S. Potomac Canal;[5] however, no permanent boundaries were established in 1823 and the unresolved matter lay dormant for three more years.

In 1827, however, Mrs. Wager once again became very anxious to have the boundaries fixed and requested that a third survey be made to establish the precise limits of the U.S. lands at Harper's Ferry.[6] Col. Bomford then informed Roswell Lee, the Superintendent of the Springfield Armory, who was then serving as acting superintendent of the Harper's Ferry Armory, that the Secretary of War had directed that a fourth survey be made and the lines should be run under the joint supervision of a council and a competent surveyor.[7] Lee was to pick the surveyor and he engaged William Castleman and James H. Brown to make the survey. Their findings were incorporated into a "Memorandum of An Agreement," dated May 30,1827, which was signed by Roswell Lee and James Stubblefield on behalf of the United States and by Catherine Wager and James Bates Wager, her oldest son, on behalf of the Wager heirs. (See Map No. 1), p.24.

The agreement directed that the corners of the Six Acre Reservation should be permanently marked on the ground in accordance with this survey. It was further agreed that the U.S. shall built a wall of a reasonable height along and up to the line of the (Potomac) canal, and that said wall shall be waterproof, or built with water proof cement high enough to prevent the water from leaking out of said

4. Lt. Col. Burdine to Bomford, Sept. 24,1823, Reel 21, v.6, p.607.
5. Lt. Col. Burine to Bomford, October 1,1823, Reel 21, v.6, pp.609-610.
6. Ibid.
7. Bomford to Lee, May 19,1827, Reel 14,V.6, p.523; Lee to Bomford, April 30,1827, Reel 22, Vol. 1, p.5

"canal and running on the land of the Wager family."

Finally, it was agreed, "whereas the north-western line of the Ferry landing lot reserved by the Wager family has been hitherto uncertain, it is agreed that the corner of said line shall be, and is hereby fixed, and that it shall run thro a point designed by a gun-barrel long since planted there and along the southeast end and just clear of the said south east end of the post-office, a store house occupied by Robert Keyes (which was located on Wager Lot No. 11)."[8]

As a result of this agreement, Superintendent Stubblefield expended a total of $ 391.50 in 1828-29 "building a stone partition wall" between the U.S. Musket Factory lands and the Wager Six Acre reservation. In 1827 Inspector General John E. Wool made a detailed inspection of the U.S. Armory at Harper's Ferry and in a confidential report he wrote:

> ... This establishment has, undoubtedly, been badly managed. Large sums of money have been expended without reference to permanency or utility. Every thing about it bears a temporary aspect. Very few, if any substantial buildings are to be found at the place. The shops are built of brick but in a state of dilapidation. These are surrounded by small buildings not fit for habitation.... The arms made at the Establishment may be equally good with those made at Springfield, but in every other respect the establishment (the U.S. Musket Factory and Arsenal) is far inferior - indeed it will bear no comparison with the latter. The (Armory Potomac) canal through which the water is conveyed to the shops, is too small for its length, consequently, when the water is low the works are suspended at intervals for the want of a supply of water to propel the machinery. This deficiency ought to be remedied, but it will cost some thousands of dollars. Mr. Stubblefield, the Superintendent, is unquestionably a very good man; his amiable disposition has gained him

8. Memorandum of an Agreement, May 30,1827, Reel 18, V. 8,.p.760-761. William Castlemen,Jr. and James M. Brown prepared a final plat, dated June 1827, on which they plotted the lines of the Wager lands and also the bounds of the U.S. lands from tne 1796-1797 deeds, Map No. 55, Drawer 6, National Archives.

many friends, but he is deficient in some qualities necessary for one who occupies the responsible station of superintendent of so important establishment.... To pull down the buildings, which are a disgrace to the establishment and improperly located, and to erect those of a permanent character for the habitation of the workmen, and to make such other improvements as are necessary to place the establishment on a proper and respectable footing, would probably cost forty or fifty thousand dollars, which sum might have been saved if due regard had been paid originally to the location and construction of the buildings...[9]

9. Report dated Nov.16,1827, Reel 18, Vol. 13, pp. 1302-1303.

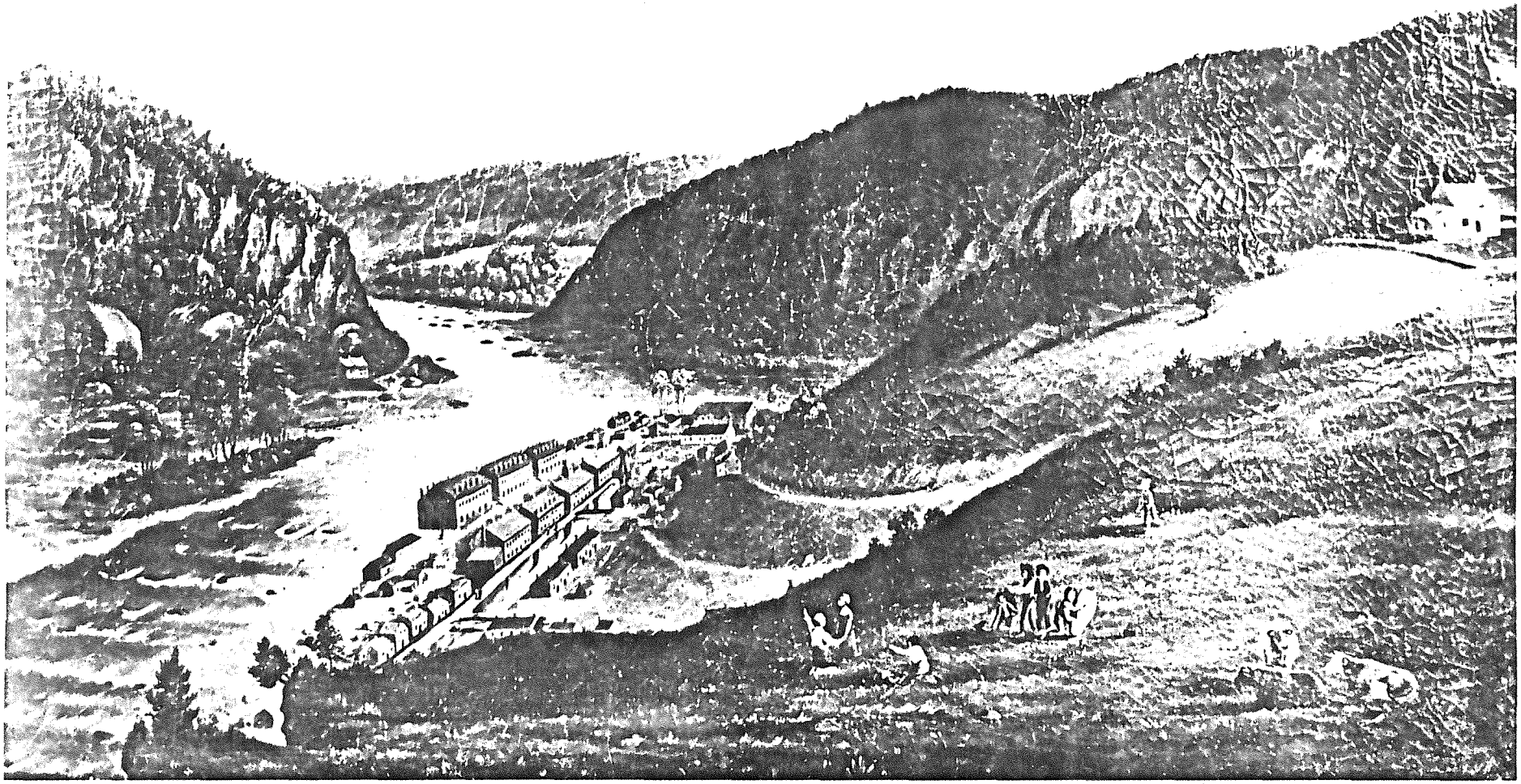


PHOTO NO 2 (Continued)

THE U.S. MUSKET FACTORY AT HARPER'S FERRY,
VIRGINIA, CA. 1826 (HF-628)

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.

The small one and two story structures visible in the distance east or right of Shops 8 and 1 are located on the Wager Ferry Lot Reservation, private property, and consist of shops or stores and a ferry house for the Potomac Ferry. These were all owned by the Wager family.

Small Armory buildings to the west(left) of Armory workshops No. 5 and 6, have not been individually identified, but consisted of such structures as iron store house, one story,wood & stone, 120 by 16 feet; the Charcoal store house, one story, wood, 111 by 30 feet; a proof house, 14 by 12 feet; coal house, 30 by 30 feet; drawing grinding shop, 18 by 18 feet; tempering shop, 25 by 16 feet, a house for the fire engine, 12 by 12 feet, the superintendent's office, two-story, wood, 18 by 18 feet, and a timber shed, one story, wood, 50 by 24 feet, the last item being located either in the Musket Factory yard or the Arsenal Square Yard(Note the large low 1 story building to the left of the Large Arsenal.)

The small one and two story structures on the south(right) side of the U.S. Canal are U.S. Armory dwelling houses in which the Armory workmen lived.

Repairs and Improvements at Arsenal Square, Blocks A and B, Shenandoah Street, 1822-29:

In 1822 a new brick office, one-story, 24 by 18 feet in size, was erected at a cost of $ 500.00 for the use of the Armory Paymaster and Military Storekeeper. The new "Pay Office", as structure was called, was located on Lot No. 2, Block B, Shenandoah Street, fronted on that street, (and stood in front of Park Bldg. No. 36's future site until 1858).[1]

In 1822 a house for storing gunstock was also erected at a cost of $ 1,000.00. One story and built of wood and stone, this store house, on the basis of the 1834 maps, is believed to have been located on Lot 1, Block A, Shenandoah Street: on the east boundary line of Arsenal Square and just north of the Arsenal gate in the east wall.[2]

Probably also standing on Lot 1, Block A., Shenandoah Street, in 1822, along the east Arsenal Square boundary and on the south side of the Arsenal gate, was the "Timber House or Shed". This structure was described on the 1821 inventory of buildings as a one-story wood structure that was 50 feet long and 24 feet wide.

On March 31,1826, Anthony Preston was paid $ 1,407.00 for furnishing the slate and putting on slate roofs on the two Arsenal buildings and one workshop at the musket factory in 1825. Preston slated a total of 134 squares at a charge of $ 10.50 per square.[3]

1. R.G. 217-File6606- Voucher C66- on Dec. 30,1822, the mason Jonah N. Tompkins was paid $ 151.25 for laying brick, 86½ days erecting the Paymaster's new office, the casehardening furnace and making repairs to buildings. F.6606-V. 43. On Dec. 7,1822- Roger Jones was paid $ 39.37 for 22½ days work plastering the new Pay Office and other buildings.

2. R.G. 217- file 6606- Voucher 22- To Edward Harding, November 8,1822- $ 316.50 for mason work:"quarrying, boating, and laying 211 perches of stone in a wall for a stock shed and pointingboth sides of the wall." F.6606- V. 48-Dec. 9,1822- Hardding was paid an additional $ 344.00 for quarrying, boatingm and laying 236 perches of stone in a wall and also 98 perches in another stone wall. What buildings were involved are not specified on the Dec. voucher.

3. R.G. 217- F. 9851- V. 122A.

Also expended in 1826 was $ 172.10 for' building a wall round the Arsenal yard, rough casting, &c." As part of this project, the mason John Lacey was paid $ 79.00 on March 16,1826 " for Laying 138 perches of Stone in a wall enclosing the Arsenal Yard @ 50¢= 69.00 and for "Rough Casting 160 yards on the above @ 6½¢ = $ 10.00."[4] Philip Coons, on March 31,1826, was paid $ 93.12 for"quarrying and delivering 372½ perches of stone for the wall enclosing the Arsenal Yard."[5]

The northeast corner of Arsenal Square, on Lot No. 1, Block A, Shenandoah Street, was occupied in 1826 by a one-story brick dwelling house for an Armory workman. This structure ,measuring 28 by 21 feet in size, fronted on Shenandoah Street . This was probably the home from 1826 to 1832 of armorer James Clark. In 1832 this residence was to be converted into an Office for the use of the Armory Superintendent,[6]

In the spring of 1827 a large flag pole was erected in the Arsenal Yard.[7]

7. R.G. 217- 1st Series, F. 11127- 187B- June 30,1827-Michael Walsh was paid $ 17.18 for mason work which included 13 3/4 perch of stone mason work "for the foundation of flag staff" at Arsenal Square= $ 13.75,plus a charge of $ 3.43 for hauling 3.4 perches of stone for this project. File 11127-V. 172B- William Bowin, June 22,1827, was paid $ 21.87½ for "painting/ Flag Staff in Arsenal enclosure, &c. at 12½¢ a foot. He apparently painted 175 feet.

4. R.G. 217- File 9851- V. 17A.
5. R.G. 217- File 9851- V. 88A.
6. R.G. 217- 2nd Series file 1423. On April 13,1837, James Clark was paid $ 50.00 for improvements he had made to "the house in the Arsenal Square known as the Superintendent's Office, which was yield by Clark for use of the Armory" in 1832. Clark apparently moved into the house about October 1,1825, for he was charged $ 5.00 in rent for that year. In 1827 and 1828 Clark paid rent at the rate mof $ 20.00 per year. For Clark's rent charges, see ASP- MA- IV, p.148.

By 1827 the two arsenals were overcrowed with arms. On March 21, Chief of Ordnance Bomford wrote to Roswell Lee, the acting Superintendent at Harper's Ferry and directed him to remove 20,000 stands of arms from the buildings.[8] In his confidential report on the state of the U.S. Armory, dated November 16,1827, Inspector General John E. Wool noted: " The Arsenal containing nearly or quite 100,000 stand of arms, is similarly (poorly situated), and liable to be destroyed by fire at any moment (being surrounded by small buildings)...[9]

In March 1828, Superintendent James Stubblefield also complained to the Ordnance Department:

> The Arsenals here, have become too crowded - that it is necessary to store some of the arms in small shed buildings etc. Under these circumstances I submit the propriety of issuing proposals for a new contract for transporting some 20 or 25,000 to some other post- Other wise it will be necessary to erect additional buildings.[10]

The situation still had not been corrected by 1829, for in May of that year, Acting Superintendent Roswell Lee also recommended that from 15,000 to 20,000 arms be sent off to other arsenals. In addition, he informed the Chief of Ordnance that so many arms had now been crowed into the two arsenals that they were endangering the floors and also made it impossible to keep the arms in good order.[11]

This overcrowding of the arsenals was probably due to the high cost of transporting arms from isolated Harper's Ferry. The Cheseapeake and Ohio Canal and the Baltimore and Ohio Railroad were not to reach Harper's Ferry from the east until 1833 and 1834. The B & O also did not proceed westward beyond Harper's Ferry until 1842.

8. Bomford to Lee, March 21,1827, Reel 14, V. 6,p.503.
9. Inspector General Wool to Major General Jacob Brown, Nov.16,1827, reel 18, V. 13, p.1302.
10. Stubblefield to Bomford, March 28,1828, Ree; 22, v. 4,p.385/.
11. Lee to Bomford, May 18,1829-Reel 22, Vol. 6, p.573.

In 1829 a total of $ 808.54 was spent making repairs to the two Arsenal buildings. Of this sum $ 578.50 went to John Markell for carpenter work and $ 33.84 to Joseph Spencer for mason work on the Arsenals. Markell began work on the project in November 1828 and continued into December "taking out the old frame and putting in new one at the arsenal at the armory."[12] He continued work on the arsenals, assisted by two journeymen carpenters during January 1829.[13] During February and March 1829 Markell and his crew made 38 window frames, 1,640 lights of new sash, and 37 pair of panelled shutters for the large arsenal, thus suggesting that all[38] of the original windows in the Large Arsenal were replaced at this time and new shutters put up.[14]

Joseph Spencer, a mason, worked on the arsenals in June and July. In June he spent 19 and 3/4 days pointing and repairing the brick work.[15] In August he worked 3½ days doing " mason work- repairing the arsenal windows.[16]

Fire had always been considered a major threat to the arms stored in the two arsenals, hence both had been originally constructed without fireplaces and chimneys to lessen the fire danger. Paymaster Annin had also reported in 1810, with regards to fire fighting capabilities: " Water is conveyed from the forebay of the armory(Musket Factory Bldg. No. 2-our number) by pipes to the yard in front of the arsenals into a large cistern."[17]

17. Annin to the Secretary of War, Henry Dearborn, Oct.10,1810, Reel 18, Vol. 6, p.530.

12. R.G. 217-f.12579- V. 145A- Paid Dec.31,1828-$ 39.00 for 26 days carpenter work during months of Nov. and Dec. at $ 1.50 per days.
13. R.G. 217- f. 12908- V. 36B- paid $ 117.00 for services of the three men on Jan.31,1829.
14. R,G, 217- f.12908-V. 107B, To John Markle(Markell), March 31,1829- paid $ 4,22.50.
15. R.G. 217- F. 13478-V. 189.B- Spencer was apid $ 28.87 on June 23,1829, at the rate of $ 1.50 per day.
16. R.G. 217- F.13626-V. 50A. Aug.29,1829- $ 5.25 for this project.

In 1829 $ 201.78 was spent for boring and laying pipes to convey water to the arsenals so that it would be available for use of the armory fire engines. This work was done by Humphry L. Hughes, who bored 938 feet of timber to make the pipes and also made six hydrants.[18]

Expenditures for Repairs and Improvements at Arsenal Square from 1822 to 1829 were approximately as follows:

Year	Repairs and Improvements	Amount Spent
1822	new Paymaster's Office	$ 500.00
1822	new Store House of Gun Stocks(probably on Square)	$ 1,000.00
1825-6	Roofs of 2 arsenals slated	1,407.00
1827	Stone wall erected around yard, about 510½ perches	172.10
1827	Flag staff erected in arsenal square ,approx.cost	50.00
1829:	Repair of arsenals, new frames, 38 new windows, 37 newpanelled blinds	808.54
1829	938 feet of wooden water pipes and 6 hydrants	201.78
Total:	2 new buildings at cost of $ 1,500.00	$ 4,139.42

18. R.G. 217-f. 13478-V. 245B- paid $ 201.78 on June 30,1829. He charged $ 150.08 for boring the 938 feet of timber and $ 30.00 for making the six hyrdants.

Armory Lumber Yard , Block A, Shenandoah Street:

The Armory Lumber Yard during the years 1822 to 1829 appears to have been located on the bank of the Shenandoah River on the south side of Block A, Arsenal Square. In 1825-26, a total of $ 1,089.80 was spent erecting a stone wall to" enclose the Lumber Yard" and a stonewall "along the Shenandoah and embankments to prevent the river from inundating the lumber yard." $ 350.00 was spent in 1825 and $ 739.80 in 1826.[1] The wall, comprised of 1,227 perches of stone, was erected by the masons Edward Harding and Philip Coons; 2,000 cart loads of gravel were also placed behind the wall.

In June 1827 another 349 cart loads of dirt were used to fill in the lumber yard at a cost of $ 25.37.[2] 193 3/4 cubic yards of earth were placed in the yard at that time.

Armory Stable,Block G, Shenandoah Street:

The Armory stable, a one-story wooden structure, 36 by 24 feet,and valued at $ 250.00 in 1821(see page 124), may have been located on the banks of the Shenandoah River at Block G, Shenandoah Street, during the years 1822 to 1829. A new wood stable was erected in 1828 as a cost of $ 200.00, perhaps to replace the 1821 structure.(A)

1.R.G. 217-1st Series File 9310-Voucher 123A- To Edward Harding, Sept.19, 1825- $ 350.00"for quarrying, hauling, and laying 350 perches of stone in a wall ecnlosing the lumber yard on the side next to Shenandoah." F. 9851- V. 126A- On March 31,1826- Edward Harding was paid $ 341.00 for quarrying, hauling, and laying 341 perches of stone in a wall enclosing the lumber yard. F.9851-V. 88A- To Philip Coons, March 31, 1826 -$ 294.80 for quarrying, haulingm and laying 536 perches of stone in the wall enclosing the lumber yard, plus $ 24.00 for digging out the foundation 192 cubic yards of earth.
Also Coons, $ 80.00 for hauling 2,000 cart loads of gravel to and filling in at lumber yard. Grand total to Coons: $ 398.80.

2. R.G.217- f. 1127- V.190B- To Michael Walsh, June 5,1827-$ 25.37 for hauling 349 loats of dirt to fill in at the lumber yard, for 193 3/4 cubic yards of earth= $ 19.37, for 4 days work with cart,$ 6.00.

(A)On March 8,1825-Lewis Wernwag was paid $71.20 for 44½days carpenter work building a stable for the public horses-F.9057-V.68A.On March 8,1825-John Gust was also paid $ 13.00 for quarrying 52 perches of stone for this stable-F.9057-V. 98A.

Roads, Sidewalks, and Streets, 1827-29:

The first recorded efforts to improve the streets, sidewalks and roads at Harper's Ferry Armory were made in the period 1827-29.

In 1827 $ 1,100.00 was spent "for turnpiking Shenandoah street and paving side walk on Potomac Street(then the main street of the Armory, which ran down the center between the two lines of Musket Factory shops)." The turnpiking of Shenandoah Street, about 78 rods in length was done by John Gust and Patrick Landragen;[1] Michael Cook put gravel on an additional 35 rods of the street.

In 1829 $ 103.83 was spent for "paving footways" to the Musket Factory shops.[2]

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, Landragen, & 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.

In 1827 and in 1829 money was spent building roads on Loudoun Heights on the south side of the Shenandoah River to facilitate the conveying of wood cut on the Armory woodlands down to the Shenandoah Ferry, where it was carried by boat into Harper's Ferry to be used as firewood or charcoal. Expenditures for the wood roads were:

1827:	$ 319.87
1829:	262.12
Total	$ 581.99

[3]

Both of these roads were constructed by John McNulty.

The grand total of Armory expenditures for sidewalks, streets, and roads from 1822 to 1829 came to $ 1,785.82.

3. R.G.217- F. 11127-V. 17A. To John McNulty, July 18,1827 for $ 319.87- for total of"306½ days work by hands making a road on the Loudoun side of the Shenandoah, in order to facilitiate the conveying of wood and charcoal from the public lands to the armory= $ 229.84½ + $90.00 for 2½ months work superintending the above. Total 319.87.
F.13478- V.39B. To John McNulty, May 12,1829-$ 262.12 for work done on Shenandoah Road for conveying wood from Loudoun Heights.

Repairs and Inprovements at the Hall Rifle Works on the Shenandoah, 1822-1829:

As has been mentioned, the manufacturing plant on the Lower Hall Island in 1821 was comprised of four buildings: a one-story brick grinding mill, 85 by 40 feet, dating from 1808-09; a one story brick furnaces and forges, 45 by 45 feet, also dating from 1808-09; a one-story frame machine shop, 50 by 16 feet and altered from a sawmill to a workshop in 1819, and a two story stone smith or forge shop, 30 feet square and erected in 1819. The first-two mentioned workshops were operated by the armory for Musket Factory purposes and the latter two structures formed the manufacturing plant for John H. Hall's Patent Rifle. Also located on the island were approximately three dwelling houses, probably built of stone, erected in 1819-20 for the use of Rifle Factory employees.

a. Repairs and Improvements to the Armory Plant on the Shenandoah:

In 1822 the Armory erected a " House for the storage of stone coal at the works on the Shenandoah" at a cost of $ 200.00.[1] This was probably a small one-story stone building.

In 1824 the Armory constructed a " Store House for bar iron at the works on the works on the Shenandoah" at a cost of $ 500.00.[2] This was a stone building.

2.continued- 71 perhces of stone wall in a "building in May 1824- as follows: F. 8108-V. 3A-May 18,1825-$ 50.00; F. 8108-V.53A-May 28, 1824-$ 21.00. On March 13,1826, the carpenter Samuel Thropp was paid $ 10.00' for fitting up a lodging room for the workmen over the iron house"- 9851- V.5A

1. R.G.-217- 6410- Abstract C, V.27- the mason may have prehaps been Robert Painter,who was paid $ 100.00 on Aug.22,1822 for quarrying , hauling, and laying 80 perches of stone wall in a building.

2. R.G. 217-File. 8108-V. 132A- Michael Walsh was paid $225.00 on June 30, 1824 for quarrying,hauling,and laying 225 perches of stone in"a building for an iron house." He was also paid $ 71.00 for laying 71

In 1827 the armory spent a total of $ 1,500.00 mading an addition to the old brick grinding mill. This construction included the excavation, walling up, and covering of the head race for this shop.[4]

In 1828 the Armory spent $ 333.00, reported to be one-third of the expense of constructing a wooden bridge over an "arm of the Shenandoah."

4. The following men were engaged in building the addition to the grinding mill in 1827:

John Gust:

File	Voucher	Date	Paid	Work done
12013	51A	Nov.3,1827	$ 47.25	For cart and horse, 26 days excavating earth in new head race of new grinding mill.
12013	61A	Nov.7,1827	$ 87.50	, for quarrying, hauling and laying 75 perches of stone for grinding mill.
Edward Harding:				
12013	60A	Nov.7,1827	-$263.00 7.00	for 320 perches and 24 feet of stone laid at the grinding mill and the building for the use of the machinery for halfstocking+ $ 7.00 for quarrying and laying 14 perches of stone for the grinding mill.
Michael Walsh(perhaps):				
11622	157A	Sept.7,1827	$ 63.00	- for mason work, laying 64½ perches of stone wall at the tail race= $ 48,37½+ $ 14.62½ for digging 117 cubic yards of earth at tail race.
Philip Coons:				
12013-	47B	[illegible]	$ 7.50	for use of his cart & horse, removing earth excavated from tail race of new grinding mill.

R.G. 217. The old grinding mill and its new stone addition were turned over to John H. Hall for his use in 1827(see pp.169, 171).

Footnote No. 3 deleted.

Armory Expenditures for new buildings along the Shenandoah, 1822-29

		Expenditure
1821:	4 workshops valued at $ 11,500.00	
1822:	new store house for stone coal, one story, probably stone	$ 200.00
1824	Store House for bar iron, stone building. A lodging room for workmen fitted up on second floor in 1826.	500.00
1827:	Addition, stone wing, with new head race & tail race, added to grinding mill.	1.500.00
1828:	Wooden bridge(one-third cost)	333.00
Total:	two new store houses, plus addition to workshop	$ 2,533.00

Value of Hall Island Plant in 1829: $ 14,033.00.

B. Repairs and Improvements, Captain Hall's Rifle Factory, 1822-29:

Captain John H. Hall's effort to manufacture his patent rife on the Shenandoah from 1819 to 1827 was regard as a purely experimental operation, hence his expenditures for new buildings and millwright work during these years was held to a minum. His total construction program from 1822 through 1826, according to Ordnance Department records, came to only $ 2,856.39. The annual reports to the Ordnance Department for the years 1822 to 1829, however, fail to describe the new buildings, or the erected, improvements and repairs made at the Hall Rifle Factory during this period. Some or most of this missing information can be reconstructed from the Armory Paymaster's vouchers that were issued to pay for this work. This evidence is presented for the years 1822 to 1826 on the charts on pages 165 and 166 of this study.

CONSTRUCTION PROGRAM AT THE HALL RIFLE FACTORY, 1822 to 1826:

R.G. 217: Voucher File	No.	Artisan	Date	Amount	Remarks
7624	50B	Richard Barry	Nov.29 1823	$28.00	For 16 days mason work repairing brick and stone workshops on the Shenandoah.
1824:					
8371	32B	Joel Downey	8/17/24	$ 38.80	10 days carpenter work finishing building for making patent rifl
8371	97A	" "	9/13/24	$ 83.00	for 23 days work-self and 3 journeymen fittingup & repairing building for making rifles.
8371	124A	" "	9/30/24	131.40	4 carpenters " " " ".
8693	25A	" "	10/26/24	111.60	4men on rifle factory shop.
8693	69A	" "	12/18/24	162.20	4 men " " " "
8693	81A	" "	12/31/24	136.60	4 men " " " "
Subtotal		Josel Downey	1824	$ 663.60	Rifle Factory shop.
8693	72A	John McNulty	12/18/24	$328.80	Mason work, for quarrying,hauli and laying 283 perch stone in a wall for forebay & tail race at the building occupied for the manufacture of patent rifle= $ 283.00+ $ 45.80 for removing 229 cubic yards for the pit of the new forebay.
8371	103A	John Lowstetter	Sept.14 1824.	$107.00	Millwright work-for making one shaft 18 ft. long for shop oocupied for making patent rifle= $ 67.00+ $40.00 for making one water wheel 10 ft. in diameter for same shop.
8683	49A	John Lowstetter	12/3/24	$ 208.00	For 103 days work of self and journeymen on workshop of the patent rifle plant.
Subtotal		J. Lowstetter	1824	$ 315.00	
Total 1824:				$ 1,307.40	

1825 File	Voc. No.	Artisan	Date	Amount	Remarks
9057	56A	Joel Downey	3/3/25	$ 94.35	For 13½days carpenter work+ 55½ day work by journeymen on rifle factory shop.
9057	27A	" "	4/19/25	$ 79.20	For 64 days work by 4 men " "
Subtotal		Joel Downey	1825	$ 173.55	
9057	51A	Richard Hurdle	4/20/25	$ 102.75	For carpenter work building a log house for a workman of the rifle factory.
9057	69A	John Lowstetter	3/4/25	$ 172.80	for 108 days work making new machinery in work shop occupied for patent rifles. Millwright.
9057	15A	Philip Strider	3/3/25	$ 31.59	for hauling 31,509 brick from his brick yard to armory for building a workshop for manufacture pat.Rifle.
9057	94A	Michael Walsh	5/13/25	$ 32.25	for laying 60 perches of stone in the foundation of a kilm for steaming rifle stocks & 3 days work digging foundations for same.
9057	54A	John Coulters	3/3/25	$ 19.46	for 9½ days mason work building a kilm for steaming patent rifles.
9310	16A	Patrick Landragon	8/1/25	$ 100.00	For digging a well for use of the works on the Shenandoah.
9310	133A	George Henry	9/28/25	$ 55.00	for laying 27,500 brick in small workshop and two annealing furnanes on the Shenandoah for manufacture of Patent rifle.
Subtotal:			1825:	$ 687.40	
1826: Vouchers for the $ 222.30 work done in 1826 cannot be identified as being done at Rifle Factory. Except: 9851 127A ~~Neal~~ Christy ~~3/31/26 $ 11.12~~					A. For 44½ perches of stone for building a smoke house for Mr.Hall
Total,1822-1826:				$ 2,033.92	

(A) An additional $ 10.10 was paid the mason Horatio Mitchell on August 24,1825 for repairing the plaster and the hearth in the house occupied by John H. Hall, F. 9310- Voucher 50A.

Statement of the Amount expended in the Manufacture of the first and second parcel of Hall's Rifle, from the commencement in 1819, to 1828, when completed

Year	For bldgs., repairs & millwright work	For tools and machinery	for rifles manufacturing	John H. Hall's salary	for patent right payments	TOTAL
1819	$ 3,748.40	987.02	2.402.72	480.00	1,000.00	8,618.14
1820	121.04	5,988.08	4.097.38	320.00		10,926.50
1821	-	3,999.43	2,327.72	720.00		7,047.15
1822	42.18	4,521.15	1,172.96	720.00		6,456.29
1823	37.44	5,500.10	3,492.04	720.00		9,749.58
1824	1,518.66	11,744.77	5,466.57	720.00		19,450.00
1825	1,035.81	13,892.82	3,251.37	720.00	1,000.00	19,900.00
1826	222.30	7,531.10	3,76160	720.00		12,255.00
1827	-	-	5,221.34	200.00		5,421.34
1828	-	-	1,084.33	-		1,084.33
TOTAL	6,725.83	54,164.47	32,278.03	5,720.00	2,000.00	100,888.33
Personal service of J.H.Hall	-	2,912.35	2,807.65	-	-	-
Total	6,725.83	57,076.82	35,085.68	-	2,000.00	100,888.33

Source: National Archives Record Group No. 156=Entry 935- National Armory Accounts, 1795-1829.

An analysis of vouchers presented on pages 165-66 reveals that in 1824 John H. Hall's machine shop, a one-story frame structure,50 by 16 feet in size, with a 12 foot in diameter water, was extensively repaired and enlarged during the period August to December 1825 at a cost of approximately $ 1,307.40.

The enlarged machine shop was provided with a new forebay, with 229 cubic yards being removed from its pit and 283 perches of stone wall being laid in its forebay and tail race. A second water wheel, 10 feet in diameter, was apparently installed in the addition to the machine shop. Work on Hall's one water shop continued to mid April 1825 so that the total cost of improving his machine shop came to about $ 1,653.75 and was spent for the following services:

Hall's Machine Shop Improvements,1824-25

Services	Cost
Carpenter work	837.15
Mason Work:	328.80
Millwright work:	487.80
Total:	$ 1,653.75

Additional money was undoubtedly spent to shingle or slate the roof of the addition, but the vouchers paying for this type of work do not identify the structures being worked on.

By May 1825 a small kilm had been erected on the Hall Island at a cost of approximately $ 51.71 for the purchase of steaming rifle stocks that were to be used in the production of Hall's Patent Rifle.

In August 1825 a well was sunk at the rifle factory at a cost of $ 100.00. In September 1825 27,500 brick were laid in the construction of small brick workshop and two annealing furnac es for the use of

John J. Hall. Identified cost vouchers for the three brick structures totaled $ 86.59 and National Armory Accounts indicate that no more than an additional $ 302.03 was spent, probably on this small brick workshop, during the 1825 year. A fourth dwelling house for a Hall workman was also erected in 1825 at a cost of more than $ 102.75.

In 1827 Hall's experimental status changed dramatically: In that year his patent rifle passed a series of extensive tests by the Ordnance Department with flying colors. The United States, accordingly, entered into a new contract with Hall; a greater number of his rifles were to be produced and therefore his plant of three workshops, a kilm, and two annealing furnaces had to be expanded in order to increase production.

Colonel George Bomford notified Acting Superintendent Roswell Lee of these decisions on March 16, 1827, writing:

> It has been determined to proceed with the manufacture of Hall's rifles and upon a more extensive scale than hithertofore. It is proposed that the operations connected with fabrication of these rifles shall be predicated upon a scale that will be equal to the annual fabrication of about three thousand.....
>
> To meet these objects the following outline is suggested;as the course most likely to answer the ends in view. First that adequate shop room be set apart for the fabrication of rifles the control of which is to be vested in Mr. Hall. Any extensions or repairs of building is however to be first approved by the Supt. and the work to be executed under his direction." 4

The Chief of Ordnance further directed Supt. Lee to turn all of the old Armory grinding mill on the Hall Island over to Hall for the inventor's use and to abso provide an additional smith shop large enough to house four fires and forges. Lee was to construct such a one-story shop if no smith shop was available.[5]

4. Bomford to Lee, March 16,1827- Reel 14, V. 4,p.498.
5. Ibid.

On June 14,1827, Supt. Lee informed Col. Bomford that a one-story smith shop for four forges, 35 feet square, and also a new trip hammer shop, one-story, and 45 feet square, were in the process of being constructed at the Rifle Factory for the use of John H. Hall.[6]

National Armory Accounts for the years 1827 to 1829 show the following expenditures for repairs and improvements at the Rifle Factory (exclusive of Armory or Musket Factory) Accounts:

Year	Expenditure (7)
1827	$ 5,751.00
1828	$ 5,665.93
1829	$ 3,425.96
Total:	$ 14,842.89

With total of $ 2,856.39 that had been expended during the years 1822-26 included, the grand total of expenditures for repairs and improvement at the Hall Rifle Factory, 1822-29 came to $ 17,699.28.

Total expenditures for these purposed from 1819 to 1829 came to about $ 21,560.72. With the Armory expenditures of $ 2,533.00 for repairs and improvements included(exclusive of Hall's items), the grand total spent for repair and improvements on the Hall Island from 1822 to 1829 came to at least $ 20,232.28

6. Lee to Bomford, June 14,1827,Reel 22, Vol.1, p.62.
7. National Armory Account, Entry 935, National Archives Record Group 156.

Construction at the Hall Rifle Factory, 1827-29.

The Annual Reports of Armory Operations for the period 1827-29 fail to describe the repairs and improvements that were being made at the Rifle Factory plant and it is again necessary to turn to the vouchers of the Armory Paymaster to discover this type of information.

On April 23,1827, John H. Hall and Lewis Wernwag entered into an contract under which Wernwag was to do millwright work and erect buildings for Hall on the Lower Hall Island. Wernwag, who described himself as "a Bridge Builder", owned a machine shop and saw mill located on the Island of Virginius, and also did carpenter, mason, and millwright work. Under the April agreement, Wernwag was to do the millwright work on the new addition being made to grinding mill by the armory for the use of Hall(see page 163- the cost of construction of this stone addition came to $ 1,500.00). Wernwag was to make a shaft 18 feet in length and 23 inches in diameter for $ 40.00, also a water wheel of 10 feet in diameter with seven feet 1 ength of bucket, a cogwheel, head blocks, spurs, forebay, shute, and gates for the addition.[1] The bridge builder completed this phase of his contract, namely" erecting the new water wheel, forebay and necessary fixtures for new mill shop of John H. Hall" and was paid $ 336.00 under the terms of the agreement.[2]

1. A copy of this agreement is in R.G. 217- 2nd Auditor's Account, 1st Series, File 12013.
2. R.G. 217- File 12013- Voucher 16A, dated October 18,1827.

In the April 23,1827 agreement, Wernwager further engaged "to furnish the Masonry for a Smith Shop, for the U. States, and for a Store House for the Same at $ 1.25 per perch, providing all the Materials at his own expense, Stones, Lime, Sand, &c. - laying the whole in Mortar and pointing the same..."[3] Wernwag began construction in early May and by the 26th of that month had completed the crib for the foundation of a smiths shop that was to be 35 feet square.[4] He erected approximately 481 perches of stone masonry wall in this work shop and was paid about $ 965.04[5] for his work on this structure. The total value of his work for Hall during 1827, including the millwright work on the grinding shop, came to $ 1,435.33. On October 24,1827, William Bayley was paid $ 194.25 for slating the roof of the new smiths shop, 18½ squares of slate.[6] The four chimneys for the four forges in the smiths shop were constructed by George Randall in September at a cost of $ 60.00.[7] The carpenter work on the smiths shop and also the store house for coal was performed by Michael Foley, who was paid a grand total of $ 370.00 for his work.[8] Charging $ 185.00, half his work to the smiths shop, the approximate total cost of this work shop would appear to be about $ 1,404.29.

Apparently Wernwag was unable to construct the storehouse for coal and was released from the terms of the agreement . The mason Edward Harding was paid $ 285.78 for laying about 506 perches of mortar stone walls for the store house for coal.[9] Michael Foley did the carpenter work on the

3. R.G. 217- File 12013- p.3 of contract.
4. f.11622- 26A.
5. See Chart A, Wernwag, files 11127-88B to 11622-201A inclusive.
6. Ibid., Chart A- F. 12013-V.26A.
7. File 11622 -V.200A- Sept. 29,1827.
8. Chart A.
9. Chart A- see Edward Harding.

store house for about $ 185.00 . William Bayley was paid $ 185.85 on August 14, 1827 for slating the roof of the new storehouse for coal, 17 7/10 squares of slate.[10] Cost of the new coal house, exclusive of the price of the stone, came to about $ 656.63.

John H. Hall also received permission to erect a dwelling house for his own use in 1827.[11] Work on this project apparently got underway in October and November, after the construction of the other new buildings had been completed. Patrick Redman and mason George Randall were paid a total of $ 178.30 for excavating 189 cubic yards and laying 83½ perches of stone wall in the foundations of Hall's new dwelling in the fall of 1827.[12]

Of the total of $ 5,751.00 reported expended for repairs and improvements at the Rifle Factory by Hall in 1827, vouchers for labor and the services of artisans came to $ 3,171.38 and those for materials totaled $ 1,711.52(See Charts A and B), leaving only about $ 868.09 not accounted for in the vouchers checked.

The Paymaster's vouchers for the 1st and 2nd quarters of 1828 are missing from the National Archives files. Of the $ 5,665.93 reported expended during 1828 for repair and construction, only $ 598.15 was spent during the 3rd and 4th quarters of that year(See Chart C, p.177). Hall's new house was largely completed during 1828; the 45 foot square tilt hammer shop, proposed in 1827, may also have been erected in 1828. In December a belfrey was erected on the roof of one of Hall's 1808-09 Grinding Mill to call his employees to work.[13] Four squares of the roof of the " Drilling and Boring

10. File 11622-V. 59A.
11. File 11622-V. 34A- On a voucher dated July 30,1827- for 3,206 feet of timber at $ 48.09 for Hall, the Armory Paymaster had noted: Mr. John H. Hall has a special authorization to put up for himself a dwelling house for his own use."
12. File 12013- V.9A to Redman, and F. 12013-V.148 to Randall, see Chart A.
13. File 12579-V. 28A, Dec. 19,1828- To John Markell, $ 82.24.

Expenditures at the Rifle Factory for Services and Labor for Construction of Storehouses and Work Shops, 1827 : R.G. 217

File No.	Voucher No.	Artisan	Date	Amount	Remarks
11127	169B	Michael Foley	6/22/27	$ 50.00	for carpenter work on new buildings for J.H. Hall.
11622	62	" "	8/11/27	200.00	carpenter work on Hall's new Store House & Smiths Shop.
11622	164A	" " "	9/12/27	50.00	" " " "
12013	18A	" "	12/20/27	70.00	" " " "
Subtotal:		Michael Foley	1827	$370.00	Store House & Smiths Shop
12013	19A	Michael Cook	10/27/27	$ 57.75	For use of Cart & horse for 38½ days at Rifle Works.
11127	41A	Edward Harding	5/5/27	$ 50.00	for laying 100 perches of stone wall in Hall's new store house, Rifle Factory.
11127	91A	" "	5/22/27	$ 127.37	For laying 254 3/4 perches of stone wall.
11117	152B	" "	6/15/27	75.62	for 151¼ perches of stone wo
11622	18A	" "	7/19/27	32.79	for erectin the ____waklie(/ cornice for a new store hous for coal for J.H. Hall.
Subtotal:		Edward Harding	1827	$ 285.78	Store House for Coal
11622	74B	John McNulty	8/16/27	$ 3.00	for 3 days of mason work at furnace.
11622	199A	" "	9/30/27	20.06	Mason work, 57 1/3 perches stone wall laid for Hall.
11622	219A	" "	9/29/27	$ 200.29	For 129 perches stone wall for $ 193.50; for 7 7/8 pr. of stone=$ 1.78+ 17 1/3 perch of stone for $ 5.01. For J. H. Hall.
12013	12A	" "	11/14/27	35.20	For repairing stone wall at tail race, mason work.
Subtotal:		John McNulty	1827	$ 258.55	186 1/3 perch stone wall + 25 perches of stone.
11127	203A	George Randall	6/30/27	$ 69.00	for 3 masons erecting stone walls for Hall's smith shop
11622	183A	" "	9/15/27	$ 63.25	For 193 perch dry wall @$48.. + $15.00 for 45 perch morta wall for Hall.
11622	200A	" "	9/29/27	$ 60.00	For erecting four chimneys f Hall's(smith shop with four forges).
12013	148	" "	10/18.27	$ 114.93	For 83½ perches of stone wal 8 stone steps, for addition J.H. Hall's dwelling house.
Subtotal:		George Randall	1827	$ 307.18	Smiths Shop & Dwelling
11622	53A	Michael Morgan	8/14/27	?	Mason work, 70 feet of cornic for use of John H. Hall.
12013	9A	Patrick Redman	11/ 10/27	$ 63.37	Digging 189 cubic yards, quarry ing 83½ perch stone, 5 stone steps on foundation of add- ition to J.H.Hall"s house.

chart A

Expenditures at the Rifle Factory for Services and Labor to Construct Stores Houses and Work Shops for J.H. Hall,1827.

File No.	Vouch. No.	Artisan	Date	Amount	Remarks
11622	59A	William Bayley	8/14/27	$ 185.85	For slating new store house of John H. Hall, 17 7/10 square of slate.
12013	26A	" "	10/24/27	$ 194.25	For slating new(Smiths)shop of J.H. Hall, 18½ squares.
Subtotal:		William Bayley	1827	$ 380.10	Coal House & Smiths Shop.
11127	39A	Lewis Wernwag	5/5/27	$ 134.49	For 145 perch.stone wall= $ 108.75; 45 3/4 perch.wall for $ 22.87+ $ 2.87 for 23 cubic yds.of filling,for John H. Hall.
11127	88B	" "	5/21/27	$ 135.52	For 342 2/3 yds excation and 27½ perch of stone wall
11127	104A	" "	5/26/27	$ 79.05	For making crib for foundation of Smiths Shop 35 feet square at Hall's works.
11622	26A	" "	7/26/27	$ 251.75	For 207 perches stone wall in smiths shop at $ 191.75+ $ 60.00 for excavation for same.
11622	103A	" "	8/22/27	$ 263.75	For laying 211 perch of sto wall for use of J.H.Hall.
11622	159A	" "	9/7/27	$ 64.40	For 35½ perch of stone work for new Hall workshop.
11622	201A	" "	9/29/27	$ 170.57	For plaster & stone work fo John H. Hall.
12013	16A	" "	10/18/27	$ 336.00	For erecting new water whee forebay and necessary fixtures for new mill shop of John H. Hall,under contract
Subtotal		Lewis Wernwag	1827	$ 1,435.33	Smith Shop & Grinding Mill
TOTAL: SERVICES AND LABOR			1827	$ 3,171.38	Coal House, Smiths Shop, Grinding Mill-, Addition to Hall's Dwelling House.
For Building Materials			1827:	$ 1,711.53	
GRAND TOTAL:			1827	$ 4,882.91	

CHART B

EXPENDITURES FOR BUILDING MATERIALS TO BE USED AT HALL"S RIFLE FACTORY in 1827 R.G. 217

File No.	Voucher No.	Purchased From	Date	Amount	Material and Remarks
11622	40A	John E Palmer	8/3/27	$ 36.97	5,252 brick .
11622	156A	" " "	9/7/27	$ 35.00	5,000 brick.
11622	216A	John E. Daley	9/27/27	$ 44.15	4,850 brick
Subtotal: Brick			1827	$ 116.12	15,102 brick
11622	216A	John E. Daley	9/27/27	230.57	Other materials
11127	19A	Joseph B. Dust	7/19/27	16.00	80 bushels of lime.
Lumber:					
11622	110A	Philip Coons	8/27/27	78.15	5,210 ft.pine board.
11622	135A	Abraham Kline	9/3/27	64.45	5,156 ft. 1 inch pine pla
11622	134A	Lewis Wernwag	8/30/27	48.09	3,206 feet of timber & scantingly.
11622	45A	Lewis Wernwag	9/7/27	72.05	4,649 ft,of rafters,joist griders.
Lumber:				$ 262.74	18,221 feet
Stone, timber, scantling:					
11127	116A	Lewis Wernwag	5/10/27	$ 159.34	160 perch stone & timber.
11127	175A	Lewis Wernwag	6/23/27	$ 238.96	175½ perch ston & scantli
11622	185A	Lewis Wernwag	9/15/27	$ 144.75	quarrying & delievering 193 perches of stone.
Stone and scantling:				$ 543.05	528½ perches
Total for Building materials:			1827	$ 1,711.53	

CHART C

Expenditures for Services and Labor for the Construction of Buildings and the Rifle Factory, 1828 : R.G. 217:

File No.	Vouch. No.	Artisan	Date	Amount	Remarks
Records for the 1st and 2nd Quarters of 1828 are missing;					
12579	43A	Michael Foley	11/1528	$ 72.55	For 66 days carpenter work & making 1 venetian door, John H. Hall's dwelling house.
12579	106B	Philip Coons	12/9/28	$ 19.46	For use of cart & horse in hauling sand, water, and brick to dwellingof John H. Hall.
12579	62A	John E. Palmer	11/24/28	$ 21.00	$ 10.50 for 1,500 bricks; $9.50 For 9 days laying same at Hall' dwelling house.
12579	122A	Lewis Wernwag	12/12/28	$ 163.90	For 1,820 feet of lumber for us at the rifle factory.
12579	111B	Isaac Marge	12/12/28	$ 49.00	For 24½ days work make forebay, shute and gate at rifle factory
12579	60A	Henry Hay	11/21/28	$ 16.04	For glazing 165 lights of sash at John H. Hall's house.
12579	59A	James Gallaher	11/21/28	$ 50.00	For plastering 400 square yards 2 coats, at J.H. Hall's House.
12579	136A	James Steele	12/24/28	$ 42.00	For slating 4 squares of roof o the Drilling and Boring Shop at the rifle factory.
12579	83,84,85,86,and 112A		12/4 and 12/28	$ 82.26	For transportation of 1,809 lbs of slate from Georgetown, D.C. to Rifle Factory.
12579	28A	John Markell	12/19/28	$ 82.24	For furnishing materials & erecting a belfrey as per agreement at rifle factory=$ 80.00+ $ 2.24 for 2 days carpenter wor
TOTAL, 3rd and 4th Quarters of 1828:				$ 598.15	Hall's Dwelling, Bell shop, &c.

Shop" were slated in 1828.[14] What new shops, if any, may have been erected during the 1st and 2nd quarter of the year is not known.

During 1829, a total of $ 3,425.96 was reported as having been spent for repair and improvements at the Rifle Factory. The Paymaster's vouchers for labor and the services of artisans in 1829 at the Hall plant total $ 1,088.32 (See Chart D, p.179) and reveal that no new buildings were erected for Hall during that year. Slating was a major item, $ 608.96 was expended for slating 55 36/100 squares of rifle factory roofs.[15] Making 23 pair of blinds, 20 for the workshops and 3 for his residence, cost another $ 121.50.[16]

Also built during this period, probably in 1828, were 2 more houses for the use of Hall's workmen, so that the Captain and his employees occupied a total of seven dwelling houses.

The workshops and storehouses located on the Lower Hall Island in 1829 probably numbered about 19 buildings. These included:

1. The Tilt Hammer Shop, 45 by 45 feet, brick, built 1808-09, used by Armory. (Probably Hall's Shop No. 7 in 1831).
2. A coal House, erected in 1822, used by the Armory. Cost $ 200.00.
3. A store house for Iron, erected in 1824, cost $ 500.00 and used by the Armory.

John H. Hall's Workshops

4. Machine Shop (altered from sawmill in 1819) greatly enlarged and improved, in 1824 at cost of about $ 1,653.75. Shop had two water wheels after 1824, one 12 foot and one 10 foot wheels. Frame building. (This was probably Hall's Shop No. 1., in 1831).
5. Smiths Shop, two story stone, 30 by 30 feet, erected in 1819. (Probably Shop No. 2 at the Hall's Works.in 1831).

14. File 12579-V. 136A, to James Steele, see Chart C.
15. File 12908-V. 32B, To William Bayley, Jan.1,1829-Chart D.
16. File 13478- V. 47A and 165B, to James Foley-see Chart D.

CHART D

Expenditures for Serviess and Labor to exect Buildings at the Hall Rifle Factory in 1829: R.G. 217-

File No.	Vouc No.	Artisan	Date	Amount	Remarks
12908	87A	John E Palmer	3/31/29	$ 28.00	For 4,000 brick for the rifle factory.
13478	33A	Jonathan Painter	4/30/29	$ 42.40	Mason work, laying 60 perch of stone wall at Hall's rifle factory.
13478	72B	Isaac Marge	5/9/29	$ 136.40	For carpenter work at rifle factory= making a tight trunk for conveying water to machinery. Turnk 3 feet square and 84 feet long.
12908	15A	James Gallaher	1/15/29	$ 74.92	For plastering 599½ square yards at house of John H. Hall and rifle factory buildings.
12908	32B	William Bayley	1/29/29	$ 608.96	Furnishing slating and slating 55 36/100 squares of roof at rifle factory.
13478	47A	James Foley	5/5/29	$ 75.00	Carpenter work, making blinds for us at Hall Rifle Factory: 17 paid blinds, 15 lights each=$68.0 1 pair blinds, 12 lights 3.50 2 pair blinds, 4 lights each 3.50
13478	165B	" "	6/12/29	$ 46.50	Carpenter work on John H. Hall's House: 1 pair blinds with 15 lights @ $ 4.00; 2 pair blinds with 2 lig @ 6.00; put lights in garret window-.50; make 6 tool cases= $36.00.
Subtotal:		James Foley	1829	$ 121.50	
13626	3A	Henry Hay	7/18/29	$ 61.13	Painting at the rifle factory.
13626	21A	Lewis Wernwag	8/18/29	$ 15.00	For making a road running from the rifle works up the Camp Hill for use of employees of works, 15 days work.
TOTAL:			1829	$ 1,088.32	

6. Grinding Mill(erected 1808-09, one story brick, 85 by 40 feet,)

Structure turned over for Hall's use in 1827 and greatly enlarged at a cost of $ 1,500.00. A second water wheel, 10 feet diameter, placed in addition in 1827 at cost of $ 336.00. (Probably shop No. 5 in 1831).

A belfrey added to the roof in 1828.

7. Kilm for steaming rifle stocks, stone, erected in 1825.
8. Small brick workshop, built in 1825. (Probably Shop No. 3 in 1831).
9. Brick annealing furnace, 1825.
10. Annealing furnace, 1825.
11. Smith Shop with four forges, one story,stone, 35 by 35 feet, erected in 1827 at cost of some $ 1,400.00. (Probably Shop No. 4 in 1831)
12. Store for coal, built 1827, stone, cost about $ 700.00.
13. Probably Tilt Hammer Shop, 1 story, 45 by 45 feet, stone-probably built in 1828. (Probably shop No. 6 in 1831).
14. Stone dwelling house, built 1819 (Probably House No. 13 in 1831).
15. Stone dwelling house, built 1819 (probably House No. 14 in 1831)
16. Stone dwelling house, built 1819 (Probably House No. 15 in 1831)
17. log dwelling house built on 1825 (Probably House No. 16 in 1831)
18. dwelling house, probably built in 1828 (Probably Hpuse No. 17 in 1831).
19 dwelling house, probably built in 1828.

A larger and better dwelling house, located on Camp Hill, was built for the use of Captain John H. Hall in 1827-28.

The total number buildings standing on the Lower Hall Island in 1829 did not exceed 19 small structures.

EXPENDITURES FOR REPAIRS AND IMPROVEMENTS AT THE HALL RIFLE
1822 to 1829, and also by Armory for its Buildings on the Hall Island

	RIFLE FACTORY						ARMORY			TOTAL
Year	New Bldgs.	Cost	Wells	Bridge	Repair	R.F. Total	New Bldgs.	Cost	Bridge	Grand Total R.F.& Armor
1822	0	0	0	0	$ 42.18	$ 42.18	1	$ 200.00	-	$ 242.18
1823	0	0	0	0	37.44	37.44	1	$500.00	-	537.44
1824	0	1,307.16	0	0	211.26	1,518.66	0	0	-	1,518.66
1825	5	587.65	100.00	0	384.41	1,035.81	0	0	-	1,035.81
1826	0	11.12	0	0	211.18	222.30	0	0	-	222.30
1827	2	3,161.38	0	0	868.09	5,751.00	add.	1,500.00	-	7,251.00
1828	1		0	667.00		5,665.93	0	0	333.00	5,998.93
1829	0		0	0		3,425.96	0	0	-	3,425.96
TOTAL	8	5,067.31	100.00	667.00	1,754.47	$ 17,699.28	2	2,200.00	333.00	$ 20,232.28

Cost of Bridge to Island, 1828: $ 1,000.00.
Cost of Well on Island: $ 100.00.

1822- Coal House for Armory
1823- Iron storehouse for Armory
1824- Large addition to John H.Hall's machine shop.
1825- Kilm for steaming rifle stocks., Rifle Factory.
1825 Two brick annealing furnaces, Rifle Factory
1825- small brick work shop for rifle factory.
1825- log dwelling house for Hall workman.
1827- large addition to grinding mill by Armory.(To be turned over to Hall).
1827- Smith shop for rifle factory.
1827- Coal House for riflr factory.
1827- Hall's machinery for addition to grinding mill.
1828- Tilt Hammer shop for rifle factory.
1828 -possibly two new dwelling houses erected for Hall Workmen, making total of seven for Hall and his men.

180A

Canals :

A. The U.S. Musket Factory Canal on the Potomac:

The completion of the third in the series of dams on the Potomac River in 1820-21 provided the additional supply of water for the water wheels of the U.S. Musket Factory as had been hoped for, but this in turn produced a new problem: the old Potomac Canal proved to be too small to handle the increased flow of water! On August 2,1821, Superintendent James Stubblefield wrote that the banks of the U.S. Potomac canal were not strong enough to bear the weight of the additional water being brought in by the new dam and also that the existing walls were not high enough to keep the waters from overflowing.[1] On May 15, 1822, the Superintendent submitted an estimateof $ 2,500 to complete building a new wall to keep the Potomac Canal waters in their channel.[2]

Work on constructing this new stone wall along the Potomac was underway in early June 1822 with three masons, Edward Cotter, John Lowstetter, and John McNulty, working on the project. They erected 835 perches of stone wall and 6,785 square yards of stone masonry wall during the year and the total cost was $ 2,434.75.(See Chart E).[3] Stubblefield described improved canal wall on November 12,1822, writing:

"...we have a Canal a mile and quarter in length the greater part of which is cut through solid rock. & a stone wall is now built the whole length for the support of the Bank averaging about 10 feet in height...."[4]

2. Reel 21, V. 6,p.545.
3. Total cost from Record Group 156- National Armory Accounts for 1822, Entry 935.
4. Reel 21, V. 6, p.570

1. Harpers Ferry National Historical Park Microfilm Reel 21, V.5, p.441.

New Walls for the Potomac Canal, 1822

File No.	Voucher No.	Mason	Paid	Date	Work Done
6274	49C	Edward Cotter	$ 39.00	June 3,1822	Laying 130 perches of stone wall,canal bank.
6274	78C	Edward Cotter	$ 43.50	June 29,1822	Lay 145 perches of Stone wall, canal bank
Subtotal-		Edward Cotter	$ 82.50	June 1822	275 perches stone wal
6274	84C	John McNulty	$ 898.00	June 29,1822	560 perches of stone wall=$ 448.00=+ filling in bank of canal with clay for 300 yards= $ 450.00
6606	72C	John McNulty	$1,075.55	Dec.31,1822	6785 square yards of masonry wall, includin digging foundations= $ 1,017.75;for quarrying 228 perches of sto for making wall along canal= $ 57.80
Subtotal		John McNulty	$1,973.55	1822	560 perches stone wall+ 6785 sq.yrds,masonry wa
6724	69C	John Lowstetter	$200.00	June 27,1822	Filling in wall with cl and completely walls of lock gates at head of canal.
TOTAL:			$ 2,256.05	1822	835 perches stone wall- 6,785 sq. yds,masonry wall.
Sum not account for above			$ 178.70	1822	
Reported Total cost of project:			$ 2,434.75		

of $ 521.50
In 1825 the Armory spent a total/repairing dams and canals on the
Potomac and Shenandoah.[5] The Paymaster's vouchers indicate that $ 391.50,
of this total was spent on the Shenandoah, thus leaving a balance of $ 130.00
for work done on the Potomac dam and canal.[6]

5. National Armory Accounts for 1825.

6. R.G. 217-file 9310,V. 21A and 122A, total $ 391.50 for work on the Shenandoah canal and dam.

In the Spring of 1826 $ 15.00 was expended "blasting rocks at the head of the Potomac Canal" in order to remove obstructions that were blocking the flow of water[7]. In addition, $ 151.74 spent to have 172 perches of stone wall laid"at the lock of Maryland (or Potomac Company) Canal."[8] In August 1827 Thomas Keyes was paid $ 18.00 for clearing obstructions from the Potomac Canal.[9] Also in 1827, $ 100.00 was spent for " Improvements on Potomac Dam, at the head of (the Potomac Company"s) Navigation Canal" on the Maryland side of the Potomac.[10]

The total of $ 251.74 spent on the Potomac Company' Canal in Maryland in 1826-27 was done to ensure an adequate supply of water for the U.S. Musket Factory shops in Virginia during period of low water. Superintendent Stubblefield explained on June 14,1826:

> The prevailing drought has caused an unusual scarcity of water in our (Armory) Canal, and which can be remedied only, by fixing a lock gate in the canal on the opposite side of the river (in maryland). This Canal was made by the Potomack Company and commences opposite the basin at the head of our canal & the rocks above the basin are so situated as to cause the current of the water, when the river is low, to incline to the Maryland shore, and pass off through the Companies Canal. I have often been compelled during the summer season to make a temporary dam in this canal; but that is attended with trouble and expence, as the dam would have to be removed to let the boats pass. which frequently occurred during the last season. I coversed with Col. Mason on the subject last fall and believe there will be no difficulty in obtaining permission from the Company to erect the Lock Gate. He informed me that they contemplated employing a toll gatherer at their place who for a moderate compensation would attend to opening the gate for the passage of boats, as it would be unnecessary to keep the gate closed for more than about three months in each year.
>
> The expence of making & puting in the Lock Gate would not exceed on hundred Dollars; and if you will have the goodiness to confer with Genl. Mason and obtain the privilege from the Directors, it will bea great service to this establishment..[11]

7. National Armory Accounts for 1826. The blasting was done by William McCobb in March and April 1826-R.G. 217-File 9851-V. 20A-to McCobb for $ 10.00, March 17,1826, and F. 10053-V. 9A- to McCobb on April 27,1826, for $ 5.00.
8. National Armory Accounts for 1826.
9. R.G. 217-F. 11622-V. 214B, Aug. 30,1827, to Keyes for $ 18.00.
10. National Armory Accounts for 1827.
11. Reel 21, V. 9, p.935-936.

Chief of Ordnance, George Bomford, responding on June 22, sent a copy of a Potomac Company board of Director's resolution granting permission to the United States to erect the proposed lock gate and Bomford also gave Stubblefield[12] permission to construct the gate. By the end of 1827, however, the Canal Company had changed its mind on the 1826 gate that the Armory had built to its canal. Bomford now informed Stubblefield:

> I have been informed by the Treasurer of the Potomac company, the the Lock Gate fixed in their canal at Harper's Ferry under the resolution of the Board of Directors (of June 1826) ... has been complained of by the Boatmen navigating the Potomac, has rendered the navigation round the falls very dangerous & difficult; and that it is the wish of company, that measures be adopted to remedy the evils complained of.....
>
> You will therefore proceed to do so, either by altering the gate, or by taking it way, if the object can not be otherwise effected.[13]

On February 29, 1828, Superintendent Stubblefield submitted to the Ordnance Departmenta plan to correct the situation at the Potomac Company lock gate that had been prepared by Thomas Keyes, Jr., of Harper's Ferry; the estimated cost of this work was $ 300.00.[14] The plan was adopted and on March 22,1829, Thomas Keyes,Jr. was paid a total of $ 200.00" for erecting gates &C. at the head of the Potomac Navaigation Company Canal (on the Maryland side) opposite the armory for the purpose of throwing a necessary supply of water into the Armory Canal."[15] Keyes' alteration appears to have corrected the situation for there is no further mention of this problem in the Armory records. Total cost of the Potomac Canal Company Lock Gate project from 1826 to 1829 thus came to $ 451.74

12. Ibid.,
13. Reel 14, V.6, p.543.
14. Reel 22, V. 4, 387.
15. R.G. 217- F. 12908-Voucher 112A.

Returning to the U.S. Armory Canal on the Virginia side of the Potomac, we have seen how the Armory spent a total of $ 2,434.75 in 1822 to erect a stone wall about 10 feet high and about one and one-quarters miles long along the outer or northern bank of the canal in order to increase the flow of water to the Musket Factory shops and to keep the water from overflowi the river banks. On January 7,1828 Superintendent Stubblefield submitted a plan and a request for $ 2,000.00 to deepen and widen the Armory Potomac Canal by raising the height of the inner bank and erecting a stone wall on the inner bank side of the canal. The inner stone wall, about five feet and 18 inches thick above ground, high, would prevent the canal from overflowing the roads along the inner bank and increase the flow of water that the canal could carry.

On May 23.1828, in his final plan for the canal, Stubblefield wrote: ...Along the bank of the Canal it will be necessary to sink the foundation about two feet and raise it five feet above the top of the bank. The foundation will be two feet thick- the rest of the wall eighteen inches. The wall will continue along the Canal bank until it joins a wall already built on that part of the U.S. lands situated above the Six Acre lot - and on the same side of the canal- which of course will supersede(sic) the necessity of running it off to the Charlestown road..." [16]

This plan was approved by the Ordnance Department and on July 22, 1828, Acting Superintendent Lieut. John Symington reported that he had issued proposals for bids to construct the canal walls. [17]

16. Reel 22, Vol. 4, p.353-354. In 1828-29 a total of $ 391.50 was spent building a stone partition wall along the southern edge of the Armory canal as it passed through the Wager Six Acre Reservation property. See pages 145-146 of this text.

17. Reel 22, V. 7,p.853.

The National Armory Report for 1828 indicates that a total of $ 5,500.00 was spent during that year for "Repairing the old and erecting in part a new dam on the Potomac river, repairing and widening the Potomac Canal, and erecting guard gates &c. for the same." The Paymaster's vouchersfor the 3rd and 4th Quarters of 1828, however, reveal that only $ 336.50 of the $ 5,500 total, went for work on the Canal, the balance of approximately $ 5,163.50, accordingly , must have gone for work on the dam.

As to work on the canal in 1828, during November of that year, the mason John Johnson was paid $ 200.00 for quarrying, hauling, and laying 200 perches of stone wall "at the lock walls at the head of the Potomac Canal, and carpenter Francis O'Neal received $ 136.75 for"erecting a guard and waste gate at the Potomac Canal and dam."[18]

Six masons: George W. Bond, James Daughtery, Johnson Garrett, John Gust, Edward Harding, and John Johnson, and one carpenter, Francis O'Neal, worked on widening the canal and raising the embankments in 1829. A total of 2,293½ perches of stone wall were erected and 6,320½ cubic yards of embankment were made on the Potomac Canal at a cost of $ 3,752.35 in 1829.[19] With the 1828 work included, a grand total 2,493½ perches of stone wall and 6,320½ cubic yards of embankment had been made in 1828-29 at a expenditure of $ 4,088.85. This figure does not included the $ 391.50 that spent to build the stone partition wall between the Wager and U.S. lands in 1828-29.[20]

On January 1,1830, the stone wall and earthern embankments of the Potomac Canal were still far from being complete: masons Johnson Garrett and John Gust were to continue work on this project during 1830 and 1831.

18. See Chart F, page 188.
19. See Chart F, pp.187-188.
20. The National Armory Accounts for 1829 reports that a total of $ 5,430.23 was expended that year "on the Potomac Dam and widening the Canal". The Paymaster's vouchers for the canal work suggest that the balance of $ 1,677.88 went for work on the Potomac dam.

Widening The U.S. Potomac Canal, 1829

File No.	Vou. No.	Artisan	Date	Amount	Remarks
13626	46A	John Gust	8/28/29	$ 4.00	Repair wall and bank near lock gates, 4 days work.
13750	10A	" "	10/9/29	$ 100.00	Making 500 cubic yds embankment on new Potomac Canal.
13750	28A	" "	11/10/29	$ 150.00	for 750 cubic yds.embankment.
13750	71A	" "	12/15/29	$ 203.50	For 1,017½ cu.yds embankment.
13750	150A	" "	12/31/29	100.00	For mason work,erecting 100 perch stone wall on new canal.
Subtotal:		John Gust	1829	$ 557.50	For 2,267½ cub.yds of embankment at $ 1,453.50 and 100 perch of stone wall for $ 100.00
12579	46A	Francis O"Neal	3/31/29	$ 148.75	For 45 days carpenter work on guard gates at head of U.S.Canal.
13478	74A	James Daugherty	5/9/29	$ 100.00	For mason work, erecting 100 perc stone wall at U.S. Potomac Canal.
13478	133A	" :"	5/30/29	$ 200.00	For quarrying,hauling & laying 200 perch of stone wall.
13626	5A	" "	7/11/29	$ 230.70	For 358½ perch stone wall and 861 cubic yds. embankment on Canal.
Subotal:		James Daughtery	1829	$ 530.70	For 658½ perches of stone wall and 861 cubic yrds of embankment.
12908	93B	Edward Harding	2/26/29	$ 77.50	For 27 days mason work building walls for a guard gate toPotomac Canal.
13478	132B	George W. Bond	5/30/29	$ 165.00	For 110 days work quarrying stone and raising embankment of canal.
13750	19A	" " "	10/15/29	$ 103.10(about)	for quarrying and delivering 412 perches 13 feet of stone in April and May 1829.
13750	30A	" " "	11/10/29	$ 413.65	Balance due for quarrying 27 perch of stone=$ 6.75; raising canal ban by 518 cubic yards= $ 129.66; excavating canal bank 540 cubic yd = $ 237.74 and puddling canal bank $ 142.00.
Subtotal:		George W. Bond	1829	$681.75	439 perch of stone,518 cubic yds. of embankment.
12908	53A	John Johnson	3/1/29	$ 255.00	Mason work,filling in 1,275 cubic yds embankment,Potomac Canal.
12908	73A	" "	3/31/29	161.75	For quarrying,hauling & laying 161 3/4 perch stone wall along Canal.
12908	109A	" "	3/31/29	50.00	For use of cart & horse 33 1/3 day at lock at head of Armory Canal.
13478	24A	" "	4/23/29	43.00	for erecting 43 perch stone wall.
13478	30A	" "	4/27/29	230.00	For quarrying & laying 230 perch stone wall.
13478	76A	" "	5/10/29	129.80	For 649 cubic yrds embankment at head of Potomac Canal.
13478	193A	" "	6/25/29	150.00	For 750 cubic yrds embankment.
13626	58A	" "	9/2/29	361.60	For laying 361 perches,14 feet, 9 inches stone wall, Potomac Canal.
Subtotal		John Johnson	1829	$ 1,381.15	796 1/3 perch; 2,674 cubic yds.

CHART F

WIDENING THE U.S. POTOMAC CANAL, 1829:

File No.	Vou. No.	Artisan	Date	Amount	Remarks
13750	37A	Johnson Garrett	11/12/29	$ 125.00	Mason work, for erecting 100 perches of stone wall on Potomac Canal.
13750	70A	" "	12/15/29	$ 125.00	For 100 perches stone wall, canal.
13750	142A	" "	12/31/29	$ 125.00	For 100 perch stone wall, canal.
Subotal:		Johnson Garrett	1829	$ 375.00	For 300 perches stone wall.
Total:			1829	$ 3,752.35	For 2,293½ perches of stone wall and 6,320½ cubic yards of embankmer

Records for the 1st and 2nd quarters of 1828 are missing:					
12579	46A	Francis O'Neal	11/15/28	$ 136.75	For carpenter work, erecting a guard and waste gate at Potomac Canal and dam.
12579	58A	John Johnson	11/21/28	$ 200.00	For quarrying, hauling & laying 200 perch of stone wall at the lock walls at the head of the Potomac Canal.
Total: 3rd & 4th Quarters of 1828:				$ 336.50	For 200 perches stone inguard gate wall & new gate

Total Expenditures on the U.S. Armory Potomac Canal 1822-29, were approximately as follows:

1822:	$ 2,434.75	835 perches stone wall, 6,785 square yards stone masonary wall.
1825	130.00	repairs.
1826	15.00	blasting rocks.
1827	18.00	blasting rocks.
1828-29	4,088.85	For 2,493½ perches of stone wall and 6,320½ cubic yards of earth embankments.
Total: $	6,686.60	
1826-29$	451.74	Lock Gate to Potomac Company Navigation Canal, Maryland side of River.
1828-29	391.50	Stone partition wall, U.S. Wager Land
Total: $	7,529.84	

B. The Shenandoah Canal, 1822-1829:

As has been mentioned, the Shenandoah Canal, running through the Upper and Lower Hall Islands, with a set of upper and lower locks, had been built by the Potomac Company in 1806-07 and had made this land into a island.

The National Armory Account report for the year 1823 indicates that a total of $ 2,279.50 was spent for "Buildinga wall between the road(Shenandoah Street) leading to the Works on the Shenandoah and said river and for raising the Bank of the Canal on the Shenandoah." The vouchers of the Armory Paymaster (see Chart G, p. 190), however, reveal that a total of $ 2,439.50 was actually spent for these purposes in 1823-24 as follows:

The masons James McNulty, Philip Strider, and Michael Walsh were paid a total of $ 2,088.00 for quarrying, hauling, and laying 2,088 perches of stone wall " in a wall between the river and the road and for filling in with earth behind the wall, between the wall and the road.

James McLaughlin and Charles Elvay received a total of $ 342.50 for raising the bank of the Shenandoah canal two feet in height for 76½ rods in length, and varying in width from 10 to 12 feet with earth in 1823-24. This work was done to prevent the canal from overflowing.

In 1826 $ 60.83 was spent for "Filling in(with) earth along Shenandoah river."[1]

The total amount of money spent on the Shenandoah Canal for repairs and improvements, excusive of work on the Shenandoah dam, from 1822 to 1829, totalled approximately $ 2,500.33.

1. National Armory Accounts for 1826.

CHART G

Shenandoah River Wall, between Street and River, 1823

File No.	Voucher No.	Artisan	Date	Amount	Remarks
7356	70A	James McNulty	9/30/23	$ 555.00	For laying 555 perches of stone in the wall between the road up the Shenandoah River & the said River and filling up between th wall on the road side with eart
7624	150A	" "	12/31/23	455.00	For laying 455 perches of stone in the river wall.
Subtotal		James McNulty	1823	$ 1,010.00	1,010 perches stone wall.
7207	110A	Philip Strider	6/30/23	$ 90.00	For quarrying,hauling & laying 90 perches of stone in wall between river & road and filling in with dirt.
7356	3A	Philip Strider	8/27/23	$ 196.00	For laying 196 perch stone in the river wall.
Subtotal		Philip Strider	1823	286.00	Laying 286 perches stone in wall
7207	11A	Michael Walsh	6/30/23	$ 120.00	For quarrying,hauling & laying 120 perch stone in river wall along Shenandoah Street.
7232	2A	" "	7/27/23	$ 281.00	For 281 perch stone wall & backfilling with earth.
7356	35A	" "	8/30/23	$ 150.00	For 150 perch stone wall.
7356	79A	" "	9/20/23	$ 156.00	For 156bpercnin river wall.
7624	125A	" "	12/31/23	$ 85.00	For 85 perches stone in river wall.
Subtotal:		Michael Walsh	1823	$ 792.00	For 792 perch stoneriver wall.
Total STONE RIVER WALL PROJECT: 1823				$ 2,088.00	For 2,088 perches stone wall.
Raising Bank of Canal on Shenandoah with Stone and earth to prevent the water from overflowing, 1823 -24:					
7624	161A	James McLaughlin	12/21/23	$ 182.50	For raising bank 36½ rods in length, two feet in height,and 12 feet in width.
7862	71A	Charles Elvay	3/22/24	$ 160.00	For raising canal bank 2 feet in height, 40 perches in length and 10 feet in width.
Total: Raising Embankment,Shenandoah				$ 342.50	For raising Shenandoah Canal bank 2 feet in height for distance 76½ rods and from 10 to 12 feet in width.
GRAND TOTAL: SHENANDOAH WALL AND EMBAKMENT PROJECTS 1824			1823-	$ 2,430.50	

Summary, Potomac and Shenandoah Canal Expenditures, 1822-29

Expenditures as the Potomac and Shenandoah Canals from 1822 to 1829 may be summarized as follows:

Year:	U.S. Potomac Canal.	Wager-U.S. Wall	Potomac Co. Lock Gate	Shenanoah Canal	Total
1822	$ 2,434.75	-	-	-	$ 2,434.75
1823		-	-	2,279.00	$ 2,279.50
1824		-	-	160.00	160.00
1825	130.00	-	-		130.00
1826	15.00	-	151.74	60.83	227.57
1827	18.00	-	100.00		118.00
1828	336.50	300.00	-		636.50
1829	3,752.35	(1) 91.50	200.00		4,043.85
TOTAL:	$6,686.60	$ 391.50	$ 451.74	$ 2,500.33	$ 10,030.17

(1) The work on the partition wall was done by the mason John Johnson who was paid a total of $ 91.50 on March 31,1829 for quarrying, hauling, and laying 162½ perches of stone wall on the line bwteen the U.S. land and land of the Wager heirs. R.G. 217-2nd Series, File 12908- Voucher 78A. Johnson was also building the canal wall in 1829.

DAMS, 1822-29:

The Potomac Dam for the U.S. Musket Factory:

As has been mentioned, the U.S. Dam across the Potomac River had been rebuilt for a third time in 1820-21 at a cost of approximately $ 11,200. This structure apparently stood up well for six years, for there is no record of large scale repairs being made to the dam in this period. On July 14, 1827, however, Superintendent Stubblefield submitted a request to the Ordnance Department for $ 2,000.00 to repair the Potomac Dam which he reported had been much damage by high water and ice during the winter of 1826-27.[1] While awaiting a reply to his proposal, Stubblefield had Philip Coons make temporary repairs to the dam at a cost of $ 187.87 in July 1827.[2]

Stubblefield's plan for repairing the existing dam changed to one for erecting a new one, which he said would supply an additional quantity of water for the Musket Factory machinery. On January 7,1828, the Superintendent explained that he intended to build a new dam which would be located just below the 1820-21 structure and that he planned to fill in the space between the two dams with gravel.[3] Col. Bomford, the Chief of Ordnance, approved Stubblefield's project.[4]

On April 4,1828, Stubblefield entered into an contract with Lewis Wernwag of Virginius Island, "bridge builder,"millwright, machinist, mason, and carpenter, to construct the 4th dam across the Potomac.

1. HFNHP Reel 22, V. 1,p.91.
2. See Chart H, p. 193, vouchers for 1827.
3. Reel 22, V. 4, p.353.
4. reel 14, Vol. 6, p. 539-540.

CHART H

POTOMAC DAM 1827-29

File No.	Vouc. No.	Artisan	Date	Amount	Remarks:
11622	23B	John Gust	7/21/27	$ 4.50	For three days work with cart and horse repairing Potomac Dam.
11622	215B	Philip Coons	7/31/27	$ 181.12	For repair of Potomac Dam-mason work.
11622	107B	James Norris	8/25/27	$ 2.25	For 3 days work on the Potomac dam.
Total:			1827	$ 187.87	Repair of Potomac Dam
The Records for the 1st and 2nd Quarters of 1828 are missing.					
The Contractor for rebuilding the Potomac Dam in 1828-29 was Lewis Wernwag:					
12579	7A	Lewis Wernwag	10/12/28	$ 150.00	For quarrying,hauling,and laying 150 perches of stone in erecting guard wall at head of U.S.Potomac Canal.
12579	34A	Lewis Wernwag	11/1/28	$ 160.00	For quarrying,hauling & laying 160 perch of stone wall erected in a wall at head of Canal.
12908	10A	" "	1/15/29	$ 133.00	For quarrying,hauling,laying 133 perches of stone wall at head of U.S.Potomac Dam.
12908	18B	" "	1/15/29	$ 25.75	For work on the Potomac Dam, haulin and laying stone on dam=$ 10.00; for 16 2/3 perches of stone=$ 13.25; four loads of sand =$ 2.50.
12908	31A	" "	1/28/29	$ 530.00	For mason work, 1,200 cubic yds of embankment at U.S. Potomac Dam= $ 240.00+ 290 perches of stone wall to support bank of Potomac Dam= $ 290.00.
13750	91A	" "	12/28/29	$ 50.25	For mason work, erecting 100½ perch of stone wall on Potomac Dam in Oct. and Nov.
Subtotal:		Lewis Wernwag	1828-29	$1,016.00	For 854 perches of stone wall and 1,200 cubic yards of embankment
12908	123A	Gassur(?) Cross	3/26/29	$ 427.50	For 68,400 feet of solid unhewn timber reduced to one inch board for us on U.S. Armory Dam.
13750	57A	Valintine Jacobs	12/11/29	33.00	For 22 days mason work on the abutments of the Potomac Dam
TOTAL:			1828-29	$ 1476.50	

The contract specified that the new dam was to be built as follows:

"The Dam is to commence at the second angle of the old dam from the head of the Armory Canal and extended thence along the course of immediately below the old Dam 60 rods. To be 10 feet wide and filled in with stone in such a manner as to render it tight and permanent. To be constructed on the principle of the small Dam stretching from the point at the Shenandoah locks to the Island. To be constructed of sound timber ... To be ensured by said Lewis Wernwag for 12 months from the completion thereof, and the said Stubblefield... agrees on his part to furnish all the Iron that may be required for said work and to pay said Wernwag for the same at the rate of $ 50 per rod...." [5]

The Armory Paymaster's vouchers for the 1st, 2nd, and 3rd quarters of 1828 are missing from their proper place in the National Archives records so that it is not possible to trace Lewis Wernwag's construction of the dam in the period April to June 30,1828. The records for 4th quarter of 1828 (see Chart H, p.193) indicated that in October 1828 he was paid $ 310.00 for quarrying, hauling, and laying 310 perches of stone in the guard wall at the head of the Potomac Canal, and in 1829 received $ 745.75 for his work, so the grand total received, according the extant vouchers $ 1,016.00 for 854 perches of stone wall and 1,200 cubic yards of embankment.

National Armory Accounts for 1828 and 1829 indicate that a grand total of $ 10,930.23 was spent on work on the Potomac canal and dam in those years. After deducting documented expenditures for work on the canal, the following approximate sums were spent on the Potomac Dam in 1828-29:

1828:$ 5,163.50

1829:$ 1,677.88

Total $ 6,841.38

5. Reeel 20, V.5, pp.499-500-Memorandum of Agreement, April 4,1828.

The dam was completed by the end of January 1829. Of the total of $ 6,841.38, Lewis Wernwag apparently received $ 3,511.63 (see below).

A investigation of the dam construction project in 1831, revealed that all of the gravel filling which had been placed at the bottom of the new dam to make it water tight, except for 150 feet at the south end, had been placed there by Armory workmen at no apparent cost to Wernwag, although the contract specified that the dam was to be made permanent and watertight at Wernwag's expense. It was further discovered that Wernwag had been paid $ 1,250.00 in cash and $ 2,261.63 in U.S. timber, making a total of $ 3,511.63, whereas the contract called for a payment of only $ 3,000 . Wernwag had also extended the framework of the new dam beyond the contract limit of 60 rods, (or 990 feet) but had failed to fill it with gravel, with the result that subsequent high water had destroyed the unfinished extension. 6/

From 1822 to 1829 a total of approximately $ 7,029.25 was spent for the repair and construction of the Potomac Dam.

6. Finding of Superintendent George Rust Jr., December 3, 1831, Reel 22, Vol. 12, pp. 1160-1161. This was discovered when Lewis Wernwag filed a claim with the Ordnance Department requesting additional payment for the construction of the Potomac Dam.
The 1828 contract statedthat "all timber that has or may be furbished said Wernwag by the U. States shall be charged against him at the cost price ub part payment for said work." A Statement of Timber purchased by the U.S. for the Erection of the Potomac Dam, and delivered to Lewis Wernwag, the Contractor during the Year 1828 (Feb. 8 to July 1828) reveals that the U.S spent $ 1,945.01½ for this purpose. Reel 22, Vol. 5, p. 403.

B. The Shenandoah Dam, 1822- 29:

From 1822 to 1829 a total of approximately $ 420.50 was spent for repair and construction on the Shenandoah Dam (see Chart I below). The main work was done in 1825 at a cost of $ 391.50, when mason John McNulty and carpenter John Lowstetter erected 358 perches of stone walls for the lock walls and dam on the Shenandoah and also made a new pair of lock gates for upper lock of that canal.

CHART I

Work on the Shenandoah Canal, Dam, and Locks: 1825-27:

File No.	Vouc. No.	Artisan	Date	Amount	Remarks
9310	122A	John McNulty	9/16/25	$ 366.50	For mason work, quarrying & boating 358 perches of stone for lock walls and dam on Shenandoah= $ 179.00; For 125 days mason work laying stone= $ 187.50.
9310	21A	John Lowstetter	8/12/25	$ 25.00	For making a new pair of guard gates at head of canal on the Shenandoah River.
Total:			1825:	$ 391.50	
11622	213B	John Rockenbaugh	7/31/27	$ 29.00	For 29 days work repairing the Shenandoah dam.
Total:			1825-27	$ 420.50	

Perch, a unit of measure for stone, a solid measure 16½ feet by 1½ feet by 1 feet.

Summary, Dams

Expenditures for the repair and construction of dams, 1822 to 1829, was as follows:

Potomac Dam:	$ 7,029.25
Shenandoah Dam:	420.50
Total:	$ 7,449.75

Armory Dwelling Houses:

National Armory Accounts reveal that an total of approximately $ 25,848.28 were expended for the repair and improvement of Armory dwelling houses during the period 1822 to 1829(See Chart 3, page 198). Of the total sum, $ 5,547.76 went for the construction of 19 new residences that were built for the Armory, $ 8,394.16 was spent to make additions and improvements to 35 old Armory dwellings, $ 1,929.10 is listed as have been expended to make repairs to old Armory dwellings and $ 9,655.76 was used to settle claims of Armory workmen for residences that they had erected on Armory lands and repairs and improvements that they had made to armory-owned dwelling housesduring the years 1810 to 1829.

Improvements to the Quarters of the Chief Officers of the Armory:

As has been mentioned, Captain John H. Hall, who held the rank of a Master Armorer, was granted permission by the Ordnance Department to erect a new and larger house for his residence in 1827. Homes of the other chief officers were also improved. The Paymaster's Quarters, a two story brick house with cellar and adjoining kitchen and dating from 1802, was repaired and improved in 1825-26 at a cost of $355.75. A small frame house with a room to be used as a well house was added to his residence by the carpenter Jacob Boswell in March 1826 at a cost of $ 55.56.[1] The Paymaster's House was located on the banks of the Shenandoah River on land that after 1852 was known as Lot No. 5, Block B, Shenandoah Street.

The Master Armorer's House(Park Bldg. No. 34-35), fronting on Shenandoah Street, stood on land that became known as Lot No. 3, Block B, Shenandoah Street, after 1852. This two-story brick house, 33 by 23 feet in

1. Total from National Armory Accounts for 1825 and 1826. Work on addition from R.G. 217, F. 9851- v.37A and 73A, dated March 23 and 30,1826 for a total of 46 days carpenter work in the amount of $ 46.00 to Jacob Boswell. Painting and plastering probably accounted for the balance of $ 9.75, or perhaps this went for foundations for the addition. $ 300.00 was spent for repairs on the house in 1825.

CHART NO. 3

Expenditures on Armory Dwelling Houses, 1822-1829

Year	Erecting New Houses		Additions to houses		Repairs		Digging Wells	Bldg. Walls	Paid to Workmen for Imp.	TOTAL
	No.	Cost	No.	Cost	No.	Cost				
1822	2	600.00								600.00
1823	4	1,500.00	7	1,300.00					5,758.30	8,558.30
1824	5	1,600.00	10	2,100.00					1,671.96	5.371.96
1825	2	700.00	2	500.00	3	1,650.00			1,031.50	3,881.50
1826			2	88.75	2	121.77	(1)121.50		994 .00	1,326.02
1827			9	1,780.00				(2) 200.00	200.00	2,180.00
1828	3	450.00	1	1,000.00					0	1,450.00
1829	3	697.76	4	1,625.41	2	157.33			0	2480.50
Total:	19	5,547.76	35	8,394.16	7	1,929.10	121.50	200.00	9,655.76	25,848.28

* Money paid to armory workmen for repairing and improving existing Armory Dwelling Houses or erecting their own dwelling houses on the Armory land: $ 10,669.35. -
Acquired for this sum, about 29 dwelling houses erected by the workmen and settled 79 claims.
Still unsettlement on December 31,1829. 44 claims for about $ 8,266.57 and including approximately 22 more dwellings that had been constructed by the workmen.

(1). R.G. 217-F. 10559-V. 15-To Samuel R. White, Oct.30,1826-$ 21.00 for digging a well 18½ feet deep. F. 10604-V. 13A. To Patrick Redman, Aug. 21,1826- $ 100.50 for sinking a well; also 10559-V. 46- To Patrick Redman, Oct.31,1826, $ 32.00 for digging well with 16 feet of wall.

(2) R.G. 217-11622- To William McKinny, 8/16/27-$ 84.25, mason work, laying 89 perches of stone wallin several guard walls built for the protection of dwelling houses side situated on the side of the hill. 11622-Michael Cook, $ 28.50, Aug.16,1827, quarrying and hauling 69 perch of stone to build a wall on Shenandoah Street; 11622-153A, To William McKinny, $ 87.50, 9/6/27. for building a stone wall on Shenandoah Street, 71 perches.

size, with a cellar kitchen, had been erected by Joseph S. Annin in 1812 and acquired by the United States for $ 2,500.00 in October 1821. The house had been used as the quarters of the Master Armorer since 1818. A one-story brick kitchen, 22 by 20 feet, was added to his residence at a cost of $ 500.00 in 1827.[2] The stone foundations of kitchen, containing 49½ perches of stone wall and four stone steps, was laid by the stone mason John Lackey in June 1827. Joseph Spencer laid the 15,000 bricks in the new kitchen, which had three openings, probably two windows and a door. In December 1829 James Foley and his journeymen did $ 18.00 (13 days) worth of carpenter work repairing the Master Armorer's House.[3]

2. National Armory Accounts for 1827.

3. Record Group No. 217:-Second Auditors Accounts:

File No.	Vou. No.	Artisan	Date	Amount	Remarks
13750	147A	James Foley	12/31/29	$18.00	For 7 days carpenter work on Master Armorer's house= $10.50+ 6 days work of jounreymen=$ 7.50.
12579	45A	Edward Harding	11/15/28	$ 67.12½	For laying 165 square yds of pavement in front of U.S. dwellingsoccupied by Master Armorer, Paymaster, and Paymaster's clerk @ 37½¢= $61.87½-Quarrying and laying 7 stone steps for same= $ 5.25.
11127	199B	John Lackey	6/30/27	$ 37.93	For laying 49½ perch i 3/4 stone in wall for Maste Armorer'skitchen=$30.93 3/4; for 4 stone steps to same=$2.00; Rough casting foundation & Smoke house= $ 5.00.
11622	76A	Joseph Spencer	8/16/27	$ 39.00	For laying 15,000 brick, furnishing same &C at $ 2 = $ 37.50;Laying 3 arches for same @ 50¢= $ 1.50. erecting new kitchen of Master Armorer.
11622	163A	John A. Svhaeffe	9/12/27	$ 20.00	For building a chimney wi 2 flues on a public dwell ing(perhaps Master Armor- er's kitchen.

Total: $ 182.05

The Superintendent, of course, was entitled his share of improvements on his dwelling. His house, a two-story brick structure, 36 by 29 feet in size with a cellar and dating from 1808-09, stood at the eastern head of the southern line of workshops in the U.S. Musket Factory yard.

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 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 J, p. 201). 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.

Total costs of repairs and improvements to the residences of the three chief officers of the armory during the period 1822 to 1829 came to approximately $ 3,370.62, leaving a balance of $ 6,952.64 to be used for making repairs and improvements to the homes of the lesser employees of the Armory work force.[4]

4. Figures from Chart 3, columns for additions to house and repairs, totalled.

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 maki 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 valu 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 lay ing brick at Supt. Dwelling hou
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 pav yard at Supt.'s house.
13750	16N	" "	10/13/29	25.50	For 17 days work laying brick a 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	ForPainting, 69 yards painted mahognay, 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 hous
Subtotal		James Gallaher	1829	101.12½	Plastering
TOTAL:			1828-29	$2,579.85	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	

Armory Construction Program of New Houses, with Additions and Repairs to Old Houses, 1822 - 29.

The annual National Armory Reports provide the following details in regard to the Armory Construction program for dwelling houses from 1822 to 1829.

		Cost
Houses Built:	One one-story wood, 18 by 40 feet	400.00
	One one-story, stone, 16 by 14 feet	200.00
	Two houses, 1822	$ 600.00
1823:	Three one-story stone dwelling houses, with cellar kitchens, 20 by 18 feet..	1,200.00
	one stone one-story dwelling house, with a cellar kitchen, 16 by 24 feet.....	300.00
	An addition to a Dwelling House of the Armory Storekeeper.....	500.00
	Small additions to six dwelling houses.....	800.00
	four new dwelling houses 1823	$ 2,800.00
1824:	Built 4 one story stone houses, 24 by 16 feet.....	1,200.00
	1 one-story brick house, 26 by 18 feet.....	400.00
	additions to 10 dwelling houses.....	2,100.00
	5 new houses, 1824	3,700.00
1825:	Building two 1½ story log dwelling houses, 24 by 20 feet..	$ 700.00
	Building an addition-one story brick, 15 by 18 feet.....	300.00
	" and addition one-story wood, 12 by 18 feet....	200.00
	Repairing a building for a Boarding House and Lodging rooms for the workmen.....	1,150.00
	Repairing the Paymaster's house, on Lot 5, Block B, Shenandoah Street.....	300.00
	Repairing house of Paymaster's clerk.....(5)	200.00
	2 new houses, 1825	$ 2,850.00
1826:		
	Small well houses & an addition to Paymaster's residence, Block B. Lot 5, Shenandoah Street.....	55.75
	Fitting up rooms for dwellings, alterations, &c....	70.00
	Laying 66 perches of stone for a dwelling house...	33.00
	Building new chimney to dwelling house.....	20.00 (6)
	Digging two wells.....	121.50
	new houses, 1826	$ 300.25

(5) R.G.215- F.9057-V. 38A, To Charles Fouke, April 18, 1825-$ 99.50, for for 78½ days carpenter work by carpenter and his journeymen repairing house occupied by the Paymaster's Clerk.

(6) R.G. 215 F. 10053- V. 65A-To Joseph Spencer, Mason, June 14, 1826, $ 20.00 building a brick chimney with two flues to a public

1827:	Building a one-story brick kitchen, 20 by 22 feet on the Master Armorer's House (Park bldgs. 34-35) on Lot 3, Block B, Shenandoah Street.....	$ 500.00
	Building a porch on the paymaster's clerks house.....	100.00
	Bldg. porch on Inspector Philip Hoffman"s house.....	80.00
	Bldg. porches on four dwelling houses in the old barracks.....	200.00
	Building additions on four dwelling houses	900.00
	Building guard walls for dwellings on Shenandoah Street.....	200.00
	0 new dwelling houses built in 1827.	$ 1,980.00

1828:	Building a brick addition to the Superintendent's House.....	1,000.00
	For furnishing materials to erect three small wooden dwellings.....	450.00
	3 houses in 1828	$ 1,450.00

1829:	Addition to Superintendent's quarters.....	1,429.75
	Construction of 1½ story dwelling, 28 by 20 feet.....	300.00 (9)
	Erection of 1½ story dwelling, 16 by 14 feet.....	120.45 (10)
	Additions to two dwelling houses.....	175.66
	erecting a small dwelling house.....	277.31 (7)
	erecting a chimney to a dwelling house.....	20.00 (8)
	Repairing two dwelling houses.....	157.33
	3 new dwellings in 1829:	$ 2,480.50

Total:	19 new houses built at a cost of	$ 5,547.76
	additions made to 35 houses	8,394.16
	Repairs made to seven houses	1,929.10
	Digging wells	121.50
	building walls	200.00
	Total, Construction & Repair	$ 16,192.52

(7) R.G. 215- F. 12908-V. 130A- To Alexander Fossett, June 15,1829, $ 277.31 for erecting a log house.

(8) R.G. 215- F. 13478 -V. 206A. John E. Palmer, June 20,1829-$ 20.00 for mason work, building a chimney on a public dwelling.

(9) F.12908- FV. 80A To John Nerman, March 1,1829-$ 300.00 for finishing material and erecting a dwelling, 26 feet by 20 feet, 1½ stories.

10. 12908-V.94A- To Ann Davis, March 1,1829, $ 120.45 for building a frame house, 16 by 14 feet, 1½ stories high.

Settling Claims of Armory Workmen for Improvements and Repairs make to Existing Armory Dwellings and for new houses built on Armory lands.

Armory records indicated that the United States had built a total of 36 public dwelling houses for its officers and workmen in the period 1798 to 1821. An inventory of all buildings on the public lands, taking in 1821, however, revealed that there were actually 87 dwelling houses standing on the Armory lands. Superintendent James Stubblefield had permitted workmen to erect their own homes at their own expense on the public lands: (1) because there was no private land available for purchase on which they could built their houses; and (2) because the Government funds available for constructing additional Armory dwelling did not keep pace with the rapidly increasing number of men employed at the Armory. Stubblefield also permitted the workmen to repair, improve and make additions to the existing Armory-owned dwellings at their own expense.

As things stood in 1821, 51 of the 87 dwellings listed on the 1821 inventory of building, had actually been erected by workmen at their own expense.

