

Data for Operational Histories of
the U.S. Armories at
Harper's Ferry, Virginia, and
Springfield, Massachusetts,
1795 to 1860,

Extracted from: Stephen V. Benet's
A Collection of Annual Reports and Other
Important Papers Relating to the Ordnance
Department, Taken from the Records of the
Chief of Ordnance, Public Documents, and
from Other Sources (4 vols., Washington, D.C.,
1870-1890).

Compiled by
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Denver Service Center
National Capital Team
National Park Service
United States Department of the Interior
Denver, Colorado
January 1980

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U.S.
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A COLLECTION

ANNUAL REPORTS AND OTHER IMPORTANT PAPERS,

RELATING TO THE

ORDNANCE DEPARTMENT,

TAKEN FROM THE

RECORDS OF THE OFFICE OF THE CHIEF OF ORDNANCE, FROM
PUBLIC DOCUMENTS, AND FROM OTHER SOURCES.

PREPARED UNDER THE DIRECTION OF THE CHIEF OF ORDNANCE DEPARTMENT

BRIG. GEN. STEPHEN V. BENEY, Chief of Ordnance.

CHIEF OF ORDNANCE, U. S. ARMY.

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Hall Rifles Jan 31, 1827

[Letters to W. D., vol. 4, p. 212.]

ORDNANCE OFFICE, WAR DEPARTMENT,
January 31, 1827.

SIR: In compliance with your instructions, I report to you the information required by a resolution of the House of Representatives, concerning the expenses of manufacturing and the utility of the patent rifles, bearing date May 20, 1826. I have now the honor to report that the amount expended for machinery and implements for the fabrication of Hall's patent rifles since May, 1819, is \$57,076.82, as is more particularly exhibited in the statement herewith communicated, and marked "C."

The machinery used in the fabrication of these rifles has been constructed upon a new and improved plan, by which a very important improvement in the fabrication of fire-arms has been effected. By the aid of this machinery, each of the various separate parts which, when united, forms one arm, are constructed in that perfectly accurate and uniform manner that any one of the parts of one arm will fit exactly the corresponding part of any other arm of similar model. And this perfection is accomplished at a less expense than is occasioned by the use of the ordinary machinery in executing work in the usual and less perfect manner.

This degree of perfection in the fabrication of small-arms has ever been considered an object of the highest importance in all national armories, and has been frequently attempted in the armories of Europe, but hitherto without success. And the attempt has been generally abandoned from the belief that the object was unattainable.

The machinery constructed for, and used in fabricating Hall's rifles, executes the work with such exactness that the component parts of one hundred rifles made some years past have been joined to other parts made recently without the least difficulty; all the parts fitting as exactly as if each had been separately adjusted to the particular rifle thus formed from the scattered members. This subject was considered of so much importance that a board, consisting of practical armorers and intelligent gentlemen, was appointed to inspect the machinery and the work performed by it. A copy of the instructions given to them and of their report on the subject, is herewith communicated, marked "A," to which I beg leave to refer.

A large amount, as is above stated, has been expended in constructing this machinery. The construction of most articles, newly invented, is expensive, and that of complicated machinery is unavoidably so, for the reasons stated in the report above referred to. It should, however, be remarked that the machinery used in the fabrication of fire-arms of any kind is extensive and costly. That now used in the armory at Harper's Ferry for making muskets is valued at \$72,000.

In answer to that part of the resolution which requires a statement of "what contracts have been made in relation to the procurement of machinery, or to complete the rifle, by whom made, and under what law," I have to state that no contracts have been made for the procurement of machinery. It was constructed under the superintendance of the inventor of the machinery and the rifles, by purchasing materials and employing workmen in the usual manner.

A contract for fabricating the rifles has been made, a copy of which is herewith submitted, and is marked "B." This contract was made under the law establishing the national armories.

The "actual cost of each rifle manufactured" since May, 1819, and the "total cost of the whole number procured," with a statement "of the expenditure in detail," are contained in the statements marked "C" and "D," which are herewith communicated.

When the fabrication of these rifles was commenced in May, 1819, a parcel of 1,000 were taken in hand. The cost of these, as is shown in the statement C, is for each rifle and bayonet \$17.82 $\frac{1}{2}$, and the total cost, including the rifle, set of accouterments, packing-boxes, and the privilege of the patent right, amounts to \$20.59 $\frac{1}{2}$, for each rifle and accouterments complete. Upon the completion of these another parcel of 1,000 was commenced, but which are not yet entirely completed. The work is, however, so far advanced that they will be completed in March next.

Statement D shows the amount expended upon this parcel on the 31st December, 1826, and contains an estimate of the amount yet required to complete them. By this statement it appears that, in this parcel, each rifle and bayonet will cost \$11.97, and that the set complete, including the rifle, accouterments, packing-boxes, &c., will cost \$14.71 $\frac{1}{2}$ each.

By comparing these statements, it will be seen that the cost of the second parcel of rifles will be far below the cost of the first parcel. This reduction, which is made almost entirely in the item of labor, has arisen in part from the greater experience and skill acquired by those employed in the business; but the greater part is occasioned by the more perfect machinery which was used in fabricating the last parcel.

In any future fabrication of these arms, the cost will be still further reduced by the amount charged for the patent-right, which will cease, as the patent has now expired.

The common rifle, of the pattern which has usually been made for the public service, now costs \$14.50, exclusive of the ammunition-flasks and packing-boxes.

The cost of Hall's rifles, exclusive of the same articles, and of the charge for patent-right, is \$12.50 each. And it is believed that any reasonable number could be made at this cost, by the aid of the new machinery now in operation, at the public armory. "The number," of this description of arms, "now in store, the number distributed, and to what States," is exhibited in the accompanying statement marked "E."

In reference to that part of the resolution which relates to "the advantages of this description of arms," and whether "their durability and utility have been sufficiently tested," I beg leave to submit a brief statement of the measures which have at different times been adopted, with a view to determine those points.

This description of arms was first presented to the notice of the Government in 1813, by Mr. Hall, the inventor. The Secretary of War (then General Armstrong) ordered a few of them to be procured for trial. In 1816, samples were again presented, and in January, 1817, a

Jan 31, 1827

contract for 100 of them was made, by direction of the Secretary of War, with a view to arm a company of riflemen with them, by way of experiment.

These were completed in that year; and the officer who received and inspected them made a favorable report on them. Mr. Hall was then desired to repair to one of the national armories and attend to the construction of a few of these rifles, with a view to improving their model, and to further experiments with them. Four were made and tried at the armory, the officers of which made a report of them in favorable terms. After these trials at the armory, the arms were submitted for examination and trial, to a board of military officers then assembled at the arsenal at Greenleaf's Point. A copy of the instructions to the board, and of its report thereon, is herewith submitted, marked "F."

The result of this examination proving the durability and superior efficacy of this description of arms in a satisfactory manner, arrangements were soon after made for fabricating a large number of them, as will be seen by the contract before referred to, marked "B."

The arms referred to in this contract were completed in the early part of the year 1825, and in September of that year orders were given for sending a portion of them to Fortress Monroe, in order that they might, in the hands of the troops at that station, be more effectually tested.

Two of the companies at Fortress Monroe were armed with these rifles in July last, which have continued to use them ever since. A great number of trials have been made with them, a full account of which is contained in the report of the staff of the school of practice, which is herewith communicated, and marked "G."

This report, made by experienced officers, after a constant practice with the arms for five months, exhibits a very full view of the subject, and clearly demonstrates the great superiority of these arms over all others heretofore used in the public service.

The convenience, safety, and celerity with which these are loaded and fired, and the accuracy and effect of their fire, and the durability of the arms, have been most effectually tested, and have proved not inferior in any of these respects to the common arms, but generally superior in all of them, and particularly so in all that relates to celerity and effect.

As a general result obtained by comparing Hall's rifles with the common rifles and with muskets, it may be stated, that with an equal number of men, firing for an equal length of time, the effective shots, made from each description of arms, will be in the following proportion, viz: Hall's, 100; common rifles, 43; muskets, 37; being an advantage in favor of Hall's over the common rifle, as 9 to 4, and over the musket, as 8 to 3, being more than 2 to 1 in both cases.

The particulars of these trials are given more in detail in table No. 9, appended to report G, where the trials were made by three companies of soldiers. Another form of comparison is exhibited in table No. 4 of the same report. In this case, but half the number of men were engaged in firing Hall's rifles that were engaged in firing the other arms, while the former were loaded with two bullets and the latter with one only. The effective shots in this trial were in the following proportions, viz: Hall's rifle, 100; common rifle, 46; muskets, 56.

In conclusion, I would observe that it is now 13 years since this description of arms was first presented to the notice of the Government, and that for 9 years past measures have been in operation for perfecting the model and for determining the effectiveness of the arms.

Two thousand stands have been nearly completed, and the recent

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5

trials with them at Fortress Monroe, which were designed to test them in the severest manner, has conclusively established their superiority. It is conceived that no test can be applied which will more effectually demonstrate the character of these arms than that to which they have already been subjected, except that of actual service in the field in time of war. And it is conceived that enough has been done to prove that they would there exhibit their superiority.

It is but an act of justice to Mr. Hall, the inventor, to state, that during the whole of this period he has devoted himself with the greatest zeal and assiduity to the perfecting of this arm and of the means for fabricating it, and that in both he has been eminently successful. And to him is due the merit of effecting so great an improvement in fire-arms.

No arrangements have been made with respect to any farther fabrication or use of these arms. And it is conceived that the time has now arrived when the farther measures, if any, should be determined. And I would respectfully submit this point for consideration.

I have the honor to be, sir,

G. BOMFORD,
Brevet Colonel.

Hon. J. BARBOUR,
Secretary of War.

A.

HARPER'S FERRY, VA.,
January 6, 1827.

Sir: We, the commissioners appointed by you, in conformity to your instructions of the 2d of December, 1826, convened at Harper's Ferry, in Virginia, on the 11th, and on the following day entered on the duties to be performed by us, viz: an examination of Hall's machinery for making rifles. The result of our examinations and opinions are respectfully submitted in the following report:

In making this examination our attention was directed, in the first place, for several days, in viewing the operations of the numerous machines which were exhibited to us by the inventor, John H. Hall. Captain Hall has formed and adopted a system in the manufacture of small-arms, entirely novel, and which, no doubt, may be attended with the most beneficial results to the country, especially if carried into effect on a large scale. His machines for this purpose are of several distinct classes, and are used for cutting iron and steel and for executing wood-work; all of which are essentially different from each other and differ materially from any other machines we have ever seen in any other establishment.

Hall names them the *great* and *small forging* machines, the *straight* and *curved cutting*, and the *lever* machines, and several different kinds of machines for stocking.

"The cost of constructing the machines" it would be utterly impossible for us to ascertain. It will be evident to any mechanic, at first view, that machines so substantially and accurately built, and which move with such truth and correctness, must unavoidably be very expensive, and it would require more time than would be proper for us to devote to an investigation of the subject, by which to arrive at any satisfactory result, and which could then only be obtained from the inventor or from those, if any, who may be equally well acquainted with their construction from the commencement. It has been, probably, with them, as it generally is with all new inventions, much more expensive in the first instance than it afterwards is, when the first and greatest difficulties are overcome, and long and persevering experience has shown the most advantageous method of manufacturing them. If the inventor himself should be able to foresee all the difficulties that may arise in the construction of a new machine, (which is far from being always the case,) it will not be in his power to find workmen who will be able to comprehend, with certainty or precision, the exact tendency of the labor required of them, and nothing but a long-continued course of practice will ever enable them to acquire that manual dexterity necessary to dispatch business with the greatest expedition and economy. In our opinion, therefore, we are confident and will venture to assert that all the machines now in operation in Hall's armory, or, in other words, a complete set of machines equal, in every respect, to those now in successful

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operation, might be made, perhaps, with improvements, for less than one-half the expense these have cost the Government.

Their "general merits or demerits, when contrasted with the several machines hitherto in general use for the manufacture of small-arms," will, perhaps, be better understood by pointing out the difference of the results produced by them than by any very accurate description of the machines we are able at present to give, although we shall advert to that subject before we close our report. It is well known, we believe, that arms have never yet been made so exactly similar to each other by any other process as to require no marking of the several parts and so that those parts, on being changed, would suit equally well when applied to every other arm. But the machines we have examined effect this with a certainty and precision we should not have believed till we witnessed the operations. To determine this point and test their uniformity beyond all controversy, we requested Colonel Lee, superintendent of the United States armory at this place, to send to Hall's armory five boxes containing 100 rifles manufactured by him in 1824, and which had been in the arsenal since that period. We then directed two of his workmen to strip off the work from the stocks of the whole 100, and also to take to pieces the several parts of the receivers, so called, and scatter them promiscuously over a large joiner's work-bench. One hundred stocks were then brought from Hall's armory which had been just finished, and on which no work or mounting had ever been put. The workmen then commenced putting the work taken from off the stocks brought from the United States arsenal on to the 100 new stocks, the work having been repeatedly mixed and changed by us and the workmen also. All this was done in our presence, and the arms, as fast as they were put together, were handed to us and minutely examined. We were unable to discover any inaccuracy in any of their parts fitting each other, and are fully persuaded that the parts fitted, after all the changes they must have undergone by the workmen, as well as those made designedly by us in the course of two or three days, with as much accuracy and correctness as they did when on the stocks to which they originally belonged. If uniformity, therefore, in the component parts of small-arms is an important desideratum, (which we presume will not be doubted by any one the least conversant with the subject,) it is in our opinion completely accomplished by the plan which Hall has carried into effect. By no other process known to us (and we have seen most, if not all, that are in use in the United States) could arms be made so exactly alike as to interchange and require no marks on the different parts. And we very much doubt whether the best workmen that may be selected from any armory, with the aid of the best machines in use elsewhere, could, in a whole life, make a hundred rifles or muskets that would, after being promiscuously mixed together, fit each other with that exact nicety that is to be found in those manufactured by Hall.

The "cost of keeping them in repair," it is believed, will be small, as their constituent parts are generally made extremely strong, and provision is made for detaching all such parts as are most liable to get worn, and for repairing them whenever they may require it. The repairs on the machines used for cutting iron, which execute the work usually done elsewhere with grindstones, chisels, and files, with the aid of vises, will, we think, from the best information we are able to obtain, prove less expensive than the repairs on the latter; and we are confident, from our own observation and from knowledge derived from Captain Hall, and more especially from several of his most intelligent workmen who execute the operations performed by the iron-cutting machines, by the piece, and keep their own cutters in repair at their own expense, consequently must be supposed disinterested, that the cost of the cutters and saws does not amount to half that of files used to do the same quantity of work.

The "quality of the work performed." We have already remarked on this point when speaking of the uniformity of the arms. We would, however, further observe that, in point of accuracy, the quality of the work is greatly superior to anything we have ever seen or expected to see in the manufacture of small-arms, and cannot with any degree of propriety be compared with work executed by the usual methods, and it fully demonstrates the practicability of what has been considered almost or totally impossible by those engaged in making arms, viz: of their perfect uniformity.

The "quantity of work performed by each (machine) in any given time, and the relative portion of manual labor required in each case," will depend much on the quantity of arms required to be made at once. The greater portion of the work, in many branches of the business, may be done with the machines by boys from twelve to fifteen years of age, at small wages, each of whom will tend as many machines and execute as much work with them as a man in a given time. It will be necessary, however, that these boys should be under the immediate direction of an intelligent workman with large wages. One such workman will be able to direct and take care of five or six boys when the number of arms to be made is so great as to give employment to that number. It is evident, therefore, that the expense of manual labor will be enhanced in proportion to the diminution of the number of boys employed. It appears equally evident to us that ten thousand arms, in one parcel, may be made by the new machines, and all so accurately that all their parts will suit equally well when interchanged,

surfaces, both regular and irregular, one of which particularly, that on the outside of the supporters, might have been done by it with economy, as it would have saved both files and manual labor.

The curved-cutting machine serves to produce surfaces of either double or single curvature of any of the regular curves, but at present it has been fitted to produce only those that are circular. The lever-machine is used for such operations as cannot be so conveniently effected by either of the other machines. It is at present used to make the mortise through the receiver for the cock, the place in which the hammer plays, and for boring the pan.

The machinery is driven, principally, by a judicious application of belts or straps of firm leather, and by increasing their tension and width, are able to overcome any resistance, however great, arising from their number, or the velocity of their motion. The pullers of all the machines, which are numerous, revolve without any of that shaking and trembling which frequently accompany their motions, and which often prove injurious, especially when the motions are very rapid. In the operations performed by the machines used in making the stocks, as well as for other purposes, this defect has been remedied completely by balancing them after they are turned off in the lathe, and before they are put into the places where they are to revolve. This is done by loading the light side with lead or any heavy substance until an equilibrium takes place, by which means there is no tendency in their revolutions, however rapid, to wear more on one side of their journals, or gudgeons, than on the other.

The following remarks may perhaps be considered necessary to a just view of the subject generally, and are therefore introduced in conclusion.

The system which Captain Hall has carried into complete effect, of making all the component parts of his arms alike, renders it impossible for the workmen to deviate from the established model without being detected; for every essential neglect of any one workman as to the size, form, and proportion of the different limbs will be infallibly discovered and exposed by the workman whose business it will be to put them together, especially if he is employed, as he ought to be, by the piece, to combine them. It also effectually secures the faithfulness of the inspector of those parts, as it will enable him to proceed in the discharge of his duties with the utmost security in everything relating to the forms and dimensions and relative proportions of the arms and their component parts, because the arms themselves furnish an infallible test, viz: by exchanging their parts. To this sure test an inspector can resort, and with ease and certainty prove their complete accuracy and uniformity.

How far these new machines now in actual operation may lay a foundation for any great or beneficial change in the fabrication of fire-arms, and how far they may be made the means of carrying every process relating to the manufacturing them to the highest degree of perfection, perhaps would not be considered within the scope of our instructions; yet, on a general view of the subject, we cannot but believe, and with hazard the assertion, that should they be introduced, a complete model, in all its essential points, however perfect it may be, would be attained, and by the application of the machinery, ultimately, to all the parts of the arm, moved by water-power, the highest degree of economy in their fabrication also. This, however, must be understood only when conducted on a large scale, as before has been observed. Arms by these machines may be made to any extent the exigencies of the country may require, without danger of deterioration in their construction, and in a great measure by that part of the laboring community not old enough and of course not capable of bearing arms, such as boys of twelve and fourteen years of age. To keep a machine in operation activity is more necessary than judgment, for the machines, after the work is put into them, go through with the operation without any further aid from the boy, and when the operation is completed give notice to the boy, who has been employed during the operation in putting in and taking out work from other machines.

Perhaps some advantage may be derived from the facilities which this completely uniform method affords for preparing some of the parts of the arms separate from and independent of each other, wherever the materials of which they are composed may be found. Stocks, for instance, may be wholly completed in the neighborhood of the forest where the timber grows; barrels, also, may be made near where the ore is extracted of which the iron is made, and by being divested of a great proportion of their weight, may be transported with much less expense to the place, where the several parts are to be combined, and without any risk of failure of their fitting those parts with which they are to be united.

In the course of our examination we could not but notice, and that with some regret, the crowded state in which we found Hall's machinery, and repeatedly witnessed the inconvenience and embarrassment he was subjected to for the want of more room and better light. He is frequently under the necessity of moving, particularly in his stocking-department, one machine out of the way to make room for the operation of another.

Permit us to observe that we were not fully sensible, when we commenced this examination, of its importance, and feel our incompetency to do that justice to the sub-

O.R.

Jan 31, 1827 I, 1579

it requires, and wish it had been confined to those who were more able to report the merits of the machinery and the inventor, who, we trust, will receive that patronage from the Government his talents, science, and mechanical ingenuity deserve.

We are, very respectfully, sir, your obedient servants,

JAMES CARRINGTON.
LUTHER SAGE.
JAMES BELL.

Col. GEO. BOMFORD.
On Ordnance Service, Washington City.

B.
ORDNANCE OFFICE, WAR DEPARTMENT,
March 19, 1819.

It is agreed between John H. Hall and Decius Wadsworth, colonel of ordnance, in the service of the United States, acting with the approbation and consent of the Hon. John C. Calhoun, Secretary of War, that in consideration of the sum of one thousand dollars, to be paid to the said John H. Hall, the United States shall be obliged to manufacture, at any of the public armories, a number of rifles or other fire-arms, not exceeding one thousand stands, after the plan and model of the fire-arms invented, or improved, or claimed to have been invented or improved by the said Hall, for which invention he has obtained letters-patent from the President of the United States, dated in May, 1811, giving him the exclusive privilege of making and using the said improvement.

It is further agreed that the said John H. Hall shall serve at Harper's Ferry or such other place as may be judged convenient, in the capacity of an assistant armorer, during the fabrication of the said one thousand rifles or other fire-arms, and shall do and perform the duty of an assistant armorer in instructing and directing the workmen to be employed in fabricating the fire-arms above specified, it being understood that during the time of his being so employed as an assistant armorer, he shall be on the rolls of the armory and be paid in that capacity at the rate of \$60 per month, commencing the first of the present month.

It is understood that any neglect or default on the part of said Hall in performing the covenant aforesaid shall not prejudice the right of the United States to fabricate one thousand stands of arms as above.

In witness whereof the parties have hereto set their hands and seals the day and year above.

DECIUS WADSWORTH,
Colonel of Ordnance.
JOHN H. HALL.

Witnesses:
WM. LITTLE.
J. T. ALEXANDER.

The provisions and conditions of the above contract are extended to an additional number of one thousand rifles.
JULY, 1824.

C.

Statement of the amount expended at Harper's Ferry from May, 1819, to December 31, 1826, in constructing implements and machinery for the fabrication of Hall's patent rifles, so as to insure a perfect uniformity in all their component parts; and also of the amount expended in fabricating the rifles and their accouterments.

Amount expended on the implements and machinery, viz:	
For materials.....	\$18,320 75
For labor, including superintendence.....	38,756 07
Total amount expended for implements and machinery.....	\$57,076 82
Amount expended in fabricating the first parcel of 1,000 rifles and their accouterments, viz:	
For materials.....	\$4,030 53
For labor, including superintendence.....	15,561 97
For privilege of patent right.....	1,000 00
Total cost of 1,000 rifles and 1,000 sets of accouterments.....	20,592 50

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Amount expended on the second parcel of 1,000 rifles which are not yet completed, per statement D..... \$9,821 79

Total amount expended on the implements, machinery, and rifles from the commencement to the close of the year 1826..... \$7,491 11

The total cost of the 1,000 rifles and sets of accouterments which have been completed has been expended upon the several articles made, in the following proportion, viz:

1,000 rifles and bayonets, at \$17.52½ each.....	\$17,825 60
1,000 ammunition flasks, at \$1.04 each.....	1,040 00
1,000 bullet-molds, at 31 cents each.....	310 00
1,000 wipers, at 19 cents each.....	190 00
100 spring vises, at 20 cents each.....	20 00
1,000 screw-drivers, at 7 cents each.....	70 00
50 packing-boxes, (for rifles,) at \$2 each.....	100 00
50 packing-boxes, (for accouterments,) at 75 cents each.....	37 50

Privilege of patent-right, \$1 each..... 1,000 00

Total cost, as above..... 20,592 50

G. BOMFORD,
Brevet Colonel.

ORDNANCE OFFICE, WAR DEPARTMENT,
Washington, January 31, 1827.

D.

Statement of the amount expended in fabricating the second parcel of 1,000 rifles, (Hall's.) from their commencement up to December 31, 1826, and also an estimate of the amount necessary to finish them with their accouterments complete.

Articles.	Amount expended up to December 31, 1826.	Estimate of amount yet required.	Total amount.
For materials.....	\$2,550 54	\$640 00	\$3,190 54
For labor, including superintendence.....	6,271 25	4,255 71	10,526 96
For privilege of patent right.....	1,000 00	.....	1,000 00
Total cost of the second parcel of 1,000 rifles and accouterments complete.....	\$ 9,821 79	4,895 71	14,717 50

This total amount being apportioned among the several articles made, shows the cost of each as follows, viz:

1,000 rifles and bayonets, \$11.97 each.....	\$11,970 00
1,000 ammunition flasks, \$1.04 each.....	1,040 00
1,000 wipers, 19 cents each.....	190 00
1,000 bullet-molds, 30 cents each.....	300 00
100 spring-vises, 20 cents each.....	20 00
1,000 screw-drivers, 7 cents each.....	70 00
50 boxes for rifles, \$2 each.....	100 00
50 boxes for accouterments, 75 cents each.....	37 50

Total..... 13,717 50

Privilege of patent right..... 1,000 00

Total cost as above..... 14,717 50

G. BOMFORD,
Brevet Colonel.

ORDNANCE OFFICE, WAR DEPARTMENT,
Washington, January 31, 1827.

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Jan 31, 1827 I, 159 117

E.

Statement of the number of Hall's Rifles procured, the number now in store, the number distributed, and to what States.

Rifles procured, viz:	
Purchased of the inventor in the year 1817	100
Manufactured at the national armory at Harper's Ferry since 1818	1,010
Total number procured	1,110
Rifles now in store, viz:	
At the armory at Harper's Ferry	782
At the armory at Springfield	1
At the arsenal at Bellefontaine, Mo.	97
At the arsenal at Washington	77
At the arsenal at Pittsburgh	1
At the arsenal at Watervliet	1
At the arsenal at Saint Louis	1
At Cantonment Gibson	1
At Ordnance Office, Washington	3
Total number in store	965
Rifles distributed, viz:	
To the troops in service at Fortress Monroe	120
To Indian agents on the Missouri	2
To Plattsburgh volunteers, under a resolution of Congress, May 20, 1826.	17
To quartermaster of the Marine Corps, Washington, as a sample	1
To individuals, as a sample for exhibition in distant States, viz: 1 each to Kentucky, (Col. R. M. Johnson,) South Carolina, (J. Gadsden,) Tennessee, (Gen. J. Cocke,) Arkansas, (H. Howland,) and Indiana, (Dr. Bradfield,) to be returned when required	5
Total distributed	145
Total in store and distributed	1,110

G. BOMFORD,
Brevet Colonel.

ORDNANCE OFFICE, WAR DEPARTMENT,
Washington, January, 31, 1827.

F.

EXTRACTS FROM THE REPORT OF A BOARD OF OFFICERS ASSEMBLED AT GREENLEAF'S POINT, 1818-19, OF WHICH COL. N. TOWSON (THE PRESENT PAYMASTER-GENERAL OF THE UNITED STATES) WAS PRESIDENT.

The firing of these new arms was continued from time to time until the musket had been discharged 7,061 times, and the rifle 7,186 times, this appearing to the board a fatigue at least equal to what these pieces would be exposed to in 14 or 15 campaigns, and probably more than they would be required to undergo.

The advantages of these guns over the common ones now in use are, first, the celerity and ease with which they may be loaded in all situations. It is of great consequence in the rifle; the difficulty of loading is the greatest objection to its more general introduction into service; second, greater accuracy and less recoil, (in the musket;) third, less weight, (in the rifle.)

N. TOWSON,
Lieutenant-Colonel of Artillery, President.

G.

EXTRACTS FROM A REPORT BY A BOARD OF OFFICERS AT FORTRESS MONROE, IN 1825, TO THE SECRETARY OF WAR, RELATIVE TO THE HALL RIFLES, (DECEMBER.)

In reporting its opinion of the general utility of Hall's rifle, the staff of the school expresses its perfect conviction of the superiority of this arm over every other kind of

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Jan 31, 1827

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small-arm now in use; and this opinion has been formed after having seen two companies armed with them, for five months, performing all the duties to which troops are liable in garrison, and contrasting them in a variety of ways with the common rifle and musket, in all which trials their great and general superiority has been manifest.

The uniformity which appears to exist in the dimension of all its component parts is peculiar to this arm, and it is considered a great improvement in their construction that the several parts are so exactly similar as to suit equally well when applied to any of the rifles.