On September 8,1823, Superintendent Stubblefield informed Col. George Bomford, Chief of Ordnance:

> In compliance with your instructions of the 17th May last I herwith enclose a statement of the number of buildings and parts of buildings that have been erected on the public ground by individuals, with the probable values of the improvements on each building. In making this estimate, the Houses on the Lot leased to the Potomack Company & the store House on the lot leased to Major Jamesion were not included. This report has be delayed for a considerable time on account of the time required to make the valuations on the different Houses. I have paid for several of the claims & think it would be advisable for the Government to purchase all the Dwelling Houses on the Public Grounds whenever the funds can be spared from the amount appropriated for the Armory. If the whole amount could not be spared from the present appropriation I would recommend that a certain sum be expended to that purpose in this year & the residue the next, until all the claims of individuals on the public property shall be liquidated." 1

In the detailed report that accompanied this memorandum, Stubblefield itemized 84 claims that had a total value of $ 8,868.55 for construction, repairs, and improvements make by the workmen to Armory dwellings. These included claims for furnishing the materials and erecting one stone and 20 wooden residences, complete, and 63 claims for digging cellars to, adding second stories and wings, plastering, making new roofs, staircases, partition walls, etc., to Armory dwelling houses that these men lived in.[2]

Stubblefield's plan for settling these claims over a period of time was adopted approved by the Ordnance Department. There are three sets of records relating to the settlement of these claims: A report covering the years 1822 to 1828 submitted by Superintendent James Stubblefield on February 23,1829 through the War Department to Congress(published in American State?

1. Reel 21, Vol. 1, pp.43-44.
2. The Report,dated Sept. 6, 1823, Reel 21, Vol. 7, pp.696-698. This report is published complete in Snell, Charles W., A Comprehensive History of Armory Dwelling Houses,"pp. 22-25.

Papers, Military Affairs, IV,142-145; The pay vouchers issued by the Paymaster of the Harper's Ferry to the workmen to settle these claims, and annual report for such expenditures in the National Armory Accounts from 1822 to 1829. An analysis of these three sets of records(see chart on page 207) reveals that Stubblefield's 1829 report commits acts of comission and omission. It is stated that three claims were settled for a total of $ 185.00 in 1822 but the Paymaster did not issue any vouchers for these people in 1822 and the National Armory Account for 1822 also indicates that no money was spent to settle claims in that year. The Paymaster's vouchers, on the other hand, indicate that Superintendent Stubblefield failed to include at least 12 claims worth some$1.500.00 that were settled in the 1829 report. Stubblefield's statement that a total 70 claims were settled for a total of $ 8,362.40 in inaccurate and on the low side. The Paymaster's vouchers indicate that approximately 79 claims worth about $ 9,885.07 were issued to the workmen from 1822 to 1829. National Armory Accounts give the total paid out for this purpose during the same years as $ 10,669.35. The difference between the Pay vouchers and National Armory Account statement is probably due to how the accountant for the Armory accounts charged the vouchers as they arrived in the Ordnance Department. Some vouchers for new construction or repair by Armory artisans may have been charged to the workman claims funds.

The National Armory Account figure of $ 10,669.35 is used as the approximate total paid to settle workmen claims in this study.

The Paymaster's Voucher from Record Group 217, the following:

Claims settled	Purpose	Amount
29	for building new houses	$ 6,595.47
14	for additions to houses	$ 1,917.85
36	for repairs to houses	$ 1,288.54
79		$ 9,885.07

SETTLEMENT OF WORKMEN"S CLAIMS

Year	(A) According to Supt. Stubblefield's Report: Claims Settled	(A) Amount	(B) According to Paymaster's Vouchers: Claims Settled	(B) Amount	(C) According to National Armory Accounts: Amount
1822	3	$ 187.00	0	$ 0	$ 0
1823	39	$ 4,382.84	46	$ 5,759.28 (1)	$ 5,758.30
1824	13	$ 1,603.51	17	$ 1,664.41	$ 1,671.96
1825	5	$ 610.20	6	882.53	$ 1,031.50
1826	4	$ 1,013.59	4	$ 1,013.59	994.00
1827	5	269.23	5	269.23	200.00
1828	1	296.03	1	296.03	0
1829	-	-	0	0	0
TOTAL	70	$ 8,362.40	79	$ 9,885.07	$ 9,655.76

Of the 27 houses built by the workmen and purchased by the Ammory during the years 1822, 1829, 23 were wooden, 4 were stone and 2 were brick edifices.

A. Published in American State Papers, IV, 143-144, Dated Feb. 23, 1829. Also included complete in Snell, A Comprehensive History, pp. 26-29.

B. From R.G. 217 -Second Auditor's Records, 1822-29. Vouchers for the 1st quarter of 1827 and the 1st and second quarters of 1828 are missing. Three vouchers for 1827, totalling $ 232,23- are extant- the 2 missing vouchers for 1827 have been taken from Stubblefields' 1829 report, as has the one missing voucher for 1828.

C. National Armory Accounts for the years 1822 to 1829- National Archives R.G. 156, Entry 935.

Settlement of Workmen's Claims for Construction, repair, and Improvements to Armory Dwelling Houses during the Years 1822-29, based on the Paymaster's Vouchers, R.G. 217

Year	NEW HOUSES No. Claims	Amount	FOR ADDITIONS No. Claims	Amount	FOR REPAIRS No. Claims	Amount	TOTALS No. Claims	Amount
1822	0		0		0		0	0
1823	21	$ 4,195.94	7	$ 844.70	17	$ 633.29	46	$5,759.28
1824	3	878.90	3	322.14	11	465.22	17	1,664.26
1825	1	201.60	3	579.22	2	101.80	6	882.62
1826	2	823.00	1	171.79	1	19.00	4	1,013.79
1827	1	200.00	0	0	4	69.23	5	269.23
1828	1	296.03	0	0	0	0	1	296.03
TOTAL	29	$ 6,595.47	14	$ 1,917.85	36	$ 1,288.54	79	$ 9,885.27

Armory dwelling houses built by Armory in 1821=	36
Armory dwelling houses erected by workmen and purchased from them by Armory, 1822-29	29
Armory dwelling houses constructed by workmen prior to 1821 and still owned by them in 1829	22
Total standing in 1821	87
New houses erected by Armory, 1822-29	19
Total standing in 1829, approximately:	106 houses.

Of this total, about 22 were controlled by the workmen, due to their claims not yet settled, and 84 were the property of the U.S. Armory, free of claims. Or so it would seem, if life were simple, but this was not the case. While the above cases were being settled, the Armory workmen were busily engaged during the years 1822 to 1829, continuing the process of erecting new dwelling houses on the Armory land and of making repairs and improvements to Armory-constructed residences. Thus althrough 79 claims may have been settled for approximately $ 10,669.35, Superintendent Stubblefield reported on February 23,1829 to Congress that he still had 43 unsettled claims with an approximate total value of $ 8,054.07 still awaiting action.[4]

4. ASP, MA, IV, p.142-144.

This long process, 1823-28, of settling claims caused much disatification among some of the workmen; during these same years a number of merchants built their stores on the Armory land and they were said to pay no ground rent for their lots to the United States. Rumors and allagations of abuses and favoritism in regards to housing and rent situation at the U.S. Armory at Harper's Ferry, Virginia, reached Congress and raised questions in the minds of some members.

Accordingly,

On February 14,1829, the House of Representatives passed a resolution calling for information as to the "number of buildings" which have been "erected by private inidviduals on the government lands at Harper's Ferry; when erected by whom and what authority they have been purchased; how many are yet in possession,and subject to the claims of the builders,and what is the amount demanded for each; what is the amount of rent annually received since the first of January,1823, for each building, also for any others owned by the government at that place, and from received," [1] Stubblefield submitted the requested data to the Ordnance Department on February 22,1829 and Secretary of War P. B. Porter transmitted the data to the House on February 28,1829. [2] ** With regards to Armory policy on permitting Armory workmen to erect their own homes on U.S. land, Stubblefield stated: (3)

UNITED STATES ARMORY, *Harper's Ferry, Virginia, February* 23, 1829.

SIR: In answer to your letter of the 16th ultimo, transmitting a resolution from the House of Representatives upon the subject of private buildings erected on the United States lands at this place, I herewith enclose the reports therein required.

There are three or four buildings erected on the hill between the two rivers not included in the report; one of them occupied by a Mrs. Beston as a female school establishment; three other small huts, occupied by free blacks, named as follows, viz: William Prim, Adam Jones, and Jack Wood, who perform the duties of sextons and grave-diggers; also two churches; all of which are located on a lot of four acres, reserved in the will of Robert Harper, deceased, the original proprietor, and under whom John Wager, who sold to the United States their lands at this place, derived his title, for the purpose of erecting a graveyard, church, &c.; an extract from which I enclose herewith, from which it will be seen that even had not the four-acre lot been appropriated to the purposes contemplated in Harper's will, the government could not legally have any control over it. There are also several dwellings situated on the lands of which the government own the right of perpetual wood cutting, the owners of which purchased the fee simple right. These houses are numbered in the statement furnished by Colonel Lee from No. 199 to 207.

In regard to the authority for purchasing buildings, improvements, &c., I have to observe that it has always been considered the duty of the superintendent to provide suitable accommodations for the workmen employed in the armory. This could only be done by building new buildings, or purchasing improvements already made. The latter of these alternatives was, in many instances, the more expedient, from death, removal, change of circumstances of the persons who made the improvements, or other similar causes. It frequently occurs, when good workmen, having married, or from other causes need dwellings, or additions to those previously occupied, that the armory funds will not, at the time, admit of expenditures being made for such purposes. They are, therefore, permitted, when able to do so, to make the improvements at their own charge, with the understanding that afterwards, when convenient to the armory, they shall be paid for the same, according to fair valuation.

The passing of such accounts from time to time, for many years past, by the accounting officers, has also been considered as approving the course pursued in this respect.

1. ASP, IV, 142.
2. Ibid.
3. Ibid., IV, 142-143. Note-the two churches mentioned,the Free Church and the Methodist Epsicopal Churches,erected 1825-30, were no actually located in the four acre Harper Graveyard.

** See Appendix III, pp. 559-562.

In this report Stubblefield also stated that there were a total of 113 dwelling houses standing on the public lands at Harper's Ferry, thus suggesting that the workmen had erected seven more new houses at their own expense during the period 1822 to February 1829.

Stubblefield was forced to resign his position as Superintendent in August 1829 and one of the problems confronting his successors were how to settled the outstanding claims of workmen for repairs and improvements that they had made to houses on Armory land.

In response to Congress's request, Stubblefield submitted a report on the rents collected from Armory workmen from 1822 to 1828; this data is present in the left hand column of the chart below. Data in the right hand column on rents has been extracted from extant rent rolls in National Archives Record Group 217:

RENTS OF WORKMEN, HARPER"S FERRY ARMORY, 1822-29

	Stubblefield Report ASP-MA, IV, 148-148		Armory Rent Rolls R.G. 217	
Year	No. men paying Rent	Amount Collected	Amount collected	Remarks
1822	94	(596.50)	$ 596.50	94 renters & free qrs (3rd & 4th qrs.only)
1823	21	$ 568.50	$ 1,015.25	(1st,2nd,3rd qrs.)
1824	73	$ 1,331.50	$ 1,472.50	(all 4 quarters)
1825	72	$ 1,316.75	S 1,017.25	(1st,2nd,3rd qrs.)
1826	83	$ 1,409.75	$ 412.25	107 renters & free qr. (1st qrs.only)
1827	93	$ 1,395.83	$ 1,067.87	115 renters & free q (2nd,3rd,4th qrs only)
1828	86	$ 1,322.00	$ 502.50	(1st & 3rd qrs.only)
1829		(552.37)	$ 552.37	120 renters & free qrs. (3rd & 4th qrs.only)
TOTAL:		$ 7,896.70	$ 6,636.49	

($ 8,493.20

Expenditures on the Phyiscal Plant of the U.S. Armory at Harper's Ferry, 1822-29:

Section	No. new Bldgs.	Cost of New Bldgs.	Total Expenditures at that section
U.S. Musket Factory	10	$ 8,494.63	$ 26,914.93
U.S. Arsenal	2	1.500.00	4,139.42
Armory Bldgs. on Hall Island	2	2,200.00	2,533.00
Armory Stable	1	200.00	200000
Armory Lumber Yd.			1,115.17
Armory Work shops	15	$ 12,394.63	$ 34,902.52
Armory Dwellings	19	5,547.76	25,848.28
Armory Bldgs.	34	$ 17,942.39	$ 60,750.80
Potomac Canal			7,529.84
Potomac Dam			7,029.25
Shenandoah Canal			2,500.33
Shenandoah Dam			420.50
Roads, Streets & sidewalks			1,785.82
Subtotal, Armory Plant:			$ 80,016.54
Spent for Bldg. materials etc.			6,044.42
ARMORY PLANT TOTAL:			85,250.03 *
U.S. Hall Rifle Factory	8	$ 5,077.31	$ 17,699.28
Total-Armory and Rifle Factory	42 bldgs.	$ 23,019.70	102,949.31

Total Spent for Construction and Improvement, Repair:

U.S. Armory, 1796 to 1829:	$ 408,504.66
Rifle Factory, 1819-1829:	21,568.72
Subtotal for Plant:	$ 430,073.38
For 1,890 acres of land:	42,877.28
Total, Construction, Repair, and Land:	$ 472,950.66

* adds up to $ 86,060.96 but the other total is from National Armory accounts

The First two Churches at Harper's Ferry

On April 4,1818, Captain Morton of the Ordnance Office informed Superintendent James Stubblefield that application had been made to the Secretary of War for permission to erect a church on the public land at Harper's Ferry. There was no private land available for this purpose. Morton explained;

> The ground cannot be granted away, either by the War or this Dept., but the Parties may have permission to build upon the Ground described by them, Messrs Adamson, Beale, Larken and others- subject to any future disposition of the Property that the Public interests may require, but in the occupation of which it is not likely they will be disturbed. [1]

Stubblefield replied that he would lay out the plot for the church or meeting house on a site that would not be wanted for use by the Armory.[2]

In April,1818 two leases for public land were granted by Stubblefield to church groups; one for the Free Church** on the southern slopes of Campa Hill(Lot H on the 1848 map and the site now occupied by Park Bldg. 48A) and the other to the Methodist Episcopal Church on the northern slope of Camp Hill, (Lot C on the 1848 map), both located just above the southern bounds of the Wager Six Acre Reservation. Stubblefield reported to Chief of Ordnance George Bomford on December 30,1825,

1. Reel 14, vol. 2,p.145.
2. Reel 21, vo.3, p. 238.. Stubblefield to Bomford, April 8,1818.

** For location of Free Church see Map No. 7(1834), p. 276.

It was at first(in 1818) intended to built a (Free) church for the use of all the the denominations(at Lot H), but the Methodists being more numerous than any other society concluded to built one for their own separate use..... A room in one of the workshops had been heretofore 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."[3] Both of these leases were verbal rather than written.[4]

The decision to erect two church buildings was probably a mistake, because, although both leases were issued in 1818, neither group was able to construct a church until after 1825. Construction of the Free Church got underway in 1825 and the building was nearly completed in 1826.[5] Acting Superintendent Roswell Lee reported on January 27,1827: that the Free Church was 60 by 40 feet in size. The basement story of the three story structure was the church. The first story, 12 feet high, was divided into three apartments for use as schools :"one for a primary Lancastrian School, one for the higher branches and one for a female seminary." "The upper story," or second floor, he continued," is nearly completed by subscription and will be one of the most splendid Masonic Halls in this part of the country..."[6] The church was built by Lewis Wernwag, whose saw mills were located on the Island of Vigrinius. The Free Church and Masonic Hall building was destroyed by fire in 1845.[7]

3. Reel 21, Vol. 8, 846.
4. Reel 19, Vol. 4, p.322- Col. George Talcott, Ordnance Dept. to Superintendent John Symington, January 4, 1848.
5. Stubblefield to Bomford, Dec. 30,1825, Reel 21, Vol. 8, p.846.
6. Lee to Bomford, Jan. 3,1827, Reel 22, Vol. 1, p. 38, p.40.
7. Description of building and fire, in Virginia Free Press, January 16,1845, p.2,c.6.

Lewis Wernwag also constructed the Methodist Episcopal Church in the period 1827-28.[1] This was a one and one-half story over elevated basement structure that measured 40 by 60 feet.[2] The edifice was used as a church until the Civil War, when the building was completely destroyed. Its congregation then united with the Methodist Epsicopal Church in Bolivar in 1865.

Commerical Buildings and Leases, U.S. Lands, 1822-1829:

The House of Representatives' resolution of February 14, 1829 also requested a report on the commerical structures that had been erected on the Armory lands and the rents that had been collected from these merchants. Here Superintendent James Stubblefield found himself in a much leass defensible position, in comparison with his policy of permitting workmen to build their homes on public lands, particularly because he failed to collect rent from the merchants! In his report of February 23,1829, however, he did his best and informed Col. Bomford, Chief of Ordnance:

1. Continued-R.G. 217- 2nd Auditors,2nd Series-File 11127-Voucher 112B - on March 31,1827, the Paymaster paid Harris Robins $ 32.62½ for excavating 130½ cubic yards of earth for the foundation of a new church.

1. Stubblefield to Bomford, February 23,1829, Reel 22,V. 6; pp. 697-. Virginia Free Press, April 7,1831, p.3, c. 2.

2. Harpers Ferry NHP Photo HF-46 Talcott to Symington, Feb.10, 1849, Reel 19, Vol. 4, p. 372.

It will be seen that no rents have been yet collected upon the lots built on and occupied by private individuals not connected with the armory. This has resulted from the following state of things, viz: In some of the cases the leases have not yet been executed, and in none have the amounts of ground rent to be charged been ascertained. Diversity of opinion has occurred on this subject; and, on account of the uncertainty of the superintendent's power in such cases, it has not been considered advisable to agitate the question in what manner and how far the superintendent can coerce the settlement of claims to the United States on account of this armory, until the question was settled by advice of counsel, or otherwise, as the case might require; for, had the attempt been made, and failed, a vast deal of trouble and difficulty would have been encountered, which, in consequence of the course pursued, has been avoided.

In accordance with your letter of the 23d of last July, requiring me to obtain legal advice on this and other subjects, the questions of difficulty were immediately submitted to Moses T. Hunter, esq., the counsel usually employed in behalf of this armory, whose opinion was enclosed to you on the 14th of November last. By reference to that opinion, it will be seen that the subject is attended with very considerable difficulty, and the most advisable course to be pursued not yet clearly ascertained; when, however, such course is determined upon, there will be no difficulty in collecting the rents in arrears, as the parties from whom they are due are entirely solvent. It may be well to remark that each of the grants or permissions given to the individuals mentioned under the head of persons not connected with the armory to build on the public lands are decidedly advantageous to the interests of the armory, and required for the convenience and accommodation of the workmen therein employed, so much so that it is believed the United States have derived from them benefits equivalent to several thousand dollars, by thus destroying, in some measure, the imposition and oppressive monopoly which before prevailed, and which grew out of the fact that all of the real property at this place, except that of the United States, belonged to a single family, who exacted exorbitant rents from shopkeepers, mechanics, &c., even sometimes restricting them to particular kinds of business, who were thus, in their turn, compelled to charge the workmen employed in the armory corresponding rates for the ordinary means of subsistence, and thereby, in the end, rendering it necessary for the government to pay for work at prices higher than those for which it might otherwise have been done.

On a former occasion Mr. Calhoun, during the period that he was at the head of the War Department, and to whom this subject was referred, was clearly of opinion that the original purchase of the lands occupied by this armory, from John Wager, left it entirely discretionary with the government whether or not to permit merchants, shopkeepers, mechanics, and tradesmen of every description whatsoever, to erect buildings and pursue their different modes of business, on the public lands here, to any extent that the interests of the armory and the convenience of workmen therein employed might require.

As has been noted, there were two leases[3] from the Secretary of War in effect in 1821: one granted to Potomac Company in 1811 for Lots 1 and 11, Block C, Shenandoah Street, and the other to Major Jamieson, granted in 1816, for a lot near the U.S. Musket Factory. In addition, about 1818, Superintendent Stubblefield had also apparently permitted a friend, William Graham, to built on Lot No. 1, Block C, Shenandoan Street- a part of the Potomac Company land that was not being used by that firm. About of 1826, however, Stubblefield also allowed a number of political associates and friends to

3. ASP, IV, 142-143. The single family mentioned as owning all private land in Harper's Ferry, of course, was the Wager heirs.

erect their stores on Armory lands, which perhaps could be defended on the grounds that they introduced some competition to the merchants who were located on Wager land, but the Superintendent failed to demand any ground rent from his friends.

In his report on Buildings erected on the public lands by private individuals not connected with the Armory, Stubblefield described seven "lease holds," in the following terms:

No. 1- Stone storehouse and dwelling, brick dwelling and boarding house (located on Lot 1, Block C, Shenandoah Street), and wooden warehouse (located on Lot 11, Block C. Shenandoah Street), erected 1812 by the Potomac Navigation Company, under an agreement with the War Department. Estimated value of these three buildings was placed at $ 5,000. In his comments on this lot, Stubblefield wrote: "Lot No. 1, under the head of persons not connected with the armory, is situated on Shenandoah street, running back to the Shenandoah river. In front (on the street) is a two-story stone dwelling and store, and in the rear a large two-story brick boarding house, and on the river a large frame warehouse, formerly used by the Potomac Company for storing flour."[4] The Secretary of War had granted a lease to the Potomac Company in 1811 and the Company had erected a large warehouse on the lot in 1812. Stubblefield, however, did not mention that the Potomac Company had given up its lease in 1827 and that "title" to the warehouse and lot were now held by William Graham, who had erected the stone and brick houses on Lot 1, Block C, without benefit of any lease in the period 1818-20.

4. ASP, IV, 145. The store in the stone house on Lot 1, Block C, was a dry goods store. William Graham leased it to the following parties: Daniel A. Wood, ca. 1820-Feb. 1824; Feb. 1824- Aug. 27 -1827. M.K. Wartman. 1828-30, Hamilton and Lewright.

**For Graham buildings, see Houses No. 3 and 4, Map 7(1834), p. 276.

Lot. No. 2- Wooden storehouse and dwelling, erected in 1816 by Colonel Jamieson, under a grant from the President of the United States. This wooden structure was estimated to be worth $ 800.00. In his notes, Stubblefield wrote: "Lot No. 2, was granted by the President of the United States in 1815 to Colonel Jamieson, an officer of the United States army during the late war, to build upon it a store and dwelling-house, and is at present so used."[4] This information is accurate, except that lease was issued in February 1816, and not in 1815 as stated. Jamieson's lot was located on the slope of Camp Hill, overlooking the U.S. Musket Factory. Stubblefield, however, failed to mention that both leases for lots 1 and 2 required that ground rents should be paid and that these were to be established and collected by the Armory officers.

***

Lot. No. 3. Stone, rough-cast, used as a dwelling house, boarding-house, and butchery (located on Lot 7, Block D. Shenandoah Street), erected in 1826 by Philip and David Coons, under grant "from the Ordnance department to Philip Coons, April 6,1825;" This stone house was valued at $ 2,500.00. In his notes, Stubblefield explained: "Lot No. 3.... is situated on the Shenandoah river near the United States ferry. The house built upon it is a large stone building used as a boarding-house for the public workmen. One of the occupants (David Coons) is emplyed as a watchman at the armory; the other (Philip Coons and the owner of the house) is an enterprising butcher, who furnishes much the greater part of the meat consumed by the armory workmen."[5]

4. ASP, IV, p. 145.
5. ASP, IV, p. 145.

**For Lot No. 3 location, see House No. 52 on Map No. 7 (1834), p. 276.

The "facts" with regard the "granting of the lease" are not correct. On April 6, 1825, Col. George Bomford. Chief of Ordnance, informed Superintendent Stubblefield, that "Mr. Philip Coons has made application for the privilege of building a house on the public grounds at Harper's Ferry.

"You will report to me respecting this as you were requested to do in the case of John G. Wilson (see Lot No. 4 below) who made a similar application to this Dept. a short time ago."[6]

On April 4, 1825, James Bates Wager, one of the Wager heirs, apparently hearing of these applications for leases, wrote to Colonel Bomford protesting. Bomford responsed on April 8, writing:

"... The question as to the extent of the privileges to be incurred by the U. States, under their title to certain lands at Harper's Ferry obtained from John Wager, Senr. & others, it is considered, has been long since established. And that the U. States have the power to granting applications of the kind to which you refer, whenever it shall be deemed to the public interest to do so..." [7]

There the matter rested as far as the Ordnance Department was concerned. Stubblefield rendered no report, as requested in the Bomford letter of April 6, 1825, but apparently permitted Philip Coons to erect his stone boarding house in 1826.[8]

Coons did receive permission from the War Department to erect a slaughter house in April 1827. On March 27 of that year, Colonel Bomford informed Acting Superintendent Roswell Lee: "Mr. Philip Coons... has applied to this Department for a lot of the public ground

6. Bomford to Stubblefield, Reel 14, v. 5, p.410; also Bomford to Philip Coons, April 5, 1825, Reel 14, v. 5, p.438.
7. Bomford to Wager, April 8, 1825, Reel 14, V. 5, p.433.
8. In commenting on this "lease to George Rust, the newly appointed Superintendnt of the Armory on July 22, 1830, Bomford wrote "I enclose a copy of the letter (April 6, 1825) here quoted (by Stubblefield for Lot 3), which you will perceive makes no grant whatever, Reel 14, V. 8, pp. 748.

"at H.Ferry, for the erection of a Slaughterhouse...

If in your opinion Mr. Coons is a fit and proper person to be encouraged at the Armory in the business he proposes, and you should think it necessary to do so. I shall have no objection to any arrangements you may think proper to make with him, provided no new building is put up.

It is not considered advisable to authorize any exention of private buildings on the public ground at that place, at least, until your general report upon the subject is received, and some general principals in reagrd to them are established by the Secty (of War.). 9

Lee may have given Coons a verbal lease for a slaughterhouse lot, but if so, Coons was not supposed to erect a new building.

** Lot No. 4 : Stone, rough-cast, used as a dwelling and storehouse (and located on Lot No. 1 North of Shenandoah Street, now Park Bldg. No. 45). Built in 1826 by John G. Wilson "On the faith of a letter from the Ordnance department to J.G. Wilson, March 23,1825." Estimated value of the structure was placed at $ 2,500.00. In his remarks on this lot, Stubblefield wrote:" Lot No. 4... is situated on Shenandoah Street. The house built upon it is a large stone building; the site was formerly occupied by a large rock, in the side of the hill, which required a large expenditure of money to remove it." 10

On March 23,1825, Col. George Bomford informed John G. Wilson, a merchant, "Several letters have been received by this Department, making application in your behalf, for leave to erect a stone house on the public ground at Harper's Ferry. As it is a matter, about which it is proper that Mr. Stubblefield (Superintendent of the Armory) should be consulted, it has been referred to him in a letter of this day's date.." 11

9. Bomford to Lee, March 26,1827, Reel 14, V. 6, p.505.
10. ASP, Iv, 145.
11. Bomford to Wilson, March 23,1825, Reel 14, V. 5, p.408.

** For location of Lot 4, see House No. 7 on Map No. 7 (1834), p. 276.

As in the case of Lot 3, the document alledging grant a lease, made no such grant. Bomford did, however, on March 23, request Stubblefield to "state where the house is to be situated, what will be the effect of granting the request, and whether it can be granted consistently with the public interest."[12]

Seven months later, on September 15,1825, Stubblefield forwarded to Bomford a proposed memorandum of agreement with Wilson, which would grant the requested lease to the merchant.[13] In order to speed up a decision, Wilson had his Congressman, Major James Stephenson, write a note of introduction to Bomford, and the merchant may have visited Bomford in Washington. In his note Stephenson wrote in part: "The foundation of this building is to be taken out of a solid rock at least thirty feet high two thirds of which is completed."[14]

On December 23,1825, Stubblefield again wrote to Bomford:

> "I enclose... a letter from Mr. John G. Wilson on the subject of his being released from paying a ground rent for the lot on which he is about to build a store=house. The site, was, as he has stated, such a complete mass of rock, that it would probably never have been built upon by the Government, & a portion of the stone procured from the lot was used at a reduced price in building wall &c for public use. As Mr. Wilson intends establisning an extensive store which will be tne means of promoting competition, it may perhaps be an advantage to the place by enabling tne workmen to procure their goods at cheaper rates."[15]

Responding at long last on December 27,1825, Bomford informed Stubblefield "... I was not aware before, that Mr. Wilson had been permitted to put up any building upon the public grounds at Harper's Ferry."[16]

12. Bomford to Stubblefield, December 23,1825, citing the instructions given in his March 23,1825 letter, Reel 14, V. 5, p.449.
13. Ibid., Bomford reviewing the history of the problem.
14. Stevenson to Bomford, Nov. 23,1825, Reel 21, V.8, p.838.
15. Stubblefield to Bomford, December 23,1825, Reel 21, V.8,p.844.
16. Bomford to Stubblefield, Dec. 27,1825, Reel 14, V. 5, p.449.

Stubblefield wrote again on January 27,1826 and urged Col. Bomford to submit the proposed lease with Wilson to the Secretary of War for approval.[17] No such lease was ever issued to Wilson by the War Department. In reviewing the Wilson claim with Superintendent George Rust, Colonel Bomford wrote on July 22, 1830: "No. 4 is reported to be a grant from similar authority (the Ordnance Department), dated March 23,1825 - I enclose a copy of this letter also; this like the other (the claim for Lot No. 3) makes no grant... The grant in all these cases, may have been proper and advantageous to the public interest, if they had been made in a proper manner, and based upon just principles. But as they are now situated, none of the claimants , can be considered as possessing any legal title to the premises..."[18].

As constructed by John G. Wilson in 1825-26, Bldg. No. 45 fronted 50 feet seven inches on the north side of Shenandoah Street. and was 35 feet 4 inches deep. The two and one-half story structure had stone walls constructed of rubble stone, a gable roof and no cellar. The first floor was divided into two stores of unequal size and the upper floors served as a dwelling. In his letter protesting these leases on U.S. land, James B. Wager estimated the value of the buildings erected by John G. Wilson at "upwards of $ 3,000.00 " and wrote that they "would rent for $ 400.00 per annum."[19]

17. Reel 21, V. 9, p. 917.
18. Bomford to Rust, July 22,1830, Reel 14, Vol. 8, pp. 748.
19. Wager to Secretary of War Porter, January 19,1829, Reel 22, v. 7,pp.690.

Wilson, of course was paying no ground rent to the United States. By March 7,1827, a firm of Baltimore merchants by the name of McKim and Maslin had purchased Wilson's"lease" and used first floor of the building as a drys good store from 1827 to 1832 or 1833. Wilson lived on the upper floors of Bldg. No. 45 from 1826 to September 1829.[17]

Lot No. 5 - Frame house-plaster outside built for a dwelling house and printing office(and located on the north side of Shenandoah Street, see Houses No. 41 and 42 on the 1834 railroad maps). Erected in 1826 by John S. Gallaher by permission granted by Superintendent James Stubblefield. The estimated value of these two houses was $ 600. In his note, Stubblefield wrote in 1829:" Lot No. 5...is situated on Shenandoah Street. The building erected upon it was built for the purpose and, until lately, occupied as a printing office, and as such, considered highly important, jobs of printing being frequently required for armory purposes."[18]

Buildings No. 41, and No. 42, the latter an addition or wing to 41, were two story frame erected in 1826. No. 41 served as the dwelling of John S. Gallaher and No. 41 was his one-story frame printing office. A newspaper editor and publishing the Harper's Ferry Free Press, Gallaher lived and worked at Bldgs. 41-42, from 1826 to 1828, when he removed to

17. Wl Wilson may have been a partner in this firm.
Virginia Free Press, March 7,1827, p.4, c.3.
Col. Bomford to Supt. George Rust.Jr., May 25, 1830, Reel 14, V.8, 736; Rust to Bomford, June 7,1830 , Ree 22. V 11.,p.1010.
Virginia Free Press, September 23,1829, p. 4. c.3.

18. ASP, Iv,p.145.

Charles Town and began publishing the virginia Free Press. Gallaher rented the Harper's Ferry house to P. C. McCabe as a dwelling in late 1828 and improved it so that it contained 10 rooms, a good cellar, had a kitchen attached and a smoke house.[19] Lot No. 6. Frame storehouse and rough-cast dwelling house, built in 1826 by Michael Garry under a "Grant from the Ordnance department to Superintendent, June 20,1825". The estimated value of these two buildings was put at $ 2,500. In his notes, Stubblefield commented: "Lot 6... is situated on the street (High or Washington Street) leading up the hill towards Charlestown."[20]

Lot No. 7- A small "temporary frame storehouse," erected in 1826 by Michael K. Wartman under permission given by Superintendent James Stubblefield. This structure was estimated to be worth $ 175. In his notes, Stubblefield remarked: "Lot No. 7...is situated on the hill (Camp Hill) between the two rivers. The house upon it is a very small temporary frame house, that may at any time be easily removed."[21]

The total estimated value of these 11 buildings was placed at $ 14,075.00 by Stubblefield.[22]

19. virginia Free Press, December 3,1828, p.4, cl. Gallagher offered his house for sale and described it in some detail.
20. ASP, IV, p.145.
21. Ibid.
22. Ibid.

Superintendent Stubblefield also forgot to include all of the claims for buildings erected on the public lands by people not connected with the Armory! Claim for what we shall call Lot No. 8 was as follows(this was added at a later date):

Dr. Nicholas Marmion arrived in Harper's Ferry in February 1827 and in 1828 applied to Superintendent Stubblefield for the lease of an lot on armory land on which to erect a dwelling and apothecary shop. Stubblefield forwarded the application recommending its approval, stating that the site chosen on the side of Camp Hill overlooking the U.S. Musket Factory(Lot 1, Block AA on the 1869 land map) would not interfere with Armory operations.** [22] Col. George Bomford responded on October 16,1828, tending to favor the grant but pointing out that Stubblefield had omitted the amount of ground rent that Dr. Marmion was be required to pay, and that the lease could not be approved until this data was provided.[23] Stubblefield provided the desired information promptly[24] and the War Department approved the lease on November 28,1828.[25]

On learning of the doctor's plan to build, Gerard Bond Wager, one of the Wager heirs wrote in 1829 to protest this grant to the Secretary of War. In the letter of explaination to Wager, dated May 25,1829, it was stated:

"..a lease was allowed him (Dr. Marmion) by a special order of the Secretary of War of the 12th August 1828, for the purpose of erecting an apothecary shop, provided the public interest required it. On making the necessary enquiry of the Superintendent this

22. Reel 22, Vol. 5,p.420.
23. Reel 14, Vol. 6, p. 576.
24. Reel 22, V.5, p.422.
25. Reel 14, V. 6, p.587.

** For the location of Dr. Marmion's house and lot, see Map No.16(1844), page 387, Lot No. H.

appeared to be the fact,and on the 8th of October he accordingly transmitted the form of a lease for approval, specifying the ground &c. With some modifications the lease was returned on the 28th Novr. with instructions to return a copy of it as soon as it was executed.

No copy of the lease has since been returned as directed.I have therefore, in consequence of the information contained in your letter, that improvements on the lot are about to be commenced, directed a copy to be forwarded to this Dept. as early as practicable." 26

Stubblefield and Marmion had failed to sign the approved lease!

In a letter of instruction, also dated May 25,1829, to Acting Superintendent Roswell Lee, Bomford informed of Lee of the situation and directed "The building, should not, of course, be permitted to be commenced, until the execution of the agreement as forwarded from this Dept. and as soon as it is executed a copy of it should be furnished." 27

Col. Lee completed this mission successfully and returned the duly executed lease on June 3,1829. Without this action, however, Dr. Nicholas Marmion undoubtedly would have erected his two-story stone without benefit of any formal agreement. In his letter returning the signed lease, Col. Lee also conveyed the first hint of the policy that Dr. Marmion was to pursue for the next 18 years, namely of refusing to play any ground rent. Lee reported:

> It is suggested by the Doctor that as this place is frequently unhealthy so much so that Physicians retire a few miles from this place, and cannot always be found at the moment they are wanted,and as the advantage in having good and skilful medical aid always on the spot, perhaps it would not be deemed improper for the United States to allow them their building Lot free of Rent, or at a reduced price." 28

26. Reel 14, V. 7, p.622.
27. Reel 14, V. 7, p. 622-623.
28. Reel 22, V. 6, p. 577.

The house that Dr, Marmion was in the process of erecting in1829 was to be appraised as worth $ 2,300 in 1831.[29]

The U.S. Ferry on the Shenandoah

The U.S. Ferry across the Shenandoah River at Harper's Ferry was operated under a lease agreement with Mr. Job C. Harding from 1818 until his death and then after his death by his widow, to the end of 1826. In the latter year George Harding erected a stone house"intended as a ferry house" on the 68 acre ferry tract on the south side of the Shenandoah. Stubblefield estimated that the value of this house(in 1829) was $650.[30]

Under the lease, the Hardings furnished all the ferry boats and also "crossed all the teams loaded for the U. States Free."[31]

From March 1827 to March 1830, the ferry was leased to Edward Hardy " on the usual terms."[32]

Harper's Ferry in 1830:

The population of Harper's Ferry increased from 751 in 1810 to 1,377 in 1820, and in 1830 the total for the area reached 1,743 . However, the population of Harper's Ferry proper(the U.S. and Wager family lands) remained almost unchanged during the decade, numbering 1,377 in 1820 and 1,385 in 1830! The growth that occurred took place in two towns that did not exist in 1820, namely, the town of Virginius, 89 people living on a 12-acre island located in

29. Reel 22, Vol. 16, p.1504.
30. ASP, IV,143.-See House No. 113.
31. Acting Superintendent Roswell Lee to Bomdford, Feb. 11,1827, Reel 22, Vol. 1, p.85.
32. Acting Superintendent Lee to Bomford, March 20, 1827, Reel 22, V. 1, p.68, Virginia Free Press, March 3,1830, p.3, C.3, notice that Shenandoah Ferry would be leased to the highest bidder.

the Shenandoah River, and 269 people residing in the newly formed town of Bolivar, which was located on the heights of Camp Hill, just west of the U.S. public land. The probable reason for the failure of the Harper's Ferry population to increase from 1820 to 1830 was due to the land ownership system that prevailed in the town, with all the lands being owned by the United States and Wagers and with none available to be purchased. Thus the average Armory workman who wished to own his own lot and house was forced to settle in Bolivar as the closest available site where he could purchase land at prices that might be within his means. The very high price of land in the industrial town of Virginius also precluded Armory workmen from purchasing home sites on that island.[33] Except for water transport via Potomac Company improvements on the Potomac and Shenandoah, Harper's Ferry was still isolated.

POPULATION OF HARPER'S FERRY
IN 1820 and 1830

	1820 Harper"s Ferry	1830 Harper'sFerry	1830 Virginius	HF & Virg.	1830 Bolivar
Total	1,377	1,385	89	1,474	269
WHITES	1,255	1,184	70	1,254	
BLACKS	122	201	19	220	
NO. OF FAMILIES	122	208	16	224	
White Males	681	613	43	656	
White Females	574	571	27	598	
FREE BLACKS	24	63	1	64	
SLAVES	98	89	18	107	

33. National Archives Record Group 29, Records of the Bureau of the Census, Population Schedules for the Census of 1830.

James Stubblefield and the Island of Virginius, 1823-29:

In 1816, Daniel McPherson, Surveyor of Jefferson County, Virginia, took out a patent from the State of Virginia for the Island of Virginius as unclaimed land.[1] On May 19,1817, McPherson sold the island, then "containing eleven acres, one rood and thirty-four poles" to John Peacher for $ 1,000.[2] In two deeds, dated August 30,1823, and August 30,1824, and for a total of $ 15,000.00, Peacher sold the entire island, then described as containing "twelve acres, one rood and fifteen perches," to James Stubblefield, Superintendent of the U.S. Armory at Harper's Ferry.[3]

On August 31,1824, Stubblefield entered into an agreement with the Shenandoah Canal Company that provided for the improvement of the water channel or canal that passed along the north side of the island and also granted him the right to erect a dam across the Shenandoah River so as to turn water into the canal. The contract further permitted Stubblefield to use the water so diverted to work the "grist mills and edifices" situated on his Island.[4]

1. Notes of Lt, Col. George Talcott, Ordnance Department, Notes attached to his report on the U.S, claims to the Island of Virgiius, to the Secretary of War, August 17, 1843, Reel 23, V. 3, p.212-213.

2. Deed of B. &. S., May 19,1817, Deed Book 10, pp. 142-143, Jefferson County Court House, Charles Town, West Virginia.

3. Deed of B. &. S., August 30,1823, Deed Book 13, pp. 27-28; Deed of B. &. S., August 30, 1824, Deed Book 13, pp. 28-29. The second deed indicates that Peacher had erected a grist mill on Virginius in the period 1817-1824.

4. Articles of Agreement, Stubblefield and Shenandoah Canal Company, August 31,1824, Deed V Book 13, pp. 259-260.

On December 28,1824, Stubblefield divided the island of Virginius into four tracts which he sold to four individuals for a grand total of $ 29,000, therby realizing a neat profit if the purchasers could make their payments.

The upper or western end of the island was purchased by Fontaine Beckham for $ 10.500. This was to be developed and used as a merchant flour mill from 1824 to 1838. (Tract No. 2 - tract of six acres).

A second tract, of two acres, also located on the upper western end of the island, but situated on the northern side, was sold to Townsend Beckham for $ 7,500. This was to be developed and used as a tannery site from 1824 to 1838 (This is tract No. 1).

By a third deed, Stubblefield sold to Edward Wager, his son-in-law, for $ 8,000, a lot containing " 123 square poles of land." This lot was situated on the northern side of the island and located just east of Fontaine Beckham's merchant flour mill tract. Tract 3. was owned by Edward Wager from 1824 until his death in 1827. The estate to 1834; lot then contained one one-family and one two-family dwelling houses.

By the fourth deed, Stubblefield conveyed "three acres" of the eastern (lower) end and southern side of the island to Lewis Wernwag for $ 8,000.(Tract 4). This lot was owned by Wernwag from 1824 to 1833 and here he built a saw mill, machine shop, blacksmith shop, and a number of dwelling houses.

5. Deed of B. &. S., Dec. 28, 1824, Deed Book 13, pp. 330-331.
6. Deed of B. &. S., December 28,1824, Deed Book 13, pp.344.345

7. Deed of B. &. S., December 28,1824, Deed Book 13, p. 334-336.
8. Deed of B. &. S. December 24,1828 4 , Deed Book 14, p.41-42.

The Fall of Superintendent James Stubblefield, 1827-29:

Superintendent James Stubblefield took command of the U.S. Armory on May 14, 1807 and after undergoing two investigations or hearings in 1827 and 1829, was forced to resign his office on June 1,1829, effective on August 1, 1829. Dr. Merritt Roe Smith, in his Harpers Ferry and the New Technology (pp.156- 183) examines the charges and hearings in some detail. Here it is intended only to consider certain aspects of the case. Briefly, however, the general facts may be summarized as follows:

A number of Armory employes- whistleblowers as they would be known today and some Maryland businessmen charged that Stubblefield was using his position as superintendent to enrich himself by violating rules and regulations of the Armory. The complaints were carried first into the Ordnance Department and then into the halls of Congress. In March 1827 a number of Maryland Congressmen demanded that a investingation be conducted and Secretary of War Barbour ordered Inspector General John E. Wool to conduct such a hearing. Events were to demonstrate that Wool did not permit evidence to interfere with his decisions and that he was thus able to "find" whatever his political chief, the Secretary of War, wished. Thus in the first hearing, held April 26-May 3,1827, Wool[A] wrote "a few instances of neglect of minor importance were found (which Wool also failed to spell out), but nothing seriously impugning the superintendent's reputation:" "The charges against Mr. Stubblefield" ,he concluded "are generally unsupported by evidence and appear to have been entertained on information proceeding from malicious sources." These findings pleased the John Quincy Adams administraion and the Secrteary of War reinstated Stubblefield as Superintendent on June 1, 1827. He warned Stubblefield

A. Record Group 217- File 11127-Voucher 55C- On May 12,1827, Mary and Elizabeth Fitzsimons were paid $ 50.00 for 7 days"rent of a large room for the Court of Enquiry". Probably held in House 3,Lot 1, Block C Shenandoah-"The Globe Inn".

not to repeat the " few irregularities" and also gave him full authority to discharge any workmen who disseminated "false and malicious reports or charges. " Needless to say the "whistleblowers" were soon fired. The first hearing was thus a whitewash of the problem. Stubblefield, however, proceeded to operate the Armory as he had in the past. Once again charges were made; in the presidential election of 1828 Stubblefield was a strong supporter of Adams, and when Adams lost the election to Andrew Jackson, fate began to close in on the superintendent. In January 1829 a group of Maryland, Virginia, and Pennsylvania Congressmen demanded a more thorough investigation of the affairs of the U.S. Armory at Harper's Ferry and Jackson's newly appointed Secretary of War John H. Eaton was pleased to implement this request. Once again Inspector General John E. Wool conducted the hearing, May 7-May 14,1829, and this time the General was able to see a number of items that had eluded him in the first hearing.

Specific questions were now considered about discretionary employment practices, absenteeism, favoritism for letting contracts without requiring competitive bidding, needless expenditures and the misuse of government property. However, very little could be proven legally against the superintendent because his records were too muddled and incomplete to be used as evidence of these records, however, documented the fact that he was inefficient. The board also found that many of the charges were true, that in the Armory, that they did take place, but they could not find documentary evidence to prove the Stubblefield was personally involved himself. As Superintendent, however, Stubblefield was responsible of course for having failed to note

B. R.G. 217 -File 13626-V. 63C- Sept. 2,1829- To Mary and Elizabeth Fitzsimons, $ 50.00 for rent of use of house during court of inquiry in May 1829. Mrs. Fitzsimmons was operating a" large and commodious boarding house in brick house No. 3, which was located Lot 1, Block C, Shenandoah Street, in 1829.

and correct these abuses. The hearing further revealed that the real cuplrit of the mess at Harper's Ferry was not the superintendent, but his brother-in-law Armistead Beckham, the Master Armorer. Dr. Smith has concluded the evidence indicated that" The Master Armorer had taken bribes, ,falsified records, intimidated workers, played favorites, condoned the use of violenece against those who threatened to expose his activities, and even attempted to have" one workman witness" jailed on fictitious charges to prevent him from testifying before the Wool Committee."[1]

These findings pleased the Jackson Administration as they justified the discharge of Stubblefield, an Adams man. Because no criminal charges were proven Stubblefield was reappointed on June 1,1829, with the understanding that he would resign as superintendent on August 1,1829.

Armistead Beckham, however, refused to resign as master armorer and remained at Harper's Ferry to May 1830, when the Ordnance Department resolved this problem by transferring him to the Allegheny arsenal at Pittsburgh, Pa. The whistleblowers were also rehired in 1829.

Four Armory employess, all hard working men, namely Nahum W. Patch, Charles Staley, Thomas Copeland, and Captain John H. Hall, were the sources of most of the Charges against Stubblefield. While not enough legal evidence could be found to link Stubblefield directly to the alledged abuses, there can be no doubt that these abuses did take place. Some of these abuses are discued briefly below:

1. Smith, Harpers Ferry Armory, p. 179.

Charles Staley charged in 1826 "there are a number of men with families in the employment of government who cannot get houses- while several houses belonging to the Public are occupied by individuals having no connection with the public, who say they are not afraid of being compelled to quit them as long as the supertinendent owes them money. Staley also alledged that Stubblefield and his relatives and friends were conducting a scheme to enrich themselves at the expense of the armory workmen. Worker-tenants presented claims for repairs they made on government-owned dwelling houses. But according to Staley: "there has been practiced a species of speculation on a number of persons- having claims on Houses for repairs done - the superintendant stating he could not pay them for a year or two by which they have been induced to sell them to Messrs. E(dward) Wager(Stubblefield's son-in--law) and F.(ontaine) Beckham(a friend of Stubblefield) at a great discount, who paid for them in money drawm from the paymaster a short time after the transaction." The 1829 board clearly asertained that Fontaine Beckham, in collusion with Edward Wager, had in fact speculated in private claims against the armory.

Staley further charged that Stubblefield had repeated[ly] used government funds and materials to favor a certain few individuals: he had "seen the public stores to wit coal, Iron, steel & etc, Etc. Etc., made use of for private purposes- Old guns repaired and new ones made, and the public lathes made use of in turning mill spindles etc. etc., the public teams and labourers employed for weeks at a time in

"filling private ice houses- the public carts sent for individuals to Shannondale Springs for water, absent 2 days at a time, at the public expense.- this repeatedly done." The superintendent's favorites included Lewis Wernwag, James Stephenson, tavern owner and Congressman, John G. Wilson, and William Graham. When Stubblefield sold the sawmill tract on the island of Virginius to Wernwag in 1824, Staley testified, "the Public Sawmill was dispensed with & all articles previously sawed there, bought of Wernwag- by which he was enabled to pay Mr. Stubblefield for his Island. Stephenson, Staley stated, was given free access to the armory woodpile, merchant John G. Wilson was given permission to erect a private store and dwelling rent free on the public grounds; and William Graham had been permitted to rent the U.S. Sawmill on the Potomac for $ 100 a year even through another person had offered Stubblefield $ 300 for the same lease. The second investigating board in 1829 was able to document the fact that many trees on the government woodlands on the south side of the Shenandoah " were cut down for no other purpose than to procure bark" for Townshend Beckham's tannery on Virginius Island, which Beckham had purchased from Stubblefield in 1824.[2]

The board was also able to prove that an Armory Inspector by the name of William Malleory had frequently given pay vouchers to armorers for work they did not perform. Perhaps the most shocking revealation, in 1829, however, had to do with the purchase of iron at Harpers Ferry. The armory's principal supplyer of iron since 1819 had been Peter Shoenberger of Huntington, Pa.. Deeply concerned about the high loss of

2. See Smith, Harpers Ferry Armory, 162-163, 179.

gun barrels at the Harper's Ferry armory since 1819, the Chief of Ordnance sent Thomas Copeland to investigate the problem in 1824. He soon reported that he had never seen "such a house of bad Iron with such an emence scrapp heap as is at Harper's Ferry." "Very little of what is understood to be good Juneata Iron has been to Harper's Ferry for these several years." The armory's accumulation included more than $ 100,000 worth of faulty iron. Stubblefield refused to heed recommendations that he purchase iron from some other source, but continued to purchase poor grade iron from Shoenberger until 1829.

Copeland later reported that master armorer Armistead Beckham and inspector Joseph Hoffman accepted expensive gifts from Shoenberger, and in return recommended his iron to the gullible superintendent. Copeland further stated that whenever the ironmaster visited the armory, he regularly distributed "considerable sums of money among the barrel welders to gain favor with them. In the 1829 the board established in fact that Sheonberger had handed out large sums of money among the barrel welders in 1825 and 1826 and that he did so with the full knoweledge and approval of the master armorer.[3]

Among the charges that could not been proven, but were probably true, which were those relating to the purchase of gunstocks and coal for the armory without any competitive bidding for these contracts. Charles Staley Charged that Stubblefield had ignored Ordnance Department regulations that required the letting of contracts for supplies and raw materials

3. Smith. Harpers Ferry Armory, p.166,170,179.

by public advertisement and only to the lowest bidder. Staley alledged that Stubblefield had continually purchased pit coal at 25 cents a bushel from the Strider Brothers, Henry and John, of Harper's Ferry, when he could have gotten the same coal from non-local dealers for 20 cents a bushel.[4] A resolution of the House of Representatives, dated January 14, 1828, required the Secretary of War to submitted a detailed report for the period January 1,1820 to December 1,1827, on the amount of stone coal purchased, of whom purchased, and the price per bushel. The resulting report reveals that the armory purchased a total of 185,067½ bushels of coal for $ 48,167.59 in the period 1820-27. The data does not support the charge that Striders was the favorite; but it might suggest either that there was no competitive bidding or that the sellers were conspiring to fix the price among themselves. Thus althrough 37,424 bushels of coal were purchased from 11 different dealers in 1822, the identical price of 25 cents a bushel was paid for all but 6,632 bushells and of this all but 850 bushels went for 23 cents. This pattern of a uniform price repeats itself each year. and the number of sellers is not very large.[5]

In additiona group of gunstock sawyersof Cumberland, Md. headed by Notley Barnard and B. S. Pigman, also complained that Stubblefield refused to do business directly with them even through most of the walnut plant used at the Armory came originally from their sawmills.

4. Smith, Harpers Ferry Armory, p.163.
5. Serial No. 171,20th Congress, 1st Session, HouseExecutive Documents, Vol. 3, Document No. 78,pp. 3-12."Letter fromthe Secretary of War Transmitting the Information Required by a resolution of the House of Representatives of the 14th instant(January 1828), in Relation to Coal and Gunstocks, purchased since 1st January ,1820,for the use of Said (Harper's Ferr) Armory,

In 1822 Barnard and Sons stated they had contracted with John A. Smith of Harpers Ferry for 40,000 roughsawed gunstocks at 14 cents each. Smith, in turn, sold these same stocks to the armory at 19 cents apiece. After Smith's death in 1823, Barnard offered to assume the contract and furnish the rough stock at 19 cents each. Stubblefield refused and told Barnard that no other contract would be made until Smith's was completed. During this same period, 1823, Barnard reported that Stubblefield was purchasing of Martin Rizer (who is also listed as selling coal) at 25 cents each. In 1824, Barnard reported he was forced by Superintendent Stubblefield to deliver his stocks to John Strider (of Harpers Ferry and also listed as a coal seller) at 19 cents "from whom they were received by the Govt. at twenty-five cents." This practice continued through 1829.

The same resolution of the House of Representatives, dated January 14, 1828 and calling on the Secretary of War for a report on pit coal, also required a report on "the number of gunstocks purchased, of whom purchased, and the price per stock" from January 1, 1820 to December 1, 1827. The resulting report indicates that the Armory purchased a total of stocks 134,323 for $ 34,618.71 in the years 1820 to 1827. In 1820 four local Harpers Ferry men, including J.A. Smith , sold the Armory a total of 16,066 stocks at the uniform price of 30 cents per stock. In 1822 three local men, including J.A. Smith, W. O. Sprigg, and B. Cushwa, sold a a total of 10,908 gunstocks at the uniform price of 25 cents each to the Armory. In 1823 a group of seven local men, including John Strider, sold 15,869 stocks at the uniformed price of 25 cents each.

In 1824 37,594 musket stocks were sold to the armory at a unifmrm price of 25 cents each. The small group of sellers included J. Strider, M. Rizer, and John G. Wilson. The list for 1825 includes the names of J. Strider, M. K. Wartman, M. Rizer, J. B. Wager, and J.G. Wilson. Of the 17,090 stocks purchased in 1825, 13,518 cost 25 cents each and the remaining 3,572, all purchased from September 8 to 20, 1825, cost 20 cents each.[6]

Again there is no evidence to prove that Stubblefield was directly involved but the pattern established by the contracts for the purchase of coal and musket stocks in which the prices are uniform and all by local men indicates that there could not have been any competitive bidding. What Stubblefield was apparently doing was channelling all these contracts for materials through local men who must have been his political allies, friends, and business associates. Whether or not Stubblefield placed some of the proceeds from these illegal schemes in his own pockets cannot be answered on the basis of the available evidence. It is quite clear, however, that from 1821 to 1829 Harper's Ferry was having a Watergate experience in which the United States government Armory operations at Harper's Ferry were being looted for the benefit of the political and economic allies of Superintendent James Stubblefield.

6. Serial No. 171, Document No. 78, p. 3, 13-19.

Stubblefield's replacement as Superintendent was Thomas D. Dunn, superintendent of the Antietram Iron Works near Antietram, Maryland. Industrious and able, Dunn took charge in early August 1829. He began reforming the administrative system and enforcing the rules and regulations regarding working hours. He fired a number of inept workmen and rehired the "whistleblowers". Dunn's promising career was cut short on January 30,1829, when an inept workman by the name of Ebenezer Cox, who had been discharged in August 1829, entered Dunn's office and shot the superintendent dead.

On February 17, 1830 the Secretary of War appointed George Rust, Jr. of Waterford,Loudoun County, Va. to be the fourth superintendent of the Harper's Ferry Armory. A important political figure in Virginia, a brigadier general in the state militia and a gentleman farmer, Rust was a close personal friend of President Andrew Jackson, but the Virginian knew nothing about the manufacture of arms. Rust further regarded his appointment as superintendent at the armory to be a sinecure that required little personal attention or service. Thus the U.S. Armory at Harper's Ferry was destined to suffer seven more years of poor management until General Rust resigned as superintendent in March 1837.

The Potomac Company, 1822-1828

From 1799 to November 1833, the U.S. Armory at Harper's Ferry's only tenuous transportation link with the eastern seaboard and the civilized world was via the works of the Potomac Company on the Potomac River.

From August 1799 to August 1822, the Potomac Company collected tolls from 13,924 boats using the navigational facilities of the Company. These shallow draft vessels carried a total of 163,798½ tons of products, mainly flour, whisky, tobacco, and iron. Although the Potomac Company expended more than $ 500,000 , the removal of obstructions to navigation in the Potomac was never successfully completed and it was found that the boating season was limited to period of high water, or to about two months a year. The Potomac Company functioned from 1785 to August 15,1828, when it conveyed its charter and offical papers and property to the recently formed Chesapeake and Ohio Canal Company.

Chartered on March 3, 1825 and begining construction on July 4, 1828, the canal of the C. & O. Canal Company, building west from Georgetown, D.C., did not reach a point opposite to Harpers Ferry until November 1833, thus ending reliance on the Potomac River as a means of transport.

The Armory, 1830 - 1835: STAGE THREE- Some Modernization and Expansion.

On November 30,1829, the Chief of Ordnance changed the methods of requesting funds from Congress to make permanent improvements at Armories and Arsenals. In a letter to Secretary of War John H. Eaton, Col. George Bomford explained: "The additional sums required in this estimate,are for additions and improvements of a permanent character. It has been customary, heretofore, to make improvements of this kind to a limited extent, from time to time, as the necessities of the armories required, from the annual appropriations for the production of arms. But as those now required are extensive, they cannot be made from the ordinary appropriation, without materially diminishing the ordinary product of arms. As it is considered proper to continue the usual operations of the armories, and ,at the same time, to make the improvements suggested, which are very necessary to the advantageous operation of the works, additional appropriations are necessary...:"[1]

Henceforth, 1829 to 1861, the Ordnance Department, whenever it wished to make major repairs or erect large buildings, submitted special estimates to Congress explaining the need and nature of the proposed projects. Congress,in turn, appropriated funds that were tied directly to each project. This method greatly facilitiates the preparation of the construction history of the U.S. Armory at Harper's Ferry during the years 1830 to 1861.

1. Serial No. 195, Document No. 2, p. 129, 21st Congress, 1st Session, 1829-30, House Executive Documents, Vol.1.

Chart No. 6(see page 244 reveals that during the years 1830 to 1835, Congress appropriated a grand total of $ 141,478.00 in special funds earmarked for construction projects, making new machinery, and acquiring additional land . National Armory Accounts for the period 1830 to 1835 (see below) indicates that the National Armory spent a total of $ 152,971.48 for construction and repair during these years and that with the $ 2,600.00 expended for the purchase of land included, that grand total was $ 155,571.48

Year	Approp. for Construction.	Armory Expenditures for Land	Armory Expenditures for Construction and Repair	No. of Arms Made	No. of workmen	Source Expend. Serial Ser.	Source Expend. Serial Doc.
1830	$ 29,000.00	0	$ 14,431.93	10,130	196	209-	125
1831	7,500.00	0	18,237.33	11,160	242	219-	170
1832	0	0	18,408.68	16,360	242	235-	121
1833	54,895.00	$ 2,600.00	33,422.91	15,670	249	257-	322
1834	50,083.00	0	45,038.16	12,970	255	275-	188
1835	0	0	23,432.47	11,714	229	292-	294
1830-1835	$ 141,478.00	$ 2,600.00	$ 152,971.48	78,004	-	-	
1796 1835	$ -	$ 45,477.28	$ 561,476.14	311,115-	-	-	

(Chart No. 6 (see page 244), which is based on the vouchers issued by the Paymaster of the Harper's Ferry Armory during the years 1830-35 to pay for improvements(National Archives Record Group 217- Records of 2nd Auditor of the Treasury Department), indicates that approximately $ 121,344.28 were expended from the total appropriation of $ 141,478.00 in special funds. This suggests that difference between $ 121,344.28 and the total of $ 155,571.48 said to be spent- namely $ 34,227.20 must have come from general Armory operating funds.

Chart No. 6

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:

1830 - 1835

YEAR	Extending Walls & Embankments Canal	Widening Potomac Canal	Repair & Extension Potomac Dam	Erecting Forging, Til Hammer & Grinding Mil	Erecting Dwelling Houses	Slating Roof of Workshops	Repairing walls of four work-shops	Making 3 new water-wheels for 3 shops.	Completing Machinery in three shops.	Erecting Store Houses &c/	Purchase water right Shenandoah	Repair & Extend Shenandoah Dam	GRAND TOTAL
1830	9,043.00	-	-	0	364.42	0	-	-	-	-	-	-	$ 9,407.42
1831	4,803.37	-	-	3,744.63	5,921.10	0	-	-	-	-	-	-	14,469.10
1832	1,673.30	-	-	710.96	2,302.70	380.48	-	-	-	-	-	-	5,067.44
1833	-	7,833.08	3,374.94	0	5,859.98	2,632.94	849.95	6,294.90	-	-	$ 2,600.00	-	29,445.79
1834	-	10,616.75	489.04	4,959.81	3,037.72	0	0	1,787.38	16,245.52	2,416.10	-	1,999.50	41,551.82
1835	-	0	342.75	8,540.19½	0	0	0	0	10,921.02	1,598.75	-	-	21,402.71
TOTAL:	15,519.67	18,449.83	4,206.73	17,955.59	17,485.92	3,013.42	849.95	8,082.28	27,166.54	4,014.85	2,600.00	1,999.50	121,344.28
BALANCE LEFT:	* 1,280.33	1,853.60	793.66	1,844.59	982.59	186.58	650.05	317.72	8,948.32	4,575.02	+2,000.00	+ .50	22,283.61
APPROP-RIATION	16,800.00	19,023.16	5,000.00	19,800.00	18,600.00	3,200.00	1,500.00	8,400.00	33,964.97	8,589.87	4,600.00	2,000.00	144,478.00

* Balance transferred for use in repairing Potomac Dam in 1832.

+ Money reverted to U.S. Treasury.

Chart No. 7

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:

1830 - 1835

YEAR	Extending Walls & Embankments Canal	Widening Potomac Canal	Repair & Extension Potomac Dam	Erecting Forging, Til Hammer & Grinding Mil	Erecting Dwelling Houses	Slating Roof of Workshops	Repairing walls of four work-shops	Making 3 new water-wheels for 3 shops.	Completing Machinery in three shops.
1830	9,043.00	-	-	0	364.42	0	-	-	-
1831	4,803.37	-	-	3,744.63	5,921.10	0	-	-	-
1832	1,673.30	-	-	710.96	2,302.70	380.48	-	-	-
1833	-	7,833.08	3,374.94	0	5,859.98	2,632.94	849.95	6,294.90	-
1834	-	10,616.75	489.04	4,959.81	3,037.72	0	0	1,787.38	16,245.52
1835	-	0	342.75	8,540.19½	0	0	0	0	10,921.02
TOTAL:	15,519.67	18,449.83	4,206.73	17,955.59	17,485.92	3,013.42	849.95	8,082.28	27,166.54
BALANCE LEFT:	* 1,280.33	1,853.60	793.66	1,844.59	982.59	186.58	650.05	317.72	8,948.32
APPROP-RIATION	16,800.00	19,023.16	5,000.00	19,800.00	18,600.00	3,200.00	1,500.00	8,400.00	33,964.97*

* Balance transferred for use in repairing Potmac Dan in 1832.

* An additional $ 2,149.89 charged to canal account

Chart No. 7

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:

1830 - 1835

YEAR	Erecting Store Houses &c/	Purchase water rights Shenandoah	Repair & Extend Shenandoah Dam	GRAND TOTAL					
1830	-	-	-	$ 9,407.42					
1831	-	-	-	14,469.10					
1832	-	-	-	5,067.44					
1833	-	$ 2,600.00	-	29,145.79					
1834	2,416.10	-	1,999.50	41,551.82					
1835	1,598.75	-	-	21,402.71					
TOTAL:	4,014.85	2,600.00	1,999.50	121,344.28					
BALANCE LEFT:	4,575.02	+ 2,000.00	+ .50	22,283.61					
APPROP-RIATION	8,589.87	4,600.00	2,000.00	141,478.00					

+Money reverted to U.S. Treasury.

SPECIAL APPROPRIATIONS FOR PERMANENT IMPROVEMENTS
AT THE HARPER'S FERRY ARMORY, VA., 1830-31

Project:	(1) 1830	(2) 1831	(3) 1832	(4) 1833	(5) 1834	(6) 1835	Total
Extending walls & Enbamkments pf Potomac Canal	9,300	7,500	0	0	0	0	$ 16,800.00
Widening the Potomac Canal	-	-	-	13,495	5,528.16	0	19,023.16
Repairing & extend-the Potomac Dam	-	-	-	5,000	0	0	5,000.00
Erecting forge, tilt hammer shop and new grinding mill	6,500	-	-	13,300	0	0	19,800.00
Erecting 18 dwelling houses	10,000	-	-	8,600	0	0	18,600.00
slating roofs of Workshops	3,200	0	0	0	0	0	3,200.00
Repair walls of four workshops	-	0	0	1500	0	0	1,500.00
Making new water wheels for stocking, turning & boring shops	-	-	-	8,400	0	0	8,400.00
Completion of machinry in stocking, turning & boring shops	-	-	-	-	26,040.47	0	26,040.47
Erecting storehouse for iron, repairing officers-quarters, sinking 3 wells, paving street, painting bldgs.	-	River Wall.	-	-	8,589.87	0	8,589.87
Erecting annealing shop & proof house, 2 polishing shops for tempering springs and polish-in bayrels, erecting 2 fire engine houses, new carpenter & machine shop, and making addition to stocking shop	-	-	-	-	7,924.50	0	7,924.50
Purchase of water power rights on Shenandoah	-	-	-	4,600	0	0	4,600.00
Repair and extension of U.S. Dam on the Shenandoah	-	-	-	-	2,000.00	0	2,000.00
TOTAL:	29,000	7,500	0	54,895	50,083.00	0	$ 141,478.00

1. U.S. Statues at Large, Vol. IV, p. 424.
2. U.S. Statues at Large, Vol. IV, p. 467.
3. Ibid.
4. U.S. Statues at Large, Vol. IV, 641-642.
5. U.S. Statues at Large, Vol. IV, p. 675, 680.
6. Ibid.

APPROPRIATIONS FOR PERMANENT IMPROVEMENTS
AT HARPER'S FERRY ARMORY, VA., 1830-1835.

CASH FLOW FROM THE U.S. TREASURY DEPARTMENT TO THE ARMORY PAYMASTER AT HARPER'S FERRY, 1830-35

Year	Appropriated During the Year	Amount withdrawn by requestion from U.S. Treasury by Paymaster during year.	Balance in Treasury on Dec. 31.	
1830:	$ 29,000.00	$ 11,800.00	$ 17,200.00	(1)
1831	7,500.00	22,000.00	7,500.00	(2)
1832	0	7,500.00	0	(3)
1833	54,895.00	34,474.55	20,420.45	(4)
1834	50,083.00	44,698.72	25,804.73	(5)
1835	0	23,004.73	$ 2,800.00	(6)
Total:	$ 141,478.00	$ 143,478.00	-	

(1) Serial No. 209, Document 136, p.2.

(2) Serial No. 219, Document 134. p. 2.

(3) Serial No. 235, Document 128, p. 5.

(4) Serial No. 258, Document 390, pp.7-8.

(5) Serial No. 273 , Document 112, p.5.

(6) Serial No. 288, Document 83, p.4.

CHART 8

Status of the Armory Plant, 1830-31:

The system devised in 1822, of an National Armory Account report each year that was accompanied by explantory notes on expenditures for repairs and improvements, was continued for two more years, 1830-31. Data from these annual reports is presented below:

Year	For Construction	For Repair	For Land	C.&. R. Total	No.New Bldgs. [1]
1830	$ 14,431.93	0	0	$ 14,431.93	2
1831	$ 18,117.08	$ 120.25	0	$ 18,237.33	6
1798 to 1831	$ 364,167.78	77,006.14		$ 441,173.92	1821 to 43 1831

Armory Expenditures, 1830-31 for:					At Rifle Factory
Year	For Buildings	For Canals and Dams		C & R. Total	For Bldgs, Canals, Dams
1830	$ 4,718.31	$ 9,713.62		$ 14,431.93	$ 887.45
1831	$ 13,445.56	$ 4,791.77		$ 18,237.33	$ 2,491.27
Subtotal	$ 18,163.87	$ 14,505.39		$ 32,669.26	$ 3,378.72
1798-1831	$ 217,920.74	$ 145,117.68		$ 405,915.70	$ 24,947.44

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	$ 24,947.44
Value of Canals, dams	$ 105,000.00	$ 145,117.68	0	0
Value of Plant:	$ 255,650.00	$ 363,038.42	$ 4,130.14	$ 24,947.44
Value of Machinery	$ 72,247.44			
Value of Land, 1,890 acres	42,877.28	$ 42,877.28	0	0
TOTAL:	$ 370,774.72	$ 405,915.70		

1. National Archives R.G. 156, National Armory Accounts, Entries 935 and 936, first on Photostats and second on Reel 20, Vol. 5, pp. 411-544.

During the years 1822 to 1829 the sum of $ 85,240.03 had been expended for repairs and improvements at the National Armory, largely, as we have seen, to shore up the old plant. In contrast, in 1830-35, the $ 152,971.48 spent for repair and improvement went for the erection of the first large workshops at the U.S. Musket Factory since 1810, into modernizing its ancient machinery, and for completing the project of enlarging the Armory Potomac Canal- the last a project that had gotten underway in 1829.

During the years 1830 to 1835, the Harper's Ferry Armory spent a grand total of $ 152,971.48 for repairs and construction. Of this total approximately $ 40,476.25 to erect a total of 26 new buildings This number included 7 workshops erected at the Musket Factory for about $ 24,058.52; 3 structures for storage purposes on Arsenal Square and Camp Hill at a cost of $ 1,831.33 and 16 Armory dwelling houses for $ 14,586.40. (See Chart p. 342.)

Captain John H. Hall's Patent Rifle Factory on the Shenandoah improved its plant during these years by constructing eight new shops at a cost of $ 2,872.85. The number of structures on the island increased from about 19 in 1829 to 22 in 1835. A number of the small frame workshops were demolished and replaced by the new factories built of stone or brick that were

Machinery at the U.S. Musket Factory[2]

The estimated value of machinery at the Harper's Ferry Armory, December 31, 1821, had been estimated to be $ 40,000.00. During the entire period 1822-1829 only $ 9,946.00 had been expended to add new machinery at the U.S. Musket Factory plant.[3] Thus by January 1830 much of the Musket Factory machinery and water wheels were worn out and/ or/ obsolete. It was for this reason that Congress appropriated a total of

2. American States Papers, Military Affairs, II, 482.

3. R.G. 156-m Entry 935-National Armory Accounts, 1822-29- See Chart on p. 140. Of the $ 9,946.00 expended, $ 5,000.00 went to replace $ 5,000.00 worth of old machinery that was destroyed in a large Musket Factory shop in May 1824. The total spent for new machinery, eliminating the replacement item, was thus only $ 4,946.00.

$ 34,440.47 in 1833-34 to construct new water wheels for the three principal water shops at the U.S. Musket Factory. That the U.S Musket Factory on the Potomac was considerably behind the Hall Rifle Factory on the Shenandoah in the use of machinery to manufacture arms is revealed by the following figures drawn from National Armory Accounts:

Plant	Estimated value of Machinery & Tools, Dec.31,1829	Expenditures for machinery & tools, 1830-35	Total
U.S. Armory (1798)	$ 69,946.00	$ 35,620.21	105,566.21
Hall Rifle Factory(1819)	$ 110,649.58	$ 42,549.43	153,199.0
Total: 1798-1835:	$ 180,595.58	$ 78,169.64	$ 258,765.22

Other major projects completed during the 1830-35 period included the widening of the Potomac Canal at a cost of $ 33,969.50; the extension of the Potomac Dam for $ 3,474.55; and the repair and extension of the Shenandoah Dam at a cost of $ 1,999.50.

Construction and Repair at the U.S. Musket Factory, 1830-35:

In 1830 Congress appropriated a total of $ 9,700.00 in special appropriations in response to Ordnance Department requests for construction and repair projects at the U.S. Musket Factory. This included $ 4,000.00 to to erect a forging shop and tilt hammer, $ 2,500.00 to erect a "new workshop", which turned out to be a grinding mill, and $ 3,200.00 to replace the wood shingle roofs of Musket Factory shops with slate roofs.[1] The National Armory Report for 1830 reveals that no work was accomplished under these special projects at the Musket Factory in 1830, but that a total of $ 2,354.01 was spent and two small buildings were erected as follows:[2]

1. Esimates in Congressional Serial No. 195, Document 2, p. p.134. The requested sum was appropriated on May 31,1830, see U.S. Statues at Large, Vol. 4, p. 424.
2. R.G. 156- Annual Reports,National Armory Accounts for 1830-Entry 936-HFNHP Reel 20, Vol. 5, p.419.

"For making new Forbays, Chutes &c" at the workshops, replacing old ones.....	$ 1,210.84½ (3)
For making new machinery.....	885.35
For building a small building attached to the finishing shop and fixtures for grindstone.....	152.00
for making scrap iron house.....	43.32
For one forcing pump.....	62.50
Total:	$ 2,354.01.

Of this money. $ 195.32 was for two small buildings, $ 947.85 for machinery, and $ 1,210.84½ for repair work at the water wheels of the big workshops.

No additional funds for work at the Musket Factory shops was requested or received in 1831 and 1832. Construction, however, got under way in 1831, utilizing the money that had been provided in 1830 and a total of $ 6,056.93 was expended during the year: $ 267.89 for constructing new machinery and $ 5,789.04 erecting "Forging Shop, Triphammer & new workshop during the year 1831."[4] As was noted in the preceeding chapter, a total of $ 3,496.46 had been expended in 1828-29 to commence construction on the trip hammer shop at the Musket Factory, with the money spent in 1831 included, the total cost came to $ 9,285.50, and only $ 750.96 was left available for work in 1832 of the 1830 appropriation of $ 6,500.00. The Ordnance Department, accordingly requested and Congress appropriated an additional $ 13,300.00 to complete

(3) These forbays were apparently made of wood, at least in part: Record Group 217- 2nd Auditor's records- 2nd series: 14486- Voucher 71A. To Isaiah Frazer, June 5, 1830- $ 31.00 for 31 days carpenter work on new forebay; 14486-78A, To Robert Ensworth, June 12,1830-$ 25.90 for 18½ days carpenter work on forebay.

(4) (National Armory Annual Report for 1831, Entry 936, p.194, 196, on Reel 20, V.5, p. 436, 438.

the construction of the Forging Shop, Trip Hammer, and New Workshop. Withthis action Congress made a total of $ 19,800.00 available for work on the two workshops during the period 1830-35, or a grand total of $ 23,296.46 from 1828 to 1835, if the funds spent on the project in 1828-29 are included.

The Annual Reports regarding the expenditures for repairs and improvemen unfortunely ceased after 1831, not to be resumed again until 1844, hence it is necessary to use other sources to reconstruct the history of programs for repair and improvement during the years 1832 to 1841. Prior to considering these other sources, we will record here that the U.S. Musket Factory had the second serious fire since the disaster of 1824 in 1832. On September 15, 1832 the wood shingle roof of one of the forging or blacksmith shops at the Musket Factory caught fire and the roof and the interior woodwork were destroyed. Due to the fast work of the firemen and workmen, however, the tools and walls were saved.[6]

Work at the Musket Factory by project: 1831-35:

1. The New Workshop- The Grinding Mill:

The Congress appropriated in 1830, as has been noted, the sum of $ 2,500.00 to erect a new workshop. The vouchers issued by the Paymaster of the Armory(National Archives Record 217) reveal that construction on this new structure, a grinding mill (Bldg. No.9 on Map. No.17 p.388.)

5. Ordnance Department Estimates for 1833, Reel 20, Vol. 6, 570-71. Appropriation approved March 2,1833, in U.S. Statues at Large, IV, p.641-42.
6. Virginia Free Press, September 20,1832, p. 3, column 4, Reel 22, Vol. 13, p. 1260 has Superintendent George Rust's report to the Ordnance Department on this fire.

got underway
In the 2nd quarter(April- June) of 1831, when $ 712.46 was spent on the project. The mason John Gust excavated stone from the raceway for the new mill and 260 cubic yards of earth from the foundation.[7] The shop was situated at the far western end of the southern line of musket factory shops and on the northern bank of the Armory Canal . It was to have a water wheel to turn its grinding machinery. The sum of $ 1,661.09 was expended on the project during the 3rd quarter of 1831 and the building was apparently completed. John Gust, who erected the stone foundations and stone walls of the grinding mill,was paid $ 802.88 and William Bayley received $ 311.05 for furnishing and slating 2,970 square feet of the roof of the new shop.[8] On October 22,1831 carpenter James Foley was paid a total of $ 65.00 for the work of himself and two journeymen carpenters, 52 days, on the grining mill.[9] Total cost of constructing the new grinding mill, exclusive of its water wheel and machinery, appears to have been about $ 2,438.45.

2. The Forging Shop, Trip Hammer,

As has been noted, Congress appropriated $ 4,000.00 in 1830 to erect a forging shop and tilt hammer. The vouchers of the Armory Paymaster paint a somewhat different picture of the progress of construction on this shop then the statement given in the Annual Report for 1831.

7. R.G. 217- 15603- To John Gust $ 21.68 for 28½ excavation ston from raceway and $ 53.80Ø for 260 cubic yards excavation of earth, Total $75.48. Lewis Wernwag was also paid $ $ 86.75 for his work on the prohect.
8. R.G.217- 15936-19- Sep.30,1831- $ 1,661.60 total spent, Gust laid 211½ perches of stone wall and 233 perches of stone masonry wall. During this same period Bayley also repaired the roof of the Master Armorer's Office and Store House,Bldg. No. 4 on 1821 list, see page 123, receiving $ 150.00 for this task.
9. R.G.217- 15603.

The Paymaster accounts reveal that only $ 3,744.63 of the $ 6,500 available for the construction of this and the new grinding mill was expended in 1831, and not a total of $ 5,789.04 as was stated in the annual report for 1831. The paymaster's vouchers also suggests that construction efforts in 1831 were probably concentrated largely on erecting and completing the grind mill, thus of the total of $ 3,744.03 he reported expended from this appropriatic during 1831, approximately $ 2,438.45 went for building the grinding mill and the balance, only $ 1,306.18 went to start construction on the forging shop. During the 1st two quarters of 1832, an additional $ 710.96 was spent and then all construction was halted for two-years![10] Construction on the forging and triphammer shop, 1831-32 thus appears to come to about $ 2,017.14, leaving an sum of $ 2,044.41 available for further work.

In the estimates for 1833, Col. George Bomford, the Chief of Ordnance, asked Congress for $ 13,300 to complete" the forging shop, tilt hammer, and new workshop.[11] Some of this money was needed to built the water wheel and machinery for the new grinding mill, but most of it was required if the forging shop, on which only a begining had been made, was to be completed. Col. Bomford informed Congress that the construction of "a tilt hammer shop for welding barrels" was greatly needed at the Harper's Ferry Armory and would considerably reduce the cost of manufacturing arms., writing in part:

"The great difficulty that has been experienced at this (Harper's Ferry) Armory in obtaining the necessary number of gun barrels, renders the erection

10.R.G. 16388 and 16657.
11. Reel 20, Vol. 6,p.576.

of a tilt hammer shop for welding them, a matter of much importance. At present all the barrels are welded by hand, in doing which three persons are employed at each furnace, and the sickness or temporary absence of one of them, stops the employment of the other two. The cost of welding barrels at this Armory is 72 cents, whilst at the Springfield Armory, but 39 cents are paid, where they have the advantage of a tilt hammer."

Assuming that the Harper's Ferry Armory produced 12,000 muskets a year, the annual savings, if the tilt hammer shop was available, would amount to about $ 4,200, Bomford estimated.[12]

As has been mentioned, Congress appropriated the requested $ 13,300 for this purpose on March 3, 1833. The Paymaster's accounts reveal that construction on the tilt hammer shop for welding barrels project resumed in the 3rd quarter of 1834 and continued until the end of 1835, with a total of $ 13,500.00½ being expended as follows:

$	1834: $ 4,959.81	
	1835: 8,540.19½	Balance available, Jan. 1, 1835=$ 1,844.59.
	$ 13,500.00½	

Total expenditures 1830-35, came to $ 17,955.59, with the 1828-29 sums included, the total was $ 21,452.05, of which about $ 18,800 appears to have been spent on the forging shop, trip hammer structure and $ 2,650.00 on the new grinding mill.

Correspondence of the Ordnance Department Officers in 1836 reveals, however, that of the approximately $ 18,800 spent on the tilt shop from 1828 to 1835, all the money spent prior to 1834, or about $ 5,300.00 had been wasted as far as the building was concerned, that is, the original 1828-29 site of the building had been changed in 1834 to a much more favorable location, so that the $ 5,300.00 expended prior to 1834 on stone foundation

12. Reel 20, Vol. 6, p.576- National Archives R.G. 156, Entry 129, Vol.1, p. 110.

for the new shop actually went into building stone wall for the Potomac Canal. In a letter dated November 3,1836, Lt. Col. George Talcott, Inspector of Armories and Arsenals, explained the status of the tilt hammer shop project to Col. Bomford, writing:

> The Tilt Hammer works are still unfinished and it would be difficult to predict when they will be completed even if sufficient funds are provided... The several sums of money authorized to be expended heretofore have been entirely insufficient for its completion, on account of the very great cost of the new canal or raceway, which has absorbed a large portion of the funds - or rather the change of location and extension of the canal to the new site (in 1834), made it necessary to incur heavy additional expenses for the foundations and high walls. The change was judicious and the error consists in not making proper estimates and statements in due time to have the money appropriated by law. About six thousand dollars will be required to complete the work from the present condition... [13]

On December 31,1835, then, a total of $ 13,500.00 had been applied to erecting the trip hammer shop for welding barrels at the "correct" and final (1834) site (This is Bldg. No. 11 on the 1848 map, Map No. 17). p.388. The stone structure appears to have been about two-thirds complete , with $ 1,844.59 still available for further work, but still approximately $ 6459.(short of the amount estimated as necessary to finish the edifice. [14]

Details on the 1834-35 construction of the tilt hammer shop at the U.S. Musket Factory were as follows: Superintendent George Rust,Jr. who had taken command at the Harper's Ferry Armory in April 1830, entered into a series of contracts in 1834-35 that provided for the performance of the necessary masonry work, carpenter work, slating of the roof

13. Harpers Ferry National Historic Park Photostatic Collection, Vol. 1, pp. 62-63, Inspection report of Nov. 3,1836, National Archives R.G. 156 material. The Ordnance department estimates for 1837 according requested the appropriation of $ 6,459.00 " for the completion of the tilt hammer shop, commenced in 1834" ,Special Estimate for Additional Appropriations for the Service of the Ordnance Department during the year 1837, January 21,1837, in Seria; No. 303, Document 107,pp. 2-3.

14. R.G/ 217- File 20281-1st series.

and for providing five iron water wheels and millwright work on the structure. The first of these contracts, dated May 28, 1834,was with Johnson Garrett, who agreed

do all of the mason work on the structure. He was to be paid for mortar wall at $ 1.50 per perch; $ 1,25 per perch for dry wall; .25 per cubic yard for "plain excavation," and $ 1.00 per cubic yard for"Rock execavation". Garrett agreed to have construction underway by July 1,1834 and to work without interruption or delay until the building was completed, or the weather stopped work. [15]

Garrett went work in accordance with the terms of the agreement and in the 3rd quarter of 1834 received $ 1,540.28 for laying 1,502 perches of mortar stone wall. [16]

During the fourth quarter of the year he received $ 3,419.53 from the Forging Shop account for his work which included:

400 perches of dry wall for $ 600.00- October 18,1834

1,806 cubic yards of embankment for $ 451.00- October 25,1834.

365 cubic yards of rock excavation and 548 yards of earth excavation for $ 684.50- Nov. 7,1834. This work was probably for the construction of the foundation for the forging shop.

The walls of the factory apparently went up in November, for on December 7,1834, Garrett was paid $ 912.93 for constructing 529 74/100 perches of stone wall for $ 794.61; 63 2/3 perches of dry wall for $ 79.57;

15. National Archives Record Group 156, Chief of Ordnance Contract Book No. 13, pp.221-222. HFNHP Photostat Collection, Vol. L, pp.28-29.
16. R.G. 217-19021- Forging Shop Abstract Acount

for laying two arches for $ 3.00 and 286 feet of cornice for $ 79.57.[17]

Johnson Garrett appears to have received, all told, for his masonry work on the tilt hammer shop for welding barrels in 1834 the sum of $ 4,959.71.

On September 1, 1834, Superintendent George Rust, Jr. next entered into a contract with James Foley which provided "for erecting the Joiner and Carpenter's work of the tilt hammer shops now erecting at the Armory."[18] This contract provided for framing the roof, making window and door frames, window sash, venetian blinds, batten doors, lintels, and sheathing the roof.

The building, however, was apparently not ready for carpenter work until 1835. On March 31,1835 Foley was paid a total of $ 60.00 from the Forging Shop Account for making 68 door and window frames, 44 lintels, and 807 sash of light for the structure.[19] During the 3rd quarter of 1835 Foley received $ 198.79 for framing 5,524 feet of roof, making 1,968 feet of sheathing, 292 feet of cornice, 8 windows frames, 1303 sash.[20]

During the final quarter, Foley was paid $ 45.20 for framing the roof, 3,168 feet, and for raising the roof plate 280 feet.[21]

James Foley received at least $ 204.79 for his carpenter work on the tilt hammer shop at the Musket Factory in 1835.[22]

The Mason Johnson Garrett was also called back and worked on the structure during the 3rd and four quarters of 1835, receiving a total of $ 412.06 for his contributions in 1835. He was paid for making 1,100 cubic yards of embankment and 64½ days of labor in puddling at the forebay and wasteway of the new tilt hammer shop.[23]

22. The records for the 2nd quarter of 1835 are missing, so that Foley may have earned money during that period for which the voucher no longer exist.

23. R.G.217-File 20041-Abstract B- $ 137.06 for 3rd Quarter; F. 20281-Abstract B- $ 275.00 for 4th quarter of 1835.

17. R.G. 217- File 19257- Abstract C- Forging Shop Account.

18. N.A. R.G. 156-Chief of Ordnance Contract Book, No. 13, p.223. HFNHP Photostatic Collection, Vol. 1, pp.32-33.

19. R.G. 217- file 19514- Abstract E.

20. R.G. 217- file 20041- Abstract B.

21. R.G. 217- File 20281-Abstract E.

Superintendent George Rust,Jr. made a third contract with William Bayley on January 10, 1835 which provided for the slating of the Carpenter's and Machine Shop and of the tilt hammer shops "now being erected at this Armory." Bayley was to furnish all the slate, which was to be "American", and other materials required and was to be paid at the rate of $ 9.00 for every hundred feet.[22] The Paymaster's vouchers for 1835 indicate that Bayley, who slated other Armory structures during the year, did not slate the roof of the trip hammer shop, probably, as the record of carpenter work indicates, the roof was not ready to be slated until early 1836.

Also on January 10, 1835, Superintendent signed a fourth contract regarding the new trip hammer shop. Under this agreement Jacob Aspey agreed to perform all the millwright work on the new shop, which included the construction of all necessary wooden forebays and water wheels.[23] Aspey was at work in the new shop by the 4th quarter of 1835 and received $ 329.25 for his services,which included making a wooden water wheel that was twenty feet in diameter.[24] Aspey was just beginning his work, which was to continue through the third quarter of 1836.

22. N.A. R.G. 156- Contract Book 13, p.220-HFNHP Photostat Collection, Vol. 1,p.38.
23. Ibid. Contract Book No. 13, pp.226-227-HFNHP Photostat Collection , Vol. 1, p.36-37.
24. R.G. 217,-File 20281- Abstract E. The charge for making the water wheel was $ 120.00.

On April 27,1835, Master Armorer Benjamin Moor, serving as acting superintendent, signed a fifth contract relating to the tilt hammer shop. Under this agreement Charles C. Starbuck contracted to provided five "Reacting Water wheels complete including cast Wheels, Gates and every other iron Fixture belonging thereto for the use of the Tilt Hammer shop now being put in operation at said Armory." Starbuck warrented that these wheels would run at 150 revolutions per minute with "eight feet back water or in other words, warrents that one half of the apertures of said wheels shall be sufficent to drive the Tilt Hammer attached thereto at a speed of seven hundred strokes per minute with a full head of water." The armory agreed to pay $ 310.00 for each wheel, making a grand total of $ 1,550.00 due for the five wheels. 25

During the 3rd and 4th quarters of 1835 Starbuck was paid a total of $ 1,033.33 of the total due for the five iron wheels.[26] This evidence stuggests that the new trip hammer shop was to have 5 iron and one wooden water wheels.

During the 3rd quarter of 1835 Charles Reeder was paid $ 948.80 "for casting " apparently machinery intended for the shop and William Brown received $ 55.39 for painting the shop.[27]

By December 31, 1835 then, as has been noted, about $ 13,500 had been expended on the construct of the great trip hammer shop since 1834. The structure was about 2/3rd complete. This was the first large workshop to be

25. Contract Book 13, p. 232; HFNHP Photostat Collection, Vol.1, pp.40-41.

26. R.G. 217- 20041- Abstract B, $ 310.00 on July 31,1835; File 20281- Abstract E, paid $ 555.37 plus $ 167.96= $ 723.33.

27. R.E. 217- file 20041, Abstract B.

erected at the musket factory since 1810.

A Water Wheel for the New Grinding Mill, 1834:

The grinding mill, as has been mentioned, was completed in 1831 at an approximately cost of $ 2,438.45, which just about exhausted the appropriation of $ 2,500.00 that had been made for that purpose. The building, however, lacked a water wheel and machinery. On January 14,1834, Supertinendent George Rust, Jr. entered into a contract with Charles C. Starbuck to provide cast iron water wheel for use in an unspecified workshop. Starbuck agreed to manufacture "a five foot reaching water wheel with the necessary shafts, drum, frames, supports, gearing, and fixtures complete (except the forebay and race,which are to furnished by the Government), " for the sum of $ 298.00(?). The contract further specified that the wheel was to be ready for operation by August 25,1834.[28]

As construction did not even get underway on the new Tilt Hammer shop at the Musket Factory site until the summer of 1834, it appears likely that this five-foot cast iron water wheel was intended for use in the new grinding mill that had largely finished in December 1831.

3. Slating the Roofs of Armory Workshops.

Congress appropriated a total of $ 3,200.00 in 1830 for the purpose of replacing the wood shingles on the roofs of the Musket Factory shops with slate, thus reducing the danger from fire. The records of the Paymaster indicate that work under this project did not get underway until the 4th quarter of 1832 and was completed by the end of the 2nd quarter of 1833.[1] A total of $ 3,013.42 spent on this project and a balance of $ 186.58

28. Contract Book No. 13, p.224; HFNHP Photostat Collection, Vol. 1, p.27.

1. R.G. 217- file 17153, 17163, 17644.

was carried forward, not to be spent until 1838.[2]

The task of slating the roofs was done William Bayley.[3]

In the estimates for 1833 the Ordnance Department requested and received $ 9,900.00 from Congress for two projects (exclusive of the $ 13,300 also received in 1833 to complete the forging, tilt hammer, and new workshop), already discussed above).[4] This money was to be used to repair the walls of four brick workshops, $ 1,500.00, and $ 8,400.00 to construct three new water wheels. A discussion of these projects follows:

5. Repairing the Walls of four brick Work Shops,

The $ 1,500.00 provided in 1833 was to be used to repair the brick walls of four workshops at the Musket Factory that had cracked and, or, settled. This work was accomplished in the third quarter of 1833 at a COST OF $ 849.95[5] and the balance of $ 650.05 was carried forwarded on the Armory books and not expended until 1838.[6]

6. Constructing Three New Water Wheels in Three Shops:

In 1833 Congress provided $ 8,400.00 for constructing three new water wheels and their necessary machinery in the boring, turning, and stock shops and for sinking flumes for these wheels. (These were Bldg. No. 2- the turning or finishing shop, Bldg. No. 3-the boring mill, and Bldg. No. 5- the Stocking Shop on the 1821 list of workshops, see page 123).*** Chief of Ordnance George Bomford explained to Congress the need for replacing these old wooden water wheels as follows:

2. $ 38048 was spent during the 4th quarter of 1832, $ 94.15 in the 1st and $ 2,538.79 in the 2nd quarter of 1833. For the 1838 use of the balance, see 2nd series-file 2364-2nd quarter 1838.
3. R.G. 217-1st series-File 17153 - 2nd quarter 1833-$ 2,538.79 went to Bayley.
4. Estimates for 1833- Reel 20, Vol. 6, pp.570-571. Appropriations, approved March 2,1833, in U.S. Statues at Large, IV, p. 641-642.
5. R.G. 217-1st series File- 17895.
6. R.G. 217-second series- 2729.

***For location of shops see Map 6(1834), p. 271.

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 conmponent 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.. [7]

Work on this project got underway in the 3rd quarter of 1833 and by the end of the year $ 6,294.90 had been expended, during 1834 an additional $ 1,787.38, making a grand total of $ 8,082.38 used on the project from 1833 to 1835.[8] The balance of $ 317.72 was carried forward on the Armory books and not utilized until 1836 and 1838.[9]

Men working on this project included Martin Cotter, mason, who was paid $ 142.00 for laying 284 perches of dry stone wall in the waste way of these shops, on October 11,1833; the mason Lewis Wernwag who received a total of $ 322.00 for laying some 184 perches of mortar wall during November and December 1833 in these raceways; and Charles C. Starback, who was paid $ 292.66 on October 11,1833 for constructing three new wooden water wheels and machinery for the three shop.[10]

The money for these improvements was virtually exhausted by the 1st quarter of 1834 and it was clear that additional funds would be required: Item 1 of the estimate for 1834, according requested $ 26,040.47 for "the compeetion of the machinery in the turning, boring, and stocking shops." In requesting this money from Congress, Col. Bomford explained:

7. Estimates for 1833, Reel 20, Vol. 6, p.575.
8. R.G. 217-1st series, 17163, 17895, 18712, 19021.
9. R.G. 217-2nd series- 677,761, 2364.
10. R.G-217- 1st series 17895- for 4th quarter of 1833

"The Superintendent reports, in regard to this item, that it has been discovered, in attemping to introduce one of the new water (Bldg. No. 3) wheels intended for the Boring Mill, that the cost of the wheel, as well as the forebay, and trail race, will very far exceed the appropriation of 1833 ($ 8,400) for these purposes..." [11]

Congress appropriated the requested $ 26,040.47 plus $ 10,074.36 and other funds in May 1834 as part of a total of $ 38,728.01 in funds for six projects to make permanent improvements at the Musket Factory.[12] The $ 26,040.47 was not only used to build new machinery, but considerable sums were also expended for reconstruction of the head and tail races of the three workshops: to deepen and widen these water ways so that larger wheels could be installed.

Expenditures in 1834 and 1835 from this funds totaled $ 27,166.54 and the balance of $ 8,948.32 was carried foreward and was finally used up in 1839.[13] Expenditures in 1834 and 35 were as follows:

1834:	$ 16,245.52
1835:	$ 10,921.02
Total	$ 27,16654.

Men who were paid for their services from this account include: Lewis Wernwag, $ 2,390.06 for mason work during the 2nd,3rd Quarters

11. Estimates for 1834, Reel 20, Vol. 6, p.588.
12. Estimates for 1834, Reel 20,V.6, pp.583-584; Appropriation approved on May 14,1834, in U.S. Statues at Large, IV, p.675.
13. R.G. 217- 18712,19021, 19257, 19514, 20041, 20281. For 1839, see 2nd series- 3971.
14. Examples were $ 3,324.64 in labor on other than the three large workshops but charged against their account will be found in 1st series file 20041- Abstract C, for the 3rd quarter of 1835.

of 1834.[15]

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

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

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

William Bayley, slater, $ 538.56, for slating 59 84/100 squares of roof, 4th quarter, 1835.[16]

James Foley, carpenter, was paid a total of $ 181.55 for carpenter work performed during the the 4th quarter of 1834 and 1st quarter of 1835. During this period, as part of his work, he made one window frame and two batten doors.[17]

A discussion of the plans to construct six new buildings as the U.S. Musket Factory follows.

New Workshops, 1834-35:

The 1834 appropriations contained funds to provide for the construction of six new workshops and storage buildings, $ 9,634.65 plus $ 900.00 available for work to erect a stone guard wall, making a total of $ 10,534.65 at the Musket Factory.

15. R.G. 217-1st series: 18712, 19021.
16. R.G. 217 1st series- 19257-charges during the 4th quarter of 1834 came to $ 6,370.92.
17. R.G. 217-1st series, 19257, 19514.

1. A Carpenters" and Machine Shop, 1834-35:

The Ordnance Department further requested and Congress also appropriated on May 14, 1834 the sum of $ 4,230.69 "to erect a Carpenters' and Machine Shop."[1] Col. Bomford explained to Congress the need for this building, writing:

> The machine and carpenter's shop now used, are entirely too small, and when heavy turning is required, the stocking operations are impeded- the machinery being connected with that of the stocking mill. This building will also be occupied by the stockers when another shall have been provided for the carpenters and machinists."[2]

The stock mill refered to above would probably be Bldg. No. 5 on the 1821 list(see page 123). (See Bldg. 5, Map 6(1834), p. 271.)

The new Carpenters' and Machine Shop, which had a water wheel to power its machinery, was located at the western end of the southern line of Musket Factory shops. The building stood on the north bank of the Armory Potomac Canal and to the east of the new grinding mill. The Carpenters' and Machine Shop is either Bldgs. No. 7 or 8 on Map No. 17(made in 1848)[3]

Construction on the Carpenters' and Machine Shop was underway by by November 1834, for on December 7, 1834, Daniel T. Mathias was paid $ 100.00 for 66 2/3 days of carpenter work in this stone structure.[4] During the 3rd quarter of 1835 Mathias received $ 198.93 for his services "on the new machine shop", which included 1,729 feet of joists, 1,920 feet of girders, 2,640 feet of roofing, 1729 feet of double flooring, making 54 lintels and seven batten doors for this shop.[5] Also in the fall of 1835, the

1. Estimate for 1834, Reel 20, Vol. 6, p. 589. Apropriation in U.S. Statues at Large, Iv, p. 675. The money for this building was included in the sum of $ 36,114.86 listed as for the completion of machinery.
2. Estimate, k834, Reel 20, Vol. 6, p. 589
3. Bldg. No. 7 on Map 17 is listed as "Carpenters Shop-Old" and Bldg. No. 8 as "Machine Shop-Old."
4. R.G. 217-1st series- 19257.
5. R.G. 217-1st S., 20041.

mason John Grubb received $ 27.58 for "trowel dashing" the stone wall of the "carpenter and machine shop."[6] During this same period, the painter William Brown was paid $ 11.04 for painting 155.8 square yards on the new machine shop and glazing 23 lights.[7]

2. A Store House for Iron, Steel,&c, and Bin for Coal. 1834-35.

The Ordnance Department requested and Congress appropriated on May 14,1830 the sum of $ 1,710.15 "to erect a store house to contain iron, steel,etc. and for the construction of a bin to contain pit coal.[1]

This was needed, the Chief of Ordnance explaimed , because:

> The Iron house (an old stone building) now used as such is situated near the rifle factory (on the Shenandoah River), distant about half a mile from the lower shops. It is designed to erect a permanent building in the immediate vicinity of the (musket factory) shops for an iron house, by which means the expense of transportation of the iron,(now very considerable) will be avoided, and the present building transferred to the rifle factory, for the benefit of which it is wanted.
>
> At present there is but one Bin for containing Pit-coal, at this Armory, which is not sufficiently capacious to hold much more than one half of the coal, usually on hand; the consequence of which is, that the coal is exposed on the bank of the canal, and large quantitites are doubtless lost to the Government, during the winter...

The store house for iron and pit coal was a brick building with stone foundations that was erected in 1834 at a cost of approximately $ 1,500.00.
The vouchers of the Paymaster provide the following data on the construction of this store house.

6, R.G. 217- list Series, 20041- Abstract D.
7. Ibid.
1. Estimate 1834, Reel 20, Vol. 6, p. 589; Appropriation in U.S. Statues at Large, IV, p. 675. The money for this building is included in the sum provided of $ 8,589.87.
2. Estimate, Reel 20, Vol. 6,p.589.

AStore House for Iron and Pit Coal, 1834. Rrecord Group 217

File No.	Abstract Letter	Artisan	Paid	Date	Remarks
19251	D	Johnson Garrett	$ 19.73	10/25/34	For excavting 157 86/100 cubic yards.
19251	D	John Grubb	$ 188.53	10/9/34	For laying 305.4 perches of stone wall and 79 feet of cornice.
18712	79	Josiah McMullen	$292.00	9/18/34	For laying 17,664 brick, 20 feet of brick cornice, 5 14 inches arches, 51 feet 2 inch cornice and 11 feet 14 inch cornice. Also for 12,022 brick @ $ 108.19/.
19251	D	" "	$ 166.45	12/31/34	For laying 266 3/10 square yards of brick pavement.
19251	D	" "	$ 51.37	12/6/34	For 34½ days work.
Subtotal:		Josiah McMullen	$ 516.82	1834	
19251	D	Daniel Mathias	$ 113.81	10/9/34	For 75 7/8 days of
19251	D	" "	$ 57.37	11/26/34	carpenter work.
Subtotal		Daniel Mathias	$ 171.18	1834	Carpenter work
19251	B	James Foley	$ 160.23	12/8/34	For carpenter work making 33 door and window frames, 3 lintels, 5 batten doors, amd 2,232 feet of flooring.
19251	D	Johnson Garrett	$ 103.58	10/25/34	For 207 17/100 perches of stone furnished.
19251	D	Jeremiah Harris	$ 20.12	10/28/34	For plastering 201½ square yards.
19251	D	William Bayley	$ 183.60	12/6/34	For slating 20 40/100 squares of roof.
19251	D.	John Kennedy	$ 24.82	12/7/34	For glazing 458 window pane and painting.
Approximate Cost, 1834:			$ 1,495.57	1834	

In the 3rd quarter of 1835 the mason John Grubb received $ 19.08 [3] "for trowel dashing" 305 41/100 perchesof the walls of the Store House for Iron. These walls may have been the stone foundations of the structure.

William Brown was also paid $ 137.47 for painting the store house in the 3rd quarter of 1835.[4] The Store House for Iron is probably either Bldg. No.10 or 11 on Map No.6, (1834)0,p.271.

3. R.G. 217- 1st series 20041- Abstract D.
4. Ibid.

3. An Annealing Shop and Proof House, 1834-35.

The Ordnance Department requested and Congress provided in 1834 $ 1,872.36 to erect an annealing shop and proof house at the Musket Factory.[1] Col. George Bomford explained the need for this building as follows:

"The present annealing shop and proof house are so constructed as to be exposed .. to much danger from fire; and their location in the immediate vicinity of the workshops, might, if fire were to originate in them, involve the whole of the workshops in flames. It is designed ....to increase their height and to make them fire proof.[2]

This new shop was apparently started in 1834 and completed in 1835. The mason was probably Joseph F. Thompson, who as was mentioned above, was paid $ 479.35 for laying 271 perches of stone mortar wall for an unidentified building during the 4th quarter of 1835. He apparently completed work on the new shop prior to that project for at the end of the 3rd quarter 1835 he received $ 108.78 for trowel dashing walls of proof and annealing house, 444 square yards."[3]

James Foley apparently did the carpenter work on this shop, receiving $ 143.84 for his services on December 24, 1834.[4] The Annealing Shop and Proof House may be Building No. 6 on Map No. 6 (1834). p.271.

For the location of the Annealing House or Furnace erected in also 1834 see Bldg. No. 15 on Map No. 17, made in 1848. The building was P.388. added to the western end of the northern line of Musket Factory shops, and stood on the banks of the Potomac River, nearly opposite to Bldg. No. 5- the Stocking Shop.

1. Estimate for 1834, Reel 20, Vol. 6, p.588. Appropriation in U.S. Statues at Large, IV,675- the money for this shop was included in t he sum of $ 36,114.86 voted for completion of the manhinery.

2. Estimate for 1834, Reel 20, Vol.6, p.588.

3. R.G. Group 217- 1st series-20041-Abstract C-3rd quarter, 1835.

4. R.G. 217- 19257. On October 28, 1834 he also been paud $ 29.00 for making 29 door or window frames, but the structure is not specified.

4-8. Two shops for tempering springs and polishing barrels; Two houses for fire engines, and an Addition to the Stocking Shop.(Bldg. No. 5-1821 list):

The Ordnance Department requested and Congress appropriated in on May 14,1834 $ 1,821.45 " for erecting two shops for tempering springs and polishing barrels and erecting two engine houses" and making an addition to the stocking shop at the Musket Factory. (Bldg. 5 , Map 6,p.271.) [1]

The Chief of Ordnance informed Congress in regards to the need for these four new structures and the addition:

> These shops are considered necessary in order to relieve the workmen in the shops where the tempering and polishing are performed, from the excessive heat, and dust, consequent on these operations.
>
> Heretofore, it has been necessary, for the want of an Engine house, to make use of one of the shops, for sheltering the Fire engines belonging to the armory. The shop now used for this purpose could be occupied advantageously in another way; and by the erection of two engine houses in more favorable situations, more speedy access might be had to the engines, in case of fire, and the security of the public property involved.
>
> The addition to the stocking shop is intended to supply the place of an old frame building, which is useless; and being composed of combustible materials, endangers the stocking shop immediately contiguous. By the erection of this addition, sufficient room will be acquired to permit a transfer of some stockers to it, who are now employed over one of the smith's Shops; the great heat from which, during the summer months, renders their situation unhealthy. [2]

The vouchers of the Paymaster during 1834-35 do not contain information that is specific enough to state that any of these structures were erected. All were probably small frame buildings and the fire engine houses certainly should have been constructed.

1. Estimate for 1834, Reel 20, Vol. 6, p.588; Appropriation in U.S. Statues at Large,IV, 675. The money was included in the $ 36,114.86 listed for completion of machinery.
2. Estimates,1834, Reel 20,Vol. 6, p. 588-89.

Guard Wall for the Musket Factory Shops:

Finally, in regards to the Musket Factory improvements, the Ordnance Dpartment requested and Congress appropriated on May 14, 1834 the sum of $ 900.00 " to erect a guard wall on the marign of the Potomac River to protect the public works".[1] Col. George Bomford explained the need for this wall to Congress as follows:

> After the canal for the public works shall have been completed the whole line of the public land contiguous to, and bounded by the Potomac river, will be protected by a stone wall, with the exception of a space of about 500 feet in length, extending from the termination of the canal to the outer walls of the Smith's Shops.
>
> By erecting the wall (proposed by this project)...Security would be afforded to the public buildings situated at the upper end of Potomac Street (in the center of the Musket Factory yard), from the freshets in the Potomac river, and a considerable accession of land might be reclaimed from the margin of the river, which would serve for the sites of future buildings when they may became necessary...[2]

This 500 feet of wall was probably built, if at all, after 1835.

Congress did not appropriate any additional funds for repair and improvements at the Harper's Ferry Armory in 1835.

Expenditures at the U.S. Musket Factory Shops along the Potomac from 1830 to 1835 are summarized on the chart that follow s.

1. 1834 estimate, Reel 20, Vol. 6, pp.589-590. Appropriation in U.S. Statues at Large, Vol. Iv, p. 675. Funds for the river wall were included in the $ 8,589.87 sum voted for store houses, etc.
2. 1834 Estimate, Reel 20, Vol. 6, pp.589-90.

Expenditures at the U.S. Musket Factory, 1830-35, for Repair and Improvements

Year	Bldgs. Erected	Costs	Repairs	Machinery	Grinding Mill, Tilt Hammer shop	Storehouses	Total
1830	2	$ 195.32	$ 1,210.84½	$ 947.85			$ 2,354.01½
1831	1				3,744.63 *		3,744.63
1832			380.48		710.96		1,091.44
1833			3,482.89	6,294.90	0		9,777.79
1834	2			18,032.90	4,959.81	2,416.10	25,408.81
1835	2			10,921.02	8,540.19½	1,598.75	21,059.96½
TOTAL	7	$ 195.32	$ 5,074.21	$ 36,196.67	$ 17,955.59	$ 4,014.85 **	$ 63,436.65 **
BALANCE CARRIED FOREWARD	5?	0	$ 836.63½	$ 9,266.04	$ 1,844.59 ½	$ 4,575.02	$ 16,522.28

1830- small frame addition to Finishing Shop.
1830-small frame house for storing scrap iron.
1831- Grinding Mill, Stone, cost ca. $ 2,500.00.
1834- Carpenters' and Machine Shop, Stone
1834- Store House for Iron and a Coal Bin, Brick.
1834-35. Annealing Shop and Proof House, Stone.
1834-35. Trip Hammer Shop(or Forging Shop) for Welding Barrels, about 2/3's completed, cast $ 13,500.00½

Buildings authorized to be erected in 1834 at a total cost of $ 1,821.45:
Two shops for tempering springs and polishing barrels.
Two fire engine houses.
An addition to the stocking shop, Bldg. No. 5.

* About $ 2,500.00 of this money went to construct the Grinding Mill, the balance for 1831 and 1832, $ 1,955.59, went into building stone walls along then Armory Potomac Canal, as the 1831 location of the trip hammer shop was shifted to an entirely new site in 1834.

** $ 1,516.49 of this total went for paving and grading Shenandoah Street and Potomac Street.

MAP NO. 6

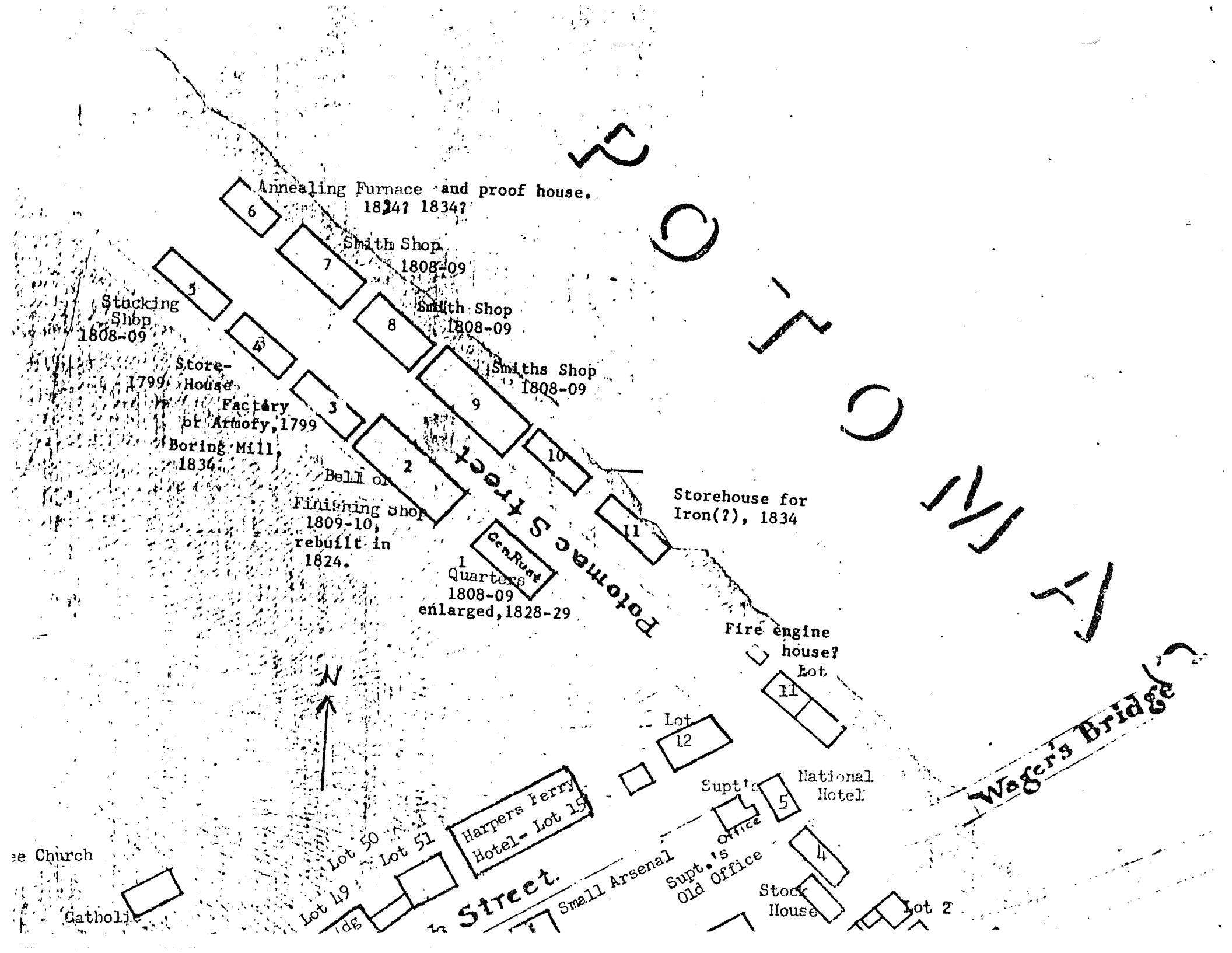
Map of Harper's Ferry Shewing the Location of the Winchester and Potomac Railroad, No. 2, Drawn by Lieuts. White, Allen, and R. S. Smith, U.S Army. Under the direction of James Kearney, Lt. Col. and T.E. Scale 100 feet to one inch. Approved by President Andrew Jackson, 27th January 1835.

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.

Extant Musket Factory Buildings not shown on this map, because they were located too far to the west (off the lower left hand corner of the plan), were the three following workshops; (1). The Grinding Mill, erected in 1831 at a cost of approximately $ 2,500.00; (2) The Carpenters'and Machine Shop, built in 1834 at a cost of about $ 4,200.00, and (3) the great Trip Hammer Shop for welding barrels, 1834-35, about 2/3's complete at a cost of $ $ 13,500.00


Annealing Furnace and proof house.
1824? 1834?
Smith Shop
1808-09
Smith Shop
1808-09
Smiths Shop
1808-09
Stocking
Shop
1808-09
Store-
House
1799
Factory
or Armory, 1799
Boring Mill,
1834
Bell or
Finishing Shop
1809-10,
rebuilt in
1824.
1
Quarters
1808-09
enlarged, 1828-29
Potomac Street
Storehouse for
Iron(?), 1834
Fire engine
house?
Lot
11
Lot
12
N
Harpers Ferry
Hotel- Lot 15
Supt's
Office
National
Hotel
Wager's Bridge
Lot 50
Lot 51
Lot 49
Small Arsenal
Supt.'s
Old Office
Stock
House
Lot 2
Catholic
Street.

PHOTOGRAPH NO. 3

"View of Harper's Ferry,Va.(From the Potomac Side)" , 1835
Published by Currier & Ives, 152 Nassau Street, New York City.

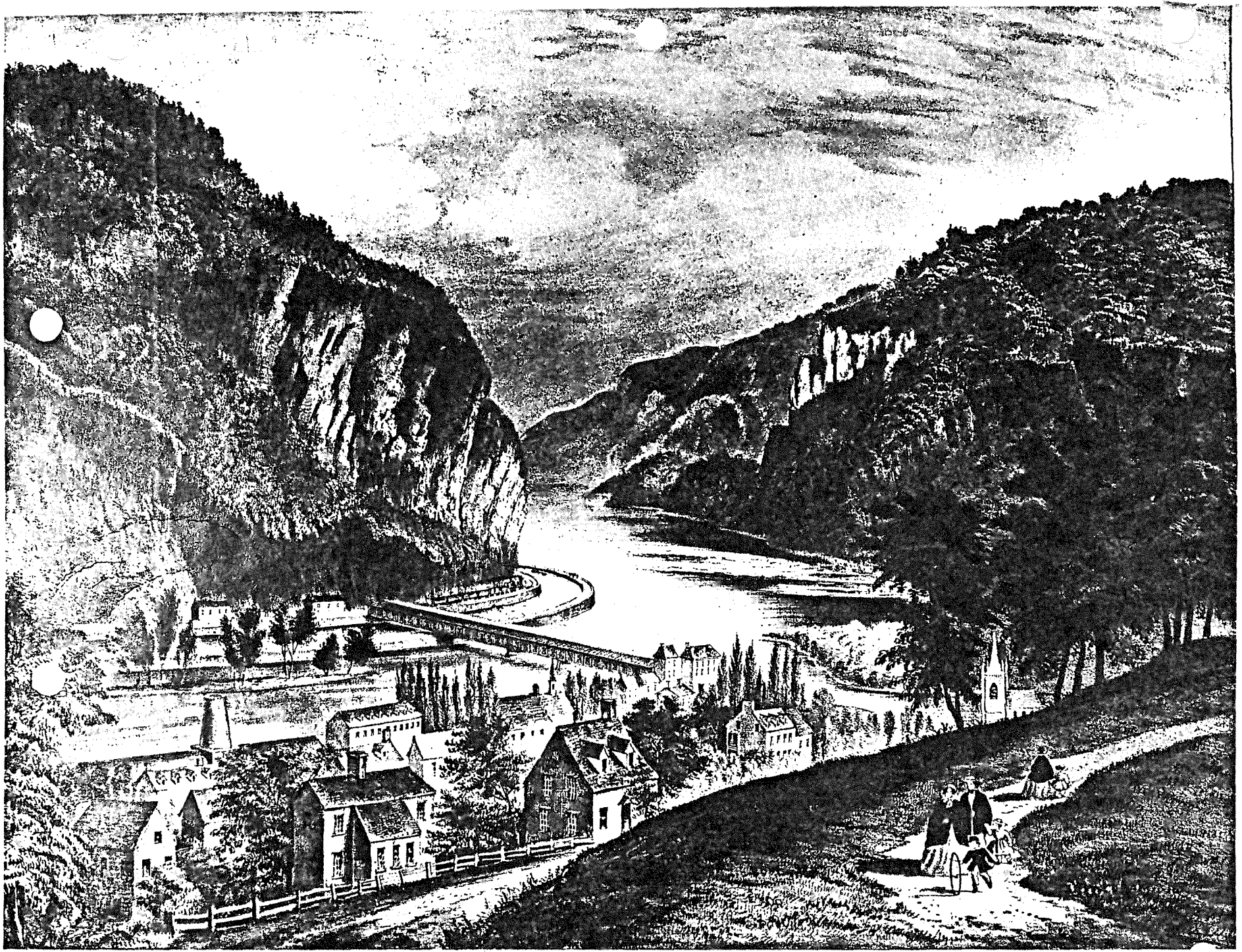
Harpers Ferry NHP Negative No. HF - 23

The fact that both the C. & O. Canal and the B. & O. R.R. are visible on the far side of the Potomac River indicates that this view was drawn after December 1834, when the railroad line arrived at a point opposite to Harper's Ferry. The covered bridge across the Potomac River is the Wager family toll bridge and the absence of a second bridge for the B.&. O. Railrodd indicates that this view was drawn before the fall of 1835 when construction on the second bridge got underway . The second bridge was completed in 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 LA 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 bee taken down...."Serial No. 537, 347.



Arsenal Square, Block A, Shenandoah Street, 1830-35:

As has been mentioned , $ 808.54 had been expended in 1829 to repair the two brick Arsenal buildings . This work apparently put the structures in good condition and little work was done on these edifices during the 1830-35 period. On August 20,1833, the Harpers Ferry tinsmiths, Henry and Frederick Yost were paid $ 38.00 for providing and putting up 228 feet feet of spouting and 20 feet of down spout for the two Arsenals.[1]

On October 20,1834, the carpenter James Foley received $ 15.00 for making and hanging the double gate for the Arsenal Yard."[2] The gates location on the east side of the Arsenal Yard is shown on Maps No. 7 and 8, pp.276-277. which were drawn in 1834. The old wooden gates had been built by Charle Fouke in 1818.[3]

In 1821, the Superintendent's Office had been located in a two-story frame structure, 18 by 18 feet in size, that was valued at $ 500.

This office was apparently situated in the center of the Musket Factory Street, opposite to the Superintendent's Residence (For probable location of office see Bldg. No. 14 on Map No. 14,p.385, and Bldg. No. 12 on Map 15, p. 386.

On August 7,1832, Superintendent George Rust, Jr., informed Col. George Bomford, Chief of Ordnance:

1. R.G. 217-1st series, File 17895-voucher 34B.
2. R.G. 217-1st S., F. 19257-90B.
3. See Page 101

The building heretofore occupied as the office of the Superintendent and his clerk, is untenable and I have been compelled to use one of the rooms in the Arsenal as an Office. One of the dwelling houses (originally constructed I presume for an office) situated at the corner of the Arsenal yard on Lot 1, Block A, Shenandoah Street would with some alterations furnish a more convenient office particularly in regard to its location, than any other at the Ferry. In order to accommodate the workman now occupying this house I wish to erect for him a dwelling 28 by 20 feet with a kitchen,(the cost of which will be between 800 & $ 900) and to convert the house now occupied as a dwelling into an office. The cost of erecting the dwelling will exceed but little,if any, that of an office & I would be pleased you would authorize the erection of the Stock House& dwelling house, chargeable to Permanent Improvements." [4]

Col. Bomford granted permission on August 13, 1832, specifying:

You are authorized to erect and repair the buildings specified, and to pay for the same out of the appropriation for permanent improvements at the Armory- taking care that your estimate for these objects is exceeded as little as possible, viz.

For the erection of a new Stock House, about 65 by 30 feet	$ 800.00
For repairing a dwelling house to be used as an office, and the erection of another 28 by 20 feet.....	900.00
Total:	$ 1,700." [5]

The house,which fronted on Shenandoah Street, on Lot 1, Block A, was converted from a dwelling into an office in 1832. In 1833 the original wood-shingle roof of the office was slated in order to lessen the danger of fire to the two arsenals.[6] The Superintendent's Office was described as "brick, 1 story, 21 by 28 feet on Shenandoah Street, and in good condition."[7] This building was to serve as the office of the Superintendent of the Armory from 1832 to 1848, when he removed to a new office building located in the Musket Factory Yard.

The new office had been the home from ca. 1826 to 1832 of James Clark, a workman in the Armory.[8] The location of the 1832 Office is shown on Maps No. 7 and 8, pp.276-277.

4. Rust to Bomford, Aug. 7,1832, HFNHP Reel 22, v. 13, p. 1255.
5. Bomford to Rust. Aug.13,1832. HFNHP Reel 14, V. 4, 867-868.
6. Rust to Bomford, May 11, 1833, Reel 22, V. 14, p.1393; Bomford to Rust,
7. May 14, 1833, Reel 14, Vol. 9, p. 896.
   1865 List of Buildings at Harper's Ferry Armory, National Archives R.G. 156; Harpers Ferry Photostatic Collection, Drawer No. 10.

The new Stock House, about 65 by 30 feet, was erected in 1832, probably at the estimated cost of $ 800.00. This building was located along the east boundary line of Arsenal Square and on the north side of the main east gate to the yard.(See Maps 7 and 8). The new Stock House apparently replaced the wood and stone "house for storing gunstocks" that had been built in 1822 at a cost of $ 1,000.00.

Expenditures at Arsenal Square for Repair and Construction from 1830 to 1835 were about as follows:

Year	New Bldgs.	Construction	Repair	Total
1830	0	0	0	0
1831	0	0	0	0
1832	2*	$ 1,700.00	0	1,700.00
1833	0	0	$ 38.00	38.00
1834	0	0	15.00	15.00
1835	0	0	0	0
Total	2*	$ 1,700.00	$ 53.00	$ 1,753.00
Powder Magazine	1	131.33	0	131.33 in 1831

* For erecting one new stock house, converting residence into an office, and erecting a new dwelling to replace the office structure.

8. ASP-MA, IV,p1148-Harper's Ferry Armory rent rolls show that Clark probably moved into the house in 1826 and paid a total of $ 5.00 in rent that year, apparently for the 4th quarter of that year. He paid an annual rent of $ 20.00 in 1827 and 1828. R.G. 217-2nd Series File 1423. On April 13,1837, James Clark received $ 50.00 from the Armory Paymaster for improvements Clark had made to"the house on the Arsenak Square known as the Superintendent Office, which was yielded by Clark for use of the Armory." R.G.217-17153- On Dec. 2,1832, Edward Ott was paid $ 19.60 for plastering 196square yards at the Supt/'s Office.

MAP NO. 7

Map of Harper's Ferry Shewing the Location of the Winchester and Potomac Rail Road, 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.

This map shows conditions at the U.S. Musket Factory and

and at Arsenal Square as of October 1834. Section of map showing details on Arsenal Square(Blocks A and B,Shenandoah St.)

Buildings on Arsenal Square:

Supts. Office, 1-story brick house, 21 by 28 feet, a dwelling converted for use to office in 1832.

Pay Office. Office of the Paymaster and Militarty Store-Keeper, one story brick, 24 by 18 feet, erected 1822.

Old(Large) Arsenal, 2 stories, brick, 125 by 32 feet, erected in 1799-1800.

New(Small) Arsenal, 2 stories plus cellar, 68 by 36 feet, erected 1806-07.

Ice House, frame, erected (?)

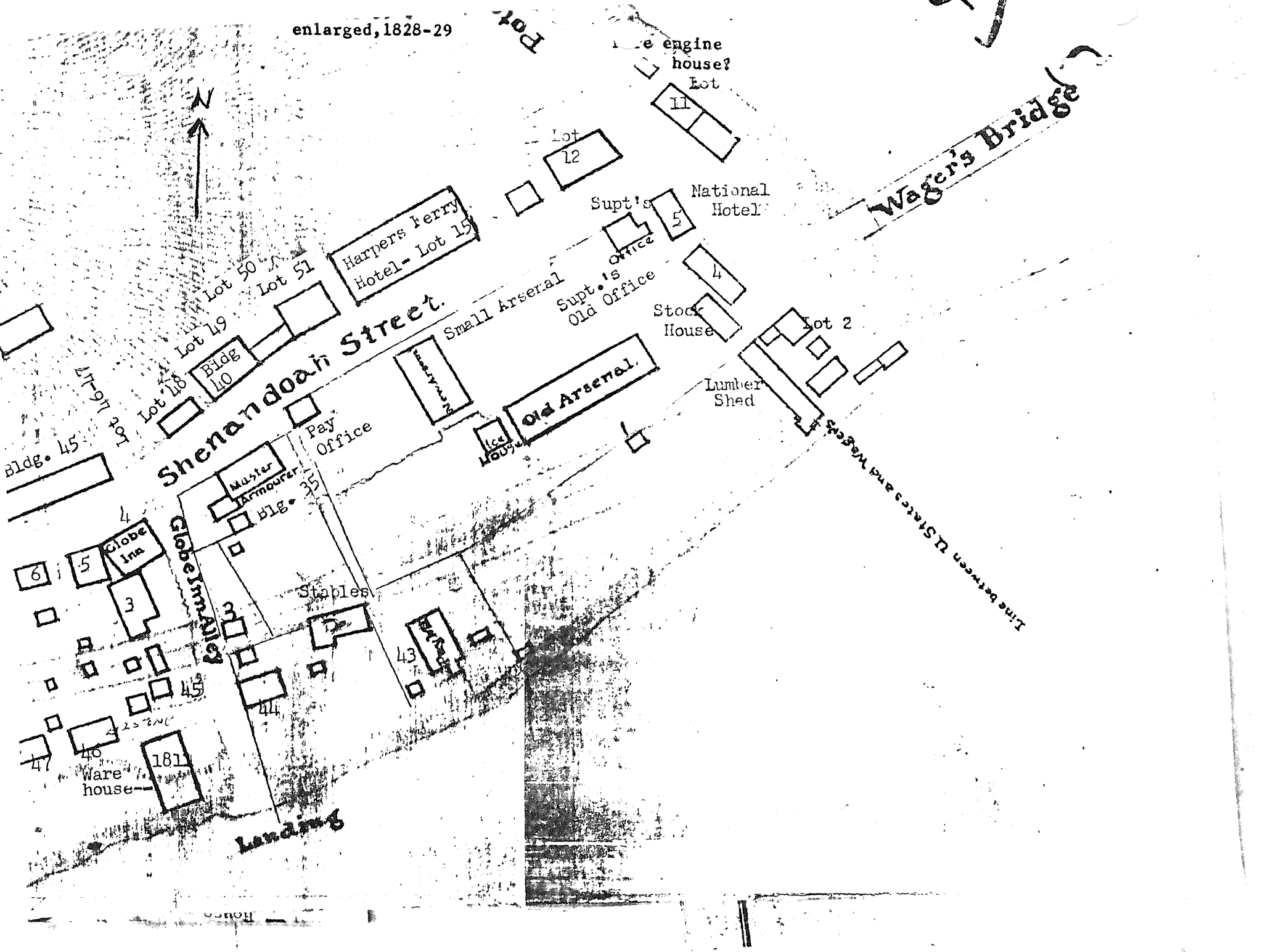
Stock House, A house for storing gunstocks erected in 1822, 65 by 30 feet. One story

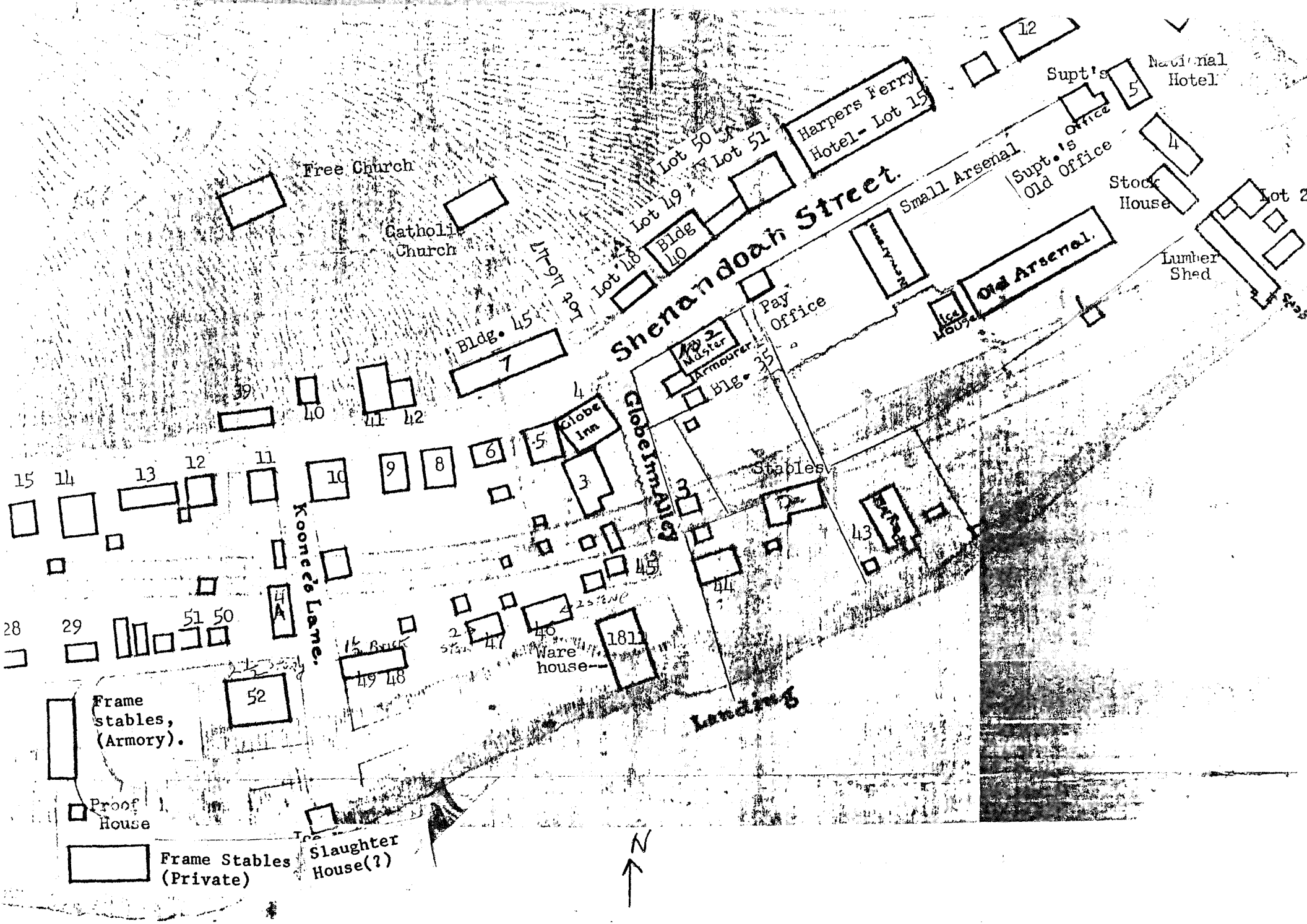
Arsenal Square Gate, opening into Ferry Lot Reservation

Lumber House, one story wood, 50 by 24 feet, ca. 1821.

Bldg. Marked No.1- Carriage House of Supt., value $ 40.
Bldg. " 2. Carriage house and stable of the Paymaster, value $ 50.
Bldg. No. 3- Carriage House and Stable of Master Armorer, value $ 150.
+Bldg. No. A Armory Dwelling House,Value of $ 240,on which George F. Butler has a claim for $ 140 in improvements. House cannot be removed.
Bldg. No. 43- Paymaster'sHouse, Brick, 2 stories, cellar, kitchen wing, erected 1801-02. Value $ 1,500.
Bldg. 35- Master Armorer's House, 2 story, brick erected 1812, 23 by 24 feet; kitchen wing added,20 by 22 feet, in 1827, 1 story.
Bldg.No. 44 - Dwelling House, Value about $ 200.

+ House A(or No. 4 in report) was located on the west side of Middle Alley and in the right of way to be given railroad. House not on this section of map.


enlarged, 1828-29
Fire engine house?
Lot 11
Lot 12
Wager's Bridge
National Hotel
Supt's
Supt's Office
Supt's Old Office
Harpers Ferry Hotel- Lot 15
Lot 50
Lot 51
Lot 49
Lot 48
Bldg 10
Shenandoah Street
Small Arseral
Stock House
Lot 2
Lumber Shed
Old Arsenal
Ice House
Pay Office
Master Armourer
Bldg. 35
Bldg. 45
Globe Inn
Stables
Line between U States and Wagers
Ware house
181
Landing


Free Church
Catholic Church
Lot 50
Lot 49
Lot 51
Harpers Ferry Hotel- Lot 15
Supt's
National Hotel
Supt's Office
Supt.'s Old Office
Small Arsenal
Stock House
Lot 2
Lumber Shed
Shenandoah Street
Bldg 40
Lot 48
Lot 47
Bldg. 45
Pay Office
Old Arsenal
Ice House
Master Armourer
Bldg. 35
Globe Inn
Globe Run Alley
Koontz's Lane
Stables
Ware house
Landing
Frame stables, (Armory).
Proof House
Frame Stables (Private)
Slaughter House(?)
N

MAP NO. 8

Map of Arsenal Square and Wager's Bridge
No date, but drawn ca. 1834-1837

Original in Baltimore and Ohio Railroad Company Library, Baltimore, Maryland, Portion of MS Map of Harper's Ferry, n.d., not title, no scale.

Note the location of the Arsenal Square Gate, which opens out and crosses Wager Lot No. 3 into the Wager Ferry Lot Reservation, opposite to the Harper's Ferry entrance to the Potomac Toll Bridge.

1. Superintendent's Office, remodelled in 1832.

2. Paymaster's Office, erected in 1822.

3. Small Arsenal, built in 1806-07.

4. Large Arsenal, built in 1799-1800.

5. Stock House, erected in 1822.

6. Lumber House, erected ca. 1821.

7. Paymaster's Residence, 1801-1837, built 1801-02.

8. Master Armorer's Residence, 1818-58, built 1812.

9. House No. 4, Lot 1, Block C, Shenandoah Street, built by William Graham, ca. 1818-20.

10. Armory Lumber Yard toca. 1837.

Tow path
Wagers Bridge
Street
Shenandoah
HARPERS FERRY
SHENANDOAH RIVER
N
1
2
3
4
5
6
7
8
9
10

Storage Conditions for Arms in the Two Arsenals;1830-35:

In November 1827 Inspector General John E. Wool had reported that the two Arsenal buildings held about 100,000 stands of arms and were very badly overcrowded. The situation was still uncorrected in 1832. On December 15,1832, the Inspector of National Armories informed the Chief of Ordnance:

> "The finished arms at Harper's Ferry are deposited in the two brick Arsenals, which are covered with slate and favorably situated as regards security from damage by fires. The floors of the smallest had failed and requires repairs which cannot be effected until deliveries of arms to a large amount. Both of these Arsenals are much crowded. The large one is literally crammed in all the alleys and passages between the piles of boxes (arms chests). In the present state of arms it is utterly impossible to examine any portion except a few near the entrance. Large masses are stored in bulk, for want of boxes, and no inspection could be made to any reasonable extent... [9]

Winchester & Potomac Railroad & the Armory Land

The Winchester and Potomac Railroad Company was organized in the spring of 1831.[10] By an act of the General Assembly of Virginia incorporating the company, the railroad was authorized "to enter upon all lands and tenements through which they may judge it necessary to make said railroad, and to lay out the same according to their pleasure, so that neither the dwelling house, yard, garden, or castilage of any person be invaded without his consent."

On April 14, 1834, John Bruce, President, and William H. Morell, Engineer, of the W.& P. RR, wrote to Secretary of War Lewis Cass, and requested permission for their new-fangled device to cross the public land of the Armory at Harper's Ferry in order to reach the Potomac, there to form a junction with the C & O Canal, which had arrived opposite to Harper's Ferry in 1833, and (also) the Baltimore and Ohio Railroad, which was to arrive opposite to the Armory in December 1834.

9. Inspection Report, dated Dec. 15,1832, HFNHP Photostat Collection, Vol.1,p.10.
10. Virginia Free Press, April 14, 1831, p. 3, c.2.

Engineer Morell explained the company's problem as follows:

The Winchester and Potomac railroad cannot reach the Potomac at Harpers Ferry without passing though the yards, &c. of the occupants of the land held by the Government at that place, and the request of the company is, not that the War Department shall dispose of the public land, but that it shall not obstruct a great public improvement, by withholding its consent to the passage of the road through the yards, &c. of the individuals occupying that ground.

It is contemplated to carry the road in the rear of the dwelling houses (which generally fronted on Shenandoah Street), and to elevate it upon trusses to a height sufficient to admit, at all places, ready access from the front to the rear of all the lots, either by men or horses; and it is believed, by adopting this mode of construction, that there is not a single occupant who would refuse his assent to the passage of the road through his grounds..." 11

President John Bruce further remarked:

"we solicit of the Federal Government... the use of a portion of the public ground near the arsenal (on Block A, Shenandoah Street) as a place of deposite for our trade now occupied in part as a wood and lumber yard [redacted], out of the region of the workshops, and embracing no improvement of any value whatever. The spot referred to, near the arsenal, is particularly desirable, to give efficincy to our operations, as it at once would accommodate the trade of the armory and village, give us easy access to the Chesapeake and Onio Canal, and promises a ready junction with the Baltimore and Ohio Railroad... 12

Col. Bomford, Chief of Ordnance, in a letter dated March 29, 1834, had turned down the inital request of the Railroad Company to invade the public lands at Harper's Ferry and now Bruce and Morell were appealing over the Colonel's head to the Secretary of War and Congress.

Secretary Cass referred these letters of the company officals to House Committee on Military Affairs for consideration on April 18. 13

11. Serial No. 262, Document 432, pp.2;
12. Ibid., p.3.
13. Ibid., 1-2.

The Committee rendered a favorable report to the Company's request on April 30,1834, on the grounds;

> that such a work, penetrating a region among the richest in the Union, in agricultural and mineral resources, and offering a route for its ready extension, will greatly promote the interests of the national armory, by furnishing materials for manufacture, and supplies for workmen and others ther employed; and, in the event of foreign invasion, might tend to strengthen the national arm, by providing a rapid medium of transporting men and munitions of war from the interior of the country to the seaboard:... 14

Congress passed a joint resolution recommending that a right of way be granted to the railroad. In response to this request Topographical Engineers, working under the supervision of Lieut. Col. James Kearney and Captain William Trumbull, spent the summer of 1834 at Harper's Ferry and prepared four working and two finished maps that showed the location and size of all structures located on Arsenal Square, Block A and B, Shenandoah Street, also on both side of Shenandoah Street for Blocks C, D, E, F, and G, Shenandoah Street, on the island of Virginius, on the Upper and Lower Hall Islands, and was far west as Thorp's and Strider's Islands in the Shenandoah. Their final report was submitted to Lieut. Col. J. J. Abert, Chief of Topographical Engineer, on October 7,1834, who in turn transmitted it to Secretary of War Lewis Cass on October 23.[15] The right of way, as recommended by the Army engineers , was approved and granted by President Andrew Jackson on January 27,1835.

Under the right of way as granted, the railroad line left the mainland near the western end of Strider's island and by a 30 foot wide right

14. Serial No. 262, Document 432, p.1.
15. Serial No. 271, Document No. 2, pp.184-187.

of way traverse Strider's, Throp's, and the U.S. Upper and Lower Hall Islands, also and the Island of Virginius, returning to the main land on the narrow plains of Harper's Ferry, about 43 yards above or west of the foot-bridge at the lower eastern end of Virginius Island. The thirty-foot wide right of way continued across U.S. Blocks F, E., D, and C, to Shenandoah Street to the Globe Inn Alley (which was later known as Market Street) From a point about 34 feet east of Globe Inn Alley as it cross Blocks B and A, Shenandoah Street) to the eastern Boundary of the United States property, where Arsenal Square abutted on the Wager Ferry Lot, the railroad was given a right of way 50 feet wide so that they could lay four tracks. In the actual construction, however, only two tracks were laid.[16]

As the "place of deposite, and for the general accommodation of the trade," the engineers reported, the company asked for the ground lying south of their road and east of the Paymaster's dwelling; (that is, the southern ends of Lot 1 to 7, Block A); this ... contains about 2,900 square yards. It includes part of the Paymaster's garden, and a small house of little value, and it extends to the river shore.

"This ground will probably be scarcely sufficient for the purposes for which the company intend it; the privilege of wharfing in front of it would enable the company to communicate directly with the river trade, and enlarge their limits."[17]

Construction on the railroad began in 1835 and the line

16. Serial No. 271, Document No. 2, pp.184-185;
17. Ibid., p. 185.

was erected on wooden trestles that elevated the track 14 feet above the ground level, so as to leave sufficient room under the trestle for people living on Shenandoah Street to have access to the rear of their lots. The passage of the wood-burning locomotives of the Winchester and Potomac Railroad Company through the public lands and across Arsenal Square, however, was to create a fire hazard because of the proximity of the two Arsenal buildings to the tracks. In his inspection report of July 25,1835, Lt. Col. George Talcott note: "The construction of the Railroad through the public land at this time is a prominent cause of the accummulation of filth and rubbish & more than ordinary care should be bestowed on matters of internal police." He further recommended that twenty or thirty thousand muskets be sent from Harper's Ferry to the Frankford Arsenal or other arsenals because of the danger of fire from the railroad and also because the lack of storage space in the overcrowded Arsenal buildings.[18]

The Winchester and Potomac Railroad Company began operations over the full length of this completed line on March 31, 1836.[19]

---

18. Inspection Report, July 25,1835, HFNHP Photosts, Vol. 1, p.50, 53: "The muskets in deposits fill all parts of the store houses allotted to that use and an examination of their condition was scarely possible. When the ten thousand (arms) ordered to Mount Vernon Arsenal (in D.C.) are delivered an inspection of the residue may be made. Additional room for the storage of arms is indispensible and as the ground will not admit of the erection of another large arsenal, in consequence of the construction of the railroad through the public land, I would urge the sending off at once twenty or thirty thousand muskets to Frankford Arsenal or some other place- Indeed the security against fires is so inadequate that a large part of the arms should be distributed to various arsenals as soon as possible."

19. Virginia Free Press, March 31, 1836, p.3, c.1.

A New Powder Magazine, 1831:

In 1810 a magazine for the storage of gunpowder had been erected on Magazine Hill, which overlooked the U.S. Musket Factory on the Potomac. In 1821 the magazine was described as a one-story frame structure measuring 18 by 18 feet in size and valued at $ 150. In 1831 a new magazine was erected at a cost of $ 131.33.[1]

Grading and Paving Streets, 1834:

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 some of the public buildings. Col. George Bomford explained the need for these funds to Congress as follows:

> 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.[2]

1. National Armory Accounts and Annual Report for 1831, NA RG 156. Entry 936, HFNP Reel 20, Vol. 5, p. 435.
2. Estimates for 1834, Reel 20, Vol. 6, p. 590. Appropriations in U.S. Statutes at Large, IV, p. 675. This money was included in the sum of $ 8,589.87 that was voted to erect a store house for iron, etc.

Work on the streets got underway in July 1834. On July 7 Superintendent George Rust, Jr. entered into a contract with William McDonald, who agreed

> 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 MacAdamize 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.
>
> The said McDonald further agrees to excavate the ground through the Pay Master's garden (~~located Block A, southern ends of lots 1 to 7~~) sufficient for a waterway from the street to the river, and pave the same and also erect side walls one and a half feet high on each side of the waster - The whole to be completed by the first day of October next. [3]

McDonald made excellent progress, for on August 28, 1834, the Virginia Free Press noted:

> 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.... [4]

The vouchers of the Armory Paymaster provide the following details on William McDonald's project:

During August and to September 18, he graded and macadamized 47 34/100 rods of Shenandoah, receiving $ 1,212.53 for this portion of his contract. He laid 104 67/100 perches of stone wall" at the wasteway" for $ 104.00 ; 57 perches of culverts for $ 85.50, 335 1/3 feet of curb stone

3. National Archives R.G. 156, Contract Book No. 13, p.233; HFNHP Photostatice Colection, Vol. 1, pp.30-31. Contract dated July 7, 1834.
4. Virginia Free Press, August 28, 1834, p. 3.c. 1.

for $ 104.00; and put down 32 feet of flagging for $ 8.00 . On September 30,1834 MacDonald received the final payment of the total of $ 1,516.49 that was due him for his work on the streets and sidewalks of Harper's Ferry lower town.[5]

After this expenditure there would have been a balance of $ 983.51 available to pay for painting the public buildings.

5. R.G. 217- 1st Series- File 20041,Voucher A-Sept. 30,1834; File 19021- Abstract E, as a statement on which grading Shenandoah Street in Aug.1834.

Construction and Repair at the U.S. Rifle Factory, Halls Island on the Shenandoah, 1830-35

The report of William B. Lewis, 2nd Auditor of the Treasury Department, dated November 16,1835, indicates that $ 9,080.61 was spent for repairs and improvements on the buildings at Hall's Rifle Factory and $ 1,999.50 to repair and extend the Shenandoah Dam, making a grand total of $ 11,080.11 spent for permanent improvements, exclusive of the purchase of water rights, during the years 1830 to 1834.[1]

This chart which follows is based on Auditor Lewis's report:

Year	Water Rights and dams	For Buildings	Tools and Machinery	Total Perm. Improvements	
1830	-	$ 887.45	$ 10,671.85	$ 11,569.30	
1831	-	2,491.27	9,355.78	11,747.05	
1832	-	3,837.40	12,100.76	15,938.16	
1833	$ 2,600.00	968.62	1,883.60	5,452.22	
1834	1,999.50	895.87	4,744.32	7,639.69	
Subtotal	$ 4,599.50	$ 9,080.61	$ 38,756.31	$ 52,436.42	(1)
1835:	-			5,788.03	(2)
TOTAL:	$ 4,599.50			$ 58,224.45	

Total for land, dams and buildings, 1830-34: $ 13,680.11.

1. Congressional Series, Serial No. 287, Document 44, p. 366; also in American State Papers-Military Affairs, V, p. 915.

2. Serial No. 292, Document 294, p. 5. Annual Report of Ordnance Department to Congress for 1835.

By 1829, as we have seen, about 19 small buildings were standing on the Hall Island. Six of these were dwelling houses occupied by John H. Hall's employees, ten were workshops or store houses used in the production of Hall's Patent Rifle, and three were utilized by the U.S. Armory. These latter structures consisted of The Tilt Hammer Shop, one story, brick, 45 by 45 feet, erected in 1808 -09, and now called the Furnace and Forge building; A coal house erected in 1822 at a cost of $ 200.00, and the Store House for Iron, erected in 1824 at a cost of $ 500.00. During the period 1822 -29 period Hall had increased his original manufacturing plant from two to about 10 buildings. He was now ready to again expand his plant.

In July 1830, John H. Hall informed Chief of Ordnance George Bomford that his operations now needed the one remaining Armory-operated shop at the rifle factory, writing:

> The progress of my business now renders it necessary that the remaining water shop on the Shenandoah, should be given up to me, as contemplated for several years past, it is a one story brick building in [illegible] defective [illegible] state, in which two tilt hammers are now worked and a forge hammer, the later for the furnace.
>
> The stocking of my rifles, which cannot be longer delayed without serious inconvenience (nine [illegible] thousand also -3d and 4th parcels (of rifle) renders it necessary that the whole of the water power in the Shenandoah Canal should be at my command, as it will be, when the tilt hammer shop is given up and the furnace. I would therefore request that provision be commenced for the delivery of it as early a day as practicable." [3]

This transfer of the old brick forge and furnace took place a year later, in June 1831.[4] Hall reported that that old shop was in very poor condition, but estimated that it could be repaired and converted to his needs for about $ 1,500: one section at a cost of $ 1,000

3. Reel 22, Vol. 9, p.840.
4. Hall to Bomford June 25, 1831, Reel 22, Vol. 1, p.1051. Here Hall describe the transferred as "that part which had been occupied for making bar iron . . out of scraps."

for a shop for grinding barrels, ramrods, and bayonets, and the other portion, for $ 500, to serve as the stocking shop for his rifles.[5] Col. Bomford authorized Superintendent George Rust, Jr. to carry out this construction at a cost of $ 1500.00 on July 25,1831.[6]

Prior to this, in January 1831, Hall had also requested and received permission from the Chief of Ordnance to increase the thickness of the flood protection embankment on the south side of the rifle factory shops by four feet and also its height by three feet.[7]

The "Statement of Sums Expended in making additions and other Permanent Improvements to the Rifle Factory during the Year 1831, reveals that a total of $ 2,501.27 for spent for the following project:[8]

1. For constructing a wall and raising embankment on south side of Rifle Factory to protect it from inundations.....$ 252.40½ (9)
2. making repairs and improvements to iron store house , partition, rack, flooring..... 80.00
3. Repairs to Shops No. 2, 3, 4, 7, and 8..... 518.08
4. Building kitchens to dwelling houses No. 13 and 14.... 433.71½
5. Repairs to dwellings No. 15, 16, and 17..... 76.45
6. erecting charcoal house No.18..... 107.40

8.Continued- Entry 936-HFNHP Reel 20,Vol. 5, p.465. The Similar Annual report for the year 1830 fails to include a discussion of the work done at the Rifle Factory during that year.

9. R.G. 217- 1st Series, File 15603- June 8,1831 and 16094- Voucher 78, December 31,1831- Michael Cook was paid a total of $ 12153 in 1831 for making 484 1/3 cubic yards of embankment as an addition to an old embankment @ 25¢ per yard.

5 . . Ibid.

6. . Bomford to Rust, July 25,1831, Reel 14, Vol. 9, p. 824.

7. . Hall to Bomford, January 7,1831, Reel 22, V.11, p.1018; Bomford to Hall, February 7,1831, Reel 14, Vol. 9,p.806.

8. National Accounts and Annual report for 1831, National Archives R.G. 156,

7. erecting furnace and building over it for annealing barrels, No. 19.....	103.24½
8. labor and materials for fitting up the old tilt hammer building for a stocking shop, No. 20.....	638.58
9. Building a square frame filing shop, No. 21.....	139.40
10. erecting a furnace for hardening rods and building over it, No.22	122.81
11. constructing shed in front of old annealing furnaces, No.23-	29.19
Total Construction & Repair Buildings:	$ 2,501.27
12. For constructing tools and mechinery.....	8,976.29
Total: With John H. Hall's salary for supervising	367.59
Total, 1831:	$ 11,845.15

The above reports reveals that the money was spent for the following projects:

Embankment and flood wall.....	$ 252.40½
Repairs to ten buildings.....	$ 1,313.11
Additions to two buildings	433.71½
Erecting 5 buildings, including two new furnaces and a shed at old annealing furnaces..	$ 502.05½
1831 Total:	$ 2,501.27.

On May 27, 1832, Hall requested permission to construct a one-story filing shop about 17 feet square at an estimated cost of $ 250.00.[9] Bomford authorized the construction of this shop on June 25, 1832.[10]

The section of the old tilt hammer shop to be devoted to the grinding of rifle barrels, ramrods, and bayonets was probably altered for that purpose and the structure possibly enlarged in 1832.

9... Hall to Bomford, May 27,1832, Reel 22, Vol. 12, p. 1190.
10... Bomford to Hall, June 25,1832, Reel 14, Vol. 9, p.859.

On June 28,1832, the mason Lewis Wernwag was paid $ 178.00 for making 114 2/3 perches of stone wall at the Rifle Factory, this may have been a delayed payment for wall that he had constructed 1831 flood guard [11].

In September 1832 Hall recommended that a new fire engine be sent to the rifle factory, as the one they had was worn out, and also suggested that a new engine house be erected at a cost of $ 150 to replace the old structure used for that purpose at the rifle factory.[12] The Watervliet Arsenal at New York sent a new fire engine to Harper's Ferry in October 1832.[13]

IN the inspection made of the Armory and the Hall Rifle Factory in December 15,1832, the inspector noted of the Hall works:

> Some additional shop room is necessary, for the great quantity of machinery used. The principle shop is now quite too much crowded and additions to the machines are made from time to time, as the ingenious inventor progresses in the fabrication of arms. A few dwelling houses for the workmen at this branch are also much required..[14]

This evidence suggests that two small buildings, a filing shop and a fire engine house, were probably erected for Hall at a cost of approximately $ 400.00 in 1832. Another $ 1,500 was probably spent on the grinding mill functions at the old tilt hammer shop.

In the spring of 1833 William Bayley, the slater, was paid a total of $ 275.15 for slating 3,580 feet of roof at Hall's Factory [15] ON Feb. 4, .

15. R.G / 217- File 17644.

11. R.G. 217-File 16657- June 28,1832- in this same file there is also a voucher to Michael Cook, May 17,1832,in the amount of $ 22.20 "for making 111 cubic yards embankment,Hall's Island". This appear to be a dupictar of F.16094-Voucher / 78, dated Dec. 31,1831 for the same amount of money and the same amount of embankment.

12. Hall to Bomford, September 22,1832, Reel 22, V. 13, p.1211. Bomford to Hall, September 24, 1832, Reel 14, Vol. 9, p.871.

13. Bomford to Supt. Rust, October 27,1832, Reel 14, Vol. 9, p.875.

14. Inspection Report, December 15,1832, National Archives R.G. 156, Special File Box 28, pp.7-8.

Water Power on the Shenandoah River, 1833-34:

John H. Hall informed Colonel George Bomford on July 18, 1831, that the existing U.S. dams on the Shenandoah river were poorly constructed of wood and loose stone, filled with brush, and required frequent repairs. These were temproary structures and in very poor condition. The increased operations of the Rifle Factory would require a better dam to supply an increased amount of water. Hall suggested that the new dam be constructed a few yards below the existing ones and ,which would consist of timbers bolted to stones, that the new structure/should be three feet high and extend obliquely up the river about 1,000 feet. He estimated the cost of construction at $ 3,000.00.[16] Col. Bomford authorized Superintendent George Rust, Jr. to built the Shenandoah dam on August 18,1831.[17] By September 5, Hall discovered that the new dam would have to be continued all the way across the river in order to insure a full supply of water for the rifle factory during dry seasons. Hall estimated that this addition was cost $ 500, thus bringing the total cost of the new structure to approximately $ 3,500.00.[18]

As the new U.S. dam began to cross the Shenandoah, John Strider, whose mill was located above (or west) of the rifle factory, alledged that he owned the water rights for this section of the river and charged that the United States was infringing his rights with the new dam. This apparently stopped construction on the new dam.

In 1833 Colonel Bomford requested and Congress appropriated on March 2, 1833 the sum of $ 4,600 to "purchase right to water power on the Shendnaoh River for the use of the U.S. Rifle Factory.[19]

16. Hall to Bomford, July 18, 1831, Reel 22, Vol. 11, p.1055.
17. Bomford to Rust, August 18,1831, Reel 14, V. 9, p.826.
18. Hall to Bomford, September 5,1831, Reel 22, V.11, p.1083; Hall to Bomford, October 25, 1831, Rrel 22, V. 11, 1076.
19. Reel 20, Vol. 6, p.580- in National Archives R.G. 156, Entry 129, Vol. I, p. 115; Appropriation in U.S. Statues at Large, IV, 642.

Strider sold his rights to the water power of the Shenandoah to the United States on June 27,1833 for $ 2,600.00, the balance of the $ 4,600.00 appropriation- $ 2,000 reverted to the general Treasury.[20] In this deed Strider gave to the United States: "the use and priviledge(sic) of the waters of the Shenandoah river between the mills of said Strider called Gulph Mills and the public works belonging to the United States on said river below the fall in the river from said mills to the termination of the land of said Strider being Two feet Three inches, commencing Two feet five inches below the top of an iron bar now inserted in a rock, situated in the tail race of the mill of said Strider; said bar being twenty three feet six inches distant from the south corner of said mill...."

Strider futher granted to the U.S. the

"the priviledge of completing and perfecting the dams now extending partly across the Shenandoah River, above and nearly opposite the said Gulph Mills, so as to increase the supply of water to any extent, passing down the canal that leads to the Rifle Factory; also the priviledge of increasing the depth and width of the present canal, extending from the dam last mentioned past the mills of said Strider to the Rifle Factory; also the privledge of increasing and extending the dam or dams at the head of the canal or race which supplies the mills of said Strider with water, and of increasing the depth and width of said canal or race, and of constructing wastewiers in the same, at such places as may be considered necessary by the Superintendent of the Harpers Ferry Armory...[21]

Rebuilding the U.S. Shenandoah Dam:, 1834:

In the special estimate for 1834, the Ordnanced Department requested

20. Deed of B. & S., June 27,1833, Deed Book 18, pp.431-432, Jefferson County Courthouse, Charlestown W.Va., Also copy on National Archives Record Group 121, Public Buildings Service, Entry 75.

21. Ibid.

and Congress appropriated on May 14,1834, the sum of $ 2,000 "for repairing dam and removing obstructions in way of supplying water to rife factory on the Shenandoah River."[22]

Col. Bomford explained the need for these funds, writing:

> The water in the canal that supplies the works on the Shenandoah river, becomes so much lowered every day, that the operations at the rifle factory have to be partly discontinued every few hours. These obstructions are caused by masses of rock, and accumulation of mud and gravel in the Shenandoah river, which are required to be removed in order to insure a regular supply of water at these works..."[23]

The Armory Acounts show that the sum of $ 1,999.50 was expended during 1834 in executing and completing this project.[24]

The Paymaster's vouchers reveal that Lewis Wernwag constructed the Shenandoah Dam in August and September 1834, placing 739 cubic yards of rock and 1,962 cubic yards of gravel in the "brest work" at the dam.

Wernwag did his work and was paid as follows:

August 21, 1834-

For Excavting rock below water and constructing brest work at dam, 133 cubic yards of rock.....$	$ 292.60
For excavting from above water and constructing brest work, 120 cublic yards of rock.....	90.00
Excavating and placing on brestwork 739,cubic yards of gravel..	258.65
Aug.21: 253 cubic yds rock, 739 cubuc yrds gravel-	$ 641.25

August 29,1834:

Excavating rock below water & constructing B.W., 333 cu.yrds.	732.60
Excavating from above water " " :" , 69½ " "	52.12
For 669 cubic yards of gravel @ 35¢ per cub.yd.....	212.45
Aug. 29,1834: For 402½ cub. yds. rock, 669 cub.yds gravel..$	997.17

22. Estimates for 1834, Reel 20, Vol. 6, p.583,-National Archives R.G. 156, Entry 129, Vol. I, p. 125. Appropriation in U.S. Statues at Large, IV, p. 675.

23. Estimates for 1834, Reel 20, Vol. 6, p. 585.

24. Serial No. 287, Document 44, p.366.; Also Serial No. 273, Document 112,p.5.

September 10, 1834:

For excavating rock below water & constructing brest work at dam, 28 ½ cubic yards of rock.....	$ 62.15
For excavating 55 2/3 cubic yards above water,&c.....	57.43
For 554 cubic yards of gravel on dam.....	179.90
For waste weir.....	61.60
Sept. 10,1834: 84 cub.yds rock; 554 cub. yds.gravel.....	$ 361.08

Total to Lewis Wernwag for work on dam: $ 1,999.50, for 739 cubic yards of rock[25] and 1,962 cubic yards of gravel.

Second Auditor's Summary of Operations of Hall Patent Rifle Plant, 1819 - December 31,1834.

W.B. Lewis, of the Treasury Department's Second Auditor's Office, in a report dated November 16,1835, wrote that the total cost of operations at the Rife Factory from 1819 to December 31, 1834, was $ 432,899.30. He broke these expenditures down as follows:

For water power and mill dams(1833-34).....	$ 4,599.50
For buildings,mill-wrightwork.(1819-1834).....	31,215.30
For Tools and Machinery(1819-34)....	149,410.89
For manufacture od rifles and equipments, 1819-34.....	247,673.61
Total:	$ 432,899.30[26]

During this period, 1819-34, a total of 11,000 Hall rifles had been produced.

25. R.G. 217-1st series- File 19021-Abstract F, 3rd quarter of 1834.
26. Serial No. 287, Document 44, p.366

CHART NO. 9

Statement of the expenditures at the rifle factory, Harper's Ferry armory, since its establishment, to December 31, 1834.

Years.	For water power and mill dams.	Buildings, mill-wright work.	Tools and machinery.	Manufacture of rifles and equipments.	Amount expended in each year.
1819 to 1821, inclusive	.....	$4,130 14	$11,917 03	$10,544 62	$26,591 79
1822	.....	47 33	5,088 95	1,319 95	6,456 29
1823	.....	42 44	5,938 48	3,768 68	9,749 60
1824	.....	1,557 01	12,216 04	6,922 72	20,695 77
1825	.....	1,076 72	14,448 72	4,709 81	20,235 25
1826	.....	236 18	8,002 06	4,647 68	12,885 92
1827	.....	5,952 93	15,879 10	18,911 40	40,743 43
1828	.....	5,665 93	17,779 77	26,322 91	49,768 61
1829	.....	3,425 96	19,384 43	17,351 85	40,162 24
1830	.....	887 45	10,671 85	20,958 15	32,517 45
1831	.....	2,491 27	9,355 78	27,016 23	38,863 28
1832	.....	3,837 40	12,100 76	25,060 51	50,998 67
1833	$2,600 00	968 62	1,883 60	35,593 53	41,045 75
1834	1,999 50	895 87	4,744 32	34,545 56	42,185 25
Total	4,599 50	31,215 30	149,410 89	247,673 61	432,899 30

NOTE.—No separate accounts having been kept of the yearly expenditures at the rifle factory in 1819, 1820, and 1821, it is now impracticable to furnish the annual expense for those years as required by the resolution.

W. B. LEWIS.

TREASURY DEPARTMENT, *Second Auditor's Office, November* 16, 1835.

(27). American State Papers, Military Affairs, V, p.915.

Buildings on the Lower Hall Island Island, October 1834, as shown on Maps No. 9 and 10, with tentative identification of some Structures:

Documentary evidence indicates that the following work shops were standing at John H. Hall's Plant Rifle Factory in 1834:

1. Hall's Machine Shop, a one-story frame structure, 50 by 16 feet in size, altered at a cost of $ 600.00 from a saw mill into Hall's principal machine and water shop in 1819. Had one water wheel, 12 feet in diameter and wooden. In 1825 this shop was extensively enlarged and a second wooden water wheel, 10 feet in diameter, was installed in the new wing. Hall's Machine Shop may be Bdlg. No. 17 on Maps No. 9 and 10. Cost of 1824-25 addition about $ 1,700.00.
2. Hall's Smith or Forging Shop. This two-story stone blacksmith's shop , 30 feet square, was built for John H. Hall's use at a cost of approximately $ 800.00 in 1819. Hall's 1819 Smiths Shop may be Bldg. No. 21 on Maps No. 9 and 10.
3. Small Kilm for Steaming Rifle Stocks, erected in 1825. See Bldg. 15 on Map No. 21(1848). p.419.
4. Small Brick workshop erected in 1825.
5. Brick annealing furnace erected in 1825.--In 1831 a shed was erected in front of"the old annealing
6. Brick annealing furnace erected in 1825.-furnaces" at cost of $ 29.19. These are perhaps buildings No. 19 and 20 on Maps No. 9 and 10.
7. Grinding Mill, A one-story brick building 85 by 40 feet in size, erecte in 1808-09. This water shop, which had one water wheel, was valued at $ 6,000 in 1821. The shop was turned over to John H. Hall for his use in 1827. A large new stone wing with a water wheel was added at a cost of $ 1,500 to the original structure in 1827. The Grinding Shop, probably the "Bell Shop, with a cupola or belfry that was added to the roof in 1828, may be Bldg. No. 16 on Maps No. 9 and 10. The wooden water wheel in the stone wing had a 10 foot diameter. This is bldg. No. 13 on Map No. 21(1848). p.419.
8. Smiths Shop. A one-story stone building 35 feet square, with four forges and four chimneys , slate roof. This building, erected in 1827 at a cost of approximately $ 1,400.00, may be Bldg. No. 22 on Maps No. 9 and 10. Bldg.No.19,Map 21(1848),p.419.
9. Store House for Coal, A stone building erected in 1827 at a cost of approximately $ 700.00. Probably Bldg, 18, Maps No. 9 and 10.
10. Tilt Hammer Shop, stone, one-story, 45 by 45 feet, probably built in 1828. This may be Bldg.5 on the Maps No. 9 and 10. If so the structure had been consisabmely enlarged since 1828. This shop had a water wheel. Bldg. No. 5 is identified by a 1834 legend on Map No.10 as the "Trip Hammer Shop."

11. Coal House, stone, erected in 1822 at a cost of $ 200.00 for the use of the Armory. Probably turned over to Hall in 1834. Bldg. 9 on Maps 9 and 10, because of its location near the two smiths shops, may be the coal
12. Store House for Iron, stone, erected 1824 at a cost of $ 500.00 for hou use of the Armory. In 1834 the Armory erected a large store house for iron and a coal bin at the U.S. Musket Factory. The Hall Island store house for iron was probably turned over to Hall for his use in 1834.

Grinding and Perhaps Bldg. No. 8 on Maps. 9 and 10.

13. Hall's Stocking Shop: Erected as a tilt hammer shop in 1808-09 . The one story brick building was 45 feet square and valued at $ 4,000.00.in1821. The shop had a water wheel, which in 1830, drove two tilt hammers and a forge hammer for Armory purposes. In June 1831 this old shop was turned over to Hall for his use .Onesection was converted into a shop for grinding barrels, bayonets, and ramrods for his rifles at a cost of approximately $ 1,500.00 and the other section of the building was altered at a cost of $ 638.58 in 1831 for use as stocking shop. The alteration to the grinding functions was probably done in 1832. and the building may have been enlarged at that time. Hall's Grinding Mill and Stocking Shop is probably Bldg. No. 7 on Maps No. 9 and 10.

14. Building and furnance for annealing Barrels, erected in 1831 at cost of $ 103.24½.

15. Charcoal House, erected in 1831 at cost of $ 107.40, probably frame structur

16. Building and Furnace for hardening rods, erected in 1831 at a cost of $ 122.81. For ramrods.

17. Filing Shop: A frame square structure erected in 1831 at a cost of $ 139.40.

18. Filing Shop: One-story building about 17 feet square erected in 1832 at and approximate cost of $ 250.00.

19. Fire Engine House: A frame fire engine house was probably erected in 1832 at a cost of $ 150.00 to replace the old engine house.

20. Captain John H. Hall's Office. Date of construction of his office is not known, but after 1819 and probably after 1827. The original 1834 legend on Map No. 9 identifies Bldg. No. 15 on Maps No. 9 and 10 as "Capt.Hall's Office."

Thes leaves three structure unidentified as to construction and function out of the total of 22 buildings shown on the 1834 maps.

, In 1819 three dwelling houses, probably stone, were erected for about $ 1350.00 for the use of Hall's employees. These structures were located on either the Upper or Lower Hall Islands. By 1834, the Hall workmen rented a total of six Armory dwelling houses located on these islands.

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. Armory under the Direction of James Kesrney, 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 Chief of Engineers, Fortifications Map File, Drawer 150, Sheet 82, part 2, in Cartographic Division, National Archives, Washington, D.C.

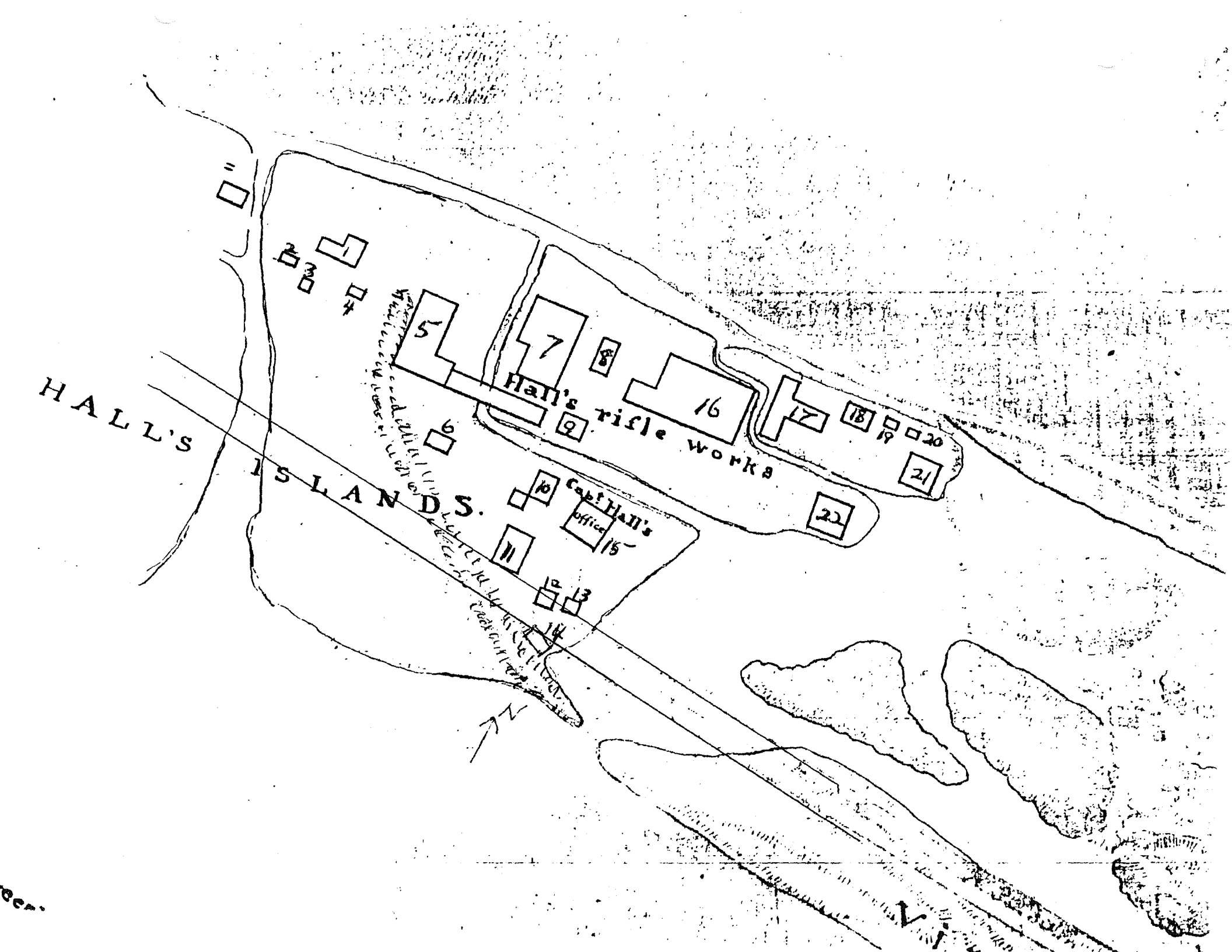
This map shows conditions at the John H. Hall Rifle Factory as of October 1834.

Numbers have been added to the map by the author. Only two of the 22 structures shown on the Lower Hall Island are positively identified on the original maps. These are No. 5-marked "Tilt Hammer" and No. 15, marked"Hall's Office".

Tentative Identification of Rifle Factory Shops

No. 1. L shaped, about 20 by 25 feet, with 15 by 20 feet wing.
No. 2. 15 by 10 feet.
No. 3. 10 by 10 feet.
No. 4. 15 by 12 feet.
No. 5. Tilt Hammer Shop, 75 by 35 feet, with 20 by 24 wing and 90 by 18 feet extension. Probably built in 1828, 45 by 45 feet when built.
No. 6. 24 by 16 feet.
No. 7. Tilt Hammer Shop, 1808-09, 45 by 45 feet,with 35 by 25 addition. Brick
No. 8. 32 by 15 feet. Perhaps the 1824 Iron House.
No. 9. 25 by 18 feet. Perhaps the 1822 Coal House.
No. 10. 25 by 20 feet, with 15 by 15 wing.
No. 11. 35 feet by 25 feet.
No. 12. 18 by 15 feet, stone dwelling?
No. 13. 15 by 12 feet, stone dwelling?
No. 14. 20 by 15 feet, stone dwelling?
No. 15. Capt. John H. Hall"s Office, 35 by 30 feet.
No. 16. Grinding Mill(1808-09)-Bell Shop(1834), 80 by 45 feet with 20by 20 wing.
No. 17. Machine Shop(1807 sawmill), 50 bv 16 feet.with 32 by 16 wing. Frame.
No. 18. 20 by 25 feet. Perhaps the 1827 Coal House.
No. 19. 12 by 10, Annealing Furnace ,brick, 1825
No. 20. 12 by 10, Annealing Furnace, brick, 1825.
No. 21. 30 by 30, 1819 blacksmith shop, 2 story stone, of Hall.
No. 22. 35 by 35 feet, 1827 Smiths or Forging Shop, 1-story stone.

Unidentified structures include the following: Coal House,1822; Filing Shop,1831; Store House for Bar Iron, 1824; Charcoal House,1831; Fire Engine House, 1832; and a 17 by 17 feet filing shop, 1832.


HALL'S ISLANDS.
Hall's rifle works
Capt Hall's office
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MAP NO, 10

"A Plot Exhbiting the limits of the grounds requisite for the Passage of the Winchester & Potomac Railroad through the Islands, adjacent to Harper's Ferry. MAP C. Scale 100 feet to the inch." No date. Make October 1834.

National Archives Record Group 77, Records of the Chief of Engineers, Fortifications File, Drawer 150 Sheet 78-part 4. Cartographic Division, National Archives, Washington, D.C.

Detail from asection of this map showing the workshop of John H. Hall's Rifle Factory on the Lower Hall Island.

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(Map
Hall's Works
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Hall's
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N
Shenandoah
& Plot

With the construction of the Store House for iron and a coal bin completed at the U.S. Mukset Factory by the end of 1834, the Armory probably then turned its similiar facilities, the 1822 Coal House, and 1824 Store House for Iron on the Hall Islands over to John H. Hall for his use. The transferr of these two store houses in late 1834 would have ended all Armory operations or use of buildings at the Rifle Factory.

Construction at the Rifle Factory in 1835:

On March 9,1835, Superintendent George Rust,Jr. informed Col. Bomford that two annealing houses, to be built of brick or stone at an estimated cost of $ 2,000.00, were much needed at the Rifle Factory and requested permission to erect these structures.[28] This construction was authorized and on April 15,1835, Benjamin Moor, acting superintendent, entered into a contract with Joseph Mullen, bricklayer, to construct the two brick annealing houses at the Rifle Factory. Mullen was to provide all of the materials and labor necessary to erect the structures. He was to be paid at the following rates:

> For Brick work per every thousand of brick, nine dollars, & for the stone work - $ 1.50 per perch. For the Brick cornice per foot twelve and a half cents. Single arches per each Fifty cents - double arches for each one dollar and seventy five cents."[29]

28. Rust to Bomford, March 9,1835, Reel 12, vol. 1, p. 11.
29. National Archives R.G. 156. Contract Book No. 13, p.231. in HFNHP Photostat Collections, Vol. 1, p.39.

Joseph Mullen apparently dug the foundations and laid the stone foundations of the first of the two propose brick annealing structures in in May or June 1835. The Paymaster vouchers for the 2nd quarter of 1835 are missing so that the details of Mullen work can not be established.

By late June and early July, however, he had completed the brick work of the first structure and received $ 257.48/for the following services: on July 8,1834

for furnishing and laying 26,978 bricks.....	$ 242.80
for making four brick arches of 14 inches.....	7.00
for making 2 brick arches of 7 inches	1.00
for laying 53½ feet of cornice.....	6.68
Received for"Annealing furnace at Rifle Factory":	$257. 48 30

The records for the carpenter work on this first structure are missing.

On August 13,1835, however, Jeremiah Harris was paid $ 26.75 "for plastering 214 square yards on the new annealing shop at the rifle factory."[31] Also in August 1835, the slater William Bayley received $ 122.27" for slating 1,143 feet of slating on roof of new annealing house" at the rifle factory.[32] The Annealing Shop was thus finished by the middle of August and its recorded cost, exclusive of the stone foundation and carpenter work, was $ 409.85.

The records for the construction of the Annealing Furnace (No. 2) are complete and reveal that Joseph Mullen, the mason, must have begun construction on Bldg. No. 2 in July and had completed his work under his contract by September 30,1835. At the latter date he received $ 170.28"for substituting a brick building for the wood shed now

30. R.G. 217-1st Series- File 20041-Voucher 27A.
31. R.G 217- 20041- V. 36A.
32. R.G. - 20041- V. 45A.

"the barrel annealing furnace at the rifle factory." His services indluded

for 4 3/4 days digging foundation, finishing stone and laying 21 perches of wall(in the foundation).....	$ 31.50.	
for furnishing and laying 14,235 brick.....	128.11	
for laying 37 feet brick cornice.....	4.62	
for making a large arch.....	2.50	
Other.....		
Total, Sept.30,1835	$ 171.35	33

The number of brick laid indicates that Shop No. 1 was almost twice as large as shop No. 2. Structure No. 2 was probably the Annealing Furnace(see belo

The carpenter Daniel T. Mathias received a total of $ 72.12 for his carpenter work on the second shop, which included:

Sept. 17,1835- for making 6 door frames, 6 batten double doors and 988 feet of rafter.....	$ 60.37	(34)
Nov. 13,1835- for 324 feet of framing roof,annealing house.....	11.75	(35)
Carpenter Work, 1835:	$ 72.12	

Jerry(or Jeremiah) Harris was paid $ 13.50 "for plastering 208 square yards on new annealing house at the rifle factory" on October 22,1835.[36]

Shop No. 2 was apparently completed in October for on the 24th of that month William Bayley received $ 43.46 "for slating 444/of roof of annealing shop at the rifle factory."[37] The total cost of erecting annealing shop No. 2 appears to have been $ 299.36, exclusive of costs of building the furnace

Recorded cost of erecting the two annealing houses in 1835 exceeded $ 709.21, exclusive-apparnetly of building their furnaces. The total estimates costs of the two structures and furnances had been $ 2,000.00. These two annealing structures are probably Bldgs. No. 20 and 21 on Map No. 21 (1848). Shop No.1 being Bldg. No. 20- the Annealing shop, and Shop 2 being No. 21-the Annealing Furnace. p.419.

33.R.G. 217- 20041.
34. R. G. 217- 20041-57A.
35. R.G. 217- 20281-22A.
36. R.G. 217- 20281-9A.
37. R.G. 217- 20281- 13A.

The two brick annealing buildings erected in 1835 replaced two oldwr buildings that were demolished. The number of structures on Hall's Rifle Factory Island therefore remained in 1835 at 22, as it had in 1834.

Work on a New Rifle Factory"Canal", 1835.

During July 1835 the waterways at the Rifle Factory were altered in some manner at a cost of $ 207.18. Vouchers for the labor involved describe the work as " removing earth from the new canal at the Rifle Factory" and" removing earth from canal and from guard gates." The project involved the following elements:

The labor of 13 men digging, whose combined work totalled 135¼ working days for.....	$ 135.25
To Frederick Yost for blasting rock.....	2.75
To Patrick Byrne for 34½ days hauling earth with 3 horses and carts.....	51.75
To Patrick Rice, for 11 3/8 days use of horse and cart.....	17.43
All paid off July 7-11,1835:	$ 207.18 (38)

A comparison of Maps 9 and 10 (both made in 1834) with Map 21 (prepared in 1848), suggests that perhaps the Shenandoah Canal, as it passed the Hall Islands between the Upper and Lower Locks, may have been widened.

The approximate expenditures for repairs and improvements at the Hall Rifle Factory during the years 1830 to 1835 is shown on the chart that follows.

38. R.G. 217-1st series, 20041-3rd quarter of 1835.

Expenditures, Repairs and Improvements at

Hall"s U.S. Rifle Factory, Harper's Ferry Virginia

Year	New Workshops No.	New Workshops Cost	Repair Workshops No.	Repair Workshops Cost	Dwellings Additions No.	Dwellings Additions Cost	Dwellings Repairs No.	Dwellings Repairs Cost	Dams & Canals	Walls, Flood	Total
1830	0	0	1								$ 887.45
1831+	4	472.85	8	1,265.85	2	433.71½	3	76.45		252.40½	2,501.27(1)
1832	2	400.00	1	1,500.00 (4)							3,837.40
1833*				$ 275.15(3)							968.62(2)
1834									1,999.50		2,895.37
1835	2	2,000.00		(5) 6.25					(6)207.18		5,788.03
Total:	8	$ 2,872.85	10	$ 3,047.25	2	$ 433.71½	3	76.45	$ 2,206.68	$ 252.40½	$ 16,878.14

+ from Annual Report for 1831, National Archives Record Group 156, Entry 936,HFNHP Reel 20, Vol. 6,p.465. The similar statement for 1830 does not con ain a statement on the Rifle Factory program that year.

(1) or $ 2,491.27 from Second Auditors report,Nov.16,1835.
(2) not including $ 2,600.00 spent to purchase water rights on the Shenandoah.
(3) For slating 3,580 feet of roofs, Hall's workshops.
(4) estimated cost of altering a section of old tilt hammer shop for use as grinding mill for barrels, bayonets and ramrods. Large addition probably made to original structure.
(5) R,G. 217-1st series- 20041- Sept. 14,1835- to Jeremiah Harris, $ 6.25 for 50 yards of plastering at the Rifle Factory.
(6) R.G. 217 -20041-3rd Quarter of 1835 for "new canal" at rifle factory.

U.S.Musket Factory Canal on the Potomac, 1830-35:

As has been noted in the last chapter, the Armory spent a total of approximately $ 4,470.35 in 1828-29 to widen that U.S. Potomac Canal that conveyed water to the Musket Factory by erecting 2,493½ perches of stone wall and 6,320½ cublic yards of embankments. In the estimates for 1830, the Ordnance Department requested and Congress appropriated on May 31,1830 $ 9,300.00 to continue the project "for extending the walls and embankments which coney the water from the Potomac river to the works."[1] The Estimates for 1831 requested and Congress appropriated on March 2,1831 the additional sum of $ 7,500.00 to complete this project, thus making a total of $ 16,800 provided for this construction.[2]

Two masons, Johnson Garrett and John Gust, who had done considerab work on this project in 1828-29, did all of the construction in 1830-32. Between them, they erected a total of 10,805 perches of stone wall and made 23,050 cubic yards of embankment, receiving for their efforts in 1830-32 $ 14,961.27. With other costs of $ 558.30 such as for lime,hydraulic cement, timber included the total cost of the extending walls and embankment project came to $ 15,519.67 in 1830-32. (See Chart on Page 306, which is based on voucher of Armory Paymaster that were issued for this construction.)[3]

3.National Armory Accounts and Arnnual Reports for 1830 and 1831,NA.R.G.156, Entry 936 HFNHP Reel 20,Vol. 5, p. 419,421 give the following and differe account of progress of construction from the Chart on page 306:

Yaer	Perches Wall	Cost	Cub.Yrd Embank.	Cost	Other	Total
1830	2,440	$ 3,050.00	9,800	$ 2,450.00	$ 223,75	$ 5,723.75
1831	2,589	$ 3,248.87	4,350	$ 1,087.50	$ 286.25	$ 4,622.62
No report 1832:	5,029	$ 6,298.87	14,150	$ 3,537.50	$ 510.00	$10,346.37--

1. 1830 estimates in Serial No. 195, Document No. 2, p.134. Appropriations in U.S. Statues at Large, IV, p.424.
2. 1831 estimates in Reel 20, Vol.6, p.550; Appropriation in U.S. Statues At Large,IV,p.467. In 1831 the Armory also spent $ 169.15 "for guard wall at Locks & sluice over the Canal.", National Armory Annual report for 1831, Reel 20, Vol. 5, p. 436. NARG 156, Entry 936.

EXTENDING CANAL WALLS AND EMBANKMENTS, 1830-32

Data from Record Group 217 (1)

Year	Masons	STONE WALLS Perches	Cost	EMBANKMENTS Cubic Yards	Cost	TOTAL COST
1830	Johnson Garrett	2,600	$ 3,250.00	9,000	$ 2,250.00	$ 5,500.00
1830	John Gust	2004	2,505.00	9,900	2,475.00	4,980.00
Total, 1830:		4,604	$ 5,755.00	18,900	$4,725.00	$10,480.00
1831	Johnson Garrett	5,130	2,425.00	3,150	775.00	3.200.00
1831:	John Gust	911	836.37	800	200.00	1,031.37
1831	Total	6,041	# 3,261.37	3,950	$ 975.00	$ 4,231.37
1832	Johnson Garrett	160	225.00	200	25.00	$ 250.00
Total: 1830-32		10,805	$ 9,241.37	23,050	$5,725.00	$ 14,961.27
Total 1828-29		2,493½	-	6,320½	-	$ 4,088.85
GRAND TOTAL 1828-1832:		13,298½		29,370½		$ 19,050.22
Other Items, 1831						391.50
Wager Wall, 1828-29		-.	-	-	-	510.00
1828-32 Total Cost pf Project						$ 19,951.72

Expenditures, 1830-32 = $ 15,519.67

To Johnson Garrett, 1830-32	$ 8,950.00
To John Gust, 1830-31:	6,011.37
Other, 1830-32	558.30
Total, 1830-32	$15,519.67

1. R.G. 217-1st Series-1830 records File 14486-49A and 77A, 7A, 25B, 53A, 69A, 95A.
file 14723- 16A, 17A, 23A, 42A, 55A.
file 15209 for 4th quarter, 1830.
1831- 15260, 15603, 15936, 16904.
1832- file- 16657.

This chart is based on the Paymaster vouchers, which contain data on when the construction was performed. The two masons. The vouchers were actually paid off at the following annual amounts:

1830:	$ 9,043.00
1831:	$ 4,803.37
1832:	$ 1,673.30
Total:	$ 15,519.67
Balance left:	1,280.33

Total appropriated: $ 16,800.00.

The balance of $ 1,280.33 left unexpended from the appropriation of $ 16,800.00, was transferred, as we shall see, on July 12,1832 for use in making repairs to the U.S. Potomac Dam, which had been damaged in a flood.

In the estimates for 1833 Chief of Ordnance Bomford requested and received from Congress the sum of $ 13,495.00 for the "enlargement of the canal supplying the water-power from the Potomac Dam to" the Musket Factory.[4] Col. Bomford explained the need for this project to Congress as follows:

> The present present canal has never been sufficiently wide to admit an abundant supply of water for the works, and the necessity of its being enlarged, or another made, is indispensable should the (proposed) dam... be erected by the Potomac (C. & O.) Company (just below the existing U.S. Armory dam).... (5)

On March 17, 1833, the Chief of Ordnance directed Superintendent George Rust, Jr. to proceed with the canal enlargement project.[6] On August 3,1833, Rust entered into a contract with John Garrett; "to construct and finish in a substantial and workmanlike manner, the Canal leading from the public dam to the works at Harper's Ferry Armory comprehending a distance of about 1,980 feet from the termination of the present Canal at the cross wall, to a point opposite the corner of the stone house occupied by Michael Crowl. The earth and stone to be procured from the land of the United States and of such qualtity as an engineer appointed as above shall approve."[7]

"The specification for the Construction of the Canal From the Cross Wall to Crowel's House", states that "The walls and

4. Estimates, Reel 20, Vol. 6, p.571, from National Archives R.G. 156, Entry 129, Vol. I, p. 105; Appropriation, approved March 3, 1833, from U.S. Statees at Large, IV, p. 642.
5. Reel 20, Vol. 6, p. 577.
6. Reel 14, Vol. 9,.p.889.
7. Record Group 156, Contract Book No. 13, pp.192-195. in HFNHP Photostat Collection, Vol. 1, pp.19-12.

embankments to extend from the cross wall at the termination of the new Canal to a point opposite to Crowl's house. comprehending a distance of about 1,980 feet, and connecting with the present bank of the old Canal at about 420 feet from the cross wall before mentioned. The height of the embankment to be equal to that of the new canal with a width at the top (including the inner slope or paving) of 12 feet, and a batter of one to one to both inner and outer slopes. The wall on the outside to be three feet at base and two at the top with a batter as before mentioned of one to one and equal to 12 feet in particular height to be made of good stone and laid in a workmanlike manner, the inner slope to be lined with a wall or paving at least one foot thick extending from the bottom to the top of the embankment, and to be at least equal to the paving in the Canal already completed. A foundation for the outerwall and inner pavement shall be prepared under the instruction of an engineer appointed by the Superintendent.

The whole of the space between the outer wall and the inner paving to be filled with coarse filling except eight feet in the centre which shall be firmly and compactly puddled with good earth approved of by the engineer and made perfectly impervious to water, the said puddling to be continued of same width and to be made of similar materials to the top of the embankment.

The top of the existing embankment of the old canal from the point of intersection of the new or completed canal, was to be removed to the dep of at least three feet below the ordinary surface of the water in the existing canal, and this removed earth was to be reused in making the embankment of the new canal.

The contractor was to be paid at the rate of $ 1.25 per perch of 25 cubic feet for the dry masonry of the outer wall. For the embankment, which included the paving or wall of the inner slope and also the puddling in the center, the contractor was to received 25 cents per cubic yard."[8]

8. National Archives R.G. 156, Contract Book No. 13, pp. 192-195; HFNHP Photostat Collection, Vol. 1,pp.22-23.

The engineer for the Armory, if any was used on the canal enlargement project, was Alfred Cruger, who was employed primarily for work on the U.S. Potomac Dam in 1833.[9]

In the special estimate for 1834, Col. George Bomford requested an additional $ 2,149.89, explaining:

> It has been thought advisable to vary the location of the canal ....from that contemplated, when the former estimate was made. This change has been made at the suggestion of _____ the principal Engineer of the Chesapeake and Ohio Canal: it will serve additional advantages connected with the water power, and will cause the additional expense as stated. As all the tilt hammers for welding barrels will be driven by the water to be obtained from this canal, it will be indispensably necessary to have it completed, before any of the tilt hammers can be put in operation.[10]

The requested sum was appropriated by Congress on May 14, 1834.[11]

Supt. Rust then discovered that there had been an error in the calculations and that another $ 3,378,27, in addition to the $ 2,149.89, would be needed to complete the project before the tilt hammers could operate.[12] The additional sum of $ 5,528.16 provided in 1834, added to the original appropriation brought the grand total available to $ 19,023.16

The requested $ 3,378.27 was appropriated by Congress on June 19,1834.[13]

The vouchers of the Armory Paymaster reveal that contractor Johnson Garrett got underway on the project in the 3rd quarter of 1833 and had completed this work during the 3rd quarter of 1834 at a total cost of $ 17,616.38.

9. R.E. 217- File 17895,1st series, Voucher dated Nov. 23,1833 to Alfred Cruger for $ 300.00.

10. Reel 20, Vol. 6, p. 588.
11. U.S. Statues at Large,, IV, p.675.
12. Reel 22, Vol. . 15, pp.1514-1515, 1520' Reel 20, V. 6, p.583.
13. U.S. Statues at Large, IV, 680.

A balance of $ 1,853.66 was left unexpended in this appropration [14] on December 31,1834.