- A. EUSTIS,
Lieutenant-Colonel, Commandant.
- J. B. CRANE,
Major Fourth Artillery.
- J. F. HEILMAN,
Major, U. S. Army.
- R. L. BAKER,
Captain and Director of Artillery.

FORTRESS MONROE, December 1826.

[Letters to W. D., vol. 4, p. 242.]

ORDNANCE OFFICE, WAR DEPARTMENT,
Washington, August 21, 1827.

SIR: I beg leave to suggest that a further portion of the troops in service be armed with Hall's rifles. This description of arms is now used only by the two light companies at Fortress Monroe, and I would propose that the four light companies at the infantry school of practice at Jefferson barracks be armed with them also.

I recommend limiting the use of these arms to the light companies for the present, and until more experience in the management of them has been acquired.

After the light companies shall have become familiar with the peculiarities of these arms and the best methods of managing them, the use can be gradually extended to other companies with more convenience and safety.

I would also propose, as a further test of the qualities of these arms, that they may be subjected to a course of experiments at Jefferson barracks similar to those made at Fortress Monroe.

Should these propositions meet your approbation, I have to request that the orders necessary for carrying them into effect be given to the commandant of the infantry school of practice.

An outline of the course of experiments and such particulars in detail as may be necessary for conducting them will be furnished by this Department.

Respectfully, &c.,

G. BOMFORD,
Brevet Colonel, on Ordnance Service.

Hon. JAMES BARBOUR,
Secretary of War.

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[150 W. D., 1822.]

ORDNANCE OFFICE, WAR DEPARTMENT,
Washington, November 13, 1827.

SIR: Inclosed I have the honor to submit to you for consideration a proposition of Mr. Thomas Blanchard, the inventor and proprietor of certain very ingenious and useful machines for turning gun stocks and barrels.

A part of Mr. Blanchard's machinery has been in successful operation at both armories for some years past, and for the privilege of using the two, which turn the stocks and the barrels, he has been allowed at the rate of six cents for each musket made. This price was allowed upon the ground of its being one-half of the amount saved to the public service from the use of those machines. For a few years past, Mr. Blanchard has performed the whole work of stocking the arms made at one of the armories, for which he has received 32 cents each. During the course of practice with these machines Mr. Blanchard has invented others equally useful with the first, and which completes such parts of the stock as were left unfinished by the former. The whole has been in operation for some time, and their utility has been satisfactorily demonstrated.

It is now proposed that Mr. Blanchard shall grant to the United States the full use of all his improvements for turning musket-barrels and for stocking muskets, upon the condition that he shall be paid nine cents for each musket made at the national armories during the unexpired term of his patent right, viz: from the 1st January, 1828, to the 6th September, 1833.

This subject has been carefully investigated at both the armories, and

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Hall Rifles Feb 1836

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[Letter-Book No. 23, p. 431]

ORDNANCE OFFICE, WAR DEPARTMENT,
Washington, February 8, 1836.

SIR: I have the honor to inclose herewith paper marked "A," containing the answers called for by the inquiries in your letter of the 23d ultimo, together with copies of three contracts* marked "1," "2," and "3," in compliance with the latter clause of the second inquiry.

I have the honor to be, sir, respectfully, your obedient servant,
GEO. BOMFORD,
Colonel of Ordnance.

Hon. JAMES I. MCKAY,
Of the Committee on Military Affairs,
House of Representatives.

A

Questions proposed by the Hon. Jas. I. McKay, of the Committee on Military Affairs, to the Chief of the Ordnance Department, viz:

Question 1. How long has Captain Hall been in the public service, and the amount of compensation paid him, and for what objects?

Answer. Captain Hall has been in the public service from the 19th March, 1819, up to the present time. He received, as a compensation for his personal services, from March 19, 1819, to March 8, 1827, at the rate of \$60 per month, and during the same period he received, as a fee for the invention of his rifle, the sum of \$1 for each rifle manufactured, amounting to \$2,000. He received from March 8, 1827, to October 1, 1834, at the rate of \$1,450 per annum for his personal services, and \$3,000 as a fee for the invention of his "labor-saving" machinery, being \$1 on each rifle manufactured during that time. In addition to which he was allowed quarters free of rent, and the usual allowance of fuel, during the period above named. He has also received, during the year 1835, the sum of \$2,600, being \$1,600 for his invention, and \$1,000 for his personal services, making the total amount he has received for personal services, invention of his rifle, and invention of his "labor-saving" machinery, from March 19, 1819, to December 31, 1835, \$29,583.90.

Question 2. Have any contracts been made by the War Department with Captain Hall respecting his rifles? How many have been made, and how much money has been paid him therefor, in execution of said contracts? and if the same were in writing, copies of them.

Answer. There have been three contracts entered into by the Ordnance Department with Captain Hall respecting his rifles, and he has been paid for the execution of said contracts the sum of \$26,983.90, which, added to the sum of \$2,600 paid him during the year 1835, makes the total amount he has received, \$29,583.90. The number of rifles made at the Government armories is 11,002.

Question 3. How many of Captain Hall's rifles will the public service probably require during the next twenty years?

Answer. The number of Hall's patent arms that will probably be required during the next twenty years would, at the rate at which they are now manufactured, amount to about 80,000 stands. That is to say,

*The contracts referred to are omitted from insertion here. See one of them p. 115, etc.

3,000 to be made annually by Government at the Harper's Ferry armory, and 1,000 at private armories. But should Hall's patent be adopted as a substitute for the musket and ordinary rifle and ordinary carbine, as its great advantages fully justify, then the number to be manufactured during the next twenty years would be 820,000 stands. Yet, as it might be hazardous to introduce so great a change into the principal weapon of the country, (though in all human reason it would be accompanied with signal advantages,) its adoption, therefore, it is believed, should be gradual; and it is thought that at least one-fourth of the small-arms to be made during the next twenty years should be of that construction. On this supposition, the number to be manufactured during the next twenty years would be nearly 205,000 stands. In this estimate no allowance is made for the gradual increase of the population, or for the additional number that might be required in the event of a war during that period.

Question 4. Has the Department any established usage in making compensation to inventors for the use of their invention, and what is it?

Answer. The Department has no established usage in making compensation to inventors. The usual method has been to enter into contract on the best terms that could be agreed on. Though it seems to have been a rule very generally established (and adopted in some cases by the Ordnance Department,) to grant inventors one-third or one-half the saving produced by the invention.

Question 5. Was the machinery at Harper's Ferry, and elsewhere, used in the fabrication of Hall's invented rifle, put up by the Government; and if so, the cost and saving effected in the fabrication of said arms?

Answer. The whole of the machinery used at Harper's Ferry in the fabrication of Hall's rifle was put up at the expense of the United States. By the report of the superintendent of the Harper's Ferry Armory, of October 12, 1835, it appears that the sum of \$149,410.79 had been expended upon machinery and tools from 1819 to December 31st, 1834. It is proper to remark that no separate account has been kept in this office of tools made, from that of machinery, and that that sum must be regarded as including both tools and machinery.

The machinery used "elsewhere"—that is, at the private armories—was put up by private individuals. The saving alluded to in this question refers, it is thought, to the difference between the smallest cost of the arm as made by Mr. Hall in the Government armories, and its smallest cost as made by private armories at the present time. In this view of the subject, the "saving effected" would be the excess of the cost at the private armories above that at the national armories, and this last is ascertained as follows:

To amount of component parts of arms and flasks on hand January 1st, 1834	\$44,637 34
To value of unwrought materials on hand January 1st, 1834	13,950 61
To amount of payments made by the paymaster for the rifle factory	25,053 6
To value of articles received from the storekeeper	11,911 39
To value of powder received from the Washington Arsenal	420 00
To interest on capital employed for the year 1834, estimated at \$190,000 at 5 per cent.	9,500 00
	<hr/>
	105,537 95
	<hr/>
By amount expended in permanent improvements	5,640 19
By arms and appendages made, viz, 970 rifles at \$21.13	20,503 55
By bayonets, screw-drivers, wipers, &c.	14,045 72
By component parts of rifles and on hand December 31st, 1834	53,214 02
By unwrought material on hand December 31st, 1834	15,131 10

Thus the 970 rifles cost \$20,503.85, or \$21.13 per stand, and the contract price with Colonel North being now \$17.20, there appears, thus far, to have been no saving.

But with regard to the saving effected at different periods at the national armories, from the machinery erected by Mr. Hall for the Government, the following statement will show that between 1817 and 1833, the cost of the arm has been reduced in the ratio of \$25 to \$14.50, nearly one half. As the interest of capital employed was not considered in making up the following statement, it shows less than the absolute cost, but it suffices to exhibit the successive reductions of price made by successive improvements in machinery. In 1817, Hall's rifle, &c., exclusive of interest on capital, cost Government by open purchase \$25. From 1819 to 1825, they cost, exclusive of interest, manufactured by Government at Harper's Ferry, \$21.57. In 1826, they cost, exclusive of interest, \$17.82. In 1832, they cost, exclusive of interest, \$14.50.

Question 6. The general views of the Department respecting the value of Captain Hall's inventions, and the amount of compensation that he may be entitled to from the Government?

Answer. Captain Hall's invention has been thoroughly tested at the two principal posts of artillery and infantry, viz, Fort Monroe and Jefferson Barracks, by long and severe service in the hands of several companies of artillery and infantry, and by private individuals. Many of his arms have also been applied for by and issued to the States; and the Ordnance Department has received, from time to time, formal reports from boards of officers, and from individual officers to whom the subject has been submitted, and in all the trials and comparisons with other fire-arms, to which it has been submitted, whether by private or official persons, it has invariably maintained its decided superiority over all other fire-arms; and in short, there is no longer any doubt of its being the best small fire-arm now known.

With regard to the "amount of compensation which he may be entitled from the Government," this, it is imagined, is now easy for the committee to determine from the statement of the number (3,000) now annually made at Harper's Ferry, and of the cost of the rifle as now made. It is probable that from the improvements Captain Hall is constantly introducing, and from reductions in price he has already made in the arm, that it will not be long before he effects a great saving; and that after a time this saving will not be much increased or reduced.

GEO. BOMFORD,
Colonel of Ordnance.

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as the present time is very favorable for the prosecution of that purpose, it is therefore proposed to restore the amount which was struck off from the estimate of this year.

Very respectfully, your obedient servant,

By order :

A. MORDECAI,

Captain of Ordnance, Asst. to Col. of Ordnance.

Hon. JOHN BELL,

Secretary of War.

Memorandum relative to operations at the national armories, May 29, 1841.

HARPER'S FERRY ARMORY.

December 20, 1838.—Superintendent reminded that at the close of the third quarter the national armory-fund was largely indebted (more than \$46,000) 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 gradual reduction in the operations of the armory and the number of persons employed there.

April 5, 1839.—Remittance refused, because the returns for January and February were not in, to show the application of the funds previously remitted.

November 8, 1839.—Attention again called to the instructions in the letter of 20th December, 1838, which were stated to be applicable with even greater force than before. But \$8,000 then remained in the Treasury to pay all the expenses of the fourth quarter, and until a new appropriation could be made.

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. The superintendent again urged to reduce the expenditures within the means provided by law.

December 16, 1840.—Remittance again refused, because the number of men employed had not been sufficiently reduced. A statement was called for of all outstanding claims, in order that measures might be taken to liquidate them. This statement has not been received; but when a change took place in the superintendence, it became necessary to make a list of debts, and it then appeared that—

April 1, 1841.—After exhausting the appropriation of 1840, there remained due at the end of the first quarter of 1841, \$23,000, in addition to \$33,000 required for paying the first quarter's rolls.

To prevent the occurrence of such debts and liabilities, the ordnance regulations (article 148) direct that all accounts shall be paid during the quarter in which they accrued, or within so short a time as to be embraced in the quarter's accounts.

The ordnance regulations (article 24) also require that "the number of men employed shall not exceed the number necessary to execute, by constant employment, all the business of the armory."

Under the instructions of 20th December, 1838, it would seem that some reduction was made to bring the expenses of the establishment within its means. 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. The number of persons similarly employed at Springfield armory is almost uniformly about 230.

In a letter of 7th February, 1840, presenting a statement of outstanding debts, exclusive of the December rolls, the superintendent says, "The workmen were permitted to make all they could in the preceding month, (November,) to enable them to lay in provisions," &c., thus showing that the regulation on this subject was not ordinarily attended to, and that the number was greater than necessary, if they had been constantly employed.

The report of the inspector of arsenals shows that the same state of things exists, in some degree, at Springfield armory, although the number of persons employed there is considerably less than at Harper's Ferry.

Respectfully submitted.

By order:

A. MORDECAI,

Captain of Ordnance, Assistant to Colonel of Ordnance.

ORDNANCE OFFICE May 29, 1841.

Land - 1841
 Springfield Armory

Aug 6 1841

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Statement showing the expenditures for the purchase of land and erection of buildings at the several arsenals of the United States.

Names of arsenals.	Where situated.	Expenditures from 1816 to 1834, per Ex. Dec. No. 44, 1st sess. 34 Cong.	Expenditures since, to 30th June, 1841.	Total.
1 Allegheny	Near Pittsburgh, Pa.	\$168,182 37	\$22,536 81	\$190,719 18
2 Apalachicola	On the Chattahoochee, Fla.	73,109 00	143,775 90	216,884 90
3 Augusta	Georgia	236,422 44	6,776 12	243,198 56
4 Baton Rouge	Louisiana	89,918 61	56,169 27	146,087 88
5 Ballona	Near Richmond, Va.	187,643 17		187,643 17
6 Champlain	Vermont	31,678 07	648 63	32,326 70
7 Charleston Depot	South Carolina	99 00	7,789 19	7,888 19
8 Detroit	Near Detroit, Mich.	64,057 40	80,991 47	145,048 87
9 Fort Monroe	Old Point Comfort, Va.	18,285 18	8,787 99	27,073 17
10 Frankford	Pennsylvania	119,991 52	42,336 03	162,327 55
11 Kennesbeck	Angusta, Me.	124,232 61	95,114 91	219,347 52
12 Little Rock	Arkansas		52,629 56	52,629 56
13 Memphis Depot	Tennessee		31,329 23	31,329 23
14 Missouri	Liberty, Mo.		27,784 26	27,784 26
15 Mount Vernon	Alabama	141,912 84	93,024 26	234,937 10
16 New York Depot	New York Harbor	102 17	22,666 77	22,768 94
17 Newport	Kentucky	4,500 24		4,500 24
18 North Carolina	Fayetteville		106,201 24	106,201 24
19 Pikeville	Maryland	83,658 46	5,063 19	88,721 65
20 Rome	New York	19,555 14	2,777 75	22,332 89
21 Saint Louis	Missouri	121,803 24	91,225 68	213,028 92
22 Washington	District of Columbia	93,819 44	39,569 67	133,389 11
23 Watertown	Massachusetts	163,926 77	45,901 04	209,827 81
24 Watervliet	New York	173,534 15	113,438 73	286,972 88
Total		1,969,462 02	1,101,457 99	3,070,920 01

[399 - W. D., 1841.]

SPRINGFIELD ARMORY,
 August 6, 1841.

SIR: After a sojourn of more than ten days here, I am able to state that the citizens generally are quite indifferent as regards the system

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Aug 6, 1841 I 395

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that may be adopted for the government. None but those interested in relation to the office to be obtained, either by themselves or their friends, care much about the business; yet, if a petition or memorial should be circulated among them, hundreds of names could be obtained on either or both sides of the question. The armorers have given generally their expression of dissent to the new system; but the whole matter was gotten up "to order" and to sustain the allegations of their Representative in Congress. In the beginning of this business I did not suppose or believe that a general reduction of the armorers' wages was required. I thought a reduction of the number of operatives was necessary; but I did not then know the prices paid for labor, the cost of which, on the new model musket, I find is increased nearly *two dollars*, while the just and proper increase should not have been one dollar. What would be the fate of a *private* manufactory where the operatives were allowed to fix their own wages and privileges? Yet this has been the case, in substance, at Springfield. I am the last man in the world who would take from an honest, industrious mechanic one mill of his just dues. I would endeavor to sustain him, by steady employment at fair wages, and act impartially between him and the Government. With the best disposition toward the operatives at this place I cannot shut my eyes on what is passing before them. I have frequently been at the shops and witnessed the truth of what had been reported to me. In one branch of labor, every man finishes his days work by *ten o'clock* in the morning. In others, they complete it in the first half of the day. A very limited number work over *five* hours, and probably none so long a time as *seven* hours a day when engaged in "piece-work." The fact is they earn all the money they want, or all that they dare suffer to appear on the pay-roll, by working only a moderate portion of each day.

I inclose herewith a few notes upon the concerns of the armory generally, with such information as appears to me necessary to the proper elucidation of the state of affairs there, and am restrained from sending you quadruple the quantity of matter only by the knowledge of your being pressed by other duties of higher importance.

Very respectfully, I am sir, your obedient servant,
G. TALCOTT,

Lieutenant-Colonel, Ordnance Inspector, &c.

Hon. JOHN BELL,
Secretary of War.

NOTES ON THE SPRINGFIELD ARMORY.

Every armorer or other person employed at this establishment is exempt by law from militia duty and from serving on juries. All who reside upon the public grounds are exempt from taxation on personal property and poll-taxes. These last are not allowed to vote at elections. The officers, clerks, and inspectors, being allowed quarters rent free, chiefly occupy public quarters.

The armorers, as a body, have never been noted for much interference with politics since the last war. The superintendents have usually been ranged on the side of the General Government at all times since the dismissal of the first incumbent.

There has always been a steady pressure of the workmen to increase their wages. The first effort in this way that succeeded was by the discontinuance of the ration system. Up to 1814, each armorer drew a ration and a half, in kind; provisions were then commuted for money by an addition to their daily wages. Soon after the war, the system of *piece-work*, instead of day-work, was extensively introduced. Previous to this, an armorer was a very different kind of mechanic: the skill of the eye and the hand being highly valued and indispensable. A "lock-filer" filed up and fitted all the parts

of a lock. The change of system caused each one to devote his skill and energies to the completion of some single part, and in time it was difficult to find many men who were able to file up all parts equally well; and whenever it became necessary to change men from one limb of a lock to another, in order to keep up a uniform supply of all parts, much difficulty occurred. Machines for performing work (that was formerly done by the skill of the eye and the hand) have been gradually introduced from time to time, until at length the machines perform nearly all the work, leaving the workman nothing to do but to fix the article in a proper position, apply the necessary oil, and set the machine in motion. A great portion of the severe hand-labor is thus dispensed with. The machines are usually so constructed as to stop when the work is done without the aid of the overseer. In this way, a man can attend two or more machines. The excellence of this mode of working is fully exemplified at Hall's rifle-works at Harper's Ferry, where the machines are generally attended by boys and young men, who place and replace the pieces to be wrought, and only a few men are required to keep the machines in good order. In this way the skill of the armorer is but little needed; his "occupation's gone." A boy does just as well as a man. Indeed, from possessing greater activity of body, he does better. The forging of all parts, however, is continued much in the same way as formerly, except that the extensive use of the tilt-hammer, in place of the sledge and hand-hammer, has lightened the heavy labor more than one-half. The recent use of the tilt-hammer in forging the bayonet (which it was always supposed could be done only by hand) is a great stride in reducing the labor on this article; but the construction of an entire set of machinery for finishing it in all its parts, and thereby dispensing with the process of grinding, so ruinous to the health of man, deserves an award of a medal of gold from the friends of humanity. Thomas Warner, the present master-armorer, is entitled to all the credit of these invaluable improvements, and merits the consideration of the Government for his ingenuity and devotion to the interests of the armory.

A change in the form or models of parts affords a favorable opportunity for the operatives to press an increase of their wages. The late change of model has been thus used to some extent. There are likewise periods in the general business of the country when labor and provisions advance in price. Such times are always seized on to increase their wages. When a revolution takes place and prices elsewhere sink to their former level, it is no easy matter to reduce the wages of armorers. We have witnessed this state of things several times during the last twenty-five years. After the high prices of 1816 and 1818 had subsided, it was found that the wages at Springfield were far above the proper point. The Colonel of Ordnance directed in 1820, on his own authority, a reduction of 15 per cent. and soon after a further reduction of 10 per cent. on all branches of labor. This was done with the simple promise on his part that an increase should be made whenever the state of the times called for it. The measure was submitted to by the workmen, because the mandate was not only imperative but just. The prices of labor had again advanced here in 1832 so much, that a revision was deemed proper, as it was alleged that they were very unequal. A board was formed, and a careful examination made, by which it appeared that a reduction would be just. A tariff of prices was formed. The matter was then taken out of the hands of the Colonel of Ordnance by the Secretary of War, in consequence of the clamors of the workmen. He had committees of them calling upon and in frequent correspondence with him, and he finally yielded the point. The next year, 1833, he sent General Wool to Springfield, with a *carte blanche*, to adjust the prices of labor, and the farce ended in his giving them a small increase of wages.

As proof of the extraordinary advantages possessed by the armorers at this time and previously, it should be stated that they were in the habit of selling out their "chances of work," as they called them. One hundred dollars was the ordinary price; but \$150 and \$200 have often been paid, and even larger sums are said to have been given by mechanics desirous of getting into permanent employment at the armory. This practice was forbidden in 1833, and has not been publicly done since that time. When everything else was inflated in 1836, the workmen, whose pay had been gradually increased after the ineffectual attempt to reduce it in 1832, made a push for a further increase, and obtained an addition of 10 or 12 per cent. to their already high prices. Nor did the matter stop there; a constant and gradual increase has been going on annually, until the change of measures in April last. A brief synopsis of the cost of labor on a musket is hereto appended, showing the prices paid at different times for the last twenty-two years.

The natural progress of things has brought the armory to its present condition, which consists in its having a superabundance of operatives who receive much higher wages than mechanics of equal or greater skill at private establishments, where the hours allotted to labor in each day are far beyond what prevail at the armory. At the latter place it can be proved that the greater number labor from five to seven hours at most; none but the day-workers, and few of them, labor ten hours in a day. It is not necessary for me to do more than state these facts, as they will be placed in bold relief by a commission of impartial and disinterested men, whenever a full investiga-

tion takes place. The remedy for many of the existing evils is plain and apparent. A manufactory carried on by private individuals or a corporation, and managed as the armory has been, would have become insolvent and broken up long since. It cannot perhaps be expected that a national establishment should be managed with quite as much skill and economy as a private concern, but there may be a much nearer approximation than has been witnessed. In a private manufactory, the judgment and will of the owner is the law which governs the operations, and his interest is found to comport with strict justice to the men. In a public establishment, the superintendent must have a large portion of the power that pertains to the owner of a private concern. The Government must confide in his judgment and sustain him in his efforts at reform.

The difficulty of finding good armorers no longer exists; they abound in every machine-shop and manufactory throughout the country. The skill of the eye and the hand, acquired by practice alone, is no longer indispensable; and if every operative was at once discharged from the Springfield armory, their places could be supplied with competent hands in a week. With the proper number of able and honest inspectors of work, the product of the armory would be placed on the best possible footing in one month. The most ample justice should be accorded to operative mechanics; and those now employed at Springfield are good men, well able to judge of their present position and of the measure of justice that may be extended to them. They are too sensible of their great privileges to lightly part with them. Any just course in relation to their wages will meet the acquiescence of all who are worth keeping, and the Government will demand only a reasonable return for the money paid out. A commission of disinterested individuals can determine what that return should be, and fix the compensation of the operatives at a fair and liberal rate. Such a course is called for by every principle of justice between the Government and the workmen, and though last, not least, between the Government and private manufacturing establishments; for the genius of our institutions does not admit of a privileged class, built up in the midst of a manufacturing population, to become the object of desire to all and the envy of those who cannot participate in its profits.

The amount expended for labor-saving machines which perform operations formerly done by hand, and wholly independent of the general cost of "machinery" in its comprehensive sense, from 1820 to 1830, inclusive, was \$4,906 76

The same expenditure from 1831 to 1840, inclusive, was 16,922 91

Total 21,829 67

This substitution of machines for hand-labor is estimated by the master-armorers as effecting a reduction of full one-third, or 33 1/3 per cent. In the actual labor that was required in the manufacture of a musket. Whether the United States derive any benefit from the use of the machines other than what results from the uniformity and better quality of the work he says "it is difficult to determine." The degree of uniformity that has been attained is, however, a matter of the highest importance, as it admits of the transposition and interchange of parts almost entirely and to a degree that has hitherto been supposed not attainable.

Synopsis of the prices paid for labor in manufacturing a musket at Springfield at various times from 1820 to 1841.

Cost of labor in 1820 before a reduction in price.....	\$6.4501
Cost of labor after first reduction.....	5.667
Cost of labor after second reduction.....	5.0368
By the 1st of June, 1832, the price had increased to.....	5.59
Price proposed by the board of officers but never carried into effect.....	5.03
General Wool's tariff under the sanction of the Secretary of War in 1833.....	5.5786
Mr. Robb afterward carried the cost to.....	5.99906
In 1830, before commencing the new model.....	6.50
Price of new model in 1841 and some small additional work done by the day.....	8.27

Some small reduction was made in 1839 after the board had the subject under consideration, and the superintendent, Colonel Lee, was disposed to make a further reduction, but the state of his health did not admit of his attending to his duties, and General Wool was intrusted with the business.

Respectfully submitted:

G. FALCOTT,
Lieutenant Colonel Ordnance, Inspector, &c.

Military Superintendents

Dec 20, 1841

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(Letters to W. D., vol. 1, p. 50)

ORDNANCE OFFICE, WAR DEPARTMENT,
Washington, December 20, 1841.

SIR: Agreeably to your instructions, I have the honor to report on a memorial, addressed to the President of the United States by W. T. A. Pollock and others, employed in the national armory at Harper's Ferry, remonstrating against the superintendence of the national armories being vested in officers with military rank, and urging the re-appointment of Edward Lucas, esq., the late civil superintendent; which memorial is accompanied by letters from the Hon. F. Mallory, I. W. Gilmer, and W. B. Calhoun, recommending it to the favorable notice of the President.

The change from civil to military superintendents for the national armories was adopted as the surest means of improving the condition of those establishments, but it was never intended that the workmen should be subjected to military discipline, as the memorialists intimate, nor does it appear that the measure can be attended with such a result; for in placing the armories under the control of military men, it is but putting them on the same footing with the national arsenals and navy-yards, where numerous citizen mechanics are also employed—mechanics who stand as high in civil estimation as those at the armories, and who, it is believed, have never considered themselves subject to the restraints of military life.

No large private manufactory, nor any operations requiring numerous workmen, can be properly conducted without certain regulations and fixed hours for work, and the latter are still more essential when the operations are partly performed by machinery, as they are at the armories; but the workmen who offer themselves for employment at private establishments of this kind cannot be considered as subjecting themselves to military government.

The regulations for the government of the armories are essentially the same under the present arrangement as under the former one, the only effect of the change being to enable the Department to enforce these regulations more strictly, and to avail itself of the knowledge, experience, and ability of its own officers in carrying out the object for which the armories were placed under the direction of the Ordnance Department; this object, as declared by the 9th section of the act of February 8, 1815, being "to insure system and uniformity in the different public armories," and it is believed that this can be best effected by having the superintendents subject to military obedience.

If it be urged that large private manufactories are carried on without the aid of military men, the answer is that the superintendents of such factories are stimulated to the utmost economy of money and time, either by being themselves partners in the profits, or else by being almost constantly under the eye of those who are owners or partners.

After full consideration, therefore, of the memorial and of the accompanying letters, it is still the belief of this Department that the public interests will be best promoted by allowing the national armories to remain under the superintendence of officers of the Ordnance Department.

The memorial and letters referred to are herewith returned.
All of which is respectfully submitted.

GEO. BOMFORD,
Colonel of Ordnance.