The Paymaster's voucher reveal that John Garrett performed the following work under his contract:

Year	Stone Walls Perches	Stone Walls Cost	Earth Embankments Cubic Yrds	Earth Embankments Cost	Other	Total
1833	460	$ 575.00	27,880	$ 6,970.00	$ 288.08	$ 7,833.08 (15)
1st qt 1834	?		/?-	-?	-	3,105.00 (16)
2nd qr 1834	2,200	$ 3,300.00	10,400	$ 2,700.00	11.75	6,011.75 (17)
3rd qr 1834	?		?	?		1,500.00(18)
Subtotal 1834						10,616.75
TOTAL 1833-34	2,660+	$ 3,875.00+	38,280+	$ 9,670.00+	$ 299.83+	$ 18,449.83

During the years 1830 to 1834 a total of $ 33,969.50 was spent building walls and embankments and for widening the Musket Factory Canal; from 1828 to 1835 a grand total of $ 38,439.85 was expended rebuilding the Potomac Canal. By October 1, 1834, the U.S. Musket Factory Canal had obtained the width, depth, and location that it was to retain until the Armory was destroyed in 1861.

Potomac Canal, Widening, Walls and Embankments, 1828-34

Years	Stone Walls Perches	Earth embankments Cubic yards.	Total Cost
1828-1829	2,493½+	6,320½	$ 4,470.35 *
1830-1832	10,805	23,050	$ 15,519.67 **
1833-1834	2,660+	38,280+	$ 18,449.83
Total	15,858½+	67,650+	$ 38,439.85

*perches of stone in Wager Line wall not included. The cost of $391.50, however, is

** In 1831-32 and additional $ 1,955.59 spent from the Tilt Hammer shop fund was spent building walls along the canal. This shop was shifted from its 1831 site to its finallocation in 1834 . With that amount included, a total of $ 39,561.99 was spent on canal walls and embankments from 1828 to 1835.

14. R.G. 217-File 19257.
15. R.G. 217- File 17895-Voucher 1A. and
R.G. 217-file 17895-abstract 4th quarter 1833, Enlarging of Canal.
16. R.G. 217 file 19257-Summary of work on canal, 28 April, 1835 prpared by Fleming Hixon, Clk, Supt.s Office, for period 1830-1834.
17. R.G. 217-File 18712- Abstract 3nd quarter 1834, enlargement of canal.
18. R.G. 217-file 19257-Summary of work on canal, 1830-34, by Hixon. Vouchers detailing work on canal in 1st and 3rd quarters of 1834 not found.

U.S. Armory Dam on the Potomac.1830-35:

On July 10,1832, Superintendent George Rust,Jr. informed Col. Bomford, "The freshets of the last winter & spring removed a considerable portion of the dam across the Potomac river, which supplies the public works with water, and which must be repaired in order to prevent the usual operations of the Armory being suspended from the want of water," He reported that there were still funds available in the appropriations for work on the Potomac Canal and requested permission to use these funds to repair the dam.[1] Bomford authorized Rust to use whatever remained of the balance of the appropriation for the Canal to fix the dam on July 12.[2]

The balance $ 1,280.33 left in the special appropriation of the completed project for extending the walls and embankment of the Musket Factory Canal , was thus apparently used up in 1832 to repair the Potomac Dam.[3]

The newly formed Chesapeake and Ohio Canal Company, which had absorbed the old Potomac Canal Company in 1828, was now nearing Harpers Ferry in the construction of a canal along the north or Maryland bank of the Potomac River. On July 7, 1832, Col. George Bomford sent Superintendent George Rust, Jr. a copy of a Canal Company report and plan for a proposed dam that they intended to build near the Armory and requested Rust to comment on the effect that dam might have on armory operations.

1. HFNHP Microfilm reel No. 22, Vol. 13, p.1243.
2. Reel 14, Vol. 9, p. 863.
3. For balance in fund, see R.G. 217-File 17153.

Rust, who probably knew little about water power, had Captain John H. Hall of the Patent Rifle Factory prepare the response. Hall strongly opposed the construction of the proposed canal company dam on the Potomac because, he concluded, it would severely handicap operations at the U.S. Musket Factory on the Potomac. He pointed out to the Chief of Ordnance that the top of the proposed Canal dam would be only two and one-half feet below the level of the water wheel in the new (1831) grinding mill at the Musket Factory. Thus every time the water in the Potomac rose two feet, the "lower" (new) mill would be put out of operation and a rise of more than two feet would also render the "upper" grinding mill (presumably at the Rifle Factory on the Shenandoah) inactive.[4]

The C.& O. Canal Company apparently proceeded with their plan for a dam at Harper's Ferry and in 1833 the U.S. Potomac Dam was repaired and extended for a fifth time since 1798.

In 1833 Col. George Bomford requested and Congress appropriated on March 2 $ 5,000.00 "for repairs and extension of the public dam on the Potomac River from which the supply of water is obtained " for the Musket Factory.[5]

The Chief of Ordnance explained the need for this work as follows:[6]

> O. The public dam here alluded to, has received serious injuries from the floods in the Potomac, which during the last year have been greater and more destructive than usual. It is also ascertained that the Potomac Company (sic) have determined to erect a dam across the Potomac river immediately below the public works, by which dam the present available water-power at the armory will be very much diminished, from the effects of the backwater, and for this reason the water wheels, which it has been intended to substitute in lieu of those now in use at the works, cannot be sunk as low as was expected, and will consequently require a large body of water to drive them. For these reasons, the dam will be required to be higher, more extended, and more perfect in all respects than it has hitherto been.

4. Reel 14, Vol. 9, p. 862, Bomford to Rust, July 7,1832; Reel 22, Vol. 12, pp. 1201-1204, Hall to Bomford.

5/. Estimate, 1833- Reel 20, Vol. 6, p. 576 or National Archives R.G. 156, Entry 129, Vol.1, p.110. Appropriation, approved March 2,1833, in U.S. Statues at Large, IV, p.642.

6. Estimate,1833,Reel 20, Vol. 6,p.576.

The engineer who furnished the plan and superintended the construction of the U.S. Potomac Dam in 1833 was Alfred Cruger, who received $ 300.00 for his services.[7]

The contractor for rebuilding and repairing the Potomac Dam was Lewis Wernwag of Virginius Island, who had rebuilt the Potomac Dam in 1828-29, and who was also, in 1834, to rebuild the U.S. Dam on the Shenandoah. Wernwag began construction probably in August and had completed the task by November 8,1833, receiving a total of $ 3,174.55 for his services. In this fifth rebuilding, Wernwag accomplished the following work on the dam:

For 41 perch dry masonry	$61.50
For 93 perch mortar masonry secured by bolts and champs.....	418.50
For 265 cubic Yds embankment	99.37
33 7/100 running rods of dam.....	2,468.60
Filling at upper side on Maryland shore.....	40.00
Filling at upper side on Virginia shore.....	30.00
For 3 perches stone paving or filling.....	1.50
For 17 1/3 perches,mortar wall at lock.....	113.33
For 7 perches dry wall at Lock.....	8.75
Total 1833 bill:	$ 3,174.55 (8)

With the engineer's wages included, the total cost of repairing and extending the U.S. Potomac Dam in 1833 came to $ 3,174.55.

In 1834 a total of $ 489.04 was spent on repairing the Potomac Dam.[9] Of this total, $ 151.00 was paid to the mason Johnson Garrett for labor, 151 days of work, "employed in mending a breach in the canal and waste way.[10] The balance of $ 338.04 may have been spent on materials.

7. R.G. 217- File 17895, V. dated Nov.23,1833.
8. R.G. 217- File 17895-Voucher 2A. Wernwag was paid $ 1,229.00 for making 13 perches of dam on Sept. 14,1833; $ 510.00 for making 6 perches of dame on Oct.13, and the balance $ 1,435.35 on November 8,1833.
9. R.G. 217- File 19021, 19257.
10. R.G. 217- File 19257- Abstract F. Dated May 31,1834, this bill was not paid until the 4th quarter of 1834.

During the 4th quarter of 1835, $342.75 was spent on repairs for the Potomac Dam.[11] During the years 1833 to 1835, a total of $ 4,206.34 was expended of the $ 5,000.00 appropriated for repair and extension of the Potomac Dam. A balance of $ 793.66 of these funds was carried forward on the Armory books[12] on December 31,1835 and this was not used up until 1838.

With the 1832 repairs included, the amount of which is not known, the maxinium expenditures on the Potomac Dam from 1830 to 1835 did not exceed $ 5,486.67.

11. R.G. 217- File 20281.
12. R.G. 217- 2nd Series-File 2729.

Armory Dwelling Houses, 1830-35:

During 1830-35, the population of Harper's Ferry continued to expand, the work force of the National Armory also increased, this together with the fact that there was no private land available for purchase in the town, caused a serious housing problem for Armory employees.

Construction of Additional Armory Residences:

In December 1829 there were approximately 116 dwelling houses standing on the Armory Lands at Harper's Ferry. Of these, about 87 were owned by the U.S. Armory and remaining 29 by the workmen who had erected them at their own expense. Additional Armory dwellings were needed. The Chief of Ordnance, accordingly requested and received from Congress an appropriation of $10,000.00 for "erecting ten dwelling houses for workmen" in 1830.[1]

On July 15,1830, Col. George Bomford, Chief of Ordnance, informed Superintendent George Rust, Jr. of the availability of the money for this project and advised him: "You are accordingly authorized to effect the objects above stated.

The new dwellings may be commenced as soon as you may think advisable. A portion of them may be deferred until next year, if you shall think it more advantageous to do so.

It is proper that all such of the old dwelling houses belonging to the United States, as are fit for use and worthy of being preserved, should be put in good repair. And you are authorized to proceed to repair then provided the expense of such repairs shall not exceed the amount of rents received. Upon this subject I must refer you to the regulations on file at the Armory dated Feb. 22,1822. [2]

1. Estimates in Serial No. 195, Document No. 2, p.134; appropriation, approved May 31,1830, in U.S. Statues at Large, Iv, p. 424.
2. Reel 14, v. 8, p. 745-746.

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Work on this entire project, however, was deferred until 1831 and the National Armory Accounts and Annual Report for the year 1830 reveals that no new houses were erected in 1830 and expenditures for dwelling houses was limited to $ 249.48½ during the year, being spent on the following items:[3]

1830 projects: Additions to one of the public houses: $ 133.18½
For sinking a well..... 16.30
For inclosing lot of Superintendent.... 100.00
Total, 1830: $ 249.48½

Work on the 10-dwelling house project got underway in in 1831. On April 19, Superintendent Rust informed Col. Bomford:

....I... transmit to you the Contract entered into John Markell for the erection of five dwelling houses for the workmen at this Armory."[4]

In this memorandum of Agreement, dated December 24,1830, the contractor John Markell agreed to erect and complete prior to August 1832 five dwelling houses each to be 37 by 20 feet in size and to consist of two and a half stories. The first (or basement story) was to be eight feet in the clear with stone walls 22 inches thick. This was to be divided into a cellar, kitchen and pantry. The kitchen was to have a fireplace, one outer door with one window of 12 lights, and a stairway leading to the second story.

The second story was to be built of brick nine feet in the clear. This floor was to be divided into two rooms and a passage The front and back brick walls were to be 14 inches thick and the end walls nine inches thick. The upper or half story was to be of brick five feet in the clear with walls nine inches thick. This floor was to be divided into three rooms.

3. National Armory Accounts and Annual Report for 1830, National Archives Record Group 156, Entry 936, NFAMP Reel 20, vol. 5, p. 419.

4. Reel 22, V. 12, p.1126.

Markell was to be paid $ 940.00 for each house, or a grand total of $ 4,700 for all five residences.[4]

These houses were [illegible] half completed in 1831, as is revealed in the following entry in the National Armory Accounts and Annual report for 1831:

"Amount paid John Markell in part for 5 houses per contract $ 2,400.
" " L. Wernwag & Sons plastering houses &c.... 60.
Total,1831 (5) $ 2,460.00

An additional sum of $ 1,361,50 was also expended making the following improvements to Armory dwelling houses in 1831:

For erecting 4 Stone additions to dwelling houses:	$ 1,241.25
For plastering three houses.....	63.10
For new lathe.....	57.85
(6)	$ 1362.20

Total from Armory Accounts for construction and repair of Armory Dwelling Houses amounted to $ 3,822.20 in 1831.

Markell completed work under his contract on the five brick houses in May 1832.[7]

7. Continued: Also Rust to Bomford-Jan.3,1833-"The Contract entered into by John Markell for the erection of Five Dwelling Houses at this Armory... having been fullfilled he is desirous of having it cancelled". Reel 22, Vol. 14, p. 1373.

4. National Archives Record Group 156, Contract Book No. 13, 79-80; in HFNHP Photostatic Collection, Vol. 1, p.6-7.
5. National Armory Accounts and Annual Report for 1831, National Archives Record Group 156, entry 936; Reel 20, V. 5, p. 437.
6. Ibid., Reel 20, Vol.5, p. 436.
7, R.G. 217- File 15260-received $ 300.00 March 31,1831; received $ 1,000.oo in 3rd quarter of 1831-File 15936; received $ 1,000.00 in 4th quarter,1331-File 16094; received $ 1,000.00 on May 4,1832-File 16657.

Annual Expenditures from the Appropriation of $ 10,000.00, during the years 1830 to 1832 were as follows:

1830-	$ 364,42
1831:	5,921.10
1832:	2,302.70
Total $	8,588.22 leaving a balance of $1,411.88. 1/1/33.

8

The appropriation for 10 new dwelling houses, $ 10,000.00 produced seven the following new houses:

		Cost
1 house,	stone, 20 by 17 feet built by Lewis Wernwag & sons, 1830:	$ 200.00
1 house,	built by Michael Foley, a professional carpenter, in 1831, frame. 30. By. 20. feet.	700.00
5 brick houses by John Markell, 1831-32		4,700.00
7 houses		$ 5,600.00
Other costs.		253.12
5 houses built by workmen or private individuals purchased 1830/31 for		$ 1,397.40
for repairs and improvments by workmen		$ 1,397.46
Expenditures for dwelling house, 1830-32		$ 8,588.22

(In 1831 $ 510.16½ worth of additons and repairs were also made to five dwelling houses at the Hall Rifle Factory, this money is exclusive of the funds spent for Armory dwelling houses, see page. 288 for detail of work on the Rifle Factory residences).

8.R.G. 217, files 15620,15603, 15936, 16094, 16657, 17153.

Also, as has been noted under the narrative of the development of Arsenal Square (see p.274), Chief of Ordnance George Bomford, on August 13, 1832, had authorized Superintendent George Rust, Jr. to erect one new dwelling house 28 by 20 feet at a cost not to exceed $ 900.00 to replace the one story brick residence on Lot 1, Block A. Shenandoah, then the residence of workman James Clark. The superintendent wished to covert the Clark dwelling on the corner of Arsenal Square into a office of Rust's use. This alteration of the residence to office was accomplsihed in the fall of 1832. The replacemen dwelling was apparently erected in 1833-4

On April 21, 1832, Superintendent George Rust, Jr. urged that 12 more dwelling houses should be erected, writing: "at this time there are more than 20 workers at this armory who require dwellings for their families. Some of them are compelled to pay extravagant rents to private individuals for the houses they occupy, others are living in buildings so dilapidated as not to be worth repairing, and in their present situation exceedingly uncomfortable and unhealthy."[9] Although the money was requested, Congress adjourned on July 16, 1832 without appropriating any funds for this project.

The special estimate for additional appropriations for the service of the Ordnance Department, submitted November 19, 1832, did request $ 12,000 " For 15 dwelling houses for workmen at $ 800 each."[10]

The Chief of Ordnance explained the request as follows:

9. Rust to Bomford, April 21, 1832, Reel 22, V. 3, p. 1239
10. Reel 20, Vol. V. 6, p.570.

1st. It appears from a careful examination of the records of this office that it has been the settled practice of the Government, since the establishment of this Armory, to furnish quar[illegible] for the Officers and workmen employed there.

2nd. By the report of an officer of this Department (Lt. Col. George Talcott, Inspector of National Armories), who has recently inspected this establishment, it appears that the numbers of dwelling houses at this Armory, if they were all good and servicable, are yet insufficient for the accommodation of the 350 workmen, and their families employed there.

3rd. It appears also from the inspection, that a great proportion of such of the old dwellings as can be occupied, are in a state so dilapiated and ruinous as to be incapable of repairs, many [illegible] of them being of wood, and having been built more than thirty years ago.

4th. As most of these old buildings, are situated in the North side of a high and steep hill (Camp Hill) on the side of the Potomac, which is overflowed by every heavy rain, their lower apartments (principally under ground) are in consequence kept damp and unhealthy during the whole year, and this is conceived to be a principal reason, of the sickness at that establishment., which is found to prevail to an extent so much greater than at the National Armory at Springfield.

5th, As it is the general opinion that much of the sickness at Harper's Ferry arises from the dilapidated state, and exposed location of the old buildings occupied by the workmen, and as this prevalent sickness is the main and principal reason, why it is necessary that greater wages should be given to the workmen employed at that Armory than are given to those employed at the Springfield Armory, - for these reasons, it is presumed that an appropriation as above asked for, for 15 new dwellings would, besides affording present indispensable accommodations, ultimately have the benefical tendency, of diminishing the expenses at the Harper's Ferry Armory... 11

On March 3, 1833, Congress appropriated and the President approved the sum of $ 8,600.00 "for the erection of 12 additional houses for the workmen." 12 On April 13, 1833, Superintendent Rust complained to Col. Bomford that "The appropriation made at the last session of Congress for the erection of twelve Dwelling houses at this Armory, will not be more than sufficient to pay for the erection of Eight dwellings of convenient size

11. Reel 20, vol. 6, pp.573-574.
12. U.S. Statues at Large, IV, p.641. Also Col. Bomford to Rust, March 17,1833, R. 14, v.9, p.889, informing the Superintendent of the action.

" and durable materials; and I have entered into a contract for the brick and stone work of eight houses, if your permission shall be obtained for the expenditure of the whole appropriation in their construction..." [13]

The Chief of Ordnance, responding on April 16, wrote:

It is out of the powers of this Department, to sanction your proposition to erect eight dwelling houses at Harpers Ferry Armory, instead of twelve, as authorized by law. The act making the appropriation for these objects to which I refere you..(and after quoting the law, Bomford continued) And any diviation from it will be considered as a violation of that law.

It is suggested that you had better commence the building of the twelve houses this season, and the amount to be expended on them not to exceed the sum appropriated. - Some of the buildings it is supposed could be partly finished, by leaving the cellars and attic room. in such a state, that they might be completed next year; and the amount for their completion can be inserted in the estimate for the year 1834; this plan it is conceived will obviate all difficulties.

You will transmit to this Office, draughts of the buildings to be erected, showing the dimensions as well as on what part of the public grounds they are to be located...." [14]

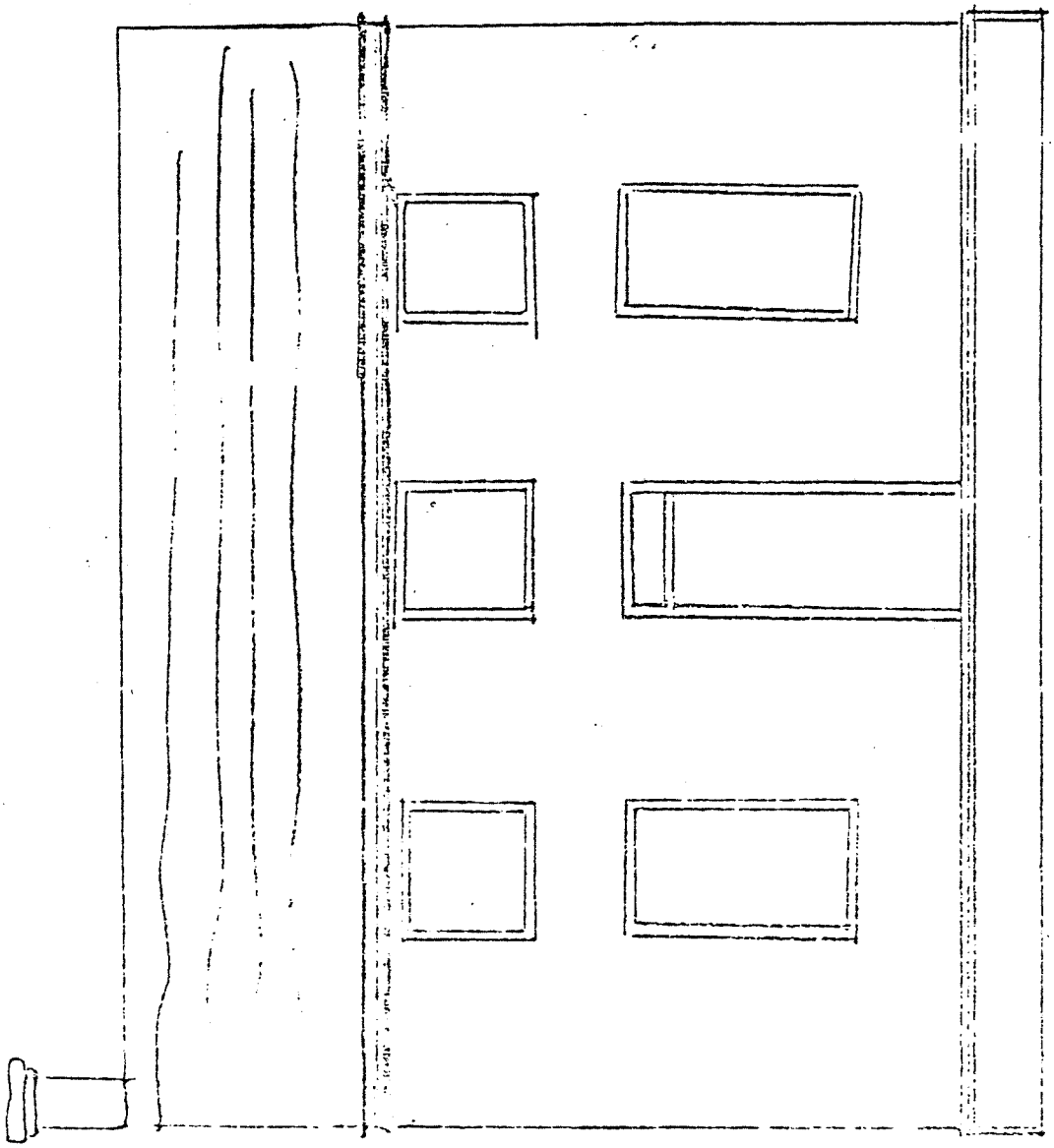
Superintendent Rust sent the floor plans, elevation, and location map to Bomford on April 23, 1833, commenting:

The sum appropriated at the last session of Congress for the erection of Twelve buildings will be sufficient only to pay for the walls, roofs, windows, glass, and doors of the whole number leaving the interior to be finished in 1834, for which an addition appropriation will be required.... [15]

Col. Bomford gave Rust permission to proceed with the construction of the dwelling house on April 27, and then apparently changing his position, ordered Rust " to" proceed to complete in all respects as many of them as the appropriation will enable to finish...." [16]

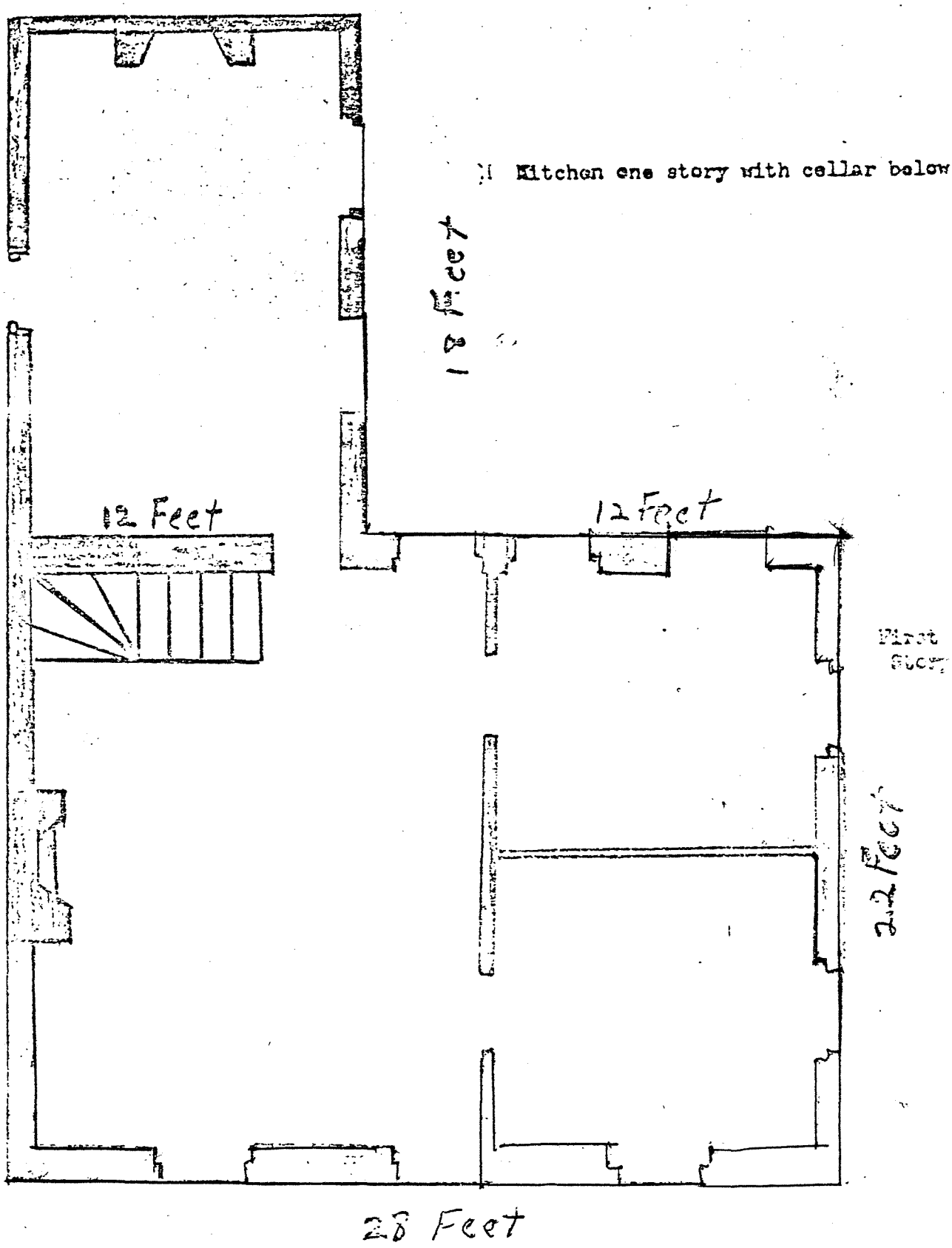
13. Reel 22, V. 14, p. 1386.
14. Reel 14, V. 9, p. 892.
15. Reel 22, V. 14,,p.1391.
16. Reel 14, Vol. 9, p. 894.

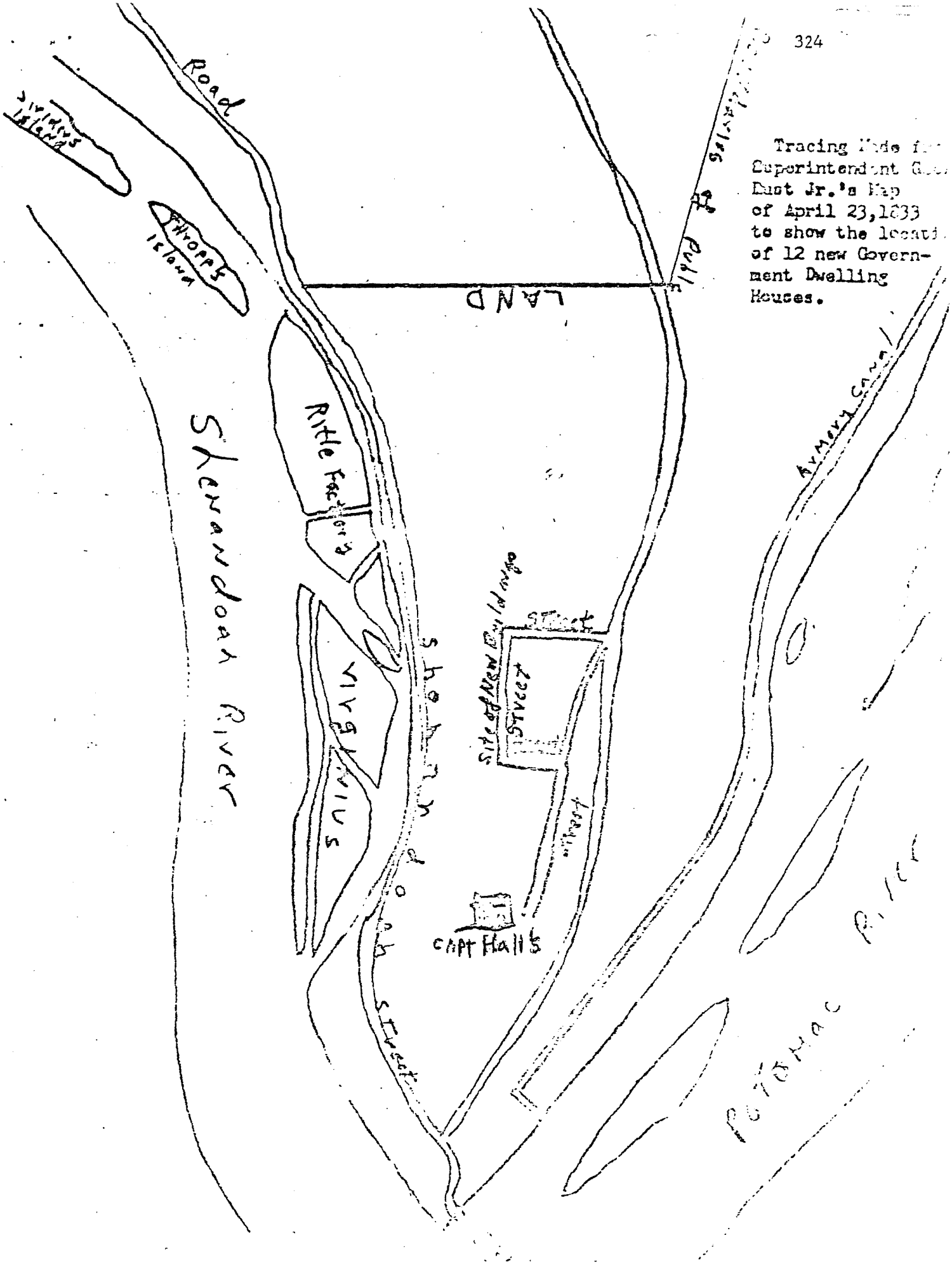
Front view of a Brick Building 28 by 22 feet
One and a half Stories High.
(Traced from Superintendent George Rust, Jr.' plan
submitted April 23, 1833-) Scale 2/10 In. to the Foot.



First Story of a Brick Building [illegible] 22 feet
One and a half stories High.
(Traced from Superintendent George Platt, Jr.'s plan submitted April 23, 1833) Scale 2/10 In. to the Foot.

[1] Kitchen one story with cellar below





Tracing Made for Superintendent Gen. Dust Jr.'s Map of April 23,1833 to show the location of 12 new Government Dwelling Houses.

On July 15, 1833, Superintendent George Rust,Jr. entered into two contract with two carpenters, James Foley and Daniel T. Mathias, to execute the carpenter and plastering work on a total of eight dwelling houses. Each man was to perform the work on four dwellings. Each house was to be a two story brick gabled roofed structure 28 by 22 feet in size. Each story was to be divided into three rooms and each floor was to have one fireplace.

The roof was to be covered with cypress shingles. In the rear there was to be a one-story brick kitchen 12 by 18 feet, with a cellar below. The kitchen was to have one fire place and all eight of the new dwellings were to be erected on Camp Hill along what later became known as Fillmore Street.[17]

Foley was to receive $ 1,760 for his work on four houses and Mathias $ 2,160 for his work on four dwellings.[18] Superintendent Rust informed Col. Bomford on July 9, 1834, that Foley and Mathias had completed all of their carpenter and plastering work in accordance with their contracts on the eight dwellings.[19]

The contract for the stone and brick work on the eight houses was with the mason Joseph Hillard (or Hilliard), whose progress can be traced in the vouchers of the Armory Paymaster:

In July and August 1833 Hillard laid a total of 297 perches in the stone foundations of the eight residences and received $ 445.36 for this part of the project. From mid August to September 18 he completed the brick work on the first three house, receiving $ 1,117.21 for the brick mason work and a grand total of $ 1,579.65 for his work during this third quarter of 1833.[20]

17. National Archives R.G. 156, Contract Book No. 13, pp.196-197, 190-191. HFNHP Photostat Collection, Vol. 1, 17-18, 24-26

18. Ibid.

19. Reel 23, V. 1, p.8.

20. R.G. 217- File 17895 F

During the fourth quarter of 1833, Hillard completed the brick work on houses No. 4 to 8, receiving $ 1,933.64 for work in this quarter, and making a grand total of $ 3,513.29 paid him for the stone and brick work done on the eight houses in 1833. The pay voucher signed by Hillard states that Houses No. 6, 7, and 8 were located on Camp Hill.[21]

On August 7,1834, Joseph Hillard was paid an additional $ 20.75 "for rough casting" the stone foundations of eight new dwelling houses.[22]

In December 1833, the masons Mullen and Spencer were also paid the sum of $ 382.52 from the account for eight dwelling houses for the brick work on one house.[23] This may have been the replacement dwelling for James Clark's former residence on Arsenal Square.[23] The carpenter work on this replacement structure was apparently done by Daniel Lasham, who received $ 203.68 for his work on one house on December 9,1833, also paid from the account for eight dwelling houses.[24]

The contract carpenters James Foley and Daniel T. Mathias swung into action in November and December 1833, Foley completed one house and received $ 540.00 in partial payment on November 26 and Mathias finished two houses and was paid $ 1,080.00 for this work on December 20,1833.[25] Both Mathias and Foley completed their work on the remaining houses and received the balance due them in May 1834.[26]

21. R.G. 217- File 17895-for 4th Quarter 1833- erecting 8 dwelling houses.
22. R. G. 217-file 19021.
23. R.G. 217- File 17895-4th quarter 1833.
24. R.G. 17895-File 17895-4th quarter 1833.
25. R.G. 217 file 17895- 4th quarter payments for carpenter work.
26. R.G. 217-file 18712-.

In May 1834 the slater William Bayley was paid $ 231.36 for slating 2,892 square feet of the roofs of the eight brick dwellings and probably also the 9th one[27] from the dwelling house account.

The eight dwelling houses were completed in May 1834 when the plastering and painting of the structures was finished. Leo W. Brown received $ 43.70 for his plastering work and John P. Kennedy $ 35.00 for painting these residence[28].

Total cost of constructing the eight brick dwelling and the one brick replacement house in 1833-34 appears to have been approximately as follows.

Work	For eight House	For one House	Total
Mason	$ 3,534.04	$ 382.52	$ 3,916.56
Carpenter	$ 3,920.00	$ 203.68	$ 4,123.68
Slating	$ 231.36		$ 231.36
Plastering	43.70		$ 43.70
Painting	35.00		$ 35.00
a Subtotal	$ 7,764.10	$ 586.20	$ 8,350.30
1833-34 Other Costs			$ 547.40
Total Spent 1833-35			$ 8,897.70

The annual rate of expenditure from the account for eight dwelling houses from 1833 to 1835 was as follows: 1833: $ 5,859.98; 1834: $ 3,037.72, and 1835: 0. Of the total of $ 18,600.00 appropriated to erect brick dwelling houses, 1830-35, $ 17,485.92 had been utilized and a balance of $ 982.59, which remained on the Armory books, was carried forward and not

27. R.G. 217- 18712.
28. R.G.217-18712.

spent until 1838.

The Ordnance Department's Special Estimate for additional appropriation for the service of the Ord. Dept. for the Year 1834" included a request for $ 10,000.00 to erect 10 more new brick dwelling houses; Congress, however, failed to appropriate any money for this purpose in 1834 or 1835.[30]

Total expenditures from the special dwelling houses accounts and National Armory Accounts for dwelling houses 1830 -35, was approximately as follows:

National Armory Accounts, 1830- 31	$ 1,612.15
Special Dwelling House Accounts	17,485.92
Total:, 1830-35	$ 19,098.07

During the period 1830-35 the Armory erected a total of 16 dwelling houses at a cost of approximately $ 14,750.82 as follows:

	Cost
1830 - one house, stone, 20 by 17 feet.	200.00
1831 -one house, 30 by 20 feet, probably frame.....	700.00
1832 - five brick houses, 37 by 20 ft	4,953.12
1833-34- Nine brick houses. 28 x 22	8,897.70
Total, 1830-35: 16 residences.....	$17,485.92

These 16 new houses brought the total of Armory dwelling houses to about 132 in 1835

29. R.G. 217 Files 17163, 17895, 18712, 19021, 19257, and 20,281; For 1838 use, see second series file 2729.

30. Esimate, 1834, Reel 20, Vol. 6, p. 583, 585-586. Appropriations, 1834-and 1835- U.S. Statues at Large, IV, 675,680. No money for permanent improvements was provided in 1835.

Settling Claims of Workmen on Armory Dwelling Houses: 1830-35.

In the period 1822 to 1829, Superintendent James Stubblefield spent a total of $ 9,885.07 to purchase and settle in full 79 claims of workmen for repairs, improvements, they had made to government dwelling houses and also for erecting 21 residences. In his February 23, 1829 report to the Ordnance Department, Stubblefield wrote that there were still 43 such claims totalling $ 8,054.07 and including 31 dwellings unsettled and out standing.

On July 15, 1830, Chief of Ordnance Bomford informed George Rust, Jr., the newly appointed superintendent, that appropriations had been received for making permanent improvements at the Armory and then continued: It is desirable also, that all just claims for repairs and additions to dwelling houses which have been made by, and at the expense of the workmen, should be extinguished. As to the value of any of these repairs or additions, you are to consider yourself as the sole judge, and in forming your opinion on them will have reference to the benefit which the United States will certainly derive from them. The amount which may have been expanded in making additions and repairs, for which compensation may be claimed, is not to be regarded. For no expenditures of this kind were authorized to be made by individuals; but on the contrary were forbidden by this dept. in 1822. All repairs made since that date by individuals have been in violation of established regulations; and of course give no legal claim to remmunation.

The dept. does not however desire to obtain possession, free of cost, of any really substabtial and useful improvements, which made have been made by individuals; but is desirous that all such should be paid for at a fair and just price, according to the benefit actually received.

These remarks are to be understood as applying to repairs and additions made to dwelling houses, which belonged to the public, by the workmen or other occupants, & not to those cases, where entire new buildings have been erected with or without authority. 1

1. Reel 14, V. 8, p. 745-746.

The National Armory Accounts and Annual Reports for 1830 and 1831 indicate that Superintendent George Rust,Jr. utilized $ 3,649.91 out of special appropriation of $ 10,000.00 made to erect 10 dwelling house to paid and settle 27 claims. Included in these settlements was titles to five houses erected by Armory workmen and to two houses built by private individual on Armory land.

These settlements were made as follows:

Year	Claims	Amount	Remarks
1830	7	$ 914.81½	For two houses and For improvements.
1831	20	$ 2,735.10	For 5 houses, repairs, and improvements
Total:	27	$ 3,649.91	

The houses purchased were:

1830.	From Richard Crugen, a wooden house, for	$ 275.00
1830	From Charles C. Cameron, wooden house, for	125.00
1831	From Wm. Kead Adm., wooden house	167.40
1831	From Charles Button, 1½ story ,frame house	148.00
1831	From Michael Melhorn, frame house of 5 rooms	300.00
Five wooden house built by Armory workmen		$ 1,015.40

2

In addition, John S. Gallaher, printer and newspaper editor and never an Armory workman, took advantage of this opportunity to sell his two-story frame house of 10 rooms and the adjoining one-story frame printing office, both built in 1826 , to the Armory for $ 835.00. Gallaher's houses, located on the north side of Shenandoah Street on Lot 1, became Houses No. 41 and 42 on the 1840 Armory rent rolls. (see pages 223-224 for account of Gallaher's house) 3. for location, see Map 7(1834),p. 276).

2. Annual Report for 1830, Reel 20, Vol. 5, p.421; Annual Report for 1831, Reel 20, Vol. 5, p.437, Both from National Archives R.G. 156, Entry 936.

3. R.G. 15260- Voucher paid March 11,1831- To John S. Gallaher,"for house, kitchen, and store house on Shenandoah Street- valued at $ 900.00- deduct from this amount the value of an old house removed in the erection of the above house- $ 65.00- Paid to Gallaher $ 835.00.

The seven houses thus cost $ 1,850.35, and the balance of the $ 3,649.91 spent in 1830-31, - $ 1,799.56, went to settle 21 claims for additions and repairs to Armory dwelling houses.[4]

On October 29,1831, Superintendent Rust submitted to the Ordnance Office a list of 67 unpaid claims that totaled $ 6,346.50, explaining:

> Class No. 1 (this list) includes these buildings to which additions have been made in some cases by permission of the former Sup'dent, but generally without any authority whatsoever ... (5)

Included on this list were 15 complete houses.

On November 7,1831, as part of a "Special Estimate for additional appropriations for the service of the Ordnance Department for the Year 1832", Colonel Bomford requested that the sum of $ 6,346.50 be appropriated "For the payment of private claims for dwellings built by individuals on the public land at" the Harper's Ferry Armory.[6]

4, Annual reprots for 1830-31.

5. Reel 24, Vol. 9, p.824.

6. Reel 20, Vol. 6, p. 564.

Congress,however, refused to appropriate the requested sum.

In a letter to Rust dated January 7,1832, Col. Bomford explained:

> The Mil. Comm. of the House of Reps. have declined action upon so much of your estimate as regards private claims for dwellings on the public lands at H. Ferry - suggesting the propriety of submission of these claims by the individuals concerned, to Congress that they may be referred to their appropriate Committee, viz, the Com. on Claims.
>
> This information you will communicate to the persons concerned, P.S. In consequence of the above decision you will make no further payments on account of these claims and you will also suspend the further erection of all private buildings on the public grounds of the Armory. [7]

Thus in January 1832, the Chief of Ordnance ordered a halt to the custom of permitting private individuals, chiefly armory workmen, to erect their homes on the public land. This practice, born of necessity, probably began about 1807 when the Size and staff of the Armory was doubled. Unable to provide a enough housing for his work force from government funds, Superintendent James Stubblefield partially resolved the serious problem by quietly allowing the employees to build on Armory lands, and to make additions and repairs to Government-constructed residences. The Ordnance Office apparently did not learn of this practice until 1821.

The Ordnance Department, nevertheless, in the special estimates for 1833, 1834, 1835, and 1836, continued to request money to settle the 67 outstanding claims.[8] Not until 1836, however, were they to have any success. The conclusion of this story will thus be told in the next chapter.[9]

7. Reel 14, V.9, p.845.
8. Reel 20, V. 6, p. 570, 583, 591, 598, for estimates.
9. The list of claiments, 1830-31, descriptions of their claims, and their value, togther with a list of the people paid and the ammount received, is included in Charles W. Snell,"A Comprehensive History of the Construction, Maintenancem and Numbers of Armory Dwelling Houses, 1796-1869",p.34-38.

Commerical Buildings and Leases, U.S. Lands, 1830-1835.

February 23,1829, Superintendent James Stubblefield had informed the Ordnance Department that there were seven private individuals not connected with the Armory who had constructed mercantile buildings on the public lands under leases, alledged leases, and without leases. The total estimated value of the 11 buildings listed in his report was placed at $ 14,075.00.

On July 22, 1830, Chief of Ordnance George Bomford took up this problem with the recently appointed Superintendent of the Armory, George Rust. Jr. Bomford wrote:

> The questions which have arisen, and which remain unsettled, relative to the occupancy of public buildings, and lots of public land, at the Harper's Ferry Armory; and the powers of the Supt. relative to the removal of persons from the former, and the collection of the arrears of Rent due from them; and also of the control held by the United States over the latter; are very important, and it is advisable that they should be brought to a legal and final issue, as speedily as practicable....
>
> The opinion of Mr. Moses T. Hunter, dated October 28th 1828, which was obtained, by the direction of this department, seems to leave the question described in it, very doubtful. Mr. Hunter inclines to the belief that the Armory remains within the jurisdiction of the State of Virginia, and that the laws of that state afford ample remedies, and advises a resort the the Courts of the State.. He is of opinion also, that it is most to the convenience of all parties, that the Armory should remain subject to the State Laws. It is considered proper therefore to proceed forwith to eject the persons who occupy the public houses at the Armory,without the consent of the Superintendent, by due course of law, in the courts of the State...
>
> There is another class of cases (from those of the dwelling houses) which require separate examination. Viz. that of the grants of lots to private individuals for the purpose of erecting buildings on them, at private expense. These are considered as essentially different from those alluded to in the foregoing remarks, as they are not immediately connected with the operations of the Armory, or with the ordinary duties of the Superintendent. They are not, however, less important on that account, as they may have much effect, for good or the reverse, on the well being of the establishment.
>
> The lots, which are now thus occupied, appear to be held under alledged agreements heretofore made. From some of the proceeding obervations it will be perceived. that the dept. does not consider any grants of public lots to be valid, except such as well expressly authorized by the Secretary of War, or by this department. You will therefore require of all those who claim to hold public lots, to exhibit the evidence of their respective

claims, and the authority under which they claim possession. And you are to assume the ground that all buildings, on the public land, is public property, unless the contract be satisfactorily proved...

The grants in all these cases (which Bomford had just reviewed), may have been proper and advantageous to the public interest, if they had been made in a proper manner, and based upon just principles. But as they are now situated, none of the claimants, can be considered as possessing any legal title to the premises, excepting pernaps (in one case)....

It is proper that all these cases should be adjusted, and placed on some known and fixed basis, by a written agreement, specifying the conditions, and securing the privileges of the respective parties.

The views of the Govt. originally, in permitting the erection of buildings on the public lots, were, I understand, to facilitate the vending of such supplies, as the persons employed in the public service might need (thereby breaking the monopoly held by the Wager family over mercantile sites in Harper's Ferry by introducing competition), thus reducing the cost of goods sold in that town). This object is therefore to be kept in view. Grants of lots, for the gratification of individuals, and having no direct effect in promoting the public interests, either past or prospective, are not to be counteranced

An agreement for renting a lot, should therefore specify the purpose for which it is granted, and the description of the building to be placed on it. The grant should be for a limited period, and a suitable rent should be exacted. The Supt. should retain such control over the granted premises, as will prevent their being appropriated to purposes prejudiced to the public service, or to the morals of the coummunity, but not such as would impose unnecessary restrictions on the proper pursuits of the occupant. The U. States should retain the right to repossess the premises at any time should occasion require it. No other than substantial buildings should be erected. To afford an adequate inducement to occupants to incur the expense of erecting such buildings, they should be secured in possession for a specified period, or, if required to surrender at an earlier date, that they should receive liberal renumberation..." 1

On October 29,1831, Superintendent Rust submitted a comprehensive report to the Ordnance Office listing all of the claims of private individuals to buildings located on the Armory lands. Rust had these buildings appraised for their value in 1831 by three disinterested persons. "Class No. 2" buildings were those erected on Government lots for commerical reasons. The report listed nine such buildings with a total

1.Bomford to Rust, July 22, 1830, Reel 14, V. 8, pp.748-758.

appraised value of $ 16,290.00 as not yet acquired by the Government.[2] The sum of $ 16,290.00 was accordingly included in the special estimates for additional appropriations for the Harper's Ferry Armory in 1833, 1834, 1835, and 1836. In the justification for the funds, the Ordnance Department informed Congress, in part:

> The amount here referred to, is the result of a valuation made by disinterested persons. These buildings were erected many years since, and without authority from the Chief of this Office. They are all good and servicable, their annual amount of rents to the owners being not less than 1,900 dollars, and as the owners pay no rent or taxes, to the state or to the United States, they are perfectly satisfied in continuing to hold property under the same advantageous circumstance....[3]

Congress, however, refused to appropriate the requested sum until 1836, so that the conclusion of this story falls in the next chapter. Meanwhile the lucky few friends of former Superintendent Stubblefiel continued to enjoy their rent-free and tax-free status on the public lands at Harper's Ferry until 1836.

During this period William Graham and his heirs(he died in 1832) continued to enjoy possession of Lot 1, Block C, Shenandoah Street. The stone store and dwelling fronting on Shenandoah Street was rented from October 1830 to April 1834 by Thomas Hughes who operated a dry goods store in the building. The large brick boarding house in rear of the stone house was rented from about 1827 to March 31,1835 by John Fitzsimons, who used as his noted "Globe Inn"(see 1834 railroad Map No. 7, p. 276.) maps.) Jonn G. Wilson next rented the former tavern building in

2. Valuation of private property(buildings and improvements)on public land at Harper's Ferrym October 29,1831, Reel 24, V.9, p.850.
3. Special Estimate for additional appropriation for the Service of the Ordnance Department for the year 1833," by some error the sum requested in 1833 was only $ 15,870, but all the following esimated asked for $ 16,290.00. Reel 20, V.6, p.570; for other estimates, see Reel 20, Vol. 5, p. 583, 592-593, 598.

April 1835 and used it as his dwelling, and dry goods store from 1835 to 1839.

Across Shenandoan Street from Lot 1, Block C, on Lot No. 1 North of Shenandoah Street, the firm of McKim & Co., who operated a dry goods store on the first floor of Park Bldg. No. 45, (House No. 7) sold their stock to Ford and Chapman in in the period 1830-31. In April 1830, Major James Stephenson rented the upper floors and opened an hotel. He died in August 1833, but his widow, Ann C. Stephenson, assisted by her son-in-law, Fontaine Beckham, continued to operate the tavern. About July 1834, they purchased the "lease" to the structure and made a 16 foot long addition to the east end of the building.

As has been mentioned Houses No. 41 and 42, located on the north side of Shenandoah and erected by John S. Gallaher in 1826 as a dwelling and printing office, were acquired by Superintendent George Rust, Jr. from Gallaher on March 11, 1831 for $ 835.00.[4] (see Page 330)

All other "leases" of this nature, however, were not to be settled until 1836-1837.

4. Rust to Bomford, Nov. 24, 1830, Reel 22, V. 10, pp. 951-952. reported this proposed sale to the Ordnance Department. The voucher is marked as paid to Gallaher on March 11, 1831.

Armory Rents Collected, 1830-35

During this period Captain John H. Hall and his workmen rented a total of seven Armory Dwelling houses. The balance were occupied by men who worked at the U.S. Mukket Factory and Arsenal.

Year	Rents According to Annual Reports to Congress	Rents Collected According to Armory Rent Rolls	Remarks
1830	$ 1,033.22 (1)	$ 535.42	120 renters. (1st and 4th quarters only) (7)
1831	2,226.58 (2)	2,113.69	118 to 121 rents (all 4 quarters) (8)
1832	2,490.87 (3)	1,922.32	124 renters (1st,2nd and 4th quarters)(9)
1833	2,176.12 (4)	1,954.12	128 renters (1st, 3rd & 4th qrs.) (10)
1834	3,428.70 (5)	2,312.40	135 renters (2nd,3rd,4th qrs.) (11)
1835	3,160.56 (6)	2,359.43	136 renters. (1st, 3rd, 4th qrs.) (12)
Total:	$ 14,516.05	$ 11,197.38	

Included in these rents was the rent for the U.S. Ferry over the Shenandoah, for slaughter houses, and stables, as well as for residences. Rent from the Ferry amounted to $ 251.00 per year, rents from slaughter houses, and stables came to less than $ 100.00 per year.

The Annual Reports of the Ordnance Department to Congress indicate the rents collected from the workmen, totalling $ 14,516.05 for the years 1830 to 1835, were applied to the manufacture of arms- hence reducing the

1. National Archives R.G. 156-Entry 935, National Armory Acounts for 1830:
2. Serial No. 219, Document 170,p. 4.
3. Serial No. 235. Document 121,p.4.
4. Serial No., 257, Doc. 257,p.4.
5. Serial No. 275, Doc. 188,p.4.
6. Serial No. 292, Doc. 294, pp. 3,5. $ 146.25 of the total was paid by Hall's workmen.
7. R.G. 217- 14486, 14819. 1st series.
8. R.G. 217- 15,260, 15603, 15936, 16094.
9. R.G. 217- 16388, 16657, 17153.
10. R.G. 217- 17163, 17644(missing),17895.
11. R.G. 217- 18712, 19021, 19257.
12. R.G. 217- 19514, 200041, 20281. Lst series.

cost to the United States of producing arms by that amount! The rents were not utilized to repair or improve the Armory dwelling houses during these years.

CHART NO. 10

Extenditures on Armory Dwelling Houses, 1830- 1835
(exclusive of Hall Rifle Factory)

YEAR	Erecting New Houses No.	Erecting New Houses Cost	Additions to Houses No.	Additions to Houses Cost	Repairs to Houses No.	Repairs to Houses Cost.	Digging Wells	Workmen's Claims No.	Workmen's Claims Cost	TOTAL	
1830	1	$ 200.00	1	$ 133.18½	1	$ 100.00	$ 16.30	7	$ 914.81½	$ 1,364.29	(1)
1831	1	3,186.00	4	1,241.25	3	120.95		20	2,735.10	7,283.30	(2)
1832	5	2,302.70								2,302.70	(3)
1833	5	5,859.98								5,859.98	(4)
1834	4	3,037.72								3,037.72	(5)
1835		0								0	(6)
TOTAL ARMORY	16	$ 14,586.40	5	$ 1,374.43	4	$ 220.95	$ 16.30	27	$ 3,649.91*	$ 19,847.99	
RIFLE F. 1831	0	0	2	$ 433.71½	3	$ 76.45	-	-	-	$ 510.16½	(7)

(1) Annual Report for 1830-NA RG 156-Entry 936
(2) Annual Report for 1831, NA RG 156-Entry 937
(3)-1831-R.G. 217- 15260, 15603, 15936,16094.
(4) 1832- R.G. 217- 16388, 16657, 17153.
(5) 1835- R.G. 217 - 17163, 17895
(6) 1834, R.G. 217- 18712, 19021, 19257.
(7) 1835, R.G. 217- 20281.
(7) Annual Report for 1831, NARG 156, Entry 936,

* purchased in 1830-31, titles to 7 frame houses for $ 1,850.35/. Of these 5 erected by workmen and 2 by a private individual.

1830-35- 23 houses added: 8 frame, 1 stone, and 14 brick.

Other Amenities, 1830-35:

In response to the request of the Ordnance Department, Congress did appropriate in 1834 the sum of $ 3,579.72 for two projects intended to improve the qualtity of living at the Harper's Ferry National Armory.[1]

The first program was $ 2,079.72 " for repairing the buildings occupied by the paymaster and clerks of the Armory". Col. Bomford explained to Congress that these structures "are in a dilapidated state, and require repairs for their preservation."[2] The Paymaster's House, which had been erected in 1801, was located on Lot 5, Block B, Shenandoah Street, on the banks of the Shenandoah River. (See Maps No. 7 & 8, pp.276-77 for location of house).

The second project provided $ 1,500.00 "for sinking threewells on Camp Hill." The Chief of Ordnance explained the need for these improvements as follows, writing:[3]

"A number of public dwelling houses are situated on Camp Hill, about a half mile distant from the works, For the accommodation of the workmen who occupy these houses, there is but one well of water on the hill, and even this, in in time of long drought, does not furnish water sufficeent for culinary purposes. The comfort of the workmen and their families. as well as the security of the public dwellings from fire, require that some additional wells should be sunk."

1. Estimate for 1834, Reel 20, Vol. 6, p.583, 589,590. Appropriation, approved May 14,1834, in U.S. Statues at Large, IV, 675.
2. Estimate, 1834, Reel 20, Vol.6,p.583, 589.
3. Estimate,1834, Reel 20, Vol. 6, p.125, 589, & 590.

The accountants at the Ordnance Department put the $ 3,579.72 for these two projects into a fund for three other programs, so that the total in the combined account was $ 8,589.87[4] This was carried on the Armory books as the" Erecting Store Houses &c" account.

The Store House for Iron was erected and paid for from this fund in 1834 at an approximate cause of $ 1,500.00(See Page 265-266) The streets in the Musket Factory and along Shenandoah Street were graded and paved, also in 1834, at a cost of $ 1,516.49)(see pages 284-85). Together, these two projects, which are known to have been completed in 1834 cost from between $ 3,000 and $ 3,200.00. Total expenditures from the account ,1834-35, amounted to $ 4,014.85.[5] These figures indicate that no work was down on the Paymaster and Clerks quarters, the wells, and the river wall projects in 1834; and that only from $ 800 to $ 1,000 could have been spent on these last three named projects, or for painting Armory buildings in 1835. The Paymaster's Abstract for the 3rd quarter of 1835 indicates that most of the money, $ 1,349.50 , charged to the"store house funds" went for painting and "trowel dashing" not only the new iron store house but various other Musket Factory shops then in the process of being built.[6] This suggests that no or little work was done on the residences of Paymaster and clerks or on sinking wells in 1834-35. The unexpended funds, of course, were carried over and were utilized until 1839.

4. The three other projects were: $ 1,710.15 for erecting a store house for iron and coal; $ 900.00 to erect a river wall on the Potomac to project the Musket Factory, and $ 2,500.00 to pave streets and paint Armory buildings.

5. R.G. 217- 19021, 19257, 19514, 20041, 20281.

6. R.G. 217-20041-Abstract D.

SUMMARY CHART:

EXPENDITURES ON THE PHYSICAL PLANT OF THE U.S. ARMORY AT HARPER'S FERRY, VA., 1830- 1835

Section	No. New Bldgs	Cost of New Bldgs.	Total expenditures at that section
U.S MUSKET FACTORY	7	$ 24,058.52	$ 61,920.16
U.S. ARSENAL	2	1,700.00	1,753.00
Magzine Camp Hill	1	131.33	131.33
ARMORY WORKSHOP	10	25,889.85	63,804.49
ARMORY DWELLINGS	16	14,586.40	19,847.99
Total Armory Buildings	26	40,476.25	83,652.48
Potomac Canal			33,969.50
Potomac Dam			5,486.67
Roads, Street, Sidwalks			1,516.49
TOTAL ARMORY PLANT	26	$ 40,476.25	$ 124,625.14
Rife Factory Workshops	8	2,872.85	14,16130
Rifle Factory Dwellingss	0		510.16½
Shenandoah Canal			207.18
Shenandoah Dam			1,999.50
SUBTOTAL RIFLE FACTORY	8	$ 2,872.85	$ 16,878.14
TOTAL, ARMORY & RIFLE FACTORY	34	$ 43,349.10	$ 141,503.28
Water Rights Shenandoah, purchased of			$ 2,600.00
Ordnance Dept. Total, Const. & repair records:			$ 152,971.48
Paymaster's Records, expenditures from special appropriations:			$ 121,344.28

The U.S. Shenandoah Ferry, 1830-1835

From March 25, 1830 to March 25, 1831, the U.S. Ferry over the Shenandoah was leased from the Armory at an annual rent of $ 251.00 by Philip Coons. Described by former Superintendent James Stubblefield as "an enterprising butcher," Coons had also built and occupied a large rent-free stone house that was located on U.S. Lot 7, Block D., Shenandoah Street from 1825 to 1837. Coons charged non-Armory people for ferriage 12½¢ for a wagon and four horses, 5¢ for a man and horse, and 3c for a footman.

During the year March 25,1831 to March 25,1832, the ferry was next leased by William Graham, who owned rent-free buildings located on U.S. Lot Nol. 1, Block C, Shenandoah Street. for $ 362 a year. Superintendent George Rust thus informed Col. Bomford that in consequence of this high rent Graham "informs me that he will be compelled to increase the rates of ferriage about 100 per cent, still being below the charges allowed by law."[1] The location of the Shenandoah Ferry, described as "The Rope Ferry", is given on the 1834 railroad maps.

1. Rust to Bomford, March 25,1831, Reel 22, Vol. 12, pp.1119-1120. The maxinium charges allowed by law were 45¢ for wagon and 4 horses, 10¢ for man and horse, and 5¢ for a footman.

Roads and Bridges at Harpers Ferry, 1830-35

In 1824, with Lewis Wernwag as their builder, the Wager family began constructing a 750 foot-long double wooden covered bridge across the Potomac. With the completion of this toll Bridge, the old Potomac Ferry ceased to operate.

The Harpers Ferry, Charles Town, and Smithfield Turnpike Company was organized in 1830 and by 1831 its toll road reached Harper's Ferry from the west. In 1833 the company macadamized its road.[1] The Frederick and Harpers Ferry Turnpike Company, organized in Maryland in 1830, constructed a toll road leading from Frederick west to to Harper's Ferry. Their road reached the northern end of the Wager family Potomac toll bridge in 1832.[2]

With the improvements of the roads, Harper's Ferry enjoyed a brief era of stagecoaching just prior to the arrival of the railroads. A stage began to run through Harper's Ferry twice a week in 1829. In 1830, with the fare set at 12½c a mile, the Charles Town newspaper noted that there were no passengers riding on these stages. By 1834, however, there were two competing lines and the fares had dropped to $ 3.00 for a ride from Winchester, Va. via Harper"s Ferry to Frederick, Md. The opening of the Winchester and Potomac Railroad in 1836, however, soon put the stage lines out of business.

1. Virginia Free Press,
2. Virginia Free Press, March 3, 1830; May 5, 1830; August 30, 1832.

The turnpike of the Harpers Ferry, Charles Town, and Smithfield Turnpike Company ran along the north bank of the Shenandoah River, passing the Upper and Lower Hall Islands, Virginius Island, and ended at Block F, Shenandoah Street. The frame toll house of the company was located on the mainland, just east of the bridge that led to Virginius Island.

Chesapeake and Ohio Canal, 1828-1850

Inspired by the great econmic success of the Erie Canal in New York, Maryland and Virginia took up the old plan of the Potomac Company to connect the Atlantic Coast and the Ohio River by means of canal.

The C. &. O. Canal Company was chartered on March 3, 1825 for the purpose of constructing a 360-mile long canal that would run parallel with the Potomac River from Georgetown, D.C., to Cumberland, Md., and thence by a tunnel under the Allegheny Mountains to Pittsburgh, Pa., on the Ohio River.

Congress was induced to subscribe $ 1,000,000 to its stock, the terminal cities $ 1,500,000 , and the State of Maryland $ 7,000,000. Virginia dropped out of the project when the canal was finally located on the Maryland side of the Potomac, as did Baltimore when this city discovered there would be no connecting link between it and the eastern terminal at Georgetown, D.C. This tangle of jealousies between the states and cities was to hinder the progress of the canal.

Construction got underway on July 4,1828. The canal was completed to Harper's Ferry in November 1833, to Dam No. 4 in 1834, to Dam No. 5 by 1837, and reached Dam No. 6 at the Cacapon River near Hancock , Md. in 1839. By 1842, with about 134 miles of canal completed, construction came to a complete halt because of the lack of funds.

Construction was resumed in 1847 and the canal was finally completed as far as Cumberland and the last leg was formally opened to trade on October 10,1850. The extension of the canal through the Alleghenies by means of a tunnel to the Ohio River, as originally planned, had been given up long before 1850 as economically unsound and impossible. The total cost of the 184½ mile long Chesapeake and Ohio Canal was more than $ 11,000,000, or an average of cost of some $ 60,000 per mile to built.

Boats began to utilize the newly built C & O Canal soon after the first short section between Little Falls and Seneca were completed in November 1830. Trade on the waterway increased as the canal reached into western Maryland and the cargeos were chiefly comprised of flour, grain, building stone, and whiskey. Not until the canal reached Cumberland in 1850, however, did the tonnage reach an appreciable figure. Large amounts of coal from the rich mines of the George Creek region west of Cumberland then began to move by canal to Georgetown. This product soon became the sole profitable carrying trade. Throughout the history of the canal, the ascending traffic amounted to only a small percentage of the total tonnage, and consisted LARGELY OF SALT, FISH, FERTILIzer, and iron ore.

Racing the canal in its construction westward, was the Baltimore and Ohio Railroad. The C. & O. Canal won the race to Harpers' Ferry, arriving, as has been noted, in November 1833; however, the B. & O. reached the shore opposite to Harper's Ferry only 12 months later, on December 1, 1834, and was to beat the canal into Cumberland by eight years.

By 1833, however, the two-month a year transportation system, via the Potomac River, had been improved to one via the canal that could function some eight or nine months a year. With arrival of the B. & O. railroad in December 1834, the Harper's Ferry Armory finally had a rapid year-round transportation link to the Atlantic coast.

The Armory, 1836 to 1841: Old Age And the End of An Era

During the years 1836 to 1841, a grand total of approximately $ 268,917.17, exclusive of $ 43,725.00 earmarked for new machinery, was expended for construction and repair at the National Armory at Harper's Ferry, in comparsion with a total of some $ 155,571.18 spent for the same purposes during the period 1830 to 1835. Some improvement and modernization was achieved in the 1836-41 years, perhaps most noteably by expanding the original size of the U.S. Musket Factory yard by building a great river wall some 50 feet northward into the Potomac and then filling in with earth behind the wall to create new land. Yet in the Special Estimate for Additional Appropriations for the service of the Ordnance Department for the Yaar 1839, dated November 16,1838, Col. George Bomford, the venerable Chief of Ordnance, bluntly advised Congress:

"The strongest necessity exists for the improvement of the public buildings at Harper's Ferry Armory - they are at present exceedingly unsigh' and unworthy of a National Establishment, and many of them, being mere wooden sheds, are besides liable to accident from fire...."[1]

At the junction of the Potomac and Shenandoah Rivers, according to Bomford, there stood in 1839 what may be described as one of the first Federally-created slums in the United States Most of the great musket Factory workshops, by 1841, were at least 30 yeats old and much of the money expended for repairs and improvments from 1836 to 1841 appears to have been used merely to shore up the old plant. The new Potomac canal, widened and deeped

1. National Archives Record Group 156, Entry 129, Vol. 11,p.6- MFHmP-Reel 20, Vol. 6,p. 624.

, at a cost of $ 38,439.85 in the years 1828-35, had to be given extensive repairs at a cost of $ 11,719 to keep the embankments from failing completely.

The annual rate of expenditures for repairs and improvements at both the Armory and the U.S. Rifle Factory at Harper's Ferry, including sums for new machinery, are given on Chart No. 11, which follows.

The total amount of money, $ 248,209.00, voted for permanent improvements at the National Armory at Harper's Ferry, Va. from 1836 to 1841 by Congress, together with the approved projects, are listed on Chart No. 12, which also follows.

The Charts No. 13, 13A and 13B, pp. 352-354, show in detail how and at what rate the appropriations in special funds for permanent improvements were utilized during the years 1836 to 1841.

Ironically, even through approximately $ 830,393.31 had been spent since 1796 through 1841 for construction and repair at the Harper's Ferry Armory, its physcial plant had became old and obsolete. By 1841 the days of the first plant were numbered and within several years, every workshop at the U.S. Musket Factory on the Potomac and the U.S. Rifle Factory on the Shenandoah, with but one or two exceptions, was destined to be demolished and replaced by second plant comprised of large-sized and architecturally impressive structures built of cut stone, brick , and iron. The foundations of the first plant, however, still lie under the ruins of the 1841-61 plant.

Year	Approp. for Construction	Armory Expenditures for Land	Armory Expenditures for Construction and Repair	No. of Arms made	No. of workmen	Source Ser.	Source Doc.
1836	$ 77,897.00	0	$ 28,678.42	10,959	243	304-	186
1837	62,312.00	0	81,679.27+	10,417	262	331-	428
1838	20,000.00	0	55,541.11	14,934	294	349-	237
1839	0	0	10,925.72	5,850	272	365-	100
1840	50,000.00	0	18,089.78	10,330	241	378-	175
1841	38,000.00	0	74,002.87	8,840	267	403-	157
1836 1841	$ 248,209.00	0	$ 268,917.17	61,330	-		-
1796 1841	$389,687.00	$ 45,477.28	$ 830,393.31	372,645	-		-

Total Expenditures, 1796-1841, for land, construction and repairs: $ 875,541.59

For new Machinery (not included in the Construction and Repair figures above)

1839:	$ 15,826.77	(A)	plus $ 10,925.72=	26,752.49
1840	$ 3,175.75	(B)	plus 18,089.78	21,265.53
Total	19,002.52			$ 48,018.02

$ 287,919.69 with machinery included.

+ The chart for 1837 operations, as published by the War Department, lists only $ 13,642.18 under expenditures for permanent improvements, but in the accompanying text is also listed an expenditure of $ 68,037.09 from special appropriations, which had to be for improvements.

A. Serial No. 365. Document No. 100, p. 2.
B. serial No. 378, Document No. 175, P. 5.

Chart no. 12

Appropriations for Permanent Improvements at the National Armory at Harper's Ferry, Virginia, 1836-41

Projects	1836	1837	1838	1839	1840	1841	Total
New Machinery	23,725	-	20,000	-	-	+	43,725 +
Repairs on Potomac Canal	5.260	6,459					11,719
Storehouse for condemned parts	3,400						3,400
Store house for coal	650						650
erecting 10 new dwelling houses	12,000						12,000
For purchase one acre Vager land	5,000			(1)			5,000
Purchase of private bldgs on public land	16,290			(2)			16,290
for claims for repairs to dwelling houses	4,548						4,548
Forge for scrap iron	5,000						5,000
Sinking well and pump, grinding mil	1,000						1,000
Completion of 1834 tilt hammer shop		6,656					6,656
New river wall, Musket factory		40,628					40,628
Repair & improvements, Armory	-				35,400*	38,000+	73,400
Shops at Rifle Factory	1,024	8,569			14,600		24,193
Total	77,897	62,312	20,000	0	50,000	38,000	248,209

(1) $ 5,000 reverted to general Treasury. (2) $ 1,595 reverted to General Treasury

* included funds in 1840 for new forge and new grinding mill.
\+ includes funds in 1841 for new machinery.

CHART NO. 13

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:

1836- 1841

YEAR	Repair of Walls of 4 Workshops	Slating the roofs of workshops	erecting Dwellings. (old money)	Erecting Store Houses	3 new water wheels	Completion of machinery	Repair of Potomac Dam	River Wall Tilt Hamme Shop.	Musket Factory Improvement A	Rifle Factory Improvement B	Repair of Potomac Canal	Repair & Improve-ments	GRAND TOTAL
1836	0	0	0	0	301.52	3,706.36	0	4,916.74	3,298.00	753.95	-	-	12,976.57
1837	0	0	0	0	0	2,898.69	88.00	18,171.37	31,182.88	7,607.10		-	59,948.04
1838	650.05	186.58	982.59	1,000.00	16.20	2,206.21	705.66	15,047.66	19,799.20	207.95		-	40.802.10
1839	0	0	0	749.92	0	137.06	0	15,835.53	5,013.70	0		-	21,736.21
1840	0	0	0	0	0	0	0	0	0	0	0	8,000.00	8,000.00
1841	0	0	0	0	0	0	0	0	0	0	0	52,630.06	52,630.36
TOTAL:	650.05	186.58	982.59	1,749.92	317.72	8,948.32	793.66	53,971.30	59,293.78	8,569.00		60,630.36	196,093.28
BALANCE LEFT:	0	0	0	2,825.02 +	0	0	0	0	7,706.52	0	0	16,129.85	16,129.85
APPROP-RIATION	1,500.00	3,200.00	18,600.00	8,559.87	8,400.00	36,114.86	5,000.00	47,284.00	77,897.00	8,569.00	6,459.00	88,000.00	309,583.73

+ $ 2,825.02 reverted to U.S. Treasury in 1839.

CHART A No.13

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:

MUSKET FACTORY IMPROVEMENTS 1836- 1841 $ 77,897.00 appropriated 1836

YEAR	Repair of Potomac Dam	Store House for condemned Parts	Store House for Coal	Forge for scrap iron	10 new dwelling houses	Purchase of private buildings	Claims of workmen on houses	Drill shop at Rifle Factory	New Machinery	Sinking Well at Grinding Mill	Purchase Wager Acre	TOTAL
1836	0	0	0	0	0	3,298.00	0	854.03	0	0	0	4,152.03
1837	5,340.79	240.68	240.68	382.03	8,485.68	11,372.00	2,855.45	167.56	2,585.92	723.12	0	31,382.88
1838	404.69			226.26	1,633.36	0	452.52	0	683.90		0	19,799.20
1839					250.00	0	229.11	0	19,047.26		0	5,013.70
1840					157.73	0	1507.42	0			0	0
1841						0	10.00	0			0	0
TOTAL:	5,745.48			608.29	10,526.77	14,670.00	$ 4,054.50	1,021.59	22,317.08	723.12	0	60,147.81
BALANCE LEFT:						1,620.00					5,000.00	7,706.52
APPROP-RIATION	5,260.00	3,400.00	650.00	5,000.00	12,000.00	16,290.00	4,548.00	1,024.00	23,725.00	1,000.00	5,000.00	77,897.00

No. 1

Chart No. B

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:

1836 - 1841 RIFLE FACTORY IMPROVEMENTS 1837- $ 8,569.00 appropriated in 1836

YEAR	Tilt Hammer Shop	Browning Shop	Jobbing Shop for Smiths	Jobbing Shop for Filers	River Wall	TOTAL	Accounted for by vouchers for services	1836 money DRILL SHOP	Total- 1836-37
1836	0	0	0	0		753.95		854.03	
1837	1,469.22	1,118.91	1,119.61	1,332.49	1,535.22	7,607.10	(6,575.45)	167.56	
1838	663.86	4.50	59.65	188.12		207.95	(916.13)	0	
1839						0		0	
1840						0		0	
1841						0		0	
TOTAL:	$ 2,133.08	$ 1,123.41	$ 1,179.26	$1,520.61	$1,535.22	8,569.00	($7,491.58)	1,021.59	$ 9,591.59
BALANCE LEFT:	0	0	0	0	0	0		2.41	
APPROP-RIATION	2,995.00	1,114.00	1,048.00	1,538.00	1,874.00	8,569.00		1,024.00	$ 9,593.00

For materials(?) $ 1,077.42.

During the years 1836 to 1841, 46 new buildings were erected at the National Armory at Harper's Ferry, Va., at an approximate cost of $ 58,229.61.[1] Seven of the new structures, workshops and storehouses, were built at the U.S. Musket Factory at a cost of $ 19,980.94. A fine brick vault was added to the Paymaster's Office on Arsenal Square at a cost of $ 233.82 to provide better security for the large sums of money in his charge. At Captain John H. Hall's Patent Rifle Factory, five new brick and stone workshops and storehouses were constructed at an approximate cost of $ 8,057.78, thus bringing the total number of structures on the Lower Hall Island to 26 by 1841.

Thirty-four residences were added to the Armory rent rolls during this period at a cost of $ 29,957.07. Eleven of the quarters were erected by the Armory for about $ 11,836.29 and the remaining 23 houses were purchased from the people who built the structures on Armory land- workmen and private individuals- for $ 18,220.78. The acquisition of these 34 residences increased the total number of Armory Dwelling Houses to 170 in 1838. The total estimated value of these 170 residences was about $ 80,000.00 in 1841.

At the U.S. Musket Factory, the great tilt hammer shop, which had been started in 1834, was finally completed in 1837. The total cost of this shop appears to have been about $ 22,750.46. A great river wall, 1,624 feet long, about 15 feet high, and ranging in thickness from nine feet at the base to three feet at the top, was constructed at cost of $ 40,628 along the banks of the Potomac at the Musket Factory. Built into

1. The Armory actually constructed 23 new structures and purchased 23 dwelling houses that had been built by Armory works or private individuals.

the river about 50 feet north of the northern line of workshops and filled in with earth between the shops and wall to create a new street, this project widened the width of the Musket Factory yard to about its present size. In 1838-41, the Baltimore and Ohio Railroad was granted a right of way up along the new Armory wall and constructed a similar and paralelling stone river wall in the river on which to mount its trestle for the tracks. The completion of the B.&. R.R. wall increased the width of the Musket Factory yard to its present and extant width in 1841.

The flood wall and embankments at the Rifle Factory were also extended and heightened during this period at a cost of $ 1,535.22. About $ 12,099.38 was expended to repair the U.S. Potomac Canal to keep the stone walls and earth embankments just completed from being destroyed. With the 1836-41 expenditures included, a grand total of $ 50,063.00 was spent from 1828 to 1838 on the construction of the rebuilt Armory Canal. The U.S. Armory dam on the Potomac River was also repaired in the 1836-41 period at a cost of approximately $ 793.66. The U.S. Dam on the Shenandoah and the Shenandoah Canal, as it passed through the Rifle Factory grounds, did not require any major work during the 1836-41 years.

Construction and Repair at the U.S. Musket Factory, 1836-1841:

Congress's last appropriations for permanent improvements at the National Armory at Harper's Ferry, Va., in the amount of $ 50,083.00, had been made in 1834 , and by January 1,1836,only about $ 15,367.94 was left in the principal funds to continue construction on the chief Armory projects.[1] Col. George Bomford, Chief of Ordnance, accordingly requested and Congress appropriated on July 2,1836 the sum of $ 77,897.00 for further permanent improvements at the Harper's Ferry Armory.[2]

Of this total, $ 38,775.00 was earmarked for six projects at the U.S. Musket Factory. Because the act was not approved until July 2,1836, the building season for that year was nearly half gone when the money became available. Lt. Col. George Talcott, Ordnance Department Inspector of Armories and Armories, rushed up to Harper's Ferry in an effort to expedite the building program that was based on 1836 funds. Talcott, writing from Harper's Ferry on July 9,1836, informed Col. Bomford:

> The principal object (of his second inspection of the Armory in 1836) was to make provision for the construction of various buildings required at that place and for which the necessary funds have been appropriated by Congress (on July 2,1836). The lateness of the (construction) season renders it very difficult to provide materials in time to complete the small buildings this year and the large ones cannot be commenced till the spring of 1837. Taking into view the course pursued for years past and the results, at that place, I would urge in the strongest manner, the employment of some person as a kind of Master Builder, to supervise the erection of all buildings authorized to be constructed. He should be a good mechanic and able to direct the operations of others. Three dollars per day would be a fair price for such services and I have no doubt a suitable man can be found for such wages...." [3]

1. For 1834 appropriations, see U.S. Statues at Large,p.675,680. Chief funds available from 1834 money for work in 1836 were(1). 1,844.59 for built the trip hammer shop for welding barrels;(2)$8,948.32 for completing machinery in the boring, turning, and stocking shops, and $ 4,575.03 in the erecting store houses &c account, total= $ 15,367.94.
2. 1836 Estimates in Serial No. 288, Document No. 90, pp.7-10; Appropriations in U.S. Statues at Large, Vol. V, p. 77.
3. HFNHP Photostat Collection, Vol. 1, p.48-National Archives R.G. 156.

Talcott's suggestion for engaging a master builder to supervise and plan construction at the Harper's Ferry Armory was not adopted during the 1836-41 period.[4]

On August 7,1836, Lt. Col. Talcott also wrote to Superintendent George Rust, Jr. to urge and encourage Rust to make all the preparations possible in 1836 so that the construction program could be carried out on a large scale in 1837. Talcott remarked:

"... I would therefore urge you to make all the purchases of building materials in your power at once, and put up the Coal House, the Forge at the Musket Factory, the Drill Shop at the Rifle Works, repair the Potomac Canal and sink the well at the Grinding Mill at the Musket Factory, ... also make contracts for the erection of 10 dwelling houses if practicable and also the Store-house for scraps and condemend parts at the Musket Factory, which were all to be built from the 1836 appropriations)... [5]

But whatever hopes Talcott may have had for launching a major construction program in the spring of 1837 were dashed when Superintendent George Rust Jr. resigned his position as superintendent of the Armory in March 1837. President-elect Martin Van Buren selected his friend and political ally, Edward Lucas, Jr. of Shepherdstown, Jefferson County, Virginia, to be the new superintendent of the Harper's Ferry Armory. Born in 1780, Lucas had graduated from Dickinson College at Carlisle, Pa. in 1809, served as a 1st lieutenant during the War of 1812, and then studied law at Winchester, Va. He established a practice at Shepherdstown, served two terms in

4. By Dec.31,1841, the Armory had a "Master Carpenter" James Bateman on its payroll, together with 14 other carpenters, but Bateman does not appaear to have served the function of a "master builder."
5. Talcott's letter of Aug.7,1836 to Rust is attached to his inspection report of Nov.3,1836, in HFNHP [illegible] Photostat Collection,Vol. 1, p.65.

the Virginia legislature, beginning in 1819, and became a strong supporter of Andrew Jackson. From 1832 to 1836 he served two terms in Congress and established close ties with Van Buren and other high ranking members of the Democratic party.

Lucas took up his duties and established his residence at the Harper's Ferry Armory in April 1837.[6]

Prior to this, on March 1,1837, in response to Ordnance Department requests, Congress appropriated an additional $ 62,312.00 to make permanent improvements at the Harper's Ferry Armory.[7]

Including the $ 15,368 in carry over funds from 1835 with the appropriations of 1836 and 1837, a grand total of $ 155,577.00 was available for construction and repairs at the Harper's Ferry Armory. Of this total, $ 103,280 was for use in eight projects at the U.S. Musket Factory.

Lt. Col. George Talcott returned to Harpers Ferry in June 1837 to assist the new superintendent in getting the 1837 construction program underway. On June 25, Talcott reported to Col. Bomford:

6. See Smith, Harpers Ferry Armory, pp.258-259, for more extended discussion of Rust and Lucas.

7. 1837 estimates, Serial No. 303, Document 107 pp.2-4., Appropriations In U.S. Statues at Large, V, p. 149.

The change in the Superintendence of this Armory (caused by the resignation of Gen'l Rust and the appointment of Col. Lucas) together with the very large amount of money applicable to the improvement of the establishment, being in fact the appropriations for the years 1836 & 1837 and amounting to more than one hundred thirty thousand dollars; induced me to visit this place as early in the season as my other duties would permit. Although it is but seven month since the Armory was last inspected, yet from the very indifferent state in which its affairs were then situated an Inspection appeared highly desirable... and most of period(in June) was devoted to the outdoor affairs of locating buildings and aiding the Superintendent in all the various plans for additional buildings and improvements. These have been nearly all definitively adjusted, and will progress rapidly. Those at the Rifle Works(on the Shenandoah River) will shortly be completed and the unt,iring industry of the(new) Superintendent affords ground.. for the belief that all the interests committed to his charge.. will receive that attention which their importance deserves... 8

Construction Program, 1836- 183

A. Old Projects:

1. The Trip Hammer Shop for Welding Barrels., 1834-37:

In the last ch apter we have noted that the Congress provided $ 4,000 in 1830 to erect a "forging shop and tilt hammer" at the Musket Factory. Construction on the shop got underway in 1831 but came to a halt in 1832. In 1833 Congress provided an additional $ 13,300 to complete a" tilt hammer shop for welding barrels". When work resumed in 1834, a new site was chosen for the structure (see Bldg. No. 8 on Map. no. 14 and Bldg. No.11 on Map. No.17), thus the money spent in 1831 was wasted as far as the final building was concerned.

In 1834-35, the great stone one-story workshop was erected about two-thirds complete at an approximate. cost of $ 13,500. About $ 1,844.59 was left in funds to continue work on this structure on January 1,1836.

The records of the Paymaster of the Harper's Ferry Armory indicate

8. Talcott's Inspection Report, June 16 to 25th,1837, HFNHP Photostat Collectionm Vol. 1, p.72.

that 4,916.74 was spent on the construction of the trip hammer shop shop in 1836,[9] and 4,333.32 in 1837,[10] to make total of $ 9,250.46 used to completed the structure in 1836-37. Total cost of the building, 1834 to 1837 appears to have been about $ 22,750.46.

On March 1, 1837, Congress had appropriated an additional $ 6,656.00 to complete the trip hammer " commenced in 1834." Col. Bomford, Chief of Ordnance, justified his request for the additional money to Congress as follows:[11]

> The superintendent in charge of this armory states that the appropriation for the construction of the tilt-hammer shop has proved insufficient; partly in consequence of the great rise in price of materials and labor since the original estimate for this object was prepared, and partly owing to the change of the location of the building, as it became necessary to increase the width and depth of the foundations from five to seven feet, and enlarge the thickness about six feet more than was originally deemed sufficient, which greatly augmented the amount for excavation, walling, and filling; and the substitution of cast iron water wheels for tub wheels, which, though decidedly preferable, are more difficult in their construction, and of more expensive materials, yet more durable.

Much of the 1836-37 money went for millwright work and machinery. Jacob Aspey, who had signed a contract on January 10, 1835, to do the millwright work on the new shop , had started to work in the 4th quarter of 1835, when he received $329.25 for constructing a wooden water wheel that was 20 feet in diameter.[12] He received at least an additional $ 1,842.43 for his services in 1836-37 as follows: 1st quarter of 1836: $ 603.80;[13] 2nd Quarter of 1836-$ $ 918.63; and $ 320.00 during the 1st quarter of 1837 for"framing forebay, 2,400 feet, millwright work.[14]

In March 1836 the mason Johnson Garrett, who had erected the stone

9. R.G. 217-2nd series- 677,761.
10. R.G. 217-2nd series-951, 1423, 1716, 2092.
11. Estimayes for 1837,Serial No. 303, Document 107, p.3.
12. see Page 257 of text.
13. R.G. 217-2nd series-677-Voucnher 61,March 8,1836.
14. R.G. 217-1 series 20954 1st series.
15. R.G. 217- 1st series-951-Abstract C.

foundations and walls of the tilt hammer shop in1834, received an additional $ 2,008,80 for his work on the structure, or more probably on its raceway.[16] On April 27,1835, Charles C. Starbuck had contracted to make five cast iron"Reacting Water wheels complete" as a cost of $ 310.00. each. Starbuck received his final payment of $ 516.66, the balance of the total of $ 1,550.00 due him for the five wheels on March 10,1837.[17] The tinsmith Benjmain Snook was also paid $98.34 for providing copper pipes for the tilt hammer shop in April 1837.[18]

2. Completing the Machinery and Three Water Wheels in the Boring, Turning and Stocking Shops. 1836-39:

In 1833 Congress had provided $ 8,400.00 to rebuild the old wooden water wheels in the boring, turning, and stocking shops at the U.S. Musket Factory(See Bldgs No. 3, 2, and 5 on Maps. No. 14 and 16), pp.385-8, 15, As has been noted, $ 8,082.28 had been expended on this project in 1834-35 and a balance of $ 317.72 remained available on January 1,1836. In May 1834, acting at the request of the Ordnance Department, Congress had appropriated an additional $ 26,040.47 "for the completion of the machinery in the turning, boring and stocking shops." Total of $27,166.54 had been expended in 1834-35 and a balance of $ 8,948.32 in funds was carried foweward into 1836 . In summary, $ 35,248.82 had been spent modernizing the water wheels and machinery of the three shops in 1833-35 and $ 9,266.04 remained available for use on the project in 1836.

16. R.G. 217-2nd series,677.
17. R.G. 217- 2nd S., 951-Abstract C.
18, R.G. 217-2nd S., 1423.

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, $ 4007.88 in work was charged against the completion of machinery account in 1836.[19] Annual expenditures from the large fund are shown on Chart 13, p. 352; they totalled $ 8,948.32 for 1836-41; with the $317.72 from the older fund included[20] expenditures for "the completion of the machinery in Three shops," 1836-41-, amounted to $ 9,266.04 and from 1834 to 1841, to $ 44,504.86 .

Also included in the 1834 appropriation had been $ 7,924.50 (in addition to the $ 26,040.47) to erect new workshops at the Musket Factory. Several of these shops were built in 1834 but $ 1,821.45 earmarked to built two shops for tempering springs and polishing barrels; two houses for fire engines, and for making an addition to the Stocking shop, Bldg. No. 5, was probably carried over into the 1836 work program.

These four small shops, a tempering shop, polishing shop, and two engine houses were probably erected in 1836 and the addition also made to the Stocking Shop.[20]

During 1836 we find the following work charged against the Completion of Machinery account: $ 200.00 for the services of George W. Rogers as engineer on the Musket Factory Canal project ; $ 1,478.58

19. R.G. 217- 2nd series, 677 and 761- $ 301.52 of the available $ 317.72 1833 money was spent in 1836, leaving a balance of $ 16.20 that was finally used up in the 2nd quarter of 1838; R.G. 217- 1st series- 20761, and 20654; 2nd series 677,761. A total of $ 3,706.85 was charged against the 1834 money, leaving a balance of $ 5,241.96 available on Jan.1,1837.

20. R.G. 217- 2nd series-951, 1423, 1716, 2092, 2364, 2729, 3424, and 4246.

21. 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-#Ø 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.

to the mason Johnson Garrett for mason work[22], both in the 1st quarter of 1836 and in the second quarter; on June 10,1836 the carpenter James Foley received $ 13.00 for making 8 steps and 20 feet of hand rail or balustrade at the new machine shop[23] (which had been built in 1834 under this fund).

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."[24]

3. Erecting Storehouses Account

$ 4,575.02 of the total of $ 8,559.87 originally appropriated in 1834, was carried foreward for use in 1836, however, no work was charged against this fund until the fourth quarter of 1838.[25]

B. New (1836-37) projects:

1. New Machinery, 1836 and 1838:

The Chief of Ordnance requested and Congress appropriated on July 2,1836, $ 23,725.00

."For the purchase and erecting of new and improved machinery for facilitating the manufacture of arms.."....

Col. Bomford explained to Congress that this money would be used for the following purposes:[26]

22. R.G. 217-1st series-20761.
23. R.G. 217-1st series- 20954-2nd quarter 1836.
24. R.G. 217- 1st series- 20761 and 2nd series-677.
25. R.G. 217-2nd series-3434.
26. Special estimate for 1836, Serial No.288, Document 90, pp.7,8.

Lt.Col. George Talcott, in inspection report of Harper's Ferry Armory, dated November 3,1836 wrote" The Harper's Ferry Armory continues to labor under the want of many useful machines, but it is hoped that another year will not pass without application of the funds appropriated for improving this branch... "

A. The superintendent in charge of the Harper's Ferry Armory represents, that a number of new and improved machines are very necessary, and almost indispensable, with the regard to the facility, accuracy, and economy, in the manufacture of small arms. They are very essential in extending the improvements now making; they are also required in order to better systematize the condition of the armory, for classification and equalizing gradation of the prices paid to workmen.

By the erection of new machinery it is estimated that a great saving will be effected, in particular operations, in the fabrication of the various tools made. All these objects, it is believed, would be accomplished by the erection of new machinery, for which an appropriation is now estimated.

In response to the Ordnance Department's second request, Congress provided an additional $ 20,000.00 "for procuring new machinery for the Harper's Ferry Armory on July 7,1838.[27] With this appropriation, a total of $ 43,725.00 was made available to modernize the machinery of the Musket Factory during the years 1836 to 1841.

The records of the Paymaster of the Harper's Ferry Armory reveal that a total of $ 22,317.08 was spent from this fund during the years 1837 to 1839 as follows: 1837: $ 2,585.92; 1838: $ 683.90, and in 1839: $ 19,047.26.[28] As this report is not concerned with machinery, we shall pursue this subject no further.

In June 1837, as has been mentioned, Lt. Col. George Talcott visited Harper's Ferry Armory, went over the ground, picked out the site for each new structure, and also approved the plan for each building that was to be erected.[29]

Also as has been mentioned, the Appropriations of 1836 provided $ 9,050.00 to erected three new buildings at the U.S. Musket Factory plus $ 1,000.00 to sink a well at that plant's grinding mill.

The Cash Flow Chart 15, page 367, based on the money drawn annually by the Harpers's Ferry Paymasters from the U.S. Treasury from the special appropriation construction funds, reveals that that the 1836 appropriation of $ 77,897.00 was requisitioned aas follows: $ 25,838 in 1836; $ 47,059.00 in 1837 and $ 5,000.00 in 1838, thus indicating that the proposed work was completed by 1838.

27. U.S. Statues at Large Vol.V, p.267.
28. R.G. 1 7, 217 - 2nd Series- 951, 1716, 2092, 2364, 3695, 3917, 4046.
29. Inspection report of Lt.Col. Talcott, June 16th to 25th,1837, HFNHP Photostat Collection, Vol. 1,p. 72.

Chart No. 14

"Statements of the Appropriations for the Service of the War Department," for permanent improvments at the U.S. Armory at Harper's Ferry, Virginia, 1830 - 1835, Allotments of funds:

Calendar Years

Appropriation	(1) 1830	(2) 1831	(3) 1832	(4) 1833	(5) 1834	(6) 1835	Balanc
Extending wall & embankments, Potomac Canal	9,300	8,000	4,300	10,200.00	6,373.27	-	
Erecting Forging shop, tilt hammer & new workshop	0	6,500	0	0	6,000.00	6,500.00 *	800.00
Erecting Dwelling Houses	2,500	7,500	0	8,600	-	-	
Slating roofs of workshops	0	0	3,200	0	-	-	
Repair and extension of Potomac Dam	-	-	-	3,374.55	1,625.45	0	
Repair of walls of 4 workshops	-	-	-	1,500.00	-	-	
for 3 new water wheels and new machinery	-	-	-	8,400.00	24,200.00	11,914.86	
Purchase of water power rights, Shenandoah River	-	-	-	2,600.00	0	0 **	2,000.0
Repair and extension of dam on Shenandoah River	-	-	-	-	2,000.00	0	
1834 buildings to be erected (Store Bldgs.)	-	-	-	-	4,000.00	4,589.87	
Total:	11,800.	22,000	7,500	34,474.55	44,698.72	23,004.73	2,800.0

TOTAL Withdrawn, 1830-1835: $ 143,478.00

(1) Serial No. 209, Document 136, p.2. $29,000.00 appropriated.

(2) Serial No. 219, Document 134, p.4.

(3) Serial No. 235, Document No. 128, p.5.

(4). Serial No. 258, Document No. 390, p.7-8.

(5) Serial No. 273, Document No. 112, p. 5.

(6). Serial No. 288, Document No. 83, p.4.

* $ 800.00 available Dec.31,1835 from Forging shop, tilt hammer and new workshop.

** $ 2,000.00 available Dec.31, 1835 for purchase of water rights on Shenandoah. everted to Treasury.

Balance Available in U.S. Treasury, Dec. 31,1835=$ 2,800.00

CASH FLOW FROM SPECIAL APPROPRIATION FROM U.S TREASURY TO THE PAYMASTERS AT THE NATIONAL ARMORY AT HARPER'S FERRY.

Appropriations:		
	1830:	$ 29,000.00
	1831:	7,500.00
	1832:	0
	1833:	54,895.00
	1834:	50,083.00
	1835:	0
	Total:	$ 141,478.00

CHART NO. 15

Statement of the appropriations for the service of the War Department for the years 1836 to 1841, for repairs and permanent improvements at the National Armory at Harper's Ferry, Virginia. Expenditures under special appropriations

Calendar Years:

Projects	(1) 1836	(2) 1837	(3) 1838	(4) 1839	(5) 1840	(6) 1841	Total	Balance left Dec. 31, 1841
National Armory, repairs & improv.	25,838	47,059.00	5,000.00		8,000.00	62,000.00	147,897.00	+ 18,000.00
Rifle Factory:	-	8,569.00	-		-	-	8,569.00	-
River Wall, tilt hammer shop, musket Factory	-	53,243.00	500.00		-	-	53,743.00	-
New machinery for Mukket Fact.	-	-		19,774.25	225.75	-	20,000.00	-
Store houses Act May 14,1834	-	-	-			-	0	-
TOTAL:	25,838	108,871.00	5,500.00	19,774.25	8,225.75	62,000.00	230,209.00	+ 18,000.00

Total Requisitioned--------- $ 248,209.00

CASH FLOW FROM SPECIAL APPROPRIATIONS FROM THE U.S TREASURY TO THE PAYMASTERS OF THE HARPER'S FERRY ARMORY, VA., 1836-41

$ 5,000 appropriated for purchase of Wager Lot in 1836 reverted to the Treasury as the land could not be acquired.

(1) Serial No. 303, Document 119, p. 3.
(2) Serial No. 325, Document 92, p3.
(3). Serial No. 346. Document 104, p. 3.
(4). Serial No. 365, Document 107, p.3.
(5). Serial No 383, Document 74, p.3.
(6) Serial No. 402, Document 62.p.3.

+ Under new machinery act of May 14,1834, $ 137.06 paid to surplus fund. in 1839.
++ Under act of May 14,1834, for erecting storehouses, $ 2,825.02 paid to surplus fund in 1839.

2. Store House for Condemned Parts ,1837-

On July 2 ,1836 Congtess appropriated $ 3,400.00

" . For the erection of a store house to contain condemned component parts of arms, defective materials, scraps, &c. of stone, 80 by 30 feet, two stories high, with slated roof."...30

The Chief of Ordnance informed Congress that:

". This store=house is much wanted as a place of deposite, preservation, and location, of various naterials, and defective component parts of arms. Its construction can be arranged, that should an emergency arise, requiring the fabrication of an increased number of arms at this armory, it can be converted into a work shop, without much difficulty or expense. 31

The Paymaster's vouchers covering the construction of the Store House for condemned parts, a stone building with slate roof, two stories and 80 by 30 feet, were not located. This structure, probably Bldg. No. 12 (Old Stock Store House)on Map No. 17, made page 388, in 1848) , must have been built for about $ 3,400.00 in 1837-39.

The building may have been located in the northern line of shops, situated near the bank of the Potomac and about opposite to the Machine and carpenter shop(see Map No. 17).

30. Special estimate for 1836, Serial No. 288,Document No. 90, p.7,8.

31. Ibid, p.8.

3. A Coal House for the Tilt Hammer Shop,

On July 2,1836, Congress appropriated the sum of $ 650.00

> For the erection of a house to contain pit coal, at the tilt hammer shop, 30 by 20 feet, and 10 feet high...

Explaining the need for the structure, Col. George Bomford wrote:

> The erection of a coal-house is very necessary, in consequence of there being none in the vicinity of the (new) tilt-hammer shop, at which place the greater part of the coal used is consumed."[32]

This stone building, 30 by 20 feet and 10 feet high, was known as the coal house or coal bin and was located adjacent to the new trip hammer shop for welding barrels (See Bldg. No. 8 on Map No. 14, page 385, or Bldg. No. 11 on Map No. 17 (1848), p.388, for the trip hammer shop- the coal bin itself, however, is not delineated on either map).

The new coal bin was apparently constructed in September 1837 by the mason George Bau (?) at an approximate cost of $ 304.05 (See Chart on page 369A). About 80 3/4 perches of stone mortar wall were erected in this structure.[33]

32. 1836 Estimate, Serial No. 288, Document 90, pp.7,8.

33. R.G. 217- 1716- Abstract B-3rd quarter of 1837.

COAL HOUSE OR
COAL BIN, 1837

U.S. Musket Factory

Construction of

Record Group 217:

File No.	Voucher No.	Artisan	Date	Amount	Remarks
1423	179	Long Colbit	6/37	$ 31.87	for 42½ perches of stone delivered to site, for erection of coal bin.
1423	178	Michael Ledwick	6/17/37	$ 31.50	For quarrying and delivering 40 perches of stone for erecting coal bin= $30.00 and $ 1.50 for 3 days labor erecting coal bin.
1716	71A	Lewis Wernwerg	9/20/37	$ 30.00	for 20 stone lintels for coal bin.
1716	72A	George Bau(/) ?	9/22/37	$ 137.12	For mason work, probably erecting coal house or bin: Excavating earth: $10.00 for laying 80 3/4 perches of stone wall=$121.12 Laying 37 feet 6 inches of cornce= $ 6.00.
1716		for stone	7/15/37	$ 68.75	got 82½ perches of stone delivered to the site, July 15, 1837
1716		Other	3rd qr	$ 5.13	other costs
Total	3rd	quarter of 1837		$ 240.68	
Total		recorded 1837	1837	$ 304.05	For coal house or bin

4. A Forge for Scrap Iron:

On July 2,1836, the Congress appropriated in response to an Ordnance Department request, $ 5,000.00

> For the erection of a forge and fixtures for working up scrap iron into bars, and for faggoting steel, of brick or stone, with slated roof.

Explaining the need for this building, the Chief of Ordnance wrote:

> A forge at this armory is much wanted to work up scraps, old gun barrels, borings and turnings, that unavoidably accumulate. Its erection, besides its utility in saving scraps, will enable the superintendent to obtain iron of the quality and dimensions desired without delay.
>
> It is estimated that, by the use of the forge, about three pounds of good iron may be made from the borings and turnings of each musket. The scrap iron at the armory, if sold at public auction, will not command more than two cents per pound; but if worked up into bars, it will be equal in value to three or four cents per pound.[34]

The Paymaster's Vouchers for labor to build this structure have not been located. His records, however, show that at least $ 665.25 was spent to purchase materials to construct the Forge for Scrap Iron, as follows.[35] June 30-Dec.31,1837- $ 56.96.; in 2nd quarter of 1838, $ 115.00 for 600 feet of plank and $ 267.03 for 143 feet 3 inches of stone for foundation.;[36] and in the second quarter of 1839, $ 226.26 was paid on June 30,1839 to Russell and Byrne for 362 2/3 feet of cut stone for the forge's forebay.[37] This suggests the forge was erected in 1838-39 and it may be building No. 8(Machine shop along the Armory Canal on Map. No. 17)[38] page 388.

34. 1836 Estimate, Serial No. 288, Document No.90, p.7,8.
35. R.G. 217 - 2092- Statement of Special Appropriations charged for materials during the last 6 months of 1837.
36. R.G. 21[illegible] 2364.
37. R.G. 217- 3695- Vouncher 113.
38. A carpenters' and machine shop, probably Bldg. No. 7 on Map [illegible]7, was erected in 1834. Bldg. No. 8, which is larger than Bldg. 7, may have been built as the forge in 1838-39 and then converted for use to a machine shop.

5. A Well at the Grinding Mill:

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..[39]

The grinding mill,Bldg. No. 9 on Map No. 17, page 388, was located on the south bank of the Armory Canal in an isolated position about half way between the the new tilt hammer shop (Bldg. No. 11) and the Stocking Shop. (Bldg. No. 5 on the 1848 Map-Map No. 17).

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.[40]

39. 1836 Estimate, Serial No. 288, Document No. 90, p. 7,8.

40. R.G. 217- files 1423, 1716, and 2092. Expenditures on the well were as follows: 2nd qr. $ 8.29; 3rd qr., $ 374.41, and 4th qr. $ 348.71. Total, 1837, was $ 731.41.

6. River Wall for the Musket Factory(1837):

In repponse to the request of the Ordnance Department, Congress appropriated $ 40,628.00, March 1,1837 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 great 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:[41]

> 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.

41. 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 15, p. 387, and Map 16, page 387.

The building of this river wall and the creation of additional land construction at the U.S. Musket Factory on the Potomac was the largest single/undertaking of the 1836-41 period.

The contractor for this project was the mason John Littlejohn[2] 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, and $1,710.00 for his construction in the second quarter of 1839.[42]

The Paymaster's vouchers indicated that Littlejohn accomplished the following construction prior to his death:

		River Wall		Embankment		Raceway Wall	
Yaer	Total Paid.	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[43]
1838	6,081.09	1,821	3,186.75	2,000	600.00	culverts 1,000	$ 3,000.00[44]
1839	1,710.00	-	-	700	210.00	500	1,500.00
Total	$ 21,763.35	5,221	$ 9,086.75	24,170	7,260.00	2,000	$5,625.00[45]

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 372) 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.

42. Because Littlejohn's voucher were suspended for some reason, his payments were held up. Much of the work he did in 1837 was not paid for until 1838.

43. 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.

44. R.G. 217- 2729-Voucher 060-August 31,1838 for $ 3,419.34-Abstract B. and File 3424-492- Nov.30,1838, for $ 2661.75 to Littlejohn.

45. R.G. 217-3971-114-paid to Littlejohn's Administrator, filed June 24,1839.

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.[46] 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.[47] Kirwan and Tearney were to be active in Harper's Ferry after the Civil War.

Total cost of constructing the river wall was probably about $ 40,000.00, as had been estimated.[48]

7. Repairs, 1838-39:

Old funds, some of which had been on the books since 1830, were used up to make repairs at the Musket Factory in 1838. The repair account, of the walls of four workshops, dating from 1833, thus provided $ 650.05 for necessary repair work on the shops in the 3rd quarter of 1838. Of this sum $ 341.06 was used to purchase lumber from Lewis Wernwag and Peter Derry;[49] The carpenter John Hyatt and his two journeymen received a total of $ 127.25 for 26 days labor on the shops,[50] and Jerry Harris was paid $ 67.82 for plastering 417 square yards in the shops.[51]

46, R.G. 217- File 4246-4th quarter of 1839. The cost of laboreer charged against the river wall account in October totalled $ 2,000.00. Thomas Mulligan was another master mason on this project.

47. 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.

48. The vouchers charged against this account by the Armory Paymaster, 1837-1839, totalled $ 39,150.17, leaving a balance of $ 1,477.83 in the account. R.G. 217- 1716, 2092, 2364, 2729, 3434, 3703, 3695, 3917, and 4246.

49. R.G. 217-2729-100. To Lewis Wernwag, Aug. 28, 1838-$ 69.49; To Peter Derry, Sept. 28, 1838=$ 271.57.

50. R.G. 217- 2729-To John Hyatt, Sept. 5, 1838.

51. R.G. 217-2729 10A and 103, July 18 and Sept. 1838 to Harris.

The slating the roofs of the workshops account, dating from 1830, was exhausted when the last money in the account, $ 186.58, was used to make repairs to the roofs of the Musket Factory shops during the 2nd quarter of 1838.[52] The slater William Bayley who began slating at the Armory in 1827, was still active at the Armory during the years 1836-41.[53]

The Armory paymaster's record also indicate that a total of $ 1,749.92 was expended from the 1834 appropriation "for erecting storehouses" during the 4th quarter of 1838 and 1st quarter of 1839; also that the remaining unexpended balance of $ 2,825.02 then reverted to the U.S. Treasury Department's surplus fund in 1839.[54] This money had been provided to make repairs to the Paymaster's and clerks' residences($ 2,079.72); to construct a river wall at the Musket Factory to guard the shops($ 900.00), to sink three wells on Camp Hill($ 1,500.00); and to paint the public buildings(about $ 983.51 available). It is not known just how this $ 1,749.92 was utilized in 1838-39.

52. R.G. 217- File 2364.
53. R.G. 217- 3424-46B, 6465-79.
54. R.G. 217- 3434-$ 1,000.00 in 4th qr.1838; 3703- $ 749.22 during the 1st quarter of 1839. For reverting of balance, see Serial No. 365, Document 107, p. 3.

8. An Abortive Project-The Plan to Buy One Acre of Wager Family Lands, 1836:

At the request of the Ordnance Department, the Congress appropriated the sum of $ 5,000.00 on July 2,1836 " for the purchase of one acre of land adjoining the U.S. Musket Factory workshops and Armory Canal.

Col. George Bomford, the Chief of Ordnance, advised Congress that the land was needed for the following reasons:

> F. This item,—the purchase of Wager's lot; it is situated directly in the rear of the finishing and boring shops, master armorer's office, and store-room, upon the outer margin of the canal. The purchase of this lot is very important, as it respects the safety of the public armory, in consequence of slight wooden buildings being erected upon it, and occupied by persons regardless of the property of others: and these evils are constantly increasing.
>
> The price asked for the ground appears to be high; but land at this place is very valuable, and possession of it is of much importance to the public works; and as it has been ascertained that it cannot be obtained for a less sum, the item is respectfully submitted.

[1]

Ironically, the money to make this acquisition, which the Armory and Ordnance Department had been attempting to buy for eight years, was received about six months too late; this delay proved fatal, and the property could not longer purchased for so low a sum.

In a letter dated April 13,1828, Superintendent James Stubblefield had first suggested the desirability of acquiring one-acre of Wager Six Acre Reservation land. He informed Bomford "The acre of land referred to, has been laid off and will stretch along the lower section of the Potomac Canal and immediately opposite the water(work) shops about 140 yards."[2] [See Map No. 16(1844)page 387,Wager Lots No. 16 to 3b.]

1. 1836 Estimates, Serial No. 288, Document No. 90, pp.7,8.

2. Stubblefield to Bomford, April 13, 1828, Reel 22, V. 4, p.381-383.

Stubblefield argued that the land should be acquired for the following reasons: (1) It would permit the armory to tear down "several miserable tippling shops" erected on the northern line of the Wager Six Acre Resrvation very close to the workshops. These drinking shops operated detrimentedly to both the morals and industrious habits of the Armory workmen. (2) the U.S.-Wager boundary line ran so close along the south side of the U.S. Potomac Canal that it was very difficult to make necessary repairs on the canal without tresspassing on Wager family property. (3) It was important that there should be an open area belonging to the armory on the southern side of the canal to afford facilities for the operations of the Armory fire engine. (4). The frame tippling houses, were located within a few paces of the workshops and if these drinking place caught fire, they would greatly endanger the entire Musket Factory. (5) and finally, this acquisition would provide sufficient room to increase the width of the Potomal Canal and also to create a small turning basin and yard to remove lumber that had been moved down the canal.[3]

The Wager family were short of money at this time because they were still in the process of completing their toll bridge over the Potomac River. In a letter received at the Ordnance Department on April 21,1828, James B. Wager, acting on behalf of the Wager family, offered to sell one acre of land to Colonel Bomford for $ 5,000.[4] Bomford ,however, informed Stubblefield that there was no possiblity of purchasing the land while "anything like the present price is asked for it.[5]

3.Reel 22,Vol. 4,pp. 381-383. Stubblefield to Bomford, April 13,1828.
4. Ibid.
5. Bomford to Stubblefield, May 7,1828-Reel 14, Vol. 6, pp.550-51.

Again on January 24, 1831, acting at the request of the Wagers, Captain John H. Hall wrote to Secretary of War John H. Eaton, urging the acquisition of this land for $ 5,000. Hall argued that the price asked was not exceptionally high in Harper's Ferry, and he pointed out that the value of the limited amount of privately owned land in town would even more increase in the future when the Baltimore and Ohio Railroad and the Chesapeake and Ohio Canal reached Harper's Ferry.[6]

As a result of this and other pressure, Col. Bomford reported to the Secretary of War on February 22, 1831, that as the Wagers had reduced their price from five to four thousand dollars, "... this Department therefore concurs in recommending the purchase, on the terms now proposed by the proprietors, in the full belief, that the land, which is very necessary to the advantageous operations of the armory, is fairly worth the price asked for it, and that it cannot at any future time be obtained on more reasonable terms."[7]

The special estimate for the Service of the Ordnance Department during the year 1829, submitted by Col. Bomford to Secretary Eaton on November 30, 1829, has requested the appropriation of $ 5,000.00 "for the purchase of one acre of ground adjoining the work-shop and canal." In his justification Bomford wrote:

> The additional ground proposed to be purchased at Harper's Ferry Armory.... A plat of it is annexed, an inspection of which will show its connexion with the works there, and the importance of its being possessed by the U. States. The price asked for this small tract is very high. But, as the possession of it is of much importance to the public works, and as it as been ascertained that it cannot be obtained a for less sum, the item is respectfully submitted.[8]

6. Hall to Eaton, Jan. 24, 1831, Reel 22, Vol. 11, p. 1021.

7. Bomford for Eaton Feb. 22, 1831, Reel 19, V. 13, pp. 1282-1283.

8. , Serial No. 195, Document No. 2, p. 129.

However, Congress in 1830 and again in 1831, refused to vote the money and there the matter lay for five years.

On February 13, 1835, Superintendent George Rust, Jr. wrote to Col. George Bomford and once more proposed that the Armory should purchase the same acre of land from the Wager heirs, also presenting the same arguments that had been used by James Stubblefield in 1828.[9]

Lt. Col. George Taclott, Inspector of Armories and Arsenals, inspected Harper's Ferry during the summer of 1835 and on July 25, 1835, endorsed this project, writing, "This is indispensible."[10] The item was included in the 1836 estimates and money was appropriated on July 2, 1836, but it was now too late and too little.

Prior to Rust's James B. Wager overextended his fiscal operations, was on July 7, 1834, thrown into jail for debt, and was soon forced to declare bankruptcy. On April 21, 1835, the Circuit Court of Jefferson County appointed commissioners "to lay off and divide three equal lots and parcels" the Wager Six Acre Reservation and Ferry Lot among the three Wager family heirs, namely James B. Wager, Gerard B. Wager, and their sister, Sarah Ann Swayne. Fifty-six numbered lots were laid out and on October 10, 1835, the Circuit Court offically divided these lots equally among the three heirs.[11] James B. Wager's lots were sold by court order at public auction in order to settle his large debts; thus the Wager family could no longer deliver the one acre of land after October 10, 1835. Twelve small Wager lots, with four buildings, all sold at public auction on benefit of James B. Wager on June 18, 1836, brought in a total of $ 14,120.00. Four of these vacant lots located on the north side in the area which along High Street, the Armory had planned to purchese, went at price.

ranging from $ 725.00 to $ 775.00 each! Unable to acquire the one acre of land for $ 5,000.00, this money probably should have reverted to the general surplus fund of the U.S. Treasury. The records of the Treasury Department, however, indicate that the Harper's Ferry Paymaster requisited this money and apparently spent it to make other permanent improvements at the Armory.[12]

Ironically, the Armory Superintendent John Symington was once again to revive this land acquisition project in 1844 and for the same reasons that had been advanced in 1828 and 1831. In this go-around, Symington was to be successful, but because the land had been subdivided and many houses and stores erected on these lots, the purchase in 1847-48 was to cost the the United States $ 38,932.33, or approximately eight time more than if the property had been acquired in 1828.

9. Rust to Bomford, February 13,1835, Reel 12, V. 1, pp.98-99.

10. Summary Statement of Items in the Appropriation for Harper's Ferry Armory(for 1836) Recommended in the report of the Inspector of Armories and Arsenals, July 25,1835, HFNHP Photostat Collection, Vol. I, p. 47.

11. Deed Book 29, p.140, Jefferson County Courthouse, Charles Town, W.Va., with plat showing the 56 numbered lots, drawn by James M. Brown. James B. Wager owed more than $ 7,500 by 1833.

12. Serial No. 346, Document 104, p.3. This report shows that the $ 5,000.00 earmarked for the land purchase was withdrawn from the Treasury by the Paymaster in 1838 and no statement was made to indicate that it was ever return to the general surplus fund of the Treasury.

The Baltimore and Ohio Railroad and the U.S. Musket Factory, 1838-1841

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. However, the company found its way further westward along the north shore of the Potomac blocked by the C & O Canal. To proceed on to Cumberland, the railroad would have to cross the Potomac to the south or Virginia shore; in order to accomplish this (1) the company had to purchase from the Wager heirs the ferry rights to the (2) Potomac; Virginia must pass a law which would permit them to enter (3) and proceed westward through that State; they must construct a great railroad bridge over the river; and 4th they must obtain a right of right 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 and Ordnance Department's experiences 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 for a right of way permission through the Musket Factory yard. Also the Armory had just spent $ /$ 40,628 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.

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 required additional construction by the Railroad company that probably came to at least $ 50,000.00.

This agreement stated in part: (see Railroad Maps No. 14 and 15) pp. 385-86,

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 [illegible] 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 follows Route B, which the agreement described:

> 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 diverages 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. 14, p385, and Map 22, p.438]

The superstructions for the support of the railway upon the parallel walls above described on route A to consist of wooden tressel (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 aforesaid.

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 22, p.438].

(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 1839-41, 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 & O 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.

MAP NO 14

"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:

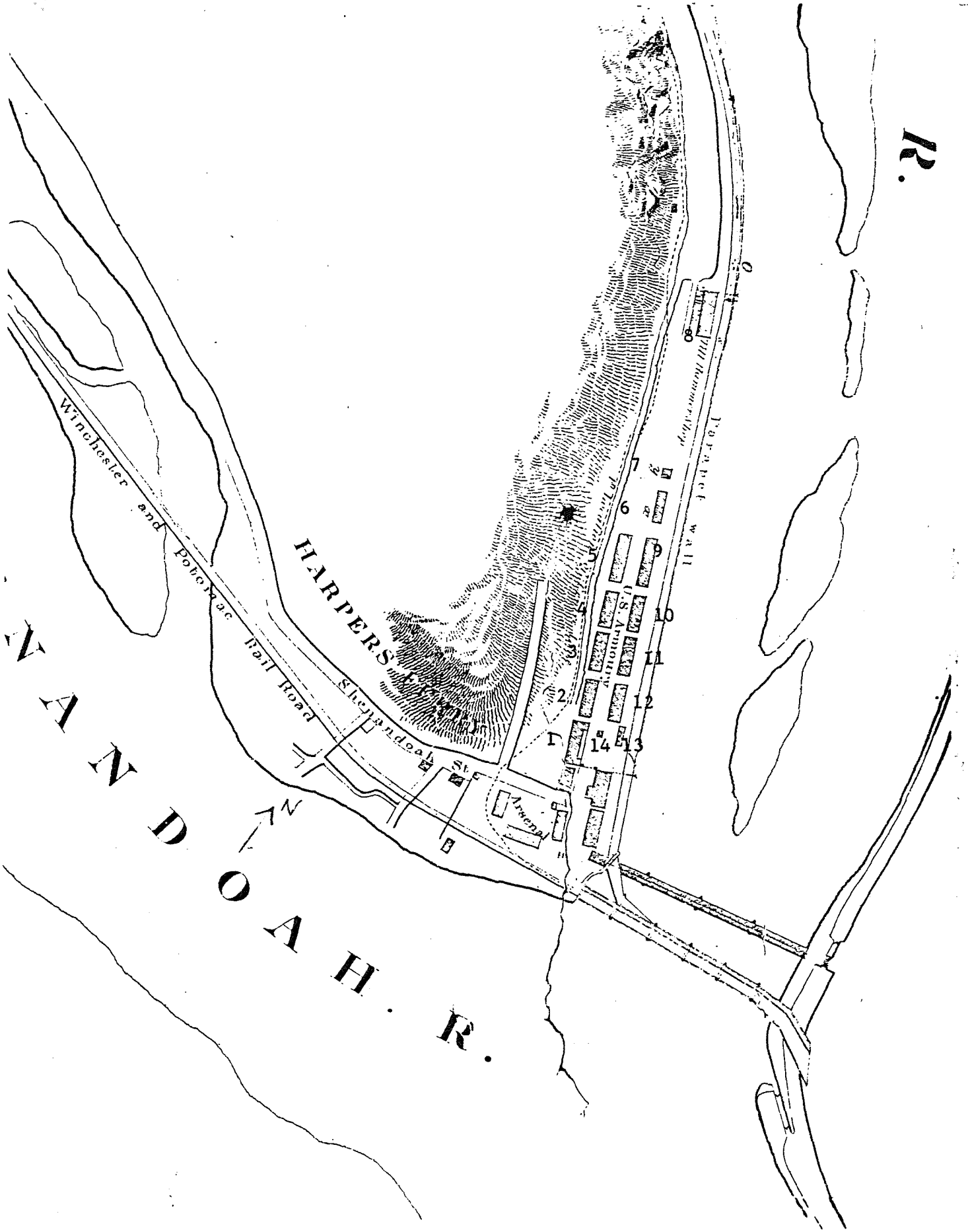
Numbers added by author.

Musket Factory Bldgs.

No. 1 Superintendent Rust's Residence. 1808-09.
No. 2 The Bell Shop , 1809-10. Water wheels & machinery
No. 3. Workshop, 1799-1800, water wheels & machinery.
No. 4. Storehouse, 1799-1800. No water wheels or machinery.
No. 5, Workshop, 1808-09, water wheels and machinery, Stocking shop in 1834.
No. 6. New workshop, 1 story brick, 1832?
No. 7.
No. 8. Tilt Hammer and Forging Shop, erected 1834-1838.
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 iron, 1834, 2 story brick?
No. 14- Former supt.'s office,

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.
Winchester and Potomac Rail Road
HARPERS FERRY
Shenandoah St.
Armory
Armoury St.
Potomac Ferry
Rail Road
1
2
3
4
5
6
7
8
9
10
11
12
13
14
N
VANDOAH R.

MAP NO. 15

"Sketch No. 2, Shewing two practicable locations for the Balto. & Ohio R. Rd. throughthe village of Harper's Ferry. Scale 100 feet to one inch."

No date, but peepared in 1837 as part of a study and agreement that was signed by the Secretary of War a d the President of the Baltimore and Ohio Railroad Company on November 3,1838, which granted that railroad a right of way along the outer side of that U.S. Musket Facrory parapet river wall that was then under construction. National Archives Record Group 121, Public Buildings Service. Drawer No. 5, Portfolio No. 5.

Numbers added to map by author.

Compare this Map with Maps No. 6,made in 1834, and Map. No.14(made in 1837).

Buildings in the U.S. Musket Factory:

1. Supt. George Rust,Jr's Quarters, 2 story brick, erected in 1808-09 and enlarged in 1828-29.

2. The Bell Shop, erected in 1809-10 as finishing shop, with water wheels and machinery, 2 story, brick, 131 feet by 45 feet.

7. Smiths' Shop, built 1810-11, 2 story, brick, 80 by 30 fe 10 forges.

8. Smiths' Shop, built 1808-09, 2 story, brick 120 by 30 feet, 16 forges.

9. Smiths' shop, built 1808-09, 2 story, brick, 130 by 30 feet, 16 forges.

10.

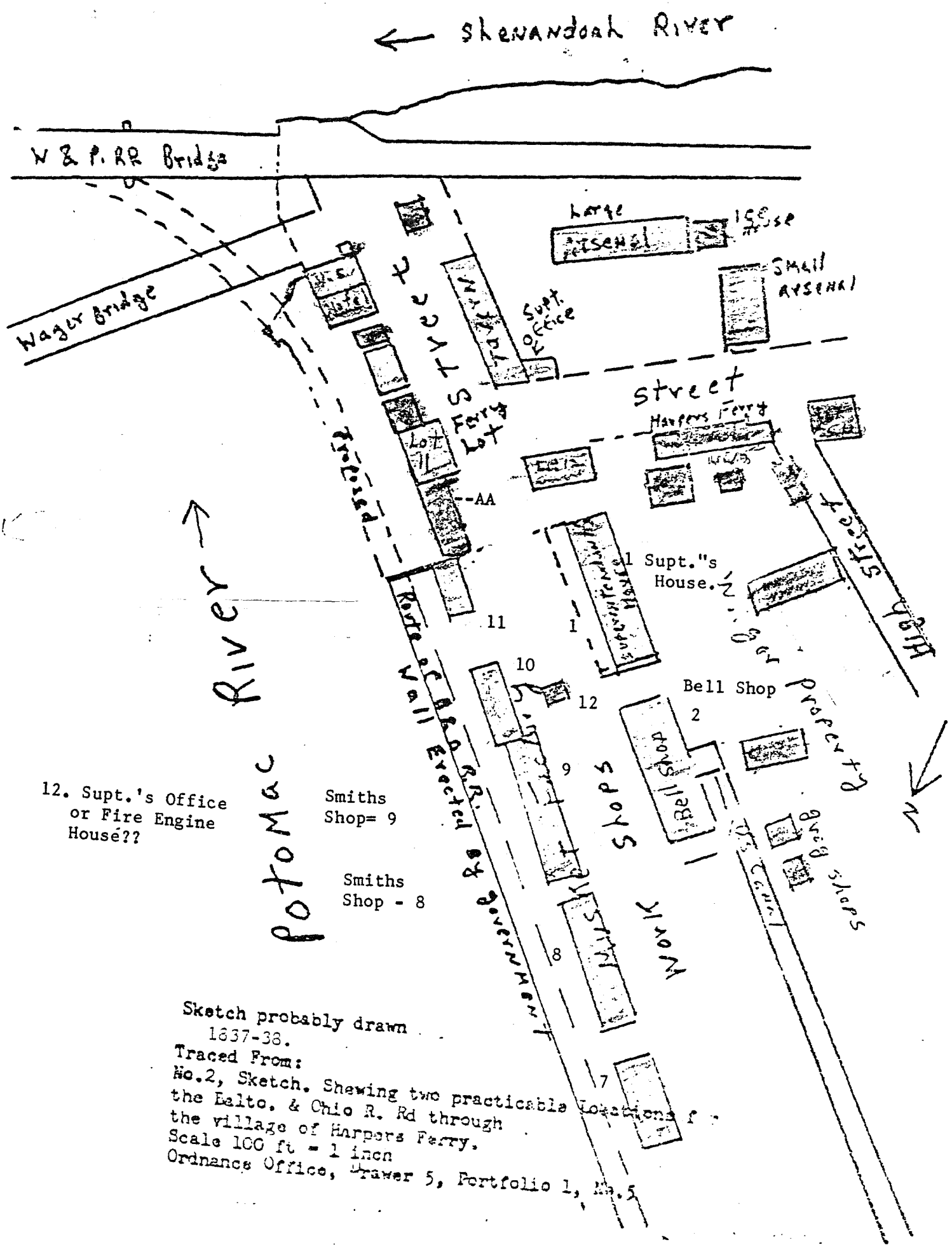
11. New Storehouse for Iron, built 1834 (?), 2½ stories, brick.

12. former office of the Superintendent. ?

Boundary line between the Wager Ferry (Lot 11 and Lot 12) and U.S. Musket Factory not accurately drawn.

Structure marked AA is actually standing on U.S. land in the Musket factory and not on Wager owned land ,as suggested on that map.

Entrance to the Musket Factory Yard was between Wager Lots No. 11 and 12.



12. Supt.'s Office or Fire Engine House??

Smiths Shop= 9

Smiths Shop - 8

Sketch probably drawn 1837-38.

Traced From:

No.2, Sketch. Shewing two practicable Locations f the Balto. & Ohio R. Rd through the village of Harpers Ferry. Scale 100 ft = 1 inch

Ordnance Office, Drawer 5, Portfolio 1, No.5

MAP NO 16

"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

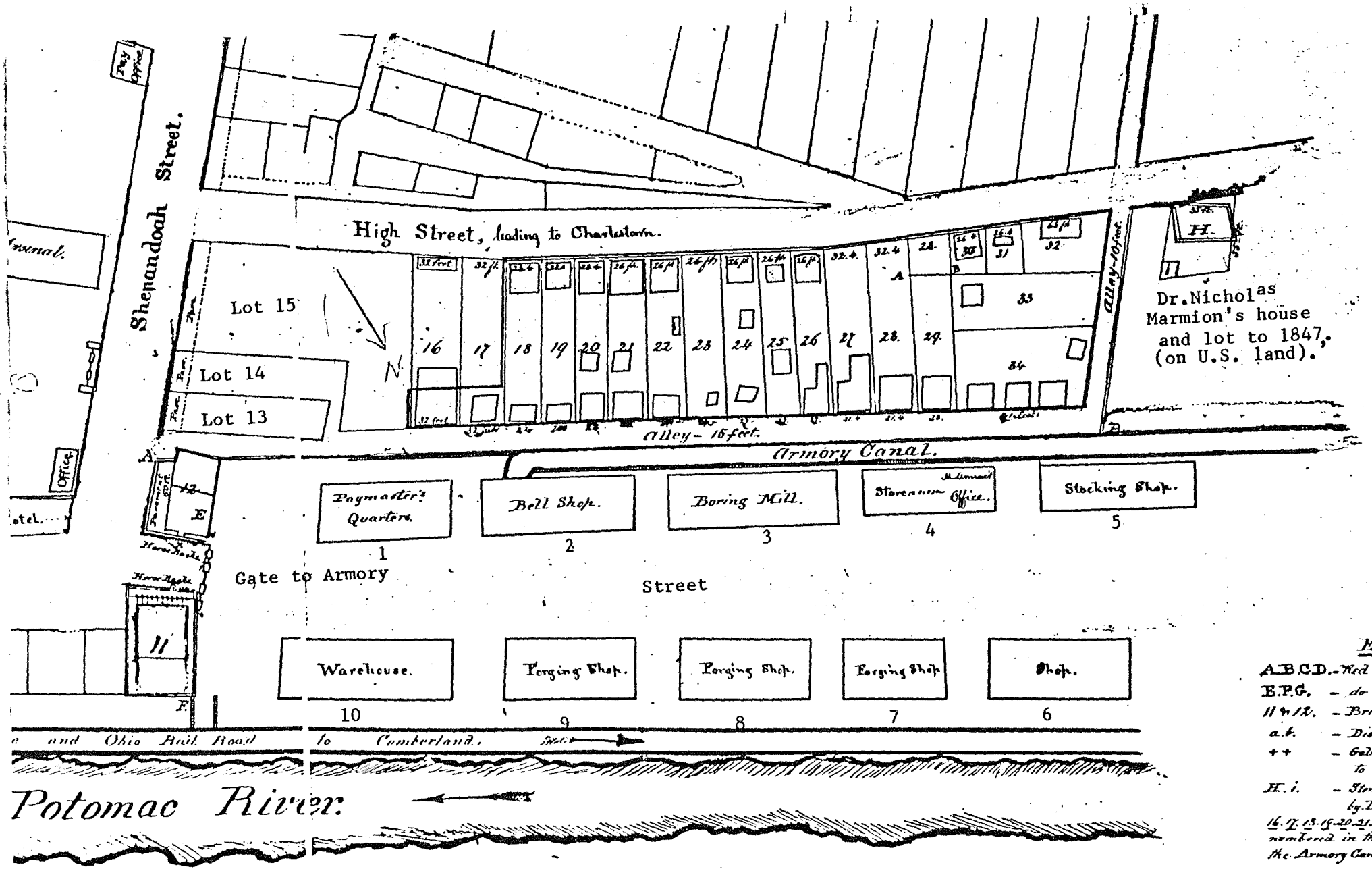
1. Paymaster's Quarters (Residence of the Superintendent 1808-09 to 1November 1844).

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

Feet 240 180 90 120 90 60 30

Copy

MAP NO. 17

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.

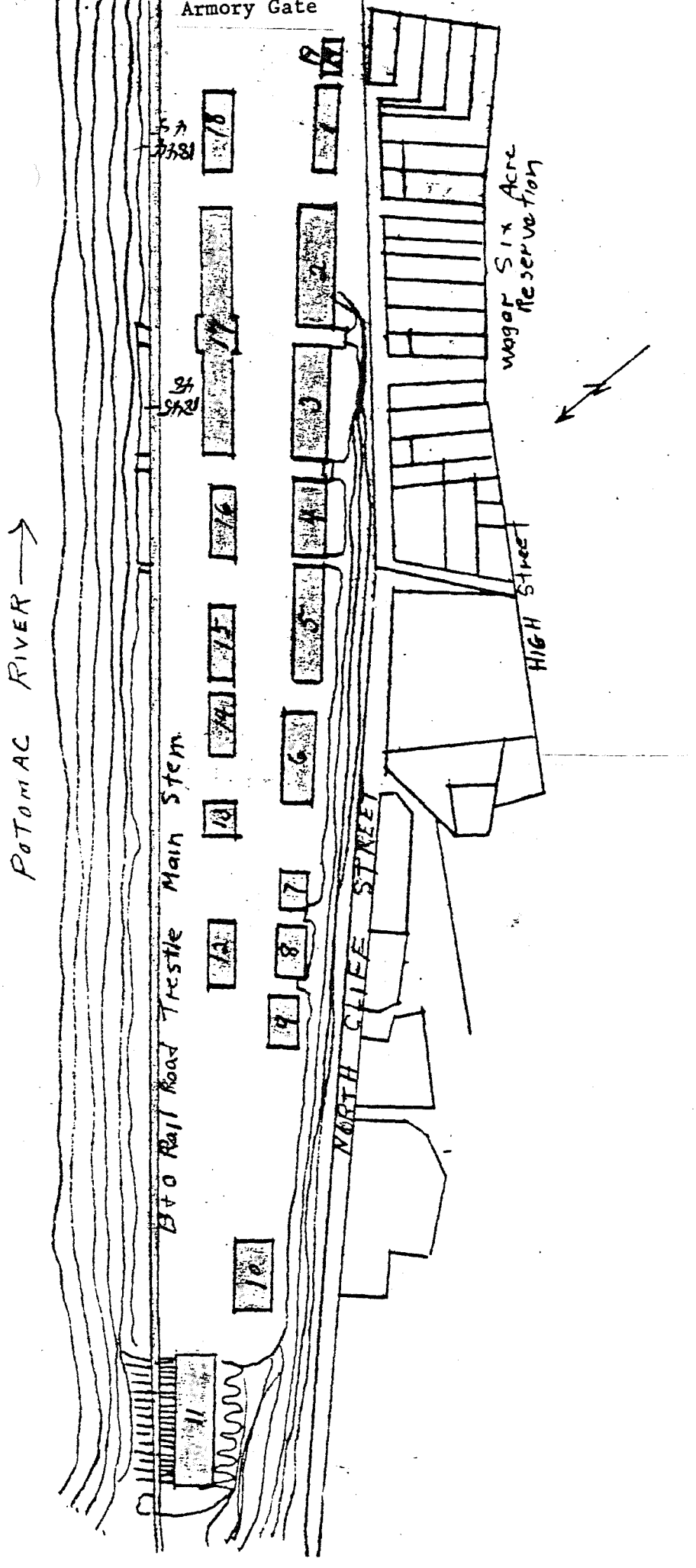
The dates of construction given after the names of buildings have been added by the writer. The number and name of each structure, however, was placed on the map by Brown in 1848.

SECTION OF THE MAP SHOWING THE U.S. MUSKET FACTORY BUILDINGS:

Structures marked "old" by Brown appear on Maps No. 6(1834), No.14 and 15(1837), and No.16(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.



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-New Workshop?)
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).

PHOTOGRAPH NO. 4

HARPER"S FERRY (From the Blue Ridge).

Drawn by W. H. Bartlett. Engraved by G. Mills.
Published for the Proprietors by George Virture,
26 Ivy Lane, London, 1839.
Library of Congress, Washington, D.C.

Harpers Ferry NHP Park Negative No. HF - 22.

The English artist appears to have taken the Currier and Ives engraving of of ca. 1835(HF- 23) as his basic data and then introduced elements that slightly altered his picture and also made it much more inaccurate than the American print. The 1835 view has been updated to show the old Wager Toll bridge and also the new Baltimore and Ohio Railroad bridge across the Potomac, the latter bridge having been erected in 1836-37. Along the river the large 2½ story brick structures with dormer windows are supposed to be Armory workshops. Photo No. 2(HF-628), painted about 1826, however, reveals that these structures had chimneys for smith forges, not dormers, in their gable roofs. Barlett thus apparently misinterpreted his source material. The engraving is useless for historical documenting purposes. Also note the rocks in the Potomic in the center distance. Other artists, "improving" on their version of this same view, developed these rocks into a a full fledged city projecting to into the river (See HF- 221, ca.1850, and HF-241,1854).

PHOTOGRAPH NO. 5

Harper's Ferry (From the Potomac Side).

Drawing by W. H. Bartlett. Lithographed by W. Radcliffe. London, published for the proprietors, by George Virture, 26 Ivy Lane, 1838. From Library Of Congress, Washington, D.C.

Harpers Ferry NHP Negative No. HF-251.

Another popular but historically useless view of the town of Harper's Ferry, made from Maryland Heights in Maryland, looking south across the Potomac River to Virginia. At the left are two bridges, the Wager family toll bridge and to the left of that the new Baltimore and Ohio Railroad bridge. The artist conveys a general impression of the area but none of the details of the buildings are accurate.

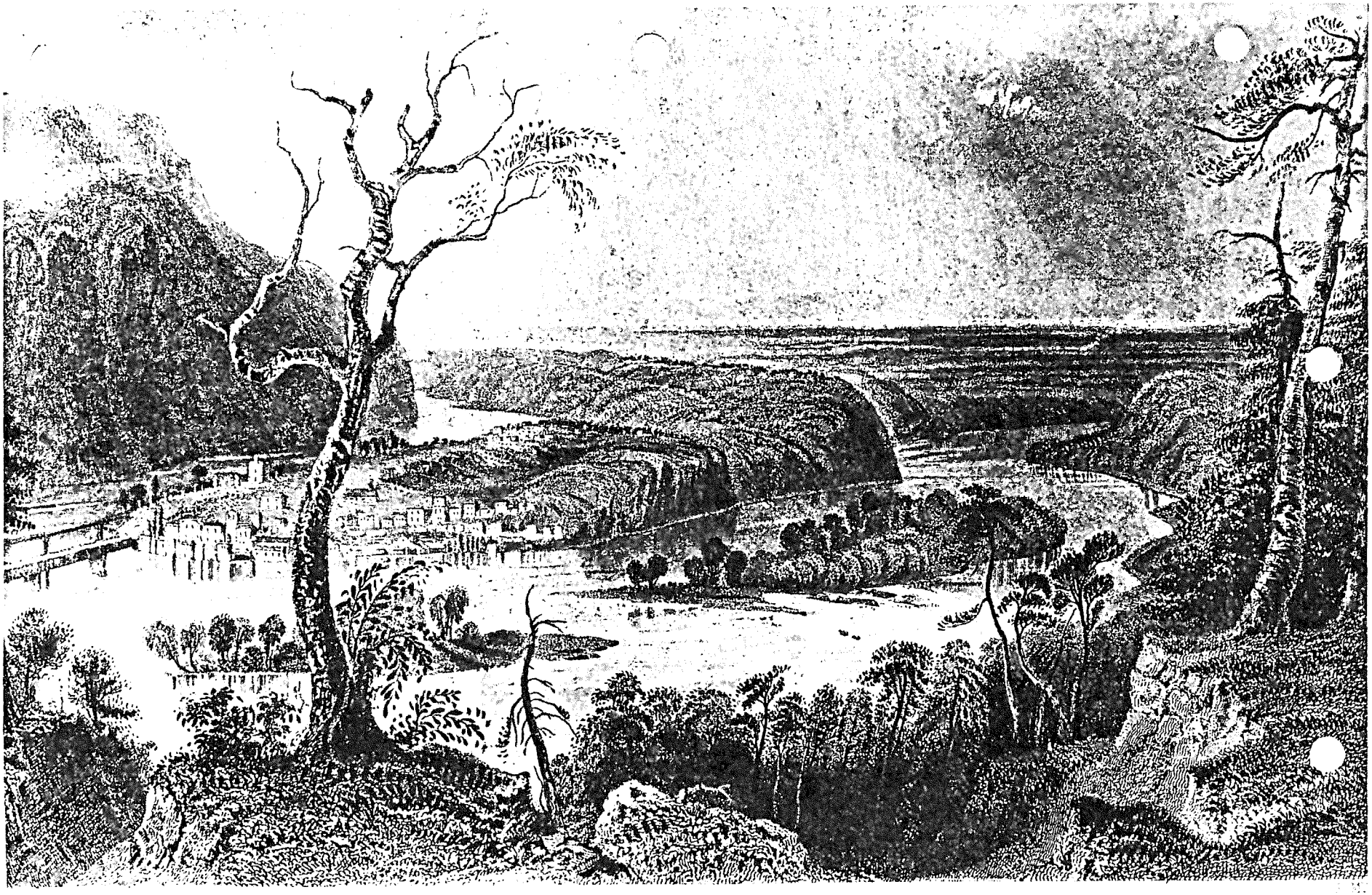


CHART NO 16

Statement of Disbursements by the Harper's Ferry Paymaster for Permanent Improvements at the National Armory, 1836-39

Special Approp.	1836	1st-3rdQrs 1837	4th Q 1837	1838	1839	1840	
Completion of Machinery in 3 shops	4,563.29		1,318.19	2,206.21	0	0	
For new improved machinery	575.49		0	3,917.48	36,056.52	0	
Tilt Hammer Shop	2,453.49		0	0	0	0	
Rifle Factory drill shop	854.03		0	0	0	0	
Purchase of private dwell-in houses	3,298.00	0	0	0		0	
River walls, trip hammer shop	0		12,244.66	15,525.02	15,835.53	0	
Special Armory Account	6,736.25		10,634.81	14,879.24	2,910.38	0	
Special Rifle Factory Account	0		2,313.61	1,034.97	0	0	
For 3 new water wheels	301.52					0	
Erecting Storehouses	0		0	1,750.00	0	0	
TOTAL $	18,782.07		26,511.27	39,312.92	54,802.43	0	

SOURCES:

(1) Serial No. 304, Document 186, p.3- for 1836

(2) Serial No. 344, Document No. , pp.392-395, 4th quarter 1837 to 3rd qr., 1838.

(3) Serial No. 363, Document No. 2, 90-93, 4th qr. 1838 to 3rd qr. 1839.

(4) Serial No. 375, Document No. 1, pp.74-75, 4th qr, 1839-3rd qr. 1840.

From Annual Reports of the Chief of Ordnance to the Secretary of War and to Congress for 1836 to 1840.

CHART NO 17

STATEMENT OF THE AMOUNT OF THE DISBURSEMENTS BY THE PAYMASTER FOR PERMANENT IMPROVEMENTS AT HARPER'S FERRY ARMORY, Extracted from Annual Reports of Chief of Ordnance to the Secretary of War.

APPROPRIATION	1837 4th	1838 1st	1838 2nd	1838 3rd	1838 4th	1839 1st	1839 2nd	1839 3rd	1839 4th	1840 1st	1840 2nd	1840 3rd.	TOTAL
Armory Armory Special	10,634.81	1,016.51	2.234.78	4,819.01	6,808.94	2,033.55	351.02	525.81	0	0	0	0	$28,424.43
Rifle Factory	2,313.61	483.22	432.91	118.84	0	0.	0	0	0 (Balance left-$04.55)				3,348.58
River Walls, Tilt Shop	12,244.66 (4)	288.27	8,450.00	4,125.00	2,661.75	3,652.50	2,093.25	0	10,089.78	0	0	0	43,605.26
Completion of Machinery	1,318.19	134.73	9.74	1,223.15	838.59	0	0	0	0	0	0	0	3,524.39
New Machinery	0	0	0	0	3,917.48	4,379.75	7,387.99	12,386.26	11,902.52				39,974.00
Erecting Storehouses	0	0	0	0	1,750.00	0	0	0	0	0	0	0	1,750.00
Repairs & Improvements	-	-	-	-	-	-	-	-	-				
TOTALS:	26,511.27	1,922.73	11,127.43	10,286.00	15,976.76	10,065.80	9,832.26	12,912.07	21,992.30	0	0	0	$120,626.66
Annual Total	26,511.27		$ 39,312.92				$ 54,802.43				0		

Grand Total: $ 120,626.62.

Sources:

1. Serial No. 344, Document 2, pp.392-395, ,4th qr.1837, to 3rd qr.1838.
2. Serial No. 363, Document 2, pp. 90-93, 4th qr,.1838 to 3rd quarter, 1839.
3. Serial No. 375, Document No. 1, pp.74-75, 4th qr. 1839-4th quarter,1840.

(4)-R.G. 217- 2nd series, 2092-4th quarter-1837- $ 12,244.66 for

Constructing River wall	$ 3,984.97
Making embankments	3,351.00
Constructing stone arches	1,125.00
Constructingstone walls	56.96
Complete tilt shop	2,024.20
Making Canal Water tight	1,702.53
Total	$ 12,244.66.

CHART NO. 18

CASH FLOW FOR PERMANENT IMPROVEMENTS FROM US. TREASURY DEPARTMENT TO THE PAYMASTER AT THE HARPER'S FERRY ARMORY, VA.

1836- 41

Year	Appropriated During Year	Amount withdrawn by requisition from U.S treasury during year.	December 31- Balance in Treasury	Remarks:
1836	$ 77,897.00	$ 25,838.00	$ 52,059.00	** (1)
1837		47,059.00	5,000.00	(1836 funds) (2)
1837	8,569.00	8,569.00	0	Rifle Factory.
1837	53,743.00	53,243.00	500.00	River Wall, Trip Hammer Shop.
1837	62,312.00	$ 108,871.00	5,500.00	Total 1837
1838		5,000.00	0	(1836 funds (3)
1838		500.00	0	River wall, Trip Hammer Shop.
1838	20,000.00	20,000.00	20,000.00	New machinery-none used in 1838
1838	20,000.00	25,500.00	0	Total 1838
1839	+	19,774.25	225.75	New Machinery (4)
1840		225.74	0	New Machinery (5)
1840	50,000.00	8,000.00	42,000.00	Repairs & Improvements
1840	50,000.00	8,225.74	42,000.00	Total 1840
1841		42,000.00	0	1840- R. & I. funds
1841	38,000.00	20,000.00	18,000.00	Repair & Improvements
1841	38,000.00	62,000.00	18,000.00	Total 1841(6)
Total	$ 248,209	$ 250,208.00		

1. Serial No. 303, Doc.119, p.3.
2. Serial No. 325. Doc. 92, p.3.
3. Serial No. 346, Doc. 104, p.3.
4. Serial No. 365, Doc. 107, p.3.
5. Serial No. 383, Doc. 74, p.3.
6. Serial No. 402, Doc. 62, p.3.

Form "Statements of the appropriations for the Serice of the War Department for the years 1836 to 1841, made pursuant to the provisions of the second section of the act of Congress of 1st May 1820, entitled "An Act in addition to the several acts for the establishment and regulation of the Treasury, War, and Navy Departments'" Extracts for the National Armory at Harper's Ferry, Va.,

+ $ 137.06 in funds for completion of new machinery, voted May 14, 1834, was turned into the U.S Treasury surplus fund in 1839.

** Balance in treasury on Dec. 31, 1835 of earlier appropriations was $ 2,800.00.

Repair and Improvements at the Musket Factory, 1840-41:

In the special estimates for 1838, the Ordinance Department requested $ 16,130.00 to make permanent improvements at the U.S. Armory and the rifle factory.[1] Congress refused to appropriate any money for this purpose but did provide, on July 7,1838, $ 20,000.00 to construct new machinery.[2]

The special estimate for the service of the Ordnance Department during the year 1839 requested the sum of $ 50,000.00 for permanent improvements at Harper's Ferry. Col. George Bomford explained the need for these funds writing:

> The strongest necessity exists for the improvement of the public buildings at Harper's Ferry Armory - they are at present exceedingly unsightly and unworthy of a National Establishment and many of them, being mere wooden sheds, are besides liable to accident from fire to which they are peculiary exposed by the passage of locomotive engines on a railroad through the public lands very near to the public buildings. The present estimate is proposed as the commence of a system of improvement which shall put the Armory on a footing suitable to its importance. Of the sum estimated for it is proposed to apply to the buildings & machinery of the
>
> musket armory $ 35,400
> of the rifle factory 14,600 $ 50,000.00.[3]

Congress again failed to appropriate funds for permanent improvements during the year 1839.

1. National Archives Record Group 156, Entry 129, Vol. I, p.211. $ 4,491 of the total was for work at the rifle factory: 3391 to erect a new workshop and $ 500 to slate two roofs; the balance, $ 11,548 for work at the Armory
2. U.S. Statues at Large, V, p. 267.
3. National Archives, R.G. 156, entry 129, Vol. II, p.1, 6-7.HFNHP Reel 20, Vol. 6, pp. 622, 624-625.

From 1830 to December 31,1838, Congress had appropriated a grand total of $ 301,687.00 for making permanent improvements at the Harper's Ferry Armory. In the period 1837-39,the Armory Paymaster worked hard to expend all of these funds and to clear his books.During 1839 the last of these moneys was used up and only $ 2,962.08 reverted to the surplus fund of the U.S. Treasury [4]. No money would be available for repairs and improvements in 1840. (See Chart 18-page 393).

Accordingly Chief of Ordnance Bomford requested $ 50.000.00 in the special estimates for 1840 to make repairs and improvements at the National Armory at Harper's Ferry.

He imformed Congress: "No appropriation having been made on the estimate of last year for gradual imporvement of this establishment and the same necessity still existing it is proposed to apply to the construction of a forge, Grinding mill & other other structures at the musket factory; $ 35,400. At the rifle factory; 14,600."

$ 50,000" [5]

This time Congress acted on Bomford's request and on July 20,1840, late in the construction season, appropriated $ 50,000.00 for repairs and improvements at the Harper's Ferry Armory. [6]

4. $ 137.06 in appropriations made in 1834 for completion of the machinery and $ 2,825.02 in apprppriation made in 1834 "for erecting storehouses" reverted to the Treasury Department in 1839. Serial No. 365,Document 107,p.3.
5. National Archives G.G. 156, Entry 1 29, Vol. II, p.9, 13-14; HFNHP Reel 20, Vol. 6, pp. 627,628-29.
6. U.S. Statues at Large, V, p.406.

In the Special estimate for 1841, Chief of Ordnance Bomford asked for $ 38,000.00 for repairs and improvements and new machinery at the Harper's Ferry Armory. "The public buildings," he explained," require extensive repairs" and "much new machinery for the improved method of fabricating arms of the model(musket) recently adopted" was also needed. [7]

Congress again consented and on March 3,1841 appropriated the requested $ 38,000.00 for repairs, improvements, and new machinery. [8]

During during the period July 20,1840 to December 31,1 841, a total of $ 88,000.00 in new funds funds became available to make repairs at the Harper's Ferry Armory; Chart No. 18, page 393, indicates that Armory Paymaster withdrew $ 70,000.00 from the Treasury in 1840-41, leaving only a balance of $18,000 available at the Treasury for use in 1842 . The question arises on how this money was utilized.

The Armory was now(1840) in serious fiscal difficulty; Congress had cut back on appropriations for the manufacture of arms during the late 1830's. Despite orders from the Ordnance Department to reduce his work force and cut costs, Armory Superintendent Edward Lucas,Jr. had failed to do so, but had continued to keep his large work force on the pay roll. On December 20,1838, the Ordnance Department had reminded Rust that his "national armory fund was largely indebted to other appropriations, which had been used for the manufacture of arms , whilst there remained in the Treasury but $ 43,000 to meet this debt and all the expenses of the fourth quarter. He was told that it was absolutely necessary to make a gradual reduction in operations of the armory and the number of people employed there." [9]

7. National Archives Record Group 156, Entry 129, Vol. 11,18, 23; NFNRP Reel 20, vol. 6, p. 631,633.

8. U.S. Statues at Large, Vol. V, p.434.

9."Memorandum relative to operations at the National Armories, May 29,1841, by A. Mordcai, Captin of Ordnance, Ord. dept., in Serial No. 392, Document No. 1, p.52.

Lucas, however, did not quickly enough respond to correct the situation and by February 13, 1840 "The outstanding debts of the armory, which there were no funds to meet, amounted to $ 30,351.77, besides the December and January rolls remaining unpaid, say $ 15,000 more."[10]

On April 1, 1841, it was reported that "After exhausting the appropriation of 1840, there remained due at the end of the the first quarter of 1841, $28,000, in addition to $ 33,000 required for paying the first quarter's rolls."[11]

In 1841 Edward Lucas, Jr (and also the civilian superintendent of the Springfield Armory in Massachusetts) was removed from office and replaced by Ordnance Officers of the U.S. Armory.[12] Thus during the first three quarters of 1841 the sum of $ 48,887.17 was spent to pay for "Work performed prior to 30th September, 1840, payment for which was deferred till 1841."[13]

According to the Ordnance Departments annual reports to Congress $ 18,089.78 was expended at Harper's Ferry for repairs and improvements during the year October 1, 1839 to Sept. 30, 1840 and $ 74,000.87 for similar purposes during the year ending Sept. 30, 1841.[14] The records of the Harper's Ferry Paymaster for the fiscal year October 1, 1839 to September 30, 1840 indicate that the $ 18,000 was spent chiefly on repairs.[15] His vouchers for the year October 1, 1840 to September 30, 1841,

14. Serial No. 378, Document 175, p. 2; Serial No. 403, Document 157, p. 2;

15. R.G. 217- Files 4246, 4429, 4878, and 5252.

10. Ibid. In November 1838, the number of persons employed (exclusive of carpenters and laborers, employed chiefly on buildings and improvements), was 318. In 1839 the average number was 275, and in 1840 251, the reduction being made chiefly in the last quarter of that year.

11. Ibid.,

12. Annual Report of the Chief of Ordnance to the Secretary of War for year ending Sept. 30, 1841, in Serial No. 395, Document 1, p. 103. See M.R. Smith, Harpers Ferry Armory, pp. 259 -268 for further details on Lucas in 1841.

13. Report of the Secretary of War to Congress for the year ending 30th Sept. 1841, Serial No. 403, Document 157, p. 2.
Springfield Armory's like debt was only $ 17594.41.

however, reveals a considerably different picture of the use of funds than that presented in the 1840-41 report to Congress. Thus of the $ 9,842.88 said to be spent for repair and improvement in the 1st quarter of 1841, an examination of the abstracts reveals that $ 7,191.20 went to pay off old debts for the manufacture of arms and only $ 2,651.66 went to pay for services or material really related to repairs and improvements.[16] In the 4th quarter of 1839, $ 8,000.00 "for labor" in August and September had been charged against the repair and improvement account.[17] A note on the voucher for the 1st quarter of 1841 states that the Ordnance Department letter of March 22,1841 granted the Paymaster authority to charge these old debts to the R & I fund.[18]

Of the $ 32,334.21 charged against R. and I in the 2nd quarter on Abstract A, of 1841, approximately $ 6,348.99 was for proper R & I items and $ 25,985.22 for the production of arms old debts. Abstract D for the same quarter included $ 10,335.90 for "Repair and Improvement prior to March 4,1841, which also included large sums for the purchase of coal and cast iron.[19] The vouchers for the 3rd quarter of 1841, indicated that only about $ 3,791.56 went for proper R.and I. projects and the balance was used to pay off the old debt.[20]

In short, then, the cost over runs by Superintendent Lucas appear to have been considerably greater than the reported $ 48,887.17 and that

16. R.G. 217- File 5785, Abstract C, 1st quarter of 1841.
17. R.G. 2170 File 5624- Abstract B-. Only about $ 300.00 was apparently spent on proper R & I objects in this quarter.
18. R.G. 217- 5785-Abstract C.
19. R.G. 217- 6195
20. R.G. 217- 6465.

of the $74,000.87 said to be spent for Repair and Improvement in 1840-41, perhaps as little as $ 12,792.21 went for such the projects, and the balance, $ 61,208.66 to pay off cost overuns on the manufacture of arms. Thus the debts left by Superintendent Edward Lucas, Jr. may have actually been closer to $ 110,000 than the offically reported $ 48,887.17. In like vein that actual R. & I project at the armory during 1840 and 1841 expenditures appears to have been about $ 31,000, a considerably more modest sum than the offically reported $ 92,000.

Work at the U.S. Musket Factory during the period 1840-41 was thus limited, with one exception, to repair of the structures. The one exception was the start that was made on the foundations of the first of a whole new generation of architecturally impressive shops that were to be constructed of brick and cut stone in the 1840's and 50"s. The first of these structure, a warehouse, was designed the new superintendent Major Henry K. Craig. Construction on the building got underway in the 4th quarter of 1841 and the mason George Mattingly was paid $ 1,833.82 on November 22,1841 for erecting the foundations.[21] (This is Bldg. No.10 on Map No. 16, page 387, and Bldg. No. 18 on Map No. 17, p.388.)

Repairs made at the U.S. Musket Factory in 1840-41 included the following projects:

1. To the mason John Lambaugh, Sept. 16, 1841, $ 42.00, for building brick wall front and back with 2,040 brick and laying 130 feet of brick

21. R.G. 217- file 6718-Voucher 84.

cornice at the Superintendent's Quarters(Bldg. No. 1 on Map No. 16).[22]

2. 3rd quarter,1841, the slater William Bayley received $ 317.20 for slating the roofs of the Superintendent's residence and of the musket factory buffing or polishing shop.[23]

3. The tinsmith Benjamin Snook was paid $ 63.99 for putting"spounting" on the Superintendent's quarters and workshops during the 4th quarter of 1841.[24]

4. In the 3rd and 4th quarters of 1839, the forebay of the Bell Shop (Bldg. No. 2 on Maps 14,15,16,and 17), had been rebuilt,apparently of stone and brick,by the masons Johnson Garrett and Peter Litle at a cost of $ 514.39.[25]

Total of repair, about $ 937.58.

William Bayley had also slated the roof of the Musket Factory Annealing Shop, 2,380 square feet of slate, for $ 238.00 in November 1838.[26]

22. R.G. 217-6465-V.59.
23. R.G. 217-6465-V. 79.
24. R.G. 217-6718-V.3.
25.R.G. 217- 3971- 5,7, 56, 66; File 4246-V. 11 and 15.
26.R.G. 217- 3424-V. 46B, dated Nov. 30,1838.

EXPENDITURES ON THE PHYSICAL PLANT OF THE U.S. MUSKET FACTORY ON THE POTOMAC, 1836- 1841:

Improvements	Description	Costs
Buildings:	Tilt Hammer Shop for welding barrels, completion of	$ 9,109.49
	4 shops(1836 funds) probably built.....	1,821.45
	3 storehouses and shops(1836 funds).....	9,050.00
7 new buildings:		$ 19,980.94
9 ft base,3 ft top River Wall	1,624 feet long, 14-15 feet high Stone wall and fill	40,628.00
Repairs to Bldgs.	Completion of machinery, repair of walls and slating funds, and repairs in 1840-41.....	11,040.13
Sinking well at grinding mill		731.31
Total Bldgs. and grounds:		$ 72,380.38
For new improved machinery at Musket Factory		$ 43,725.00
Total,Plant and Machinery:		$ 116,105.38

New buildings erected(1834) tempering shop (probably)
polishing shop
2 houses for fire engines.

1836 --Coal House at Tilt Hammer shop, $ 650.00
Storehouse for Condemned Parts $ 3,400.00
Forge for Scrap Iron $ 5,000.00

Arsenal Square, Blocks A and B, Shenandoah Street

Inspector of Arsenals and Armories, Lt. Col. George Talcott made another inspection of the National Armory at Harper's Ferry in 1836 and found the Arsenals still jammed full of arms, with the Winchester and Potomac Railroad now running through the Arsenal Square, the danger from fire was also much increased. He reported

> The general aspect of the Armory, (its police and internal affairs) is much the same as last year, affording room for great improvement.
>
> The condition of the public property in deposits is good- but the want of adequate security against fire renders it proper to distribute the Arms to southern and Western Arsenals... (1)

Instead of building their depot as originally planned on the south side of their tracks on Lots 1 to 7, Block A, Shenandoah Street, the Winchester and Potomac Railroad Company, on May 13, 1835 purchased Tract No. 3 on the Island of Virginius for $4,650/2 and there constructed their depot and warehouse in 1836. The railroad facilities remained at Tract 3 until 1847.

Sparks from the wood-burning engines of the railroad caused many fires in the town of Harper's Ferry and at the armory from 1836 to 1846.[3] the company officals refused to take any measures to correct the situation until the United States took steps to bring the Railroad into court. In April 1846, the Solicitor of the U.S. Treasury informed the Secretary of War that the President of the Winchester and Potomac Railroad had finally signed an agreement to use spark arrestors on the locomotives and also to burn coal.[4]

1. Inspection of Harper's Fery Armory on the 21st to the 25th June 1836, National Archives R.G. 156, Special File Box No. 26, HFNHP Photostat Collection, Vol. I, p. 56.
2. Deed of B. & S., May 13, 1835, Deed Book 20, pp.338-339, Jefferson County Courthouse, Charlestown W.Va.
3. Virginia Free Press, March 16, 1837, p.2, c.3; Proceedings of a Board of Officers, February 25, 1842, HFNHP Photostat Collections, Vol. 3, pp.30-31. Officers' Report published in Serial No. 404, Document 207, p.43.
4. April 23, 1846, Reel 23, V. 8, p.750

Repairs and Improvements at Arsenal Square 1836-41

The two brick Arsenal buildings were not worked on extensively during this period.[1] On August 14,1840 the brick layer Jospeh Spencer was paid $ 30.06 for his services and those of his "tender". $ 4.81 of this amount was for 2½ days work at" repairing the arsenal fence."[5]

In July 1838 the large flagpole that had been erected on Arsenal Square in 1827 was taken down and replaced by a new one at a cost of $ 112.25.[6] The carpenter Jesse Schofield make and put up the new pole ($ 91.50); the painter John P. Kennedy received 75 cents for "gilding the ball" of the flag staff," and Lewis Wernwag was paid $ 20.00 for the use of chains and ropes as well as his services in taking down the old pole.

A new privy was also constructed on the Arsenal Square in the spring of 1841. Jerry Harris received $ 9.14 for plastering 91 4/th square yards on the new privy and in repairs to the arsenals.[7] John P. Kennedy was paid $ 6,70 for painting 83 7/9 square yards, two coats, on the new privy.[8]

The Superintendent's Office, a one-story brick structure located on Lot 1, Block A, Shenandoah Street, at the northeast corner of the square, was whitewashed by John Starrett for $ 10.12 in 1841.[9] The slater George W. Tracey was paid $ 11.81 in 1841 for "repairing slate roofs of Supt.'s Office, polishing shop, and a dwelling house."[10]

5. R.G. 217-5252- 3rd quarter of 1840.
6. R.G. 2729-Voucnhers 4A, 6A, and 7A.
7. R.G. 6195- 71-May 26,1841.
8. R.G. 6195,- 121- dated June 30,1841.
9. R.G. 6195- 114, 2nd quarter of 1841.
10. R.G. 217- 6195- 60- paid 3rd quarter of 1841.

The chief repairs and improvements on Arsenal Square during the years 1836 to 1841 were made to the Paymaster's Office, which was located on Lot. No. 2, Block B, Shenandoah Street. In August 1839 the carpenter John Hyatt repaired the Office at a cost of $ 11.00. For this he made and hung two panel doors, cut and fitted two door sills, patched the floor, repaired windows, put a door on the wash house and a lock with three bolts.[11] With the office in good shape, John P. Kennedy, also in August 1839, received $ 35.92 for painting 449 square yards in the Paymaster's "office room".[12]

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 18 and Map. 19) pp. 405-406.). Talcott forewarded the plans and specifications to Superintendent George Rust. Jr. on May 27,1840.[13] Mills received $ 10.00 for his services.[14] 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.

14. R.G. 217- 5252- V. 60, dated August 26,1840.

11. R.G. 217- 3971- 50, dated August 24,1839=this was on a bill that totalled $ 211.60 for carpenter work.
12. R.G. 217- 3971- 48, dated Aug.23,1839. This was on a bill that totalled $ 46.92 for painting.
13. For the correspondence relating to the vault project see:

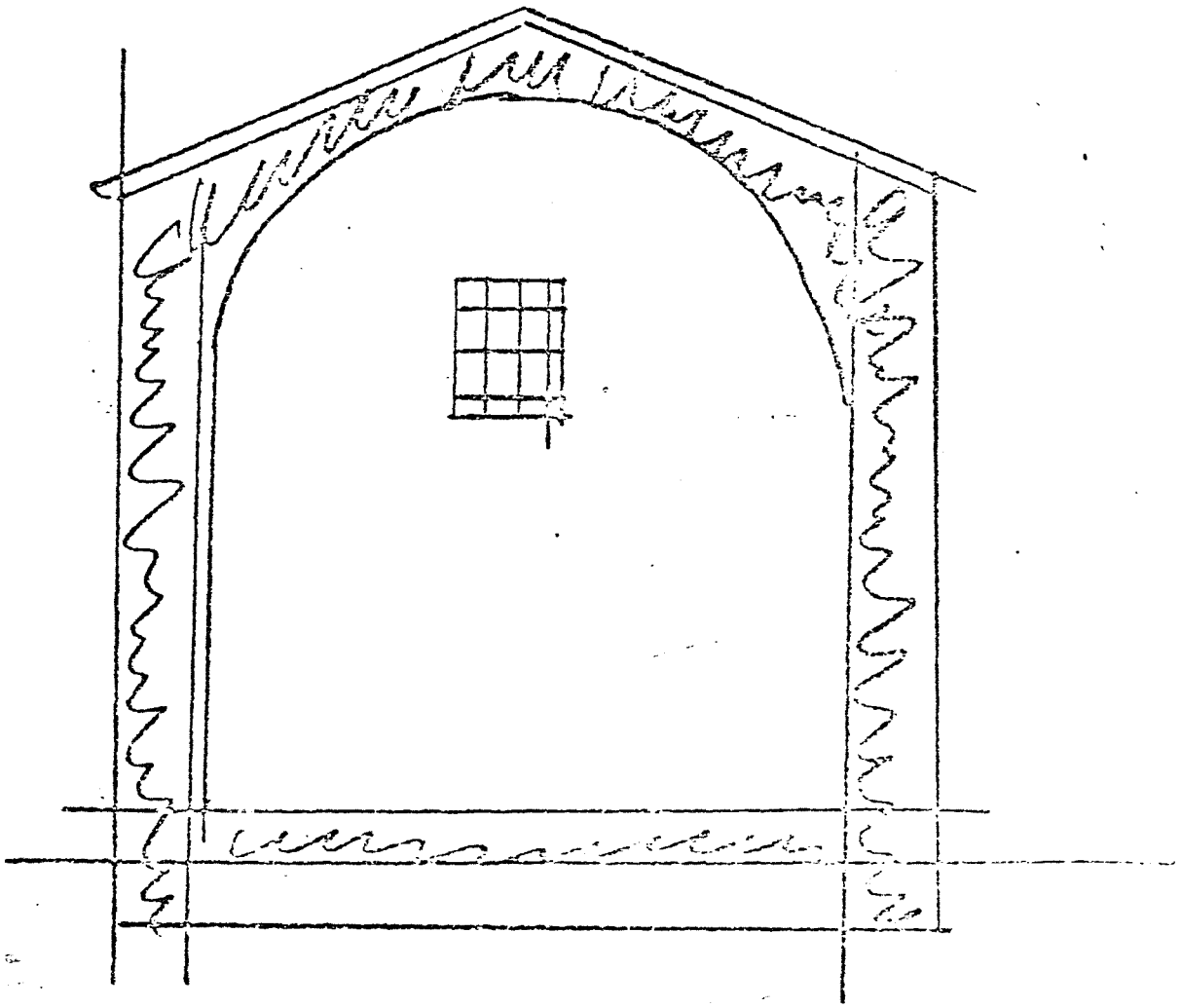
Col. George Talcott to Supt. Lucas, May 8,1840, Reel 16 V. 1, p. 135; Lucas to Talcott, May 15,1840, Reel 12, V. 7, pp. 670-79. Lucas to Talcott, May 8, 1840, Reel 23, V.1, p.39; Talcott to Lucas, May 27,1840, Reel 16, V.L, p.141. The floor plan and elevations of the vault are enclosed in the last item.

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 Buildling,etc, as the latter Mills had died March 3,1855.

Plan No. 18

By Robert Mills,
May 1840

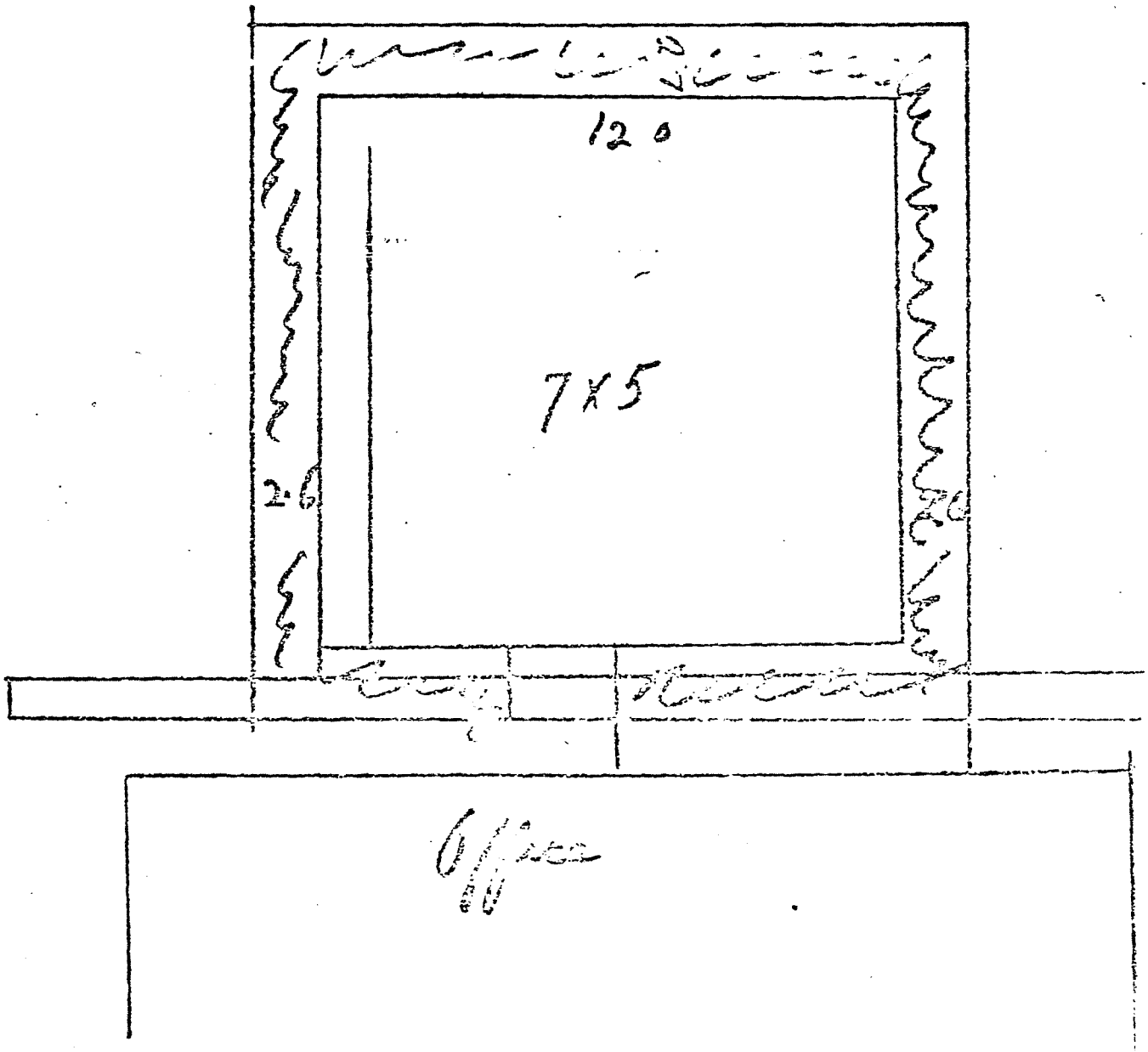
PLAN OF VAULT TO BE ERECTED ON PAYMASTER'S OFF
NATIONAL ARCHIVES R.G. 156
LETTER FROM COLONEL TALCOTT TO COLONEL
LUCAS, MAY 27, 1840.
R. 16, v. 1, p. 141



Plan No. 19

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



MAP NO. 20

"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 1844 Map showing Arsenal Square in Detail.

Numbers on Arsenal Square structures and also on privately owned Wager lots that abuted on the square, have been added by the author.

No.1. Superintendent's Office. One-story,brick, 28 by 21 feet, built at dwelling, altered for office in 1832.
No.2. Large Arsenal, 2-story,brick, 125 feet by 32 feet, no cellar, erected 1799-1800.
No. 3. Small Arsenal, 2-story with cellar, brick, 68 feet 36 feet, erected in 1806-07.
No. 4. Pay Office, 1-story,brick, 24 feet by 18 feet, erected in 1822. Brick vault, 7 by 5 feet added to rear of office in 1840.
Thesefour structures had slate roofs.

Note that the 1834 gate to Arsenal Square, located in the east arsenal wall and opening on to Wager Lot No. 3, had been walled up. The gate to Arsenal Square was relocated from its original position on the east side to the Shenandoah Street(north) front in June 1844.

The Shenandoah Street fence, during the period 1810-1858, was constructed of condemned musket barrels. Note how this street fence enclosed both the Supt.'s Office and the Pay Office. Also note that there was no sidewalk or pavement along the arsenal(south) side of Shenandoah Street. A stone wall at the west end runs from the Pay Office south to the W & P. R.R. stone wall along the north side of its track, thus rending Arsenal Square a secure area to protect the stored arms from fire and theft.

In 1852 it was reported by the Armory inspector that the surface of the Arsenal yard was from 1½ to 4 feet below the level of Shenandoah Street. In the years 1857-59, the level of the yard was raised to that of the street by filling and grading.

Shenandoah River.
Viaduct.
B&O.R.Road.
Winchester & Potomac Rail Road.
1844 MAP
lot 2
Lot 3
Site of old Gate
Arsenal.
2
lot 4
ARSENAL SQUARE
Hotel.
Lot 5
Hotel.
1
Office.
New Gate
3
Arsenal.
4
Pay Office
Shenandoah Street.
Potomac River.
Baltimore and Ohio Rail Road
To Cumberland.
U.S.MUSKET FACTORY
Lot 13
Lot 14
Lot 15
Warehouse.
Paymaster's Quarters
Forging Shop.
Bell Shop.
High Street, leading to Charlestown
16
17
18
19
20
21
Feet 240 180 90 120 60

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 in that month, apparently for laying the stone foundations of this structure.[15] 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.[16] The structure was completed in September, as George W. Tracey was paid on the 30th of that month the sum of $ 13.82 "for slating 616 feet of roof of the new vault."[17]

Spanish brown was used "for coloring outside of the vault."[18]

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.[19]

The vouchers that can be definitely linked to the construction of the new fireproof vault in 1840 total $ 233.82.

Except for the addition of the vault to the Paymaster's Office, Arsenal Square appears to have remained unaltered from its arrangement in 1834(See Maps 7 and 8, pp. 276-277) during the period 1836 to 1841. A comparsion of the 1834 maps with Map No. 20(p.407),which was drawn in 1844,

15. R.G. 217- 5252- Voucher 95, dated Sept.8,1840.
16. R.G. 217- 5252-V. 95- September 8,1840.
17. R.G. 217- 5252-V. 112-Sept. 30,1840.
18. R.G. 217- 5624- 82. To John Rockenbaugh, October 4,1840- 75 cents for 6 lb(?) spanish brown at 6½ cents.
19. R.G. 5252- 134., Sept. 30,1840.

reveals that Old Arsenal Square was about to undergo an extensive facelifting. Structures such as the Stock House and Lumber Shed, both located along the east boundary line, and the Ice House near the two Arsenals in 1834, were to be removed, probably in 1842-44, because they were a possible fire hazard to the brick arsenals. The old gate in the east wall was to be walled up and the new entrance located in the north fence line so as to open on to Shenandoah Street. The Paymaster's vouchers indicate that the Shenandoah Street gate was constructed in June 1844.[20] (The revision of Arsenal Square, 1842-44, will be discussed in detail in Volume II).

Expenditures for Repairs and Improvements at Arsenal Square from 1836 to 1841 were approximately as follows:

Year	Project	Amount
1838	New Flag Pole	$ 112.25
1839	Paymaster's Office Repaired....	46.92
1840	Masonry repairs to Arsenal Fence	4.81
1841	Superintendent's Office repairs	21.93
1841	New Privy erected	35.84
1841	Brick vault added to Pay Office	233.82
Total:	1836-1841:	$ 455.57

20. R.G. 217- 3rd series 1165- 42- To Peter Little, June 14, 1844, $ 30.70, "for 66 2/12 feet cut stone and setting caps and sills at the Arsenal gate". The pier were of brick.

ARMORY WOODYARD, 1836-41:

The Armory wood or lumber yard, apparently located on the north bank of the Shenandoah River and on the south side of Block A, Arsenal Square(see page 159), was damaged in the great flood on the Shenandoah River in 1836: part of its stone river wall was washed away. In the fall of 1837 the mason Jacob Picking was paid $ 44.56 for"laying 63 2/3 perches of dry wall to repair the breech made in the river side of the wood yard enclosure by the fresht of 1836."[1]

STREETS AND ROADS: 1836-41:

In 1827 and again in 1834 the Armory had made an effort to grade and macadamize Shemandoah Street and the main street in the U.S. Musket Factory yard. The only effort to improve the streets during the 1836-41 period occurred in August 1839, when Byrne and Shields received $ 73.12 "for paving the Government proportion of the alley or county road, commencing on Shenandoah Street and running back 230 feet, along the marign of the Armory Canal, being 117 square yards at 62½c per yard."[2]

This indicates that the 15 foot wide alley between the Wager Six Acre Reservation and the Armory land and canal, from its junction with Shenandoah Street , running west in front of Wager Lot 13, 14, 15, 16, and 17(See Map 20) Page 407, was macadamized in 1839.

1. R/G. 217-1716, 3rd quarter of 1837.
2. R.G. 217- 3971- 54, dated August 26,1839.

Arsenal Square, Blocks A and B, Shenandoah Street

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The condition of the public property in deposits is good- but the want of adequate security against fire renders it proper to distribute the Arms to southern and Western Arsenals... (1)

Instead of building their depot as originally planned on the south side of their tracks on Lots 1 to 7, Block A, Shenandoah Street, the Winchester and Potomac Railroad Company, on May 13,1835 purchased Tract No. 3 on the Island of Virginius for $ 1,650 and there constructed their depot and warehouse in 1836.[2] The railroad facilities remained at Tract 3 until 1847.

Sparks from the wood-burning engines of the railroad caused many fires in the town of Harper's Ferry and at the armory from 1836 to 1846.[3] the company officals refused to take any measures to correct the situation until the United States took steps to bring the Railroad into court. In April 1846, the Solicitor of the U.S. Treasury informed the Secretary of War that the President of the Winchester and Potomac Railroad had finally signed an agreement to use spark arrestor on the locomotives and also to burn coal.[4]

1. Inspection of Harper's Fery Armory on the 21st to the 25th June 1836, National Archives R.G. 156, Special File Box No. 26, HFNHP Photostat Collection, Vol. I, p. 56.
2. Deed of B. & S., May 13,1835, Deed Book 20, pp.338-339, Jefferson County Courthouse, Charlestown W.Va.
3. Virginia Free Press,March 16,1837, p.2, c.2; Proceedings of a Board of Officers, February 25,1842, HFNHP Photostat Collections, Vol. 2, pp.30-31. Officers' Report published in Serial No. 404, Document 287, p.45.
4. April 23, 1846, Reel 23, V. 8, p.750

Arsenal Square, Blocks A and B, Shenandoah Street

Inspector of Arsenals and Armories, Lt. Col. George Talcott made another inspection of the National Armory at Harper's Ferry in 1836 and found the Arsenals still jammed full of arms; with the Winchester and Potomac Railroad now running through the Arsenal Square, the danger from fire was also much increased. He reported

The general aspect of the Armory, (its police and internal affairs) is much the same as last year, affording room for great improvement.

The condition of the public property in deposits is good- but the want of adequate security against fire renders it proper to distribute the Arms to southern and Western Arsenals... (1)

Instead of building their depot as originally planned on the south side of their tracks on Lots 1 to 7, Block A, Shenandoah Street, the Winchester and Potomac Railroad Company, on May 13, 1835 purchased Tract No. 3 on the Island of Virginius for $ 1,650 and there constructed their depot and warehouse in 1836.[2] The railroad facilities remained at Tract 3 until 1847.

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4. April 23, 1846, Reel 23, V. 8, p.750

Construction and Repair at the U.S. Rifle Factory,1836-41:

During the years 1836 to 1841, John H. Hall's Rifle Factory on the Shenandoah became a part of the regular Harper's Ferry Armory operations. The Special estimates for repairs and improvements for the Musket Factory also, for the first time, included requests for funds for similiar projects at the Rifle Factory. Congress thus appropriated a total $ 24,193.00 for repairs and improvements at Hall's Factory during 1836-41 as follows: $ 1,024.00 to erect a workshop in 1836; $ 8,569.00 to build four work shops and to enlarge the flood project protection wall in 1837, and $ 14,600.00 for general repairs and improvements at the Rifle Factory in 1840.[1] During these years five of small frame makeshift shops of Hall were replaced by new structures built of stone and brick.

1. The Drilling Shop,1836:

Superintendent George Rust,Jr. and Captain John H. Hall, in their draft of requests for appropriations in 1836 requested the sum of $ 1,024.00 to "erect a Drilling Shop at the Rifle Factory." Lt. Col. George Talcott, inspector of Armories and Arsenal, reviewed and endorsed this project on July 25,1835, writing: "This Building is absolutely indispensable for the security of that part of the Establishment and the estimate is low."[2]

1. Appropriations in U.S. Statues at Large, Vol.5, 77(1836); V, p.149(1837); and Vol. V, p. 406 (1840).

2. Inspection Report, July 25, 1835, HFNHP Photostat Collection, Vol. 1, pp. 45 and 48.

The special estimate for additional funds for the Harper's Ferry Armory, which requested a total $ 77,897.00 for 1836, thus included an item in the amount of $ 1,024.00 " for the erection of a drill shop at the rifle works, 50 feet long, 17½ feet wide, one story high, of brick with slated roof..." [3]

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

> L. The erection of a suitable building for a drill shop at the rifle factory at this armory, is considered indispensable; that at present used for this purpose being an old wooden building very like to take fire, and from its position, to endanger other shops and machinery. The sum of $ 1,024 has therefore been inserted in this estimate for building a new drill shop. [4]

Lt.Col. Talcott made another partial inspection of the Harper's Ferry Armory during the period June 21 to June 25,1836, and reported to Col. George Bomford, Chief of Ordnance, "That part of the Armory devoted to the manufacture of Hall rifles was examined and instructions given verbally concerning the construction of the drill shop, in case the money should be appropriated by Congress." [5] Th act appropriating the requested $ 77,897,00, including the money for the Drill Shop, was approved by the President on July 2,1836. [6] Construction on the building got underway in October 1836.

3. Special Estimate for additional appropriations for the service of the Ordnance Department for the year 1836, dated January 11,1836, in Serial No. 288, Document 90, p. 10.
4. Ibid., Serial No. 288, Document 90,p.10.
5. Inspection of Harper's Ferry Armory on the 21st to the 25th June 1836, in HFNHP Photostat Collection, Vol. 1, p.56.
6. U.S. Statues at Large, V, p.77.

Writing from the Armory on November 3,1836, Lt. Col. Talcott informed Col. Bomford : " The Drill shop at the Rifle works, for which an appropriation was made by Congress, is nearly finished. No other structures (at the Musket Factory) has been commenced, nor has there been expended any part of the large sum specially appropriated this year for the Armory. The lateness of the season when the appropriations were available (joined to the secarcity of building materials) has been mentioned as a reason why nothing was done (Superintendent George Rust, Jr.'s extended absences from the Armory was probably another reason)... The whole sum can be judiciously expended in 1837 and perhaps with more economy than at present..."[7]

The vouchers of the Paymaster of the National Armory reveal that the Drill Shop cost $ 1,021.53 to construct in 1836-37 and that it was erected by the following artisans: stone and brick masonry work by Joseph Spencer, carpenter work by James Foley, plastering by Jerry Harris, and the slating by William Bayley. (See Data, page 414).**

The Drill Shop is Building No. 18 on the 1848 Map of the Rifle Factory(Map No. 21, p.419).

The Construction Program for 1837:

On June 18,1836, Captain John H. Hall wrote to Col. Bomford regarding the danger that the recent great flood on the Shenandoah had posed to the Rifle Factory plant, reporting:

7.Talcott's Inspection of Harper's Ferry Armory, Report, November 3,1836, in HFNHP Photstat Collection, Vol. 1,p.63

** The new drill shop probably replaced Hall's one-story wooden machine shop which measured 50 by 16 feet in 1819. See Bldg. 17 and Maps 9 and 10(1834), pp. 298-299 for 1819 machine shop.

Bldg. 18 on Map No. 21(1848),p.419.

Construction of Drill Shop, 1836-37 Rifle Factory

Bill No.	Voucher No.	Name	Date	Amount	Remarks
761		Joseph Spencer	10/12/36	$108.50	Mason work, for furnishing and laying in mortar 62 perches of stone, foundation new building to replace old drill shop.
761		Joseph Spencer	11/12/36	33.25	For 19 perches of stone.
761	113B	Joseph Spencer	12/36	262.79	For furnishing and laying in mortar 25,311 brick; making 2 arches for door; making 12 arches for windows, laying 109½ ft of cornice, Drill Shop.
761		Joseph Spencer	10/12/36	$ 404.54	Mason Work
761	112B	James Foley	12.36	$ 66.87	Carpenter work of self, 18½ days, of journeymen- 27½ days. making 2 window frames and 18 lintels.
761		James Foley	12/36	$ 54.05	Carpenter work
Subtotal		James Foley	12/36	$ 120.92	Carpenter Work
761		Jerry Harris	12/31/36	$ 12.34	For plastering one coat 154½ square yards plaster at new drill shop.
Total	Value	of Work in 3rd and 4th quarter of 1836 on shop was		$854.03	Serial No.304,Doc. 186, p.3.
951	D 108	William Bayley	1837 1st qr.	$ 167.56	For slating roof of new drill shop, 16 3/4 squares of slate.
Total	Cost	of Drill Shop *	1836-37	$ 1,021.59	Appropriation(1836) was $ 1,024.00.

* 23640 No.122C- Abstract C for 2nd quarter of 1838- an Additional $ 2.80 for carpenter work by James Foley is charged against the Browning shop account.

In the late freshet here the embankment above the rifle works, by which that portion of the public property is protected from inundations and probable destruction, presented indications of great danger - The water penetrated through its sides, in several places, near the base- threatening to undermine and destroy it - althrough of more than twenty feet thickness.

This freshet, it is said, was not so high as one that occurred in 1810, by more than four feet - A height that would, apparently, have caused the destruction of the embankment and a great amount of valuable public property. It is believed that the water penetrated the bank thro' holes made by muskrats, which are very destructive to walls of earth near water courses.

The best protection, in this case is to be obtained from a strong wall of stone parallel to the present embankment - a few feet from it, and extending down to solid rock below, which is within about two feet of the surface - The wall to be of such thickness and strength as to resist the force of the highest freshets - such a wall would require to be about six feet in thickness, twelve feet in height and two hundred and fifty feet in length - containing 720 perches, it would cost now $ 1,70 per perch or $ 1,224 and for excavating & removing the earth for the foundation about fifty dollars.

It is believed that it would be proper and necessary to fill in between it and the present embankment, with earth, which for about fifteen hundred cubic yards would be required, This quantity at 40 cents per yard, the present price, would amount to $ 600 - making a total of eighteen hundred and seventy-four dollars. ....

Although it is now twenty-six years since the highest freshet remembered occurred here, yet such an one may again occur soon, and it would be inexcusable in me to neglect to apprise the Government of its great danger- and that a preventive ought to be applied without delay.

Recapitulation:		
	Stone wall	$ 1,224
	Excavating for it	50
	Filling in between in & the bank	600
	Total:	1,874.

8

8. Hall to Bomford, June 18,1836- Reel 12, Vol. 3, pp. 207-208

During his inspection of the Rifle Factory in October 1836, Lt. Col. George Talcott endorsed the proposed river wall project and also recommended that several new workshops should be put up at the rifle factory, writing to Col. Bomford:

" Several additions to the shop room at the Rifle factory appear to be indispensable and an estimate of their cost is presented herewith. The river wall is very desirable and will add to the security of the whole establishment in times of high freshets. Everything under the supervision of Capt. Hall appears to be well managed and a due regard to economy is manifested...." [9]

As a result of Hall's and Talcott's actions the Special Estimate for the service of the Ordnance Department for the year 1837 asked Congress to provide $ 8,569 to construct the river wall and also four new workshops at the Rifle Factory. As has been mentioned,

Congress appropriated the requested $ 8,569 on March 1, 1837 [11] and on the 10th of that month, Col. Bomford informed Superintendent Rust that these funds were available and construction could begin. [12]

9. Inspection of Halls Rifle Factory at the Harpers Ferry Armory, October 31,1836 report, HFNHP Photostat Collection, Vol. L, p. 60.

10. American State Papers- Military Affairs, VI, p.977, p.980.- "Special estimate for additional appropriations for the service of the Ordnance Department for the year 1837." dated January 21,1837.

11. U.S. Statues at Large,V,p. 149.

12. Bomford toRust, March 10,1837, Reel 14, Vol. 11, pp.1091-1092.

General Rust, however resigned by the end of March and his replacement, Col. Edward Lucas, Jr., did not take office until April. This change in superintendents delayed the start of construction in 1837 at the U.S. Musket Factory, but apparently did not at the Hall Rifle Factory. Lt. Col. George Talcott, inspecting the Harper's Ferry Armory from June 16 to June 25, 1837, reported in part:

"Improvements at Hall Rifle Factory authorized by appropriation:-

1. Drill Shop - Finished in 1836.
2. (River) Guard Wall & embankment- finished (in 1837).
3. Browning Shop($ 1,114 brick structure)-finished (in 1837).
4. Tilt Hammer Shop- just commenced.
5. Workshop for jobbers(filing) finished(in 1837).
6. Workshop for Springmakers,etc.- foundations laid." [13]

By the 31st of December 1837, $ 7,349.48 of the $ 8,569.00 had been spent.

Building the River Wall, 1837:

The $ 1,874.00 provided in 1837 was to be used to erect "a stone wall 250 feet long, 12 feet high, and 6 feet thick, for the protection of the rifle works." (Maps No. 9 and 10, both drawn 1834)(pp. 298 and 299) show were the old flood wall and embankment were located on the west and south sides of the rifle factory.)

The stone wall and earth embankment was erected by Lewis Wernwag and Anthony Storm in May and June of 1837 at a cost of $ 1,535.22.[14] Wernwag constructed 309 perches of stone wall in mortar and 195 cubic yards of earth embankment. Storm built 2,037½ cubic yard of earth embankments on the guard wall project. (See Page 418)

13. Inspection of Harper's Ferry Armory, 16th to 25th June 1837=Report, HFNHP Photostat Collection, Vol. 1, pp.73-74.

14. Record Group 217- File 1423.

Construction of River Guard Wall, 1837 .Hall Rifle Factory

Record Group 217: File No.	Voucher No.	Artisan	Date	Amount	Purpose
1423	140A	John Wernwag	6/37	$ 116.22	For excavation of tail race, 37 7/27 cubic yards, $9,31; for excavation for embankment, 195 cubic yards, $ 48.75
1423	189	John Wernwag	5/15/37	$ 226.00	For mason work, furnishing material and laying in mortar 113 perches of stone wall for protection of rifle factory.
1423	189	John Wernwag	6/2/37	$ 378.00	For mason work, furnishing and laying 189 perches of stone in guard wall.
Subtotal		John Wernwag	May-June	$ 720.22	302 perches of stone wall; 195 cubic yrds, embankment
1423	186	Anthony Storm	5/4/37	$ 340.00	For hauling and filling in 850 cubic yrds, of earth at protection wall at rifle factory.
1423	188	Anthony Storm	5/23/37	$ 200.00	For 500 cubic yrds of earth hauled and filled.
1423	203	Anthony Storm	6/30/37	$ 275.00	For hauling and filling 687½ cubic yrds of earth for embankment.
Subtotal		Anthony Storm	May-June	$ 815.00	for 2,037½ cubic yards of earth embankment at 40¢ per yard.
Total:			1837	$ 1,535.22	For 302 perches of stone wall and 2,232½ cubic yards of earth enbankment

58.16

MAP NO. 21

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.

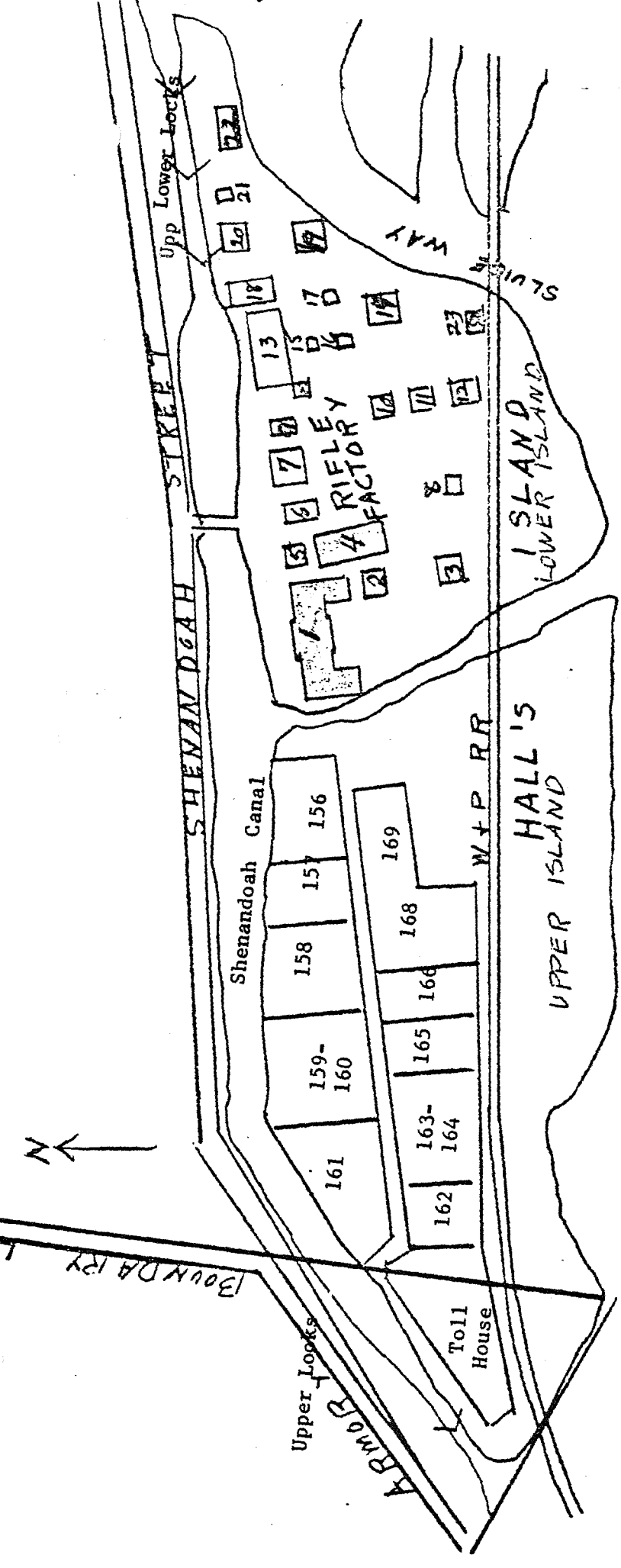
The dates of construction given after the names of buildings have been added by the writer. The number and name of each structure, however, was placed on the map by Brown in 1848.