Hon. JOHN C. SPENCER,
Secretary of War.

ORDNANCE OFFICE, WAR DEPARTMENT,
Washington, April 15, 1843.

SIR: In relation to the communication from Edward Lucas, esq., addressed to the President of the United States, under date of 13th instant, and referred by you to this office for a report, I have the honor to state as follows:

At the time when the workmen at the Harper's Ferry armory broke off from discontent with the regulations, (21 March, 1842,) there were 240 employed at the musket-factory, and 59 at the rifle-factory—total 299. They returned to their work 1st April, and during that month the total number employed was 302, in May 289, June 288, July 291, and in August 270.

On the 10th of August the superintendent was furnished with copies of instructions from the Secretary of War for the discharge of as many men as possible while the repairs of the shops were being made, and urging the necessity of a reduction of expenditures within the narrowest practicable limits. Instructions from the Secretary of 28th July, 1842, had previously directed that in consequence of the state of the Treasury the utmost practicable reduction should be made in the number of hired men not only in the ordnance but in the engineer's department. The number employed at Harper's Ferry was consequently reduced in September to 117, and in October to 136.

On the 28th October Major Craig was directed to resume active operations, to a limited extent; he accordingly reported for November 221, December 192, January 205, February 198, and for the last month, March, 200.

It will thus be seen that there are two-thirds as many now employed as there were twelve months ago; that for much of the past year nearly that full number has been employed, and that only for the months of September and October last was the number reduced to about five-twelfths. For the same period equal reductions were made at the National Armory at Springfield.

This office does not possess the requisite data to enable me to determine what portion of any month each man is employed, but as to the earnings of those employed at Harper's Ferry, it appears by an examination of the pay-rolls for the last quarter now before me (the previous ones being filed at the Treasury) that they average \$2,689 per month; some individuals receive as high as \$57.60, principally on piece-work. The sum of \$128,000 of the appropriation for 1842 has been expended at Harper's Ferry for the manufacture of arms; leaving \$52,000 for the present quarter.

I will here remark that the number of men employed at this armory for several years past has been quite too large to allow them all full work and keep the expenditure within the annual appropriation "for national armories." The necessity for a reduction was repeatedly urged from this office on the superintendent in 1838, 1839, and 1840.

The existing contracts with private establishments for small-arms, a list of which I had the honor to submit to you, 20th ultimo, guarantee the reception of such as may be made in compliance therewith within the periods limited in those contracts, five of which expire 31st December, 1844, one 31st December, 1845, one 1st July, 1846, one 31st December, 1846, and one 6th October, 1847. The arms furnished by these contractors are not paid for out of the appropriation for national armories, but from the appropriation for the manufacture of arms.

April, 1808, for arming and equipping the whole body of the militia of the United States, and the arms thus procured are transmitted to the several States and Territories agreeably to the provisions of that act.

I am, sir, with great respect, your obedient servant,

G. TALCOTT,

Lieutenant Colonel of Ordnance.

Hon. J. M. PORTER,
Secretary of War.

O, R,

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NATIONAL ARMORIES.

The expenditures at the armories during the fiscal year have been follows, viz:

	Harper's Ferry.	Springfield.	Total.
For the manufacture of arms, including appendages, component parts, model arms, gauges, tools, &c., and for the purchase of materials for the same.....	\$139,732 64	\$144,706 04	\$284,438 68
For repairs, improvements, and machinery.....	25,718 86	28,341 20	54,060 06
	165,451 50	173,047 24	338,498 74

The number and kind of arms and appendages completed and turned into store during the same period are as follows, viz: at Harper's Ferry 2,225 percussion muskets, 1 model percussion rifle, 7,472 wipers, 20 ball screws, 1 bullet mold, and 1 cone; and at Springfield, 12,107 percussion muskets, 300 percussion cadet's muskets, 996 screw-drivers, 3,440 wipers, 50 ball screws, 868 spring vises, and 2,370 leather cone pads. Besides these, there were at each armory many component parts of small arms and appendages, in different stages of fabrication, which had been taken from the work-shops for assembling into the complete arms.

The other work done at each of these armories is shown in the statement from the armories and arsenals, accompanying this report, to which reference is respectfully made.

From
 SCRIBE NO. 470
 24th Congress 2nd
 Session 1845-46
 Senate Doc. Vol. 1,
 Doc. No. 1, p. 402-403

O.R.

Aug 15, 1846
Purchase of land at Harper's Ferry
\$50,261 Appropriation

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Letters to W. R. vol. 2, p. 46.]

ORDNANCE OFFICE,
Washington, August 13, 1846.

Sir: In the estimate from this office for the fiscal year ending 30th June, 1847, the sum of \$128,361 was asked for repairs and improvements at Harper's Ferry Armory, and a statement was made of the several items going to make up this sum, among which was the following: "For the purchase of the lots and improvements as described in Schedule A, hereto appended, \$50,261."

The whole of this \$128,361 is appropriated by the act passed on the 8th instant, but the Second Comptroller of the Treasury is of opinion that no part of it can be expended in the purchase of the lands mentioned in consequence of the 7th section of the act 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."

As this item of \$50,261 is not made a distinct appropriation in the act of 8th instant, he has advised, however, that the subject be submitted to you in order that the opinion of the Attorney-General may be asked whether the appropriation of the whole amount of the estimate in this case does or does not authorize the purchase of these lots, which opinion I respectfully ask may be obtained.*

I consider it proper in this connection to state that most of the purchases of land for armories and arsenals since the passage of the act of 1820 have been made upon authority obtained in this way, by being estimated for and the amounts of the estimate embraced in the appropriation acts.

I have the honor to be, &c.,

G. TALCOTT,
Lieutenant-Colonel of Ordnance.

Hon. W. L. MARCY,
Secretary of War.

The appropriation for repairs, improvements, and new machinery at Harper's Ferry Armory passed September 8, 1846, cannot, nor can any portion of it, be applied to the purchase of the land described in the estimate made at the Ordnance Office. Although a portion of the appropriation was asked for with a view to the purchase of land, Congress saw fit to specify the purposes for which it granted it, among which the purchase of lands is not included.—*Opinion Attorney-General, 533.*

NATIONAL ARMORIES

The expenditures at these armories during the fiscal year have been as follows, viz:

	Harper's Ferry	Springfield	Total
For the manufacture of arms, including appendages, component parts, gauges, tools, &c., and the purchase of materials for the same	\$312,125 60	\$175,674 84	\$487,800 44
For repairs, improvements, and new machinery	22,487 01	41,722 04	64,209 05
	235,612 61	217,397 40	453,010 01

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 483
 29th Congress
 2nd Session
 1846-47
 Serial Docs
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 No 10
 146-147

There have been made during the same period the following number and kinds of arms, appendages, &c., viz: At Harper's Ferry Armory 12,203 percussion muskets, with 25,545 pieces of appendages for the same, comprising screwdrivers, wipers, ball-screws, spring vices, extra cones and picks, and 700 percussion rifles, with 1,136 pieces of appendages; also, 2 pattern rifles and 3 complete sets of verifying gauges for the new model rifle for the use of government contractors. At Springfield Armory 14,265 percussion muskets, with 30,378 pieces of appendages. Besides these, there were many component parts of arms completed and in different stages of fabrication at each of the armories, some of which were issued to the arsenals and to the troops in the field for repairs, and others remained in the workshops to be assembled afterwards into complete arms.

For a more particular account of the manufacture of arms, and other work done at the armories, I refer to the statements from the respective commanding officers accompanying this report. The total estimates for these establishments for the next year, whilst they contemplate full employment in the manufacture of muskets and rifles, are nearly one-third less than the amount appropriated at the last session of Congress.

The act making appropriations for the support of the Army for the year ending on the 30th June, 1847, approved 8th August, 1846, included under the general head of "repairs and improvements and new machinery" at the Harper's Ferry Armory, the whole amount which had been specifically estimated for, item by item, by this department. Among these items was one, "For the purchase of the lots and improvements [at Harper's Ferry Armory], as described in schedule A, hereto appended, \$50,261." A question having arisen as to whether any part of the appropriation as made by the act could be legally applied to the purchase of the lands described in the estimates, the subject was referred by you to the Attorney-General for his opinion. That officer in reply, states that he "deems it safest to advise that the money estimated for the purchase of lands at Harper's Ferry shall not be used until the sanction of Congress is given in more explicit terms." A similar item occurs in the estimate for repairs and improvements at Springfield Armory, viz: "For the purchase of a lot adjoining the armory ground on the hill, containing about one acre, \$3,500." The whole amount estimated for, including this item, was also appropriated. But, under the opinion of the Attorney-General in the case of the Harper's Ferry appropriation, neither of these sums has been called for from the Treasury. As both these appropriations were based on estimates which specifically set forth the objects to be accomplished by them, it was not anticipated that this difficulty would arise, and I have to request

measures may be taken to obtain the sanction of Congress to the application of these sums already appropriated to the objects specified in the estimates. See Doc. No. 9, H. R., first session Twenty-ninth Congress, pages 110 and 111, item 8 of Springfield Armory, and item 19 of Harper's Ferry Armory, in connection with the act making appropriations for the support of the Army for the year ending on the 30th June, 1847.

C.R.

Annual Report of C.R.
July 1, 1846 - June 30, 1847

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NATIONAL ARMORIES.

The expenditures at the armories during the fiscal year have been as follows, viz:

	Harper's Ferry.	Springfield.	Total.
For the manufacture of arms, appendages, component parts, gauges, tools, &c., and purchase of materials for the same.	\$207,478 34	\$218,675 05	\$426,153 39
For repairs, improvements, and new machinery	55,340 27	34,629 79	89,970 06
	262,824 61	253,304 84	516,129 45

426,153.39
89,970.06
516,129.45

There have been made during the same period at Harper's Ferry Armory 12,000 percussion muskets with 39,809 appendages for the same consisting of ball screws, screw-drivers, wipers, spring vices, extra cones and cone picks; and 3,054 percussion rifles with 11,408 appendages, consisting of like articles as those for the muskets. There have been made at the Springfield Armory during the same period 14,300 percussion

muskets and 201 musketoons with 56,275 appendages for the same, similar to those above mentioned. For a more particular account of the manufacture of arms and other work done at these armories, I refer to the statements from their respective commanding officers accompanying this report. The estimates for the manufacture of arms for the next fiscal year contain the amount heretofore usually appropriated for that object.

Serial No 503
30th Congress 1st Sess
1847-48
Senate Ex Doc No 1
Doc 1, 1684

Important Papers Relating to the Ordnance
Department Taken from the records of the
Office of the Chief of Ordnance, from Public
Documents, and from other Sources

Prepared under the direction of Brig. General
Stephen V. Benet (4 vols., Washington, D.C.
1880), Vol. II, 1845-1860, 226

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manufactured, one of which is situated at Springfield in the State of Massachusetts, and the other at Harper's Ferry in the State of Virginia. The first was established in 1793, and the manufacture of muskets was commenced thereat during the same year; the other was established during the following year, but the manufacture did not commence thereat till 1801.

In answer to the second, third, and fourth heads of inquiry, I have the honor to submit two tabular statements, marked A and B, which answer, as far as the means of this office will allow, the various points embraced in those heads, with the exception of that portion of the fourth which calls for the number and description of small-arms now in serviceable condition, and this is given in the further statement marked C. The information called for by the fifth head of the resolution is given in statement marked D, and that called for by the sixth in statement marked E.

The resolution with the Hon. Mr. Clayton's letter of the 6th ultimo in relation to it are herewith returned.

With great respect, &c.,

GEO. TALCOTT,
Colonel of Ordnance.

A.—Statement of expenditures at the United States Army at Springfield, Mass., and of the arms and appendages made therein, from its establishment to the 31st of March, 1848.

[To accompany report to the Secretary of War of 10th June, 1848, in answer to a resolution of the Senate of 28th April, 1848.]

Years.	For land, including the mill-seats and the houses on the land when purchased.	For buildings, mill-dams, canals, or races and other permanent improvements, including machinery.	For repairs of buildings, mill-dams, &c.	Total for lands, buildings, and improvements.	For the manufacture and repair of arms, including materials, wages, salaries, stationery, postage, forage, horses, &c.	Miscellaneous expenses, not included in the foregoing.	Total, exclusive of lands and improvements.
From its establishment, in 1795, to—							
31st December, 1821	\$17,360 41	\$97,527 23	\$19,736 05	\$134,623 69	\$2,335,160 95	\$20,094 54	\$2,364,255 49
31st December, 1822	195 78	5,998 19	1,607 71	7,801 68	172,110 92	1,305 99	172,416 91
31st December, 1823		3,287 73	2,087 54	5,375 27	175,595 76	1,016 98	176,612 74
31st December, 1824	245 68	21,089 10	575 00	21,909 78	163,942 37	1,215 92	165,158 29
31st December, 1825	181 88	4,296 25	4,395 03	8,873 16	160,671 37	1,438 50	171,109 87
31st December, 1826		10,252 64	720 65	10,973 29	166,118 92	1,172 12	169,291 04
31st December, 1827		18,384 78	1,437 50	19,822 28	156,104 83	1,423 43	157,526 26
31st December, 1828		8,801 81	2,175 18	10,976 99	172,150 20	1,448 12	173,598 32
31st December, 1829		1,851 20	1,774 62	3,625 82	174,749 12	1,278 25	176,027 37
31st December, 1830	2,200 00	2,426 00	1,176 22	5,802 22	180,109 95	1,611 83	181,721 78
31st December, 1831		9,244 86		9,244 86	183,336 51	1,737 34	185,073 85
31st December, 1832		6,442 58		6,442 58	175,006 81	1,219 19	176,226 00
31st December, 1833		5,659 72		5,659 72	172,938 92	319 54	173,258 46
31st December, 1834		12,295 44		12,295 44	171,889 41	388 18	172,277 59
31st December, 1835		19,087 00		19,087 00	145,268 57	4 35	145,272 92
31st December, 1836		27,579 91		27,579 91	158,687 09	346 79	159,033 88
31st December, 1837		23,735 08		22,735 08	173,937 82	5,659 98	176,597 80
31st December, 1838		2,699 03		2,699 03	183,016 35	2,187 52	185,203 87
30th September, 1839		6,956 31		6,956 31	121,821 77	2,015 77	124,737 54
30th September, 1840		14,327 47		14,327 47	120,294 14	864 96	121,159 10
30th September, 1841		10,592 39		10,592 39	205,471 83	681 56	206,153 39
30th September, 1842		14,748 22		14,748 22	130,162 70	2,221 00	141,383 70
30th June, 1843		15,466 58		15,466 58	61,712 70	1,036 85	63,349 55
30th June, 1844		38,098 97		38,098 97	100,285 41	736 32	101,141 73
30th June, 1845		28,341 20		28,341 20	143,167 34	1,538 70	144,706 04
30th June, 1846	4,135 00	34,255 56	10,018 63	49,009 19	163,365 85	1,949 53	165,315 38
30th June, 1847	10,506 00	24,123 79	39,336 37	73,986 16	175,421 24	2,897 44	179,319 68
31st March, 1848	7,388 75	38,199 18		45,587 93	109,986 14	976 89	110,863 03
Total	42,213 50	504,898 22	91,660 50	638,772 22	6,572,484 09	66,407 59	6,638,892 58

* This line gives the totals of the report in detail (see State Papers, vol. 2, Military Affairs, page 478), except that an error in that report in the proportion between the land and buildings is here corrected.

1848

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Important Papers relating to the Ordnance Department taken from the Records of the Office of the Chief of Ordnance, from Public Documents, and from other Sources Prepared under the direction of Brig. General Stephen V. Benet (4 vols., Washington, D.C., 1880), Vol. II, 1845-1860, 227.

A.—Statement of expenditure of the United States Army at Springfield, Mass., &c.—Continued.

Years.	Articles manufactured.												
	Flint-lock mus- kets.	Percussion mus- kets.	Rifles.	Pistols.	Carbines.	Musketoons.	Cadet arms.	Roll-screws.	Wipers.	Screw-drivers.	Spring vises.	Flint-caps.	Arm-chests.
From its establishment, in 1795, to—													
31st December, 1821.....	178,750		250	1,000	1,203			2,600		38,000	2,600		1,200
31st December, 1822.....	18,200							1,440	2,200	13,200	1,320		1,650
31st December, 1823.....	14,000							1,400	15,831	14,600	1,400		1,065
31st December, 1824.....	14,000							1,400	15,100	14,000	1,400		861
31st December, 1825.....	15,000							1,500	15,000	15,000	1,500		237
31st December, 1826.....	15,500							1,550	15,500	15,500	1,550		249
31st December, 1827.....	14,500							1,450	14,500	14,500	1,450		824
31st December, 1828.....	15,500							1,550	15,500	15,500	1,550		721
31st December, 1829.....	16,500							1,650	31,500	16,500	4,650		934
31st December, 1830.....	16,500							1,650	16,500	16,500	1,650	16,500	1,060
31st December, 1831.....	16,200						300	1,620	16,538	16,540	1,655	16,540	1,183
31st December, 1832.....	13,600							1,360	21,200	13,600	1,360	13,600	579
31st December, 1833.....	12,400							1,240	17,400	11,600	1,240	12,400	110
31st December, 1834.....	14,000							1,458	22,063	14,706	2,032	15,400	
31st December, 1835.....	13,000							1,361	13,727	7,862	1,300	14,000	
31st December, 1836.....	13,500								10,440	13,414	211	14,000	
31st December, 1837.....	14,500							1,393	11,571	15,488	1,205	29,500	
31st December, 1838.....	15,000							5,335	18,965	15,035	2,181	31,448	
30th September, 1839.....	10,000							3,684	11,729	12,435	2,017	20,020	
30th September, 1840.....	5,967								15,605	12,019	2,012	6,028	
30th September, 1841.....	10,700								14,878	8,051	613	9,312	
30th September, 1842.....	9,720								10,939	5,680	1,833	9,720	
30th June, 1843.....	4,600							1,199	212	767			31
30th June, 1844.....	4,700	2,956						*234	430	8,529	2,059	1,239	71
30th June, 1845.....		11,107						*272	50	3,176	952	1,147	123
30th June, 1846.....		14,265							3,000	12,636	12,204	2,544	108
30th June, 1847.....		14,300				201			2,052	19,726	26,046	2,063	1,097
31st March, 1848.....		11,250			2	702			1,600	18,384	17,242		387
Total.....	471,346	53,878	250	1,000	1,204	903	806	41,972	380,283	393,426	44,964	209,707	11,990

* Percussion.

Approved: Major-General, 1848

Benet, II, 228.

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B Statement of EXPENDITURES of the US Army, at Harper Perry Va and Arkansas
 ADP de los Mds de guerra para el Ejército de los Estados Unidos el 31 de Mayo 1848

To accompany report to the Secretary of War of 10th June, 1848, in answer to a resolution of the Senate of 28th April, 1848.

Years.	For land, including mill-sites and the houses on the land when purchased.	Buildings, mill-dams, canals, or races, and other permanent improvements, including machinery.	Repairs of buildings, dams, &c.	Total for lands, buildings, and improvements.	For the manufacture and repair of arms, including materials, wages, salaries, stationery, postage, forage, horses, &c.	Miscellaneous expenses, not included in the foregoing.	Total, exclusive of lands and improvements.
From its establishment, in 1796, to—							
31st December, 1821	\$42,877 28	\$256,509 41	\$96,793 32	\$396,180 01	\$2,171,490 85	\$63,438 49	\$2,294,929 84
31st December, 1822		5,134 75	350 00	5,484 75	148,615 84	1,086 00	149,701 84
31st December, 1823		11,037 80		11,037 80	173,021 14	492 00	173,513 14
31st December, 1824		16,271 96		16,271 96	179,325 98	592 00	179,917 98
31st December, 1825		4,101 50	2,171 50	6,273 00	181,856 01	2,660 13	184,517 04
31st December, 1826		9,847 66	431 07	10,279 63	156,358 92	1,675 81	157,034 74
31st December, 1827		7,550 87		7,550 87	194,370 82	2,093 00	196,463 82
31st December, 1828		6,533 00	5,500 00	12,033 00	184,114 83	1,457 82	185,572 62
31st December, 1829	— ERRORS 1829	1,461 82	157 33	1,619 15	170,444 06	3,612 37	174,057 33
31st December, 1830		14,431 93		14,431 93	149,790 80	1,344 69	151,155 49
31st December, 1831		18,237 33		18,237 33	168,664 95	608 85	169,273 80
31st December, 1832		18,408 68		18,408 68	204,211 05	674 26	204,885 31
31st December, 1833	2,600 00	30,492 91		36,022 91	171,785 40	1,192 08	172,977 48
31st December, 1834		45,038 16		45,038 16	173,822 04	1,550 28	175,372 32
31st December, 1835		23,432 47		23,432 47	138,560 34	7,606 83	146,257 17
31st December, 1836		28,678 43		28,678 43	149,487 27	2,292 88	151,780 15
31st December, 1837		81,579 27		81,579 27	149,544 36	2,830 42	152,383 75
31st December, 1838		55,541 11		55,541 11	178,231 70	6,711 18	184,942 83
30th September, 1839		26,732 49		26,732 49	150,677 01	4,958 01	155,635 02
30th September, 1840		18,315 53		18,315 53	150,381 80	5,956 23	156,338 03
30th September, 1841		57,578 88	16,423 99	74,002 87	189,318 66	814 50	181,133 16
30th September, 1842		37,598 60	7,661 71	45,260 31	110,387 95	4,176 89	114,594 84
30th June, 1843		29,527 37	2,952 69	32,480 06	85,389 24	825 40	86,214 64
30th June, 1844		32,736 40	2,309 66	35,046 06	90,698 56	3,318 67	94,047 23
30th June, 1845		28,386 04	315 06	28,701 10	139,292 76	497 68	139,780 44
30th June, 1846		62,468 77		62,468 77	168,000 74	5,144 10	173,144 84
30th June, 1847		55,346 27		55,346 27	200,236 28	7,212 06	207,478 84
31st March, 1848	30,632 66	36,613 30		67,245 96	137,774 09	4,556 14	142,330 23
Total	76,109 94	1,022,562 70	105,067 23	1,203,729 87	6,455,855 19	139,563 77	6,595,358 96

* This line gives the totals of the report in detail made 30th November, 1822. (See State Papers, vol. 2, Military Affairs, page 481.)

B.—Statement of expenditures at the United States Armory at Harper's Ferry, &c.—Continued.

Years.	Articles manufactured.													AVERAGE.
	Flint lock mus- kets.	Percussion mus- kets.	Rifles.	Pistols.	Hall's patent ri- fles.	Carbines Hall's.	Ball screws.	Wipers.	Screw drivers.	Bullet molds.	Spring vices.	Flint caps.	Rifle charges and shots.	
From its establishment, in 1796, to—														
31st December, 1821	119,311		19,718	4,088			19,718	19,718	37,750	19,718	6,034		19,718	
31st December, 1822	10,000							5,594						500
31st December, 1823	12,200							10,343						921
31st December, 1824	10,559				1,000			8,173	6,922	1,000			1,000	212
31st December, 1825	14,000						5,000	11,000	26,926					218
31st December, 1826	8,720						5,327	31,827	53,112					348
31st December, 1827	12,020							34,998	8,475		10,100			723
31st December, 1828	10,000				1,000			25,600	35,079	1,000			1,000	1,164
31st December, 1829	8,895								3,053					837
31st December, 1830	10,130													564
31st December, 1831	11,160											51,575		274
31st December, 1832	12,000											7,454		137
31st December, 1833	12,000				4,360			4,360	4,360	436	436	6,632	20	102
31st December, 1834	12,000				3,670			19,100	3,682	367	367	17,084	20	74
31st December, 1835	10,000				970		6,896	22,360	25,941	47	47	6,000	4,734	226
31st December, 1836	9,150				1,714			1,714	1,714	171	171	2,000		447
31st December, 1837	8,200				1,869			1,770	1,770	177	177	10,000	3,000	626
31st December, 1838	12,000				1,200	1,017		614	17,435	22,809	301	200	70,000	891
30th September, 1839	5,850				2,934			1,186	41,019	25,424	395	1,324	3,000	1,563
30th September, 1840	8,304								22,914	29,000		4,941		669
30th September, 1841	8,650				1,023	1,003			10,940	5,202	55	4,418	10,950	2
30th September, 1842	6,575				190			1,603	4,428	4,199	25	49	14,817	132
30th June, 1843	3,105								14,867	10,685		567	3,234	298
30th June, 1844	608				300	1,001			1,999	1,950		151	501	112
30th June, 1845	2,225				2,700			73	15,815	3,123		3,191	304	307
30th June, 1846	12,203							524	7,472					311
30th June, 1847	12,000							478	6,547	8,631	2	1,241		1,084
31st March, 1848	8,200							2,747	3,749	19,562	435	3,100		606
								834	7,857	9,908	336	1,019		523
Total	330,037	34,628	25,674	4,088	22,870	3,021	45,010	334,562	366,314	27,787	34,006	201,876	50,373	14,199

* Percussion.

ORDNANCE OFFICE, Washington, 10th June, 1848.

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Important Papers Relating to the Ordnance Department Taken from the Records of the Office of the Chief of Ordnance, from Public Documents, and from other Sources Prepared under the direction of Brig. General Stephen V. Benet (4 vols., Washington, D. C. 1880), Vol. II, 1845-1860, p. 230

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C.—Statement of each description of arms which were in a serviceable condition at the various armories and arsenals on the 30th June, 1847, being the date of the last inventories received.

[To accompany the report to the Secretary of War of 10th June, 1848, in answer to a resolution of the Senate of 28th April, 1848.]

Description of arms on hand in serviceable condition.	Of these made at the national armories.	Of these obtained from private armories.
Perussion muskets, first class.....	64,852	.....
Flint-lock muskets, first class.....	116,061	48,904
Flint-lock muskets, second class.....	147,791	12,583
Flint-lock muskets, third class.....	171,607	29,918
Perussion rifles.....	3,645	1,187
Flint-lock rifles.....	493	3,664
Hall's patent rifles.....	13,822	.....
Carbines.....	3,639	4,277
Pistols.....	1,025	22,426
Non-commissioned officers' swords.....	.....	*204
Musicians' swords.....	.....	*437
Non-commissioned officers' artillery swords.....	.....	*27
Privates' artillery swords.....	.....	*5,484
Cavalry sabers.....	.....	*2,842
Hor-se-artillery sabers.....	.....	*275

* Part from private armories and part from abroad.

The arms above enumerated are exclusive of those in the hands of the troops and in depot in Mexico. A large portion of the fire-arms obtained from the private armories have been issued to the States and Territories under the act of Congress of 23d April, 1808, "making provision for arming and equipping the whole body of the militia of the United States."

ORDNANCE OFFICE, Washington, 10th June, 1848.

D.—Statement referred to in the report to the Secretary of War of 10th June, 1848, in answer to a resolution of the Senate of 28th April, 1848.

In June, 1842, upon representation made to the Secretary of War, he directed a classification to be made of all muskets at the armories and arsenals. The first class to include all new muskets made since 1831, and all the remainder to be thoroughly inspected previous to being classified. Those made from 1821 to 1831, inclusive, which might be found good and serviceable, to be placed in the second class; those made from 1812 to 1820, inclusive, which might be found serviceable, to be placed in the third class; and those made prior to 1812, and all not worthy of repair, to form a fourth class.

The officer who performed this service was assisted by two of the armory inspectors, one from each armory, aided by others stationed at the several armories and arsenals. The following were the results. There were on hand at the two armories and at the various United States arsenals, at the time the inspections were made, as follows:

Places where the muskets were made.	Whole number on hand.	Falling within the first class and not presented for inspection.	Presented for inspection.	Classification of those presented for inspection.		
				Second class.	Third class.	Fourth class.
National armories.....	586,513	242,968	343,605	63,335	198,650	82,220
Private armories.....	118,133	56,826	67,307	12,859	50,221	24,230
Foreign.....	2,365	.....	2,365	.....	.....	2,365
Total.....	707,011	299,794	413,277	76,185	248,871	108,821

Of the foregoing fourth class condemned muskets there have been sold, under the act of 3d March, 1825, in the manner prescribed by regulations, as follows: 3,609 at \$3 each, 100 at \$2.50, 27 at \$2.87, 40 at \$2.75, 69 at \$2.50, 773 at \$2.37, 1,120 at \$2.35, 469 at \$2.32, 160 at \$2.30, 2,100 at \$2.25, 2,886 at \$2.20, 500 at \$2.15, 594 at \$2.12, 300 at \$2.10, 7,625 at \$2.07, 1,322 at \$2.05, 390 at \$2.02, 29,669 at \$2.00, 690 at \$1.87, 309 at \$1.85, 200 at \$1.80, 928 at \$1.75, 4,442 at \$1.72, 1,639 at \$1.70, 780 at \$1.65, 139 at \$1.62, 80 at \$1.57, 3,325 at \$1.55, 495 at \$1.52, 1,473 at \$1.50, 409 at \$1.49, 1,097 at \$1.47, 188 at \$1.45, 661 at \$1.42, 100 at \$1.15, 37 at \$1.12, 40 at \$1.03, 2,187 at \$1.49 at \$0.87, 50 at \$0.85, 584 at \$0.81, 11 at \$0.80, 513 at \$0.62, 1,400 at \$0.61, 211 at \$0.50, 255 at \$0.49, 39 at \$0.47, and 10 at \$0.21; making 65,173 in all. There have been sold under other inspections and condemnations, from the year 1825 to the present time, 41,225 muskets at prices from \$5 down to 13 cents each, 2,132 rifles from \$5 down to 30 cents each, 673 carbines from \$4 down to 50 cents each, 413 pistols from \$3 down to 22 cents each, and 3,365 swords and sabers from \$1 to 9 cents each.

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Department Taken from the Records of the
Office of the Chief of Ordnance, from Public
Documents, and from other Sources

Prepared under the direction of Brig. General
Stephen V. Benet (4 vols., Washington, D.C.
1880), Vol. II, 1845-1860, 232

It is proper here to state that all the arms thus sold had been used by the troops, many quite worn-out and turned in as no longer serviceable, and were such as no expenditure in their repair would render suitable for issue to American troops in the present advanced stage of improvement in all kinds of small arms.

ORDNANCE OFFICE, Washington, 10th June, 1848.

E.—Statement of the number of small arms, and weapons of war of all kinds, great and small, procured from other sources than from the government armories; from what sources, in what amounts, and what prices. To accompany the report to the Secretary of War, 10th June, 1848, in answer to a resolution of the Senate of 28th April, 1848.

Small arms procured from private armories in the United States:

34,477 muskets at \$10.75.	27,650 pistols at \$9.
10,860 muskets at \$12.	30,000 pistols at \$7.50.
105,301 muskets at \$12.25.	8,252 percussion pistols at \$6.74 $\frac{1}{2}$.
16,500 muskets at \$12.63 $\frac{1}{2}$.	124 Jenks' carbines at \$18.
45,885 muskets at \$13.	20 Jenks' rifles at \$20.
30,609 muskets at \$14.	160 Colt's carbines at \$45.
9,900 muskets at \$14.75.	100 Colt's carbines at \$32.50.
2,240 muskets at \$15.	50 Colt's pistols at \$25.
2,100 muskets at \$16.25.	1,000 Colt's pistols at \$23.
621 patent rifles at \$25.	25,317 cavalry sabers at \$5.95 average.
5,700 Hall's patent rifles at \$17.50.	2,000 cavalry sabers at \$8 each.
11,321 flint-lock rifles at \$14.50.	2,390 cavalry sabers at \$7.50 each.
6,000 flint-lock rifles at \$14.75.	5,600 cavalry sabers at \$7 each.
10,162 flint-lock rifles at \$15.	1,150 horse artillery sabers at \$5.50 each.
12,780 flint-lock rifles at \$17.	1,350 horse artillery sabers at \$5 each.
4,300 percussion rifles at \$12.77 $\frac{1}{2}$.	2,579 N. C. O. swords at \$2.50 each.
9,340 percussion rifles at \$13.87 $\frac{1}{2}$.	2,800 N. C. O. swords at \$5.50 each.
1,028 carbines at \$20.	1,000 musicians' swords at \$4 each.
2,840 carbines at \$18.50.	900 musicians' swords at \$4.40 each.
9,295 carbines at \$18.	1,900 artillery swords at \$4.12 $\frac{1}{2}$ each.
5,550 carbines at \$17.50.	3,500 artillery swords at \$4.25 each.
40,400 pistols at \$8.	4,000 artillery swords at \$4 each.

Iron artillery procured from private foundries in the United States:

208 42-pounder guns at \$5.94 per 100 pounds.	21 8-inch siege and garrison mortars at \$8.50 per 100 pounds.
1,362 32-pounder guns at \$5.94 per 100 pounds.	20 12-pounder guns at \$5.94 per 100 pounds.
60 32-pounder guns at \$6 per 100 pounds.	23 12-pounder guns at \$6 per 100 pounds.
1,077 24-pounder guns at \$5.94 per 100 pounds.	10 10-inch seacoast howitzers at \$7 per 100 pounds.
21 24-pounder guns at \$6 per 100 pounds.	7 10-inch seacoast howitzers at \$6.50 per 100 pounds.
20 18-pounder guns at \$5.94 per 100 pounds.	122 8-inch seacoast howitzers at \$5.94 per 100 pounds.
22 18-pounder guns at \$6 per 100 pounds.	13 8-inch seacoast howitzers at \$6.50 per 100 pounds.
200 24-pounder flank defense howitzers at \$9 per 100 pounds.	25 8-inch siege howitzers at \$6.50 per 100 pounds.
91 8-inch columbiads at \$5.50 per 100 pounds.	223 6-pounder field guns at \$70 each.
43 8-inch columbiads at \$6.50 per 100 pounds.	74 6-pounder field guns at \$80 each.
15 10-inch columbiads at \$6.50 per 100 pounds.	2 6-pounder field guns at \$85 each.
6 8-inch ship guns at \$133 per ton.	131 6-pounder field guns at 10 cents per pound.
1 13-inch seacoast mortar at \$5.94 per 100 pounds.	14 6-pounder field guns (malleable) at 40 cents per pound.
1 12-inch seacoast mortar at \$5.94 per 100 pounds.	3 9-pounder field guns (malleable) at 40 cents per pound.
10 10-inch seacoast mortars at \$5.94 per 100 pounds.	2 12-pounder field guns (malleable) at 40 cents per pound.
15 10-inch siege and garrison mortars at \$6.50 per 100 pounds.	34 24-pounder howitzers at \$75 each.
15 10-inch siege and garrison mortars at \$8.50 per 100 pounds.	31 24-pounder howitzers at \$91.70 each.
	2 24-pounder howitzers (malleable) at 40 cents per pound.

Prepared under the direction of Brig. General
Stephen V. Benet (4 vols., Washington, D.C.
1880), Vol. II, 1845-1860, 233

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Bronze field artillery procured from private foundries in the United States:

23 12-pounder guns at 60 cents per pound.	21 12-pounder howitzers at 60 cents per pound.
8 12-pounder guns at 40 cents per pound.	21 12-pounder howitzers at 50 cents per pound.
29 9-pounder guns at 60 cents per pound.	97 12-pounder howitzers at 40 cents per pound.
61 6-pounder guns at 60 cents per pound.	12 12-pounder mountain howitzers at \$225 each.
66 6-pounder guns at 50 cents per pound.	1 12-pounder mountain howitzer at \$200.
53 6-pounder guns at 45 cents per pound.	36 12-pounder mountain howitzers at 75 cents per pound.
434 6-pounder guns at 40 cents per pound.	
56 24-pounder howitzers at 60 cents per pound.	
19 24-pounder howitzers at 40 cents per pound.	

Artillery procured from foreign countries:

<i>Sweden.</i>	<i>Belgium.</i>
12 12-pounder iron guns at 8½ cents per pound.	2 12-pounder iron guns at 7 cents per pound.
12 6-pounder iron guns at 13 cents per pound.	2 6-pounder iron guns at 10 cents per pound.
6 24-pounder iron howitzers at 10 cents per pound.	2 24-pounder iron howitzers at 9 cents per pound.
6 12-pounder iron howitzers at 14 cents per pound.	2 12-pounder iron howitzers at 10 cents per pound.
	4 6-pounder bronze guns at 40 cents per pound.

Small arms procured from foreign countries:

<i>England.</i>	<i>Prussia.</i>
500 cavalry sabers at \$4.28, without duty.	2,600 light cavalry sabers at \$3, without duty.
100 artillery swords at \$3.13, without duty.	1,000 light cavalry sabers at \$3.76, without duty.
100 sergeants' swords at \$5.01, without duty.	40 sergeants' sabers at \$4.07, without duty.
10 staff sergeants' swords at \$3.38, without duty.	500 artillery sabers at \$2.50, without duty.
20 drummers' swords at \$4.87, without duty.	1,000 non-commissioned officers' swords at \$3.50, with duty.
	500 musicians' swords at \$3, without duty.

Purchased by G. Boyd, in Europe:

500 light cavalry sabers at \$4.41.	480 muskets at \$7; and
100 artillery sabers at \$3.82.	100 muskets at \$9; for which he was allowed in addition \$2,288.
50 non-commissioned officers' swords at \$3.20.	

This office contains no record of the artillery purchased prior to 1820. No cannon, howitzers, or mortars have been made at works belonging to the United States; all are procured from private foundries; but since 1841, the quality of the metal and the whole process of manufacture is subject to close examination by an agent and officer of this department, in addition to the proof they are subjected to when offered for acceptance. The carriages for the forts and for field artillery are all manufactured at the government arsenals, distinct from the armories, where also are made the caissons, battery wagons, traveling forges, harness, and implements of all kinds for the service of artillery, and where all ammunition is also prepared both for artillery and small arms.

No weapons of war, great or small, have, in the language of the resolution, been procured from other governments; those above enumerated, and pattern and model arms, have been purchased from the manufacturers, in the countries named.

ORDNANCE OFFICE, Washington, June 10, 1848.

O. R.

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NATIONAL ARMORIES.

The expenditures at the armories, during the last fiscal year, have been as follows, viz:

	Harper's Ferry.	Springfield.	Total.
For the manufacture of arms, appendages, tools, and machinery, and the purchase of materials for the same.....	\$183,264 55	\$161,632 92	\$344,897 47
For repairs and improvements, including lands, buildings, &c.....	75,269 63	65,911 29	141,180 92
Total.....	258,534 18	327,544 21	486,078 39

There have been made during the same period at Harper's Ferry Armory 11,000 percussion muskets and 2,802 percussion rifles, with 44,369 appendages for the same, consisting of ball-screws, wipers, screw-drivers, bullet molds, spring vices, extra cones, and cone wrenches. There have been made during the same time at Springfield Armory 15,017 percussion muskets and 957 musketoons for sappers, cavalry, and artillery, with 50,670 appendages for the same, consisting of like articles to those mentioned above. The statements of the commanding officers of these armories, which accompany this report, are referred to for a more particular account of the arms, &c., manufactured, and of all other work done at them, respectively.

The next year's estimate for the manufacture of arms contains the amount usually appropriated for that purpose. That for repairs, improvements, and new machinery, includes objects requisite for carrying on operations at these establishments in a proper manner, and for keeping pace with the advances and improvements which are constantly being made in all branches of manufacture. These objects are specially stated in the estimates under that head, and the reasons for each one are given therein in detail.

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NATIONAL ARMORIES.

The expenditures at the national armories during the fiscal year have been as follows, viz:

	Harper's Ferry.	Springfield.	Total.
For the manufacture of arms, appendages, tools, &c., and purchase of materials for the same	\$168,184 14	\$186,006 87	\$354,191 01
For repairs, improvements, and new machinery, including lands, buildings, dams, &c.	55,674 70	59,820 96	115,495 66
Total	223,858 84	245,827 83	469,686 67

354,191.01
115,495.66

469,686.67

The manufactures at Harper's Ferry Armory for the year include 8,300 percussion muskets and 1,925 percussion rifles, with 45,043 appendages for the same, consisting of extra cones, ball-screws, screw-drivers,

spring-rises, wipers, and bullet molds; 278 flint-lock muskets have been altered to percussion, and 45,930 hammers, cones, and screw-drivers for muskets to be thus altered, have been made.

At Springfield Armory there have been manufactured 15,215 percussion muskets and 1,000 cavalry musketoons, with 39,323 appendages for the same, consisting of like parts with those before mentioned.

Considerable additions have been made at both armories to the machinery and tools for facilitating and economizing work. But part of the amount expended on this account, and none of that for materials purchased but not used during the year, is properly chargeable to the cost of the arms made in that period. The actual cost of the finished musket, including materials, workmanship, inspection, and supervision, has been \$9.87 $\frac{1}{2}$ at Springfield Armory, and \$12.72 at Harper's Ferry. The difference is attributable in great measure, if not entirely, to the greater amount and better quality of machinery and buildings at the one armory than at the other. Improvements in both respects are being made at Harper's Ferry Armory as fast as the means available will admit, and, when completed, there will be no good reason why the reduction in the cost of finished arms may not be as great at this as it has been at the other armory. Since the armories have been under the exclusive management of this department, and superintended by officers of the Ordnance Corps, there has been an annual diminution in the cost of manufacture; and figures will bear me out in asserting that the difference of cost of the number of arms made during the last year, and that of the same number and quality under the former system of superintendence, will amount to more than the pay and emoluments of all the officers of the Ordnance Corps. At the same time, the rates of wages have been fair; the workmen never receiving less than similar services and skill would command in private employment.

The arms, appendages, components, &c., made, the new machinery provided, buildings erected, and other work done at the armories during the year, are more particularly stated in the reports of principal operations by the commanding officers of these establishments, hereto appended, to which reference is made for more detailed information respecting them. The estimate for the manufacture of arms for the next year contains the amount usually appropriated for that purpose. That for repairs and improvements includes the amount required for keeping the buildings and other public property in good order, and for pursuing the system of improvements necessary for placing these establishments on the best footing for manufacturing to advantage. The objects to be effected are separately stated, and the reasons for each explained in the estimate.

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NATIONAL ARMORIES.

The expenditures at the national armories during the fiscal year have been as follows, viz:

	Harper's Ferry.	Springfield.	Total.
For the manufacture of arms, appendages, tools, &c., and purchase of materials for the same.....	\$175,641 25	\$184,202 80	\$359,844 05
For repairs, improvements, and new machinery, including buildings, dams, &c.....	62,399 44	21,028 16	83,427 60
Total.....	238,040 69	205,230 96	443,271 65

scribble

The reports hereto annexed from the commanding officers of these armories exhibit in detail the chief operations at each, and are referred to for particular information in this respect. They show the following products: At Harper's Ferry there have been fabricated 11,100 percussion muskets and 3,050 percussion rifles, with 32,712 appendages for the same, consisting of extra cones, spring vises, wipers, screw-drivers, ball screws, and bullet moulds; 53,665 assorted components for repairs of arms have been made and supplied to other posts, and 124,945 hammers, cones, and screw-drivers, for altering flint-lock arms to percussion, have been made. Besides these a quantity of new machinery has been made, and of old improved, and several new buildings have been completed. The manufactures at Springfield Armory include 21,000 percussion muskets and 2,000 cavalry musketoons; 57,272 flint-lock muskets have been altered to percussion, and 255,347 cones, hammers, and screw-drivers, for the alteration of muskets, have been made. Some new machinery has also been completed, and other machines have been partly made. The cost of the finished musket at Springfield Armory during the past year was \$8.76; at Harper's Ferry Armory the cost of the musket was \$9.21, and that of the rifle \$10.62. These prices show a less cost than for any preceding year. The great reduction in the cost of arms at the national armories, which has steadily progressed since 1841, with no falling off, but rather an improvement in quality, is creditable to the officers in charge of these establishments. They are the results of unremitting attention to their duties. The number of finished muskets in the arsenals and armories on the 30th June, the end of the fiscal year, was about 500,000—of which about 160,000 were new percussion, about 271,000 altered from flint to percussion, and about 5,000 flint-lock. The number of percussion rifles at the same time was about 24,000, and of flint-lock rifles about 7,000—in all 41,000; of percussion pistols about 8,700, of altered pistols about 4,150, and of flint-lock pistols about 11,500—in all about 24,000. In consideration of the stock of small-arms I have deemed it proper to reduce the amount of the estimate for the manufacture of arms much below the ordinary annual appropriations for this object. It cannot be expected, however, that they will be made at as little cost for each arm when few are manufactured as where the operations are on a larger scale. The use of

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NATIONAL ARMORIES.

The expenditures at the national armories during the year have been as follows, viz:

	Harper's Ferry.	Springfield.	Total.
For the manufacture of arms, appendages, tools, &c., and purchase of materials for the same	\$157,185 37	\$145,161 63	\$302,287 00
For repairs, improvements, and new machinery, including lands, buildings, dams, &c.	38,173 24	37,129 47	75,302 71
Total	195,358 61	182,291 10	377,589 71

The operations at these armories during the year are stated in detail in the reports of their commanding officers, hereto annexed, which are referred to for more particular information on the subject. The manufactures at Harper's Ferry Armory include 9,600 percussion muskets and 2,676 percussion rifles, with 26,303 appendages for the same, consisting of extra cones, screw-drivers, spring-vises, wipers, ball-screws, and bullet-molds; 10,836 flint-lock muskets have been altered to percussion, and 107,888 hammers, cones, and screw-drivers for muskets to be thus altered have been made. At Springfield Armory there have been manufactured 18,155 percussion muskets, and 2,000 cavalry musketoons with 24,418 appendages for the same, consisting of like parts with those before mentioned; 56,134 flint-lock muskets have been altered to percussion, and 143,575 hammers and cones for muskets to be thus altered have been made. The cost of the finished musket at Springfield Armory during the past year was \$9.05; at Harper's Ferry Armory \$11.16. The less cost and better quality of the manufactures at the national armories, and their improved condition in every respect since the introduction of the present system of superintendence, fully establish its superiority over that which it superseded.

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NATIONAL ARMORIES.

The following table exhibits the expenditures at the national armories during the fiscal year for manufacturing arms and for all other objects:

	Harper's Ferry.	Springfield.	Total.
For the manufacture of arms, appendages, tools, &c., and purchase of materials for the same.....	\$197,478 29	\$169,074 78	\$366,553 07
For repairs, improvements, and new machinery, including buildings, dams, &c.....	44,631 80	34,440 89	79,072 69
Total.....	242,110 09	203,515 67	445,625 76

The manufactures at Harper's Ferry Armory include 13,400 percussion muskets and 3,227 steel-barrel percussion rifles, with appendages for the same—consisting of extra cones, wipers, and screw-drivers; 2,072 assorted components for repairs of arms at other posts, and 48,473 hammers, cones, and screw-drivers for altering flint-lock arms to percussion. For the last two months of the year, manufacturing operations at this armory were entirely suspended in consequence of the overflow of the grounds and workshops by the flood of April 19th and 20th. This suspension diminished the product...

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in previous estimates, to cover which an item has been included in the estimate last rendered. The manufactures at Springfield Armory include 21,800 percussion muskets, of which 2,000 are of the model in use by the cadets, with 56,620 appendages for the same, and 216,205 hammers, cones, and screw-drivers for altering flint-lock arms. Work on buildings and machinery has also been done, the description and extent of which are stated in the annexed reports of the commanding officers of the armories, which are referred to for information in detail respecting the operations of the year. The cost of the finished muskets manufactured at Springfield Armory during the year averaged \$8.74; at Harper's Ferry Armory, the cost of the muskets averaged \$9.99, that of the steel-barrel rifles, \$11.60. The inspector of arsenals and armories during the past year, has visited and minutely and critically examined the condition and management of the two national armories. His inspection reports represents their general condition to be excellent; the operations to be conducted with skill and system; the buildings and machinery to be kept in the best order; the artisans and other workmen employed to be intelligent, and to perform their work willingly, diligently and skillfully; and all in authority to exert their energies for the promotion of the public interest. I annex hereto copies of these inspection reports in full, to which I invite attention for a proper understanding of the condition of these public establishments under their present system of superintendence. (A recent personal inspection of the Springfield Armory enables me to speak in similar terms of the excellence of its condition and management; and my experience in the affairs of these establishments for many years convinces me, fully and entirely, that since they were placed under the present system, many important improvements have taken place, which are, in my judgment, due to the system. The change has produced a great, if not entire, reformation of the abuses formerly existing. Like all other reformations, it has met with opposition, and the reformers have had to encounter the ill-will and hostility of those who had profited by the abuses and are interested in restoring the former state of affairs, and to contend against the personal endeavors to effect that end, as well as the influence they could command in other quarters.) A full and thorough inquiry into the merits of the two systems will, it is confidently believed, convince an unprejudiced person of the superiority of the present system over the one which preceded it. Such has been the effect of the two investigations heretofore made—the one by a board composed exclusively of civilians, the other by a military court of inquiry. I refer with confidence to the support of my opinion, to the facts elicited by those investigations, which are to be found recorded in public documents (Executive Doc. No. 207, second session twenty-seventh Congress, and Senate Doc. No. 344, first session twenty-ninth Congress), and ask that no action calculated to effect a change may take place, at least until preceded by such an inquiry as shall be found therefrom to be expedient.

The number of serviceable small-arms at the armories and arsenals on the 30th June, 1852, was about 629,745; of which there were 10,000 new percussion muskets; 281,509 percussion muskets altered from flint-lock, and 73,992 flint-lock muskets—in all 548,562 muskets; 45,000 percussion rifles; 4,700 percussion rifles altered from flint-lock, and 11,114 flint-lock rifles—in all 54,184 rifles; 9,435 new percussion pistols; 11,114 flint-lock pistols altered from flint-lock, and 11,114 flint-lock pistols—in all 26,999 pistols. The opinion expressed in my last annual report, in support of the present system, and in support of the

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NATIONAL ARMORIES.

The expenditures at the national armories during the year have been as follows:

	Harper's Ferry.	Springfield.	Total.
For the manufacture of arms, appendages, tools, &c., and purchase of materials for the same, including salaries and incidental expenses.....	\$133,248 83	\$168,256 03	\$301,504 86
For repairs, improvements, and new machinery, including lands, buildings, dams, &c.....	47,979 19	28,125 94	76,105 13
Total.....	181,228 02	196,381 97	377,609 99

#301,504.86
76,105.13
377,609.99

There were fabricated at Harper's Ferry Armory, during the year, 10,101 percussion muskets, and 2,762 percussion steel-barrel rifles, with 43,859 appendages, and 25,794 extra cones for the same; besides 40,527 cones, hammers, &c., for flint-lock arms to be altered to percussion. At Springfield Armory, 14,500 percussion muskets, 2,000 cadet muskets, and 500 musketoons, with 90,175 appendages, and 154,850 extra cones. The cost of the cadet muskets is charged to the appropriation for arms.

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ing the militia, as they were made to meet calls from the States for arms of that description.

The fabrication of machinery and amount of building operations and other permanent improvements which have been carried on during the year at these armories will be found stated in detail in the reports of their commanding officers, hereto annexed. The additions to buildings and machines have not been as great as in some former years. At Harper's Ferry the necessity for improvements was greatest, and the work there has latterly been urged forward with great dispatch. At Springfield the cause for renovation did not claim such immediate action; therefore, many desirable improvements, for which the means have been appropriated, have been very properly postponed till the plans can be well considered in all their possible prospects and relations, and the means for the accomplishment of such plans shall be sufficient, and render unnecessary the sacrifice of any part.

The contemplated improvements which have been delayed are principally in the erection of new shops to replace those now in use, which, having been erected generally long before the practice of applying machinery to the manufacture of small-arms had become so universal, are consequently neither in their separate plans nor relative localities calculated to afford those advantages which, as a part of our important system of manufacture of small-arms, is required of them.

If employed to their reasonable capacity, the two armories can produce 35,000 or 40,000 muskets and 6,000 to 8,000 rifles annually. It is not deemed advisable, with the very considerable supply in our arsenals, to manufacture so extensively, as it would in the course of a few years make it necessary to suspend entirely the manufacture, shut up the shops, and discharge a large class of citizens from our employment, which yields a living to them and their families. It has been thought more advisable, after bringing our armories to a degree of perfection not exceeded (and hardly equalled) by any other establishments of the kind in the world, and giving them a capacity to meet almost any emergency, to gradually diminish their products until they reach a prudent minimum. With this end in view, this department reduced the estimates for the years ending June 30, 1853, 1854, and 1855, for fabrication at the armories, from \$360,000 to \$250,000. This amount is sufficient to give beneficial motion to the machinery and constant employment to as many workmen as may be wanted, without making unnecessary discharges, and at the same time make a proper increase to our stock of arms in depot.

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March 17, 1854

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Military Vers Civilian Superintend-
ents of the National Armories

ORDNANCE OFFICE,
Washington, March 17, 1854.

Sir: Herewith are respectfully submitted answers to the interrogatories concerning the national armories, submitted by the select committee of the House of Representatives appointed to inquire into the propriety of appointing military officers to superintend the manufacture of fire-arms at the national armories, and the construction and management of other government works.

Respectfully, your obedient servant,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JEFF'N DAVIS,
Secretary of War.

Answers to the questions concerning the national armories, contained in the resolution of the select committee inclosed in the Hon. R. H. Stanton's letter to the Secretary of War, of 9th March, 1854.

1st. There is no material difference between the rules and regulations of the government of the operatives employed at the national armories, under the respective superintendencies of civilians and of ordnance officers. The general rules are laid down in the "regulations for the government of the Ordnance Department," drawn up in accordance with the act of 8th February, 1815, section 10. In these regulations for the government of the Ordnance Department, generally requiring the sanction of the Secretary of War to make them valid, there is a special section applicable to the national armories, which, by the law just quoted, section 9, are placed under the direction of, and thus form part of the Ordnance Department.

By turning to the last three editions of Ordnance Regulations, issued under authority of the Secretary of War in 1834, 1839, and 1852 (pages 4, 9, and 6 and those following of the respective editions), it will be seen that in their general requirements and tenor they are the same, varying from each other only in phraseology and minor details, and preserving the same system of government.

By all of them the regulations for the internal government of each armory are left to its superintendent, under the direction of the Chief of the Ordnance Department. These special regulations, as they were found to exist when ordnance officers took charge of the armories, are still in force, with no other modifications than were rendered necessary by changes in the arrangements of the shops, and by verbal amendments to suit them to changes of names, such as foremen of shops, instead of inspectors; watchmen, instead of shop-tenders; the head man of each being now called a foreman instead of an inspector, but with the same duties, and the watchmen being also shop-tenders. This will be better understood by reference to the paper herewith inclosed, marked A. In this connection I may remark that the regulation most complained of, and characterized by the opponents of the present system as arbitrary and tyrannical exercise of power due to military supervision, that which prohibits the reading of newspapers and marketing and trafficking in the shops during working hours, is not a new regulation introduced by a military superintendent, but an enforcement of existing rules, necessary to secure a faithful performance of work during working hours prescribed by the Ordnance Regulations, to pre-

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and to prevent the religious and political controversies expressly forbidden by the 20th paragraph of the civil superintendent's rules, and essential to the public interest. The rules under both modes of superintendence have been such as are requisite for the proper, efficient, economical, and systematic management of any large manufacturing establishment, and are no more stringent than those in existence in large private factories.

2d. The essential and marked difference between the management of the national armories under the two modes of superintendence consists in the extent to which the regulations for their government have been enforced. A strict compliance with them is now required to be observed, and no delinquency in this respect is tolerated or overlooked.