SECTION OF THE 1848 MAP SHOWING THE U.S. RIFLE FACTORY BUILDINGS ON THE LOWER HALL ISLAND:

Structures not marked "new" by Brown may appear on Maps 9 and 10, both made in 1834, and hence are useful in identifying the unmarked shops on the two earlier maps.

The Upper Hall Island was used as a residential area for Armory employees in 1848 and the numbers of the Armory Dwelling Houses have been added to their proper lots by the writer.

During the 1850's, the original ground levels of the Lower Hall Island were to be considerably altered and elevated as the result of considerable filling and grading.



U.S. RIFLE FACTORY BUILDING: 1848

1. Finishing Shop-New (1846-48).
2. Forging and Tempering Shop.(1837-38)
3. Stockers Shop.
4. Filers Shop- New (1844-45).
5. Filers Shop-Old (1837).
6. Barrel Welding Shop.(1831)
7. Tilt Hammer Shop.(1837-38)
8. Vitriol House.(1837)
9. Rod Tilting Shop. (1831)
10. Inspectors Office.
11. Asembling and Finishing Shop.(1837).
12. Barrel Turning and Boring Shop.
13. Bell Shop, Stockers and Machinery.(1808-09.)
14. Store House and Office.
15. House for Steaming Stocks.
16. Engine House (New-1843-44, frame).
17. Privy.
18. Drill Shop.(1836).
19. Forging Shop.(1827)
20. Annealing Shop. (1835)
21. Annealing Furnace.(1835)
22. Forging Shop. (1819)
23. Proof House (New, 1844-45) (1 story, frame).

3. The Browning or Vitriol Shop, 1837:

On April 2,1836, Superintendent George Rust, Jr. informed Col. George Bomford:

> Captain Hall has asked permission to erect a Browning house at the Rifle Factory. The cost of which he represents will not exceed $200. He has for some time made use of the old office in front of the Superintendent's Quarters (which were located in the U.S. Musket Factory yard on the Potomac) which being in a ruinous and dilapidated condition will shortly be taken down." Rust recommended that permission be granted to erect the new shop.[15] Col. Bomford, on April 12,1836, authorized Rust to erect the Browning Shop, "provided that the cost did not exceed the estimate of $ 200."[16]

The building, however, was probably not constructed because (1) the vouchers of the Paymaster of the Armory, for the year 1836 do not include payments for construction of such a structure; and (2), the the Special estimate for additional funds for the year 1837 included a request of $ 1,114.00 " for building a shop for browning gun barrels, of brick, 20 feet by 22 feet, two stories high."[17] As has been noted, Congress appropriated the requested amount for this shop on March 1,1837.

Construction on the Browning Shop was underway in April and the building was completed by the end of June at a cost of about $ 724.07 (see Chart p.421), work on other buildings at the Rifle Factory, charged against this shop, brought the offical cost of the Browning shop to $ 1,118.91 in 1837. The laid excavation for the basement and the 75 perches of stone mortar wall for the foundation of the shop was done by John McClure.

15. Reel 12, Vol. 2, pp.187-188.
16. Bomford to Rust, April 12,1836, Reel 14, Vol. 11,p.1045.
17. ASP-MA, VI, p.977.

Construction of Browning Shop, 1837 Rifle Factory

Record Group 217: File No.	Voucher No.	Artisan	Date	Amount	Remarks
1423	184	John McClure	4/27/37	$ 170.41	For exacvating 81 2/3 cu. yds of earth= $ 20.41; furnishing materials and laying 75 perches in mortar of stone wall, foundation for Browning Shop.
1423	40A	Joseph Spencer	5/4/37	$ 69.05	for 20 days laying stone wall=$ 35.40; furnishing and laying in mortar 3,600 brick=$ 32.40
1423	185	Joseph Spencer	6/37	$ 269.98	for laying 27,504 brick at browning shop=$275.04; laying 44 feet of cornice, $ 7.33; laying 1 arch of 14 inches=$1.00, laying 10 arches of 10 inches, $ 5.00+ $ 2.25, total $ 290.62-minus $ 21.64 deducted.
Subtotal		Joseph Spencer	April-June	$ 339.03	Laying 31,104 brick &c
1423	182	James Foley	6/37	$ 87.60	For carpenter work at browning shop: making 200 lights of sash, $20.00; making 10 window frames, $12.50; laying 1,388 feet of floors(2 stories), $17.38; making one eight-panel door.
1423	183	Sidney L. Gallaher	6/21/37	$ 8.62	for plastering 138 square yrds at Browning Shop.
1423	181	William Bayley	6/2/37	$ 103.00	for slating roof of the Browning Shop. 7 and 26/100 squares of slate roofing.
1716	34A	Benjamin Snook	8/37	$ 25.62	making browning kettle for Browning shop.
1716	118C	John P. Kennedy	8/21/37(	$ 15.42)	$ 30.83 for painting the Browning and Jobbing Shops for Smiths at the Rifle Factory.
2092	Abstract C		12/37	$ 410.25	In Dec.1837 the sum of $410.25 was charged against the Browning Shop, probably for work on other shops. Amount spent to purchase materials for use in Brown Shop was $ 254.04
Total:			1837	$ 1,118.01	Not including kettle or painting charges.

Bldg. No. 8 on Map. No. 21 (1848).

The 31,104 brick laid in the walls of the two-story, 20 by 22 foot, edifice were laid by the mason Joseph Spencer, who had also done the brick work on the Drill Shop at the Rifle Factory in 1836. The carpenter work was executed by James Foley, who had done similar work in the drill shop in the preceeding year. Sidney L. Gallaher did the plastering, William Bayley the slating, and John P. Kennedy the painting on the Browning Shop.

The vouchers paying for construction indicate that the Browning Shop had 10 windows and one door. The door, located on the first story, had eight panels. The Browning Shop is Bldg. No. 8 on Map No. 21,p. 419.

During the 3rd quarter of 1837 1,285 feet 3 inches of "spouting" were purchased from the tin smith Benjamin Snook for $ 220.95- some or all of this may have been used on the roofs of the new shops going up at the Rifle Factory.[18]

4. Work or Jobbing Shop for Filers, 1837:

The appropriations of March 1,1837 also provided the sum of $ 1,538.00 "for erecting a workshop for jobbers of brick, 25 feet long, 22 feet wide, and 20 feet (two stories) high."[19] Construction on this shop got underway in May and the building appears to have been completed in August 1837 at a cost of approximately $ 1,115.73.(See Chart page 423).

Additional work and perhaps charges for construction on other shops, but paid from the Jobbing Shop funds, brought the total costs to about $ 1,350.00. The foundations of stone were built by John Cliver; Joseph Spencer did the brick work, laying 43,980 bricks in the 20 foot high structure. James Foley did the carpenter work and William Bayley slated the roof.

The shop appears to have had 20 windows and two exterior doors. The latter were of the eight panel type. This is Bldg. No. 5 on Map 21 (1848), p.419.

18.R.G. 217- 1716- 34A, To Benjmain Snook, August 1837.
19. Description from Special estimates for 1837, in ASP-MA,VI, p. 977.

Construction of Jobbing Shop For Filers Rifle Factory

Record Group 217: File No.	Voucher No.	Artisan	Date	Amount	Remarks
1423	176	John Cliver	6/5/37	$ 242.43	For 71 3/9 cubic yards of excavation-$ 17,63; for laying in mortar 112 perches of wall= $ 224.80-foundation of Jobbing Shop-filers.
1423	185	Joseph Spencer	6/37	$ 461.63	for furnishing and laying 43,980 brick at jobbing shop for filers=$439.80 laying 50 feet of cornice, $ 8.33; laying 7 14 inch arches=$ 7.00; laying 13 9 inch arches=$ 6.50.
1423	177	James Foley	6/17/37	$ 93.62	Carpenter work on jobbing shop,filers,making 25 window frames, 2 door frames, 2 doors with 8 panels, and 420 lights of sash.
Subtotal				$ 797.68	
1716	118C	John McElwee	8/37	$ 11.58	Mason work, 3½ perches of stone wall built,Jobbing shop for filers.
1716	118C	John P. Kennedy	8/21/37	($ 15,51)	$ 30.93 for painting at the Browning Shop and Jobbing Shop for Filers
1716	C	James Foley	9/10/37	$ 85.49	Carpenter work, making 18 window sills, 2 door sills, and 2,400 feet of rough flooring for jobbing shop, filers.
1716		William Bayley	8/25/37	$ 190.50	for slating 19½ squares roof,jobbing shop for filers.
Subtotal		3rd quarter		318.05 *	
2092	Charges June 30-Dec.31,1837			$ 266.73	Charges for materials issued during last six months.
2094	140A	James Foley	12/30/37	$ 22.50	for 18 days carpenter work, Jobbing Shop.
2364	Abstract C	James Foley	4/38	$ 17.72	Carpenter work
		Lewis Wernwag	4/38	$ 70.28	for lumber
		Joseph Spencer	4/38	100.12	Mason work
2nd quarter subtotal,1838				$ 188.12	
Total -exclusive $ 266.73 materials charge				$ 1,331.35	1837-38

To Joseph Spencer, brick mason: $ 561.75.
To James Foley, carpenter work: 219.33. Bldg. No. 5 on Map. 21(1848).

* ; 1716-61A Sept.13,1837 To William Fawcett, $ 49.90 for plastering, possibly in the job shops for filers and smiths.

5. Jobbing Shop for Smiths and Spring-makers, 1837:

The appropriation of March 1,1837 provided $ 1,048.00 "for erecting a jobbing shop for smiths and spring-makers, 25 feet by 25 feet, of brick and one-story in height."[20] Construction on this shop got underway late April or early May and the structure was finished by the end of July 1837. Total cost of the jobbing shop for smiths and springmakers was approximately $ 985.50 (See Chart page 425).[21] The stone mason John M. Cliven laid the stone foundations, containing 86 perches of stone mortar wall, of the shop. Brick layer Joseph Spencer laid 25,779 bricks in the one-story high walls of the edifice. James Foley did the carpenter work and William Bayley slated the roof . The vouchers for the carpenter work(see Chart page 425) indicate that the new workshop had eight windows and one exterior door. The door was of the eight-panel type. This is Bldg. No. 2 on Map No. 21(1848), p.419.

6. Tilt Hammer or Barrel Welding Shop,1837-38:

The sum of $ 2,995 was made available under the appropriations act of March 1,1837 "for erecting a tilt- hammer shop, of stone, 35 feet long, 20 feet wide, and 15 feet high, and machinery for the same."[22]

Construction on this shop, which was also known as the Barrel Weldir Shop, got underway in August 1837 and the building was completed by the end of April 1838 at a cost of approximately $ 2,133.08, exclusive of the machinery. (see chart, page 427) .[23] The mason Jacob Picking did the stone and brick work on the edifice. He laid 69 perches of stone in mortar wall in the forbay,

20. . From Special Estimate for additional funds for 1837, in ASP-MA, VI,p.977.
21. R.G. 217- files 1423, 1716, 2090, and 2364.
22. Special Estimate for additional funds for 1837, in ASP-MA,VI, p.977.
23. R.G. 217- files 1423, 1716, 2092, 2094, 2364.

Construction of Jobbing Shop for Smiths and Spring-Makers, 1837 Rifle Factory

Record Group 217: File No.	Voucher No.	Artisan	Date	Amount	Remarks
1423	175	John M. Cliven	5/12/37	$ 179.33	For excavating 29½ cubic yrds of earth, $ 7.33; For furnishing and laying 86 perches of stone in mortar wall, foundation of Jobbing shop for smiths.
1423	177	James Foley	6/17/37	$ 19.62	Carpenter work, making 8 window frames and 1 door frame, jobbing shop for smiths
1716		William Bayley	8/2/537	$ 95.00	For slating 9½ squares of roof, jobbing shop for smiths.
1716	123C	Joseph Spencer	9/30/37	$ 50.00 *	Furnishing and laying 5,000 brick for jobbing shop for smiths.
2092	170C	Joseph Spencer	12/14/37	$ 150.00 *	For furnishing and laying 15,000 brick for jobbing shop for smiths.
2092	4th quarter 1837			$ 313.32	for materials issued for shop, last 6 months of 1837.
2094	35a	James Foley	11/14/37	$ 27.12	Carpenter work, making 9 lintels and one 8-panel door for jobbing shop for smiths.
2364	Abstract C		1838		
	122C	James Foley	2nd qr	$ 59.65	For Jobbing Shop, Smiths carpenter work, hanging 8 windows
			"	$ 32.60	
		Joseph Spencer	"	$ 27.05 *	For laying 53 feet of cornice on jobbing shop for smiths.
Total		doec not included 313.32:		$ 692.50	

* Note of 2364, May 28, 1838 stated Joseph Spencer did a total of the Following work on the jobbing shop for smiths:

for laying	25,779 brick:	$ 257.79
other brick work, arches etc		53.54
laying 53 feet cornice		27.50
Total: Jospeh Spencer:		$ 338.83
Total, James Foley, Carpenter		79.34

Bldg. No. 2 on Map No. 21(1848).

and 95 1/3 perches of stone in mortar wall in the foundations and walls of the edifice. In addition Picking also laid 23,905 bricks in the walls of the new tilt hammer shop. The mason Joseph Spencer also worked on the structure in 1838. Lewis Wernwag constructed and laid 30 perches of dry wall in the tail race of the shop. James Foley did the carpenter work and William Bayley slated the roof. The vouchers indicate that the new tilt hammer shop had eight windows and two exterior doors. The two doors were of the eight panel type.

In his report to Col. Bomford, made on June 25,1837, Lt. Col. Talcott had commented:

"In consequence of the ill nealth of Captain Hall, the Supt. (Lucas) had paid great attention personally and pressed on the above work," Talcott noted.[24]

Of the $ 8,569.00 appropriated on March 1,1837, the paymaster's vouchers indicate that approximately $ 7,349.61 was expended in 1837 and $ 1,124.97 in 1838, leaving a balance of $ 94.55 available Deceember 31,1838.[25]

25.Continued- improvements at the Hall Rifle Factory! This an error, made either by the person who wrote the Ordnance Department report or by the printer who set the report in type. The correct number- $ 7,320.85 was inverted by someone to read " $ 3,720.85"

24. Inspection of Harper's Ferry Armory, 16th to 25th June 1837, HF NHP Photostat Collection, Vol. 1, pp.73-74.

25.R.G. 217-file 1423, 1716, 2092, 2364, 2094, 2729, 3434. Also see Serial No. 344,pp.392-395-"Statement showing the ammunt applicable to exoenditure,and the amount expended in the service of the Ordnance Department, during the year ending 30th September,1838", Balance available in hands of paymaster, 30th Sept,m1838" $ 94.43." In the Statement of Operations of the Armory at Harper's Ferry,Virginia, during the year 1837",made by the Ordnance Department to Congress, it is printed that only " $ 3,720.85" was expended in permanent

Tilt Hammer or Barrel Welding Shop, 1837-38

Construction of Rifle Factory

Record Group 217: File No.	Voucher No.	Artisan	Date	Amount	Remarks
1423	177	James Foley	6/17/37	$ 31.00	Carpenter work, making 10 window frames and 2 doors with panels, for barrel welding shop.
1716	Abstract C 1170	Jacob Picking	8/20/37	$ 138.00	For furnishing and laying 35 perches of stone for tilt hammer shop at R.F. Fot laying 34 perches of stone for forbay at Tilt hammer shop, $ 68.00
1716	120C	Jacob Picking	9/1837	$ 190.66	for laying 95 1/3 perches of stone wall in mortar, new barrel welding shop
1716	3rd quarter	Jacob Picking		277.37	23,905 brick laid in mortar= $ 239.04; 8½ perches of stone laid= $ 17.00; 8 9 inch arches laid, 2 14 inch arches laid. 74 feet of cornice laid at $ 12.33.
Subtotal Picking				$ 606.03	Mason work
2092	169C	Abstract C. $832.19 To Lewis Wernwag, Nov. and laying 30 perches hammer shop at rifle	total of 22,18 7, of stone factory.	which $ 161.09 was for labor; $ 45.00 for mason work-furnishing dry wall on tail race of new tilt
2092	171	To Lewis Wernwag	Nov.23/ 1837	$ 41.00	For 41 feet of coping for tail race.
Subtotal		Lewis Wernwag	11.37	$ 86.00	mason work tail race
2094	141A	Joseph Spencer	11/10/37	$ 31.50	for 10½ days mason work building house over new cast iron water wheel, probably at Rifle Factory tilt hammer shop.
2094	35A	James Foley	11.14.37	$ 75.09	Carpenter work at new tilt hammer shop, R.F., making 9 lintels, 4 windows frames and two 8-panel doors.
2364	Abstract C $ 483.22 1st qr	Joseph Spencer	3/20.38	$ 69.25	For brick and stone mason work at new tilt hammer shop at rifle factory.
2364	Abstract C 2nd Qr.	A William Bayley	4/30/38	$ 116.00	For slating 11 60/100 squares of slate roof trip hammer shop, R.F.
		James Foley	4/30/38	$18.96	for 544 feet of flooring
		John Kennedy	4/30/38	$ 10.38	For painting.
		John Price	4/30/38	24.37	For millwright work
Subtotal		2nd quarter 1838		$ 180.64	
Total				$ 2,133.08	$ 1,078.31 for construction by builders

Chart No. 19

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:

1836 - 1841 RIFLE FACTORY IMPROVEMENTS 1837- $ 8,569.00 appropriated in 1836

YEAR	Tilt Hammer Shop	Browning Shop	Jobbing Shop for Smiths	Jobbing Shop for Filers	River Wall	TOTAL		1836 money DRILL SHOP	Total- 1836-37
1836	0	0	0	0				854.03	854.03
1837	1,469.22	1,118.91	925.85	1,605.00	1,535.22	$ 7,349.61		167.56	7,517.17
1838	663.86	4.50	59.65	188.12		1,124.97		0	1,124.97
1839						0		0	0
1840						0		0	0
1841						0		0	0
TOTAL:	$ 2,133.08	$ 1,123.41	$ 985.50	$ 1,793.12	$1,535.22	$ 8,474.58		1,021.59	$ 9,496.17
BALANCE LEFT:	0	0	0	0	0	$ 94.42		2.41	$ 96.83
APPROP-RIATION	2,995.00	1,114.00	1,048.00	1,538.00	1,874.00	8,569.00		1,024.00	$ 9,593.00

7, Repairs to the Rifle Factory Bell Shop, 1840-41:

On May 2,1840, George W. Tracey was paid $ 11.25 for putting in a skylight in the roof of the Bell Shop (The Stockers and Machine Shop dating from 1808-09), Bldg. No. 13 on Map No. 21(1848).[26]

On December 11,1841 George W. Tracey and his"tender" received $ 32.12 for repairing the slate roof of the Rifle Factory Bell Shop.[27]

8.Other Repairs and Improvements at the Rifle Factory,1839-41:

In the Special Estimate for the service of the Ordnance Department during the year 1838, Col. George Bomford requested an appropriation of $ 4,491.00 for two projects at the Rifle Factory, namely:

1. For erecting a store house for iron and Stocks..... $ 3,991.00
   two story, brick, with slate roof, 75 by 25 feet.

   This structure was intended to replace two old wooden buildings.

2. To rough cast the walls and slate the roofs of two dwelling houses located on the island near the tracks of the Winchester and Potomac Railroad..... 500.00

   These residences were to be converted into store houses.[28]

As has been mentioned, however, Congress failed to appropriate the requested money in 1838 and again refused to vote the $ 14,600 in1839 that Col. Bomford had said was necessary to make repairs and improvements at the Rifle Factory.[29]

26. R.G. 217- 5252- Voucher 112.dated May 2,1840.
27. R.G. 217- 6718- 52- Dec.11,1841- Tracey received $ 20.12 for 11½ days work slating, and his tender was paid $ 12,00 for 12 days work tendering. The Bell shop was to be demolished in 1849- see R.G. 217 3rd series- 9307- Vounber 44. Tracey helped take it down.
28.HF NHP Reel 20, Vol. 6,p.618.
29. For 18 estimates, see Reel 20, Vol. 6, p.622, 624-625.

The Chief of Ordnance had better luck in 1840: on July 20 of that year Congress did appropriate $ 14,600.00 in funds earmarked to be used for making repairs and improvements at the Rifle Factory.[30] The 1840 estimate failed to specify how this money would be used. On March 3,1841, as has been noted, the Congress provided an additional $ 38,000 for repairs and improvements at the National Armory at Harper's Ferry; the estimates and appropriations for 1841 did not mention the rifle factory and did not specify any projects.[31]

The vouchers issued by the Armory Paymaster, 1839-r41, except for $ 153.94 issued to pay for repairs made to the roof of the Rifle Factory Bell Shop (see item 7 above and footnote No. 31 below) do not include any payments for repair or constructi work done at the Rifle Factory during these years. It thus appears that most of the money provided in 1840($ 14,600.00) must have been used to help pay off the cost overruns that at been made in the manufacture of arms at Harpers Ferry during the years 1838 to 1841.

A Contemporary Description of the Rifle Factory,1842:

In October 1834 there had been a total of 22 small brick, stone, and frame buildings standing at the Hall Rifle Factory on the Lower Hall Island. These included workshops, several storage buildings, and perhaps 2 or 3 dwelling. In 1842 the reported total of buildings was said to be 26, thus indicating a net gain of only four structures since 1834.

The Charles Town newspaper, The Virginia Free Press, on September 1, 1842, published the following description of the Hall Rifle Factory:

30. For 1840 estimates, see Reel 20,Vol. 6,p.628-629; also Serial No. 364, Document No. 45, p.18 and 22. For appropriations, U.S. Statues at Large,Vol. V, p . 406.

31. For 1841 estimates, see Reel 20, Vol. 6, pp.631 and 633; Appropriations in U.S. Statues at Large, Vol. V, p.434. R.G. 217-5785-67,1st quarter of 1841-$ 110.57 was spent for 1,108 feet of poplar pine to weatherboard the trip hammer shop at the Rifle Factory.

"At the Rifle Factory, there are three store houses, one office, 10 workshops, and four others in which the machinery is driven by water, three annealing houses, and five others for coal, lime, etc., Value of machinery: $ 95,783."[32]

Captain John H. Hall resided at Harper's Ferry from April 1819 to 1840, supervising the manufacture of his Patent Rifle. On January 14, 1840, he requested a leave of absence for reasons of health and left Harper's Ferry to go West in 1840. He never returned and died in Missouri on March 26, 1841.[33]

On December 10,1840, John H. Hall was paid $ 380.00 for repairs and improvements that he had made to his Armory-owned dwelling house and lot on Camp Hill(For the Location of Captain Hall's residence on Camp Hill see 1833 map on p.324). This included erecting 58 panels of fence around his house and yard, valued at $ 50.80.; $ 5.00 for providing one marble slab for a hearth; $ 5.00 for papering one room in his house; $ 20.00 for paving with stone in front of his residence; $ 150.00 for grading his yard; and $ 150.00 for the planting of numerous fruit trees, vines, and plants in his garden.[34]

The U.S. Ordnance Department decided to discontinue the production of the Hall Patent rifle on October 12, 1843, and the final lot of these weapons came off the assemble line in 1844.[35] (See Chart 20,p.432 for number of Hall rifles produced 1819-1844).

32. Virginia Free Press, September 1,1842, p. 2, c.1.
33. Virginia Free Press, April 1,1841, p.3, c.1.
34. R.G. 217- 5624-C Voucher 47.
35. Col. George Talcott, Chief of Ordnance, to Major Henry K, Craig, Superintendent of U.S. Armory at Harper's Ferry, October 12,1843, orders to stop further production once the arms in process of manufacture had been completed, Reel 19, vol. 2, p.265.

CHART NO. 20

Production of Hall Rifles and Carbines, 1819-1843

Year	Flintlock Rifles	Flintlock Carbines	Total
1824:	1,000	-	
1827	1,000	-	
1832	4,360	-	
1833	3,670	-	
1834	970	-	
1835	1,714	-	
1836	1,809	-	
1837	1,200	1,017	2,217
1838	2,934	-	
1839	0	-	components only(Jan.1-Sep.30,1839).
1840	1,023	1003	2,026
1841	190		
Total	19,870	2,020	21,890
	Percussion rifles	Percussion carbines	Total
1842	0	0	
1843	300	1,001	1,301
1844	2,700	0	
Percussion Arms	3,000	1,001	4,001
Grand Total 1819-44:	22,870	3,021	25,891

The total of expenditures for repairs and improvements at the Rifle factory appear to have amounted to approximately $ 9,746.90 during the years 1836 to 1841 and may be summarized as follows:

Year	No. of New Bldgs.	Cost	River Walls	Repair of Bldgs.	Total
1836	1	$ 854.03	$ 0	0	$ 854.03
1837	3	5,981.95	$ 1,535.22	0	7,517.17
1838	1	1,221.76	0		1,221.76
1839	0	0	0		
1840	0	0	0	11.25	11.25
1841	0	0	0	142.69	142.69
Total:	5	$ 8,057.74	$ 1,535.22	$ 153.94	$ 9,746.90

U.S. Armory Canals and Dams, 1836 to 1841:

1. Potomac Canal, 1836-41:

Lt. Col. George Talcott, Inspector of Armories and Arsenals, inspected Harper's Ferry Armory in July 1835 and on the 25th of that month offered the following comments on Superintendent Rust's proposed program to improve the U.S. Potomac Canal:

> The embankment of the new raceway or canal, constructed at great expense, appears to be failing and no time should be lost in taking measures for its preservation.....
>
> The entrance to the Canal is very much choaked with timber brought down to market and passed through the lock into the Canal. The rocks also appear throughout the channel and prevent the free passage of the water to the headgates, With all these impediments the supply was so abundant on the 25th July, that the gates were kept nearly closed, although the water was low in the river. When the tilt-hammer works are in full operation more water will be required, but if the entrance to the Canal should be cleared out in advance of the gates no fear is entertained of any deficiency of water... [1]

Talcott upped Superintendent Rust's orginal estimate of $ 3,460.40 [2] to accomplish this work to $ 5,260.00.

Colonel George Bomford, Chief of Ordnance, accordingly requested and Congress appropriated the following item on July 2, 1836 [3]

1. For repairs of canal or raceway, and altering it..... $ 5,260.00

The Chief of Ordnance explained to Congress that this money would be used:

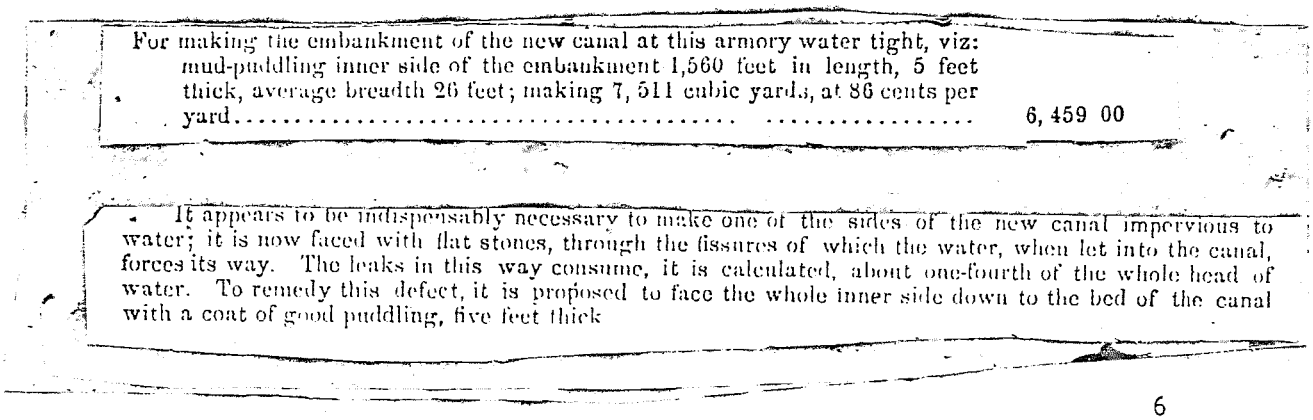
> B. For repairs to canal, raising embankments, flagging the pathway on it, cleaning out and walling the lower end, and clearing obstructions above the head gates, all of which are indispensable. [3]

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1. Remarks upon the Items in the Estimates for Harper's Ferry Armory for the Year 1836, as prepared by the Inspector General and the Superintendent, July 25,1835, National Archives R.G. 156, Special Five Box 28, HFNHP Photostat Collection, Vol. L. p. 46, p.50-Inspection Report,17th-July,1835.
2. Ibid., p. 48, 49. Rust calculated $ 944 to raise the embankment to the Canal; $ 591 for raising embankment and flagging pathway of canal; $ 1,263 to erect a stone wall along part of canal, and $ 666.40 to clear out the lower end of the canal.
3. Special Estimate for additional appropriations for the service of the Ordnance Department for the Yaer 1836, January 11,1836, in Serial No. 288, Document No. 90,pp.7-8.

Because over half of the building season had passed before money became available, little or no work was done on the canal project in 1836. George W. Rogers was employed as an engineer on the Armory Canal project in 1836,[4] perhaps because of Rogers' calcuations, the Ordnance Department requested and Congress provided on March 1,1837 the additional sum of $ 6,459.00 "for constructing embankments of the new canal," thus making a grand total of $ 11,719.00 available to repair the canal in 1837-38.[5]

The 1837 estimates explained to Congress in detail how the money would be used and also why this work had to be done as follows:



For making the embankment of the new canal at this armory water tight, viz: mud-puddling inner side of the embankment 1,560 feet in length, 5 feet thick, average breadth 26 feet; making 7,511 cubic yards, at 86 cents per yard..... 6,459 00

It appears to be indispensably necessary to make one of the sides of the new canal impervious to water; it is now faced with flat stones, through the fissures of which the water, when let into the canal, forces its way. The leaks in this way consume, it is calculated, about one-fourth of the whole head of water. To remedy this defect, it is proposed to face the whole inner side down to the bed of the canal with a coat of good puddling, five feet thick

[6]

The records of the Armory Paymaster reveal that work on the canal repair project got underway in the second quarter of 1837 and was substantially completed by December 31,1837 and completed during the first quarter of 1838. The total cost was $ 11,623.18; of this sum

4. R.G. 217- 2nd series, 20761- 1st Quarter 1836-paid $ 200.00 for his services as engineer on the Armory Canal.
5. Special estimate for additional appropriations for the service of the Ordnance Department for the year 1837, dated Jan. 21,1837, Serial No. 303, Document No. 107, pp. 2, 304. Appropriation in U.S. Statues at Large,V.,p.149.
6. Serial No. 303, Doc. 107, p. 2, 3-4.

$ 11,218.49 was expended in 1837 and $ 404.69 in 1838.[7]

Of the total, $ 4,044.76 went to make the canal water tight, $ 7,002.75 for making new embankments, and $ 575.67 for other costs.[8] In December 1837 $ 44.50 was spent to purchase 44½ gallons of whiskey for use of the hands while at work in the water during the fall while puddling in the new canal."[9]

In July 1839 the site of the old saw mill, which Superintendent James Stubblefield had constructed along the Potomac Canal in the fall of 1819 at a cost of $ 472.75, was "filled up" at a cost of $ 11.00.[10]

In December 1840 John McCartney excavated and removed 10,000 cubic yards of earth and rock from the middle of the armory canal for $ 100.00. A note on his voucher explained that "This was the bank of the old canal, removed while the water was out of the canal, it being the old canal embankment."[11]

Finaly, in August 1841, George Mattlingly received $ 365.20 "for erecting 265 perches 15 feet of stone dry wall. This was a superstructure of stone on the river wall opposite the public dam on the Potomac, extending about 460 feet, but with a view to the better preservation of the dam

7, R.G. 217- 1423, 1716, 2092, and 2364. Also 2094.
8. Ibid. About $ 869.17 was charged for materials.
9. R.G. 217- 2094- 120A, dated Dec. 14,1837. David Lowny, on November 4,1837, was paid $ 126.00 for quarrying and delivering 180 perches of stone for the repair of the canal(2094-Voucher 4th quarter 1837) . With this $ 170.50 included, the appropriations for work on the canal would have just about been exhausted.
10. R.G. 217- 3971-6- To Edward Morgan, July 17,1839, $ 11.00 for 11 days work filling up site of old saw mill.
11. R.G. 217- 6465. The voucher dated Dec.30,1840, was not paid to Sept. 4, 1841. The total bill was $ 100.00 but deduction charged against McCartney of $ 32.75 reduced the actual payment to $ 67.25.

" and canal, and to facilitate the entrance of boats with public property into the inlet [of the Armory Canal]."[12]

Total expenditures for the repair and improvement of the U.S. Armory Canal on the Potomac from 1836 to 1841 appear to have amounted to approximately $ 12,195.20.

2, Repairs to the U.S. Potomac Dam, 1836-41:

During the period 1836-41, a total of approximately $ 793.66 was spent in making minor repairs to the U.S. Armory Dam on the Potomac. These were funds that had been carried foreward from the 1833 appropriations. The money was spent as follows: $ 88.00 during the first quarter of 1837[13] and $ 705.66 during the 3rd quarter of 1838. The latter amount was paid to John Littlejohn, the contractor who was also building the great Armory river wall along the Potomac, on August 31,1838.[14]

3. Repair and Improvements to the U.S. Shenandoah Dam and Canal,1836-41:

The records of the Armory Paymaster indicate that no major repair or improvement work was done on either the U.S. Dam on the Shenandoah River or on the section of the Shenandoah Canal that passed through the Rifle Factory grounds during the years 1836 to 1841.

For Maps showing how the U.S. Potomac Dam and Canal appeared in 1837-38, see Map No. 22, page 438, and Map No. 14,p. 385.

12. R.G. 217-6465-Voucher 108, dated Aug. 30,1841
13. R.G. 217- 951-Abstract G.
14. R.G. 217- 2729- 96C- for repair of Potomac Dam.

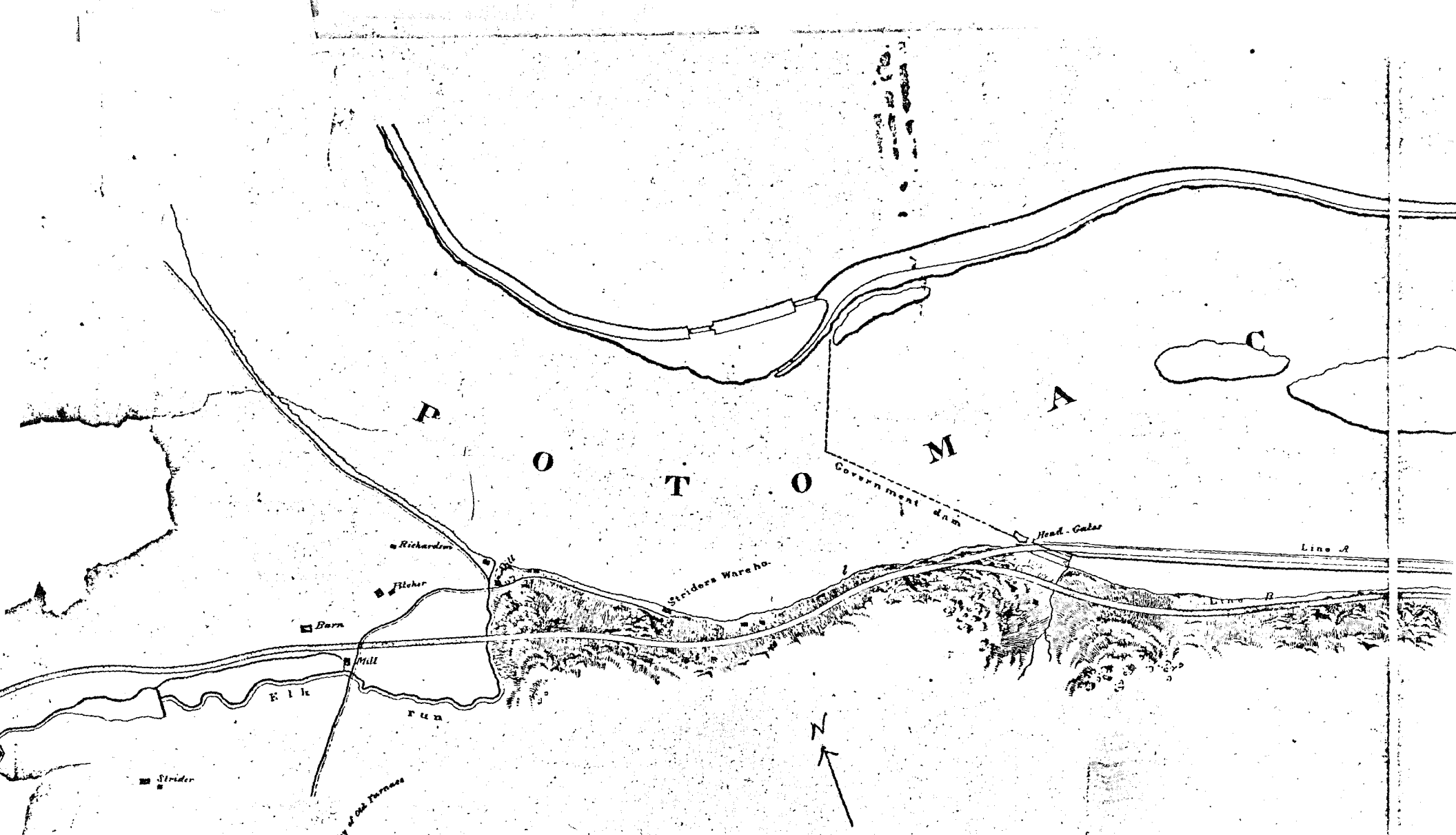
MAP NO. 22

"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.

This section of the 1837 map provides the second earliest known plan of the U.S. Armory Dam on the Potomac Canal and also of the head gates of the U.S. Armory Canal that conveyed the water from the dam to the U.S. Musket Factory to power the machinery.

The section of the map marked "the Valley of the Furnaces" and the area along Elk Run was the site of the 1,600 acre Friends Iron Ore Bank that the United States Government purchased from General Henry Lee on May 8,1800 for $ 24,000. Also located in this same area was the Keep Tryste Furnace Farm which the U.S. acquired from John Potts, George North, and William Wilson on June 20,1800 for $ 42,000! The Armory leased the furnace farm out until September 21,1819, when it sold the 221 acre tract to John Preacher for $ 15,000. The U.S. retained title to, but never utilized the 1,600 acre ore bank, until October 31,1879, when it sold the land to Daniel and John Ahl for $ 3,500.



MAP

shewing the routes surveyed for the

BALT. & OHIO RAIL ROAD

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.*

Expenditures for Repairs and Improvements on U.S. Armory Canals and Dams, 1836 to 1841:

Year	Potomac Canal	Potomac Dam	Shenandoah Canal	Shenandoah Dam	Total
1836	0	0	0	0	0
1837	$ 11,218.49	$ 88.00	0	0	$ 11,306.49
1838	404.69	705.66	0	0	1,110.35
1839	11.00	0	0	0	11.00
1840	100.00	0	0	0	100.00
1841	365.20	0	0	0	365.20
Total:	$ 12,099.38	$ 793.66	0	0	$ 12,893.04

With $ 38,439.85 spent building walls and embankmentsand widening the Potomac Canal from 1828 to 1835 included, the grand total cost of rebuilding the Armory Canal, 1828 to 1838 came to $ 50,063.03

1. Construction of New Government Dwelling Houses, 1836-41

In the estimates for 1836, Superintendent George Rust. Jr. recommended that 15 new dwelling houses be erected and requested $ 15,000 to accomplish this project. Lt. Col. George Talcott, Inspector of Armory and Arsenals, reviewed this proposal on July 25, 1835, and recommended that only ten, but larger, dwellings be erected in 1836 at a cost of $ 1,200 each.[1]

The Ordnance Department according requested and Congress appropriated the following item on July 2,1836:

For the erection of ten new dwelling houses for the accommodation of the workmen, at $ 1,200 each.....$ 12,000.00

This money, Col. Bomford informed Congress, was needed for the following reasons:

> E. The erection of ten additional dwelling-houses, for the accommodation of the workmen and their families at this armory, is considered indispensable; a number of those now occupied by them being, from their ruinous and dilapidated condition, very uncomfortable and unhealthy, and not worthy of repairs, many of them having been built of wood more than *thirty* years ago. The greater part of these old buildings are situated on the bank of the Potomac, and the site is overflown by every heavy rain; their lower apartments (partly under ground) are in consequence kept damp and unhealthy during the whole year, and this is conceived to be one of the principal causes of the sickness of that establishment.[2]

Because of the late date of the appropriation, none of the 10 dwelling houses were started in 1836.[3]

1. Summary Statement of Items in the Appropriation for Harpers Ferry Armory recommended in the Report of the Inspector of Armories & Arsenals , 25th July 1835, in National Archives Record Group 156, Special File Box 28, HFNHP Photostat Collection, Vol. 1, p.47.

2. Special Estimate for additional appropriations for the service of the Ordnance Department for the year 1836, January 11,1836, Serial No. 288, Document No. 90, p. 7, 8. Appropriation in U.S. Statues at Large,V, p.77.

3. Statement of Operations of the armory at Harper's Ferry during the year 1836, Serial No. 304, Document 186,p.3,list no expenditures for dwelling houses.

On February 21, 1839, the following advertisement appeared in the newspapers:

U.S. ARMORY, HARPER'S FERRY
Superintendent's Office
February 21st, 1837

Proposals will be received at this Office until the 10th of March next, for the erection of TEN BRICK DWELLING HOUSES, upon the Public Land at this Armory.

Specification for each:

Main Building - 28 by 22 feet, 1½ stories high; foundation of Stone, 20 inches thick; front and back Brick wall 14 inches; end wall 9 inches. Kitchen or Wing - 1 story high, cellar underneath, Stone Foundations 20 inches; Brick wall 9 in. Dimension 12 by 16 feet.

Contractor may propose for the Brick and Carpenter's Work separately, or for both; the materials to be of the best quality and furnished.

George Rust, Jr.
Superintendent [4]

The retirement of General Rust as superintendent of the Armory in March 1837 and the delay in appointing his replacement, Edward Lucas, Jr., until April, 1837, apparently held up the awarding of these contracts until after June 10, 1837.[5] The Specifications for the 1837 dwellings appear to be identical to those for the eight brick houses erected in 1833, except that the kitchens of the 1833 structures were 12 by 18 feet and the similar wings only in the 1837 residences were to be 12 by 16 feet in size. (See plans and elevations for 1833 houses, pages 322 and 323).

The records of the Armory Paymaster reveal that the successful bidders for these contracts were the mason Joseph Hilliard (or Hillard) and the carpenter James Foley, two of the three men who had erected the eight dwelling houses for the Armory in 1833. Hilliard agreed to do the stone and brick work for a total of $ 5,250.00, or at the rate of $ 525.00 per

4. R.G. 217-3695-Voucher 7- for $ 3.50, with printed copy of advertisement pasted to voucher. A note states that the notice was rerun in June 1837.
5. Ibid.

house. James Foley was to do the carpenter work on the 10 dwelling for a total of $ 3,750.00, or at the rate of $ 375.00 per house.[6] Total cost of construction, exclusive of painting and plastering, would be $ 9,000.00

Hillard began work in June and provided 120,000"moulded brick" at a cost of $ 360.00.[7] By September 30,1837, the mason had completed four houses, three on Camp Hill and one at the Rifle Factory Island, and received payments totalling $ 2,060.00.[8]

In September three other masons were paid a total of $ 118.93 for laying 63 perches of stone wall in mortar in connection with the dwelling house project[9] and providing 128 perches of stone. (These were perhaps the stone foundations for houses No. 9 and 10,see below).

During the fall, October to December, Hilliard constructed houses No. 5, 6, and 7, and was paid[10] $ 1,575.00. After receiving a total of $ 3,635.00 for the construction of seven dwellings in 1837, Hillard ceased work and the remaining houses were to be built by other masons.

Seven years later, on June 24, 1844, Joseph Hilliard was to receive an additional payment of $ 90.00 "for laying 60 perches of stone mortar wall, being extra work on five of the foundations walls of the brick dwelling houses built by him in 1838, in consequence of the uneveniness of the ground selected for the building sites and requiring therefore a greater quantity of stone than had been entered into the contract."[11]

11. R.G. 217- 3rd Series, 1167-Voucher 61.

6. R.G. 217- 1716- Abstract B-for Hillaard terms of $ 525.00 per house
7. R.G. 2170 1423-Voucher 202,June 17,1837, total $400, $ 360.00 for the brick and $ 40.00 for digging a foundation.
8. R.G. 217- 1716, Abstract B.
9. Ibid., $ 27.75 to James Barrym Sept. 7, for 37 perches of stone wall; $ 71.68 to David Lowire, Sept. 15, for 128 perches of stone; $ 19.50 to Jacob Picking, Sept. 30, for 26 perches of stone mortar wall.
10. R.G. 217- 2094- 153B, 160B, 162B.

On November 3,1837, the mason John Lambaugh was paid a total of $ 966.00 for executing the brick work on dwelling houses No. 9 and 10 at the rate of $ 483.00 per house.[12] The vouchers indicate Hilliard and Lambaugh, between them, had completed nine of the ten houses by December 31,1837 and that the total cost of all brick and stone work by the masons came to $ 4,719.93

James Foley, the contract carpenter, began work on the 10 houses in August and by September 30, 1837 had received a total of $ 1,450.00 for construction on houses No. 1 to 4.[13] During the 4th quarter of 1837, Foley received payments totalling $ 2,500.00 for work on Houses No. 6 to 10, and the vouchers noted that the carpenter work on four of these dwellings was complete.[14] Foley thus received a total of $ 3,950.00 for his efforts in 1837. The carpenter work on eight houses appears to have been finished. (All ten should have been finished for $ 3750.)

In February 1838 Foley was paid $ 150.00 for additional work.[15] In April Foley completed the carpenter work on two more houses and in June also the work on house No. 7, reaeiving $ 1,125.66 for his efforts during the 2nd quarter of 1838.[16] By June 14,1838, Foley had, according to the vouchers, completed the carpenter work on a total of three more dwellings and received a total of $ 1,275.00 in 1838. During 1837-38 Foley was thus paid a grand total of $ 5,225.00 for carpenter work on at least 11 new dwelling houses. He may have done the stone and brick work on House No. 8, which is not credited to the work of either Hilliard or Lambaugh.

12. R.G. 217- 2094- Voucher 152B.
13. R.G. 217- 1716-Abstract C.
14. R.G. 217 - 2094- Vouchers 154B, 166A, and 167A.
15. R.G. 217- 2364-1st quarter, Vou her 68B.
16. R.G. 217 - 2364-2nd qr.1838, vouchers dated April 30, and June 14,1838.

In May 1838 John Kennedy was paid $ 13.03 for painting the new houses, and Francis Rawlings received $ 76.66 for providing and putting up 460 feet of "spouting" on the residences.[17] In June Anthony Storm was paid $ 15.00 "for filling in and levelling two yards."[18] Total charges to the account for erecting 10 new dwelling houses from 1837 to June 30,1838 came to $ 10,099.04.

During July 1838 James Foley was paid $ 250.00 for constructing porches on five of the 10 new dwelling.[19] In 1839 Michael Foley, received $ 250.00 for building porches for the five remaining dwelling houses.[20] Total cost of the 10 new dwelling houses 1837 to 1839 thus appears to have been $ 10,599.04.

Using $ 982,59 in funds appropriated in 1833 for the construction of dwelling houses, supplemented by more recent funds, the Armory appears to have erected a 11th brick dwelling house in August 25, 1838 at a cost of $ 1,059.52 James Foley did the carpenter work for $ 375.00 and was paid $ 357.37 from 1833 dwelling house money and $ 17.63 from National Armory Accounts.[21] The mason John Lambaugh did the stone and brick work for $ 684.52 ; of this sum, $ 625.32 was charged to the 1833 dwelling funds and $ 59.20 from National Armory Accounts.[22]

17. R.G. 217- 2364- 2nd quarter of 1838, voucher to Kennedy dated May 16, 1838, voucher to Rawlings dated May 26,1838.
18. G R.G. 217- 2364-2nd qr.,1838- voucher dated June 8,1838.
19. R.G. 217-2729-94B,dated July 16,1838; and 96B, dated July 29,1838.
20. R.G. 217- 3971- voucher 114, dated Aug. 30,1839 for $ 100.00 and voucher 115, dated September 25,1839, for $ 150.00.
21. R.G. 217- 2729- Voucher 97, dated Aug. 25,1838.
22. R.G. 217- 2729- 45A, dated Aug. 3,1838.

The voucher to Lambaugh provides the following data on the nature of the 1838 house:

for laying in mortar, 59,780 brick.....	$ 597.80
for laying 22 9 inch arches (windows)	11.00
for laying 3 14 inch arches (doors)	3.00
laying 80 feet 6 inches cornice.....	13.52
	$ 625.32
for laying 4,354 brick,	
for laying 40 feet of cornice ----	59.20
for laying 8½ square yards of paving	
for laying one 9 inch arch	
Total:	$ 684.52 23

The total cost of erecting 11 new brick dwelling houses, using 1833 and 1836 funds, from 1836 to 1841 was approximately $ 11,836.29 of the total of $ 12,982.59 that had been appropriated for these purposes, thus leaving and unexpended balance of $ 1,146.30.

The roofs of the eight dwelling houses erected in 1833-34 had been slated.[24] The roofs of the 11 brick residences built in 1837-38 were also probably slated; William Bayley was paid $ 382.13 for slating 4,5029 square feet of roof in August 1838, but the voucher does not specifically identify the buildings being slated.[25]

These 11 houses were the last residences that were to be erected by the Armory for the use of the average workmen during the years 1839 to 1861. The five new dwellings that were to be built in the 1840's and 1850's were to be for the Superintendent, the Paymaster, the Master Armorer, and the two chief clerks.

23. Ibid.

24. See page 327. The eight dwellings had been slated, 2,892 square feet, by William Bayley in May 1834 for $ 231.36.

25. R.G. 217- 2729-Voucher 51A.

Pumps and Wells

During 1837 Charles G. Bragg was paid a total of $ 222.00 for constructing five pumps: one for the Musket Factory, one for the Rifle Factory, and three for the residences on Camp Hill.

The lengths of the Camp Hill pumps were 90, 41, and 31 feet, and the lengths of the workshop pumps totalled 60 feet.[26]

26. R.G. 217- 1716- 36A, Aug.22,1837 for 2 pumps, totalling 60 feet at rifle factory and armory=$ 60.00; 2094-4th quarter 1837, Dec., $ 162.00 for making pumps on Camp Hill.

2. Settling Workmen's Claims for Repairs and Improvments to Armory Dwelling Houses, 1836-41.

In the previous chapter it has been noted that on October 29, 1831, Superintendent George Rust, Jr. submitted a list of 67 unpaid claims totaling $ 6,346.50 for repairs, additions, improvements, and also for the construction of some complete dwellings, that the workmen had made to public dwellings during the years 1810 to 1831, to the Ordnance Department for settlement. The Ordnance Department, on its part, in the special estimates for the service of the Ordnance Department for the years 1833, 1834, and 1835, annually requested and Congress refused to to appropriate the sum of $ 6,346.50. On July 25, 1835, Lt. Col. George Talcott, Inspector of Armories and Arsenals, reviewed Superintendent Rust's propose requests for funds for 1836. In this process, the hard-hearted soldier reduced Rust's request for $ 6,346.50 for "Payment to individuals for Repairs and additions to Houses occupied by them &c &c," to only $ 4,548.50, explaining:

> A portion of this amount should be repaid but many of the charges are for such little conveniences as any man would provide at his own cost. The items - smoke houses, bake-ovens, spring-houses, Stables, occur in almost every instance, and it should not be forgotten that the rents of these houses are very low.

The reduction of $ 1,798 thus included cost of building smoke houses, bake ovens, etc. as listed by Talcott.[1]

The Ordnance Department request and Congress appropriated on July 2, 1836 the following item:

1. Summary Statement of Items in the Appropriations for Harper's Ferry Armory recommended in the report of the Inspector of Armory & Arsenals, 25th July 1835, HFNHP, Potostat Collection, Vol. 1, p. 45, 47.

"for the payment for repairs and additions upon the public dwelling houses, made by the workmen of the armory, to whom they have been assigned as dwellings..... $ 4,548.00."

The Chief of Ordnance explained the need for this unusual item as follows:

> As mentioned under E, many of the dwellings at this armory are old and ruinous, and have from time to time received repairs at periods when public funds for the purpose could not be obtained.
>
> Acting under the necessity of circumstances, repairs of public buildings occupied by the workmen have frequently been made by them, but without authority from the chief of this office.
>
> From various causes of incapacities in the workmen, it frequently becomes necessary to discharge unsuitable persons, who, in many instances retain possession of the public buildings after their discharge, on the grounds that the improvements they have made to the buildings have not been reinbursed them by the United States; and it is found that the authority of the superintendent of the armory is insufficient to remove them except by a tedious legal process.
>
> This occasions many inconveniences at the armory; and among them the principal is, that of the exclusion from the public dwellings of workmen employed in place of those who may have been discharged. To avoid these evils, the sum here referred to is embraced in this estimate. [2]

On December 8,1836, Superintendent George Rust, Jr. wrote to Col. George Bomford, Chief of Ordnance, pointing out the dilemma that the 1836 reduction in the amount appropriated for the settlement of the 67 claims had placed him. He noted:

> The Appropriation for the Payment of these claims amounts only to $ 4,548, less than the valuation, and the sum asked for in my estimate by $ 1,798.50.
>
> You perceive then my difficulty. How are to approtion (sic) among the claimants the amount appropriated? For what reasons, and by what rule was the Estimate narrowed down? A knowledge of these facts may guide me in the distribution of the Appropriations.

2. Special Estimate for additional appropriations for the service of the Ordnance Department for the year 1836, January 11,1836, Serial No. 288, Document 90, p. 7, 10. Appropriation in U.S. Statues at Large, V, p. 77.

The only mode as I conceive by which the matter may be settled is to show me in what cases the claims was dimished, and authorize me to pay in accordance with the discrimination made at the Dept. by which the estimate was curtailed. 3

Col. George Bomford replied on December 16, 1836; he failed to explain to Rust how Lt. Col. Talcott had arrived at the figure of $ 4,548, but included a form that all claimants must sign if they were to receive payment, under which they transferred whatever rights they might have to their improvements to the United States. He then stated that this "discrepancy" "appears to be a mistake", but "be as it may, the amount appropriated $ 4,548 must be for the present proportionally distributed among the claiments agreeably to the valuation of $ 6,346.50."

"Except where otherwise noted below," the Chief of Ordnance stated, " the claimants were paid at the rate of 71 cents to the Dollar." 4 Thus the loss of $ 1,798.50 was generally spread over all 67 claimants and not just on those who built outsbuildings, as Lt. Col. Talcott had intended when he made the reduction.

Rust resigned as Superintendent of the Armory in March 1837 before any of these claims were settled. The new superintendent, Edward Lucas, Jr., reported for duty at Harper's Ferry in April 1837.

3. Reel 24, Vol. 9, pp.837-840.
4. Reel 12, Vol. 3, pp.222-223.
5. Reel 24, Vol. 9, pp. 837-840.

The vouchers issued by the Armory Paymaster to settle most of the 67 claims dating from 1831 and similar more recent claims reveal (1) that claims totalling $ 3,704.14 were charged against the 1836 appropriation of $ 4,548.00 during the years 1837-41 and (2) that an additional $ 1662.00 was expended during this same period to extinigish similar claims. The total cost of this program, 1836-41, resulting in the elimination of 67 claims came to $ 5,366.14. On January 1,1842, however, there were still 18 claimants of the 1831 list with claims totalling $ 842.50, that had not been settled!

The 67 claims paid during the 1836-41 period were settled as follows:

Year:	Paid from 1836 approp. for this purposed	Paid from other accounts	No. claims settled	Total Paid
1836	0	0	0	0
1837	$ 2,855.45 (1)	$ 1,263.19	41	$ 4,118.64
1838	$ 422.16 (3)	0	8	422.16
1839	299.11 (4)	0	10	299.11
1840	127.42 (5)	38 0.00(6)	6	507.42
1841	0	18.81(7)	2	18.81
TOTAL	$ 3,704.14	$ 1,662.00	67	$ 5,366.14

1. R.G. 217- 761, 951 1423, 1716, 2092.
2. R.G. 217- Ibid.
3. R.G. 217- 2364, 2729, 3434.
4. R.G.217- 3695, 3917 4246.
5. 5252-R.G. 217, 5624.
6. R.G. 217- Voucher 47, paid to John H. Hall for improvements,$ 380.00. 5624.
7. R.G. 217 - 6454-vouchers 4 and 17.

Of the $ 5,366.14 expended 1836-41, $ 3,450.78 went to acquire title to 13 dwelling houses that had been constructed by the Armory workmen on Armory lands at their own expense and the balance, $ 1,915.36, to pay for repairs and improvements that workmen had made to Armory dwelling houses and lots, also at their own expense. The 13 purchased house, which were added to the Armory rent rolls, were as follows:

Workman Builder	Date Purchased	Amount Paid	Remarks	Source in R.G. 217
1. John Duke	4/26/37	$ 279.49	Log house, 19 by 24 ft.	File No. 1423
2. Jessie Bateman	5/2/37	64.46	for buildinga house 20 by 24 ft.Material furnished by U.S.	1423
3. William Schaeffer	4/2/37 6/13/38	268.74 106.26 $ 375.00	Stone house on Crooked Lane St.Claim of Daniel T Crawford.	1423 2364
4. William Smallwood	5/17/37	$ 125.41	Stone house 16 by 19 feet, log house	1423-168B
- William Smallwood	5/17/37	$ 229.32	Final payment on stone house 19 by 29 feet,had been paid $ 400.00 on house in 1826	1423- 169B
5. John Delgan	5/9/37	$ 350.00	for a house.	1423- 44
6. William McCoy	5/18/37 6/14/38	$ 365.65 $ 149.35 $ 515.00	for brick house,partial payment	1423- 170 2364
7. Henry Ward	9/11/37	$ 100.00	stone house, 18 by 19 feet, 1½ stories.	1716-134B
8. Thomas McNulty	9/30/37	$ 300.00	for brick and frame house.	1716-139B
9. Martin Breitenbaugh	9/30/37	100.00	for log house,&c.	1716-140B
10. John A. Schauffeur	9/30/37	$ 67.45	for log house.	1716-143B
11. John Lackey Estate	11/30/37	650.00	for building a stone house 18 by 40 feet,&c.	2094-156B
12. Jachemin Seaman	12/14/37	223.65	claim of Frannis Attlesberger for stone house 17 by 20 ft.	2094- 160B
13. Mary Griffith	6/18/38	71.00	for frame house.	2364
Total: 13 houses added to rent rolls:		Cost:$	$ 3,450.78	

On January 1,1842, there were still 18 workmen with claims totalling $ 776.50 who had been included in Superintendent George Rust"s Jr.'s report of October 29,1831 and who had not yet been paid. These persons were as follows:

Name	Value
1. Danel Drew	$ 20.00
2. Alexander Fossett	12.00
3. George W. Butler	140.00(1) (for a house).
4. Samuel Kilham	33.00
5. James S. Riley	31.00
6. Abraham Fleming	115.00
7. John Brua	2.50
8. Peter Hoffman	14.00
9. Daniel Johnson	25.00
10. John Anderson	130.00
11. Meshac Kirby	50.00
12. Timothy Herrington	60.00
13. Herod Lang	38.00
14. Jacob Engles	40.00
15. Netty Desmer(?)	25.00
16. Samuel Griffith	16.00
17. Robert Blanchard	66.00
18. Michael Cook	59.00 (2)
19. John Claspy	40.00
Total: 19 claims:	$ 916.50

Total of 18 claims, excluding item 3 of $ 140.00, is $ 776.50

This problem was carried over into the 1840's, when several more claims were finally settled. In November 1844, Abraham Fleming settled his $ 115.00 claim for $ 98.91[3] and Daniel Johnson his $ 25.00 claim for $ 17.75.[4]

(1). George W, Butler's claim for $ 140.00 is not included in the total as his house, which was in the right of way of the Winchester and Potomac Railroad along Shenandoah Street in 1834, and the engineers said it could not be moved, was probably purchased by the railroad company in 1835 and demolished. See Map No. 7, p.276.

2. Michael Cook, No. 18 on the above list, was also paid $ 16.00 on December 12,1839, to that balance due him may have been $ 43.00, not $ 59.00. If so, the total not yet paid was $ 776.50. R.G. 217 4046- 30.

3. R.G. 217- 1934-Voucher 30, dated Nov. 7,1844.

4. R.G. 217- 1934-Vo. 29, dated Nov.7,1844.

The result of the long drawn-out program of settling workmen claims to Armory dwelling houses, which began in 1822, is shown on the chart which follows.

Years:	Houses Purchased	Cost	for repairs and improvements	No. of claims	Total Paid
1822-29	29	$ 6,595.47	$ 3,289.60	79	$ 9,885.07
1830-31	7	1,850.35	1,799.56	27	3,649.91
1837-41	13	3,450.78	1,915.36	67	5,366.14
Total:	49	$ 11,896.60	$ 7,004.52	175	$ 18,901.12
Outstanding in 1842	(not yet paid)			18	$ 776.50
Total:	-	-	-	193	$ 19,677.62

3. Commerical Buildings and Leases on U.S. Lands, 1836-41:

On February 23,1829, Superintendent James Stubblefield informed Col. George Bomford, Chief of Ordnance, that there were seven private individuals not connected with the Armory who had constructed mercANTILE structures and dwellings on the Armory lands, some with leases, some with alledged leases, and some others without any leases. The total estimated value of their 11 buildings was placed at $ 14,075.00 by Stubblefield.

On July 22,1830, Bomford ordered the new superintendent, George Rust, Jr. to consider the questions of these buildings and leases for the purpose of establishing U.S. control over the buildings and the lots they occupied. Rust had these leases and buildings appraised by three disinterested persons in 1831 and on October 29 of that year submitted their finding to the Ordnance Department. Rust discovered that there were 10 such claimants, not seven as Stubblfield reported, and only two had valid leases from the united States(the Secretary of War), the other eight had settled on the public land with the consent of their friends, Superintendent James Stubblefield. They paid no ground rent to the United States and no land taxes to the State of virginia, being located on Federal property. Superintendent Rust was able to settle the claim of John S. Gallager for one frame dwelling and one frame printing office(houses No. 41 and 42, located on the north side of Shenandoah Street on the 1834 Map No. 7,p.276.) in 1831 for $ 835.00, thus extinguishing one such claim. The October 29,1831 report therefore listed only the nine remaining" Class No. 2" claims, which totalled $ 16,290.[1] These were as follows:

1. Reel 24, Vol. 9, p.354.

Claim No. Claimant	Improvements	Appraised Value
1. William Graham - six bldgs, (3 dwellings)	Stone store house- Brick Dwelling House & Frame House, stable, ice house-privy..... (These structures were located on Lot No.1, Block C, Shenandoah Street and perhaps partly on Lot 11, Block C. Graham was dead, but his his heirs still held tnis property in 1836)	$ 4,000.00
2. Samuel Strider 2 Bldgs(1 dwelling)	- Frame Store House & dwelling- Smoke House.... Located on the Potomac side near the Superintendent's House.	285.00
3. William Bester- 1 dwelling	Brick Dwelling 20 by 30 feet $ 550.00 Kitchen, cellar & fence 25.00 Located on side of hill near the Free Church.	575.00
4. Philip Coons - 5 bldgs. (1 dwelling)	Stone house- stable, kitchen, slaughterhouse- ice house. (Located on Lot No. 7, Block D., Shenandoah Street and still owned by Coons in 1836)	.....3,500.00
5. John G. Wilson - (4 bldgs-1 dwelling)	Stone store house & dwelling, smoke house & stable ..... (This is Park Bldg. No. 45, located on Lot No.1 North of Shenandoah Street; By 1834 Mrs. Ann C. Stephenson, the widow of Major James Stephenson, had purchased this property from J.G. Wilson)	3,000.00
6. Michael Garry - 3 bldgs.(2 dwellings)	three-story 1½ story log Stone dwelling, frame store house, stable ..... (this was situated "on the street leading up the hill towards Charlestown- built in 1826) South side road, House No.55	2,450.00
7. Willim Prim (1 dwelling)	Stone dwelling 16 by 20 feet..... located on Camp Hill near Harper's Graveyard.	80.00
8. William Anderson- (1 dwelling)	Stone store house and lease..... (Anderson, after 1829 and prior to 1831, must have purchased Major Jamieson's lease which had been granted in February 1816. This lot was located on the northern slope of Camp Hill, overlooking the U.S. Musket Factory- the lot had contained wooden storehouse and dwelling in 1829) Located near Dr. Marmion's House.	1,200.00
9. Dr. Nicholas Marmion- (1 dwelling)	Stone dwelling and lease..... Marmion's lease had been granted by the War Department in a lease signed June 3,1829 and Marmion erected his house in 1829. His house was located on Lot No. 1, Block AA, on the 1869 land map, or Lot. H of Major John Symington's 1844 Map of Harper's Ferry. The house stood on the north side of High Street, just west of the Wager Six Acre Reservation.)	1,200.00
Total: 9 claims	24 buildings, including 12 houses or dwellings.	16,290.00

In the Special estimate for 1836 the Ordnance Department requested and Congress appropriated on July 2,1836, money for the following item; for the purchase of buildings erected by private individuals, on the public grounds at the Harper's Ferry Armory..... $ 16,290.

Col. Bomford explained to Congress the need for this money as follows:

> G. The amount here referred to, is the result of a valuation made by disinterested persons. These buildings were erected many years since, and without authority from the chief of this office. They are also good and serviceable, their annual amount of rents being not less than nineteen hundred dollars.
>
> As the owners pay no rent or taxes to the United States, they are perfectly satisfied to hold the property under such advantageous circumstances. To this there could be no great objection, if the ground occupied by the buildings, and their enclosures, was not necessary to the public service of the armory. It is that part of the public ground which lies between the two rivers, being the only disposable level ground at the armory. It has the advantage of being on the south side of the hill, and is the most suitable ground for dwellings for the mechanics, as it is free from the inconveniences and unhealthiness, referred to under the head E, which attaches to the sites of the old buildings there alluded to.
>
> The possession of these buildings and their enclosures would, without doubt, have a marked effect in improving the health of the workmen. And this circumstance would ultimately enable the Department to reduce the excess of wages now given at this establishment, over and above what is paid at the Springfield armory: this excess being found necessary to be given at Harper's Ferry, principally in consequence of the time lost by workmen from sickness.
>
> As these buildings and their enclosures occupy the most suitable ground for the erection of dwellings, their purchase becomes a matter of the first importance to the public interest at this establishment, and the amount embraced in this estimate is therefore especially recommended.
>
> (2)

Superintendent George Rust,Jr. at once took steps to settle these claims which had been hanging fire since 1829. The report to Congress, "Statement of the operations of the armory at Harper's Ferry during the year 1836", indicated that " $3,298.00" was spent" for the purchase of private dwelling houses" during 1836.[3]

2. Special Estimate for additional appropriations for the service of the Ordnance Department for the year 1836, January 11,1836, in Serial No. 288, Document 90, pp. 7, 8-9. Appropriation in U.S. Statues at Large, V, p.77.

3. Serial No. 304, Document No. 186, p.3.

The 1836 payment settled one claim, that of Philip Coons(see item 4, p.455). In 1837 Superintendent Lucas was able to settle six more claims for a total of $ 11,372.00. In 1836-37, at a cost of $ 14,670.00 the Armory thus acquired title to a total of 22 buildings, including 10 more dwelling houses. The latter were placed on the rent roll and provided additional housing for Armory employees. (See Chart on page 458 for details of the seven settlements).

On December 31,1841, there was still a balance of $ 1,620.00 available in the 1836 appropriation to settle the two outstanding claims of William Prim and Dr. Nicholas Marmion, which jointly totalled $ 1,280.00. William Prim may have been a free black and no record has been found for the settlement of his claim for $ 80.00.[4] Dr, Marmion's claim included a lease from the Secretary of War for a lot with a 35 foot wide frontage on the north side of High Street, together with a stone residence on the property that had been valued as worth $ 1,200.00 in 1831. Superintendent Lucas had attempted to bargain with Marmion, but without success and January 11,1839 Lucas informed Col. Bomford, Chief of Ordnance, that since the 1831 appraisal of the lot with a stone house, Dr. Marmion had also managed to gain control of three other lots of public land which had upon them one dwelling, two stables, and a corn house.[5] One of the additional Marmion lots, which was located on the Shenandoah River, was not needed for public use and Lucas had no objection to Marmion's continued use of that property. The other lots, however, were needed for immediate Armory use.

4. Superintendent James Stubblefield, in a letter to Col. George Bomford, dated February 23,1829, had written:"There are three or four buildings erected on the hill(Camp Hill) between the two rivers, not included in this report:..... three other small huts, occupied by free blacks, named as follows, viz, William Prim, Adam Jones, and Jack Wood, who perform the duties of sexton and grave diggers..." Serial No.187, Document No. 138, p.2.

5. Reel 20, Vol. 5, p.474.

Record Group 217, National Archives (L)

Settlement of Claims of Private Individuals not connected with the Armory to buildings located on U.S. Lands, Harper's Ferry, 1836-1841

Individual	Amount Paid	Date	File No.	Voucher No.	Valued
1. Philip Coons	$ 3,298.00	Dec.27,1836	761	114-C	$ 3,500.00
2. Samuel Strider	$ 285.00	Jan. 16,1837	951	A Abstract	285.00
3. William Bester* to Sarah Bester,Adm.	$ 550.00	Jan. 16,1837	951	Abstract A	550.00
4. William Anderson	$ 1,162.00	January 25,1837	951	A Abstract	1,200.00
5. Ann C. Stephenson (Park Bldg. No.45)	$ 3,000.00	March 27,1837	951	105B	3,000.00
6. William Graham Estate, Nicholas Marmion,Administrator.	4,000.00	July 21,1837	17163	126	4,000.00
7. Jacob,Charles, Thomas and Philip Baltzell, who purchased property from Michael Garry on June 31,1831 for $ 3,000.	2,375.00	June 30,1837	1423		2,450.00
Total to Jan. 1,1842	$ 14,670.00	7 claims			$ 14,985.00
NOT SETTLED BY Jan. 1,1842:					Valued
* 1. William Prim (a Free Black)					$ 80.00
+ 2. Dr. Nicholas Marmion +					1,200.00
Total Not paid: 2 claims					$ 1,280.00

*An additional claim of Wm. Bester, in the amount of $ 35.00, was paid off from the fund for settling the claims of Workmen for improvements made to Armory Dwelling Houses.

+ Dr. Marmion"s Claim for his property, which was finally valued at $ 2,300.00, was settled for $ 2,000.00 on November 30,1847, bringing the total expended to eliminating these claims to $ 16,985.00.

* No record has been found to indicate that the William Prim claim was settled.

(1) Records of the Second Auditor of the Treasury Department, R.G. 217.

Continuing his tale of woe, Superintendent noted that Dr. Marmion had not paid the ground rent on any of his public lots since the lease for one had been issued in 1829. The lease from the Secretary of War specified that Marmion was pay 50 cents a foot, or a total annual ground rent of $ 175.00 for the use of his original public lot. Lucas reported that Marmion's three additional lots had not been included in the appraisal of such property that has been made in 1831. Marmion also refused to permit his property to be appraised in 1835, so that additional funds could have been included in the 1836 estimates for the purchase of these lots. Lucas speculated that Dr. Marmion had refused to permit such an appraisal to be made because the dwelling and two stables were probably bringing him more than $ 200 a year in rent and no state taxes had to be paid on the Federal land. Lucas thus requested and received permission to offer Dr. Marmion $ 1,700 to acquire his lease.[6]

Marmion rejected this offer, however, but did suggest that new appraisal by three disinterested persons could be made of his leaseholds. On June 21,1839, the Armory Superintendent reported that the new appraised value had been set at $ 2,300 and also that Dr, Marmion had agreed to accept this price. On July 20,1839, however, the good doctor also rejected the higher price when he discovered that Superintendent Lucas intended to reduce the amount of cash paid to $ 2,000 by withholding $ 210 for overdue ground rent that Marmion had failed to pay.[7]

Eight more years were to pass before Dr. Nicholas Marmion was

6. Lucas to Bomford, January 11,1839, Reel 20, Vol. 5, p.474.On January 18,1839 .Col. Bomford authorized Supt. Lucas to pay Marmion the $ 1,700.00 by using $ 1,595.00 said to be available in the special 1836 appropriation and to make up the balance with $ 105.00 taken from the rent money paid by the Armory workmen. Reel 14, Vol. 12, p. 1152.
7. Reel 12, Vol. 6, pp. 563-564, 569-71, 572-73.

willing to sell his stone house and leasehold to the U.S. Armory. Another special appropriation by Congress was required to provide the purchase money, but on November 30, 1847, Dr. Nicholas Marmion deeded his 1829 lot and house (See Lot H on High Street on Map 16 (1844), page 387). to the United States for $ 2,000.00 in cash and for forgiveness for all the ground rent that he had failed to pay from 1829 to 1847.[8]

During the years 1836 to 1841, as had been mentioned, the Armory was able to acquire however, title to 10 dwelling houses, and 12 outbuildings for a total of $ 14,670.00.

4. Armory Rent Rolls and Rents, 1836-41

Added to the Armory rents rolls during the years 1836 to 1841 were the following houses:

11 new dwellings, brick, built by the Armory, 1837-38.

13 houses constructed by the workmen and purchased by U.S.

10 houses constructed by private individuals and purchased by the U.S. in 1836-37.

34 houses, cost of $ 29,957.07

In August 1841 Armory painter John P. Kennedy painted numbers on each of the public dwelling houses so that these residences conformed to same designating number used to identify that structure in the Armory rent rolls.[9] Beginning in August 1841, and continuing through 1852, it is thus posible to establish the location and occupant of every Armory residence.

9. R.G. 2170 File 6465-Voucher 49. dated August 31,1841 and paid Sept. 2, 1841. Kennedy received $ 10.00 for this work/.

8. Deed of B. & S., dated November 30,1847, Deed Book 29, p.366, Jefferson County Court House, Charles Town, W. Va.. On the S. Howell Bowon 1869 map of Harper's Fery, Dr. Marmion's former leasehold is Lot No. 1, Block AA, Camp Hill.

Year	Renting According to Annual Reports to Congress	Rents collected according to Armory rent rolls	Remarks
1836	$ 3,074.66 (1)	$ 3,074.63	133 renters(7)
1837	3,435.20 (2)	3,405.95	149 renters (8)
1838	3,834.87 (3)	3,725.57	4th qr.missing. 178 renters. (9)
1839	$ 3,667.04 (4) 1st & 2nd qrs only	3,569.76	4th qr. missing. 169 renter. (10)
1840	not reported (5)	6,716.42	includes 4th qr of 1839 171 renters (11)
1841	not reported (6)	4,613.07	3rd qr,missing. 170 renters (12)
Total:	$ 14,111.77 **	$ 25,105.40	

** The $ 14,111.77 collected in rent from Armory work men, January 1, 1836 to June 30,1839 was used to reduce the cost of manufacturing arms and not applied to make repairs or improvements to the Armory dwelling houses.

Houses of the Superintendent, Paymaster, Master Armorer, Director of the Rifle Factory, The Superintendent's Clerk, the Paymaster's Clerk, Clerk to the Director of the Rifle Factory, Clerk to the Master Armorer, Chief Clerk, the Master Machinist, and three inspectors, 13 residences in all, were rent free. On March 31,1841 there were 171 renters, including the 13 rent-free houses, a slaughter house rented for $ 50.00 a year,

1. Serial No. 304, Document 186,p.3.
2. Serial No. 331, Document 428. pp.3,4. $8025 of total from Rifle Factory workers
3. Serial No. 344,Document 2, pp396-399.
4. Serial No. 363, Document 2, pp. 95-101.
5. Serial No. 375 Document 1 pp.729 79 information not included.
6. Serial No. 395 Document No. 1, information not included.p.102-103.
7. R.G. 217- 2nd series 20761 and 20954; 3rd series 677 and761.
8. R.G. 217-3rd series, 951, 1423, 1716, 2092.
9. R. G. 217-3rd S., 2364, 2729, 3429.
10. R. G. 217-3rd S., 3695, 3971, 4246.
11. R. G. 217- 3rd S., 5252, 5624, 5784.
12. R.G. 217- 3rd S. 6195, 6465, 6718, 7045.

the Shenandoah Ferry, rented for $ 360.00 per year; a post office rented for $ 40.00 per year; and 3 or four structures that were rented for use as stores and shops. Rent on these commerical buildings ranged from $ 100.00 to $ 125.00 per annum. Rents on Armorers houses, apparently based on size and condition, varied from $ 16.00 to $ 60.00 a year in 1841.[13] The rent due per quarter, if everyone paid on time(which of course they didn't) was $ 1,553.24, or $ 6,212.96 per year in 1841. On March 31,1841,there was $ 1,892.59 in back rent overdue.

Censusesof 1830 and 1840

	1830			1840		
	Harpers Ferry	Virginius	Total	Harpers Ferry	Virginius	Total
Total	1,385	89	1,474	1,688	113	1,801
Whites	1,184	70	1,254	1,477	108	1,575
Blacks	201	19	220	221	5	226
No.of Families*	208	16	224	261	16	277
White Males	613	43	656	813	66	879
White Females	571	27	598	654	42	696
Free Blacks	63	1	64	87	3	90
Slaves	138	18	156	134	2	136
Town of Bolivar:	-	-	269	-	-	515
Total for Area	-	-	1,743	-	-	2,316

13. R.G. 217-File 6195."Rent Roll, Statement of Dwelling Houses belonging to the United States at Harper's Ferry Armory and of Rents due thereon, on 31st March 1841.

* Note: Number of Armory Dwelling Houses in Harper's Ferry in 1840 was 170 residences, some of which were two-family quarters.

Probably about 80 families living in privately owned structures on Wager Six Acre and Ferry Land Reservation lots in 1840, or in Bolivar.

5. Repair of Government Dwellings:

On September 16,1835, Master Armorer Benjamin Moor, serving as usual as the acting superintendent during one of the numerous absences of Superintendent George Rust, Jr., requested permission to expend $ 350.00 to make emergency repairs, chiefly to the roofs, of several of the old Armory dwelling houses.[1] Chief of Ordnance, Col. George Bomford, referred the question to Secretary of War Lewis Cass, recommending that permission be granted and explaining the problem as follows:

> .... As there is no particular appropriation for funds for these repairs, I would take the liberty to suggest the propriety of paying the expense out of the money arising from the rents of these houses for the present quarter, which will be due on the first of next month (October 1), and will amount to about eight hundred dollars, which is respectfully submitted for your consideration and decision.[2]

As has been noted in the previous chapters, approximately $ 23,009.25 in rents had been collected from the workmen during the period 1822 to 1835, and with the $ 14,111.77 collected during the years 1836 to July 1,1839 included, the grand total of rents stood at $ 37,211.02 . This large sum of money, also as has been mentioned, was not utilitized to maintain and repair the Armory dwelling houses, but to the reduce the costs of manufacturing arms. With such a policy it is small wonder that it was repeatedly reported that many of the Armory residences, some of which dated from 1810, were falling, or on the verge of falling down.

1. Moor to Bomford, Sept. 16,1835, Reel 12, Vol. 1,p.67.
2. Reel 19, Vol. 13, p.1313.

On September 17,1839, Superintendent Edward Lucas, Jr. again raised the questions of repairs with the Ordnance Department, writing to Lieut. Col. George Talcott:

The Ord. Regulations litterally(sic) construed would seem to require that no repairs or additions whatever be made without plans or estimates being previously submitted to & approved by the Honble Secy of War. This I presume. however, was not intended to be embraced in all the numerous & unavoidable cases at this Armory, where we have over three hundred houses to keep in repair - many of which are scarely worth it & yet cannot be done without....

I take it for granted therefore that this Regl. has been virtually complied with by me - yet I deem it proper at this time to ask the Dept to authorize & sanction the general & necessary repairs which are almost indespensably necessary, without requiring a specific estimate & plan in each case.

There are several of the One & half story brick houses upon Shenandoah Street which require roofing & as the foundations are good & the expense of adding some three or four feet would not add much to the expense, while the room that would be gained would be considerable.

There are several houses without chimnies(sic) which ought to be built, before the cold weather sets in...

The rents have been raised within the last two years with a view of enabling me to add to the comforts & conviences of the workmen, which has been done by making necessary repairs. alterations & additions to their houses.... [3]

Lt. Col. George Talcott, responding on September 21,1839, wrote:

...I can only state that small matters of daily occurence, in the way of repairs, to the public buildings & machinery are not considered as embraced by the Ord. Regulations.

New Structures. extensive or expensive alterations of old buildings and any unusual or large expenditures, not previously sanctioned, should be submitted to the Secretary of War.

The appropriation of money for a particular object, that has been embraced in the annual, or other estimate is usually considered sufficent authority for the expenditure of the money upon that object, but when large sums are asked for in the estimates, and only a portion of the amount is appropriated, certain specific items are stricken out of the money in that case should be applied only to the purposes mentioned in the items retained.

A little reflection will always enable you to decide how to act in the different cases as they come up.. [4]

3.Reel 12, Vol. 6, pp. 592-593.
4. Reel 16, Vol. 1, p.122.

Beginning in 1839, the Ordnance Department appears to have permitted to the superintendent of the Armory to use some of the rent money collected to make routine repairs on the government dwelling houses. During the period July 1,1839 to December 31,1841, a total of $ 11,329.49 in rents was collected and available for possible use to maintain the Armory dwelling houses. This practice was continued for about 10 years, until 1849, when Congress passed a law that prohibited this practice.

A. Repair and Improvement of Quarters of the Chief Officers of the Armory, 1836-1841:

1. The Clerks' Houses.

In 1834, as has been mentioned, Congress appropriated the sum of $ 2,079.72 (under the "Erecting Storehouses" Account) to repair the Paymaster's and Clerks' quarters , but no work was charged against this account for this purpose from 1834 to 1836. During the summer of 1837, however, about $ 1,000.00's worth of repair and improvement were done to the Clerks' and Master Armorer's residences. For some unknown reason, this 1837 work was never charged against the $ 2,079.72 account and this money reverted to the U.S. Treasury surplus fund unused in 1839. A.

Engaged in this work during the summer of 1837 were the carpenters James Foley and John Hyatt, the plasters Sidney S. Gallaher and William Fawcett, and the mason John Lambaugh. On April 1,1837, Edward Lucas,Jr. was also paid $ 235.84 "for making additions to Clerk's Quarters."[1] The carpenter work came to $ 272.75,[2] the plastering to $ 21.27,[3] and

A. On July 31,1837, the U.S. Government purchased the William Grahm Houses No. 3 and 4 on Lot No.1,Block C, Shenandoah Street(see Map No. 7,p.276) for $ 4,000. The rent rolls indicate that the Paymaster moved out of his old house(No.43-Map 7,on the bank of the Shenandoah)into House No. 3 in either 1837 or 1838

1. R.G. 217- 1423- 67A.

2.R.G. 217- 1423-99. To James Foley, $ 139.68,June 17,1837 for making repairs to Clerk's House; 1423-84- To John Hyatt, $ 35.50, June 10,1837,for making repairs to 2nd Clerk's House; 1716-To John Hyatt, Sept.27,1837- $ 97.55 for carpenter work to Clerk's House.

3. R. G. 217- 1423- 101- To Sidney S. Gallaher, $ 21.27,June 1837,for plastering Clerk's House.

A,Continued- With his move into Bldg.No. 3, a very large brick house, there was no longer any need to spend large sums to repair his 1801-37 residence.His old house became a two family house in 1838.

was $ 97.90 for masonry work.[4] With money paid to Lucas, Jr. included, a total of $ 627.76 was expended on repairs and improvements to the rent-free quarters of the clerks and inspectors in 1837.

2. The Master Armorer's House, Park Building 34-35:

This two-story brick residence, the home of Master Armorer Benjamin Moor in 1837, had been erected by Dr. Joseph Annin in 1812. The dwelling originally was 36 by 30 feet in size and had a cellar kitchen. In 1827 a one-story brick kitchen, 22 by 20 feet, was added to the main house at a cost of $ 500.00.

In June 1837 the mason John Lambaugh was paid $ 66.31 "for laying 4,250 bricks, 8 square yards of pavement, making cornice, 60 feet of cornice, 7½ perches of stone" at "Moore's House". This may have been work at Master Armorer Moor's residence, his son's residence (Benjamin Moor Jr. who was a Armory Clerk),[5] or at inspector William A. Moore's house. Also in June 1837 the carpenter John Hyatt received $ 6.25 for making steps" to the back door of the Master Armroer's house" and for making one door and one window sill for that house.[6]

In September 1837 the Master Armorer's House was enlarged into a 2½ story house and six dormer windows were installed in the gable roof.

4. R.G. 217- 1423- 116 To James Lambaugh, mason, $ 74.00, June 24, 1837 for laying 7,134 brick at Hoffman's house (Philip Hoffman, an inspector) and 16 feet of cornice; 1716-70A- To John Lambaugh, Sept. 1837- $ 23.90 for mason work on an inspector's quarters.
5. R.G. 217- 1423-116, dated June 24, 1837- on a voucher totalling $ 140.31 to Lambaugh.
6. R.G. 217- 84- dated June 10, 1837, part of a bill totalling $ 41.75 paid to Hyatt.

The Mason John Lambaugh did the brick work and received a total of $ 74.07 for the following work:" for laying 6,857 brick @ 10$ = $ 68.57

for laying 5 9-inch arches @ 50 2.50

for laying 18 feet cornice 3.00

$ 74.07 " 7

In December 1837 Lambaugh received an additional $ 24.00 for "cutting door out, putting in cornices, pulling down and filling in gable ends of Major (Benjamin) Moor's quarters."[8] The plaster William Fawcett was also paid $ 13.50 in December 1837 for 9 days work "taking down chimney in Master Armorer's House."[9]

The carpenter work for the enlargement of the Master Armorer's House was done by James Foley, who received a total of $ 123.00 for the following work that was executed in September 1837:

"for making 15 pair window blinds @ $ 4 = $ 60.00

for making 1 pair of windows blinds @ $3= 3.00

for making 6 Dormer Windows @ $ 10 = 60.00

$ 123.00" (10)

Costs of repairs and improvements to the Master Armorer's House in 1837 thus cost approximately $ 307,13. With the $ 627.76 spent on the clerk and inspectors houses included, expenditures on the residences of the chief officers of the Armory came to $ 934.89 in 1837.

7. R.G. 217- 1716-74A dated Sept.19,1837, part of a bill totalling # 97.97.
8. R.G. 217- 2094- 67A. Paid December 30,1837.
9. R.G. 217- 2094- 63A, dated December 14,1837, part of a bill totalling $ 88.60 for plastering dwellings,etc.
10. R. G. 217- 1716-74A, dated September 23,1837.

The renovation of the Master Armorer's House was completed in the summer of 1838 when the painter William Bordin was paid a total of $ 205.11 for "completing the painting, glazing and plastering old part of Master Armorer"s quarters per agreement" $ 116.25

" for painting 380 square yards 3 coats @ 18 3/4 =	$	71.25
" glazing new sash 196 light @ 4¢		7.84
" glazing old sash 8 lights @ 5		.40
" painting 75 sq. yds, 2 coats @ 12½¢		9.37
	$	205.11" 11

The Master Armorer's House and also some of the residences inspectors were heated by "Franklin Stoves"[11]. Three such stoves were set up at a cost of $ 4.50 in Major Moor's house in the fall of 1838.[12]

Finally, in June 1841, John Starrett was paid $ 144.13 for doing the following work on the Master Armorer's and Chief Clerk's Quarters:

For plastering 370 sq.yards 2 coat work @ 10¢	$ 37.00
plastering 379 4/9 sq.yds. 2 coats work and filling in with brick @ 20	75.88
laying 3 hearths @ 75¢	2.25
filling in under door frames & windows	2.00
for day labor patching plastering	1.00
for cutting hole for stove pipe	.50

11. R.G. 217- 2364- 49, dated June 8,1838,for $ 25.00; balance of $ 180.11, with detailed description of work paid Aug. 8,1838,on 2729- 22A

12. R.G. 217- 3695 No. 10,paid April 23,1839, for work done in fall of 1838; On January 21, 1840 James Foley was also paid $ 15.00 "for one Franklin Stove for Master Armorer's House", in 4429-1 . John Lambaugh's bill for $ 23.90 for work on an inspector's house on Sept. 19, 1837, included a charge of $ 3.00 for setting up two Franklin stoves, in 1716- 70A.

" for repairing one chimney $ 2.00

" for filling up under cellar door 1.50

" for plastering partition, whitewashing &c. and scraping one room..... 1.50

For Whitewashing 28 rooms @ 75¢ at Master Armorers & Chief Clerk's quarters 21.00

Total: $ 144.13" 13.

A total of $ 675.87, approximately, was spent on the Master Armorer's house from 1836 to 1841.

3. Superintendent's Quarters, 1841

In 1841, as has been noted on pages 399-400, The Superintendent"s quarters had 2,040 brick laid in"brick walls front and back" and 130 feet of brick cornice laid, at the Musket Factory. The mason John Lambaugh received $ 42.06 for this work, which was completed in September. William Bayley also slated the roof of the Superintendent's house and Benjamin Snooks put up spouting on that residence, all in the the fall of 1841.

From 1836 to 1841 a total of approximately $ 1,464.28 was spent to repair and improve the residences of the chief officers of the U.S. Armory at Harper's Ferry.

B. Repairs to Armorers' Dwelling Houses, 1836-1841:

During 1837 about $ 826.13 appears to have been expended in making repairs to homes of the regular Armory employees. Samuel Compton was paid $ 28.00 for 18 2/3 days work in May and June making privies. 14 The carpenters James Foley, John Hyatt, and Jacob Friend repaired dwelling houses. 15

13. R.G. 217- 2nd Series 6195-114, dated July 12,1841.
14. R. G. 1423- 92- paud June 12,1837.
15. R.G. 217- 1716-Abstract A. To Jacob Friend, Sept. 30,1837- $ 208,77 for carpenter work on dwelling houses; 1716 to John Hyatt, July 12,1837, $ 203.53 for carpenter work on dwellin houses; James Foley, on Nov, 14,1837 and Dec.30, 1837, was paid a total of $ 311.73 for carpenter work that was not specified as to type of structure, 2094- 35A and 140 A.

receiving a total of $ 724.03 in 1837.

In December 1837 William Fawcett was paid $ 75.10 for patching the plaster in "sundry houses."[16]

Little or no work appears to have been done on the dwelling houses in 1838 and 1839. In August 1839 John Hyatt received $ 211.60 for carpenter work

In September 1840 George W. Tracey was paid $ 31.87 for slating 1,078 feet of the roof of a dwelling and repairing the roof of a second residnce.[17]

In December 1840 the carpenter Michael Foley received $ 82.03 for the extensive repairs that he made to Armory Dwelling No. 7, present Park Bldg. No. 45, which the Armory had purchased from Mrs. Ann C. Stephenson on March 27,1837 for $ 3,000.00(See pages 455 and 458).[18]

In 1841 about $ 663.66 was spent repairing armory dwelling houses. The plasters Jerry Harris and Hiram McKenzie received $ 267.01 for their efforts on dwelling houses.[19] During the first quarter of 1841 $ 105.00 was spent to make repairs to the large stone house on Lot 7, Block D, Shenandoah Street, that the Armory had purchased from Philip Coons on on December 27,1836 for $ 3,298.00 (See pages 455 and 458).[20] The tinsmith Benjamin Snook received $ 50.51 in August "for putting up and taking down spouting on dwelling houses."[21] The painter John P Kennedy was paid at least $ 21.80 wo for his work on dwelling houses during the summer of 1841.[22]

In November John Hyatt , the carpenter, repaired dwelling houses and received $ 96.87.[23] The slater George W. Tracey also made minor repairs to dwelling house roofs.[24]

16. R.G. 217- 2094- 63A,dated Dec. 14,1837-part of a voucher totalling $ 88.60.
17. R.G. 217- 5252-112-dated Sept. 30,1840- he was paid $ 21.56 for the new roof and $ 10.31 for the repair work.
18.R.G. 217- 563-52, dated Dec. 15,1840. Included in the $ 82.03½ total was $ 5.61 for repairs to inspector Hoffman's Quarters.
19. R.G. 217- 6195-45-Jerry Harris, 2nd quarter 1841- $ 69.38; to Hiram McKenzie, $ 197.63- in 6465 vouchers 10, 42, 63, 95, and 6718- 53.
20. R.G. 217- 5785-41
21. R.G. 217-6465- 41, dated August 30,1841.
22. R.G. 217- 6195-121-June 4,1841 for $ 11.80 ;6465- 49, Aug.31,1841 for $ 10.00
23. R.G. 217-6718-14- dated November 4,1841.
24. R.G. 217- 6465-60-3rd qr 1841-$ 11.81 repairs Supt. Qrs.,polishing shop,etc.

From 1836 to 1841 a total of at least $ 1,603.69 were spent by the Armory on repairing government dwelling houses of the average Armory worker. With the money expended making repairs and improvements to the residences of the officers of the Armory included, about $ 1,464.28, the grand total spent to maintain and improve the older Armory dwelling houses from 1836 to 1841 came to approximately $ 3,067.97.

The total value of the 170 Armory Dwelling Houses was probably about $ 80,000.00 in 1841.

For the number, type, and value of the 170 Armory dwelling houses about 1847(which includes all of the houses standing 1841),see the chart which follows.[25]

ARMORY DWELLING HOUSES, 1845-47

Materials	One Story	Value	Two Story	Value	Total	Value
Brick	14	$ 4,975.00	38	$ 36,685.00	52	$ 41,660.00
Stone	17	4,800.00	18	12,000.00	35	$ 16,800.00
aWood	71	15,250.00	12	4,825.00	83	20,075.00
Total:	102	25,025.00	68	53,510.00	170	$ 78,535.00 +

+ The list of stone- one-story stone houses includes two structures, which because of their age and condition, were valued at zero.

+ The list of wood one-story houses contains 11 dwellings, which because of their great age and poor condition, were valued at zero.

These 13 zero-valued dwellings were to be demolished in the period 1845-52. This list also includes the seven claims on 10 houses (plus 12 outbuildings) erected by individuals not connected with the Armory, 1818-1830. See text page 455. The Armory had purchased the rights to 10 of the 12 buildings by 1839, only Dr. Marmion's remained unsettled in 1847.[25]

25:Source of data: List of U.S. Dwelling Houses at Harpers Ferry,June 30, 1848, Reel 18, Vol. 12, pp.1184-1191-which includes valuation of all houses. The 10 or 11 houses on Wager Six Acre land that were purchased in 1847-48, have been deducted from the total. Also used Rent Roll ,March 31,1841.

CHART NO. 21

Expenditures on Armory Dwelling Houses, 1836 to 1841:

Year	Construction of New Houses		Repairs and Improvements		Claims of Construction, Repair and Improvements:				TOTAL
			Officers Houses	Workers Houses	Of Workers		Of Individuls		
	No.	Cost			No	Cost	No	Cost	
1836	0	0	0	0	0	0	1	$3,298.00	$ 3,298.00
1837	7	$ 8,669.93	934.89	826.13	41	4,118.64	6	11,372.00	25,921.59
1838	4	3,166.36	205.11	0	8	422.16	0	0	3,793.63
1839	0	0	4.50	0	10	299.11	0	0	303.61
1840	0	0	15.00	113.90	6	507.42	0	0	636.32
1841	0	0	304.78	663.66	2	18.81	0	0	987.25
TOTAL:	11	$ 11,836.29	$ 1,464.28	$ 1,603.69	* 67 (1)	$ 5,366.14	(2) 7	* 14,670.00	$ 34,940.40

11 new houses ..... $ 11,836.29
(1) 13 houses purchased from workmen..... $ 3,450.78
(2) 10 dwelling purchased from private individuals..... $ 14,670.00
34 houses added to rent rolls. $ 29,957.07
For repairs..... $ 4,983.33
$ 34,940.40

Unsettled December 31,1841:
2 claims for 2 houses, valued at $ 2,380.00
18 claims for workmen for repairs: 776.50
20 claims Unsettled, valued at: $ 3,156.50

Disallowed by Ordnance Department, 1836, additional sum of $ 1,798.50 spent by workmen to erect smoke houses, bake ovens, stables, fences, etc.

(With these items above included, the total for 1836 to 1841 would have been $ 39,795.40)

Total of rents collected on Armory house, 1836 to 1841: $ 25,105.40.