Every workman is required to be punctual to working hours (unless prevented by sickness or other sufficient cause), and to devote the entire working time, varying in the number of hours according to the season, to his regular occupation. There are two classes of workmen employed at the armories; those who work by the day and those who work by the piece. The day workmen, under both modes of superintendence, have been required to devote a full number of working-hours per day to labor. Under the present mode of superintendence, by military officers, the rule has been enforced for piece-workmen, also, as being requisite on the grounds of impartiality, of order, and of public interest; of impartiality, that there might not be two sets of workmen in the same establishment, one required to work a given number of hours, the other working more or less time per day at his option; of order, that every workman should have his whole time in the shops occupied by his work, and none be spent in idleness to excite the envy and remarks of his neighbor, or in gossiping, to hinder or delay his neighbor's work; of public interest, that the entire motive power and a disproportionate part of the machinery provided by the government may not be put in use to keep in employment but a few of the workmen. This rule as to working hours was not enforced under the former mode of superintendence by civilians for piece workmen except in so far as to require them to keep up a due proportion of the different pieces required for a complete arm. This was, besides the other evils before mentioned which it gave rise to, considered it extremely difficult, indeed impracticable, to regulate with accuracy the rates of pay for piece work; an accurate knowledge of what number of each class of pieces constituted a fair day's work being necessary to fix equitable rates, which are established now on the principles set forth in article 23, Ordnance Regulations for 1852. The enforcement of the rules for preserving order and regularity in conducting the operations of the armories and neatness in the workshops essential to the comfort of the workmen who pass so much of their time therein, has also much more strictly attended to by the military than by the civil superintendents. The result of this enforcement of good regulations, instead of as formerly their mere preparation and publication with a view to their loose observance, has shown itself in the improved order and better management, generally, of the armories well known to me by actual experience, and apparent to all who have noticed these establishments for a series of years past under both systems of superintendence. In the manner of enforcing the regulations, I know of no difference between the civil and military superintendents. Each has been clothed with the same power in this respect, and the military officer cannot exercise, without the risk of his commission and subjection to a severe punishment also by civil courts, and in no case has he exercised, any more discipline over any citizen employed at the armories.

3d. The number of arms made and the expenditure therefor since the superintendence by military officers, and for an equal period during the superintendence by civilians, is as follows:

Springfield Armory.—During superintendence by military officers, arms made, 183,700; expenditure therefor, \$1,887,687.93. During an equal period of superintendence by civilians, 165,967; expenditure therefor, \$2,100,056.20.

Harper's Ferry Armory.—During superintendence by military officers, arms made, 129,454; expenditure therefor, \$1,829,541.31. During an equal period of superintendence by civilians, 143,189; expenditure therefor, \$2,114,570.02.

The periods included in making up the foregoing tables are from the commencement of the superintendence by military officers, in April, 1811, to the end of the last fiscal year, 12½ years, and an equal consecutive period immediately preceding of superintendence by civilians.

4th. The expenditures for the periods included in the foregoing answer for machinery, buildings, repairs, additions, and improvements, and the products of these expenditures are as follows, viz:

During superintendence by military officers: expenditures at Springfield Armory \$486,865.44; expenditures at Harper's Ferry Armory \$614,489.31.

During an equal period of superintendence by civilians: Springfield Armory, \$183,521.89; Harper's Ferry Armory, \$374,046.46.

The products of these expenditures were, in general terms, at Springfield Armory, during the superintendence of military officers, 159 new machines, and 13 buildings; during the superintendence by civilians, 81 new machines, and 20 buildings; and under both modes all the repairs for keeping in order the public buildings, machines, dams, fences, and grounds.

For the particular details, which, if given here, would make this paper of an unreasonable length, reference is made to the accompanying statement marked B. At Harper's Ferry Armory, the expenditures under this head have been applied also under both modes of superintendence to new machines and buildings, and to repairs for keeping them, as also the dams, fences, and grounds, in order. Every workshop of the armory, both at rifle and musket factories, existing at the time a military officer first took charge of it except one (the bell shop, the interior of which has been renewed), was found unfit for use, and not worth repair, and has been removed and new and complete shops suitable for manufacturing purposes have been built in their places. The former quarters of the superintendent, now used for offices, is the only building at the musket factory that it has not been necessary to rebuild; and a storehouse at the rifle factory is the only old building that could be retained there. All the others have been constructed since the superintendence by military officers. At both armories, the buildings are now of a decidedly superior character to what they formerly were, and the machines, which have been almost entirely renewed, are of the best kind and most improved patterns.

To understand fully and correctly the differences, in these respects between the national armories now and what they were under the former mode of superintendence, it is necessary that there should have been a familiar acquaintance with them during both periods. Such an acquaintance I have had, and I do not hesitate to say that they have been changed from establishments discreditable, in the general character of the buildings, police, and arrangements, as national manufactories, to such as have no superiors in these respects in this or any other country, in which the nation may justly take pride.

O.R.

MAY 7, 1854

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5th. The kinds of arms made during the same periods are as follows, viz: at Springfield Armory, under the superintendence of military officers, 25,221 flint-lock muskets, of the improved model of 1840; 4,506 cadet muskets, of the improved model of 1840; 6,600 musketoons, of the improved model of 1840; 147,313 percussion muskets, of the improved model of 1840—total 183,700.

Under the superintendence of civilians: 160,467 flint-lock muskets, of the old model of 1822; 300 flint-lock cadet muskets; 5,200 flint-lock muskets, of the model of 1840—total 165,967.

At Harper's Ferry Armory, under the superintendence of military officers: 15,133 flint-lock muskets, of the improved model of 1840; 89,929 percussion muskets, of the improved model of 1840; 3,190 Hall's rifles; 1,100 Hall's carbines; 20,196 new model percussion rifles—total 129,454.

Under the superintendence of civilians: 119,689 flint-lock muskets, of the old model of 1822; 3,800 flint-lock muskets, of the improved model of 1840; 17,680 Hall's rifles; 2,020 Hall's carbines—total 143,189.

The average cost of these arms was as follows, viz: under superintendence of military officers, at Springfield Armory: \$10.27 $\frac{52}{100}$. Under superintendence of civilians: \$12.65 $\frac{3}{10}$. At Harper's Ferry Armory, military officers, 14.13 $\frac{27}{100}$, civilians, 14.76 $\frac{7}{100}$.

The foregoing cost of arms are irrespective of the expenditures for buildings, lands, &c., stated in the answer to the 4th question, these being supposed worth their cost. But the differences in the cost of arms under the two modes of superintendence (viz, \$2.37 $\frac{11}{100}$ per arm at Springfield, and 63 $\frac{4}{100}$ cents per arm at Harper's Ferry), amount on the number of arms made at those armories respectively during the superintendence of military officers to \$518,863.61 in favor of this mode of superintendence; being but \$19,922.79 less than the total excess of expenditure for all the machinery, buildings, repairs, additions, and improvements, while the difference in value of machinery alone at one of the armories is \$64,873.97—more than thrice this total excess; so that if all the buildings, repairs, additions, and improvements (which are permanent, well made, useful, and creditable), are set down as *worth nothing*, there will still be a considerable gain in the machinery alone. This 5th question also includes the relative quality of the arms made under the two modes of superintendence. Of those made under the superintendence of civilians, about 97 in a hundred were of the old model, an arm decidedly inferior, in workmanship and material as well as in pattern, to the new model arm, which alone has been made under the superintendence of military officers. The new model arms, made under the superintendence of civilians (about three in a hundred of all so made), are of superior quality to those of the old model, and this improvement in quality has gradually and steadily advanced under the superintendence by military officers, in the accuracy and uniformity of the component parts, the excellence of the material, and the skillfulness of the workmanship. The proof of this is to be found in the results of the actual use of these arms by troops in service, both in peace and war, in garrison, in the swamps of Florida, and in the scouts and marches of our western frontier. During all the vicissitudes incident to this variety of service, these arms have maintained an unquestioned character of high excellence. Against this evidence can only be adduced the opinions of two civilians, late commissioners to inquire into the affairs of the armory, of neither of whom have I ever heard as being present when muskets were used in actual military service. I respectfully call attention to the evidence on this point contained in the accompanying papers marked C.

As applicable to the question concerning the quality of the arms made

O.R.

March 1, 1857

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under the superintendence by military officers, I subjoin the following extract from an official report by the United States inspector of armories of his inspection of Harper's Ferry Armory in July, 1852:

The completeness of the present system [of superintendence by military officers], so far as uniformity in construction is concerned, is made manifest by the late submersion of some 20,000 arms during the highest flood ever known at the place. In cleaning those arms 9,000 percussion muskets have been stripped and completely dismantled, their parts being thrown into great masses, and after being repaired the arms are re-assembled from these lots of 9,000 components having no distinguishing mark—every limb filling and fitting its appropriate place with perfect exactness. Had not this perfect uniformity existed, the parts of each arm must have been separately distributed—boxes must have been provided for these several and numerous parcels, great care would have been requisite to avoid a mixture. Every limb of every musket must have been numbered and the expense of the operation would have been greatly increased.

All these inconveniences have been obviated by that system of uniform dimensions, even in the simplest and minutest components of the arm, which obtains in such perfection at this armory.

To determine whether this general uniformity extended to the fabrications of both national armories, I caused a musket of the manufacture of 1851 of each armory to be taken to pieces, and then applied all the components of one to the other, mixing them in almost every possible manner, and applying the parts likewise to the receiving gauges. The result was, the components, as well as the whole, were identical for every practical purpose. Only one almost inappreciable variation in the length of the front end of the lock-plates being detected, and this did not prevent a perfect assembling of the arms.

This report, as also one of the inspection of Springfield Armory in October, 1852, may be found in the printed Executive Documents No. 1, Thirty-second Congress, second session, pages 243 to 251. I respectfully invite special attention to these reports, and also to Inspector General Churchill's report of his inspection of Springfield Armory, in November, 1853, and request that a copy of it may be sent to the select committee.

6th. The average amount of wages per month received by the armorers under the respective superintendencies have been \$38.30⁸/₁₀ per man during the superintendence by military officers, and \$36.99 per man during an equal period immediately preceding, under the superintendence by civilians; making the average daily wages, respectively, \$1.53 and \$1.48.

7th. The conditions as to the continuance of workmen in employment at the armories leave every one at liberty to quit when he pleases, and the commanding officer is at liberty to cease to employ any one when he pleases. Discharge from employment is the only penalty consequent on misconduct or violation of regulations. A month's notice is given, if possible, when workmen are to be stopped for want of work, and those who intend to leave the armory for other employment are expected, when they can do so, to give the like notice.

8th. There is not and never has been any difficulty in obtaining any number of good and competent armorers or other workmen at the rate of wages paid and under the superintendence of the armories by military officers. The difficulty in this respect at Harper's Ferry is to get rid of inferior workmen, who have been so long employed as to consider themselves to have a prescriptive right to work there. At Harper's Ferry, also, for want of schools and society there is a local difficulty in getting superior workmen from other places to stay, but none on account of the wages or superintendence by a military officer. In conversing on this subject with two of the most intelligent, experienced, and respected manufacturers of New England, Messrs. John Chase and James T. Ames of Chicopee, near Springfield, the former stated to me that he could not keep a workman in his shops if he could get employment at the

national armory, and the latter said that Colonel Ripley (the commanding officer of Springfield Armory) could empty his shops and those of the neighborhood of workmen, if he wanted to employ so many. The wages of the workmen at the armories, as well as of all other hired citizens in the employment of the Ordnance Department at the arsenals, are regulated on the principle of paying the same rates which similar services and skill command in the vicinity of their places of employment.

9th. The employment of military officers to superintend the national armories affords to the War Department important means of improving the quality and character of fire-arms, which it could not have from civil superintendents. These officers have a practical and professional knowledge of what is requisite to make a good and serviceable military weapon. They are, by the education given them at the Military Academy, and by their subsequent practical acquirements from experience, more likely than citizens to gather from the military publications of other countries, and to notice the advances there reported in the improvements of the armament of troops in other services, and better qualified to devise and conduct experiments to test the accuracy of the reported results, and thus form a correct judgment as to the expediency of adopting or rejecting them in our service. At this very time experiments of this character calculated to improve the range of fire-arms in reference to the principles of the "Minié rifle" and "carabine à la tige" are in satisfactory progress at one of the armories. However skillful a mechanic or ingenious an inventor may be, taken from civil life, to fill the place of superintendent, he will probably not possess in the same degree as a military officer the professional knowledge in regard to the essentials of a military weapon, which by no means necessarily pertains to high mechanical ingenuity exhibited in its invention or its construction. A combination of the mechanical skill of the master-workmen and other operatives with the professional knowledge and experience of the military officer secures the most advantageous management of the national armories.

10th. The average prices paid at each armory for the last twenty-four years for the principal materials used in the manufacture of arms are as follows, viz:

	Stocks, each.	Steel, per pound.	Iron, per ton.	Coal, per ton.	Charcoal, per bushel.	Oil, per gallon.
Springfield Armory....	\$0 28	\$0 16. 15	\$141 45. 5	\$9 63. 5	\$0 06. 87	\$0 97. 5
Harper's Ferry Armory.	23. 5	18. 63	146 13	8 86	0 07.	1 22. 75

And the average price for labor on arms has been about \$1.50 per day. The average prices now paid for materials are as follows, viz:

	Stocks, each.	Steel, per pound.	Iron, per ton.	Soft coal, per ton.	Anthracite coal, per ton.	Charcoal, per bushel.	Oil, per gallon.
Springfield Arm.	\$0 28	\$0 16	\$160 00	\$7 42	\$7 16	\$0 08	\$1 30
Harper's Ferry Armory	0 25	0 16	190 00	3 14	6 00	0 08	1 45

the average price now paid for labor at the armories is about \$1.63 per day—at Springfield, \$1.63; at Harper's Ferry, \$1.56. Both

O. R.

PLATE 11, 1851

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modes of superintending the national armories by civilians and by military officers have been tried. We are not, therefore, left to conjecture, or to abstract reasoning to determine which is preferable, but have the test of actual experience. That has proved that "the appointment of military officers to superintend the manufacture of arms at the national armories" is not only compatible with, but highly advantageous to, the public interest. Whether there is anything in such appointments "not consistent with the nature and character of our civil government," is a question of a political rather than a military character, and as such it may not be within my province to answer it. Taking a common sense view of it, I may remark that as the *law of the country* (act February 8, 1815, sections 3 and 9) makes it the duty of the Colonel of Ordnance to attend to the manufacture of arms and all kinds of ammunition and ordnance stores, and places the national armories under the direction of the Ordnance Department, it would seem both unreasonable and unjust to deprive him and the department of the means of properly and efficiently accomplishing what the laws require of them, which will be the inevitable effect of changing the present mode of superintending the national armories.

OR

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OR

ANNEX ...
July 1, 1854 - June 30, 1855

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NATIONAL ARMORIES.

The expenditures at the armories during the fiscal year have been as follows, viz:

	Harper's Ferry.	Springfield.	Total.
Manufacture of arms, appendages, tools, &c., and purchase of materials for the same	\$122,925 81	\$110,757 66	\$233,683 47
Repairs and improvements	37,292 67	33,251 82	70,544 49
	160,218 48	144,009 48	304,227 96

The manufactures at Springfield comprise 8,624 percussion muskets, 580 musketoons, and 300 rifled carbines, with 47,310 appendages—consisting of extra cones, wipers, screw-drivers, ball-screws, hammers, and spring-vices. At Harper's Ferry, the manufactures comprise 7,700 percussion muskets and 2,339 percussion rifles, with 43,803 appendages—consisting of like parts with those before mentioned; 7,839 assorted components for issue to other posts for repairs of arms, and 8,452 sword bayonets, back-sights, bullet-moulds, &c., for long-range rifles. At both armories experimental arms have been made and other work done—the particulars of which will be found stated in the reports of their superintendents hereto annexed. With a view of increasing the efficiency of our small-arms and keeping pace with the great military nations of the world in their improvements, the subject was referred to the Ordnance Board in June last. A copy of the summary statement of the action of the Ordnance Board on that and other matters, with your decision and instructions thereon, is herewith furnished, marked D. In order to secure to our new system unity and the greatest possible degree of simplicity and mechanical perfection, I deemed it advisable to cause this work to be undertaken and carried out at one armory—the Springfield. Immediate steps were taken to construct the necessary models. In the execution of this work much, and, considering the great importance of extreme accuracy, satisfactory progress has been made; and it is confidently hoped that before the close of the year both the national armories will be in full operation manufacturing muskets, rifles, pistols, and pistol carbines of the new model.

The fabrication of small-arms of the old model was gradually diminished in the early part of the present year, and finally brought to a close after using such stock of materials as had been provided and prepared for them, and were not applicable to the new model. It is proposed to rifle the barrels of many of the old-model muskets of 69-inch caliber, and provide for them the elongated pointed bullet now generally used.

Serial No. 841
34th Cong 2nd Session
1854-1855
House Rep. Executives
Docs. Vol 1, part 2 - 1543

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CMA NOPIA ANNUAL Report July 1855 - June 30, 1856

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NATIONAL ARMORIES.

The expenditures at the armories during the fiscal year have been as follows, viz:

	Harper's Ferry Armory.	Springfield Armory.	Total.
Manufacture of arms, appendages, tools, &c., and purchase of materials for the same.....	\$123, 376 01	\$139, 872 68	\$263, 248 69
For repairs, improvements, and new machinery, including buildings, &c.....	39, 858 06	141, 757 51	181, 615 57
	163, 234 07	281, 630 19	444, 864 26

263, 248 69
181, 615 51
444, 864 20

The work done at these establishments is stated in detail in the reports, hereto annexed, of their respective superintendents. It has been

applied chiefly to the completion and perfecting of model rifled self-loading arms with accurate gauges to insure the entire uniformity of each of their parts. The armories have also been engaged in rifling and sighting for long ranges the smooth-bored arms of former models, and in preparing the requisite tools, machinery, and fixtures for the fabrication of the new model, of which many of the components have also been forged. It is expected that finished arms of this model will be delivered in January next, after which the work can be carried on at the rate of one thousand per month at each armory.

In my last report I stated that experiments had been made at the Springfield Armory which had resulted in the adoption of an entire new set of models for small arms, and a mode of altering all the old muskets on hand at our armories and arsenals. The great care necessary to secure perfect uniformity and accuracy in the construction of the models and gauges for the new rifle-musket delayed their completion until last spring. During the process of their construction, the officer who had been placed in charge of it made extended trials with specimens of the new arms, the results of which confirm the favorable opinion of their merits which led to their adoption for the service. Further trials have also been made with the old altered muskets, not only at the armories and arsenals, but in the hands of the troops, which show a range, accuracy, and force of penetration for this arm not inferior to any other military weapon intended for the use of infantry. The fire of three round balls of a size sufficiently reduced to allow them to be dropped into their places without the use of the ramrod has been found to afford the means of throwing a large number of projectiles at a distance of 200 yards with accuracy, rapidity, and force, and without injury to the rifle barrel. Against masses of cavalry the effect of this species of fire may be increased to 250 or 300 yards. Experiments have also been made which show that the force and accuracy of the pistol-carbine may be increased by increasing the length of its barrel from ten to twelve inches, and that, too, without rendering it inconvenient to handle as a common holster pistol. Its fire is effective, both in force and accuracy, at 500 yards. A number of these arms have been made at the Springfield Armory, and are now ready for issue to the mounted troops, with the expectation that their utility for this branch of the service will be verified by actual trials in the field. A report of all the important experiments which have been made by this department since 1852, touching improvements in small arms, has been prepared and published by your authority and is now being distributed for the information of the Army and militia.

Serial No. 876
34th Cong 3rd Session
1856-1857
Senate Ex. Docs.
Vol 3, p. 377.

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ANNUAL REPORT OF ORD, WART. II 622-623
July 1, 1856 - June 30, 1857

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NATIONAL ARMORIES.

The expenditures at these armories, during the fiscal year, have been as follows:

	Harper's Ferry Armory.	Springfield Armory.	Total.
Manufacture of arms, appendages, tools, &c., and purchase of materials for the same	\$137,416 74	\$163,275 99	\$300,692 73
For repairs, improvements, and new machinery, including new buildings, &c.	45,081 91	191,878 96	236,960 87
	182,498 65	355,154 95	537,653 60

300,692.73
236,960.87
537,653.60

The reports of the superintendents, accompanying this, specify, in detail, the work which has been done at each of the armories. At Springfield Armory the fabrication of the new-model rifle musket, to its finished and assembled state, had commenced before the end of the fiscal year, and 2,015 of these arms had been completed, as also 3,016 of the rifled pistol carbines. None of the new-model arms had then been completed at Harper's Ferry Armory. Since that time the manufacture of these

finished arms has been going on at both armories, at the average rate of 765 per month at Springfield, and 420 per month at Harper's Ferry. Besides this work, a considerable number of the smooth-bored arms, of former models, have been rifled and sighted for long ranges, and appendages and component parts of the new models have been prepared. Additional machinery and other facilities for manufacturing have also been procured; and there is no want of material or machines, if there be proper management, for the requirements of the military service.

Respectfully, your obedient servant,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JOHN B. FLOYD,
Secretary of War.

SCAM NO 920

35th CONGRESS, 1st SESSION

1857-58

SENATE EX. DOCS. VOL 3, P 540.

OR

ANNUAL REPORT OF ORDNANCE
July 1 - 1857 - June 30, 1858

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NATIONAL ARMORIES.

The expenditures at these armories during the fiscal year have been as follows:

	Harper's Ferry Armory.	Springfield Armory.	Total.
Manufacture of arms, appendages, tools, &c., and purchase of materials for the same	\$195,277 72	\$189,431 50	\$384,709 22
For repairs, improvements, and new machinery, including buildings	25,044 68	117,496 41	142,541 09
	220,322 40	306,927 91	527,250 31

189,431 50 384,709 22

306,927 91 527,250 31

The reports of the superintendents, accompanying this, specify in detail the work that has been done at each of the armories during the year.

I stated in my report for the year ending June 30, 1857, that 2,015 of the new rifle muskets had been finished at Springfield. At that time none had yet been finished at Harper's Ferry. Since then, up to June 30, 1858, 19,785 rifle muskets and 1,719 rifles, both of the model of 1855, have been manufactured at these two armories; besides which a considerable number of arms of old patterns have been rifled and rendered suitable for long ranges. At Springfield a new dam, and a forging and machine shop have been nearly completed; operations of the armory being now carried on in the latter. The dam is entirely finished. The whole, in point of excellence and durability, will be unsurpassed.

Very respectfully,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JOHN B. FLOYD,
Secretary of War.

Serial No 976
35th Congress 2nd Session
1858-59
Serials EX Docs Vol 3
Doc 3, D 1308

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Annual Report of Ordn Dept
July 1, 1858 - June 30, 1859

II 669 - 54

NATIONAL ARMORIES.

The manufactures at these establishments during the past fiscal year include 17,989 rifle-muskets, 2,466 rifles, 6 fencing and 1,502 cadet's muskets, with 94,800 implements for small arms, consisting of bullet-molds, screw drivers, wipers, &c., and 46,492 component parts of arms for issue to posts and troops, to be used in repairs. In addition to these articles of manufacture, much work has been done in the erection, repairs, and improvement of buildings, raceways, and public grounds, and the construction and improvement of machinery and tools. These operations are stated in detail in the annexed reports from the superintendents, which are referred to for more particular information on the subject. The requisite machinery for welding gun-barrels by rolling has been put in operation at one of the armories, and is found to be a great improvement on the former method of welding under hammers. It is to be used hereafter at both armories.

Serial No. 1025

36th Congress 1st Session

1859-60

Senate Executive

Doc. Vol 3, p 1104

O. R.

ANNUAL REPORT OF ORDNANCE
To June 30, 1860

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NATIONAL ARMORIES.

The manufacture at these establishments during the past fiscal year include 14,399 rifle muskets, 2,701 rifles, and 200 caulets' muskets, with 33,114 implements for small-arms, consisting of bullet-molds, screw-drivers, wipers, &c., and 8,648 component parts of arms for issue to posts and troops, to be used in repairing. In addition to these articles of manufacture, much work has been done in the erection, repairs, and improvement of machinery and tools, buildings, raceways, and public grounds. These operations are stated in detail in the annexed reports from the superintendents, which are referred to for more minute particulars.

The number of arms manufactured at the national armories during the last year was not as great as the available funds would have justified. This diminution is in a measure attributable to the diversion of armory operations from the manufacture of arms of the established model to the alteration of arms according to plans of patentees, and to getting up models of arms for inventors.

Our store of muskets of all kinds, at this time, does not exceed 530,000, dispersed among the arsenals of the country; nowhere more than 130,000 being together. As this supply of arms is applicable to the equipment of the army, the navy, the marine corps, and the militia of the country, it is certainly too small, and every effort should be made to increase the number of our new-model guns, whilst no further reduction, by sale of the old-model serviceable arms, should be allowed until our arsenals are better supplied. Our store of muskets has, in former years, reached

nearly 700,000, and was not then considered too great for the country, as was evidenced by the liberal appropriations made for the further increase and for the construction of more perfect and productive machinery for the fabrication of small-arms.

Very respectfully, your obedient servant,

H. K. CRAIG,
Colonel of Ordnance.

Hon. JOHN B. FLOYD,
Secretary of War.

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Serial No 1079

36th Congress - 2nd

Session 1859-60

Senate Ex Doc Vol 2

P 964-65.

Sets of infantry accouterments	781,314
Sets of cavalry accouterments	103,812
Sets of horse equipments	102,078
Sets of artillery harness for 2 horses	11,483
Pounds of gunpowder	7,733,308
Pounds of lead and bullets	18,915,418
Rounds of ammunition for artillery	1,184,621
Rounds of ammunition for small arms	212,806,504
Percussion caps	341,843,604
Friction primers for cannon	2,362,765

Also large supplies of horse medicines for artillery horses, rope for lariats and picketing purposes, an immense quantity of parts of horse equipments, cavalry and infantry accouterments, and large quantities of appendages, spare parts of arms, and armorers' and saddlers' tools.

And the stock of such articles remaining at the arsenals and depots at the end of the fiscal year was as follows, viz :

Field cannon of different calibers	466
Siege cannon of different calibers	202
Seacoast and garrison cannon of different calibers	604
Cannon balls, shells, and other projectiles for field artillery	74,110
Cannon balls, shells, and other projectiles for siege artillery	120,765
Cannon balls, shells, and other projectiles for seacoast forts	182,054
Artillery carriages for field service	519
Artillery carriages for siege service	123
Artillery carriages for seaboard forts	562
Mortar beds	54
Caissons, traveling forges and battery wagons	695
Small arms for foot soldiers	335,896
Small arms for mounted troops	134,009
Sets infantry accouterments	159,349
Sets cavalry accouterments	76,870
Sets horse equipments	20,523
Sets artillery harness for 2 horses	4,488
Pounds of gunpowder	1,036,871
Pounds of lead and bullets	5,443,265
Rounds of ammunition for artillery	147,321
Rounds of ammunition for small arms	58,668,400
Percussion caps	100,183,000
Friction primers	80,000

Owing to the sudden vast increase of our military establishment the demand for arms and other ordnance stores, to be supplied with dispatch, was far in excess of the greatest possible productive capacity of our public arsenals and private manufacturing establishments fitted for such work. Resort was therefore had to purchases in foreign countries, in order to meet immediate requirements, and to increasing the manufacturing capacity of our arsenals and the development of private sources of supply, in order to have within ourselves the means of meeting future wants as they might occur. By the former we have been enabled to arm, equip, and otherwise supply the large bodies of troops which have been called into the service; not always, however, with first-class arms, such as that Department turns out from its armories and secures from our own private factories, by its system of inspections, but still with such as were serviceable and of the best kind and quality which it was possible under the circumstances to procure. The distribution of the arms, classified according to their degrees of excellence and quality, has been regulated by the fair principle of supplying the troops from each State with arms of their respective classes proportional to the number of troops from that State. By the latter we have advanced our productive capacity from 22,000 stands of arms, the annual production of both National armories before that of Harper's Ferry was destroyed, to at least 200,000, and from the 1st of January next

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NOV. 21, 1862

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probably 24,000 per annum from the single armory at Springfield, in the State of Massachusetts, making a product of one month at that armory equal to the former product of both armories for a whole year. Besides this source of supply, there are now in operation, and engaged in furnishing the Government, private manufactories of arms, which will probably turn out in the next six months 220,440 stands of small arms of the different kinds requisite for cavalry and foot troops, and with a present capacity equal to supplying thereafter at the rate of 350,000 muskets and rifles, and 115,000 other small arms per annum, making a total productive capacity of upwards of 700,000 small arms annually. The measures which have been adopted by and through this Department will enable it in a short time to replace every arm in service, not of the first class, by one of the best quality and kind, and to place in store enough arms of the same description to meet the probable losses and damages from all causes. They have already resulted in restricting our purchases of foreign arms to those of the first class, and enabling us to fix fair limits to prices, and effectually suppress all attempts at speculation and extortion.

The resources of our own country are ample to supply, for an indefinite period, all our possible wants for such munitions of war as are provided through the Ordnance Department, and the longer the demand for them shall continue the more will those resources be developed and enlarged. For example, notwithstanding the great number of bronze cannon which have been procured by this Department during the last 18 months, requiring for their fabrication 586,476 pounds, of copper, the supplies of that material from within our own mineral regions have been about 11,590,000 pounds exceeding all demands on that account twenty-fold. The stock of lead now on hand in our arsenals amounts to about 14,100 tons, sufficient to make 451,092,240 bullets, and this stock is exclusive of that in private hands, and of what the mines of our own country are daily furnishing. The supplies of iron, timber, leather, and other miscellaneous articles which enter into the production of cannon, gun-carriages, implements, and accouterments for the military service, are unbounded and exhaustless within ourselves. The only article of ordnance supplies for which we depend in a great measure on importation from abroad is saltpeter. Long previous to the breaking out of the rebellion, and simply as a prudent precaution, the Ordnance Department had been collecting a stock of that article, and had in its arsenals, on the 4th of March, 1861, a supply of 3,822,704 pounds. Notwithstanding the very large quantities of gunpowder which have since been obtained, and which we are still obtaining without difficulty, it has not been found necessary to draw upon that reserved stock, but, on the contrary, it has been increased, and now amounts to over nine millions of pounds; sufficient to make twelve million pounds of gunpowder. It may, therefore, be confidently asserted that we have made ourselves independent of importation for the essential supplies of arms and ordnance stores; and either have or can produce an abundance of them to carry on wars of any magnitude that can possibly be anticipated. At the same time the increased productive capacity of the Government arsenals, which has been attained in the last year, and which is now in progress of greater augmentation, the additional means and facilities, and the better knowledge of the manufacture of munitions of war, and the vigilance which has been exercised in confining contracts to regular manufacturers of or dealers in the articles to be furnished, and enforcing fair charges and faithful fulfillments of their obligations, have put us beyond the reach of speculation and exorbitant prices.

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No. 4.—ALL ARMS.

	Muskets and rifles.	Cavalry.	Pistols.	General and sword.	Total number.
	On hand at the beginning of the rebellion	437,333	4,976	27,122	16,283	485,714
Purchased since the beginning of the rebellion	86,788	31,210	86,607	62,648	267,253
Purchased since of foreign manufacture	728,705	11,118	17,231	184,485	941,539
Manufactured at the National Armory	169,810				169,810
Total stock	1,392,736	46,304	131,039	264,066	1,774,251
Issued from the arsenals	968,840	44,215	114,736	148,585	1,276,376
Remaining on hand June 30, 1862	385,896	2,184	16,294	115,531	490,905

No. 5.—ACCOUTERMENTS, HORSE EQUIPMENTS, AND HARNESS.

	Accouterments.		Horse equipments.	Saddle blankets.	Sets harness for two horses.
	Infantry.	Cavalry.			
On hand at the beginning of the rebellion	10,930	4,820	574		586
Purchased since the beginning of the rebellion	913,834	163,419	118,239	198,035	13,223
Fabricated at the arsenals	15,799	13,048	3,780		2,162
Total stock	940,563	180,787	122,593	198,035	15,971
Issued from the arsenals	781,214	103,917	102,070	111,085	11,483
Remaining on hand June 30, 1862	159,349	76,870	20,523	86,950	4,488

No. 6.—GUNPOWDER AND LEAD.

	Pounds of powder.	Pounds of saltpeter.	Pounds of lead.	Pounds of lead bullets.
On hand at the beginning of the rebellion	1,110,584	3,822,704	638,966	664,800
Purchased since the beginning of the rebellion	7,639,595	5,231,731	16,843,633	6,213,279
Total stock	8,750,179	9,054,435	17,482,599	6,878,079
Issued or expended	7,733,368		12,892,334	6,023,071
Remaining on hand June 30, 1862	1,016,811	9,054,435	4,590,265	855,008

No. 7.—AMMUNITION, PERCUSSION CAPS, ETC.

	Number of cartridges for small arms.	Number of percussion caps.	Number of rounds of artillery ammunition.	Number of friction primers.
On hand at the beginning of the rebellion	8,292,300	19,808,600	28,248	83,425
Purchased since	28,213,700	383,312,000	51,307	560,000
Fabricated at the arsenals	234,968,903	39,096,600	1,252,393	2,519,340
Total stock	271,474,903	442,006,600	1,331,948	3,162,765
Issued or expended	212,806,501	341,843,600	1,184,627	2,302,786
Remaining on hand June 30, 1862	58,668,402	100,163,000	147,321	80,000

All the supplies reported as on hand in the foregoing statements include such only as are in store at the arsenals, and are exclusive of all those which are in the hands of the troops, or are in service in the field, garrisons, or forts. They therefore constitute the stock held in reserve at the end of the last fiscal year for supplying the future wants of the Army.

JAS. W. RIPLEY,
Brigadier-General, Chief of Ordnance.

ORDNANCE OFFICE, November, 1862.

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Important Papers Relating to the Ordnance Department Taken from the Records of the Office of the Chief of Ordnance, from Public Documents, and from other Sources

Prepared under the direction of Brig. General Stephen V. Benet (4 vols., Washington, D.C. 1880),

Vol. IV, 1860-1890, pp.1043-1044.

HARPERS FERRY PROPERTY November 16, 1861 13 W.D. p.26.

The amount expended on the same for land purchases at different times...[this is too low- does not include Friends' Ore Bank, 1,600 acres, purchased at cost of \$ 51,000.00 in 1800]..... \$ 45,477

For improvements thereon, for water power, canals, embankments, walls, and water privileges and for hydraulic machinery and buildings of all kinds..... \$ 1,787,430

Total. exclusive of the amount expended in the manufacture and repair of arms [1796-1861].....\$ 1,832,907.

The last annual inventory of the property belonging to the United States at that Armory is dated June 30, 1860, in which the value of all the property on hand at that date is appraised as follows:

1,669½ acres of land [original acreage, by 1818, 1,890 acres; about 216½ acres sold off as house lots in 1852 and 4 acres put in Harper's Cemetery]////..... \$ 37,457.00

Mill ~~s~~ Dams, canals, water power, and hydraulic machinery 233,279.00

Forges, rolling mills, machine shops, dwellings and other buildings..... \$ 341,221

Amount of Real Estate..... \$ 611,957.00

Machinery used in workshops..... 270,235.00

Tools used in worksh ops..... 109,560.00

Machinery and tools..... 379,795.00

Unwrought materials on hands..... \$ 1,00,043.00 ----- 193,616.00

Parts of arms in progress..... 93,573.00

20,507 arms of different models in storage..... \$ 285,115.00

TOTAL APPRAISED VALUE, June 30, 1860 \$ 1,407,513.00

By April 1861, the number of arms in storage when the Armory was destroyed, was reduced to 4,287.00, the value of which is about \$ 64,000.

Appraised value from \$ 1,470,513 in June 1860, to \$ 1,207,668. in April 1861. Wm. Maynadier, Lt. Col. of Ordnance. to Secretary of War Simon Cameron, November 16, 1861.

Prepared under the direction of Brig. General
Stephen V. Benet (4 vols., Washington, D.C.
1880), Vol. II, 1845-1860

Vol. IV, 1860-1890 , p. 1047.

PP.1043 to 1060 have
data on Harper's Ferry
in period 1861-1885.

p. 1047. January 3, 1868:

In July 1865, the Shenandoah Bridge Company [S. V. Yantis,
President], at the request of its president, obtained from the Secretary
of War " a temporary license to establish a ferry, subject to revocal
at the will of the Secretary if War while the bridge was in ~~the~~ process
of erection, but is in no respect to waive the obligations of the company
to a bridge in conformity with the act of Congress [of 1842]." This license
was accepted (by the President of the Company on the 12th of August 1865,
Since this date it had enjoyed the ferry privileges across the Shenandoah
at Harper's Ferry, and without having ever commenced to rebuilt the bridge.

On November 2, 1867, the company requested an indefinite extension of
the ferry lease or license.

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Important Papers Relating to the Ordnance
Department Taken from the Records of the
Office of the Chief of Ordnance, from Public
Documents, and from other Sources

Prepared under the direction of Brig. General
Stephen V. Benet (4 vols., Washington, D. C.
1880), Vol. II, 1845-1860

Vol. IV, 1860-1890, pp. 1049-1050:

May 11, 1866: A. B. Dyer, Bvt. Major General, Chief of Ordnance, to
Secretary of War E. M. Stanton, responding to a request for information
from Congress:

".....The Government owns at that place about 75 acres [actually
about 1,669 acres] of improved land, and has the right of cutting wood on
a large tract of unimproved land on the south side of the Shenandoah River.
On the improved land there are 25 dwelling houses, a powder magazine, a
public stable, a repair shop [for arms], nine storerooms, and the ruins of the
former shops. Eighteen of the dwelling houses are in fair condition; the
residue, as well as the main shops of the old armory, have been much injured
during the war, and are in bad order. The powder magazine, stable, repair
shops, and storerooms are all in good condition.

The [Ordnance] Department is now using for the purposes of an ordnance
depot, for the storage and preservation of munitions of war, the powder magazine,
five store rooms, the repair shop, and a dwelling house for quarters for the
military storekeeper. This ordnance depot is only required for a temporary
purpose, and will be broken up as soon as the supplies now stored there can be
transferred to the arsenals.

Harper's Ferry can not, in my opinion, be ever again used to advantage for
the manufacture of arms, the retention of the property of the United States at
that place is not necessary or advantageous to the public interest, beyond
the temporary use of so much as may be required for the ordnance depot, and
I recommend that as soon as that depot can be broken up, all the public land,
buildings, and other property there be sold and the proceeds of the sale
be applied to the construction of the armory in the west, as now authorized
and directed by laws to be established.

The resolution of the Senate is herewith returned..."

p. ~~1048~~ 1048 - March 9, 1866 - the Repair shop at Harper's Ferry was closed.

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Important Papers Relating to the Ordnance
Department Taken from the Records of the
Office of the Chief of Ordnance, from Public
Documents, and from other Sources

Prepared under the direction of Brig. General
Stephen V. Benet (4 vols., Washington, D. C.
1880),

Vol. IV, 1860-1890 , 1053.

Report of S. V. Benet, Major of ~~Artillery~~ Ordnance, December 20, 1872,
to the Secretary of War, on the "apparent" sale of the U.S. Armory
Property at Harper's Ferry, West Virginia, in December 1869:

"Water Power on Potomac sold for	\$ 176,000.00
Water Power on Shenandoah sold for	30,000.00
Shenandoah Ferry sold for [68 acres]	1,790.00
Wood tract [1,395 5.8th acres] sold for	3,600.00
[Friends'] ore bank [1,600 acres] sold for	13,100.00
Dwellings, lots, etc., sold for	73,303.50
<hr/>	
Total	\$ 297,793.50

The sum of \$ 4,048.50 has been received in payment for dwellings
and lots sold." [The total amount was due on December 6, 1872-
speculators who put down no money acquired control of the water power
at Harper's Ferry and not until 1885 was this mess straightened out
and the Armory property finally legally sold. It took two acts of
Congress and court actions from 1872 to 1875 to untangle this mess.
The final amount received U.S. Armory property as listed in the
June 1860-61 appraisal, was only \$ 54,925.04. The Grand total,
including the 224 lots and 53 dwelling houses that had been sold for
\$ 56,227.43 in 1852, was \$ 111,152,47. 1796-1885- C.W. Snell].

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Important Papers Relating to the Ordnance
Department Taken from the Records of the
Office of the Chief of Ordnance, from Public
Documents, and from other Sources

Prepared under the direction of Brig. General
 Stephen V. Benet (4 vols., Washington, D.
 1880), Vol. II, 1845-1860

C. W. Snell

1848-1854:

Year	Armory	Repairs	Manufacturing	Total	Page
6/30/48	Harpers Ferry	\$ 75,269.63	\$ 183,264.55	\$ 258,534.18	249
6/30/48	Springfield	65,911.29	161,632.92	227,544.21	249
1848	Total	141,180.92	344,897.47	486,078.39	
6/30/49	Harpers Ferry	55,674.70	168,184.14	223,858.84	286
6/30/49	Springfield	59,820.86	186,006.87	245,827.73	286
6/30/50	Harpers Ferry	38,173.24	157,185.37	195,358.61	355
6/30/50	Springfield	37,129.47	145,101.63	182,231.10	355
6/30/50	Harpers Ferry	62,399.44	175,641.25	238,040.69	401
6/30/50	Springfield	21,028.16	184,202.80	205,230.96	400
1851	Total	83,427.60	359,844.05	443,271.65	
6/30/52*	Harpers Ferry	44,631.80	197,478.29	242,110.09	501
6/30/52	Springfield	34,440.89	169,074.78	203,515.67	501
1852	Total:	79,072.69	366,553.07	445,625.76	
6/30/53	Harpers Ferry	47,979.19	133,248.83	181,228.02	520
6/30/53	Springfield	28,125.94	168,256.03	196,381.97	520
1853	Total:	76,105.13	301,504.86	377,609.99	
1854:	Harpers Ferry	[60,023.04]	[178,862.76]	[238,885.80]	Real 20, V. 2 p. 183.
1854	Springfield	9,547.41	145,776.67	155,324.08	
6/30/54	Total:	69,570.45	257,449.25	327,019.70	
* Damage at Harper's Ferry caused by two floods, April 19 and 20, 1852, estimated at \$ 20,000.00, Interrupted work for two months.					
6/30/49	Total:	115,495.66	354,191.01	469,686.67	286
6/30/50	Total:	75,302.71	302,287.00	377,589.71	355

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Important Papers Relating to the Ordnance Department Taken from the records of the Office of the Chief of Ordnance, from Public Documents, and from other Sources
 Prepared under the direction of Brig. General Stephen V. Benet (4 vols., Washington, D.C. 1880), Vol. II, 1845-1860

C W Snell

Expenditures, 1855-1861

Year	Armory	Repairs	Manufacturing	Total	Page
6/30/55	Harper's Ferry	\$ 37,292.67	122,925.81	\$160,218.48	566
6/30/55	Springfield	\$ 33,251.82	110,757.66	\$ 144,009.48	566
6/30/56	Harper's Ferry	\$ 39,858.00	\$ 123,376.01	\$ 163,234.01	590-91
6/30/56	Springfield	141,757.51	139,872.68	281,630.19	590-91
1856 Total:		181,615.51	263,248.69	444,864.20	
6/30/57	Harper's Ferry	45,081.91	137,416.74	182,498.65	622
6/30/57	Springfield	191,878.96	163,275.99	355,154.95	622
1857 Total:		236,960.87	300,692.73	5,37,653.60	
6/30/58	Harpers Ferry	25,014.68	195,277.72	220,322.40	652
6/30/58	Springfield	117,096.41	189,431.50	306,527.91	652
1858 Total		\$ 142,111.09	\$ 384,709.22	\$ 526,850.31	
6/30/59	Harpers Ferry	100,907.00	240,059.04	340,966.04	Reel 20, V.7, 731
6/30/59	Springfield				
1859 Total					
6/30/60	Harpers Ferry	55,000.00	215,905.56	270,905.56	Reel 20, V.7, 733
6/30/60	Springfield				
1860 Total					
6/30/61	Harper's Ferry **	65,000.00	240,500.00	305,500.00	Reel 20 V.7, 734
6/30/61	Springfield				
1861 Total					

** Confederates seize Harper's Ferry Armory, April 15, 1861 and destroyed it in June 1861/.

PRODUCTION OF ARMS, 1848-1855

Year	Armory	Percussion Muskets	Percussion Rifles	Appendages	Flint Lock Muskets altered to Percussion	Screw drivers & hammer cones	Page
June 30 1848	Harpers Ferry	11,000	2,802	49,369			249
June 30 1848	Springfield	15,017	957 musketoons	50,670			249
June 30 1849	Harper's Ferry	8,300	1,925	45,043	278	46,930	287
June 30 1849	Springfield	15,215	1000 cavalry musketoons	39,323			287
June 30, 1850	Harper's Ferry	9,600	2,676	26,308	10,836	107,888	356
June 30 1850	Springfield	18,155	2,000 cavalry musketoons	24,418	56,134	144,575	356
June 30 1851	Harper's Ferry	11,100	3,050	32,712	57,665	124,945 400	
June 30 1851	Springfield	21,000	2000 cavalry musketoons		57,272	255,347 400	
June 30, 1852	Harper's Ferry	13,400	3,227			48,473 502	
June 30 1852	Springfield	21,800		56,620		216,205 502	
June 30, 1853	Harper's Ferry	10,101	2,762	43,859	Extra cones 25,794	49,830 521	
June 30 1853	Springfield	14,500	2000 cadet muskets, 500 musketoons	90,175	154,850	0 521	
June 30, 1854	Harper's Ferry	7,700	2,339	43,803	assorted components sword bayonets 7,839	8,452 566	
June 30, 1855	Springfield	8,624	580 musketoons 300 rifled carbines	47,310	0	0 566	

Vol. IV, 1860-1890

Important Papers Relating to the Ordnance Department Taken from the Records of the Office of the Chief of Ordnance, from Public Documents, and from other Sources Prepared under the direction of Brig. General Stephen V. Benet (4 vols., Washington, D.C. 1880), Vol. II, 1845-1860
 C W Spill

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PRODUCTIONS OF ARMS, 1856-1861

Year	Armory	1855 model rifle- Muskets	1855 Rifles	cadet muskets	implements for small arms	Component Parts	Page
6/30/56	Harpers Ferry						591
6/30/56	Springfield						591
6/30/57	Harpers Ferry	0	0	0			622
6/30/57	Springfield	2,015	3,016				622
6/30/58	Harpers Ferry						652
6/30/58	Springfield						652
1858	Total	17,770	1,719				652
6/30/59	Harpers Ferry						669
6/30/59	Springfield						669
1859	Total	17,989	2,466	1,502	94,800	46,492	669
6/30/60	Harpers Ferry						
6/30/60	Springfield						
1860	Total	14,399	2,701	200	33,114	8,648	
6/30/61	Harpers Ferry						
6/30/61	Springfield						
1861	Total:						

1854 HF 9000 2761
 1854 SAR 11000 2000

Important Papers relating to the Ordnance
 Department Taken from the Records of the
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 Documents, and from other Sources
 Prepared under the direction of Brig. General
 Stephen V. Benet (4 vols., Washington, D.C.
 1880), Vol. II, 1815-1860

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Appropriations for ordnance purposes, &c.—Continued.

Objects for which appropriations were made.	Statutes at Large.	Date of appropriation act.	Amounts.
For the calendar year 1808—Continued.			
For ordnance.....	2 Stat., 497	Apr. 25, 1808	\$80,000 00
Arming and equipping the militia.....	2 Stat., 490	Apr. 23, 1808	200,000 00
For the calendar year 1809:			
For ordnance.....	2 Stat., 545	Mar. 3, 1809	75,000 00
Fortifications, arsenals, magazines, and armories.....	2 Stat., 545	Mar. 3, 1809	219,034 75
Arming and equipping the militia.....	2 Stat., 490	Apr. 23, 1808	200,000 00
For the calendar year 1810:			
For ordnance.....	2 Stat., 563	Mar. 2, 1810	200,000 00
Fortifications, arsenals, magazines, and armories, including \$2,000 for such a number of military storekeepers as may be required.....	2 Stat., 563	Mar. 2, 1810	253,574 75
Arming and equipping the militia.....	2 Stat., 490	Apr. 23, 1808	200,000 00
For the calendar year 1811:			
For ordnance.....	2 Stat., 616	Feb. 6, 1811	100,000 00
Fortifications, arsenals, magazines, and armories, including \$2,000 for such a number of additional military storekeepers as may be required.....	2 Stat., 616	Feb. 6, 1811	276,049 76
Arming and equipping the militia.....	2 Stat., 490	Apr. 23, 1808	200,000 00
For the calendar year 1812:			
Purchase of ordnance and ordnance stores, camp equipage, and other quartermasters' stores, \$1,500,000.....	2 Stat., 675	Jan. 14, 1812	.....
For ordnance and ordnance stores.....	2 Stat., 683	Feb. 21, 1812	1,135,000 00
Fortifications, arsenals, magazines, and armories, including \$2,000 for such a number of additional military storekeepers as may be required.....	2 Stat., 683	Feb. 21, 1812	206,049 75
Arming and equipping the militia.....	2 Stat., 490	Apr. 23, 1808	200,000 00
Total.....			2,173,780 85

Appropriations for ordnance purposes subsequent to the establishment of the Ordnance Department in 1812.

Objects for which appropriations were made.	Statutes at Large.	Date of appropriation act.	Amounts.
For the calendar year 1813:			
Ordnance and ordnance stores.....	2 Stat., 821	Mar. 3, 1813	\$925,600 00
Arms, magazines, and armories.....	2 Stat., 821	Mar. 3, 1813	352,200 00
Proceeds of sale of certain lots in Pittsburg, appropriated for the erection of arsenals, armories, and laboratories.....	3 Stat., 75	Aug. 2, 1813	.....
Arming and equipping the militia.....	2 Stat., 490	Apr. 23, 1808	200,000 00
For the calendar year 1814:			
Ordnance and ordnance stores, including arsenals, magazines, and armories.....	3 Stat., 185	Mar. 19, 1814	700,000 00
For the Ordnance Department.....	3 Stat., 152	Dec. 15, 1814	500,000 00
Arming and equipping the militia.....	2 Stat., 490	Apr. 23, 1808	200,000 00
For the calendar year 1815:			
Ordnance and ordnance stores, including arsenals, magazines, and armories.....	3 Stat., 223	Mar. 3, 1815	932,338 00
For the Ordnance Department.....	3 Stat., 252	Dec. 21, 1815	140,000 00
Arming and equipping the militia.....	2 Stat., 490	Apr. 23, 1808	200,000 00
For the calendar year 1816:			
Armories.....	3 Stat., 257	Mar. 18, 1816	337,848 25
Arms.....	3 Stat., 257	Mar. 18, 1816	323,000 00
Timber for mounting cannon.....	3 Stat., 257	Mar. 18, 1816	75,000 00
Coals, iron, and steel.....	3 Stat., 257	Mar. 18, 1816	79,000 00
Contracts for gunpowder.....	3 Stat., 257	Mar. 18, 1816	93,000 00
Contracts for cannon, shot, and shells.....	3 Stat., 257	Mar. 18, 1816	111,000 00
Arming and equipping the militia.....	2 Stat., 490	Apr. 23, 1808	200,000 00
For the calendar year 1817:			
For the Ordnance Department.....	3 Stat., 351	Mar. 3, 1817	191,738 00
Fulfilling contracts for cannon and shot.....	3 Stat., 352	Mar. 3, 1817	60,000 00
Completing arsenals already commenced, including that at Pittsburg, and not including that at Frankford.....	3 Stat., 359	Mar. 3, 1817	134,500 00
Purchasing materials for carriages for cannon and caissons.....	3 Stat., 359	Mar. 3, 1817	20,000 00
Fulfilling contract for saltpeter.....	3 Stat., 359	Mar. 3, 1817	43,750 00
Armories.....	3 Stat., 359	Mar. 3, 1817	337,367 00
For the Ordnance Department.....	3 Stat., 378	Mar. 3, 1817	144,000 00
Arming and equipping the militia.....	2 Stat., 490	Apr. 23, 1808	200,000 00
For the calendar year 1818:			
For the Ordnance Department.....	3 Stat., 405	Feb. 19, 1818	154,200 00
Fulfilling contracts for cannon and shot.....	3 Stat., 405	Feb. 19, 1818	70,300 00
Completing the arsenal and other works at Watertown.....	3 Stat., 405	Feb. 19, 1818	39,000 00
Arsenal near Augusta, Ga.....	3 Stat., 405	Feb. 19, 1818	40,000 00
Arsenal at Baton Rouge.....	3 Stat., 405	Feb. 19, 1818	15,000 00
Arsenal at Detroit.....	3 Stat., 405	Feb. 19, 1818	10,000 00

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1818-1826

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Appropriations for ordnance purposes, &c.—Continued.