U.S. Ferry on the Shenandoah, 1836- 1844,

In 1836, Congressman Edward Lucas, Jr. of Shepherdtown informed the President of the United States that the U.S. Ferry over the Shenandoah was then rented out by the Armory " for $ 360 annually & (the Armory) enjoyed the priviledge of having wood & stone &c, brought over free from toll to the amt. of five hundred dollars-making the annual value of the Ferry about $ 860..."[1] In 1840 and 1841 David Coons leased and operated the Shenandoah Ferry., paying a rent of $ 90.00 per quarter.[2] On May 14,1842, the recently appointed Superintendent of the Armory, Major Henry K. Craig, informed Col. George Talcott, the new Chief of Ordnance:

"The Ferry has been rented for $ 450 per an. and is now leased for $365, the Ferry man furnishing his own Boats, Ropes, &c. and crossing free of toll all Armory Officers, and Armorers living on the south side of the River, and all waggons with fuel or other property for the Armory... all our firewood and chareoal come over, so that the advantages to be surrendered (if a proposed toll bridge was constructed over the Shenandoah River) will fall but little short of $ 1,000 per an..."[3]

The U.S. Ferry continued operations on the Shenandoah until 1844, when the first toll bridge was completed over the river at Harper's Ferry and opened for use.

Renting at $ 360.00 per year from 1836 to 1841, the Shenandoah Ferry produced $ 2,160.00 in rent money, which was used to reduce the cost of producing arms at the Harper's Ferry Armory from 1836 to 1839, as was the case with the rents received from the Armory dwelling houses.

1. Lucas to President, June 2,1836, Reel 12, V. 2, pp. 173-174.
2. Superintendent Edward Lucase, Jr. to Lt. Col. George Talcott, September 7,1840, Reel 12, Vol. 7, p. 705. R.G. 217-6195-Rent Roll, March 31, 1841.
3. Craig to Talcott, May 14,1842, Reel 12, Vol. 10, p.957-960.

SUMMARY CHART: No. 22

EXPENDITURES FOR REPAIRS AND IMPROVEMENTS AT THE NATIONAL ARMORY AT HARPERS FERRY, VIRGINIA, 1836 TO 1841:

Section of Armory	No. New Bldgs.	Cost of Bldgs.	Repairs (1)	River Walls	Total of R.&I. Expenditures
MUSKET FACTORY:	7	$ 19,980.94	11,771.44	40,628.00	$ 72,380.38
+ ARSENAL SQUARE		233.82	221.65	0	455.47
RIFLE FACTORY	5	8,057.78	153.94	1,535.22	9,746.94
Armory Woodyard	-	-	44.56	-	44.56
Roads & Streets	-	-	73.12	-	73.12
++ ARMORY DWELLINGS	34	29,957.07	4,983.33	-	34,940.40
POTOMAC CANAL	-	-	11,734.18	365.20	12,099.38
SHENANDOAH CANAL	-	-	0	-	0
POTOMAC DAM	-	-	793.66	-	793.66
SHENANDOAH DAM	-	-	0	-	0
TOTAL	46	$ 58,229.61	$ 29,775.88	42,528.42	$ 130,533.91

Total does not include an additional $ 43,725.00 spent to purchase new and improved machinery for use at the Musket Factory.

++ Armory dwelling houses: 11 constructed by Armory for $ 11,836.29; 24 houses purchased for $ 18,120.78.

+ for addition of vault to Paymaster's Office.

(1) Repairs includes about $ 953.31 for sinking wells and making pumps: $ 731.31 for well at Musket Factory and $ 222.00 for five pumps, 3 on Camp Hill and 1 each at Musket Factory and Rifle Factory.

The Baltimore and Ohio Railroad, 1827-1852:

Baltimore, left by the wayside in the plans for the development of the Chesapeake and Ohio Canal, countered with a scheme of her own, the Baltimore and Ohio Railroad. City merchants incorporated the railroad company in 1827.

On July 4, 1828, the same date that the Canal Company began construction, the railroad also turned the first shovel of earth; the race was on. Horse and sail power were first used to move the cars of the railroad but in 1830 the first locomotive, the Tom Thumb, was successfully demonstrated on the road, and the new device was adopted in 1831. As the railroad proceeded west up the north bank of the Potomac, the canal and railroad quarreled violently over the right of way; court injunctions and State jealously prevented the railroad from passing beyond the narrow pass at Harpers Ferry until 1840.

The B & O. Railroad arrived at a point opposite to Harper's Ferry on December 1,1834, about one year after the C. and O. Canal had reached this same location. In addition to legal difficulties there were also construction and financial problems. The panic of 1837 cut off financial assistance from both Maryland and Virginia. In order to proceed further west the railroad was finally forced to cross the Potomac at Harper's Ferry to the south bank and build through Virginia. A great railroad bridge thus had to be erected at Harper's Ferry, a right of way, finally granted on November 5,1838, had to be obtained from the United States for a route through the U.S. Musket Factory yard on the Potomac. As a part of obtaining this right of way, the company agreed to built a great river wall along which their tracks, mounted on a trestle, would proceed through the Musket Factory area. All this took time and

Money to build. The company was able to obtain additional financial aid from the Barings of London. The railroad entered Harper's Ferry via its new Potomac Bridge in June 1841 and a year later, in June 1842, with its great river wall and trestlework complete, was able to proceed westward from Harper's Ferry as far Hancock.

The B.&. O. Railroad reached Cumberland, Md., in 1842, eight years ahead of the Chesapeake and Ohio Canal.

The railroad was now blocked by mountains, and Pennsylvania, the latter acting in the interests of the Pennsylvania Railroad, prohibited the Baltimore and Ohio from crossing the southwest corner of that state. Engineers then found a feasible route across the mountains, and Wheeling, after subscribing $1,000,000 to the railroad, was chosen as the western terminus. The railroad, however, was not able to cross the Appalachian barrier and enter Wheeling until 1852.

Thus 51 years after the Armory at Harper's Ferry began manufacturing arms, the armory had a reliable and fast route for shipping arms to the west.

X. SUMMARY AND CONCLUSION:

From 1798 to December 31,1841, the U.S. Armory at Harper's Ferry Virginia, spent a grand total of approximately $ 830,393.31 for the construction and repair of buildings, canals, dams, bridges and roads. During these years a total of some 259 workshops, storage buildings ,and dwellings were erected for Armory use. These structures were built in the following numbers at the following sites:

1. at the U.S. Musket Factory on the Potomac:	46	buildings.
2. on U.S. Arsenal Square:	9	"
3. at the Hall or U.S. Rifle Factory, Lower Hall Island, on the Shenandoah:	28	"
4. Other(Armory Stables, Magazines:	7	"
5. Armory Dwelling Houses, Shenandoah Street, Upper Hall Island, Camp Hill, etc.	169	"
Total: 1798-1841, about	259	buildings.

U.S.Musket Factory:

The chief manufacturing plant was the U.S. Musket Factory, powered by the water-power of the Potomac .

The U.S. Musket Factory that began the production of arms in 1801 was comprised of three brick factory buildings. Two of the shops had machinery that was powered by a total of five wooden water wheels. The third shop, a Smiths shop, held 10 forges.

CHART NO.

Expenditures, by periods, for Land, New Construction, and Repairs of Buildings, Canals, and Dams at the U.S. Armory at Harper's Ferry, Virginia, 1796 - 1841:

Periods:	For Land	New Construction	Repairs	Construction & Repair Total	Total Land, Repair, Construction	No. of Buildings
1796- 1801	$ 17,016.66	$ 43,704.06	$ 1,234.50	$ 44,938.56	$ 61,955.22	ca. 30
1802- 1807	-	37,332.15	11,410.68	48,742.83	48,742.83	
1808-1813	20,860.62	122,797.85	16,346.92	139,144.77	169,005.39	36
1814-1821	5,000.00	52,675.35	37,763.12	90,438.47	95,438.47	113
* 1822-1829	-	75,109.36	10,130.67	85,240.03	85,240.67	180
Expenditures: 1830-1831:	-	$ 32,549.01	$ 120.25	$ 32,669.26	$ 32,669.26	
Sub Total- 1796-1831:	$ 42,877.28	$ 364,167.78	$ 77,006.14	$ 441,173.92	$ 484.051.20	
1830-1835:	2,600.00			152,971.48	155,571.48	ca. 208
1836-1841:	-			$ 268,917.17	$ 268,917.17	ca. 215
TOTAL- 1796-1841:	$ 45,477.28			$ 830,393.31	$ 875,870.59	

1.886 acres of land.
1818-1841.

About 258 buildings erected 1798-1841.

427 acres acquired in 1796-97
1,395 5/8 acres acquired in 1813 ,with timber cutting rights.
68 acres and ferry lot acquired in 1818 ,also ferry rights on Shenandoah.

1,890 acres acquired,1796-1841.
-4 acres for Harpers Cemetery,1803.
1886 acres ,1841. 1833 also acquired water-power rights on Shenandoah.

During the period 1808-1813, with war raging in Europe and threating to engulf the United States, the productive capacity of the National Armory at Harper's Ferry was greatly increased. The number of large brick workshops at the Musket Factory was increased from three to eight and the number of shops with water-powered machinery from two to four in 1808-11. In addition two more brick water shops, with water-powered machinery, were constructed and began operations on the Lower Hall Island in the Shenandoah in 1808-10. At the Musket Factory the number of large Smiths or Forging Shops was increased from one to four and the number of forges from 10 in 1803 to 46 by 1810.

The basic ground plan of the U.S. Musket Factory yard, which it was to retain until the destruction of the Armory in 1861, was established in 1808-09, when the old and new shops then being constructed were arranged symmetically in two parallel lines of structures that paralled the Potomac River on the north and the U.S. Armory Canal on the south. The two rows of buildings were separated by a street approximately 70 feet wide and within each line of shops, workshops of approximately the same length were constructed so as to stand opposite structuresof similar length in the other row.

Following the War of 1812, the number of forges was cut back from 46 to 36 when the old Smiths Shop, built in 1799, was converted from a workshop into a structure used for storage.

The Armory production plant, as completed in 1808-11 and consisting of eight brick workshops on the Potomac and two more similar shops on the Shenandoah, was to stand with no major structural additions from 1812 to about 1834, when several new and large water-shops and storage buildings were erected at the Musket Factory. Among the new water shops were

Grinding Mill, 1831, the great Tilt Hammer Shop for welding Musket Barrels, built 1834-37 at a cost of $ 22,750 and containing eight water wheels; a carpenters and machine shop, 1834-35; an annealing shop and proof house; and a forge for scrap iron, in 1837-38.

During the period 1833 to 1841, a total of $ 44,504.86 was spent to modernize the machinery and rebuild the old wooden water wheels in the three oldest water shops at the Musket Factory, namely the Boring, Stocking and Turning Shops.

In the period 1837-1841, the U.S. Musket Factory Yard attained its present (1980) width when the Armory constructed a stone river in the river about 50 feet north of the north line of workshops and then filled in with earth behind the wall to create new land and a new street. Built 1837-39 at a cost of $ 40,628.00, the great wall was 1,624 feet long, about 15 feet high and varied in thickness from 9 feet at the base to 3 feet at the top. Another 20 feet was added to the width of the Musket Factory yard in 1839-41, when the Baltimore and Ohio Railroad Company constructed a second great stone river wall paralleling the Armory wall and built about 20 feet further into the Potomac. The railroad company, given a right of way by the United States along the river front, built the second wall so that its line could proceed westward. The trestle carrying the track of the railroad was constructed so that it stood astride the two stone river walls.

ARMORY Dan and Canal on the Potomac:

The U.S. Armory dam on the Potomac River, which provided the water required to turn the machinery in the Musket Factory shops, was built in 1799-1800. The structure was rebuilt in 1808-09, in 1820-21, in 1828-29, and repaired and extended in 1833 .

The U.S. Armory Canal, which carried the water provided by the U.S. Potomac Dam to the water wheels in the U.S. Musket Factory shops, was constructed in 1799-1801. The rebuilding of the U.S. Potomac Dam in 1828-29 provided such increased quantities of water that the old canal became inadequate. During the period 1828 to 1838, the U.S. Potomac Canal was completely rebuilt at a cost of approximately $ 50,063.00. In this construction, the canal was widened, deepened, and new stone walls and earth embankments were erected.

The manufacture of new weapons, muskets and rifles, got underway at the National Armory at Harper's Ferry, Va., in 1801 and the total number of small arms produced at the U.S. Musket Factory on the Potomac from 1801 to 1841 was 349,555 arms. These included 325,749 flintlock muskets, 19,718 flintlock rifles, and 4,088 model 1807 flintlock pistals.

The John H. Hall Patent Rifle Factory:

Second in importance as a arms manufacturing plant, in terms of the number of arms produced and the water power available, was the Hall or U.S. Rifle Factory on an island in the Shenandoah. From 1819 to 1827, Captain John H. Hall's operations at his small rifle factory on the Shenandoah, intended to produce a rifle with truely interchangeable parts, were regarded as purely experimental and hence as little money as possible was spent on the construction of new buildings at his plant. From 1819 to 1824 his"factory" was comprised of two shops, a old frame saw mill that was converted into a machine shop with water wheel for his use in 1819 and a small smiths shop, also built in 1819. In 1824, however, he was permitted to make a large addition,which included another water wheel, to his machine shop. In 1825 four small brick shops were erected:a kilm for steaming rifle stocks, two annealing furnaces, and a small workshop. In 1827 the Armory

made a large addition to the grinding mill, one of its two brick water shops that had been erected on the island in the Shenandoah in 1808-10, and then turned the mill over to Hall for his use in the same year. Also built for Hall in 1827 were a second smiths shop and a coal house. In 1828 a tilt hammer shop was also erected for Hall.

The expansion of Hall's Factory from two shops in 1819 to about 10 by 1828 was based on the fact that his patent rifle had passed extensive and intensive testing by the Ordnance Department in 1827 and in March of that year the Ordnance Department and Captain Hall signed a second contract which called for an increase in the production of his rifle. Hall's factory was thus being increased in size so that a larger number of patent rifles could be turned out.

In 1831 Hall took over from the Armory its last water shop on the island-the old trip hammer shop dating from 1808-09. This was converted into shop for grinding rifle barrels and a shop for stocking rifles. Built in 1831 were a small charcoal house, small filing shop, furnaces,with small frame buildings over them, for annealing barrels and for hardening ramrods, five structures in all. A second small filing shop and a fire engine house were added in 1832. Other former Armory facilities on the Lower Hall Island, such as store houses for coal and iron, were also turned over to Hall in the early 1830's, when the Armory ended its operations on that island. In 1835 two brick structures, an annealing shop and annealing furnace, were constructed to replace the older structures of this type. As Hall's plamt expanded, additional water was needed to turn the wheels in the Rifle Factory shops. To accomplished this objective, additional water power rights on the Shenandoah were purchased in 1833 for $ 2,600.00 and in 1834 the U.S. Dam on the Shenandoah was thoroughly repaired and also extended across the river. at a cost of $ 1,999.50.

During the years 1836 to 1841, Hall's Rifle Factory on the Shenandoah became a part of the regular Harper's Ferry Armory operations. The special estimates requesting funds for making repairs and improvements for the Armory, for the first time, also included requested money for similar projects at the Rifle Factory. Congress thus appropriated $ 9,593.00 earmarked for the construction of five stone and brick workshops intended to replace five similar frame shops of makeshift construction. The new shops were comprised of a Drill Shop, 1836; a Browning or Vitrol Shop, 1837; a Jobbing Shop for Filers (1837); a Jobbing Shop for Smiths and Springmakers (1837); and the tilt hammer or barrel welding shop for rifles(1837-38). A stone river or flood guard wall 250 feet long, 12 feet high and six feet thick was constructed in 1837 at a cost of $ 1,535.22 to protect the Rifle Factory shops from high water.

In October 1834 the Rifle Factory plant on the Lower Hall Island was comprised of 22 small brick, stone, and frame structures. In September 1842, the number of buildings was reported to be 26 and their estimated value amounted to $ 95,783.00. Expenditures for repairs and construction at the Hall Rifle Factory,1819 to 1841, was approximately as follows:

Period	For Bldgs.,Walls,Bridges
1819-21:	$ 4,130.14
1822-29	$ 17,699.28 (A)
1830-35	$ 14,671.46 (1)
1836-41	$ 9,746.94
Total:	$ 46,247.82

(A) does not include $2,533.00 spent by Armory for buildings on island.

(1)does not include $ 2,206.68 spent to repair and rebuilt Shenandoah dam.

This total, $ 46,247.82 for buildings,etc., suggests that the 1842 esimated value of $ 95,783.00, must have included a figure of about $ 49,535.00 as the value of the machinery in the Rifle Factory shops.

After living at Harpers Ferry from April 1819, Captain John H. Hall left the town in 1840 for reasons of health and died on March 26, 1841. The Ordnance Department decided to stop producing Hall Patent rifles on October 12,1843 and the last parcel of the patent rifle was completed at the Harper's Fery Armory in 1844. A grand total of 25,891 Hall arms were produced at the U.S. Rifle Factory at Harper's Ferry from 1819 to 1844. This included 19,870 flintlock rifles, 2,020 flintlock carbines(1819-41); and 3,000 percussion rifles and 1,001 percussion carbines(1842-44).

U.S. Arsenal Square:

The Large Arsenal, a two and one-half story brick structure with stone foundations, 125 by 32 feet, was erected in 1799-1800, for the purpose of storing the arms being produced at the U.S. Musket Factory. The value of the large arsenal was set at $ 12,000.00 in 1821. A second Arsenal structure, known as the Small Arsenal, brick, two stories with cellar, and 68 by 36 feet, was constructed in 1806-07, also for the purpose of storing arms. The small arsenal was valued at $ 8,000 in 1821. Arsenal Square had obtained the approximate size and shape that it was to maintain to 1861 as early as 1802.

Between 1801 and December 31,1813, a total of 61,257 arms were produced at the Harper's Ferry Armory. Of this total, 29,500 weapons were sent to equip the armed forces of the United States during the War of 1812 and 31,757 arms still remained stored in the two Harper's Ferry Arsenals at the end of the war.

Arsenal Square was enclosed with iron fences and stone walls to render it a secure area from fire and theft in an effort to ensure the safety of the thousands of muskets and rifles stored in the two brick Arsenals. The square had been closed by 1818 and the main gate

,which was located at the east side of the arsenal yard, was comprised of double wooden gates. Stone walls at the arsenal yard were also under construction in 1820. In 1826 additional walls of stone were built to enclose the arsenal yard and in 1827 a large flag staff or pole was erected on arsenal square.

In order to lessen the danger of fire, the wooden shingles of the two arsenal structures were replaced with slate in 1826.

Other small structures were also erected in Arsenal Square. Prior to 1821 a one-story frame "Timber Shed", 50 by 24 feet, was apparently erected in Arsenal Square on the east side and on the southside of the main gate. A one-story wood and stone "House for Storing Gun Stocks" was erected at a cost of $ 1,000.00 in 1822 and the store house was probably located also on the east side of arsenal square and to the north of the main gate. Also in 1822, a one-story brick office of the use of the Armory Paymaster, 24 by 18 feet, was constructed at a cost of $ 500.00. The new "Pay Office" stood at the northwest corner of Arsenal Square and fronted on Shenandoah Street. The northeast corner of the square, atleast by 1826, was occupied by a one-story brick dwelling house that measured 28 by 21 feet in size and fronted on Shenandoah Street. The house served as the residence of Armorer James Clark from 1826 to 1832, when it was converted into an office for the use of the Superintendent of the Armory.

In 1829 the two brick arsenal building were repaired at a cost of $ 808,54. The frames in the structures was apparently renewed, as were many of the windows. Thirty-seven pair of panelled shutters were made and hung on the Large Arsenal. The brickwork was also repointed.

A new Stock house, 65 by 30 feet, was erected on Arsenal Square in 1832 at a cost of about $ 800.00; this structure probably replaced the 1821 store house for gunstocks. The wooden"double gates" of the arsenal yard were also rebuilt and rehung in 1834.

On January 27,1835, the President of the United States granted the Winchester and Potomac Railroad Company a 50-foot wide right of right across the southern side of Arsenal Square. The line, constructed on wooden trestles and a high earthern embankment across the Arsenal yard itself, was finished in 1836 and the railroad began operations on March 31 of that year. The danger of fire to the Arsenals was greatly increased by the passage of wood-burning locomotives of the W. & P. R.R. through the Arsenal Yard. Wooden storage buildings located along the east side of the yard were probably removed from square after 1837 and prior to 1844 in order to reduce the hazard of fire spreading from them to the arsenals. By threatening court action, the Ordnance Department was finally, in April 1846 able to induce the W. &. P. R.R. Company to use spark arresters on its engines.

In 1838 the old flag pole erected in 1827 was taken down and replaced by a large new one. A new privy was also constructed on the square in 1841. In 1840 a one-story brick vault with slate roof, 7 by five feet in size, and with walls 2½ feet thick,was added to the rear(south) side of the Pay Office at the northwest corner of Arsenal Square, inorder to provide greater security for the large sums of money that the Armory Paymaster had under his charge. The cost of the new vault was approximately $ 233.82.

Armory Dwelling Houses:

The shortage of housing for Armory workmen was to be a serious problem at the National Armory at Harper's Ferry from 1798 to 1852. Because the U.S. Government owned all the land in Harpers Ferry except for 6 and 3/4 acres and because the Wager heirs who owned this 6 3/4 acres of private land refused to sell from 1798 to 1836, it was impossible for a Armory employee to purchase his house lot and to erect his home on that property, as was the normal process in most of the United States.

The Superintendent thus found it necessary to request money to build government houses for his armorers and when the Ordnance Department failed to provide enough funds to construct adequate housing for the Harper's Ferry work force, Superintendent James Stubblefield devised a solution by permitting, unoffically, the employees to use their own money or efforts to erect their own residences on Armory lands. The Ordnance Department first learned of this practice in 1821. From from 1822 to 1841, a total of $ 26,566.60 was expended to settle some the claims and establish U.S. title to 59 houses that had been constructed by Armory workmen and private individuals on Armory lands. From 1327 to 1841 a total of approximately $ 80,686.89 appears to have been spent on the construction, repair, and purchase of government dwelling houses. In 1841 there was a total of 170 Armory dwelling houses.

Construction and Acquisition of Armory Dwelling Houses

Period	Built by U.S. No.	Built by U.S. Cost	Purchased by U.S. No.	Purchased by U.S. Cost	Total No.	Total Cost
1798-1811:	20	?	0	0	20	?
1812-1821:	16	$ 8,737.50	53		89	Valued at $ 48,350.00
1822-1829:	19	$ 5,597.76	29	$ 6,595.47	48	$ 12,193.23
1830-1835:	16	$ 14,586.40	7	$ 1,850.35	23	$ 16,436.75
1836-1841:	11	$ 11,836.29	23	$ 18,120.78	34	$ 29,957.07
Total:	82	$ 40,757.95	59	$ 26,566.60	105	$ 58,587.05

Standing 1841: 170 Armory-owned dwelling houses valued at about $ 80,000.00. Of these, 59 were erected by individuals and 111 must have been constructed by the Armory. Of the 170 residence standing in 1841, 52 were brick, 35 were stone, and 83 were frame or wooden houses.

Rents collected from the Armory dwelling houses, 1822 to 1841, amounted to $ 48,114.65.

The End of an Era :

From 1798 to 1834, when the Chesapeake and Ohio Canal and the Baltimore and Ohio Railroad finally arrived at a point opposite to Harpers Ferry, the National Armory at Harper's Ferry stood in an extremely isolated position transportion-wise. The cost of transporting muskets and rifles, very heavy items, prior to 1834, was extremely high, with the result that the two arsenal structures at Harpers Ferry were so jammed-packed with small arms in 1835 that the inspector of armories and arsenals found it impossible to examine the condition of these weapons. Not until 1852 was it possible to ship arms rapidly and cheaply west to Ohio.

Except for the exciting experiments in the use of machinery to mass produce arms with interchangeable parts that were conducted by John H. Hall at the Rifle Factory on the Shenandoah from 1819 to 1827, the National Armory at Harper's Ferry was isolated from the rapidly evolving manufacturing techinques of the first half of the 19th century. Armory Superintendent James Stubblefield resisted change, improvements, and the introduction of new and improved machinery from 1820 to 1829. John H. Hall's operations at his Patent Rifle Factory were consequently regarded by many members of the U.S. Musket Factory staff with great suspicion and some resentment. The National Armory at Harper's Ferry, from 1801 to 1841, produced excellant muskets, but at a much higher cost per weapon than was the case with the National Armory at Springfield,Massachusetts, which not only kept pace with modern developments, but was leader in inventing and applying new machinery to the manufacture of arms. By 1830, then, most of the machinery and water wheels in the U.S. Musket Factory workshops and in the two Armory water shops

on the Shenandoah were old, worn out, and obsolete . From 1835 to 1841 the Armory spent a total of $ 44,504.86 to replace the water wheels and renew the machinery in the Boring, Stocking, and Turning shops, three of the oldest water shops at the Musket Factory . When completed, the results were still not satisfactory because the old structures were too small and poorly designed for mordern manufacturing processes. By 1841 the Ordnance Department was thus confronted with making a major decision with regards the Armory at Harper's Ferry; should the plant be rebuilt and modernized, or should it be abandoned.

The National Armory at Harper's Ferry, Va., was also isolated from the main architectural trends that prevailed on the eastern seaboard of the United States from 1798 to 1841. The Armory shops and storehouses, designed and built by Paymaster John Mackey, 1798-1800, Paymaster Samuel Annin and Superintendent James Stubblefield, 1808-1829, Superintendent George Rust, Jr., 1830-37, and Superintendent Edward Lucas, Jr., 1837-40, were utilitarian structures built of brick or stone, " slightly built like dwelling houses," and almost completely devoid of any architectural pretension or merit.[1] Thus the buildings of the U.S. Armory and Rifle Factory at Harper's Ferry, erected 1798-1840, showed no traces of the Federalist, Greek Revival, or Gothic Revival styles that were then in fashon in the East and which were applied to some of the structures erected at the U.S. Armory at Springfield, Mass., during these same years.

1. The one possible exception to the sweeping statement regarding the lack of architectural style may have been the Large Arsenal, built in 1799-1800. This structure appears to have had a projecting central pavilion and pointed arch windows.

Thus after the expenditure of $ 830,393.31 for the construction and repair of buildings, canals, and dams at Harper's Ferry from 1798 to 1841, most of the large workshops at the Musket Factory were at least 32 years old, in dilapidated condition, and much of the machinery was very much out of date. It was in view of these conditions that Col. George Bomford, Chief of Ordnance, reported to Congress on November 16, 1838:

"The strongest necessity exists for the improvement of the public buildings at Harper's Ferry Armory - they are at present exceedingly unsightly and unworthy of a National Establishment, and many of them, being mere wooden sheds, are besides liable to accident from fire...

In 1841 the civilian superintendents of the two National Armories at Harper's Ferry and Springfield, who were basically political appointees, were replaced by Army officers serving in the Ordnance Department. Col. George Talcott, who became the next chief of ordnance, following the retirement of Col. Bomford on February 1,1842 , grasped this change in administrators to completely rebuilt the Harper's Ferry Armory during the next ten years. During the years 1842-1860, an additional $ 905,538.07 was spent to construct the second physical plant of the Armory. The "reborn Armory" was to be comprised of large, well-constructed, and architecturally impressive shops and storehouses and equipped with the most modern and improved machinery. The principles and methods of the manufacture of arms with interchangeable parts was to be applied both at the U.S. Factory at Harper's Ferry and at the National Armory at Sprinfield, as well as at the completely rebuilt U.S. Rifle Factory on the Shenandoah. The story of the reconstruction of the U.S. Armory at Harper's Ferry, 1842-60, is the subject of the second volume of this study.

Fate of the Buildings of the 1798-1841 Armory Plant:

Of the approximate total of 88 workshops, storehouses, and other structures erected by the Armory at the U.S. Musket Factory, Arsenal Square, and the Hall Rifle Factory during the years 1798 to 1841, only seven of these early edifices survived the general demolition of old buildings that took place at Harper's Ferry during the rebuilding program of 1842 to 1860.

Of the 170 Armory dwelling houses standing in 1841, one, the Superintendent's brick house dating from 1808, was converted for use as the main office building of the Armory; 94 ancient and dilapidated residences were demolished by the Armory during the period 1845 to 1860 as unfit for human habitation, leaving only 75 of the pre-1841 buildings still standing and in use as dwelling houses in 1861, when the Civil War began.

Of the grand total of some 259 Armory buildings erected from 1798 to 1841, only 82 of these structures were standing in 1861.

The exploratory archeological work conducted at the U.S. Rifle Factory site on the Shenandoah in the year 1959-61, located some of the foundations complete of the pre-1841 workshops under the foundations of the massive post-1842 factories. It therefore seems probable that many other of the foundations of pre- 1841 structures may also still lie intact under the remains of the post-1842 buildings at the U.S. Musket Factory and at the Arsenal Square sites.

The pre- 1841 buildings that survived to 1861 were as follows:

Musket Factory: Approximately 46 buildings erected 1798-1841, of these two, the Superintendent's Residence, 1808, converted into an office, and the Bell Shop, dating from 1809-10, were still standing in 1861.

Arsenal Square. Of the nine buildings erected in the Arsenal Yard prior to 1841, four were still standing in 1861. These latter were the Large and Small Arsenals, the Superintendent's Old (1832) Office, and Paymaster's Old(1822) Office. The old Pay Office, however, had been removed from its original site in the Arsenal yard in 1858.

Rifle Factory: Of the 26 buildings standing on the Lower Hall Island in 1841, only one, a stock house, escaped the general demolition and was still standing in 1861.

Other Armory Structures: Of the some seven Armory stables and powder magazines built prior to 1841, all were demolished and replaced by new structures after 1842.

Expenditures by sections at the Harper's Ferry Armory during the years 1821 to 1841 is shown on the summary chart on page 493.

A catalog describing and summarizing the physical history of the some 89 Armory structures erected at the U.S. Musket Factory, Arsenal Square, and the U.S. Rifle Factory during the years 1798 to 1841 follows on page 494.

Expenditures by Sections at the Harper's Ferry Armory, 1821- 1841 for Repairs and Improvements

Years:	Musket Factory	Arsenal Square	Rifle Factory	Canals & Dams	Dwelling Houses	Bldgs-Canal Grand Total	No. of Bldgs. added
Value in 1821	$ 70,150.00	$ 20,250.00	$ 11,500.00	$ 105,000.00	$ 48,350.00	$ 255,650.00	113
Value in 1831	***			$ 145,117.68		$ 363,038.42	180
added 1822-29	$ 26,914.93	$ 4,140.42	$ 20,232.28	$ 25,612.29	$ 25,898.28	85,240.03	42
added 1830-35	$ 61,920.16	$ 1,753.00	$ 14,671.46	$ 41,662.85	$ 19,847.99	155,571.48	34
added 1836-41	$ 72,380.38	$ 455.47	$ 9,746.94	$ 12,893.04	$ 34,940.40	268,917.17	46
1822-41 Total:	$ 161,215.47	$ 6,348.89	$ 44,650.68	$ 80,168.18	$ 80,686.67	$ 509,728.68	122
1821-41 Total	$ 231,365.47	$ 26,598.89	$ 56,150.68	$ 185,168.18	$ 129,036.67	$ 765,378.68	235
Total spent 1796-1841 for construction and repair:						$ 830,393.91	

*** Total value of all buildings in 1831 was $ 217,920.74, as compared with $ 150,650.00 in 1821.

SUMMARY CHART CATALOG OF ARMORY BUILDINGS, 1798-1841:

		U.S. MUSKET FACTORY, 1798- 1841		
Years:	No. of Bldgs.			
1802	5			
1811	10			
Year:	No.of Bldgs.	Value of Bldgs.		
1821	16	$ 70,150.00	(1)	
Years	No.of Blgs. built	Cost of new bldgs.		Total expenditures on plant
1822-29:	10	$ 8,493.63		$ 26,914.93
1830-35	7	24,058.52		$ 61,920.16
1836-41	7	19,980.94		72,380.38
1822-41 Total	24	$ 52,533.09		$ 161,215.47
1821-41 Total:		$ 122,683.09		$ 231,365.47

YEAR	U.S. Musket Factory	
	Workshops	Others
1803	3	2
1811	8	2
1821	9	6
1834	12	6
1841	12	6

(1) not included, one sawmill, $ 472.75.

1802: Armory or Factory, Smiths Shop, Forging Shop, Coal House, Proof House, (and Superintendent's House).

1811. Finishing Shop, Armory or Factory, Smith and Filers Shop, tilt hammer Shop, Foundry shop, Smiths shop, Smiths Shop, Smiths and stocking shop, Carpenter Shop, Lumber Room.(Superintendent's House not included in count).

CATALOG OF HARPER'S FERRY ARMORY BUILDINGS ERECTED IN THE PERIOD 1798 to 1841:

A. STRUCTURES LOCATED IN THE U.S. MUSKET FACTORY YARD:

1. First Superintendent's Residence, 1801-1806:

This structure was located at the east end of the Musket Factory Yard, adjacent to and on the north side of the main entrance to the factory yard from the Wager Ferry Lot. (See Bldg. No. 11 on Map No. 2, p.55).

The building, a frame warehouse about 90 feet long, 23 feet wide, and one-story in height, had been erected by John Wager, Sr. prior to the U.S. purchase of the land in 1796 for the purpose of sheltering goods waiting to be ferried across the Potomac River.

The warehouse was remodelled in October 1798 for use as a temporary "Armory" or factory where arms could be repaired until the permanent brick workshops intended for that purpose could be built. The structure was used as an Armory from 1798 to 1801.

In October, 1801, the frame Armory underwent a second remodelling and was converted at a cost of approximately $ 400 into a residence for the first Superintendent of the Harper's Ferry Armory, John Perkin and his family. Perkin resided in this dwelling house from late 1801 until his death in December 1806.

The next superintendent, James Stubblefield, arrived at the Armory in April 1807 and refused to live in the building. The structure was then leased from June 1807 until September 1809 to Theodore Beall, who used the remodelled house as a store and residence. By the latter date the wooden building was considered to be a fire hazard to the adjacent brick workshops in the Musket Factory yard that had been newly erected in the period 1808-09. Thus in September 1809, the old wooden-warehouse-Armory-residence was dismantled and removed from the Musket Factory yard. Undergoing a third remodelling, its timbers were re-erected in 1809-10 as two two-story brick and frame dwelling houses, each measuring 20 by 40 feet in size. Probably relocated along Shenandoah Street, one was being utilized in 1811 as a two family residence and the other as a one-family house.

These two dwelling houses were still standing in 1821 and each residence was valued at $ 1,250.00. (They are listed as wood structures in the 1821 inventory). The history of the houses after 1821 is not known.

2. The Superintendent's Residence, 1808- 1844:

This structure was located at the east end of the Musket Factory Yard, and adjacent to and on the south side of the main entrance to the yard from the Wager Ferry Lot. The residence also stood at the eastern head of the southern row of large brick Musket Factory workshops that ran from east to west along the northern bank of the U.S. Armory Canal. (This is Bldg. No. 1 on Maps No. 6(1834), May No. 15(1837), Map No. 16(1844), and on Map No. 17(1848); it is also Bldg. No.1 on the 1811 inventory of Armory buildings).

The building was erected by Superintendent James Stubblefield in 1808-09 and served as his residence until his retirement in 1829. The structure was described as a two-story brick dwelling house with a cellar kitchen and dimensions of 36 by 29 feet in the 1811 inventory. In the 1821 inventory its dimensions are given as 36 by 30 feet and the structure was valued at $ 3,000.00. In 1828-29 a large brick addition was made to the dwelling and the interior of the old section was extensively remodelled at a cost of $ 2,429.75. The roofs were also slated. The dimensions of the residence after the 1828-29 work appear to have been about 100 by 30 feet.

After Stubblefield, the following Armory Superintendents lived in the house: Thomas B. Dunn, 1829-30; George Rust, Jr., 1830-37; Edward Lucas, Jr., 1837-1841; and Major Henry K. Craig, 1841-44.

The house was then repaired and from November 1844 to 1847 it served as the residence of Armory Paymaster Richard Parker.

In 1847-48 the old residence was converted at a cost of approximately $850.00 into the main office building of the Armory. The remodelled building was reduced to one story in height; the roof was slated and the former kitchen wing was converted into a money vault with heavy masonry walls from 3 to 3½ feet thick, "covered with flag stones of very great size and weight" for the use of the Pay Master. The overall dimensions of the remodelled structure were about 100 by 30 feet. The Central Office building contained the offices of the Superintendent, Paymaster, and Master Armorer from 1848 to 1861.

The Armory Office Building survived the Civil War and was still standing in 1885 (See Negatives HF-27B and HF-492). The structure was demolished, however, at some date after 1885 and prior to 1892.

3. The Finishing, Bell, or Turning Shop, 1809-1865:

This large brick workshop was located near the eastern end of the Musket Factory yard, directly west of the Superintendent's 1809-44 Residence; the shop was the first factory in the southern line of Musket Factory shops and it stood on the northern bank of the U. S. Armory Canal.

The workshop is Bldg. No. 8 on the 1811 inventory of Structures and is Bldg. No. 2 on Maps No. 6(1834), No. 15(1837), No. 16(1844), and No. 17(1848).

This shop, first known as the "Finishing Shop", was designed and erected by Superintendent James Stubblefield and Paymaster Samuel Annin in 1809-10. The two-story brick shop had a wood-shingled gable roof that was pierced by three chimneys (See HF# 628). Its dimensions in both the 1811 and 1821 building inventories are given as 131 by 45 feet. The forebay and water wheels of this shop were constructed of wood. In 1811, the first floor held the water-powered machinery of the finishing shop and also a room used for storing musket stocks. The second floor, also in 1811, held the office of the Superintendent, a storage room, a filing shop, and a "meeting room". Religious services were held in the meeting room from 1811 to about 1825, when the first church was erected in Harpers Ferry. The large workshop was valued at $ 15,000 in 1821. In 1824 a fire apparently swept this shop(or one of the other shops with water-powered machinery at the musket factory). The water wheels, machinery, and tools were destroyed, but the brick walls were still left standing. The shop was rebuilt in 1824 at a cost of $ 5,000 and an additional $ 5,000 was spent to construct the new machinery. During this work the new roof was covered with slate and a lath and plaster ceiling was installed.

In March 1825 a cupola or belfry, with a bell, was constructed on the roof of the old Finishing Shop and the structure was henceforth commonly known as "the Bell Shop". The bell was used to call the men to work and to send them to lunch and home in the evening. At some unknown date after 1825 but before 1835(See Photo No. 3,p.272) ,"a large chimney stack of masonry" was apparently added to the roof of the bell shop "to accommodate a forge fire on each floor. (For belfrey,see Photo No.2,ca.1826, p. 156).

In 1831 a small probably frame building was erected at a cost of $ 152.00 and attached to the finishing shop. This addition contained grindstones.

In 1833 Congress provided $ 8,300 to construct three new water wheels and their necesary machinery for three old shops, including the Bell Shop, which was then also called "the Turning Shop." The raceway and flumes of the old shops had to be rebuilt so that larger and more efficient wheels could be installed. The cost of this work far exceeded the $ 8,400 available by early 1834 and in May of that year Congress appropriated an additional $ 26,040.47 to complete the work on the three shops. This work was completed in all three shops by 1839. During the 3rd and 4th quarters of 1839 the masons were paid a total $ 514.39 for rebuilding the forebay of the Bell Shop with stone.(1)

The further repair and remodelling of the Bell Shop during the years 1842 to 1860 will be considered in Volume II of this study.

The Bell Shop was still standing and in use in 1861, at the outbreak of the Civil War. The Confederate Armory removed the machinery from the structure and then burned the building in June 1861. The brick walls ,however, survived

1.R.G. 217- 3971,Vouchers, 5, 7, 56, 66; file 4246-Vouchers 11 and 15. The mason included Johnson Garrett and Peter Litle.

the fire. In 1864-65 the Union Army covered the Bell Shop walls with a temporary roof and the structure served as a supply depot building for the support of Sheridan's Army during his Shenandoah Valley campaign.(See Photo HF-27B for its use as a depot). The brick walls of the Finishing, Bell, or Turning Shop, however, were finally demolished during the 1870's.

4. The Armory or Factory, The Boring Mill, 1799- 1844:

The large brick workshop was located near the eastern end of the Musket Factory yard, and stood immediately west of the 1809-10 Finishing or Bell Shop. The"Armory", later known as the Boring Mill, was located in the southern line of workshops that fronted on the north bank of the Armory Canal.

The Armory is Bldg. No. 1 on Map No. 2(1803), Bldg. No. 3 on Maps No. 6(1834) and Map No. 14(1837). Demolished in 1844, its former site was occupied by Bldg. No. 3, "the Boring Mill", on Maps No.16(1844) and No. 17(1848).

This, the first permanent "Armory" or Factory of the new Harper's Ferry Armory, was designed and constructed by Paymaster John Mackey in 1799. The brick shop then contained four wooden water wheels and necessary machinery for grinding, boring, and polishing arms in the first story. The second floor contained the workshops for the filers and stockers. The attic or garret floor was used in 1800 to store gunstocks, lumber, tools, and other supplies.

The two-story brick shop had a wood-shingled gable roof that was crowned with three chimneys.(See HF-628, p. 152.-The cupola shown on the roof of this shop, the second work shop from the east end, however, belongs on the roof of the first workshop). **The 1799 dimensions are given as 26 by 120 feet"clear of the walls"; listed as Bldg. No. 3 on the 1811 inventory, its size is given as 123 by 29 feet. In 1821 the dimensions are listed as 120 by 30 feet and its value at $ 10,000. The forebays of structure were constructed of wood. The roof of the shop was covered with slate in 1832 in order to reduce the danger from fire.**

In 1833 Congress appropriated $ 8,300 to construct three new water wheels, their necessary machinery, and to sink flumesfor three of the older Musket Factory Shops. This modernization work included the Boring Mill, and like the other two shops, its forebay was constructed of stone and the raceway widened and deepened. The cost of this work far exceeded the original estimate and Congress provided the additional sum of $ 26,040.47 to complete the project in May 1834. The work on the three old shops was finished in 1839.

The rebuilding of the forebay, water wheel, and machinery of the Boring Mill, however, did not prove to be effective and by 1842 the Ordnance Department decided to demolish the old Boring Mill and replace it with a new structure. In the estimates for the January 1,1843-June 30,1844, fiscal year, the Chief of Ordnance explained the need for replacing the 1799 mill with a new boring mill as follows:

" 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 the machinery too crammed." (1)

The old 1799 Boring Mill was thus demolished in 1844 and a new Boring Mill erected on the same site in 1844-45. On August 15, 1844, the mason Peter Litle was paid $ 141.83 for "taking down the old Boring Mill" and salvaging 137,836 bricks.[2] On the 19th of August 1844, the slater George W. Tracey also received $ 39.00 for "taking off old slate roof of Old Boring Mill."[3] The old slate was to be reused on the roofs of the shops at the Rifle Factory.[3]

The Boring Shop shown on Major John Symington's Map of Harper's Ferry dated November 1844, Bldg. No. 3 on Map No. 16,p.387, is thus the new boring mill on which construction had just started.

5. Smiths Shop (Store House), 1799-1847:

This large brick workshop was situated immediately to the west of "Armory or Factory(alias the Boring Mill)," thus being the third shop from the eastern head of the southern line of Musket Factory shops, and like the others in this row, the Smiths Shop fronted on the north bank of the Armory Canal. The structure is Bldg. No.2 on Map No. 2; Bldg. No. 4 on Maps. No. 6(1834), No.14 (1837), and Map No. 16(1844). The site of the Smith's Shop on Map 17(1848) is occupied by Bldg. No.4, the new "Stocking Shop", which was erected in 1846-47.

The Smiths Shop was designed and erected by Paymaster John Mackey in 1799. The shop was a two-story brick structure with a gable roof that was covered with wood shingles. The 1799 dimensions were given as 26 by 80 feet"clear of the walls." In 1811, listed as Bldg. No.6 on the Inventory, the dimensions are given as 83 by 30 feet. In 1821 the size is listed as 80 by 30 feet and its value as $ 6,000.

1. Estimates for 1843-44, HFNHP Microfilm Reel 20, Vol. 6, pp.37-38.
2. R.G. 217- Third Series- 16983- Voucher 14.
3. R.G. 217-3rd Series, 16983-17.

In 1799 the first floor held 10 forges, each with its own chimney, so that a total of 10 chimneys, five on each side, pierced the gable roof (See Photo No. 2, p. 156, ca. 1826). The second floor contained workshops for the filers. As built in 1799 the Smiths Shop had neither water wheels or machinery.

At some undetermined date, but probably after the War of 1812, say 1815, but prior to 1821, the smiths and filers ceased operations in this structure and the building was used from ca. 1815 to 1846 as a storehouse. The Master Armorer also had his office in this building after 1815.

The roof of the storehouse and Master Armorer's Office was repaired during the 3rd quarter of 1831 at a cost of $ 150.00 (1) and then slated in 1832 in order to reduce the danger from fire.

The 1799 Smiths shop/storehouse was demolished in 1847 to clear the site for the construction of a new stocking shop on that location(See Bldg. No. 4 on Map. No. 17, page 388) . OnJuly 2,1847, the mason Peter Litle was paid $ 80.00 "for taking off roof, pulling down and removing old shop(Master Armorer's Office) to clear site for new stocking and machine shop".(2)

6. Forge or Mill for Heavy Forging, 1799- 1808(?)

This brick shop was located to the west of the 1799 Smiths Shop and on the north bank of the U.S. Armory Canal, being Bldg. No. 3 on Map No. 2 (1803).

Paymaster John Mackey designed and erected the mill in 1799-1800. Probably one-story in height; judging from the map, its dimensions were approximately 26 by 30 feet. The structure contained one wooden 8 foot breast type water wheel which operated one tilt hammer intended for use in heavy forging. This building may have been demolished by 1810. It may also be 1808-1809 foundry shop, a description of which follows, or it may have been incorporated into the Tilt shop(later known as the Stocking Shop that was erected in 1808-09- Item 8 below).

In any event, the 1799 Forge or Mill structure was not standing 1821.

7/ Foundry Shop, 1808-09 -ca.1820.

The location of this shop in the Masket Factory Yard is not known, unless it is item 6, erected in 1799-1800 and Bldg. No. 3 on Map No.2(1803). Bldg. No. 13 on the 1811 inventory of buildings, is described as one and one-half story brick structure, 25 by 25 feet in size, with a foundry on the first floor and the second floor providing lodging rooms for the Armory workmen. The roof was covered with wood shingles. No shop of this size is carried on the 1821 inventory of buildings, so that foundry had either been demolished or incorporated into a larger structure by 1821. If built in 1808-1809, Superintendent James Stubblefield and Paymaster Samuel Annin designed and erected the foundry shop.

1.R.G. 217-1st series, 15936.
2. R.G. 217-3rd series, file 5623-Voucher No. 48.

8. Tilt-Hammer Shop/ Stocking Shop. 1808-1849:

This large brick workshop was located immediately to the west of the 1799 Smiths shop(item 5) after 1808. It stood in the southern line of shops and on the north bank of the U.S. Armory Canal, and was the last large shop at the western end of that row from 1808 to 1844. The tilt shop is Bldg. No. 5 on Map No. 6 (1834), Map No. 14(1837), Map No. 16 (1844), and also Bldg. No. 5 on Map No.17(1848) where it is marked as the old Stocking Shop.

The two-story brick workshop was designed and erected by Superintendent James Stubblefield and Paymaster Samuel Annin in 1808-09. Its gable roof was covered with wood shingles and had three chimneys

The structure is listed as Bldg. No. 7 on the 1811 inventory of buildings and its dimensions given as 101 by 30 feet; the 1821 inventory gives the size as 111 by 30 feet and the value at $ 8,000.

In 1811 the first floor contained the tilt shop with water wheel and machinery for tilting and also a room to store iron. The second floor, intended for use as shops, because of the great housing shortage, was then being used to provide lodging rooms for the armorers.

At some undetermined date, probably after 1815 and prior to 1827, the workshop was altered for use as a stocking shop and was utilized for this purpose until 1849. In 1827-28 the shop was probably enlarged by the addition of a two-story brick wing- the shop for half stocking machinery (see item No. 16 below for description of addition).(See PhotoNo.2, ca. 1826-27, p.152).

The roof of the Stocking Shop was slated in 1832 in order to reduce the danger from fire. In 1833 Congress provided $ 8,400 for constructing new water wheels and machinery in the turning(item 3), boring (item 4),and stocking(item 8) shops. It was reported that their wooden water wheels and machinery generally "are so much worn and decayed as to require very frequent repairs", during the periods of repairs operations had to cease at the shops. The cost of modernizing the wheels and machinery of the three shops far exceeded the original appropriation so that Congress, in May 1834, provided an additional $ 26,040.47. The wooden forebay of the Stocking Shop was rebuilt of stone and widened and deepened. This work on the three shops was completed in 1839.

The plaster in the stocking shop was repaired in 1842 and again in 1844. (1)

In requesting funds to built a new stocking shop and also a machine shop in the estimates for 1846-47, the Ordnance Department explained. "The buildings now used for stocking and machine shops were built upwards of 30 years ago(when machinery was not in use), slightly, like a common dwelling house, and of bad material. These are now in ruinous state, and require to be propped up 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." 2

1. R.G. 217- 2nd series, file 7045-1st quarter of 1842:To Hiram McKenzie, March 29,1842,$ 13.37 for plastering stocking shop; 3rd series-file 1165-Voucher No. 18- to James Bowen,May 3,1844, $ 19.96 for plastering 109 6/7 yards in stocking shop.
2. Serial No. 481, Document 9, p. 111. Estimates for 1846-47 year.

The Old Stocking Shop, dating from 1808-09, was demolished in the spring of 1849. On May 19, the mason Edward Tearney was paid $ 70.00 "for taking down & removing the slate roof, timbers, brick and materials of the old stocking shop." A new machine shop was to be eredted on its former site. (1)

The Northern Line of Musket Factory Workshops:(Items 9 to 11):

9. Smiths or F orging Shop, 1808-1847.

This large brick workshop stood at the eastern head of the northern line of workshops, on the south bank of the Potomac River, and opposite to (and north of) Item No. 3- The Bell or Finsishing Shop(1809). The structure was designed and constructed by Superintendent James Stubblefield and Paymaster Samuel Annin in 1808-09. This is Bldg. No. 9 on Map No. 6(1834), No. 9 on Map No. 15, No. 12 on Map No. 14, Bldg. No. 9 on Map No. 16(1844), and its former site is occupied by Bldg. No. 17, the new Smiths Shop, erected in 1845-48 on Map No. 17(1848). This is also Bldg. No. 4 on the 1811 inventory of buildings.

The Smiths Shop was a two-story brick structure with a gable roof that was covered with wooden shingles. Its dimensions in the 1811 building inventory are given as 131 by 30 feet and in the 1821 inventory as 130 by 30 feet . The workshop was valued at $ 12,000 in 1821.

In 1811 the first story held 16 smiths' forges, each with its own chimney. As a result the north and south slopes of the gable roof were each pierced by a row of eight chimneys. (See Photo No. 2, p. 152,ca.1826). The second story was used in 1811 as a stocking shop. There were no water wheels or machinery in the Smiths shop.

On September 15,1832, the wood shingle roof of one of the three smiths shops (items 9, 10, or 11) in the northern line of workshops caught fire. The roof and interior woodwork were burned, but the brick walls and tools were saved and the shop rebuilt. The identity of the forge that burned is not known.

The roof of the 1808-09 Smiths shop was slated in 1832 in order to reduce the danger from fire.

The Smiths or Forging Shop was used for its intended purpose from 1808 to 1847. On July 2,1847, the mason Peter Litle was paid $ 110.00 "for labor taking off roof and removing old Smiths Shop" (2) The east or south wing the giant new Smiths Shop (See Bldg. No. 17 on Map No. 17,p.388) was about to be constructed on its former site.

1. R.G. 217- 3rd Series-file 9307-Voucher 23, part of a bill totalling $ 1,024.65 for service rendered by Tearney.
(2). R.G. 217-3rd series, file 5623- Voucher No. 48, part of a bill totalling $ 1,079.87 for Litle's services.

10. Smiths or Forge Shop, 1808-1845

This large brick workshop stood just west of Item 9, the Smiths Shop or Forge, in the northern line of Armory workshops, and on the southern bank of the Potomac River. The shop was located opposite to and north of item No. 4- The 1799 Armory(Boring Mill). The Smiths Forge is Bldg. No. 8 on Map 6(1834), Bldg. No.11 on Map 14(1837), Bldg. No. 8 on Map 15(1837); Bldg. No. 8 on Map No. 16 (1844), and its former site is occupied by Bldg. No. 17, the new Smiths Shop on Map No. 17(1848). The structure is also Bldg. No. 5 on the 1811 Inventory of Buildings.

The shop was designed and constructed by Superintendent James Stubblefield and Paymaster Samuel Annin in 1808-09 as a two-story brick structure with a wood shingled gable roof.

The dimensions of the shop, as given in 1811, were 123 by 30 feet; in 1821 they are listed as 120 by 30 feet and the building was valued at $ 10,000. The shop did not have water wheels or machinery.

In 1811 the first floor of this shop contained 16 forges, each with its own chimney. The north and south slopes of the gable roof were thus each pierced by a row of eight chimneys. (See Photo No. 2, p. 152, ca.1826). The second story, designed for use as a filing shop, was being used in 1811 as lodging rooms by the armorers because the extreme shortage of housing in Harpers Ferry.

The roof of the Smiths Shop was slated in 1832 in order to reduce the danger from fire.

The Smiths or Forging Shop was used for its intended purpose from 1808 to 1845, when the structure was demolished to clear the site for the construction of the west (or north) wing of the giant new smith shop (See Bldg. No. 17 on Map No. 17, p. 388). The old shop was apparently demolished in July 1845 by the mason Peter Litle, for construction on the foundations of the new building was well underway shortly thereafter.(1)

11. Smiths or Forging Shop 1810. 1851:

This structure stood immediately to the west of item 10- the Smiths or Forging Shop, in the northern line of workshops, and on the southern banks of the Potomac River. The edifice also was located opposite to and north of item No. 5-the 1799 Smiths Shop (or Store house). The structure is also Bldg. No. 27 on the 1811 inventory of buildings. The Forging Shop is Bldg. No. 7 on Map No. 6(1834), Bldg. No. 10 on Map No. 14(1837), Bldg. No. 7 on Map No. 15(1837), Bldg. No. 7 on Map No.16(1844), and Bldg. No. 16-"Smiths Shop-Old", on Map No. 17(1848).

(1)continued- the new Smith Shop on November 7,1845, in R.G. 217-File 3122, 3rd series, voucher. No. 17.

(1) R.G. 217-3rd series, 2841-covering the 3rd quarter of 1845; the vouchers covering this period are missing,so details on the demolition of the old Smith Shop are missing. It was probably demolished by the mason Peter Litle, who was paid $ 3,526.13 for work on constructing the foundations of the

The Smiths Shop was designed and constructed by Superintendent James Stubblefield and Paymaster Samuel Annin in 1810-12 as a two-story brick workshop with a gable roof that was covered with wooden shingles.

The dimensions of the shop, as given in 1811, were 83 by 29 feet; in 1821 the size is listed as 80 by 30 feet and its value placed at $ 6,000. The workshop did not have water wheels or machinery. In 1811 the first floor of this building contained 10 smith's forges each with their own chimney. The north and south slopes of the gable roof were thus each pierced by a row of five chimneys. (See Photo No. 2, p. 152, ca.1826). The second story, designed for use as a filing shop, was still under construction in October 1811.

The roof of the Forging Shop was slated in 1832 in order to lessen the danger from fire.

The Smiths or Forging Shop was used for its intended purpose from 1811 to about May 1850. In his annual report for the year ending June 30,1850, Superintendent John Symington reported: "A double annealing furnace and stack of brick work, with cast iron front, has been erected in one of the old Smiths Shops; also for the same shop, a new charring furnace (probably for leather) with cast iron cylinder..." As all the other old smith shops had been demolished by May 1849, the temporary double annealing furnace must have been installed in this 1810-12 shop. (1) The cost of these alterations was approximately $ 129.77 and were executed by the mason William Collins. (2)

This was a temporary measure until funds could be appropriated to erect a fine modern annealing shop and brass foundry on the site of the old Smiths Shop. The old Forging Shop was apparently demolished in May 1851 by the stone mason Edward Tearney, who was ___ to construct the foundations of the new shop. On June 30,1851, Major John Symington wo reported of this project: " The stone foundation for the annealing... shop is completed and ready for the brick masonry..." (3)

This list includes the list of large brick Musket Factory workshops that were erected during the years 1798 to 1834.

A description of the workshops built in 1821 and later follows:

1. Serial No. 587, Document No. 1, p. 476.
2. R.G. 217-3rd series, file 11,000- To William Collins, $ 19.25 for labor and mortar used on new annealing furnace, May 15,1850; ___ vouncher 24; and file 11000-voucher 52- June 26,1850- $ 110.52 to William Collins for laying 20,249 bricks, labor scoffolding & mortar= $ 101.24, and $ 9.28 for laying 2,320 brick in furnace for charring leather-"Annealin Furnace project.
3. Serial No. 611, Document No. 1, p.459. Edward Tearney did the stone foundation work of this structure, receiving $ 2,695.77 for his efforts on September 8, 1851- R.G. 217-file 12680- Voucher 54, 3rd series.

Musket Factory Workshops added 1817 to 1841:

12. Tempering Shop for Musket Barrels, 1817:

Small tempering shop for barrels was erected in 1817. In 1821 the tempering shop was described as a one-story wooden building, 25 by 16 feet in size and valued at $ 200.00. Its location in the Musket Factory yard is not known.

13. Drawing Grinding Shop, Standing in 1821: - 1826:

One-story, wood shop, 18 by 18 feet. Value $ 150.00. Location in Musket Factory Yard unknown.

14. Shop for Turning and Tempering Lock Springs. ,1822

Erected in 1822 at a cost of $ 150.00, this was probably a small one-story frame shop. Its location in the Musket Factory yard is not known.

15. House and Furnace for Annealing Gun (Musket) Barrels ,1823-24:

A small shop, a one story perhaps stone building for Annealing Musket Barrels was erected in 1823 at a cost of $ 200.00. Its location in the Musket Factory yard is not known. On November 24,1824 the mason Jonah Tompkins was paid $ 105.25 for building a furnace for annealing musket barrels.(1)

16. Furnace and house for annealing and tempering Ramrods, 1824-26:

On September 13,1824, the mason Jonah H. Tompkins received $ 100.00 for constructing a furnace for hardening and tempering ramrods. (2). In 1826 Philp Coons was paid $ 111.00 for laying 148 perches of stone in the walls of building for "annealing, case hardening,and tempering ramrods." The location of these structures in the Musket Factory yard is also unknown. Both items 15 and 16, however, may have been located on the banks of the Potomac River.

17. New Shop for Draw Grinding, 1826:

A new shop for drawing grinding was erected in 1826 at a cost of $ 481.42. The shop was apparently a two-story stone structure, 18 by 27 feet in size, with cellar, and its wall contained about 155 perches of stone mortar wall. The location of the shop is unknown. If it had water-powered machinery, however, then the structure would have been located along the Armory Canal.

2. R.G. 217 8693-Voucher 22A.
1. R.G. 217- 8371-Voucher 89A.

18. New Shop for the Half Stocking Machinery, 1827-28:

This two-story brick workshop, 20 by 30 feet in size, with stone foundations, was erected in 1827 at a cost of $ 1,200.00. About 22,667 brick were used in the walls of the structure. The shop had a water wheel to turn the half-stocking machinery, consequently also a stone forebay and tail race. The machinery was made and installed at a cost of $ 1,600.00 in 1827-28, bringing the total cost of the Half Stock Shop to about $ 2,800.00. The Half-stocking Shop appears to have been located on the north bank of the Armory Canal at the western end of the Stocking Shop(see item 8,p. 501)(Also see Photo No. 2, p. 152, ca. 1826, for possible view of Half Stocking Shop.).

19. Watch House, 1828:

A small stone house was erected in 1828 at a cost of $ 200.00 for the use of the night watchmen. The location of this structure in the Musket Factory yard is not known. However, it may have be situated near the main(eastern) entrance to the Armory yard.

20. Carpenter Shop ,1808-1820 :

Listed as Bldg. No. 25 on the 1810 inventory of Armory Buildings, the Carpenter Shop was a one-story frame building 26 by 19 feet in size. In was probably erected about 1808, but is not listed on the 1821 inventory of Armory structures. Its location in the Musket Factory yard is not known.

21. Lumber Room, 1808-1820(?):

Listed as Bldg. No. 26 on the 1810 inventory of Armory building, "the Lumber Room for Carpenter Work" was described as a one-story "low" frame structure 44 by 19 feet in size. It was probably erected in 1808 when the task of enlarging the armory plant got underway. The building is not listed on the 1821 inventory of Armory structures. The location of the lumber room in the Musket Factory Yard is not known.

22. Proof House, 1802 - 1809(?)

This is Bldg. No. 5 "Proving House", on Map No. 2(1803). Built in 1801-or 1802, it stood at the west end of the line of Armory shops that fronted on the north bank of the armory canal. This was a small, probably one=story frame and wood structure. The shop is not inclued on the 1810 list of Armory structures.

23. Proof House, ca. 1821-1829.

The 1821 inventory of Armory building describes the proof house as a one-story wood and stone building, 14 by 12 feet in size, and valued at $200.00. The proof house probably stood in the Musket Factory Yard, but its location in this area is not known.

24. The New Grinding Mill, 1831 - 1850 :

In 1830 Congress appropriated $ 2,500 to erect a new grinding Mill at the U.S. Musket Factory. Construction on the water shop got underway in the spring of 1831 and was completed at a cost of approximately $ 2,438.43 by the end of the year, exclusive of the cost of the water wheel and machinery. The stone structure had stone foundations, a woode forebay, and stone tailrace and its roof, consisting of 2,970 square feet, was slated. Its walls contained 233 perches of stone mortar masonry. The grinding mill is probably Bldg. No. 6 on Map No. 14 (1837), p. 385, and is Bldg. No. 9,- Thw Old"Grinding Mill" on Map No. 17(1848), p. 389. (1)

In his annual report for the year ending June 30, 1848, Superintendent John Symington reported: "Extensive repairs have been made to the barrel welding shop and the wheel and foreby of the grinding mill. The forebays and penstocks of these shops have been repaired - almost renewed, and the wheels repaired... The heavy repairs so frequently recurring to this old and worn out machinery," he warned," will add considerably to the cost of the musket." (2)

The 1849-50 estimates requested the sum of $ 9,730 to replace the old Grinding Mill and several other old shops with a new " Grinding Mill, Sawmill, and Machine Shop "structure. In asking for this money, the Ordnance Department informed Congress that the 1831 Grinding Mill was " a makeshift structure" that could only be used "with great inconvenience and loss", and that "its floor (is below) the surface of the ground and is covered (with water) during freshets to a depth of sometime five feet." (3)

The Old Grinding Mill was taken during in 1850, probably during the summer of that year, as construction was in full swing on the replacement structure which was going up on the same site in the fall of 1850. (4)

25. Armory Saw Mill,1819- ca. 1824.

in 1819 the old Armory saw mill on the Shenandoah was turned over to John H. Hall for his use as a machine shop. A new sawmill for the U.S. of the Armory was constructed on the banks of the U.S. Armory Canal in the fall of 1819 at a cost of about $ 472.75. According to statements of Charles Staley,made in 1826, Superintendent Stubblefield ceased sawing operations at this saw mill about 1824 and had the Armory sawing done

(1). Mill had a forebay constructed of wood, for an estimate dated November The Grinding 30, 1844 requested the sum of $ 780.50 to replace or rebuilt the forbay with hammered stonework laid in cement. Serial 464, Doc. 43, p.16.

(2). Serial No. 537, Document No. 1, p.347.

(3) Serial No. 538, Document No. 2, p.117,118. Estimates for year July 1,1849 to June 30,1850.

(5). R.G. 217- 3rd series, File 12169-Voucher 20- To William Collins,November 30, 1850 indicates that the stone foundations had been completed and the brick walls were going up. Superintendent Symington reported the new building completed in his annual report for the year ending June 30, 1851- Serial No. 611, Document No. 1, p.458.

at Lewis Wernwag's privately-owned sawmill on the island of Virginius. Wernwag had purchased the Virginuis Island tract from Stubblefield in 1824 and owed the Superintendent $ 8,000 for this property. Staley alleged that Stubblefield gave Wernwag the government business so that the latter could pay off his debt to the Superintendent. The site of the Armory sawmill along the canal is not known. In July 1839 the former site of the 1819 saw mill was " filled up".

26. Proof House, Brass Foundry, and Engine House, 1829

In 1829 a total of $ 1,500.00 was spent constructing a new proof house and engine house, the latter to house the Armory fire engines. The one-story stone structure, which contained 166½ perches of stone mortar walls, also included a brass foundry. The exterior walls, 109 square yards, 4 feet, and 5 inches, were trowel dashed and the interior walls rough coated. The location of this building in the U.S. Musket Factory yard is not known.

27. Annealing Shop and Proof House, 1834-50 :

In requesting funds to build a new Annealing Shop and Proof House, the Ordnance Department wrote that :"The present annealing shop and proof house are so constructed as to be exposed to much danger from fire; and their location in the immediate vicinity of the workshops, might, if fire were to originate in them, involve the whole of the workshops in flames. It is designed...to increase their height and to make them fire proof." This one-story stone structure was erected in 1834-35 at a cost of approximately $ 1,872.36. Its walls had about 271 perches of stone mortar wall, and 444 square yards of its exterior walls were trowel dashed. The structure may have had 29 door and window openings. In 1834 1,143 square feet of slate were put on the roof of the Annealing Shop.

The new shop stood at the western end of the northern line of Musket Factory workshops, and nearly opposite to the Stocking Shop(Item 8). The Annealing Shop, Furnace, and Proof House may be Bldg. No. 6, on Map No. 7(1834)p. 271; Bldg. No. 9 on Map No. 14(1837),p.385; Bldg. No. 6 on Map No. 16(1844),p. 387; it is definitely Bldg. No. 15 on Map No. 17, p. 388;. The approximate size was 75 by 25 feet.

In requesting funds for a replacement structure in the 1851-52 estimates to build a new annealing furnace and brass foundry, the Ordnance department reported: "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." (1)

The old shop was demolished in 1850 or 1851 to clear the site for the construction of the new Annealing Shop.

(1) HFNHP Reel 20,Vol. 7, p. 694.

28. Carpenters and Machine Shop, 1834 - 1850:

The Carpenters and Machine Shop, a water shop, was located in the southern line of U.S. Musket Factory workshops towards the western end, east of the 1831 grinding mill, and on the north bank of the Armory Canal. The Carpenters and Machine shop may be Bldg. No. 7 on Map No. 14, p. 385, and is either Bldg. No. 7 or 8 on Map No. 17(1848), p. 388.

Built at a cost of about $ 4,230.69, the Carpenters and Machine Shop was apparently a two-story stone structure with seven doors and 47 windows. It had 1,729 square feet of double flooring, and 2,640 square feet of roofing, and was erected in 1834-35. The exterior stone walls were trowel dashed to the extent of 441 38/100 square yards.

In the estimates for the year July 1,1849 to June 30,1850, the Ordnance Department explained the need to replace the "old Carpenter Shop," Bldg. No. 7 on Map 17(1848) and "Old Machine Shop" Bldg. No. 8 on Map No. 17, as follows: "This building, to accommodate the machinery and fixtures for grinding, sawing and planing, is necessary to replace the present make-shift structures, used for these purposes with great inconvience and loss.... The saws and turning laths are at present in the machine shop, 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..." (1)

The money requested to replace these shops was appropriated on March 3,1849. The old Carpenters and Machine Shops, (in two buildings by 1848) were both demolished in 1850, probably in the summer, so that the new shop could be erected on their former sites.

29. Shop for Tempering Springs, 1834
and
30. Polishing or Buffing Shop for Musket Barrels, 1834

In 1834 a total of $ 1,821.45 was provided to erect two shops for tempering springs and for polishing barrels and also for two houses for fire engines. Details on the construction of these four buildings are not known. However, deducting $ 500.00 as the estimated cost of erecting two fire engine houses from the total of $ 1,821.45 appropriated, would leave a balance of about $ 1,321.45, or $ 660,00 each, to construct the two workshops. At these prices, the two shops were probably one-story stone buildings. Location of the two workshops is also unknown, but the shop for tempering springs, with its furnace, may have been located on the bank of the Potomac with the other furnaces of the annealing shop and brass foundry. The Polishing Shop, with water-powered machinery, must have been located on the north bank of the Armory Canal. The Polishing Shop of 1834 may possibly be Bldg. No. 7, "Old Carpenters Shop", on Map 17, p. 388, perhaps converted by 1848 from a Polishing Shop to use as a Carpenters shop.

(10 Serial No. 538, Document No. 2, p.118.

The roof of the buffing or polishing shop for barrels was slated in 1841. (1) The furnace and forge in the tempering shop for springs was repaired in 1846. (2)

Neither the tempering shop for springs nor the polishing shop were standing under these 1834 names in 1848.

31. Forge for Scrap Iron, 1838-39:

In July 1836 the sum of $ 5,000.00 was provided for erecting a forge and fixtures for working up scrap iron in to bars, and for faggoting steel. The new shop and furnace was to be constructed of brick or stone, and to have a slated roof. Construction on the shop apparently got underway during the 1st quarter of 1838 and the stone forebay of the building was completed in June 1839. Details on the nature of the forging shop are not available, however, it appears to have been a stone structure with a slate roof and located on the north bank of the armory canal. The structure was not standing under this name in 1848.(One possiblity on Map 17(1848), p. 388- might be Bldg. No. 8, there described as the "Machine Shop-Old").

32. Tilt Hammer and Barrel Welding Shop, 1834-1852:

Construction on a tilt hammer shop for welding musket barrels got underway at the Musket Factory in 1828 and continued until 1832. A total of $ 5,513.60 was spent to construct stone foundations and canal walls at the site on the north bank of the Armory Potomac Canal. Work on the structure ceased for two years and in 1834 it was decided to erect the tilt hammer shop at a new and more favorable location on the north bank of the canal. The 1828-32 construction thus went for naught as far as the structure finally constructed in 1834-39 was concerned.

The Tilt Hammer Shop for Welding Barrels, as finally built, was located at the extreme western end of the U. S. Musket Factory yards and had its southern elevation facing the north bank of the U.S. Armory Canal and its northern facade fronting directly on the south bank of the Potomac River. This large shop is Bldg. No. 8 on Map No. 14(1837),p.385; and Bldg. No. 11 -:Barrel-welding and Tilt Hammer Shop" on Map No. 17, p. 388.

About$2,017.14 of the $ 4,000 appropriated in 1830 remained in 1834 to start construction at the second and final site. In 1833 and 1837 Congress provided $ 19,759.00 in additional funds to complete the shop so that the total cost of construction, 1834 to 1839, was about $ 21,776.04, making this the larges and most expensive workshop to be erected at the Harper's Ferry Armory prior to 1841.

(1) R.G. 217- 2nd series, file 6465, 3rd quarter of 1841-voucher 79- To William Bayley, $ 317.20 for slating roofs of the Supt.'s quarters and of the buffing shop; also Voucher 60, to Georgw W. Tracey, $ 11.81, for labor on these same structures, slating.
(2) R.G. 217-3rd series-4403- Voucher 35, to mason William Collins, Sept. 14,184 $ 70.93 for 12,230 brick laid in forge and furnace of tempering shop.

The Tilt Hammer Shop for Welding Barrels, perhaps 160 feet long and 40 feet wide, appears to have been a one-story stone structure with stone foundations and a slated roof. The shop had 1,502 perches of mortar stone wall in its walls The edifice had 76 openingsin its walls for doors and windows, a wooden forebay, and stone tail race . There were eight water wheels, two of wood and six of cast iron. One of the wooden wheels was 20 feet in diameter and six cast iron wheels ran at 150 revolutions per minute with 8 feet of backwater

In estimates dated November 30,1844, the Superintendent of the Armory requested that the sum of $ 1,756.00 be provided to rebuild with hammered stone the eight forbays of this shop and also an additional $ 852.75 to reconstruct the revetment wall of the canal embankment in the rear(south side) of the work shop. (1) Congress,however, did not appropriate money for this project.

In estimates for the 1847-48, the Ordnance Department asked for $ 2,700.00 to raise the floor of the barrel welding shop and to replace "the tub wheels now used for barrel welding by turbine wheels." It was also explained that "the floor(of the tilt hammer shop) is now in ordinary freshets under water, which sometimes rises to the hearths of the forges". This high water, it was reported, sometimes interrupted all operations at the workshop for 8 or 9 working days. (2)

In the estimates for the year July 1,1849 to June 30,1850, the Ordnance Department requested the sum of $ 17,900 to construct a new barrel welding, tilt hammer, and swedging shop at a new site. In the justification to Congress for this large ammount it was explained that:

> **"To replace the present barrel welding and tilt hammer shop which has all the defects, but in a greater degree, of all the other old shops, which have had to be reconstructed, being dark, and baldy ventilated, with its floor so low that every freshet covers it, sometimes to the depth of 8 feet. There is also now a separate wheel and gearing for each hammer, 8 in all, 6 of which are tub wheels, utterly useless when submerged; have thus lost 28 working days during the last year and 52 the year before..." The forebays and pentstocks of these wheels were also constructed of wood, which was by this date much decayed.** (3)

The 1834 tilt hammer shop was demolished in 1852-53, and in this annual report for the year ending June 30,1853, the Armory Superintendent noted: "The old tilt hammer shop has been pulled down, and the wheels,&c., removed; the wheel-pits, penstocks, and forebays filled up; and all made ready for building (a) new rolling-mill on its foundations." (4)

(1). Serial No. 464,Document No. 43, p.17 and 16.
(2) Serial No. 497, Document No. 3, p.142.
(3) Serial No. 538, Document No. 2, pp.117-118.
(4. Serial No. 692, Douument No. 1, p. 277.

STORAGE BUILDINGS IN THE U.S. MUSKET FACTORY YARD:

33. Coal House, 1802 - 1809?

Built in 1801 -1802, this was probably a one- story frame building about 20 by 15 feet in size. The structure was the fourth building from the east end of the line of workshops in 1803 and stood on the north bank of the Armory Canal. This is Bldg. No. 4 on Map No. 2. The coal house is not included in the 1810 inventory of Armory buildings.

34. Stone Coal House, 1819- 1826

A house for coal was erected at the Musket Factory in 1819. In 1821 the building inventory described the "Stone Coal House" as a one-story wooden building, 30 by 30 feet in size, and valued at $ 400.00. The location of the Coal House in the Musket Factory yard is not known.

35. Coal House, 1826

A stone coal house, probably one-story, was constructed at the Musket Factory in 1826 at a cost of $ 202.35. Its walls contained 295½ perches of stone. This building probably replaced the wooden coal house. The yard location of the new stone coal house is not known.

36. Charcoal House, Ca. 1812- 1819:

At some date after October 1811, a storehouse for charcoal was erected in the Musket Factory yard. This was probably a frame building as the superintendent reported the old structure had fallen down in 1819. Location in the Musket Factory yard is unknown.

37. Charcoal House, 1819- 1828

Erected in 1819, the 1821 inventory of buildings indicates that the charcoal house was a one-story wooden building that measured 111 by 30 feet in size and was valued at $ 400. Its location in the Musket Factory yard is not known. However, because of its unusual length, it may have been located in the northern line of Armory workshops, on the bank of the Potomac River and opposite to (north of) Item No. 8 in this report. (Also See Photo No. 2, ca. 1826, p. 152.)

38. Iron Store House, 1821 - 1834

Erected after 1811 and prior to 1821, this structure was described in 1821 as a one-story wood and stone structure measuring 120 by 16 feet in size, and was valued at $ 1,000. Its location in the Musket Factory yard is not known.

39. Charcoal House, 1828-1845:

The wooden charcoal house erected in 1819 was replaced by a new frame structure in 1828 at a cost of $ 750.00. The price indicates that it was probably a large building, as the 1819 Charcoal House, one story and measuring 111 by 30 feet had been valued at only $ 400.00 in 1821. The location of the 1828 Charcoal House is not known.

The 1828 Charcoal House was replaced in 1845-46 by a one-story brick Charcoal House that measured 35½ by 35½ feet in size.The 1845-46 structure is Bldg. No. 13 on Map No. 17(1848),p.388.(1) The earlier charcoal houses may have stood in the vicinity of the 1845 replacement, that is, on the banks of the Potomac at the western end of the northern line of workshops.

40. Store House for Pit Coal,1837 - 1852:

Congress provided $ 650.00 in 1836 to erect a house 30 by 20 feet and 10 feet high to contain coal at the new tilt hammer shop (Bldg. No. 8 on Map 14,p.385, and Bldg. No. 11 on Map. 17, p.388) that was then under construction. The coal house was needed because the tilt hammer, located at the extreme western end of the Musket Factory yard, was far removed from the regular Musket Factory coal houses. The new stone coal bin or house was erected at the tilt hammer shop in September 1837. Its stone walls contained about 80 3/4 perches of stone laid in mortar.

The coal bin is not shown on either Maps No. 14 or 17. The structure was probably demolished in 1852 when the 1834-39 tilt hammer shop was torn down.

41. Store House for Iron and a Bin for Coal, 1834-1841:

Congress appropriated the sum of $ 1,710.15 in 1834 to erect a store house to contain iron, steel,etc., and to construct a bin to contain coal. From 1824 to 1834 the iron of the Musket Factory had been stored in a frame structure located at the U.S. Rifle Factory on the Lower Hall Island. The new building was to be erected at the Musket Factory and the old Armory Iron House turned over to Captain John H. Hall for his use.

The new storehouse for iron and bin for coal was erected in the fall of 1834 at a cost of approximately $ 1,500.00. The structure had stone foundations and its brick walls contained 17,664 bricks. There were five openings for windows and doors. Its roof,containing 20 40/100 squares was slated in 1835. The Store House for Iron and Coal was apparently located in the northern line of workshops, on the banks of the Potomac,and at the eastern head of the northern line, so that it stood ajacent to the three forging or smiths shops in the northern line.

1. Serial No. 493, Document No. 1,p.164. Annual Report for year ending June 30,1846.

was

The Store House for Iron and Coal thus probably Bldg. No. 10 or 11 on Map No. 6 (1834),p. 271, and ~~also~~ Bldg either Bldg. no. 10 or 11 on Map No. 15(1837),p. 386; and Bldg. 13 on Map. No. 13(1837),p. 385.

probably

The store house, however, was demolished in late 1841 to clear the site for the construction of the first in the new generation of Armory buildings- the "New Warehouse", which were to be built of cut stone and brick. Bldg. No. 10-"Warehouse" on Map No. 16, p. 387, which was drawn in November 1844, occupies the former site of the 1834 Store House for Iron, Steel and Coal. The 1843-44 new Warehouse, erected for the storage of iron and steel, is Bldg. No. 18 on Map No. 17(1848), p. 388. (1)

42. Store House for condemned component parts of arms, defective materials, and Scraps, 1837

In 1836 Congress provided $ 3,400.00 to construct a store house to contain condemned component parts of arms, defective iron materials, and scrap metal. The structure was to be 80 by 30 feet in size, two stories high, and to have a slated gable roof. The building was also designed so it could be readily converted for use as a workshop if the need should arise. The stone store house was apparently built in 1837-39.

The location of this structure in the U.S. Musket Factory yard is not known. One possibility, however, is Bldg. 12 "Old Stock House,"on Map. No. 17(1848), p.388, which stood on the bank of the Potomac River and in the western section of the northern line of workshops, about opposite to the 1831 grinding mill(item 24). The Store House for condemned parts may possibly have been converted for use to a store-house for stocks in the period 1840-48.

43. **Fire Engine House, 1821- 1834:**

A fire-engine house was erected after 1811 but prior to 1821. The 1821 inventory of Armory buildings described the structure as two-story, wood, 16 by 12 feet, valued at $ 300. The 1st story housed the fire engine and the second story had lodging rooms. The location of this building in the Musket Factory Yard is not known.

44 and 45. Two Fire Engine Houses, 1834: -1844:

In 1834 Congress appropriated a total of $ 1,821.45 to erect two fire engine houses and two workshops at the Musket Factory(see items No. 29 and 30). Details on the construction of these four buildings are not known. It is estimated that about $ 500.00, or $ 250 a piece, was used to construct two frame buildings to house the Musket Factory fire engines. The location of the fire houses in the yard is not known, but one would probably have been near the main entrance at the east end. Bldg. No. 12 on Map No.15(1837), p.386- might possibly be one of the fire engine houses.

(1). Construction on the foundations of the new warehouse was underway in the fall of 1841, see R.G. 217- 2nd series, file 6718-Voucher 84- To George Mattingly, Nov. 22,1841- for $ 1,833.22 for work on stone foundations.

The 1834 engine houses were replaced in 1844 by a frame engine house. (1)

46. The Superintendent's Office, ca.1815-1832:

The Superintendent's Office was erected at some unknown date after 1811 but prior to 1817. The structure was described in the 1821 building inventory as a wooden two-story structure with dimensions of 18 by 18 feet. The Office was valued at $ 500. The location of the edifice in the Musket Factory yard is not known for certain but it was apparently located in the center of the street and opposite to(or north of) the Superinendent's brick residence (Item No. 2)

The frame structure served as the Superintendent's office building from ca. 1815 until 1832, when the Superintendent moved his offices to a remodelled one-story brick house that stood at the northeast corner of Arsenal Square .

From 1832 to 1836, the frame former office was utilized by Captain John H. Hall as a browning shop for producing his patent rifle. The Old Office structure was demolished, because of its dilapidated condition, in 1836 or 1837. In 1837 a new browning shop for the use of Hall was constructed at the Rifle Factory on the Shenandoah .

Bldg. No. 14 on Map No. 14,p.385, and Bldg. 12 on Map No. 15,p. 386, both drawn in 1837, show a small structure located in the center of the Musket Factory Street opposite to the Superindentendentss quarters. This may have been either the Old Office structure or perhaps a fire enginue house.

This list of 46 buildings completes the roll of structures that are known to have been situated in the U.S. Musket Factory yards during the years 1798 to 1841.

(1) Serial No. 464, Document No. 43, p.2-Annual report for the year ending June 30,1844. In the 1847-48 estimates requesting funds to construct a brick fire house, the 1844 fire house was described as a "wooden shed, out of position", Serial No. 497, Document 3, p. 142.

SUMMARY CHART CATALOG OF ARMORY BUILDINGS, 1798-1841:

			US.S ARSENAL SQUARE	
Years:	No. of Bldgs.			
1802	2			
1811	2			
Year:	No.of Bldgs.	Value of Bldgs.		
1821	3	$ 20,250.00		
Years	No.of Blgs. built	Cost of new bldgs.		Total expenditures on plant
1822-29:	2	$ 1,500.00		$ 4,140.42
1830-35	2	1,700.00		1,753.00
1836-41	add.	233.82		455.47
1822-41 Total	4	$ 3,433.82		$ 6,348.89
1821-41 Total:		$ 23,683.82		$ 26,598.89

1802: One brick Arsenal and one frame Artillery Shed.

1811; Two brick Arsenal buildings.

1821: Two brick Arsenal buildings and frame timber shed.

YEAR	Arsenal Square		Powder Magazine
	Arsenals	Other	
1803	1	1	1
1811	2	0	1
1821	2	1	1
1834	2	5	1
1841	2	2	1

The Powder Magazine was located on Camp Hill.

B. U.S. ARSENAL SQUARE BUILDINGS,1798 - 1841:
(Block A, Shenandoah Street).

1. The Large Arsenal, 1799-1861:

The Large Arsenal is Bldg. No. 12 on Map No. 2 (1803),p.55, the "Old Arsenal" on Map No. 7(1834),p. 276; and Bldg. No. 2 on Map No. 20(1844), page 407. See Photo No. 1, ca. 1803, p.63. and Photo No. 2,ca. 1826,p. 152.

The Large Arsenal, designed and built by Paymaster John Mackey in 1799-1800, was a two and one-half story brick structure with stone foundations but no cellar, and with a gable roof that was covered with oak shingles.

The dimensions in 1799 were given as 120 by 27 feet "within" the walls; the 1811 inventory of buildings listed the dimensions as 125 by 31½ feet; and the 1821 building inventory reported the size to be 125 by 32 feet. Its value in 1821 was set at $ 12,000.

Archeological investigation has revealed that the stone foundations of the Large Arsenal were five feet deep and included a center stone wall that ran the entire length of the structure. The center wall was included to give additional support to the beams of the first floor.

The front(Shenandoah Street) elevation of the Large Arsenal was divided by means of a central pedimented pavilion that appears to project foreward slightly, into three sections and the two wings and center were each divided into three bays. The first story of the facade of each section contained a center door that was flanked on either side by a round arched window and the second story above held three more round arched windows. The rear or river elevation presumably held 18 round arched windows. The end elevations were two bays wide and held four round arch windows, two at the first and second floor levels at each end. Above these and centered at the pedimented gable endwall at the third story was a small round window. According to these calaculations, the Large Arsenal, in 1799, had 37 round arched windows, two round windows, and three doors. In addition there were also apparently 12 dormer windows in the roof. The round arch windows probably had exterior shutters.

The Large Arsenal was painted on the exterior for the first time in 1819. The building had no chimneys or fireplaces in order to reduce the danger from fire and to further lessen this risk, the roof was slated in 1825.

In 1829 $ 808.54 was spent repairing the arsenals. This work involved "taking out the old frame and putting in new one at the arsenal". The central pedimented pavilion and 12 dormer windows may have been removed from the roof of the Large Arsenal as part of this rebuilding. The carpenters made 38 windows frames, 1,640 lights of new sash, and 37 pairs of panelled shutters. This suggests that all of the original window frames, glass, and windows, and the exterior shutters of the Large Arsenal were replaced in 1829. The brick and stone work of the Large Arsenal was also repointed at that time.

In 1833 228 feet of down spouting and 20 feet of down spouting were put up on the roofs of the two brick Arsenals on Arsenal Square.

The Large Arsenal was used from 1801 to 1852-53 for the storage of muskets and rifles manufactured at the Harper's Ferry Armory.

U.S. Soldiers set fire to the Large Arsenal on April 18,1861 in order to destroy the supplies stored in the structure to prevent these items from ha falling into the hands of approaching Confederate troops. This fire also destroyed the Large Arsenal.

2. The Small Arsenal, 1806- 1861:

The Small Arsenal is the "New Arsenal" on Map No. 7(1834), p. 276,and Bldg. No. 3 on Map No. 20(1844), p.407.

The specifications for the Small Arsenal were provided by Secretary of War Henry Dearborn and Paymaster Samuel Annin constructed the edifice in 1806-07.

The 1806 specifications called for a two-story brick structure with cellar, interior dimensions of 64 by 32 feet, and a gable roof covered with wood shingles. The 1811 inventory of buildings described the Small Arsenal as brick, two stories with cellar,and dimensions(exterior) of 68 by 36 feet. The 1821 building inventory lists the structure as valued at $ 8,000 and its size as 68 by 36 feet.

As constructed in 1806 the Small Arsenal was a two-story brick structure, 68 by 36 feet, with a full cellar and gable roof that was covered with wooden, probably cypress, shingles. The brick walls were two feet thick and the edifice was constructed without chimneys and fireplaces in order to reduce the danger from fire. There were two rows of stone columns in the cellar and probably also two tiers of wooden columns on the floor above to provide greater support for the 1st and 2nd story floors on which heavy arms were to be stored.

The length of the Small Arsenal fronted towards the Potomac River and the Wager Ferry Lot. This facade was divided into three bays. The center bay of the first story contained the main entrance and each flanking bay held a held a window with nine over nine lights and topped with a flat arch. The second story was occupied by three similar windows that were located above the first story openings. The rear elevation presumably also divided into three bays on each floor, contained six more flat arched windows. One narraw end of the Small Arsenal fronted on Shenandoah Street and the other on the Shenandoah River. These gable end walls each held only one small window that was located high near the peak of the gable roof. The Small Arsenal, in the brick superstructure, thus appears to have had one large door, 11 large nine-over nine light windows and two small windows in the gable end walls.

Archeological investigation has revealed that the stone cellar walls probably contained a total of eight small cellar windows that were protected by iron bars and a stairway in one corner that led from the exterior down into the basement.

The exterior of the Small Arsenal was painted for the first time in 1819 and its roof was slated in 1825 in order to reduce the danger from fire.

The brick work of the Small Arsenal was repointed in 1829 and some of its windows were repaired. In 1833 downspouts and spouting were installed on its roof.

The Small Arsenal was utilized for the storage of muskets and rifles from 1807 to 1861. There were 4,000 of these small arms stored in this structure on April 18, 1861; U.S. soldiers set fire to the Small Arsenal on that date in order to prevent these weapons from felling into the hands of approaching Confederate soldiers. The fire destroyed both the arms and the Small Arsenal.

3. Artillery Shed, 1799-1803:

The Artillery Shed is Bldg. No. 13 on Map No. 2(1803), p. 55. Also See Photo No. 1(ca.1803), p. 63.

Probably a one-story frame structure, the Artillery Shed was built during the winter of 1799-1800 to house the cannon of the three regiments of the U.S. provisional army that were encamped on Camp Hill. The Artillery Shed was removed at some unknown date after 1803 and prior to 1810.

4. Timber Shed, ca, 1815-ca. 1836:

The Timber or Lumber Shed is probably the structure labelled as the "Lumber Shed" on Map No. 7 (1834), p. 276. The store house was located on Arsenal Square along the east boundary line and to the south of the main gates to the square, which were situated in the east arsenal wall.

At some undetermined date after 1811 and prior to 1817, a large Timber Shed was apparently constructed on Arsenal Square. In 1821 the building was described as a one-story frame structure, 50 by 24 feet in size, and valued at $ 250. Photo No. 2(ca. 1826), p. 152) affords a distant view of Arsenal Square and also of a structure that may be the timber shed.

At some date after 1834 but prior to 1844, the Timber Shed shown on the 1834 Map No. 7 was removed from Arsenal Square.(Compare Map 7 with Map No. 20(1844),p. 407). The removal of this frame structure probably took place about 1836 in order to lessen the danger of fire spreading from the store house to the brick arsenals. Wood-burning locomotives of the Winchester and Potomac Railroad Company began running across Arsenal Square in 1836 and sparks from these engines posed a threat to all wooden buildings.

5. House for Storing Guns Stocks, 1822-1832:

This store house may have been located in Arsenal Square, along the east boundary wall and on the north side of the main gate in the east wall. (If not located on Arsenal Square, the building would then have been situated in the U.S. Musket Factory Yard).

A one-story Store House for Masket Stocks, constructed of wood and stone, was erected in 1822 at a cost of $ 1,000.00, It is believed to have been situated in Arsenal Square. Photo No. 2, ca. 1826, p. 152, offers a distant view of Arsenal Square and what may be the large House for Storing Gun-stocks. This 1822 warehouse was apparently replaced in 1832 by a new structure(see Item 6 below).

6. Store House for Gun Stocks, 1832- ca. 1836:

The Store House for Gun Stocks is probably the "Stock House" on Map No. 7 (1834),page 276. The structure was located along the east wall of Arsenal Square, on the north side of the main (east) gate to the yard.

The Store House for Gun Stocks, measuring 65 by 30 feet, was erected in 1832 at a cost of approximately $ 800.00. The building apparently replaced the Stock House that had been built in 1822. The new stock house was probably one story and constructed of wood. The Store House for Gun Stocks was removed from Arsenal Square at some undetermined date after 1834 and prior to 1844.(Compare Maps No. 7 and Map No. 20(1844),page 407). The removal took place sometime after 1836 when the main line of the Winchester and Potomac Railroad began operating through Arsenal Square. The sparks from the wood burning locomotives were a threat to all wooden structures and the Store House for Gun Stocks, a frame edifice, was taken away in order the reduce the chances of fire spreading from it to the two brick arsenals.

7. Paymaster's Office(Pay Office), 1822-1858:

This structure was located on Lot No. 2, Block B, Shenandoah(on S. Howell Brown's 1852 and 1869 maps of Harper's Ferry). The building is the "Pay Office" on Map No. 7(1834), page 276, and Bldg. No. 4(with a brick vault added to its south or rear side) on Map No. 20(1844), page 407.

The Paymaster's Office , a one story brick structure, 24 by 18 feet in size, was erectgd in 1822 at a cost of $ 500.00 The building stood at the northwest corner of Arsenal Square and fronted on Shenandoah Street.

The original wood shingle roof of the office was replaced by a slate roof in 1833. (1) The woodwork, doors and windows of the building were repaired and the interior was repainted in 1839. In 1840 a one-story brick "fireproof" vault, five by seven feet, with walls 2½ feet thick, was added to the rear(south) elevation of the Pay Office. One-story, the vault had a slated roof, an iron door, and a "Andrews Patent combination lock". Cost of construction was approximately $ 234. Plans for the building (see Maps. No. 18 and 19, pp. 405-406) were drawn by the Washington architect Robert Mills.

The Pay Office served as the Paymaster's Office from 1822 to 1848, when he removed his office to the remodelled former Superintendent's residence(See item 2) in the Musket Factory Yard. The new general Office Building in the Musket Factory yards also contained a new vault for the Paymaster's use.

The former Pay Office was then rented to various merchants as a store. Its history and use 1848-1858, will be treated in more detail in Volume II of this study.

(1). Superintendent George Rust,Jr., to Chief of Ordnance, Col. George Bomford, May 11, 1833, Reel 22, Vol. 14, p.1393.

The old (1822) Pay Office stood on its original site on Lot 2, Block B, Shenandoah Street, until April 1858, when the building and vault were removed to another location in order to clear the Lot 2 site for the construction of present Park Bldg. No. 36. (The brick foundations of Old Pay Office were found still in place in front of Park Bldg. No. 36 in March 1959 when a hole was dug to erect the Park Flag pole).

8. Superintendent's Office, 1832-1865

This building was located at the northeast corner of Arsenal Square on Lot No. 1, Block A, Shenandoah Street(on S. Howell Brown's 1852 and 1869 Maps of Harper's Ferry). The structure appears as the" Supt's Office" on Map No. 7(1834), page 276, and as Bldg. No. 1 on Map No. 20(1844),p. 407.

This building, a one-story brick edifice with hipped roof, and measuring 28 by 21 feet in size, was erected on the corner of Arsenal Square as a dwelling house at some undetermined date after 1811 and prior to 1826. From October 1826 to 1832 the structure served as the residence of Armorer James Clark, who paid an annual rent of $ 20.00. (For a distant view of what is probably this dwelling house, see Photo No. 2, ca. 1826, page 152).

In August 1832 the Armory took possession of the building and remodelled it for use as the office of Superintendent George Rust, Jr. In 1833 the original wood shingle roof the the office was slated in order to lessen the danger of fire to the two brick arsenals. In 1841 the Superintendent's office was whitewashed inside and the slate roof was repaired.

The Office was used by SuperintendentsRust, Edward Lucas, Jr., Major Henry K. Craig, and Major John Symington as the administrative headquarters of the Armory from 1832 to 1848. In 1848 the Superintendent's Office was relocated in the former Superintendent's Residence(See item 2), which was situated in the Musket Factory yard.

The history and use of the old(1832) Superintendent's Office, 1848 to 1861, will be treated in some detail in Volume Two of this study.

The Superintendent's Old(1832) Office was still standing on the northeast corner of Arsenal Square at the end of the Civil War, in 1865.

9. Ice House,1834 :

This structure was located south of the Small Arsenal and west of the Large Arsenal in 1834. The building appears as the "Ice House" on Map No. 7 (1834),page 276.

The Ice House, probably a frame structure measuring approximately 24 by 24 feet in size, was erected at some undetermined date after 1811 and prior to 1834. The structure probably furnished ice for the nearby residences of the Superintendent, Paymaster, and Master Armorer, and perhaps also for the clerks and armorers.

The Ice House was removed from Arsenal Square at some unknown date after 1834 and prior to 1844(Compare Map No. 7(1834) with Map No.2 (1844), page 407. The removal took place after 1836 when the main line of the Winchester and Potomac Railroad begain operating its main line through Arsenal Square. The sparks from its wood-burning engines posed a threat to wooden buildings and the Ice House was removed so that fire would not

leap from this building to the two adjacent brick arsenals.

Arsenal Square Privies:

There was one or more privies located on Arsenal Square for the use of the Superintendent, the Paymaster, their clerks, and the workmen who stored and cleaned the arms in the two brick arsenals. A large new privy was constructed in the Arsenal Yard in 1841 to replace the old one.

Armory Flagpole, 1827-41:

During the years 1827 to 1841 a large flag pole was located in Arsenal Square; first erected in 1827, the old pole was replaced by a new in 1838.