Objects for which appropriations were made.	Statutes at Large.	Date of appropriation act.	Amounts.
For the calendar year 1818—Continued.			
Completing the arsenal and other works at Pittsburgh.....	3 Stat., 408	Feb. 19, 1818	85,000 00
Armories.....	3 Stat., 408	Feb. 19, 1818	300,000 00
Arming and equipping the militia.....	2 Stat., 490	Apr. 23, 1808	200,000 00
For the calendar year 1819:			
Current expenses of the Ordnance Department.....	3 Stat., 480	Feb. 15, 1819	100,000 00
Armories at Springfield and Harper's Ferry.....	3 Stat., 480	Feb. 15, 1819	375,000 00
Completing arsenal at Augusta, Ga.....	3 Stat., 480	Feb. 15, 1819	50,000 00
Erecting a powder-magazine at Frankford, near Philadelphia.....	3 Stat., 480	Feb. 15, 1819	15,000 00
Completing the arsenal and other works at Watertown.....	3 Stat., 481	Feb. 15, 1819	20,000 00
Completing the arsenal and other works at Pittsburgh.....	3 Stat., 481	Feb. 15, 1819	5,000 00
Lever around the arsenal at Waterliet.....	3 Stat., 481	Feb. 15, 1819	6,000 00
Building a powder-magazine at Baton Rouge.....	3 Stat., 481	Feb. 15, 1819	20,000 00
Cannon, powder, and shot, to fulfill existing contracts, for mounting cannon, for purchase of lead.....	3 Stat., 481	Feb. 15, 1819	191,200 00
Arming and equipping the militia.....	2 Stat., 490	Apr. 23, 1808	200,000 00
For the calendar year 1820:			
National armories.....	3 Stat., 539	Jan. 14, 1820	56,000 00
Cannon and shot, to fulfill existing contracts, and for the purchase of flints and timber for traveling-carriages.....	3 Stat., 563	Apr. 14, 1820	53,000 00
National armories.....	3 Stat., 563	Apr. 14, 1820	319,000 00
Current expenses of the Ordnance Department.....	3 Stat., 563	Apr. 14, 1820	100,000 00
Completing the arsenal at Augusta, Ga.....	3 Stat., 563	Apr. 14, 1820	27,000 00
Completing the arsenal at Baton Rouge.....	3 Stat., 563	Apr. 14, 1820	25,000 00
Completing the arsenal at Watertown.....	3 Stat., 563	Apr. 14, 1820	8,650 00
Arming and equipping the militia.....	2 Stat., 490	Apr. 23, 1808	200,000 00
For the calendar year 1821:			
National armories (in addition to an unexpended balance of \$20,000).....	3 Stat., 634	Mar. 3, 1821	340,000 00
Current expenses of the ordnance service, an unexpended balance of \$23,683.07.....			
Fulfillment of existing contracts for cannon, shot, and shells, and for the purchase of 1,000 sword-belts and of timber for gun-carriages.....	3 Stat., 634	Mar. 3, 1821	53,250 00
Discharging arrearages incurred in building the arsenal at Augusta, Ga.....	3 Stat., 634	Mar. 3, 1821	40,000 00
Arming and equipping the militia.....	2 Stat., 490	Apr. 23, 1808	200,000 00
For the calendar year 1822:			
National armories.....	3 Stat., 657	May 7, 1822	360,000 00
Current expenses of the ordnance service, viz: for the preservation of the arms and other public property in store, including the hire of workmen, and the purchase of paint, oil, and other materials necessary for the purpose.....	3 Stat., 657	May 7, 1822	8,833 00
To meet ordinary requisitions for Army supplies, viz: for paint and oil for the preservation of the guns and carriages in the fortifications, and for artificers' and intrenching tools.....	3 Stat., 657	May 7, 1822	6,340 00
Miscellaneous expenses at arsenals, forage for public horses, stationery, &c.....	3 Stat., 657	May 7, 1822	2,862 00
Reparation of defective arms, including the wages of armorers, the purchase of iron, steel, coals, tools, &c.....	3 Stat., 657	May 7, 1822	11,960 00
Repairs of arsenals.....	3 Stat., 657	May 7, 1822	1,000 00
Preservation of ammunition.....	3 Stat., 657	May 7, 1822	5,000 00
Payment of outstanding claims which accrued in 1819 and 1820 at Pittsburgh, and not presented until 1821.....	3 Stat., 657	May 7, 1822	1,700 00
Arming and equipping the militia.....	2 Stat., 490	Apr. 23, 1808	200,000 00
For the calendar year 1823:			
National armories.....	3 Stat., 749	Mar. 3, 1823	360,000 00
Current expenses of the ordnance.....	3 Stat., 749	Mar. 3, 1823	45,000 00
Arsenals.....	3 Stat., 749	Mar. 3, 1823	33,400 00
Examination and report on a suitable site for a national armory on the Western waters.....	3 Stat., 782	Mar. 3, 1823	5,000 00
Purchase of small-arms for arming the whole body of the militia, in addition to the annual appropriation of the year 1823.....	3 Stat., 784	Mar. 3, 1823	20,000 00
Arming and equipping the militia.....	2 Stat., 490	Apr. 23, 1808	200,000 00
For the calendar year 1824:			
National armories.....	4 Stat., 8...	Mar. 10, 1824	360,000 00
Current expenses of the ordnance service.....	4 Stat., 8...	Mar. 10, 1824	42,000 00
Surveys, compensation to the commissioners, and other incidental expenses, under the act for establishing a national armory on the Western waters.....	4 Stat., 8...	Mar. 10, 1824	4,135 00
Arming and equipping the militia.....	2 Stat., 490	Apr. 23, 1808	200,000 00
For the calendar year 1825:			
National armories.....	4 Stat., 83...	Feb. 21, 1825	360,000 00
Current expenses of the ordnance service.....	4 Stat., 83...	Feb. 21, 1825	40,700 00
Arsenals.....	4 Stat., 83...	Feb. 21, 1825	44,600 00
Armament of new fortifications.....	4 Stat., 92...	Mar. 2, 1825	100,000 00
Arming and equipping the militia.....	2 Stat., 490	Apr. 23, 1808	200,000 00
For the calendar year 1826:			
National armories.....	4 Stat., 151	Mar. 25, 1826	360,000 00
Current expenses of the ordnance service.....	4 Stat., 151	Mar. 25, 1826	65,000 00
Arsenals.....	4 Stat., 151	Mar. 25, 1826	27,700 00

Building an arsenal at VERGNES VT 4571151 Mar 25 1826 15,000

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1826-1833

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Appropriations for ordnance purposes, &c.—Continued.

Objects for which appropriations were made.	Statutes at Large.	Date of appropriation act.	Amounts.
For the calendar year 1826—Continued.			
Armament of new fortifications	4 Stat., 151.	Mar. 25, 1826	\$100,000 00
Purchase of site and erection of new arsenal at Augusta, Ga.	4 Stat., 172	May 20, 1826	70,000 00
Purchase of site and erection of an arsenal at Saint Louis, Mo.	4 Stat., 179	May 20, 1826	15,000 00
Arming and equipping the militia	2 Stat., 490	Apr. 23, 1803	200,000 00
For the calendar year 1827:			
National armories	4 Stat., 215.	Mar. 2, 1827	360,000 00
Current expenses of the ordnance service	4 Stat., 215	Mar. 2, 1827	65,000 00
Arsenals	4 Stat., 215	Mar. 2, 1827	44,400 00
Purchase of site and erection of an arsenal at Augusta, Me.	4 Stat., 241	Mar. 3, 1827	15,000 00
Arming and equipping the militia	2 Stat., 490	Apr. 23, 1803	200,000 00
For the calendar year 1828:			
National armories	4 Stat., 254	Mar. 21, 1828	360,000 00
Current expenses of the ordnance service	4 Stat., 255	Mar. 21, 1828	65,000 00
Arsenals	4 Stat., 255	Mar. 21, 1828	57,300 00
Completing arsenal at Augusta, Me.	4 Stat., 258	Mar. 21, 1828	30,000 00
Armament of fortifications	4 Stat., 265	May 2, 1828	100,000 00
Purchase of site and erection of arsenal on the waters of Mobile or Pensacola Bay	4 Stat., 304	May 24, 1828	50,000 00
Arming and equipping the militia	2 Stat., 490	Apr. 23, 1803	200,000 00
For first quarter of calendar year 1829:			
National armories	4 Stat., 314	May 24, 1828	90,000 00
Current expenses of the ordnance service	4 Stat., 314	May 24, 1828	16,250 00
Armament of new fortifications	4 Stat., 314	May 24, 1828	25,000 00
For remainder of calendar year 1829:			
National armories	4 Stat., 349	Mar. 2, 1829	270,000 00
Armament of fortifications	4 Stat., 349	Mar. 2, 1829	75,000 00
Current expenses of the ordnance service	4 Stat., 349	Mar. 2, 1829	70,000 00
Arsenals	4 Stat., 349	Mar. 2, 1829	98,000 00
Arming and equipping the militia	2 Stat., 490	Apr. 23, 1803	230,000 00
For the calendar year 1830:			
National armories	4 Stat., 375	Mar. 11, 1830	360,000 00
Armament of fortifications	4 Stat., 375	Mar. 11, 1830	100,000 00
Current expenses of the ordnance service	4 Stat., 375	Mar. 11, 1830	56,000 00
Arsenals	4 Stat., 375	Mar. 11, 1830	90,200 00
Purchase of 5½ acres of land at Springfield Armory	4 Stat., 424	May 31, 1830	2,200 00
Erection of new fire-proof arsenal at Springfield Armory	4 Stat., 424	May 31, 1830	16,000 00
Extending walls and embankments which convey the water from the Potomac River to the works at Harper's Ferry	4 Stat., 424	May 31, 1830	9,300 00
Erecting a forging shop, tilt-hammer, and new workshop at Harper's Ferry	4 Stat., 424	May 31, 1830	6,500 00
Erection of ten additional dwelling-houses for the workmen at Harper's Ferry	4 Stat., 424	May 31, 1830	10,000 00
Slating the roofs of present workshops at Harper's Ferry	4 Stat., 424	May 31, 1830	3,200 00
Purchase of 5 acres of land at Water-own Arsenal	4 Stat., 425	May 31, 1830	500 00
Arming and equipping the militia	2 Stat., 490	Apr. 23, 1803	200,000 00
For the calendar year 1831:			
National armories	4 Stat., 467	Mar. 2, 1831	360,000 00
Armament of fortifications	4 Stat., 467	Mar. 2, 1831	100,000 00
Current expenses of the ordnance service	4 Stat., 467	Mar. 2, 1831	65,000 00
Arsenals	4 Stat., 467	Mar. 2, 1831	94,400 00
Further extension and completion of the walls and embankments for conveying water to the works at Harper's Ferry	4 Stat., 467	Mar. 2, 1831	7,500 00
Arming and equipping the militia	2 Stat., 490	Apr. 23, 1803	200,000 00
For the calendar year 1832:			
National armories	4 Stat., 502	Apr. 5, 1832	360,000 00
Armament of fortifications	4 Stat., 502	Apr. 5, 1832	100,000 00
Current expenses of the ordnance service	4 Stat., 502	Apr. 5, 1832	70,000 00
Arsenals	4 Stat., 502	Apr. 5, 1832	60,700 00
Arsenal in Florida	4 Stat., 502	Apr. 5, 1832	20,000 00
Arming and equipping the militia	2 Stat., 490	Apr. 23, 1803	200,000 00
For the calendar year 1833:			
National armories	4 Stat., 643	Mar. 2, 1833	360,000 00
Armament of fortifications	4 Stat., 643	Mar. 2, 1833	100,000 00
Current expenses of the ordnance service	4 Stat., 643	Mar. 2, 1833	69,300 00
Arsenals	4 Stat., 643	Mar. 2, 1833	96,500 00
Purchase of accoutrements and swords	4 Stat., 643	Mar. 2, 1833	16,750 00
Purchase of cannon	4 Stat., 643	Mar. 2, 1833	14,750 00
Payment of arms for mounted rangers	4 Stat., 643	Mar. 2, 1833	2,500 00
Purchase of arms for South Carolina	4 Stat., 643	Mar. 2, 1833	6,131 60
Erection of two new dwelling-houses at the national armory at Springfield, Mass., for the use of the master-armorers and paymaster	4 Stat., 641	Mar. 2, 1833	7,000 00
Building a pay-office and store at the same armory for the preservation of models and patterns	4 Stat., 641	Mar. 2, 1833	2,000 00
Building a work-shop for grinding and polishing at the same armory	4 Stat., 641	Mar. 2, 1833	6,000 00
Enlarging and repairing the shop for welding and boring musket-barrels at the same armory	4 Stat., 641	Mar. 2, 1833	1,500 00
Additional machinery at the same armory	4 Stat., 641	Mar. 2, 1833	3,500 00

Appropriations for ordnance purposes, &c.—Continued.

Objects for which appropriations were made.	Statutes at Large.	Date of appropriation act.	Amounts.
For the calendar year 1833.—Continued.			
One steam-engine of 15-horse power at the same armory.	4 Stat., 641.	Mar. 2, 1833	\$1,500 00
Thirty-six double racks for placing arms in the new arsenal at the same armory.	4 Stat., 641.	Mar. 2, 1833	5,100 00
Erection of twelve additional dwelling-houses for the workmen at the national armory at Harper's Ferry.	4 Stat., 641.	Mar. 2, 1833	8,600 00
Repairs and extension of the public dam on the Potomac River from which the supply of water is obtained for the works at said armory.	4 Stat., 642.	Mar. 2, 1833	5,000 00
Enlargement of the canal supplying the water-power of the public works of the said armory from the Potomac dam.	4 Stat., 642.	Mar. 2, 1833	13,495 00
Repairing the walls of four workshops at said armory.	4 Stat., 642.	Mar. 2, 1833	1,500 00
Constructing three new water-wheels, and the machinery in the boring, turning, and stocking shops, and sinking flames at the said armory.	4 Stat., 642.	Mar. 2, 1833	8,400 00
Completing the forging shop, tilt-hammer, and new workshop at the said armory.	4 Stat., 642.	Mar. 2, 1833	13,300 00
Purchase of one square acre of land, with the improvements, adjoining the arsenal near Pittsburg (to be paid out of the proceeds of sale of certain lots of United States lands at Pittsburg).	4 Stat., 642.	Mar. 2, 1833	3,500 00
Purchase of 45 acres of land adjoining the Watervliet Arsenal.	4 Stat., 642.	Mar. 2, 1833	9,600 00
Purchase of the right to the water-power on the Shenandoah River for the use of the United States rifle-factory.	4 Stat., 642.	Mar. 2, 1833	4,600 00
Arming and equipping the militia.	2 Stat., 490.	Apr. 23, 1833	200,000 00
For the calendar year 1834:			
National armories.	4 Stat., 674.	May 14, 1834	300,000 00
Armament of fortifications.	4 Stat., 674.	May 14, 1834	100,000 00
Current expenses of the ordnance service.	4 Stat., 674.	May 14, 1834	63,400 00
Arsenals.	4 Stat., 674.	May 14, 1834	150,000 00
Arsenal at Saint Louis.	4 Stat., 674.	May 14, 1834	8,500 00
Purchase of 5,000 sets of accouterments for the artillery and infantry regiments.	4 Stat., 675.	May 14, 1834	14,250 00
Finishing gun-racks and making window-shutters to the new arsenal, rebuilding middle water-shop, 110 feet by 50 feet, and for building a house for steam-engine, including a store-room for iron, 52 feet by 46 feet, at the national armory, Springfield, Mass.	4 Stat., 675.	May 14, 1834	12,200 00
Additional machinery and fixtures at the same armory, viz: 3 water-wheels for grinding musket-barrels, 6 water-wheels and 22 forges required to the middle water-shop, blast machinery for 11 double forges, and for the purchase of new and improved labor-saving machinery.	4 Stat., 675.	May 14, 1834	17,800 00
Siding roof and rebuilding water-wheel of upper workshop, renewing and repairing fences on the public ground, and for painting public buildings at the same armory.	4 Stat., 675.	May 14, 1834	3,500 00
Repairing dam, and removing obstructions in way of supplying the water to the rifle factory on the Shenandoah River, at the national armory at Harper's Ferry, Va.	4 Stat., 675.	May 14, 1834	2,000 00
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 addition to stocking-shops, and for erecting a carpenter's and machine shop, at the same armory.	4 Stat., 675.	May 14, 1834	36,114 86
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 at the same armory.	4 Stat., 675.	May 14, 1834	8,589 87
Payment of taxes assessed by the State of Pennsylvania on the United States Arsenal on the Schuylkill River.	4 Stat., 675.	May 14, 1834	563 59
Purchase of three acres of land on the Alabama River, and building a warehouse and dock at the Mount Vernon Arsenal, Alabama.	4 Stat., 675.	May 14, 1834	1,800 50
Completing the canal from the public dam across the Potomac River to the works at the armory at Harper's Ferry.	4 Stat., 670.	June 19, 1834	3,378 27
Arming and equipping the militia.	2 Stat., 490.	Apr. 23, 1833	200,000 00
For the calendar year 1835:			
National armories.	4 Stat., 748.	Jan. 27, 1835	330,000 00
Armament of new fortifications.	4 Stat., 748.	Jan. 27, 1835	100,000 00
Arsenals.	4 Stat., 748.	Jan. 27, 1835	94,334 00
Current expenses of the ordnance service.	4 Stat., 748.	Jan. 27, 1835	64,400 00
Arming and equipping the militia.	2 Stat., 490.	Apr. 23, 1833	200,000 00
For the calendar year 1836:			
National armories.	5 Stat., 31.	May 14, 1836	330,000 00
Armament of fortifications.	5 Stat., 31.	May 14, 1836	200,000 00
Current expenses of the ordnance service.	5 Stat., 31.	May 14, 1836	75,670 00
Purchase of gunpowder.	5 Stat., 31.	May 14, 1836	100,000 00

OR

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Appropriations for ordnance purposes, &c.—Continued.

Objects for which appropriations were made.	Statutes at Large.	Date of appropriation act.	Amounts.
For the calendar year 1836—Continued.			
Arsenals.....	5 Stat., 31.	May 14, 1836	227,532 00
Supplying the arsenals with certain ordnance stores.....	5 Stat., 31.	May 14, 1836	18,575 00
Purchase of cannon-balls.....	5 Stat., 31.	May 14, 1836	29,458 00
Armament of fortifications, including cannon, mortars, howitzers, gun-carriages, howitzer-carriages, mortar-beds, powder, cannon-balls, shells, and for the transportation of ordnance and ordnance stores, and for the purchase of 20 acres of land adjoining the Kennebec Arsenal, Maine, and the purchase of land and inclosing the rear of the public grounds with a brick wall and coping at the Frankford Arsenal, Pennsylvania; and constructing a forging-shop, one story high, 75 feet by 40 feet, of brick, at the arsenal, Watertown, Mass., and in the purchase of a steam-engine of 8-horse power, and for the quarters of officers at Fort Monroe Arsenal.....	5 Stat., 77.	July 2, 1836	400,000 00
Accouterments for the Army.....	5 Stat., 77.	July 2, 1836	162,305 00
Purchase of sites and the construction of arsenals for the deposit of arms in Arkansas, Missouri, and at Memphis, Tenn.....	5 Stat., 77.	July 2, 1836	42,256 00
Purchasing seven acres of land, including the site of the powder-magazine attached to the arsenal at Saint Louis, Mo.....	5 Stat., 77.	July 2, 1836	2,100 00
National armory at Harper's Ferry.....	5 Stat., 77.	July 2, 1836	77,897 00
National armory at Springfield, Mass.....	5 Stat., 77.	July 2, 1836	43,000 00
Purchase or manufacture of light brass and iron field-artillery, and for construction of field-artillery carriages, caissons, and traveling-forges.....	5 Stat., 77.	July 2, 1836	137,190 00
Construction of furnaces for heating cannon-locks.....	5 Stat., 77.	July 2, 1836	12,000 00
Repairs and improvements of Charleston Arsenal.....	5 Stat., 66.	July 2, 1836	20,000 00
Purchase of site and erection of arsenal at Fayetteville, N. C.....	5 Stat., 47.	June 14, 1836	45,000 00
Arming and equipping the militia.....	2 Stat., 430.	Apr. 23, 1836	200,000 00
For the calendar year 1837:			
National armories.....	5 Stat., 149.	Mar. 1, 1837	360,000 00
Armament of the fortifications.....	5 Stat., 149.	Mar. 1, 1837	2,000 00
Current expenses of the ordnance service.....	5 Stat., 149.	Mar. 1, 1837	123,975 00
Arsenals.....	5 Stat., 149.	Mar. 1, 1837	373,429 00
Purchase of percussion cannon-locks.....	5 Stat., 149.	Mar. 1, 1837	13,000 00
Manufacture of elevating machines for barbette and casemate carriages.....	5 Stat., 149.	Mar. 1, 1837	5,250 00
Manufacture of sponges for belt and battery cannon.....	5 Stat., 149.	Mar. 1, 1837	1,900 00
Rifle-factory at Harper's Ferry Armory.....	5 Stat., 149.	Mar. 1, 1837	8,569 00
Constructing a river wall, making the embankment to the same, arching, stone-walling, repairing the embankment of the new canal, and for completing the tilt-hammer shop at Harper's Ferry.....	5 Stat., 149.	Mar. 1, 1837	53,742 00
Magazine at the arsenal at Baton Rouge, La.....	5 Stat., 149.	Mar. 1, 1837	5,000 00
Purchase of land, building a brick warehouse and wharf, and making a turnpike road to the river at the arsenal at Mount Vernon, Ala.....	5 Stat., 149.	Mar. 1, 1837	6,600 00
Enlarging the site at the arsenal at Frankford, Pa.....	5 Stat., 149.	Mar. 1, 1837	1,000 00
Blacksmith's shop, a reservoir, and a gun-carriage house at Watertown, Mass.....	5 Stat., 149.	Mar. 1, 1837	23,100 00
Purchase of 10,000 copper rifle-balls.....	5 Stat., 149.	Mar. 1, 1837	17,000 00
Arming and equipping the militia.....	2 Stat., 490.	Apr. 23, 1836	200,000 00
For the calendar year 1838:			
National armories.....	5 Stat., 225.	Apr. 6, 1838	360,000 00
Armament of fortifications.....	5 Stat., 225.	Apr. 6, 1838	100,000 00
Current expenses of the ordnance service.....	5 Stat., 225.	Apr. 6, 1838	95,000 00
Arsenals.....	5 Stat., 225.	Apr. 6, 1838	150,000 00
Manufacture of elevating machines for barbette and casemate carriages.....	5 Stat., 225.	Apr. 6, 1838	5,000 00
Purchase and manufacture of light field-artillery.....	5 Stat., 225.	Apr. 6, 1838	39,953 00
Purchase of gunpowder and grape-shot.....	5 Stat., 225.	Apr. 6, 1838	37,500 00
Taxes on the Passayunk Arsenal, near Philadelphia, for 1837 and 1838.....	5 Stat., 225.	Apr. 6, 1838	1,450 00
Purchase of powder and other materials for cartridges together with the repairs of gun-carriages, small-arms and accouterments.....	5 Stat., 242.	June 12, 1838	35,000 00
Procuring new machinery for the Harper's Ferry Armory.....	5 Stat., 267.	July 7, 1838	20,000 00
Arming and equipping the militia.....	2 Stat., 490.	Apr. 23, 1836	200,000 00
For the calendar year 1839:			
Accouterments and arms for Infantry and cavalry, including militia infantry and cavalry, ammunition for men and field-artillery, and repairs of arms, and for contingencies.....	5 Stat., 338.	Mar. 3, 1839	71,000 00
National armories.....	5 Stat., 340.	Mar. 3, 1839	360,000 00
Armament of the fortifications.....	5 Stat., 360.	Mar. 3, 1839	100,000 00
Current expense of the ordnance service.....	5 Stat., 360.	Mar. 3, 1839	100,000 00
Ordnance, ordnance stores, and supplies.....	5 Stat., 360.	Mar. 3, 1839	123,000 00
Arsenals.....	5 Stat., 360.	Mar. 3, 1839	150,000 00
New machinery at the Springfield Armory.....	5 Stat., 360.	Mar. 3, 1839	20,000 00
Purchase of land at the Allegheny and Watertown Arsenals.....	5 Stat., 360.	Mar. 3, 1839	3,500 00

OR

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Appropriations for ordnance purposes, &c.—Continued.

Objects for which appropriations were made.	Statutes at Large.	Date of appropriation act.	Amounts.
For the calendar year 1839—Continued.			
Preparing drawings of a uniform system of artillery, and for other supplies in the Ordnance Department	5 Stat., 360	Mar. 3, 1839	\$3,000 00
Arming and equipping the militia	2 Stat., 490	Apr. 23, 1808	200,000 00
For the calendar year 1840:			
National armories	5 Stat., 405	July 20, 1840	360,000 00
Armament of fortifications	5 Stat., 405	July 20, 1840	150,000 00
Current expenses of the ordnance service	5 Stat., 405	July 20, 1840	100,000 00
Ordnance, ordnance stores, and supplies	5 Stat., 405	July 20, 1840	100,000 00
Arsenals	5 Stat., 405	July 20, 1840	150,000 00
Repairs and improvements at the Springfield Armory	5 Stat., 406	July 20, 1840	10,500 00
Repairs and improvements at the Harper's Ferry Armory	5 Stat., 406	July 20, 1840	50,000 00
Purchase of saltpeter and brimstone	5 Stat., 406	July 20, 1840	40,000 00
Preparing drawings of a uniform system of artillery, and for other supplies in the Ordnance Department	5 Stat., 406	July 20, 1840	3,000 00
Repairs of arsenals damaged by storms and fire	5 Stat., 406	July 20, 1840	19,785 00
Arming and equipping the militia	2 Stat., 490	Apr. 23, 1808	200,000 00
For the calendar year 1841:			
National armories	5 Stat., 434	Mar. 3, 1841	360,000 00
Current expenses of the ordnance service	5 Stat., 434	Mar. 3, 1841	85,000 00
Armament of fortifications	5 Stat., 434	Mar. 3, 1841	100,000 00
Ordnance, ordnance stores, and supplies	5 Stat., 434	Mar. 3, 1841	80,000 00
Arsenals	5 Stat., 434	Mar. 3, 1841	120,000 00
Purchasing site and rebuilding arsenal at Charleston, S. C.	5 Stat., 434	Mar. 3, 1841	25,000 00
Repairs and improvements and new machinery at the Springfield Armory	5 Stat., 434	Mar. 3, 1841	20,000 00
Repairs and improvements and new machinery at the Harper's Ferry Armory	5 Stat., 434	Mar. 3, 1841	35,000 00
Purchase of saltpeter and brimstone	5 Stat., 434	Mar. 3, 1841	20,000 00
Preparing drawings of a uniform system of artillery	5 Stat., 434	Mar. 3, 1841	3,600 00
Arming and equipping the militia	2 Stat., 490	Apr. 23, 1808	200,000 00
Current expenses of the ordnance service	5 Stat., 459	Sept. 9, 1841	25,000 00
Ordnance and ordnance stores	5 Stat., 459	Sept. 9, 1841	75,000 00
Armament of fortifications	5 Stat., 459	Sept. 9, 1841	104,000 00
Purchase of saltpeter and brimstone	5 Stat., 459	Sept. 9, 1841	20,000 00
Expenses of selecting a suitable site on the western waters for the establishment of a national armory	5 Stat., 460	Sept. 9, 1841	5,000 00
For the calendar year 1842:			
Manufacture of arms at the national armories, of which \$10,000 may, at the discretion of the Secretary of War, be applied to the purchase of arms	5 Stat., 509	Aug. 23, 1842	369,600 00
Current expenses of the ordnance service	5 Stat., 509	Aug. 23, 1842	104,000 00
Armament of fortifications, including compensation of special agent to attend at the foundries employed in making cannon	5 Stat., 509	Aug. 23, 1842	150,000 00
Ordnance, ordnance stores, and supplies	5 Stat., 509	Aug. 23, 1842	100,000 00
Repairs, improvements, and new machinery at Springfield Armory	5 Stat., 509	Aug. 23, 1842	20,000 00
Repairs, improvements, and new machinery at Harper's Ferry Armory	5 Stat., 509	Aug. 23, 1842	30,000 00
Arsenals	5 Stat., 509	Aug. 23, 1842	120,000 00
Purchase of saltpeter and brimstone	5 Stat., 509	Aug. 23, 1842	40,000 00
Preparing drawings of a uniform system of artillery	5 Stat., 509	Aug. 23, 1842	1,350 00
Arming and equipping the militia	2 Stat., 490	Apr. 23, 1808	200,000 00
For the fiscal year June 30, 1844:			
Manufacture of arms at the national armories	5 Stat., 605	Mar. 1, 1843	300,000 00
Current expenses of the ordnance service	5 Stat., 605	Mar. 1, 1843	50,000 00
Armament of fortifications, including compensation of a competent person to superintend the manufacture of cannon	5 Stat., 605	Mar. 1, 1843	100,000 00
Ordnance and ordnance stores	5 Stat., 605	Mar. 1, 1843	75,000 00
Repairs, improvements, and new machinery at Springfield Armory	5 Stat., 605	Mar. 1, 1843	26,500 00
Repairs, improvements, and new machinery at Harper's Ferry Armory	5 Stat., 605	Mar. 1, 1843	30,500 00
Arsenals	5 Stat., 605	Mar. 1, 1843	90,000 00
Purchase of saltpeter and brimstone	5 Stat., 605	Mar. 1, 1843	40,000 00
Completing the principal buildings of the arsenal at Charleston, S. C.	5 Stat., 605	Mar. 1, 1843	32,000 00
Preparing drawings of artillery	5 Stat., 605	Mar. 1, 1843	1,200 00
Arming and equipping the militia for the period commencing with the calendar year 1843 and ending with the fiscal year 1844 (eighteen months)	2 Stat., 490	Apr. 23, 1808	300,000 00
For the fiscal year June 30, 1845:			
Manufacture of arms at the national armories	5 Stat., 628	June 17, 1844	300,000 00
Current expenses of the ordnance service	5 Stat., 628	June 17, 1844	50,000 00
Armament of fortifications	5 Stat., 628	June 17, 1844	100,000 00
Ordnance, ordnance stores, and supplies	5 Stat., 628	June 17, 1844	75,000 00

The fiscal year for all Treasury accounts and for appropriation acts was changed so as to end on June 30 each year by act of August 26, 1842. No appropriations were made for the Ordnance Department for the half of calendar year ending June 30, 1843.