Ground Level of the Arsenal Yard, 1798-1857.

The general ground level of Arsenal Square during the years 1798 to 1857 was from approximately 1½ to 4 feet below the level of Shenandoah Street. During the years 1857-1859, extensive filling and grading was done to raise the general ground level to that of Shenandoah Street.

ARsenal Square Gates, Fences, and Walls, 1798-1844:

Maps: No. 2(1803),p. 55; Map No.5,(1811), p.92; Map No. 7(1834),page 276; and Map No. 20(1844), page 407.

A comparsion of the above listed maps reveals that Arsenal Square had assumed its basic size and shape as early as 1811(see Map No. 5). The Arsenal Yard had been enclosed prior to 1818 for in March of that year, the double wooden gates to the main gate were rebuilt and rehung. In 1834 the 1818-wooden gates were replaced by a similar new set. The main gate to Arsenal Square during the years 1811 to 1844 was located on the east boundary line of the yard and opened out on Wager Lot No. 3 to use this lot as a street leading into the Wager Ferry Lot. In June 1844, the old east main gate to the Arsenal yard was walled up and a new main gate constructed on the north boundary line so as to open out on Shenandoah Street(Compare Map No. 7(1834) and Map No. 20 (1844).

In 1820 and 1826 a total of $ 182.66 was spent to erect at least 159 perches of stone mortar wall to enclose Arsenal Square. Map No. 7 indicates that by 1834 the east and west side of the yard were enclosed by stone walls. The north or Shenandoah Street side was enclosed by an iron fence made of condemnad musket barrels, which extended from the Superintendent's Office at the northeast corner to the Paymaster's Office at the northwest corner

During the period prior to the construction of the Winchester and Potomac Railroad main line across the southern third of Arsenal Square in 1835-, the area to the south of the two brick Arsenals to the bank of the Shenandoah River appears to have been utilized as the Armory lumber yard(Hence the location of the Timber or Lumber Shed, item 4 above, in Arsenal Square In 1825-26 $ 1,089.80 was spent erecting 1,227 perches of stone river wall and placing 2,000 cart loads of gravel behind to wall to "prevent the river from inund-ating the lumber yard."

Under the right of way granted to the W. &. P. R.R. Co. in 1835, the corporation received a 50 foot wide right of way for its main track across Arsenal Square (Block A and B, Shenandoah) and all of the land on Block A, about 2,900 square yards, south of the track to the Shenandoah River. This latter grant apparently embaced the site of the Armory lumber yard. In 1835-36, with the construction of the main line of the W. &. P. R.R, on a high embankment of earth, the Armory removed its lumber yard to a new location. The railroad company faced the north(and probably the south) side of its embankment across Blocks A and B with a high wall comprised of rough hewed stone. The east and west Arsenals stone walls were also tied in with the new railroad wall on the south side to render the yard secure with stone walls on three sides and a iron fence on the north, from 1836 to 1844. Compare Maps No. 7(1834) and Map No. 20(1844).

The iron fence (in 1844) enclosed the Superintendent's Office at the northeast corner of the yard and abutted on the northeast(front) corner of Paymaster's Office at the northwest corner. The Pay Office, itself, openly directly out into Shenandoah Street. There was not any sidewalk or paved walkway along the north(Shenandoah Street) side of Arsenal Square during the years 1798 to 1844.

C. Other Armory Structures:

Stables

1. and 2. Armory Stables

Bldgs. No. 19 and 20, located on Shenandoah Street, near the east end of Virginius Island are marked "stables:" on Map No.2, made in 1803, page 55.

3. Stable, 1821

The 1821 inventory of Armory buildings describes the Armory Stable as one-story, wood, 30 by 24 feet, and valued at $ 250.00. The location of this stable is not known.

4. Stable, 1828: - 1847 :

In 1828 a new wooden stable was erected at a cost of $ 200.00. This may be the frame stable shown on Map. No.1-1835, which was located on what later became known as Lot No.1, Block G, Shenandoah Street, that is, on the the corner lot on the south sideof Hamilton Street and west side of Tell Street.

This old wood stable was replaced by a large brick stable that was erected on Block F, Lot 2, Shenandoah Street, in 1847-48. In estimates for 1846-47, requesting $ 2,000 to erect the new brick stable, the Armory Superintendent wrote: "The present stable and sheds are a collection of old wooden sheds entirely beyond repair." 1

1. Harpers Ferry NHP Reel 20, Vol. 7, p. 657-658.
The new brick stable was located on site "T" on Major Symington's 1848 Map of Harper's Ferry.

Powder Magazines, Magazine Hill:

5. Brick Magazine, 1803-1810:

In 1803 a brick magazine with a domed roof, also constructed of brick, was erected to be used to store gunpowder. Location of the structure is not known, but it was probably located on Magazine Hill.

The structure was very damp inside and its roof leaked from the first and efforts to eliminate these faults failed. The brick magazine thus proved to be unsatisfactory for its intended purpose.

6, Magazine, 1810-1821

In 1810 a wooden magazine building, 10 feet by 10 feet in size, and eight feet high was erected, probably on Magazine Hill.

7. Powder Magazine, 1821- 1854(?)

The 1821 inventory of Armory buildings describes the magazine as a one-story wooden building, 18 by 18 feet, and valued at $ 150.00. This structure was located on Magazine Hill (at site "X" on S. Howell Brown's 1848 map of Harper's Ferry.) The old magazine was demolished in 1853 because the land near the original site, namely Blocks A, B, and C, had been subdivided and sold in August 1852 as lots for houses. In 1854-55 $ 1,100 was provided to build the new magazine at a new site. The structure, a one-story brick building 12 by 15 feet in size, was erected in 1854 and was located "on the brow of the hill, immediately west(or south) of the Rolling Mill" (which was to be erected on the site of Bldg. No. 11 , the old Barrel Welding and Tilt Hammer Shop(1834-38) on Map No.17(1848). The 1854 brick magazine survived the Civil War in good condition and was still standing unused in 1865.

SUMMARY CHART: CATALOG OF ARMORY BUILDINGS, 1798-1841:

			U.S. RIFLE FACTORY			
Years:	No. of Bldgs.					
1802	1					
1811	3					
Year:	No.of Bldgs.	Value of Bldgs.				Hall, 1819-21 2 shops
1821	4	$ 11,500.00				$ 4,130.14
Years	No.of Blgs. built	Cost of new bldgs.	Walls	Wells	Bridge	Total expenditures on plant
1822-29:	10	$ 7,277.31		100,00	1,000.00	$ 20,232.28
1830-35	8	2,872.85	252.40			14,671.46½
1836-41	5	8,057.78	1,535.22			9,746.94
1822-41 Total	23	$ 18,207.94	1,787.62	100.00	1,000.00	$ 44,650.67
1819-41 Total:		$ 29,707.94				$ 48,780.81

1802": Saw Mill (Old Saw Mill of Robert Harper.) $ 56,150.67

1811: Saw Mill, Grinding Mill, and Trip Hammer Shop. (New-1807-Saw Mill.)

1821: Grinding Mill, Trip Hammer Shop, Smiths shop for Hall, and Machine Shop for Hall (former 1807 Saw Mill).

YEAR	U.S. Rifle Factory	
	Workshops	Other
1803	1	0
1811	3	0
1821	4	1
1834	14	8
1841	14	12

D. RIFLE FACTORY BUILDINGS, LOWER HALL ISLAND, 1798-1841:

1. Harper's Saw Mill, ca. 1776-1806:

Map No. 3 indicates that Harper's Saw Mill was located at the lower end of the Lower Hall Island approximately at the point were the lower locks of the Shenandoah Canal were to be constructed in 1806-07.(Map No. 3,(1803), p. 69.

Robert Harper constructed this frame sawmill on the Shenandoah prior to his death in 1782. The U.S. Armory acquired the mill when the U.S. Government purchased the structure and 311 acres of land for $ 10,000.00. in 1797. The Armory used the old mill to saw lumber to be used in the construction of Armory buildings at the U.S. Musket Factory and Arsenal Square , 1798 to 1806.

Harper's former sawmill was apparently demolished in 1806-07 when the Potomac Company constructed the 1st and 2nd locks, known as the "Lower Locks" of the Shenandoah Canal at the lower end of the Hall Island. (See Map No. 4(1807), p. 70).

2. "New" Armory Saw Mill, 1806- 1836 (Hall's Machine Shop):

This structure is "G"-new sawmill on Map No. 4,(1807),p. 70; Bldgs No. 17 on Map No. 9 and Map No. 10,pp. 298-299; and is missing from Map No. 21, p.419.

The Potomac Company probably constructed this "new" sawmill for the Armory in 1807 at site G, Map 4 to replace the old Harper's sawmill which had been demolished to clear the site for the construction of Locks No. 1 and 2 of the Shenandoah Canal. The 1810-11 inventories of buildings thus list one Armory sawmill but provide no further description.

Captain John H. Hall came to Harper's Ferry to begin the manufacture of the Patent Rifle for the U.S. in April 1819. In the fall of that year he was given the use of the Old(1807)sawmill as his machine shop. It was estimated that $ 600.00 would be required to convert the mill for Hall's use and to provide a water wheel to turn Hall's machinery. Robert Painter did the millwright work on the machine shop , receiving $ 207.79 for his efforts which included constructing a wooden water wheel 12 feet in diameter.

The 1821 inventory of Armory buildings described Hall's Machine shop as a one-story frame structure 50 by 16 feet in size and the estimated value was given as $ 500. The converted sawmill thus served as John H. Hall's principal workshop from 1819 until 1827.

In 1824-25 the machine shop was considerablely enlarged at a cost of approximately $ 1,653.75. The new wing was apparently of frame construction like the original section. About 229 cubic yards of earth were removed to construct the new forebay and 283 perches of stone wall were laid in the forebay and tail race of the addition. A second wooden water wheel 10 feet in diameter was built and installed in the new wing in 1824.

Bldg. No. 17 on Maps No.9 and 10(1834)(pp. 298-99) is probably the Hall Machine Shop of 1819 that was enlarged in 1824-25. Bldg. 17 is a T-shaped structure about 50 by 16 feet with 32 by 16 feet arm that projects eastward from near the center of the original structure.

By 1834 the old Machine Shop was apparently serving as Hall's drilling shop. In requesting funds to replace the frame structure with a new brick drill shop, 50 feet long, 17½ feet wide, and one story high, the Chief of Ordnance explained to Congress that the shop "at present used for this purpose being an old wooden building very like to take fire, and from its position, to endanger other shops and machinery" should be demolished and replace with the brick building. The new brick drill shop(item 24 below) was constructed in the fall of 1836. The old machine shop was demolished and the brick drill shop was erected on the same site. The 1836 brick drill shop is Bldg. No. 18 on Map 21(1848), p. 419.

3. The Grinding Mill, Bell Shop, 1808-1849:

This workshop is Bldg. No. 16 on Maps No. 9 and 10(1834),pp. 298-299; and Bldg. No. 13 on Map No. 21(1848), p. 419. It was located on the north side of the Hall Island and just west of Sawmill-Machine Shop(1807-1836) (item 2 above).

Designed and erected in 1808-09 by Superintendent James Stubblefield and Paymaster Samuel Annin, this water shop was Bldg. No. 9 on the 1810-11 inventories of Armory buildings. The structure was described in 1811 as a one-story brick building, 80 by 45 feet size, with " Machinery for heavy grinding(barrels,&c.,)". The roof was cover with wooden shingles. The 1821 building inventory lists the shop as the grinding mill, one story, brick, 85 by 40 feet, and valued at $ 6,000. The mill had one water wheel.

The Armory operated the grinding mill from 1808 to 1827 in conjunction with its production of arms at the U.S. Musket Factory on the Potomac. Musket barrels were transported from the Musket Factory to the shop on the Shenandoah for heavy grinding and then carried by wagon back to the Potomac workshops to be completed. In the fall of 1827 the Armory spent $ 1,500 making a stone addition to the 1808 brick mill to contain the half stocking machine required in the production of the Hall Patent Rifle. Included in this construction was the building of a new head and tail race for the mill. About 459½ perch es of stone went into the walls of the addition and its races. The enlarged grinding shop was then turned over to John H. Hall for his use. Lewis Wernwag did the millwright work on the addition. This included the construction of a water wheel(wooden) 10 feet in diameter and a shaft 18 feet in length and 23 inches in diameter, together with the other necessary fixtures,for turning the half stocking machinery in the new wing. Wernwag received $ 336.00 for his services . The enlarged shop, which now had two water wheels, went into operation under Hall's charge in November 1827. The roof of the old grinding mill and new wing were slated, probably in 1827. In December 1828 a cupola or belfry, with a bell to call his men to work and to sound the hours, was added to the roof of the grinding-stocking shop. The building was henceforth usually refered to as the Rifle Factory" Bell Shop."

The enlarged shop,Bldg. 16, is shown on Maps 9 and 10, in 1834. Drawn roughly to scale, the shop measures about 85 by 45 feet and has a 20 by 20 [sic] addition on the west end, at the southwest corner on these maps. In late April 1840 a sky light was installed in the roof of the Bell Shop at a cost $ 11.25 and the slate roof of the shop was repaired in 1841 at a cost of $ 32.12.

5. Smiths Shop, 1819- 1851:

The Smiths Shop is probably Bldg. No. 21 on Maps. No. 9 and 10(1834), pages 298-299; and it is Bldg. No. 22 on Map No. 21(1848), p. 419. The blacksmiths shop was located at the northern edge of the Lower Hall Island at the eastern tip and a short distance east of the 1807 Sawmill-Hall Machine Shop(item 2).

This shop was built for the use of John H. Hall in the production of his Patent Rifle in 1819. The blacksmith shop is described in the 1821 building inventory as stone, two-story, 30 by 30 feet, and valued at $ 1,000. The roof was covered with wood shingles originally and these were replaced about 1829 by slate.

The structure had a chimney for each forge and these may have numbered four.

The 1819 structure was still being used as a "Forging Shop" in 1848. The Smiths Shop was demolished, probably in May, 1851 to clear the site for the construction a large new Annealing Furnace and Proof House at this location.(1) The new Annealing Furnace is Bldg. No. 5 on the 1859 Historical Base Map.

6. Store House for Coal, 1822-1836? :

In 1822 the Armory erected a "House for the storage of stone coal at the Works of on the Shenandoah," at a cost of $ 200. This was probably a small one-story stone structure and would have been utilized in conjunction with the operation of 1808 Tilt Hammer and Furnace on the Lower Hall Island from 1822 to 1831, when the tilt hammer shop was turned over to John H. Hall. Hall was probably also given the use of the Coal House in 1831.

The Store House for Coal may possibly be Bldg. No. 9 on Maps No. 9 and 10(1834), pp. 298-299. This structure, about 25 by 15 feet according to the maps, is conveniently located just to the southeast of Bldg. No. 7, which is believed to be the 1808 Tilt Hammer Shop(Item 4). There is no Coal House listed on Map No. 21 (1848), p. 419. By this date the 1822 store house for coal had been either demolished or removed from its original site; and if still standing, had been converted for use for some other purpose.

7. Store House for Iron, 1824-

In 1824 the Armory constructed a" Store House for bar iron at the works and the Shenandoah" at a cost of $ 500. The stone structure, constructed by the mason Michael Walsh, had 225 perches of stone laid in its mortar walls. The building was either a one and one-half or two-story edifice, for in 1826 $ 10.00 was spent for carpenter work in "fitting up a lodging room for the workmen over the iron house." The original roof was comprised of wood shingles and these were probably replaced by slate in 1829.

Iron intended for use at the U.S. Musket Factory on the Potomac was stored in the Iron House on the Hall Island from 1824 to 1834.

(1) Construction on the new Annealing Furnace foundations was underway in June 1851, so that the old smith shop probably went down in Map, R.G. 217-3rd series, File 12680-Voucher 33, To Edward Tearney, June 24,1851, $ 509.46 for constructing the foundation of the new furnace.

The old Bell Shop was demolished in the spring of 1849 to clear the site for the construction of a new Tilt Hammer and Forging Shop, Bldg. No. 4 on the 1859 Historical Base Map. The slater George W. Tracey received $ 26.59 in 1849 "for taking off and securing the slate roof of the old Bell Shop at the Rifle Factory, 5,319 feet, to make room for a new shop."(1)

4. Tilt Hammer Shop, 1808- 1837:

This shop is probably Bldg. No. 7 on Maps No.9 and 10(1834) pages 298-299. The tilt hammer shop was located on the north side of the Lower Hall Island and a short distance west of and in a line with the 1808 Grinding Mill (Item 3) and the 1807 Saw Mill-Machine shop(Item 2). The 1808 Tilt Hammer Shop was apparently demolished in 1837 and replaced by the new Tilt Hammer building that was erected in 1837-38. This latter structure, built on the site of the 1808 workshop, is shown as Bldg. No. 7 on Map No. 21(1848), page 419.

The Tilt Hammer Shop was designed and erected by Superintendent James Stubblefield and Paymaster Samuel Annin in 1808-09. The structure was described in the October 1811 inventory of buildings as a one-story brick shop, 45 by 45 feet in size, designed to operate four tilt hammers, but only two of the intended four trip hammers had been installed by that date. The water shop had one water wheel and its roof was covered with wood shingles.

The shop is listed in the 1821 building inventory as the "furnace and forges" shop, one story, brick, 45 by 45 feet, and valued at $ 4,000.

The Tilt Hammer and Furnace Shop was operated by the Armory in conjunction with the production of arms at the U.S. Musket Factory from 1808 to 1831. In 1830 the shop was described as a " one story brick building in defective state, in which two tilt hammers are now worked and a forge hammer, the later for the furnace. In June 1831 the Armory turned over this old workshop to Captain John H. Hall for use in the production of the Patent Rifle.

In 1831 the shop was repaired and one portion converted at a cost of $ 638.58 for use as a stocking shop for Hall Rifles. In 1832, at a cost of approximately $ 1,000, the remaining portion of the old tilt hammer shop was converted into a mill for grinding rifle barrels, ramrods, and bayonets. The roof of this workshop was slated, probably in 1829, in order to reduce the danger from fire.

The 1808 Tilt Hammer/ Grinding Mill and Stocking Shop was apparently demolished in July 1837 in order to clear the site for the construction of a new Tilt Hammer or Barrel Welding Shop on the same location. Work on the new stone structure was underway in August 1837. (See item 28 below).

On Maps No. 9 and 10, made in 1834, Bldg. No. 7, the probable 1808 Tilt Hammer Shop-then a Grinding Mill and Stocking Shop, appears to have been enlarged in the 1831-32 work from a square 45 by 45 structure into an L-shaped building by the addition of a 35 feet by 25 feet wing to the south side at the southeast corner.

(1) R.G. 217-3rd Series-File 9307- Voucher No.44-2nd quarter of 1849.

However, John H. Hall was apparently using at least part of the iron house by 1831, for he spent $ 80.00 making repairs and improvements to the partition, rack, and flooring of the iron house in 1831.

In the fall of 1834 the Armory erected a new Store House for Iron, Steel, and a Bin for Coal at the U.S. Musket Factory on the Potomac. This new store house saved the cost of transporting the iron from the Iron House on the Shenandoah to the Potomac works. The old stone(1824) Iron House on the Hall Island was thus probably turned over completely for John H. Hall's use in 1834 or 1835.

The location of the Store House for Iron on the Lower Hall Island is not known. A possibility is Bldg. 8, which measured approximately 32 by 15 feet, on Maps No. 9 and 10, page 298-299. The only reason for suggesting this structure for the iron house is that it was located in a line between the two Armory-operated watershops, Bldg. 7- The 1808 Tilt Hammer Shop(Item 4) and Bldg. No. 16- the 1808 Grinding Mill, thus situated in the small cluster of structures under control of the ~~Musket~~ Factory from 1808 to 1827 and 1831. The old Iron House does not appear under this name on Map No. 21(1848),p. 419, thus indicating that the old building had either been demolished or converted to some other use.

8. House and Kilm for Steaming Rifle Stocks, 1825:

A small stone kilm for steaming rifle stocks was erected in 1825 at a cost of approximately $ 52.00. About 60 perches of stone went into the kilm. The location of this structure on the Lower Hall Island is not known. "A House for Steaming Stocks", Bldg. No. 15, appears on Map 21, p. 419(1848) just to the south of Bldg. No. 13, the 1808 Grinding Mill-Bell Shop(Item 3). This may be the 1825 kilm or a direct descendent thereof. However, no such building appears in the same location(south of Bldg. No.16) on Maps No. 9 and 10 (1834), pp.298-299. The 1848 House for Steaming Stocks, a very small edifice, has either been relocated or is a replacement structure for the 1825 kilm.

9. Small Brick Workshop, 1825.

In September 1825 a small brick workshop and two annealing furnaces containing 27,500 brick were erected for the use of John H. Hall. The location of the shop on the 1834 maps, No. 9 and 10,pp.398-399, and also on Map No. 21 (1848), p. 419, is unknown.

10. and 11. Two Brick Annealing Furnaces, 1825-1835:

In September 1825 two small annealing furnaces and also a small brick workshop were constructed from 27,500 brick for the Use of John H. Hall. The two annealing furnaces are probably Bldg. No. 19, about 12 by 10 feet, and Bldg. No. 20, also 12 by 10 feet, on Maps No. 9 and 10, pp. 398-399, drawn in 1834. These two shops were located on the north edge of the island,near the eastern tip , and adjacent(west) of Hall's 1819 Smiths shop (item 5) Bldg. 21 on the maps. In 1831 Hall spent $ 29.19 constructing a frame shed" in front of the old annealing furnaces. During the summer and fall of 1835 the two old annealing furnaces that dated from 1825 were demolished and replaced by a new brick Annealing House and Annealing Furnace which appear as Bldgs. No. 20 and 21, respectively, on Map No. 21, p. 419. The 1835-48 structures are located on approximately the same sites as the 1825-35 annealing furnaces that were tentatively identified as such above on the 1834 maps.

12. Smiths Shop, 1827- 1851:

This structure is probably Bldg. No. 22 on Maps No. 9 and 10, pp.298-299, drawn in 1834, and it is "the Forging Shop-" Bldg. No. 19, on Map No. 21(1848), page 419. The shop was located near the eastern tip of the Lower Hall Island and a short distance to the southwest of the 1819 Smiths Shop(Item 5).

This one-story, stone smiths shop, 35 by 35 feet, with slate roof, was erected for the use of John H. Hall in 1827 at a cost of approximately $ 1,404.29. The forging shop held four forges, each with it own chimney,so that four chimneys pierced the roof. The walls held about 481 perches of stone masonry. and these were erected by the mason Lewis Wernwag.

The Smiths Shop was used for its intended purpose from 1827 to about 1851, when it was demolished to clear the ground for the construction of a new Annealing Furnace and Proof House in that general vicinity.

13. Store House for Coal, 1827- 1836:

The Store House for Coal, containing 506 perches of stone mortar wall, was a stone structure with slated roof and apparently one-story in height. Edward Harding did the mason work and the total cost of construction in 1827 was about $ 656.63. Because it was erected as a"Store House for the Same(the Smiths Store(item)12)that was also being constructed for the use of John H. Hall), it seems highly probable that the Coal House was built adjacent to the 1827 Smiths Shop and the 1819 Smiths Shop (item 5).

If this logic was applied, then Bldg. No. 18, about 20 by 25 feet in size, on Maps No. 9 and 10(1834), pp. 298-299, would be the most likely candidate for being Hall's 1827 Coal House. Bldg. No. 18, located on the northern side and near the eastern tip of the Lower Hall Island, is situated in the midst of the cluster of structures under Hall's inmediately control in 1827, namely Bldgs. No. 16, 17, 19, 20, 21, and 22 on the 1834 maps.

The Coal House is missing from Map No. 21(1848), p. 419, and its probable site is occupied by Bldg. No. 18, the "Drill Shop:, which was definitely constructed at this location in 1836. This indicates that the 1827 Coal House was either demolished or removed to a new location to clear the site in 1836.

14.Tilt Hammer Shop, 1828 - ca. 1844:

This structure, labelled "Tilt Hammer" by the engineers on their map in 1834, is Bldg. No. 5 on Maps No. 9 and 10(1834), pp.298-299. This is also probably the tilt hammer shop that was erected for John H. Hall's use in 1828.

The tilt hammer shop, a one-story stone building, 45 by 45 feet, with a slate roof, was apparently constructed in 1828 for Hall's use. The shop had a water wheel and machinery. By 1834, however, the tilt hammer shop appears on the maps as an L- shaped building about 75 by 35 , with a 20 by 24 feet wing at the southeast corner on the east side. A long narrow extension, 90 by 18 feet also runs east and crosses over the raceway.

The 1828 tilt hammer shop is missing from Map 21(1848), p.419. and must have been demolished about 1844 to clear the site for the construction of new buildings No. 4 or 1 on the 1848 map.

15. Store House for Charcoal 1831-

A small Charcoal House was constructed in 1831 at a cost of of $ 107.40. This price suggests that it may have been a frame building, if not, then a small one-story stone structure.

The location of the Charcoal House on Maps No. 9 and 10(1834), pp.298-299, is not known. The Store House does not appear under its name on the 1848 Map, No. 21, p. 419.

16. Furnace and Shop for Annealing Rifle Barrels, 1831

A furnace with a building over it was construction in 1831 at a cost of $ 103.24½, suggesting that the stone or brick furnace was covered by a small frame structure.

The location of the Annealing Shop on Maps No.9 and 10(1834), pp.298-299, is not known. Map No. 21(1848), p.419, has Bldg. No. 6- " a Barrel Welding Shop", which may possibly be the 1831 Annealing Shop.

17. Furnace and Shop for Hardening Ramrods, 1831-

A furnace for hardening ramrods, with a building to cover it, was erected in 1831 at a cost of $ 122.81. The fact that Bldg. No. 9 on Map 21 (1848) is labelled the "Rod Tilt Shop", suggests a possibility that Bldg. No. 8, about 15 by 32 feet in size on Maps No. 9 and 10(1834-pp.298-299, might be the 1831 shop. This is speculation ,however, and if correct, then Bldg. No. 8 on the 1834 maps could not be the 1824 Iron House, as suggested under item No. 7 above. Bldgs. No. 8 and 9 on the 1834 and 1848 maps, however, appear to occuppy the same site on each map.

18. Shop for Filers, 1831- 1837

A square shaped frame filing shop was constructed in 1831 at a cost of $ 139.40. The location of this small workshop on Maps No. 9 and 10(1834), pp.298-299 is not known. The building was probably replaced by the construction of a large new brick jobbing shop for filers in 1837, see item 26 below.

19. Filing Shop ,1832-1837:

A one-story,probably frame, filing shop, 17 feet square, was apparently constructed for John H. Hall in 1832 at a cost of approximately $ 250.00. The location of this small workshop on Maps No. 9 and 10(1834),pp.298-299, is not known. The 1832 workshop was probably replaced by the construction of a two-story brick jobbing shop for filers in 1837, see item 26 below.

20. Engine House, 1832-ca.1843:

A house to store the fire engine, apparently a small one-story frame structure, was erected at the Rifle Factory in 1832 at a cost of approximately $ 150.00. The location of the Fire Engine House on Maps No. 9 and 10(1834), pp.298-299, is not known. The location of a replacement structure, erected in 1843-44, appears as Bldg. No. 16-the"Engine House" on Map 21(1848), p.419.

21. Captain John H. Hall"s Office, ca.1827:

The engineers in 1834 labelled Bldg. No. 15 on Maps No. 9 and 10(1834), pp.298-29, as "Capt. Hall's Office." Bldg. No. 10, the "Inspectors' Office," on Map No. 21(1848), p.419, which is situated about on the same site as Hall's Office, may be the same office building 14 years later.

Captain Hall's Office, probably a frame structure and about 30 by 35 feet in size, was erected at some undetermined date, but probably about 1827, when he and the United States entered into the second contract to produce his patent rifle.

Remarks on the 1834 Maps, No. 9 and 10:

Maps No. 9 and 10, drawn in 1834, reveal that there were a total of 22 structures standing on the Lower Hall Island at that date.

Dwelling Houses for Hall's Employees

Three dwelling houses, probably stone and costing about $ 450.00 each, or a total of $ 1,350.00, were erected to house employees of the Rifle Factory in 1819. A fourth residence, a log house, was built in 1825 at a cost of $ 102.75. In 1827-28 Captain John H. Hall was also permitted to erect a new residence for his use on Camp Hill. Two more dwelling houses were apparently constructed for Hall employees in 1828, for the rent rolls indicate that Hall and six of his workmen occupied a total of seven dwellings by 1829. In 1831 kitchens were added to two of the dwellings at a cost of $ 433.71½ and $ 76.45 was expended to make repairs to three other of his workmen's residence. The six dwelling houses of the workmen were located on either the Lower or Upper Hall Islands. The first three stone houses erected in 1819 were probably situated on the Lower Hall Island.(1)

Winchester and Potomac Railroad Company Right of Way:"

On January 27,1835, the United States granted the Winchester and Potomac Railroad Company a 30 foot-wide right of way across the Upper and Lower Hall Islands. The company constructed its two tracks on a 14 foot high wooden trestle across these islands in 1835 and began operations in 1836.

Bridges to the Hall Islands:

The first bridge to the Lower Hall Island would have been required after the Shenandoah Canal and its Lower Locks had been completed in 1807 and particularly after the Armory erected its brick water shops, the Grinding Mill and Tilt Hammer Shop, on the Lower Island in 1808-09.

Operations on the island expanded in 1819, when John H. Hall began work on his Patent Rifle in two shops, and three residences may also have been built on the Lower Island. In 1820 $ 230.12 was spent constructing two stone bridges at the Lower Island. One, consisting of 78 perches of stone wall, was bridge over the tail race of one of the three water shops on the island. The second stone bridge, which had a brick arch, spanned the Shenandoah Canal. This structure contained 120½ perches of stone wall, cost about $ 191.12,and was completed in December 1820.

(1) Two of these stone dwelling houses were standing near the railroad tracks in1838 and it was proposed to rough cast them and convert them into store house Their roofs were also to be slated.

In 1828 the Armory spent $ 333.00 (one-third of the cost) of building a $ 1,000.00 wooden bridge "over an arm of the Shenandoah;" presumably Captain Hall's Rifle Factory paid the balance of $ 667.00 to construct the bridge. Map No. 10, p. 299, shows the state of the bridges in 1834, with one crossing from the main land to the western portion of the Lower Hall Island and then by means of a road leading westerward via a second small bridge over a waterway to the Upper Hall Island.

Flood Guard Walls:

As a result of experience in the great Shenandoah flood of 1810, the Armory apparently constructed a guard wall and embankments to protect its two water shops on the Lower Hall Island. In 1831 Captain John H. Hall increased the thickness of the flood protection embankment that lay to the southwest of his shops by four feet and its height by three feet at a cost of $ 252.40½. This work involved the construction of a stone wall and raising the embankment.

The location, width, and extant of the flood guard wall and embankment as it existed in 1834 is clearly shown on Maps. No. 9 and 10(1834), pp.298-99. The embankment, according to Captain Hall, was more than 20 feet thick.

As a result of the flood of 1836, which seriously threatened Hall's Rifle Factory plant, the Captain strengthened the existing embankment by construction a strong wall of stone parallel to the old embankment -a"a few feet from it, and extending down to solid rock below which is within about two feet of the surface. The propose wall was to be six feet thick, 12 feet high, and about 250 feet long. The area between the new stone wall and the old embankment was then to be fill in with about 1,500 cubic yards of earth. Hall estimated that the new wall would require 720 perches of stone. As constructed by Lewis Wernwag and Anthony Storm in 1837 at a cost of $ 1,535.22, 309 perches of stone in mortar wall was built and 2,232½ cubic yards of earth embankment was made. This suggests that 1837 stone flood wall, as actually built, was probably about 6 feet thick, 250 feet long, but only about six feet high. On the other hand, about 700 cubic yards of fill for the embankments was made than had been estimated.

additional

Shenandoah Street River Wall, 1823.

In 1823 the Armory spent $ 2,088.00 to have 2,088 perches of stone wall erected between the road leading to the Hall Rifle Works and the Shenandoah River and for filling in with earth behind the new wall.

In 1823-24 an additional $ 342.50 was spent to raise the bank of the Shenandoah Canal two feet in height for a distance of 76½ rods, and in width ranging from 10 to 12 feet, with earth. The purpose of this construction was to prevent the canal from overflowing.

Rifle Factory Buildings erected 1835-1841:

22. Annealing Shop, 1835 - 1851:

This is Bldg. No. 20 on Map No. 21(1848), p. 419.

The Annealing Shop, a one-story brick structure containing 26,978 bricks and stone foundations, was erected by the mason Jospeh Mullen in 1835. Its interior was plastered and the roof contained 1,143 square feet of slate. Total cost of construction was probably about $ 1,000.00.

The 1835 Annealing Shop replaced the 1825 Annealing Furnace and its 1831 wooden shed (See items 10 and 11 above)-which appeared as Bldg. No. 19 on Maps No. 9 and 10(1834), pp.298-299.

The 1835 Annealing Shop, in turn, was demolished in 1851 in order to clear the ground for the construction of a new Annealing Furnace and Proof House(Bldg. No. 5 on the 1859 Historical Base Map).

23. Annealing Furnace, 1835- 1851:

This is Bldg. No. 21 on Map No. 21(1848), p.419.

The Annealing Furnace ,a one-story brick structure containing 14,235 bricks and stone foundations, was erected by the mason Joseph Mullen in 1835. The interior of the shop was plastered and its roof, 444 square feet, was slated. Cost of Construction was probably about $ 500.00.

The 1835 Annealing Furnace replaced the 1825 Annealing Furnace (see items 10 and 11 above), which appeared as Bldg. No. 20 on Maps No. 9 and 10, pp.298-299.

The 1835 Annealing Furnace for rifle barrels was demolished in turn in 1851 to clear the site for the construction of a new annealing furnace and proof(Bldg. No. 5 on the 1859 Historical Base Map) in the same location.

24. The Drill Shop, 1836-1849:

The Drilling Shop is Bldg. No. 18 on Map. No. 21(1848), p. 419.

Erected in 1836, this structure replaced"an old wooden building very like to take fire,and from its position,to endanger other shops and machinery "(This is item 2 above, and Bldg. No. 17 on the 1834 maps, No. 9 and 10, pp.298-299).

The 1836 Drill Shop, constructed by the mason Joseph Spencer at a cost of $ 1,021.59, was a one-story brick building with slate roof and stone foundations. The workshop was 50 feet long and 17½ feet wide. The foundation walls contained 62 perches of stone mortar wall, the upper walls 25,311 bricks, and roof 16 3/4 squares of slate. The shop apparently had two outer doors and 12 windows. Interior walls were plastere one coat.

The 1836 drill shop was demolished in 1849 in order to clear the site for the construction of a new Tilt Hammer and Forging Shop(Bldg. No. 4 on the 1859 Historical Base Map).

25. The Browning or Vitriol Shop, 1837:

This structure is Bldg. No. 8-"The Vitriol Shop"-on Map No. 21(1848), p.419.

The shop for browning rifle barrels was erected at a cost of $ 1,118.92 by the mason Joseph Spencer in 1837. The Browning Shop was a two-story brick structure, 20 by 22 feet, with slate roof and stone foundations. The foundations contained about 75 perches of stone in mortar masonry, the 1st and 2nd story walls were comprised of 31,104 bricks, and the roof was covered with 7 and 26/100 squares of slate. The interior walls were plastered. The shop had one door, 10 windows, and 1,388 feet of flooring.

The Browning or Vitriol Shop was demolished in the early 1850's.

26. The Jobbing Shop for Filers, 1837-1852:

This workshop is Bldg. No. 5 -"Filers Shop-Old", on Map No. 21(1848), page 419.

The Jobbing Shop for Filers was constructed by the mason Joseph Spencer in 1837 at a cost of approximately $ 1,538.00. The Filers Shop was a two-story brick structure, 20 feet high, 25 by 22 feet in size, with stone foundations and a slate roof. The foundations contained about 112 perches of stone mortar wall; the upper walls were comprised of 43,980 bricks, and roof had 19½ square of slate. The shop had two doors, 18 windows and 2,400 feet of flooring. The doors in this and the other workshop erected in 1836-37, were of the eight-panel type.

The 1837 Filer Shop replaced the two small frame filer shops that had been constructed in 1831 and 1832(see Items 18 and 19 above).

The brick 1837 Jobbing Shop for Filers, in turn, was demolished about 1852 to clear the site for the construction of a new machine shop(Bldg. No. 6 on the 1859 Historical Base Map.).

27. Jobbing Shop for for Smith and Springmakers, 1837-ca. 1850.

This shop is probably Bldg. No. 2-"The Forging and Tempering Shop"-on Map No. 21,(1848), page 419.

The Jobbing Shop for Smiths and Springmakers was constructed by the mason Joseph Spencer in 1837 at a cost of approximately $ 985.50. The shop was a one-story brick structure, 25 by 25 feet, with stone foundations, and a slate roof. The foundations contained 86 perches of stone mortar walls; the upper walls were comprised of 25,779 bricks, and the roof held 9½ squares of slate. The jobbing shop had eight windows and one door.

The Shop for Smiths and Springmakers was demolished in the 1850's.

28. Tilt Hammer or Barrel Welding Shop, 1837 - 1851:

This structure is Bldg. No. 7, "The Tilt Hammer Shop", on Map No. 21, p.419.

The Tilt Hammer and Barrel Welding Shop was constructed by the mason Jacob Picking at a cost of approximately $ 2,133.08; with the water wheel and machinery included, the cost was proably about $ 2,995.00. The tilt shop was a one-story, 15-foot-high brick structure, 35 by 20 feet in size, with a stone foundation and a slated roof. The stone foundations contained about 95 1/3 perches of stone in mortar walls and the brick superstructure was comprised of 23,905 bricks. The roof held 11 60/100 of the slate. The Tilt Hammer and Barrell Welding Shop had two doors of the eight pannel type, eight windows, and had 544 feet of flooring. This 1837-38 tilt hammer shop replaced the old brick tilt hammer shop that has been erected in 1808-09(see Item 4 above-Bldg. No. 7 and Maps No. 9 and 10-1834-pp. 298-299).

The 1837-38 Tilt Hammer Shop, in turn, was demolished in 1851 to clear the site for the construction of a large Machine Shop, Bldg. No. 6 on the 1859 Historical Base Map. On December 24,1851, the mason Edward Tearney was paid a total of $ 244.00 for providing the foreman and 12 men who worked 18 days each "taking down the machinery and building and clearing away the rubbish from the site for the new machine shop at the Rifle Factory."(1)

As has been mentioned, there were four buildings on the lower Hall Island in 1819, 22 structures in 1834, 26 buildings in 1842, and 23 in 1848.

This completes the roll of 28 workshops and store houses that are known to have been located on the Lower Hall Island during the years 1798 to 1841.

1. R.G. 217, 3rd Series-File 13107-Voucher No. 41.

SUMMARY CHART: CATALOG OF ARMORY BUILDINGS, 1798-1841:

			Armory Dwelling Houses			
Years:	No. of Bldgs.		Brick	Stone	Wood	Total
1802	7		1	0	6	7
1811	20		12	0	8	20
Year:	No.of Bldgs.	Value of Bldgs.				
1821	89	$ 48,350.00	22	3	64	89
Years	No.of Blgs. built	Cost of new bldgs.	Houses Purchased No.	Cost		Total expenditures on plant
1822-29:	19	$ 5,597.76	29	$ 6595.47		$ 25,898.50
1830-35	16	14,586.40	7	1,850.35		19,847.99
1836-41	11	11,836.29	23	18,120.78		34,940.40
1822-41 Total	46	$ 32,020.45	59	$ 26,566.60		$ 80,686.89
1821-41 Total:	105	$ 58,587.05				$ 129,036.89

Total of Dwelling Houses in 1841: 170. Esimated value: $ 80,000.00.

Rents collected, 1822-41:

1822-29:	$ 8,493.20
1830-35:	14,516.05
1836-41:	25,105.40
Total	$ 48,114.65

Houses in 1841:	
Brick:	52
Stone:	35
Wood:	83
Total:	170

ARMORY DWELLING HOUSES:

	Number of Stories			
YEAR	One-Story	Two Story	Total	Estimated Value of
1811	12	8	20	-
1821	75	14	89	$ 48,350
1841	102 (1)	68	170	$ 78,535.(1)
1852	102 (1)	75	177	$ 91,135(1)

(1) included in the list of one-story houses were 13 structures valued at zero because of their age and dilapidated condition in 1841-44 lists.

E. ARMORY DWELLING HOUSES:

Catalog of 170 Armory Dwelling Houses Numbered as on the Rent Rolls of 1841:

House No.

1. Superintendent's Residence, 1808-1844

Located in the U.S. Musket Factory yard, this dwelling is Bldg. No. 1 on Maps No. 6(1834)p.271; Maps No. 14 and 15(1837),pp. 385-386; Map No.16 (1844)p. 387, and on Map No. 17(1848),p.388.

For a detailed summary of the history of this two-story brick residence see page 496, item No. 2.

43. Paymaster' Residence , 1802- 1838:

This structure is Bldg. No. 16 on Map No. 2(1803),p. 55; The PayMaster's House(or Bldg. 43) on Map No. 7 and 8(1834),pp. 276-277, and Map No. 14 (1837), p.1837). The residence was located on on Lot No. 5, Block B, Shenandoah Street, on S. Howell Brown's 1852 and 1869 maps of Harper's Ferry.

Erected by Paymaster Samuel Annin as his dwelling house in 1801-02, the the brick residence is listed on the 1810 inventory of buildings as Bldg. No. 12 and described therein as having two stories, a cellar, and an adjoining kitchen. The dimensions were given as 28 by 19 feet. The Paymaster 's House was probably the first brick dwelling house to be constructed at Harper's Ferry. On the 1821 inventory of buildings, the dimensions are given as 40 by 24 feet and the house was valued at $ 2,500.00.

The structure was repaired and enlarged at a cost of $ 355.75 in 1825-26. A small frame wing was added at that time.

This house served as the residence of the Armory Paymasters from 1802 to 1837 or 1838,when the quarters of the Paymaster were relocated in Bldg. No.3, on Lot No. 1, Block C , Shenandoah Street(on the S. Howell Brown maps of Harper's Ferry made in 1852 and 1869) (see Dwelling House No. 3 below).

Paymasters who resided in the Bldg. No. 43 Dwelling, which stood on the bank of the Shenandoah River, were as follows: Samuel Annin, 1801-15; Major Lloyd Beall,1815-1817; William McGuire, 1817-20; William Little, 1820-22 John McGuire, 1822-23; William P. Craighill, 1823-24; William Broadus, 1824-30; and Daniel Bedinger, 1830-38.

By 1841, when all of the Armory Dwelling Houses were assigned the same numbers that identified them on the Armory rent rolls, the old Paymaster's House became Armory Dwelling House No. 43 and was being rented out as a two family house. On Jan 31,1841, Samuel Trail and Elias Dearing were living in the structure; each man paid $ 9,37 a quarter, or $ 37.48 a year in rent. The two-family brick house was valued at $ 800.00 in 1848. The 1894 insurance maps of Harpers Ferry indicate that the main house of Bldg. 43 measured 26 by 30 feet and its two-story addition 30 by 18 feet, so that the overall dimensions of the Paymaster's First House in 1894 were 44 by 30 feet.

House No.

3. Paymaster's 2nd Residence, 1838-1844:

Located on Lot No. 1, Block C, Shenandoah Street(on S. Howell Brown's 1852 and 1869 maps of Harper's Ferry), this residence is Bldg. 3 on Map No. 7 (1834), page 276. The dwelling fronted on the west side of"Globe Inn Alley", which was later known as "Market Street".

This large two-story brick house had been erected by William Graham in the period 1818-20 and was used as a boarding house. In 1827 and 1829 the Ordnance Department had rented a large room in the structure to conduct the two hearings or investigations that were held regarding the activities of Armory Superintendent James Stubblefield. On July 21,1837 the U.S. Government purchased Bldg. No. 3 and also adjacent Bldg. No. 4(a two-story stone store and dwelling house) from the heirs of William Graham for $ 4,000. Paymaster Daniel Bedinger, who served at the Armory from 1830 until his death in 1838, may have relocated his quarters from Bldg. No43 on the banks of the Shenandoah River to Bldg. No.3 in late 1837 or 1838. The next Paymaster, Richard Parker, however, definitely took up residence in Bldg. No. 3 on his arrival in 1838 and continued to live there to October 1,1844, when he removed his quarters to Armory Dwelling House No. 1, the Superintendent's former residence (See House No. 1 above). Bldg. No.3 was valued at $ 2,700 i: 1848. The roof of the structure was slated, probably in 1837-0r1838.

ON Parker's departure from House No.3 in 1844, the structure was rented to James Fitzsimimons for $ 20.00 a quarter, or $ 80.00 per year.(1)

2.Master Armorer's Residence, 1818-1858:(Park Bldg. No. 34-35):

Located on Lot No. 3, Block B, Shenandoah Street on S. Howell Brown"s 1852 and 1869 maps of Harper's Ferry, this house appears as the "Master Armorer's House," on Maps No. 7 (1834),p. 276.

Now Park Bldg. No. 34-35, this structure was constructed by Dr. Jospeh Annin, the son of Paymaster Samuel Annin, in 1812 for use as a drug store and residence under a lease from the Secretary of War dated May 12, 1812. The two-story brick house had a gable roof that was covered with wood shingles,a cellar kitchen, and fronted on the south side of Shenandoah Street .

Dr. Annin used the building as his residence and drug store from 1812 to 1818. His father, Paymaster Samuel Annin, on his retirement in 1815 also lived with his son in the house until 1818, when both left Harper's Ferry forever.

The Armory occupied the dwelling house and used it from 1818 to 1858 as the residence for the Master Armorer. In 1821 the United States paid Dr. Joseph Annin(or more exactly, credited to his father's accounts with the United States Treasury), $ 2,500 for the 1812 house. The residence is described on the 1821 inventory of buildings as brick, two stories and cellar, measuring 36 by 30 feet in size, and as valued at $ 2,500.00.

(1) The 1913 B & O R.R. map of Harpers Ferry indicates that Bldg. No.3 was about 29 feet wide(including the porch) and 50 feet long; Map No.7 (1834) show the dimensions as approximately 30 by 50 feet.

In 1827 a one-story brick kitchen wing, 22 by 20 feet, was added to the southwest(rear) corner of the main house at a cost of $ 500.00. The kitchen wing is shown on Map No. 7(1834)p. 276. In 1837 the Master Armorer's House was repaired and enlarged at a cost of $ 307.13. In June of that year the kitchen may have been enlarged to two-stories-in any event 4,250 brick and 7 ½ perches of stone went into the new addition. In September 1837 the structure was enlarged into a 2½ story residence when six dormer windows were installed in the roof; 6,857 brick, 18 feet of cornice, and 5 windows were included in a brick addition that was made at the same time. The chimney to the Master Armorer's House was also apparently rebuilt, as were the gable ends, and a new door was cut in the 1837 reconstruction work. Sixteen pair of window blinds were also made and installed on the house.

In 1838 380 square yards of the interior of the residence was given three coats of paint and 196 lights of new sash installed. Cost of the 1838 work came to $ 205.11. The roof of the house had been slated,probably as early as 1833.

The interior of the house was apparently largely replastered in 1841, and all of the rooms whitewashed.

By 1838 "Franklin Stoves" were utilized to help heat the house during the winter months and three such stoves "were set up" in the dwelling in the fall of 1838.

A grand total of approximately $ 675.87 was spent from 1836 to 1841 making repairs and improvements to the Master Armorer's House.

Master Armorers who resided in Bldg. No. 2 from 1818 to 1841 were as follows: Armstead Beckham(1818- May 1830); and Benjamin Moor(1830 to November 10,1849)(Moor actually lived in the house until the spring of 1850).

Bldg. No. 2, described as brick, 2-story, with slate roof, was valued at $ 2,700.00 in 1852.

Bldg. 7- Clerk's Quarters(and Store), 1837-1841: (Park Bldg. No. 45)

Located on Lot No. 1 North of Shenandoah Street(on S. Howell Brown's 1852 and 1869 maps or Harper's Ferry), this structure is Bldg. No. 7 on Map No. 7(1834), p. 276, and fronted on the north side of Shenandoah.

This large two and one-half story stone structure, 50 feet 7 inches by 35 feet 4inches in size, had been erected by John G. Wilson in 1825-26. The first story contained two store rooms and the upper floors served as a dwelling The widow Ann C. Stephenson purchased the building which she had been renting and using as a hotel and tavern since April 1830, in July 1834. She made a 2½ story 16 foot long addition to the east end of the building, probably in 1834. The United States Government purchased the large stone house from Ann C. Stpehnson for $3,000.00 on March 25,1837. The carpenter Michael Foley made extensive repairs to the building in 1840 at a cost of $ 82.03.. When permanent numbers, also to be used in the rent rolls, were assigned to the Armory Dwelling Houses, this edifice became Bldg. No. 7.

The upper floors of Bldg. No. 7, probably from 1837 or 1838 to 1841, served as the rent free quarters of Henry Ward, the Clerk to the Superintendent.(Ward was still living there on December 31,1844). The store rooms on the first floor of Bldg. 7 were rented on January 1,1841 by the merchant William J. Stevens for $ 31.25 per quarter, or $ 125.00 per annum.

Rent free quarters of other clerks and inspectors of the Armory Armory on March 31,1841 were as follows:

House No:	Location and Value:
16. Brick- Philip Hoffman, Inspector.	Lot 4,Block D. Shenandoah Street, Valued at $ 1,100 in 1852.
46. Stone - J. E. P. Daingerfield, Clerk,	Lot 10, Block C, Shenandoah Street, Valued at $ 500.00 in 1852.
55. Stone- George Mauzy, Clerk,	House No.55 south side of High Street,just west of west boundary of 6 acre reservation. Valued at $ 1,100 in 1852. (See p.455,claim No. 6 and p.458, claim No. 7).
67. Brick - John A. Schaeffer,Inspector.	Between Washington Street and the U.S. Musket Factory, Valued at $ 900.00.
103-Brick-William Apsey, Machinist.	Lot 1, Block F, Camp Hill, Valued at $ 900.
107- Brick- Benjamin Moor,Jr. Clerk to	Master Armorer, Lot 1, Block G, Camp Hill, Valued at $ 1,000.
112- Brick- Adam Rhulman, Inspector.	Lot 2, Block H, Camp Hill, Value $ 1,110.
118- Brick- Asaph Wilson,Inspector.	Lot 1, Block II, Camp Hill, Value $ 900.
158- Brick- John H. King-Inspector at	Rifle Factory,on Upper Hall Island, Shenandoah River, Valued at $ 900.00. (see Map 21(1848),p.419.)
164- Brick & Wood- A. M. Kitzmiller, Chief Clerk.	on Upper Hall Island, Shenandoah River, valued at $ 2,500 in 1848. (see Map 21(1848),p. 419 for location).

A description, valuation, and location of each of the remaining 156 Armory Dewl Dwelling Houses that were standing in 1841 will be found in:

Snell, Charles," A Comprehensive History of the Construction,Maintenance, and Numbers of Armory Dwelling Houses,1796-1869." (January 13,1859),pages. 109-115.

SUMMARY CHART: CATALOG OF ARMORY BUILDINGS, 1798-1841:

EXPENDITURES ON U.S. CANALS AND DAMS:

	Potomac	Potomac	Shenandoah	Shenandoah	Total
Years:	Canal	Dam	Canal	Dam	
1802			Built in 1806-07	Built ca.1810	
1811					
Year:					Value of canals & dams
1821	-	-	-	-	$ 105,000.00
Years					Total expenditures on plant
1822-29:	$ 7,529.84	$ 7,029.25	$ 2,500.33	$ 420.50	$ 25,612.29(1)
1830-35	33,969.50	5,486.67	207.18	1,999.50	41,662.85
1836-41	12,099.38	793.66	0	0	12,893.04
1822-41 Total	$ 53,598.72	$ 13,309.58	$ 2,707.51	$ 2,420.00	$ 80,168.18
1821-41 Total:					$ 185,168.16

(1) total for 1822-29 from National Armory Accounts, entry 935. Total by vouchers for this period, $ 17,479.92. Total, 1822-41 by vouchers, $ 72,035/81.

Value of canals and dams in 1831 $ 145,117.68.

Potomac Canal Built 1799-1801, open for use in 1801.

Potomac Dam built in 1799-1800 by engineer James Brindley and Paymaster John Mackey.

Potomac Dam rebuilt 1808-09 by Paymaster Samuel Annin.

Potomac Dam rebuilt 1820-21 by John Lowstetter, cost about $ 11,000. Dam 300 feet long, 3 feet thick at base, 6 feet thick at top, contained about 2,940 perches ofst
Potomac Dam rebuilt by Lewis Wernwag, 1828-29 at a cost of $ 6,841.38. Timber and gravel used in rebuilding, 10 feet wide.
Potomac Dam repaired and extended in 1833 by Lewis Wernwag, engineer was Alfred Cruger, cost of work was $ 3,374.55.

Shenandoah Dam repaired and extended by Lewis Wernwag in 1833; cost was $ 1,999.50.

Potomac Canal, widened and deepened, stone walls and earth enbamkments erected, 1828 to 1838 as a cost of $ 50,063.03. Contractors rebuilding the canal included, John Gust, James Daughtery, George W. Bond, John Johnson, Johnson Garrett.

Data on the Potomac Canal, 1799-1841:

As envisioned by Paymaster John Mackey in 1799, the Armory Canal was "to nothing more than a common Water course of about 15 feet wide and 3 feet deep." The Canal, as constructed May 1799 -June 1801, was much larger ; due to the increase in size and the shortage of labor, the canal took much longer to constructed than had been planned. In July 1799, Mackey thus reported of the progress on outer or river bank of the canal: "The Bank of the Canal in some parts is 27 to 38 feet wide at the base & 9 at the top, and from 9 to 13 feet high-- nothing like this was contemplated..." By the end of 1799 he reported the"Bank & Walls of the Canal on the land (side of the canal?) ,½ mile in length are nearly done, but 3/4 of the whole is yet to be puddled." As the canal was about 1½ miles long, much work remainded to be done and this was done under the supervision of Paymaster Samuel Annin, 1800 to June 1801.

1828-1832- The inner bank of the canal was raised and a stone wall seven feet high was constructed along the inner side of the bank. The foundation of the wall was sunk two feet and was two feet thick. The remaining five feet of the wall was 18 inches thick. 13,298½ perches of stone wall and 29,370½ cubic yards of embankments were made to complete this project at a cost of $ 19,951.72.

1833-34: 1,980 feet of canal widened by constructing a new outer wall of dry masonry, making new outer embankments, paving the inner slope of the outer embankment with stone and puddling the center of the canal. More than 2,660 perches of wall and 38,280 cubic yards of embankment were made to complete this project. The cost was $ 18,449.43.

1837-38: $ 11,218.49 spent to repair the Potomac Canal as follows: $ 4,044.76 to make the canal water-tight by puddling; $ 7,002.75 for constructing new embankments, and $ 575.67 for other costs. The side of the new canal that was faced with stone leaked badly. This was made water tight by mud-puddling the inner side of the embankment 1,560 feet in length, five feet thick, average breadth 26 feet, making a total of 7,511 cubic yards of puddling required.

Repair and Extension of U.S. Dam on Shenandoah River, 1833: Contractor Lewis Wernwag placed 739 cubic yards of rock and 1,962 cubic yards on the "brest work" that comprised the Shenandoah Dam.

SUMMARY CHART: CATALOG OF ARMORY BUILDINGS, 1798-1841:

ROADS, STREETS, AND LUMBER YARDS

Years	Roads	Lumber Yard Walls		Total expenditures on plant
1822-29:	$ 1,785.82	$ 1,115.17		
1830-35	1,516.49	0		
1836-41	73.12	44.56		
1822-41 Total	$ 3,374.43	$ 1,159.73		
1821-41 Total:				

Work on Shenandoah Street, 1822-41:

1827: 78 rods of Shenandoah Street turnpiked and gravel placed on an additional 35 rods of that street. Cost of this work was $ 1,785.82.

1834: 47 34/100 rods of Shendndoah Street graded and macadamized(from near the termination of the present pavement near the Pay Office to the pump on Potomac Street); 104 67/100 perches of stone wall constructed at the "wasteway" to carry water from Shenandoah Street to the Shenandoah River via the Paymaster's garden by means of a excavated "waterway". The bottom of the waterway was paved with stone and the stone sidewalls were one and one half feet high. Also installed were 57 perches of stone culverts, 335 1/3 feet of curb stone, and 32 feet of flagging. The culverts were to convey water from Shenandoah Street to the river. Total cost of this construction was $ 1,516.49.

1839: 117 square yards of the 15 foot wide alley that ran between the U.S. Musket Factory Line and the Wager Six Acre Reservation was macadamized. About 230 feet of the road was treated at a cost of $ 73.12.

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Manuscript Materials in the National Archives, Washington, D.C.

The Confederate Army capturedthe National Armory at Harper's Ferry, Virginia, in April 1861, and prior to retreating from that place in June of the same year, the Rebels destroyed all the records of the Armory in the Main Office Building, Bldg. No.1, in the U.S. Musket Factory yard. For this reason there is no collection of Harper's Ferry Armory records as such in the National Archives at Washington, D.C.

The originals of the incoming letters from the Armory Superintendent, Paymaster, Master Armorer, and other officals at the Harper's Ferry Armory from 1798 to 1861 are still largely extant in the National Archives but are filed as they were received at the time in the filing systems of the central offices of the Secretary of War, the Ordnance Department, and the U.S. Treasury Department.

In 1957 Historians Herbert L. Kissling and Charles W. Snell,during a six period, searched most of the central files in the National Archives for material relating to the history of the National Armory at Harper's Ferry. In effect, they recreated the Armory files that had been destroyed in 1861. Collected were 14,504 pages of documents on 14 reels of microfilm and 225 pages were photostated ; maps,and prints,and photographs in collections of the National Archives relating to Harper's Ferry,1796-1869 were also copied. Microfilmed material was reproduced in the form of xerox pages and these were placed in loose leaf notebooks. The volumes and pages were numbered and completely cataloged and indexed according to subject in a master card system. The National Archives did not keep a copy of the 14 reels of microfilm, so that researchers working on the history of the Armory would do well to first examine the extensive collection in Park Library to collect their data, and then, if there are some missing links, to proceed to the National Archives at Washington,D.C. to make an attempt to locate the missing documents in the central files

The National Archives Record Groups searched and their Harpers Ferry documents copied in 1957 are as follows:

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 Harpers Ferry, Bolivar, and Virginius, Jefferson County, Virginia, National Archives Record Group No. 29 (one reel of microfilm,Park Library). 274 pages.)

Records of the Office of the Chief of Engineers, National Archives Record Group No. 77. (Maps and reports).

Records of the National Park Service, National Archives Record Group No. 79. (C. & O. Canal records).

Records of the Office of the Quartermaster General, National Archives Record Group No. 92(Civil War, 1861-65).

Records of the Adjutant General's Office, National Archives Record Group 94.

Records of the Secretary of War, National Archives Record Group No. 107.

Records of the Public Buildings Service, National Archives Record Group 121. (Land records and sale of Armory).

Records of the Office of the Judge Advocate General, National Archives Record Group 153. (Land records and sale of Armory lands).

Records of the Chief of Ordnance, National Archives Record Group 156. (Department responsible for the operation of the Harper's Ferry Armory, 1815-1884).

Records of the Office of the Inspector General, National Archives Record Group No. 159 (reports of inspections at the Armory).

The following record group was not searched in 1957:

Records of the U.S. Treasury Department and the U.S. General Accounting Office, National Archives Record Group No. 217.

This record group is comprised of thousands of pages of documents prepared by the Paymasters of the U.S. Armory at Harper's Ferry from 1798 to 1861 that were submitted by the Ordnance Department to the First and Second Auditors of the U.S. Treasury Department for auditing and settlement. They include the payrolls and rent rolls for the Armory, vouchers issued by the Paymaster to pay for services and materials used in the construction and repair of buildings, canals, and dams, and in the manufacture of arms, together with abstracts and other accounting documents recording quarterly expenditures.

Records for the Years, 1796 to 1817:(Record Group 217):. These documents, if they still exist, are located at the Federal Record Center at Suitland, Maryland. A serious fire in the first half of the 19th century destroyed many of the Treasury Department records relating to the pre 1817 period. The records relating to Harper's Ferry Armory may therefore be either non-extant, or extensive, for the 1796-1817 period. The matter, however, has not be investigated to date.

Records for the Years, 1817 to 1851)(Record Group 217): Thousands of pages of documents for the years 1817 to 1851 are still largely extant and are located in the National Archives at Washington, D.C. Historian Charles W. Snell, during June 1980, examined this vast collection in detail and extracte data relating to the physical history of the Armory from 1817 to 1851.(1)

Records for the Years 1852 to 1861(Record Group 217): During the 1940's a committee of Archivists examine some of the thousands of extant pages of documents relating to the period 1852-61, found them "repetitive", and destroyed them. Thus were lost forever hundreds of facts and details relating to the construction of extant and non-extant Armory structures standing within the bounds of Harpers Ferry National Historical Park.

(1)The long-hand notes for the years 1817 to 1841 have been typed and comprise 337 pages. A copy will be sent to the Park Library.

Other Manuscript Materials:

Registry of Deeds, Jefferson County Court House, Charles Town, West Virginia. Deeds and land records from about 1800 to date.

Virginia Free Press, Charles Town, Virginia. A weekly newspaper publishing area news from 1824 to 1861. Available on nine reels of microfilm for study at the Park Library.

The Spirit of Jefferson, Charles Town, West Virginia. A weekly newspaper publishing area news from 1865 to 1955. Available for study on 34 reels of microfilm at the Park Library. This material acquired in 1980 by the Park.

Published U.S. Documents, 1789-1884:

The invention and development of xeroxing since 1957 has made it possibl to do many things that were impossible 20 years ago. During the period December 1979-January 1980 approximately 1,142 pages of printed documents relating to the history of the U.S. Armories at Harper's Ferry, Va., and Springfield, Massachusetts, 1789-1861, were xeroxed and copies provided to the two Parks for inclusion in their libraries.

Documents were collected from the three following sources:

American State Papers-Class V, Military Affairs(seven volumes, Washington, D.C., 1832-1850). About 313 pages of printed offical cooerspondence and reports extracted and copied.

Benet, Stephen V., ed., 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). About 79 pages relating to the history of the Harper's Ferry Armory were extracted from this rare book.

The Serial Number _ Public Documents of the United States: This series, comprised of offical reports to and by Congress, was published for the U.S. Congress annually, beginning in 1817. Appropriately 1,100 volumes cover the years from 1817 to 1861. About 750 pages of material relating to the history of the two national armories was copied from this source.

Published in the Serial Number are two key reports that summarize many aspects of the history of the two National Armories during the years 1795 to 1834. These are :

a."Expenses of the Ordnance Department, Armories, Arsenals, and Magazines, from the Year 1795 to 1821," prepared by Lt. Col. George Bomford, Chief of Ordnance, December 30,1822, and submitted by President James Monroe to Congress on January 3,1823, in Serial No. 84, Document No. 111.

b."Quantity and Condition of the Ordnance and Ordnance Stores and Arms Belonging to the United States at the Armiriesm Arsenals, Depots, and Forts; and the Expenditures at the Several Armories and Arsenals and for the Manufacture of Hall's Rifles, from 1816 to 1834," prepared by Col. George Bomford, Chief of Ordnance, December 24,1835, and submitted to Congress by the Secretary of War on January 2, 1835,in Serial No. 287-Document No. 44.

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E.

Statement of the estimated value of the United States' Armory at Harper's Ferry, Virginia, on the 31st of December, 1821.

For 1890 acres of land, including the ferry across the Shenandoah, -	$42,877 28		
For 113 buildings, as per annexed statement, - - - -	150,650 00		
For mill-dams, canals, bridges, and other permanent improvements, -	105,000 00		
		$298,527 28	
For machinery, &c., - - - - - -	40,000 00		
For tools, horses, wagons, boats, &c., - - - -	20,000 00		
		60,000 00	
For component parts of arms in progress, - - - -	50,000 00		
For unwrought materials on hand, - - - - -	108,000 00		
		158,000 00	
For tools and machinery for making patent rifles, - - -	12,247 44		
For component parts of patent rifles in progress, - - -	10,668 07		
		22,915 51	
Amount, - - - -	-	$539,442 79	

ORDNANCE DEPARTMENT, *November* 30, 1822.

G. BOMFORD, *Lieutenant Colonel on ordnance duty.*

Statement of the number and dimensions of the buildings at the United States' Armory at Harper's Ferry, Virginia, together with the materials of which they are built, and their estimated value.

Number of buildings.	For what purpose built, or how occupied.	Dimensions in feet.	Number of stories.	Of what built.	Estimated value.
1	Work shop,	131 by 45	2	Brick,	$15,000
1	Work shop,	130 30	2	Brick,	12,000
2	Work shops,	120 30	2	Brick,	20,000
1	Work shop,	111 30	2	Brick,	8,000
2	1 work shop and 1 store-room,	80 30	2	Brick,	12,000
1	Arsenal,	125 32	2 & a cellar,	Brick,	12,000
1	Arsenal,	68 36	2	Brick,	8,000
1	Grinding mill,	85 40	1	Brick,	6,000
1	Furnace and forges,	45 45	1	Brick,	4,000
1	Work shop,	30 30	2	Stone,	1,000
1	Work shop,	50 16	1	Wood,	500
1	Dwelling house,	36 30	2 & a cellar,	Brick,	3,000
1	Dwelling house,	36 26	2 & a cellar,	Brick,	2,500
1	Dwelling house,	40 24	2 & a cellar,	Brick,	2,500
1	Dwelling house,	20 20	2 & a cellar,	Brick,	1,200
1	Dwelling house,	28 20	2	Brick,	1,000
1	Dwelling house,	64 21	2	Brick,	3,000
1	Dwelling house,	28 18	2	Brick,	700
2	Dwelling houses,	28 18	1	Brick,	1,000
1	Dwelling house,	48 18	1	Brick,	800
1	Dwelling house,	32 20	1	Brick,	600
11	Dwelling houses,	24 18	1	Brick,	4,400
1	Dwelling house,	36 24	2	Stone,	800
1	Dwelling house,	46 22	1	Stone,	800
1	Dwelling house,	28 22	1	Stone,	600
1	Dwelling house,	94 21	2	Wood,	2,000
1	Dwelling house,	70 18	2	Wood,	2,000
2	Dwelling houses,	40 20	2	Wood,	2,500
1	Dwelling house,	42 20	2	Wood,	1,000
2	Dwelling houses,	50 18	1	Wood,	1,200
1	Dwelling house,	36 18	2	Wood,	700
2	1 dwelling house and 1 school house,	40 20	1	Wood,	1,100
5	Dwelling houses,	36 18	1	Wood,	2,100
1	Superintendent's office,	18 18	2	Wood,	500
3	Dwelling houses,	24 16	1	Wood,	900
3	Dwelling houses,	28 16	1	Wood,	1,000
1	Dwelling house,	50 16	1	Wood,	400
2	Dwelling houses,	26 16	1	Wood,	600
4	Dwelling houses,	30 18	1	Wood,	1,150
1	Dwelling house,	48 20	1	Wood,	400
1	Dwelling house,	40 18	1	Wood,	400
1	Dwelling house,	32 20	1	Wood,	400
1	Dwelling house,	34 16	1	Wood,	300
1	Dwelling house,	26 18	1	Wood,	300
1	Dwelling house,	36 16	1	Wood,	300
2	Dwelling houses,	20 18	1	Wood,	550
1	Dwelling house,	32 14	1	Wood,	250
4	Dwelling houses,	30 16	1	Wood,	950
5	4 dwelling houses and 1 school house,	24 16	1	Wood,	1,100
1	Dwelling house,	28 18	1	Wood,	250
7	Dwelling houses,	18 16	1	Wood,	1,250
2	Dwelling houses,	18 18	1	Wood,	300
1	Dwelling house,	18 20	1	Wood,	150
1	Draw-grinding shop,	18 18	1	Wood,	150
1	Dwelling house,	16 14	1	Wood,	100

E—Continued.

Number of buildings.	For what purpose built, or how occupied.	Dimensions in feet.	Number of stories.	Of what built.	Estimated value.
5	Dwelling houses,	16 by 16	1	Wood,	$500
1	Proof house,	14 12	1	Wood and stone,	200
1	Timber shed,	50 24	1	Wood,	250
1	Tempering shop,	26 16	1	Wood,	200
1	Engine-house and lodging room,	16 12	2	Wood,	300
1	Saw-mill,			Wood and stone,	1,000
1	Magazine,	18 18	1	Wood,	150
1	Iron store house,	120 16	1	Wood and stone,	1,000
1	Charcoal house,	111 30	1	Wood,	400
1	Stone coal-house,	30 30	1	Wood,	400
1	Stable,	36 24	1	Wood,	250
113					$150,650

RECAPITULATION.

89 dwelling houses and out-buildings,	$47,600
21 work shops and appendages,	82,900
3 arsenals and magazine,	20,150
113	$150,650

20TH CONGRESS.] No. 398. [2D SESSION.

ON THE DISCHARGE OF A MECHANIC FROM THE ARMORY AT HARPER'S FERRY.

COMMUNICATED TO THE HOUSE OF REPRESENTATIVES JANUARY 31, 1829.

Mr. DRAYTON, from the Committee on Military Affairs, to whom was referred the memorial of Thomas Copeland, reported:

That the memorialist sets forth that, being a mechanic at the United States armory at Harper's Ferry, and witnessing there various acts of misconduct, ignorance, negligence, and fraud on the part of Mr. James Stubblefield, the superintendent of the armory, he conceived it to be his duty to communicate them to the Ordnance department, and accordingly did so; that "he holds in his possession the most explicit and flattering testimonials of his good character, capacity, and assiduity;" that nevertheless, on the 13th of May, 1827, he was dismissed from the public service; that, being utterly at a loss to account for his dismissal, he applied for redress to the Secretary of War and the President; but being unsuccessful in these applications, he therefore appeals to Congress, trusting "that it will cause such an inquiry to be made as in its judgment justice so loudly calls for and his present situation claims."

It appears that, in consequence of the above charges against Mr. Stubblefield, a court of inquiry was ordered on the 5th of April, 1827, consisting of Brevet Brigadier General Wool, Brevet Lieutenant Colonel Bankhead, and Captain C. H. Thurston, of the 1st regiment of artillery; that the court was directed "to examine and inquire into all matters of accusation which may be laid before it touching the official acts of the accused," James Stubblefield. The court, after a protracted session, and the minute and laborious examination of numerous witnesses, one of whom was the memorialist, pronounced its sentence on the 3d of May, 1827, from which the following extract is submitted:

"From the responsible situation of the accused, and the serious complexion of the charges, the court has endeavored to have as much and as respectable testimony as could be adduced; nor has it confided the investigation to the usual means of evidence alone, but has added, in the cases which would admit of it, that of personal observation. The result of that investigation is, that Mr Stubblefield has discharged his duties as superintendent with fidelity and integrity for twenty years; and that if, in the progress of this trial, some few instances of neglect of minor importance shall have been exposed, they are to be attributed to the state of things at the time, and to the necessity, in the multifarious duties of a superintendent, of confiding some things to the discretion and fidelity of subordinate agents."

In consequence of this decision of the court, the superintendent, by an order of the Secretary of War of the 8th of May, 1827, resumed the charge of the armory at Harper's Ferry, the Secretary at the same time directing "that the persons employed in the public service who have disseminated false and malicious reports or charges to the prejudice of that order and subordination which is necessary at so important an establishment be discharged." Under this order the memorialist was dismissed.

As Mr. Stubblefield has been acquitted of the charges preferred against him by a tribunal organized according to the Constitution and laws, the committee can discover no motive or reason for the interference of this House. It therefore recommends the adoption of the following resolution:

Resolved, That there is nothing contained in the memorial of Thomas Copeland which requires the interposition of Congress.

20TH CONGRESS.] No. 408. [2D SESSION.

ON THE CONDITION AND OCCUPANCY OF THE LAND BELONGING TO THE UNITED STATES AT THE ARMORY AT HARPER'S FERRY.

COMMUNICATED TO THE HOUSE OF REPRESENTATIVES MARCH 2, 1829.

DEPARTMENT OF WAR, *February* 28, 1829.

SIR: I have the honor of transmitting herewith a report from the officer at the head of the Ordnance department, with the accompanying documents, in obedience to a resolution of the House of Representatives of the 14th ultimo, calling for information as to the "number of buildings" which have been "erected by private individuals on the government lands at Harper's Ferry; when erected; by whom and what authority they have been purchased; how many are yet in possession, and subject to the claims of the builders, and what is the amount demanded for each; what is the amount of rent annually received since the first of January, 1823, for each of said buildings, as also for any others owned by the government at that place, and from whom received."

I have the honor to be your obedient servant,

P. B. PORTER.

Hon. ANDREW STEVENSON, *Speaker of the House of Representatives.*

ORDNANCE DEPARTMENT, *Washington, February* 27, 1829.

SIR: In compliance with the resolution of the House of Representatives of the 14th ultimo, requiring information concerning the buildings on the government lands at Harper's Ferry, which you referred to this office, I have the honor to report:

That all the particulars required not being recorded in the books of this office, the resolution was referred to the superintendent of the armory at Harper's Ferry, and I have now the honor to submit copies of his reports which contain the information required by the resolution.

I have the honor to be, respectfully, sir, your obedient servant,

GEO. BOMFORD, *Brevet Colonel on Ordnance service.*

Hon. P. B. PORTER, *Secretary of War.*

American State Papers, Military Affairs, IV, p.142.

Extract from the last will and testament of Robert B. Harper, deceased, executed on the 1st day of October, 1782.

"It is further my last will, that four acres of land, most convenient round my graveyard, shall be laid off by my executors, and be entirely appropriated to the use of a graveyard; and all my debts, due by bond, note, and book account, and all the rents now due from my ferry, be by my executor disposed of in the best manner towards erecting a graveyard and building a church on said four acres of land, and having a head and foot stone for my wife's grave, and likewise for my own."

A copy—teste,

A. HUNTER, *Clerk.*

Statement of the buildings erected by private individuals on the government lands at Harper's Ferry, Virginia.

Buildings erected by private individuals.				Buildings purchased by the government.			Buildings yet in the possession of the builders and their assigns.	
Description of buildings.	In what year erected.	By whom erected.	By what authority erected.	Amount paid for each.	Date of purchase or payment.	By what authority purchased.	No.	Amount claimed on each.
Cellar		Wm. Reed	Superintend't				1	$152 00
Do		Jacob Haines	do				2	153 00
Stone dwelling		Nathan Turk	do				3	79 00
Do		Thomas Welders	do				4	124 00
Wooden dwelling	1826	George Little	do				5	186 57
Do		C. C. Cameron	do				6	160 00
Do	1825	Jacob Ott	do				7	50 00
Cellar to dwelling		S. McDowell	do				8	65 90
Do		M. Britenbaugh	do				9	118 84
Wooden building		James Thrapp	do				10	52 00
Do	1810	J. A. Shafer	do				11	170 60
Do	1824	Jacob Beard	do				12	94 00
Do		Wm. Gannon	do				13	93 00
Do		John Marlatt	do				14	71 82
Do	1812	Abso. Vanvacter	do				15	209 81
Do	1824	Mrs. McBee	do				16	47 00
Do	1824	Joseph Davis	do				17	116 33
Do	1825	W. T. A. Pollock	do				18	352 72
Stone dwelling	1825	D. Crawford	do				19	268 07
Wooden dwelling	1824	Charles Staley	do				20	101 00
Do		Joshua Cox	do				21	100 00
Do	1825	R. Cruzen	do				22	299 98
Do	1825	John Duke	do				23	349 46
Do		Hugh McCoy	do				24	101 41
Do	1825	Mathias Spangle	do				25	162 00
Do	1819	John Griffiths	do				26	168 37
Do		David Adams	do				27	89 00
Do		Ashel Davis	do				28	238 45
Do	1825	T. McNulty	do				29	222 00
Do	1825	R. A Waters	do				30	154 00
Do	1825	Eman Engles	do				31	88 03
Stone dwelling		John C. Renseld	do				32	600 00
Brick dwelling	1824	Wm. McCoy	do				33	549 48
Wooden dwelling	1825	John Crutchly	do				34	150 00
Do		Jona. Anderson	do				35	220 84
Do	1820	Charles Button	do				36	150 00
Stone dwelling	1825	Wm. Smallwood	do	$400 00	1826	Superintend't	37	203 24
Wooden dwelling		Susan Downey	do				38	98 49
Do	1812	M. Zimmerman	do				39	350 00
Do	1820	John Butler	do				40	150 00
Wooden dwelling		John Johnson	Superintend't				41	$75 00
Do		James Merrick	do				42	75 00
Stone dwelling	1826	Jona. Irving	do				43	350 00
Wooden dwelling		John A. Smith	do	$100 00	1822	Superintend't	44	
Do		Joshua Cox	do	65 00	1822	do	45	
Do		Joel Norman	do	24 07	1823	do	46	
Do		George Rowles	do	22 00	1822	do	47	
Do		Wm. Adams	do	100 00	1823	do	48	
Do		Phil. Funk	do	122 86	1823	do	49	
Do		Charles Staley	do	16 17	1823	do	50	
Wooden building		R. Breeden's adm'r	do	50 00	1823	do	51	
Stone building		Amasa Mars	do	12 11	1823	do	52	
Brick building		Wm. Green	do	119 89	1823	do	53	

American State Papers, Military Affairs, IV, p. 144.

Statement of buildings erected by private individuals, &c.—Continued.

Buildings erected by private individuals.				Buildings purchased by the government.			Buildings yet in the possession of the builders and their assigns.	
Description of buildings.	In what year erected.	By whom erected.	By what authority erected.	Amount paid for each.	Date of purchase or payment.	By what authority purchased.	No.	Amount claimed on each.
Wooden building		Joseph Barnes	do	33 93	1823	do	54	
Do.		Reuben Stipes	do	24 36	1823	do	55	
Do		Jacob Ott	do	37 26	1823	do	56	
Do		Elisha Larkin	do	91 75	1823	do	57	
Do		George Zorger	do	35 20	1823	do	58	
Do		Carey Thompson	do	37 07	1823	do	59	
Do		Martin Hartman	do	78 87	1823	do	60	
Do		Richard King	do	163 08	1823	do	61	
Do		Frederick Riley	do	25 38	1823	do	62	
Do		Henry Stipes	do	215 85	1823	do	63	
Do		Charles H. Mills	do	43 03	1823	do	64	
Do		David Adams	do	109 50	1823	do	65	
Do		Levi Hall	do	46 67	1823	do	66	
Do		Thomas Stedman	do	56 56	1823	do	67	
Do		Samuel J. Lindsay	do	83 42	1823	do	68	
Do		Thomas Stipes	do	214 14	1823	do	69	
Do		Mary Seliz	do	806 73	1823	do	70	
Do		John Baylis	do	22 07	1823	do	71	
Do		Isaac Wood	do	109 75	1823	do	72	
Do		Joshua Riley	do	225 75	1823	do	73	
Stone building		James Coates	do	161 39	1823	do	74	
Wooden building		Wm. Grisfield	do	34 94	1823	do	75	
Do		Abram Berlin	do	57 84	1823	do	76	
Do		Wm. Adams	do	39 66	1823	do	77	
Stone building		Jacob Coons	do	209 04	1823	do	78	
Wooden building		Andrew Board	do	37 00	1823	do	79	
Brick building		Daniel Johnson	do	158 37	1823	do	80	
Wooden building		John Holt	do	58 53	1823	do	81	
Do		Ezekiel Stipes	do	66 54	1823	do	82	
Do		John Riley	do	27 53	1823	do	83	
Brick building		Philip Hoffman	do	339 37	1823	do	84	
Wooden building		Meshac Kirby	do	286 66	1823	do	85	
Do		Michael Melhorn	do	229 11	1824	do	86	
Do		Nathan Benton	do	39 40	1824	do	87	
Do		Asahel Davis	do	74 00	1824	do	88	
Brick building		Chs. Wintersmith	do	114 97	1824	do	89	
Wooden building		Wm. Smallwood	do	80 00	1824	do	90	
Do		Stetson Bisbee	do	91 43	1824	do	91	
Do		Charles Fouke	do	114 06	1824	do	92	
Do		Edm. Burke	do	32 45	1824	do	93	
Stone building		John Rockenbaugh	do	560 42	1824	do	94	
Do		Nathaniel French	do	38 10	1824	do	95	
Do		Roger Jones	do	13 03	1824	do	96	
Brick building		James Pryor	do	127 17	1824	do	97	
Wooden building		Wm. McCoy	do	89 37	1824	do	98	
Do		Thomas Stedman	do	92 90	1825	do	99	
Stone building		Nahum Patch	do	25 53	1825	do	100	
Do		Tim. Herrington	do	301 18	1825	do	101	
Do		John Donaldson	do	19 00	1825	do	102	
Brick building		Francis O'Neale	do	171 59	1825	do	103	
Wooden dwelling		John Wegginton	do	19 00	1826	do	104	
Stone dwelling		John McFarland	do	171 59	1826	do	105	
Brick dwelling		Francis O'Neale	do	423 00	1826	do	106	
Wooden dwelling		John Tully	do	12 00	1827	do	107	
Do		John Roderick	do	25 00	1827	do	108	
Do		Wm. McClure	do	7 23	1827	do	109	
Do		Wm. Phelan	do	25 00	1827	do	110	
Do		Elizabeth Keep	do	200 00	1827	do	111	
Do		Nathan Yeamans	do	296 03	1828	do	112	
Stone dwelling, intended as a ferry-house.	1826	George Harding	do			do	113	Estimated at 650 00

American State Papers, Military Affairs, IV, p.145.

STATEMENT—Continued.—*Persons not connected with the armory.*

Buildings erected by private individuals.				Buildings yet in the possession of the builders and their assigns.	
Description of buildings.	In what year erected.	By whom erected.	By what authority erected.	Number.	Estimated value.
Stone storehouse and dwelling, brick dwelling and boarding house, and wooden warehouse.	1812	Potomac Navigation Co.	By agreement with the War Department, of which there is no document in this office.	1	$5,000 00
Wooden storehouse and dwelling	1816	Colonel Jamieson	Grant from the President of United States—no document in this office.	2	800 00
Stone, rough-cast, used as a dwelling-house, boarding-house, and butchery.	1826	Philip and David Coons.	From the Ordnance department to P. Coons, April 6, 1825.	3	2,500 00
Stone, rough-cast, used as dwelling and storehouse.	1826	John G. Wilson	On the faith of a letter from the Ordnance department to J. G. Wilson, March 23, 1825.	4	2,500 00
Frame house plastered outside, built for a dwelling house and printing office.	1826	John S. Gallagher.....	By permission of the superintendent.	5	600 00
Frame storehouse and rough-cast dwelling-house.	1826	Michael Garry.....	Grant from Ordnance department to superintendent, June 20, 1825.	6	2,500 00
Small temporary frame storehouse	1826	Michael K. Wartman..	By permission of the superintendent.	7	175 00

NOTES.

1. In regard to the omissions that occur in the column designated to show the dates at which the several buildings, improvements, repairs, &c., were made, I observe that many were made from time to time, as required by the convenience of the workmen, previous to 1823, at which time the first notice of them was taken; some were made at several different times; so that it is impracticable to ascertain the precise dates at which all of them were made.

2. Nos 16, 70, and 111, are widows of workmen formerly employed in the armory.

3. Lot No. 1, under the head of persons not connected with the armory, is situated on Shenandoah street, running back to the Shenandoah river. In front is a two-story stone dwelling-house and store, and in the rear a large two-story brick boarding-house, and on the river a large frame warehouse, formerly used by the Potomac Company for storing flour.

4. Lot No. 2, under same head, was granted by the President of the United States in 1815 to Colonel Jamieson, an officer of the United States army during the late war, to build upon it a store and dwelling-house, and is at present so used.

5. Lot No. 3, under same head, is situated on the Shenandoah river near the United States ferry. The house built upon it is a large stone building used as a boarding-house for the public workmen. One of the occupants is employed as a watchman at the armory; the other is an enterprising butcher, who furnishes much the greater part of the meat consumed by the armory workmen.

6. Lot No. 4, under same head, is situated on Shenandoah street. The house built upon it is a large stone building; the site was formerly occupied by a large rock, in the side of the hill, which required a large expenditure of money to remove it.

7. Lot No. 5, under same head, is situated on Shenandoah street. The building erected upon it was built for the purpose and, until lately, occupied as a printing office, and, as such, considered highly important, jobs of printing being frequently required for armory purposes.

8. Lot No. 6, under same head, is situated on the street leading up the hill towards Charlestown.

9. Lot No. 7, under same head, is situated on the hill between the two rivers. The house upon it is a very small temporary frame house, that may at any time be easily removed.

10. Lots numbered in the above report from 1 to 113 being improvements made by persons connected with the armory, or for purposes connected with the armory, no rents are ever charged, the interest of the money invested being considered equivalent to the ground rent.

I certify the above report to be correct according to its purport, and according to the best of my knowledge and belief.

JAMES STUBBLEFIELD, *Superintendent.*

UNITED STATES ARMORY, *Harper's Ferry, Virginia, February* 22, 1829.

APPENDIX IV

This agreement made this 23d day of April 1827 Between J. H. Hall of Harper's Ferry, Va., in the Service of the U.S. and acting by the consent and with the advice of Col. R. Lee, Superintendent of the U.S. Armory at that place, of the one part,and Lewis Wernwag, Bridge Builder of the Village and State aforesaid of the other part Witnesseth-

That the said Wernwag engages to make & deliver to sd. Hall, for the United States, by the end of July next the Articles herein specified, in good order, and secured in their proper places, fully completed, and ready for immediate use, at Harper's ferry-(Viz) a trunk for the conveynace of water from the Canal on the Shenandoah to a Smith Shop to be erected for the U.States which trunk is to be 2 feet Square and of such length as may be required, and is to be composed of good sound white oak plank free from _____ of three inches in thickness and well secured with Iron [illegible] bolts at intervals of 2 feet at $ 10.00 per rod, for every rod in length of the Trunk and at 15 cents per pound for the Iron bolts & nuts and washers-Said Wernwag providing all the Materials at his own expense as wellas the labor on the Same,. But the Expense of the excavation for placing the Turnk is not included. Neither is it included in any of the Subsequent Articles.

The Said Wernwag Engages to make an deliver as above mentioned a Mill Shaft composed of four panelled pieces of Timber well bolted together for Forty Dollars. R The Shaft to be 18 feet in length and 23 inches in Diameter and to furnish the Screw Bolts for the Same, & the Nuts and washers at 15 Cents per pound and [illegible] he engages to make & deliver for the said shaft as aforesaid a Water Wheel of 10 feet Diameter and seven feet length of Bucket at $ 50.00 for the work and $ 1.50 per hundred feet for the wooden Materials-.

He also engages to furnish the Materials for the head Blocks, and Spurs for the before mentioned Mill Shaft and to make and place them for $ 9.00 ($ 90.00?) Said Wernwag also engages to make and deliver at aforesd. a forebay for said Water Wheel planked with two-inch white oak plank, and lines with one Inch bands having a Yoke at every Three feet, with posts and sills of the size of 6 by 8 inches at $ 38.00 for the work and the wooden materials. The stuff for lining not included.

He also Engages to furnish as aforesd a breast to the forebay for $ 18.25 per rod including all materials- and he engages to make the fall, and Shute and gate for the water wheel furnishing all the Materials for $ 14.00 for the whole. Said Wernwag Engages that all the Materials for the wooden work, in all the before mentioned articles shall be of good sound white oak. He also Engages to furnish the Masonry for a Smith Shop, for the U. States, and for a Store house for the Same at $ 1.25 per perch, providing all the Materials at his own expense, Stones, Lime, Sand,&c.- laying the whole in Mortar and pointing the same- and he engages to execute the whole of the beforementioned articles:(viz., Trunk, Mill Shaft, water wheel, Cogwheel, head blocks, and spurs, Forebaym breast Fall and shute and gatem and masonry for smoth shop and store house, in good and workmanlike manner, to the satisfaction of the sd. Hall and the Superintendent of the Armory on or before the last day of July 1827 and he engages that one quarter of the whole labor on the beforementioned Articles shall be performed as aforesaid by the last day of

Agreement between Lewis Wernwag and John H. Hall, April 23,1827-Continued:

April immediately ensuing the date of this paper - That another quarter of it, shall be executed by the last day of May and another Quaretr by the last day of June, and the remaining quarter, by the last day of July 1827, as above mentioned and that in case of his failing to execute the work within the periods, and in proportions just mentioned he will forfiet and pay to the sd. Hall $ 200.00 and that the latter shall in that case be released from all obligations to said Wernwag arising from this instrument(and consequently the United States) and that said Hall may immediately after at his option proceed to have the work executed by other hands- and the said Wernwag engages in addition to the beforementioned forfeitures, to make good to the United States all the damages which may be sustained, by a failure on his part to Execute all and each of the Engagements before mentioned- and it is agreed that in consideration of the faithful performance of the foregoing Contract by the said Wernwag - the United States shall pay to him the sum to which the whole shall amount to at the rates above specified- the payments to be paid as the work progresses - and in proporition to the quantity executed at the periods indicated - In witness whereof the parties aforesd have here unto st set their hands and affisced their seals the day and year first above writtn. -It is to be understood, that no delay is to be occasioned to sd. Wernwag by not having having the Grinding Mill ready for him, but if that circumstance should occur- than the placing of the Mill Shafts is not to be exacted until the Mill is ready for him.

Witness present

Signed Wm. Graham

Signed Lewis Wernwag
John H. Hall.

Appendix V

Appropriations for Construction and Repairs at the U.S. Armory at Harper's Ferry, Virginia, 1830- 1861.

Objects of Appropriations	U.S Statues at Large	Date of Approp.	Amounts
1. Extending walls and embankments which convey the water from the Potomac River to the work	4 Stat.,424	5/31/30	$ 9,300.00
2. Erecting a forging shop, tilt hammerer, and new workshop	4 Stat.424	5/31/30	6,500.00
3. Erection of 10 additional dwelling houses.....	4 Stat.,424	5/31/30	10,000.00
4. Slating roofs of present workshops.....	4 Stat.424	5/31/30	3,200.00
			$ 29,000.00
5. Further extension and completion of the walls and embankments for conveying water to works	4 Stat/.467	3/2/31	7,500.00
6. for 1832.....			0
7. for erection of 12 additional dwelling house for workmen.....	4 Stat.641	3/2/33	8,600.00
8. Repairs and extension of the public dam on the Potomac River from which the supply of water is obtained for the works.....	4 Stat., 642	3/2/33	5,000.00
9. Enlargement of the canal supplying the water-power from the Potomac Dam to the public works	4 Stat. 642	3/2/33	13,495.00
10. Repairing the walls of four workshops	4 Stat. 642.	3/2/33	1,500.00
11. Constructing three new water-wheels and the machinery in the boring, turning, and stocking shop, and sinking flumes	4 Stat 642.	3/2/33	8,400.00
12. Completing the forging, shop, tilt hammer, and new workshop.....	4 Stat. 642.	3/2/33	13,300.00
			40,695.00
13. Purchase of right to the water power on the Shenandoah River for the use of the U.S. Rifle factory.....	4 Stat.	3/2/33	$ 4,600.00
Total 1833	642		$ 54,895.00

Objects of Appropriations	U.S. STATUE AT LARGE	DATES Approp.	AMOUNT
14. Repairing dam and removing obstructions in way of supplying water to rifle factory on the Shenandoah River,	4 Stat.,675	5/14/34	$ 2,000.00
15. Completion of the machinery in the three shops for turning, boring, and stocking muskets; the completion of the canal furnishing the water-power, erecting an annealing shop and proof house, erecting two shops for tempering springs and polishing barrels, erecting two engine houses and making additions to stocking shops, ,and for erecting a carpenter's and machine shop	4 Stat.675	5/14/34	36,114.86
16. Erecting storehouses for iron and pit coal, repairing paymaster's and clerk's quarters, constructing a river wall, sinking three wells on Camp Hill, grading and paving the open spaces between the public shops, and for painting some of the public buildings.	4 Stat.675	5/14/34	8,589.87
			$ 46,704.73
17. Completing the canal from the public dam across the Potomac to the works at the armory.....	4/Stat.680	6/19/34	3,378.27
			$ 50,083.00
18: for 1835.....			0
19: National Armory at Harper's Ferry(for construction and repairs).....	5 Stat.77	7/2/36	77,897.00
20: Rifle Factory at Harper's Ferry.....	5 Stat.149	3/1/37	8,569.00
21. Constructing a river-wall, making embankmen to same, arching, stonewalling, repairing the embankment of the new canal, and for completing the tilt hammer shop at Harper's Ferry	5 Stat.149	3/1/37	53,743.00
			$ 62,312.00
22. Procuring new machinery for the Harper's Ferry Armory.....	5 Stat.267	7/7/38	20,000.00
23. For 1839.....			0
24. For repairs and improvements at Harper's Ferry Armory.....	5.Stat.406	7/20/40	50,000.00
25. Repairs and improvements and new machinery at Harper's Ferry Armory	5 Stat.434	3/3/41	38,000.00

MEMORANDUM

September 15 , 1980

TO: Superintendent Don Campbell, Harpers Ferry NHP

FROM: CHARLES W. Snell, Historian, National Capital Team,
Denver Service Center

SUBJECT: Draft of report, "History of Physical Plant of Harper's Ferry Armory, 1794 to 1841" Volume I

Enclosed is a portion of "A History of the Physical Plant of the U.S. Armory at Harper's Ferry, Virginia, its evalution and Development, 1794 to1841," Volume I," August 1980, 566 pages. (Volume II will cover the years 1842 to 1861). We transmitt pages 1 to 133 of Volume I; the remaining portion of Volume I is in the process of being proof read and will follow at a later date.

With best regards

Charles W. Snell

Charles W. Snell

1st Installment, Chapters to to VI91794-1821).

MEMORANDUM

September 15 , 1980

TO: Superintendent Don Campbell, Harpers Ferry NHP

FROM: CHARLES W. Snell, Historian, National Capital Team,
Denver Service Center

SUBJECT: Draft of report, "History of Physical Plant of Harper's Ferry Armory, 1794 to 1841" Volume I

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With best regards

Charles W. Snell

Charles W. Snell

2nd Installment, Chapter VII (1822 to 1829).

Paul

MEMORANDUM

September 17 , 1980

TO: Superintendent Don Campbell, Harpers Ferry NHP

FROM: CHARLES W. Snell, Historian, National Capital Team,
Denver Service Center

SUBJECT: Draft of report, "History of Physical Plant of Harper's Ferry Armory, 1794 to 1841" Volume I

Enclosed is a portion of "A History of the Physical Plant of the U.S. Armory at Harper's Ferry, Virginia, its evolution and Development, 1794 to1841," Volume I," August 1980, 566 pages. (Volume II will cover the years 1842 to 1861). We transmitt pages 242 to 348 of Volume I; the remaining portion of Volume I is in the process of being proof read and will follow at a later date.

With best regards

Charles W. Snell

Charles W. Snell

3rd Installment, Chapter VIII (1830 to 1835).

RECEIVED
SEP 18 1 22 PM '80
HARPERS FERRY NHP
HARPERS FERRY, W.VA.

Paul

MEMORANDUM

September 27, 1980

TO: Superintendent Don Campbell, Harpers Ferry NHP

FROM: CHARLES W. Snell, Historian, National Capital Team,
Denver Service Center

SUBJECT: Draft of report, "History of Physical Plant of Harper's Ferry Armory, 1794 to 1841" Volume I

Endlosed is a portion of "A History of the Physical Plant of the U.S. Armory at Harper's Ferry, Virginia, its evalution and Development, 1794 to1841," Volume I," August 1980, 566 pages. (Volume II will cover the years 1842 to 1861). We transmitt pages 348 to 476 of Volume I; the remaining portion of Volume I is in the process of being proof read and will follow at a later date.

With best regards

Charles W. Snell

Charles W. Snell

4th Installment, Chapter IX (1836-1841).

One more section to go!

MEMORANDUM

Paul

September 25, 1980

TO: Superintendent Don Campbell, Harpers Ferry NHP

FROM: CHARLES W. Snell, Historian, National Capital Team,
Denver Service Center

SUBJECT: Draft of report, "History of Physical Plant of Harper's Ferry Armory, 1794 to 1841" Volume I

Endlosed is a portion of "A History of the Physical Plant of the U.S. Armory at Harper's Ferry, Virginia, its evalution and Development, 1794 to1841," Volume I," August 1980, 566 pages. (Volume II will cover the years 1842 to 1861). We transmitt pages 477 to 566 of Volume I; the remaining portion of Volume I is in the process of being proofread and will follow at a later date.

With best regards

Charles W. Snell

Charles W. Snell

5th and last installment(Chapters X, XI, etc to end).

The end!