O.R.

1844

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Appropriations for ordnance purposes, &c.—Continued.

Objects for which appropriations were made.	Statutes at Large.	Date of appropriation act.	Amounts.
For the fiscal year June 30, 1845—Continued.			
Arsenals.....	5 Stat., 692	June 17, 1844	\$100,000 00
Purchase of saltpeter and brimstone.....	5 Stat., 692	June 17, 1844	40,000 00
Preparing drawings of artillery.....	5 Stat., 692	June 17, 1844	1,000 00
Repairs, improvements, and new machinery at Springfield Armory.....	5 Stat., 693	June 17, 1844	25,000 00
Repairs, improvements, and new machinery at Harper's Ferry Armory.....	5 Stat., 692	June 17, 1844	12,000 00
Arming and equipping the militia.....	2 Stat., 490	Apr. 23, 1808	200,000 00
Total.....			32,226,001 34

Appropriations for the Office of the Colonel of Ordnance from 1815 to 1845.

NOTE.—No specific appropriations for the expenses of the office were made before 1815.

Clerical personnel.	Statutes at Large.	Appropriation act.	For the calendar year.	Contingent expenses.	Total.
For clerks, books, and stationery.....	3 Stat., 205	Feb. 2, 1815	1815		\$1,000
Do.....	3 Stat., 205	Feb. 2, 1815	1816		1,000
Do.....	3 Stat., 205	Feb. 2, 1815	1817		1,000
One clerk, \$1,150; one at \$1,000; one at \$800.....	3 Stat., 446	Apr. 20, 1818	1818	\$2,950	2,950
Do.....	3 Stat., 493	Mar. 3, 1819	1819	2,950	3,820
Do.....	3 Stat., 553	Apr. 11, 1820	1820	2,950	3,710
Do.....	3 Stat., 630	Mar. 3, 1821	1821	2,950	3,650
Do.....	3 Stat., 670	Apr. 30, 1822	1822	2,950	2,950
Do.....	3 Stat., 760	Mar. 3, 1823	1823	2,950	3,670
Do.....	4 Stat., 14	Apr. 2, 1824	1824	2,950	2,950
Do.....	4 Stat., 67	Feb. 25, 1825	1825	2,950	2,950
Do.....	4 Stat., 145	Mar. 14, 1826	1826	2,950	3,710
Do.....	4 Stat., 211	Mar. 2, 1827	1827	2,950	3,710
Do.....	4 Stat., 250	Feb. 12, 1828	1828	2,950	3,750
Do.....	4 Stat., 326	Jan. 6, 1829	1829	2,950	3,750
Do.....	4 Stat., 340	Mar. 2, 1831	1831	2,950	3,750
Do.....	4 Stat., 379	Mar. 18, 1830	1830	2,950	3,750
Do.....	4 Stat., 455	Mar. 2, 1831	1831	2,950	3,750
Do.....	4 Stat., 509	May 5, 1834	1832	2,950	3,750
Do.....	4 Stat., 622	Mar. 2, 1833	1833	2,950	3,750
Do.....	4 Stat., 692	June 27, 1834	1834	2,950	3,750
Do.....	4 Stat., 764	Mar. 3, 1835	1835	2,950	3,750
One clerk, \$1,200; one at \$1,150; five at \$1,000; one at \$820; and one messenger.....	5 Stat., 19	May 9, 1836	1836	8,650	9,450
Do.....	5 Stat., 26	May 9, 1836			
Do.....	5 Stat., 113	July 4, 1836			
Do.....	5 Stat., 166	Mar. 3, 1837	1837	8,650	9,450
Do.....	5 Stat., 219	Apr. 6, 1838	1838	8,650	9,450
Do.....	5 Stat., 342	Mar. 3, 1839	1839	8,650	9,650
Do.....	5 Stat., 374	Mar. 2, 1840	1840	8,650	9,650
Do.....	5 Stat., 421	Mar. 3, 1841	1841	8,650	10,200
Do.....	5 Stat., 477	May 12, 1842	1842	8,650	9,375
Do.....	5 Stat., 523	Aug. 26, 1842			
Do.....	5 Stat., 529	Aug. 26, 1842			
Do.....	5 Stat., 529	Dec. 24, 1842	1843	4,325	4,725
Do.....	5 Stat., 635	Mar. 3, 1843	1844	8,650	9,425
Do.....	5 Stat., 626	June 17, 1844	1845	8,150	8,920
Total.....					157,450

* Half-year.

† Fiscal year.

O.R.

1845-1848

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APPROPRIATIONS FOR ORDNANCE PURPOSES, 1845 TO 1860.

Objects for which appropriations were made.	Statutes at Large.	Date of appropriation acts.	Amounts.
For the fiscal year, June 30, 1846:			
Purchase of ordnance, ordnance stores, and supplies	5 Stat., 747	Mar. 3, 1845	\$20,000 00
Current expenses of ordnance service	5 Stat., 747	Mar. 3, 1845	100,000 00
Manufacture of arms at the national armories, of which the sum of \$100,000 may be used for repairs, provided it can be used for that purpose without injury to the public service	5 Stat., 747	Mar. 3, 1845	360,000 00
Arsenals	5 Stat., 747	Mar. 3, 1845	100,000 00
Purchase of salt peter and brimstone	5 Stat., 747	Mar. 3, 1845	40,000 00
Repairs and improvements and new machinery at Springfield Armory	5 Stat., 747	Mar. 3, 1845	29,500 00
Repairs and improvements and new machinery at Harper's Ferry Armory	5 Stat., 747	Mar. 3, 1845	18,000 00
Armament of fortifications	5 Stat., 747	Mar. 3, 1845	100,000 00
Arming and equipping the militia	2 Stat., 490	Apr. 23, 1808	200,000 00
For the fiscal year, June 30, 1847:			
Armament of fortifications	9 Stat., 12	May 15, 1846	300,000 00
Ordnance, arms, &c	9 Stat., 35	July 29, 1846	344,000 00
Purchase of ordnance, ordnance stores, and supplies	9 Stat., 69	Aug. 8, 1846	100,000 00
Current expenses of the ordnance service	9 Stat., 69	Aug. 8, 1846	100,000 00
Manufacture of arms at the national armories	9 Stat., 69	Aug. 8, 1846	300,000 00
Repairs and improvements and new machinery at Springfield Armory	9 Stat., 69	Aug. 8, 1846	125,000 00
Repairs and improvements and new machinery at Harper's Ferry Armory	9 Stat., 69	Aug. 8, 1846	128,361 00
Arsenals, of which \$12,500 is authorized to be applied to the purchase of a site and building a magazine for Washington Arsenal	9 Stat., 69	Aug. 8, 1846	168,583 00
Purchase of salt peter and brimstone	9 Stat., 69	Aug. 8, 1846	40,000 00
Purchase of gunpowder	9 Stat., 69	Aug. 8, 1846	100,000 00
Expenses of preparing drawings of a uniform system of artillery	9 Stat., 69	Aug. 8, 1846	1,000 00
Expenses of the mineral land service	9 Stat., 69	Aug. 8, 1846	30,000 00
Arming and equipping the militia	2 Stat., 490	Apr. 23, 1808	200,000 00
For the fiscal year, June 30, 1848:			
Purchase of ordnance, ordnance stores, and supplies	9 Stat., 150	Mar. 2, 1847	367,629 00
Current expenses of the ordnance service	9 Stat., 151	Mar. 2, 1847	100,000 00
Armament of fortifications	9 Stat., 151	Mar. 2, 1847	100,000 00
Manufacture of arms at the national armories	9 Stat., 151	Mar. 2, 1847	360,000 00
Repairs and improvements and new machinery at Springfield Armory	9 Stat., 151	Mar. 2, 1847	18,500 00
Repairs and improvements and new machinery at Harper's Ferry Armory	9 Stat., 151	Mar. 2, 1847	17,770 00
Arsenals	9 Stat., 151	Mar. 2, 1847	51,480 00
Expenses of preparing drawings of a uniform system of artillery	9 Stat., 151	Mar. 2, 1847	5,000 00
Ordnance, ordnance stores, and supplies	9 Stat., 151	Mar. 2, 1847	452,557 00
Purchase of ordnance, ordnance stores, and supplies	9 Stat., 216	Mar. 27, 1848	300,000 00
Arming and equipping the militia	2 Stat., 490	Apr. 23, 1808	200,000 00
For fiscal year, June 30, 1849:			
Armament of fortifications	9 Stat., 305	Aug. 14, 1848	100,000 00
Purchase of ordnance, ordnance stores, and supplies	9 Stat., 305	Aug. 14, 1848	150,000 00
Current expenses of the ordnance service	9 Stat., 305	Aug. 14, 1848	100,000 00
Manufacture of arms at the national armories	9 Stat., 305	Aug. 14, 1848	360,000 00
Repairs, improvements, and new machinery at Harper's Ferry Armory	9 Stat., 306	Aug. 14, 1848	53,091 00
Repairs, improvements, and new machinery at Springfield Armory	9 Stat., 306	Aug. 14, 1848	81,000 00
Arsenals	9 Stat., 306	Aug. 14, 1848	130,328 00
Purchase of land at Springfield, Mass., adjacent to new arsenal and public buildings	9 Stat., 306	Aug. 14, 1848	10,000 00
Purchase of land at Springfield, Mass., to be flowed by raising dam at upper water shop	9 Stat., 306	Aug. 14, 1848	5,000 00
Expenses of preparing drawings of a uniform system of artillery	9 Stat., 306	Aug. 14, 1848	3,000 00
Swords for Generals Butler, Henderson, Twiggs, Worth, Quitman, and Hamer, under joint resolution of March 2, 1847 (9 Stat., 206)	9 Stat., 344	Jan. 26, 1849	9,000 00
Arming and equipping the militia	2 Stat., 490	Apr. 23, 1808	200,000 00
* By act of August 8, 1846 (9 Stat., 69), \$20,000 of this amount is authorized to be applied to the purchase of land.			
† By joint resolution March 3, 1847 (9 Stat., 207), a portion of this amount authorized to be applied to the purchase of land.			
‡ By joint resolution March 3, 1847 (9 Stat., 207), a portion of this amount authorized to be applied to the purchase of land.			

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Appropriations for ordnance purposes, 1845 to 1860—Continued

Objects for which appropriations were made.	Statutes at Large.	Date of appropriation acts.	Amounts.
For fiscal year, June 30, 1850:			
Armament of fortifications	9 Stat., 372	Mar. 3, 1849	\$100,000 00
Purchase of ordnance, ordnance stores, and supplies	9 Stat., 372	Mar. 3, 1849	100,000 00
Current expenses of the ordnance service	9 Stat., 372	Mar. 3, 1849	100,000 00
Manufacture of arms at the national armories	9 Stat., 372	Mar. 3, 1849	360,000 00
Purchase of Colt's revolving pistols if the Secretary of War should deem it advisable and proper	9 Stat., 372	Mar. 3, 1849	50,000 00
Repairs and improvements and new machinery at Harper's Ferry Armory	9 Stat., 372	Mar. 3, 1849	62,620 00
Repairs and improvements and new machinery at Springfield Armory	9 Stat., 372	Mar. 3, 1849	82,500 00
Arsenals	9 Stat., 372	Mar. 3, 1849	74,261 00
Purchase of a lot of ground at Harper's Ferry contiguous to the public buildings	9 Stat., 372	Mar. 3, 1849	200 00
Purchase of land at Springfield Armory, to be flowed by raising the dam at the upper shop, and of a lot on the northwest corner of the armory grounds	9 Stat., 372	Mar. 3, 1849	9,000 00
Purchase of a site for magazine at Saint Louis Arsenal	9 Stat., 372	Mar. 3, 1849	5,000 00
Purchase of land adjoining Frankford Arsenal, Pennsylvania	9 Stat., 372	Mar. 3, 1849	20,000 00
Erecting suitable buildings and machinery for the manufacture of percussion caps at Frankford Arsenal	9 Stat., 372	Mar. 3, 1849	15,000 00
Expense of compiling, arranging, publishing, and supervising the publication of a new edition of the Ordnance Manual of 1,500 copies*	9 Stat., 372	Mar. 3, 1849	6,000 00
Arming and equipping the militia	2 Stat., 490	Apr. 23, 1808	200,000 00
For fiscal year, June 30, 1851:			
Armament of fortifications	9 Stat., 506	Sept. 28, 1850	100,000 00
Purchase of ordnance, ordnance stores, and supplies	9 Stat., 506	Sept. 28, 1850	100,000 00
Current expenses of the ordnance service	9 Stat., 506	Sept. 28, 1850	100,000 00
Manufacture of arms at the national armories	9 Stat., 506	Sept. 28, 1850	360,000 00
Repairs and improvements and new machinery at Harper's Ferry Armory	9 Stat., 507	Sept. 28, 1850	50,560 00
Repairs and improvements and new machinery at Springfield Armory	9 Stat., 507	Sept. 28, 1850	56,600 00
Arsenals, \$16,000 of which to be applied to the completion of North Carolina Arsenal	9 Stat., 507	Sept. 28, 1850	117,586 00
Purchase of a lot of ground at Springfield, Mass., adjoining the armory grounds on the hill and near the new arsenal	9 Stat., 507	Sept. 28, 1850	8,500 00
Arming and equipping the militia	2 Stat., 490	Apr. 23, 1808	200,000 00
For fiscal year, June 30, 1852:			
Purchase of ordnance, ordnance stores, and supplies	9 Stat., 620	Mar. 3, 1851	100,000 00
Current expenses of ordnance service	9 Stat., 620	Mar. 3, 1851	100,000 00
Manufacture of arms at the national armories	9 Stat., 620	Mar. 3, 1851	360,000 00
Repairs and improvements and new machinery at Harper's Ferry Armory	9 Stat., 620	Mar. 3, 1851	23,100 00
Repairs and improvements and new machinery at Springfield Armory	9 Stat., 620	Mar. 3, 1851	47,000 00
Expenses of suits at law against superintendent of Springfield Armory involving United States title to lands at Springfield Armory	9 Stat., 620	Mar. 3, 1851	5,000 00
Arsenals	9 Stat., 620	Mar. 3, 1851	117,586 00
Erection of two magazines for powder at Jefferson Barracks, including the \$5,000 heretofore appropriated	9 Stat., 620	Mar. 3, 1851	20,000 00
Arming and equipping the militia	2 Stat., 490	Apr. 23, 1808	200,000 00
For fiscal year, June 30, 1853:			
Armament of fortifications	10 Stat., 107	Aug. 31, 1852	50,000 00
Ordnance stores and supplies, as follows: For procurement of side-arms and accoutrements for artillery, infantry, cavalry, and riflemen; materials for and preparation of siege and field ammunition; wages of mechanics engaged in making carriages, implements, equipments, harness, &c., and for purchase of miscellaneous supplies of ordnance stores for issue to the army	10 Stat., 107	Aug. 31, 1852	65,000 00
Current expenses of the ordnance service	10 Stat., 107	Aug. 31, 1852	100,000 00
Manufacture of arms at the national armories	10 Stat., 107	Aug. 31, 1852	250,000 00
Repairs and improvements and new machinery at Harper's Ferry Armory	10 Stat., 107	Aug. 31, 1852	28,250 00
Repairs and improvements and new machinery at Springfield Armory	10 Stat., 107	Aug. 31, 1852	32,500 00
Arsenals	10 Stat., 107	Aug. 31, 1852	66,955 00
Arming and equipping the militia	2 Stat., 490	Apr. 23, 1808	200,000 00
For fiscal year, June 30, 1854:			
Cannon, gun-carriages, and projectiles for sea-coast defense	10 Stat., 217	Mar. 3, 1853	200,000 00
Ordnance, ordnance stores, and supplies	10 Stat., 217	Mar. 3, 1853	100,000 00
Current expenses of the ordnance service	10 Stat., 217	Mar. 3, 1853	100,000 00
Manufacture of arms at the national armories	10 Stat., 217	Mar. 3, 1853	250,000 00
Damages at Harper's Ferry caused by flood of April 19, and 20, 1852	10 Stat., 217	Mar. 3, 1853	20,000 00

* By sixth section, act September 28, 1850 (9 Stat., 508), an unexpended balance of this sum is authorized to be paid to "the officer of the United States Army employed in compiling, arranging, and supervising the publication" of the Ordnance Manual.

OR

1853-1856

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Appropriations for ordnance purposes, 1815 to 1860—Continued.

Objects for which appropriations were made.	Statutes at Large.	Date of appropriation acts.	Amounts.
Repairs and improvements and new machinery at Harper's Ferry Armory	10 Stat., 217	Mar. 3, 1853	\$48,500 00
Repairs and improvements and new machinery at Springfield Armory	10 Stat., 217	Mar. 3, 1853	46,094 00
Arming and equipping the militia	10 Stat., 217	Mar. 3, 1853	41,071 00
For fiscal year, June 30, 1855:	2 Stat., 490	Apr. 23, 1808	200,000 00
Armament of fortifications	10 Stat., 578	Aug. 5, 1854	125,000 00
Ordnance, ordnance stores, and supplies	10 Stat., 578	Aug. 5, 1854	75,000 00
Current expenses of the ordnance service	10 Stat., 578	Aug. 5, 1854	100,000 00
Manufacture of arms at the national armories	10 Stat., 578	Aug. 5, 1854	250,000 00
Repairs and improvements and new machinery at Harper's Ferry Armory	10 Stat., 578	Aug. 5, 1854	35,100 00
Completion of magazine at Jefferson Barracks	10 Stat., 578	Aug. 5, 1854	23,310 00
Purchase of a site and construction of an arsenal at Benicia, Cal.	10 Stat., 578	Aug. 5, 1854	25,000 00
Sworn for Gen. John E. Wool, joint resolution January 24, 1854 (10 Stat., 591)	10 Stat., 579	Aug. 5, 1854	33,985 00
Purchase of the best breech-loading rifles, in the opinion of the Secretary of War, for the use of the United States Army, provided that the Secretary of War, after a fair practical test thereof, shall deem the purchase advisable and proper	10 Stat., 579	Aug. 5, 1854	1,500 00
Armament of fortifications in the harbor of San Francisco, Cal.	10 Stat., 348	Aug. 5, 1854	130,000 00
Arming and equipping the militia	2 Stat., 490	Apr. 23, 1808	200,000 00
For fiscal year, June 30, 1855:			
Armament of fortifications	10 Stat., 637	Mar. 3, 1855	125,000 00
Ordnance, ordnance stores, and supplies	10 Stat., 637	Mar. 3, 1855	100,000 00
Current expenses of the ordnance service	10 Stat., 637	Mar. 3, 1855	100,000 00
Contingencies of arsenals	10 Stat., 638	Mar. 3, 1855	50,000 00
Manufacture of arms at the national armories	10 Stat., 637	Mar. 3, 1855	250,000 00
Purchase of gunpowder for the Pacific coast	11 Stat., 3		120,000 00
Repairs and improvements and new machinery at Harper's Ferry Armory	10 Stat., 637	Mar. 3, 1855	32,673 00
Repairs and improvements and new machinery at Springfield Armory	10 Stat., 637	Mar. 3, 1855	54,000 00
New machinery at Harper's Ferry Armory	10 Stat., 637	Mar. 3, 1855	20,000 00
Purchase of lots and improvements at Harper's Ferry Armory	11 Stat., 143	Apr. 23, 1856	33,725 27
Repairs, preservation, and contingencies of arsenals, and for continuing the construction of the arsenal at Benicia, Cal.	10 Stat., 638	Mar. 3, 1855	40,000 00
Building for the militia of the District of Columbia, and for military trophies of the revolutionary and other wars	10 Stat., 665	Mar. 3, 1855	30,000 00
Compensation of civil superintendents at armories	10 Stat., 638	Mar. 3, 1855	5,000 00
Raising four additional regiments (assigned)	10 Stat., 639	Mar. 3, 1855	14,665 28
Arming and equipping the militia	2 Stat., 490	Apr. 23, 1808	200,000 00
Testing Lieutenant Rodman's plan of casting cannon hollow	10 Stat., 680	Mar. 3, 1855	6,000 00
For fiscal year, June 30, 1857:			
Armament of fortifications	11 Stat., 149	Aug. 30, 1856	125,000 00
Ordnance, ordnance stores, and supplies, including horse equipments for the mounted regiments	11 Stat., 149	Aug. 30, 1856	203,000 00
Current expenses of the ordnance service	11 Stat., 149	Aug. 30, 1856	100,000 00
Manufacture of arms at the national armories	11 Stat., 149	Aug. 30, 1856	250,000 00
To enable Thomas H. Barlow, of Kentucky, to manufacture one of his newly invented rifle cannon, for the purpose of testing the feasibility of their use in the military or naval service of the country, to be paid to the said Barlow from time to time as he progresses with the manufacture of the same, provided said cannon shall not be of less caliber than a 12-pounder; and provided further that the said Barlow shall give good and sufficient security to the Secretary of War for the faithful expenditure of the money hereby appropriated in the construction of said cannon	11 Stat., 149	Aug. 30, 1856	3,000 00
Arsenals, including the purchase of sites for new arsenals of deposit in Texas and New Mexico, and for the erection of suitable magazines and other arsenal buildings in Texas, in California, in Washington or Oregon Territories, and in New Mexico	11 Stat., 149	Aug. 30, 1856	230,157 00
Repairs and improvements and new machinery at Harper's Ferry Armory	11 Stat., 150	Aug. 30, 1856	38,892 00
Repairs and new machinery at Springfield Armory, Mass.	11 Stat., 150	Aug. 30, 1856	38,000 00
Completion, including water-wheels and shafting, of the new water shops; grading grounds and construction of bridge at Springfield Armory	11 Stat., 150	Aug. 30, 1856	60,000 00
Compensation of civil superintendents at armories	10 Stat., 638	Mar. 3, 1855	5,000 00
Arming and equipping the militia	2 Stat., 490	Apr. 23, 1808	200,000 00

Appropriations for ordnance purposes, 1845 to 1860—Continued.

Objects for which appropriations were made.	Statutes at Large.	Date of appropriation acts.	Amounts.
For fiscal year, June 30, 1858:			
Armament of fortifications	11 Stat., 202	Mar. 3, 1857	\$300,000 00
Ordnance, ordnance stores and supplies, including horse equipments for the mounted regiments	11 Stat., 202	Mar. 3, 1857	250,000 00
Current expenses of the ordnance service	11 Stat., 202	Mar. 3, 1857	150,000 00
Arsenals, including \$50,000 for arsenal in California	11 Stat., 202	Mar. 3, 1857	137,250 00
Purchase of lands adjacent to Washington Arsenal	11 Stat., 202	Mar. 3, 1857	80,450 10
Repairs and new machinery at Springfield Armory	11 Stat., 203	Mar. 3, 1857	63,685 00
Erection and completion of the workshops at Springfield Armory	11 Stat., 203	Mar. 3, 1857	70,985 00
Repairs and improvements and new machinery at Harper's Ferry Armory	11 Stat., 203	Mar. 3, 1857	34,970 00
Manufacture of arms at the national armories	11 Stat., 260	Feb. 4, 1858	360,000 00
Finishing and furnishing the armory for the militia of the District of Columbia	11 Stat., 203	Mar. 3, 1857	7,827 00
Machinery, tools, and fixtures for arsenal of construction of Fayetteville, N. C., including cost of putting machinery in place	11 Stat., 203	Mar. 3, 1857	50,350 00
Further tests of gun-metal for heavy cannon	11 Stat., 203	Mar. 3, 1857	25,000 00
Compensation of civil superintendents at armories	10 Stat., 638	Mar. 3, 1855	5,000 00
Arming and equipping the militia	2 Stat., 490	Apr. 23, 1808	200,000 00
For fiscal year, June 30, 1859:			
Armament of fortifications	11 Stat., 334	June 12, 1858	300,000 00
Ordnance, ordnance stores and supplies, including horse equipments for the mounted regiments	11 Stat., 334	June 12, 1858	250,000 00
Current expenses of the ordnance service, including experiments in the manufacture of cannon and cannon powder, and for tests of arms and ammunition, not otherwise provided for	11 Stat., 334	June 12, 1858	150,000 00
Purchase of gunpowder for the land service	11 Stat., 334	June 12, 1858	100,000 00
Manufacture of arms at the national armories	11 Stat., 335	June 12, 1858	400,000 00
Purchase of breech-loading carbines of the best model to be selected and approved by a board of ordnance officers	11 Stat., 335	June 12, 1858	25,000 00
Alteration of old arms so as to make them breech-loading arms, upon a model to be selected and approved by a board of ordnance officers; provided that any portion of said sum, not exceeding \$5,000, may be expended under the direction of the Secretary of War, and at his discretion, in applying to the old or new arms any recent improvement in the mode of priming.	11 Stat., 335	June 12, 1858	25,000 00
Allegheny Arsenal	11 Stat., 335	June 12, 1858	35,100 00
Fort Monroe Arsenal	11 Stat., 335	June 12, 1858	24,900 00
Kennelbee Arsenal, \$2,000 of which may be used in bringing gas upon the arsenal grounds, and with leave to extend gas-pipes through the grounds by the gas company	11 Stat., 335	June 12, 1858	11,600 00
Saint Louis Arsenal	11 Stat., 335	June 12, 1858	31,000 00
Washington Arsenal	11 Stat., 335	June 12, 1858	9,379 00
Additional timber and carriage storehouse at North Carolina Arsenal	11 Stat., 335	June 12, 1858	25,000 00
Wat relief Arsenal	11 Stat., 335	June 12, 1858	30,000 00
Repairs and preservation of the public buildings, fences, drains, culverts, &c., at all the smaller arsenals	11 Stat., 335	June 12, 1858	20,000 00
Continuing the construction of the arsenal in California	11 Stat., 335	June 12, 1858	100,000 00
Contingencies of arsenals	11 Stat., 335	June 12, 1858	10,000 00
Repairing the arsenal and 2 18-pounder gun carriages, at Stonington, Conn.	11 Stat., 335	June 12, 1858	750 00
Repairs and improvements and new machinery at Springfield Armory	11 Stat., 335	June 12, 1858	55,227 00
Repairs and improvements and new machinery at Harper's Ferry Armory	11 Stat., 335	June 12, 1858	101,907 00
Compensation of civil superintendents at armories	10 Stat., 638	Mar. 3, 1855	5,000 00
Arming and equipping the militia	2 Stat., 490	Apr. 23, 1808	200,000 00
For fiscal year, June 30, 1860:			
Armament of fortifications, out of which \$50,000 are to be used for experiments on heavy ordnance	11 Stat., 433	Mar. 3, 1859	200,000 00
Ordnance, ordnance stores, and supplies, including horse equipments for the mounted regiments	11 Stat., 433	Mar. 3, 1859	200,000 00
Current expenses of the ordnance service, including experiments in arms and ammunition, not otherwise provided for	11 Stat., 433	Mar. 3, 1859	100,000 00
Manufacture of arms at the national armories	11 Stat., 433	Mar. 3, 1859	250,000 00
Allegheny Arsenal	11 Stat., 433	Mar. 3, 1859	5,000 00
Benicia Arsenal	11 Stat., 433	Mar. 3, 1859	50,000 00
Fort Monroe Arsenal	11 Stat., 433	Mar. 3, 1859	14,000 00
New York Arsenal	11 Stat., 433	Mar. 3, 1859	3,000 00
North Carolina Arsenal	11 Stat., 433	Mar. 3, 1859	2,235 00
Texas Arsenal	11 Stat., 433	Mar. 3, 1859	21,000 00
Washington Arsenal	11 Stat., 433	Mar. 3, 1859	2,500 00
Watertown Arsenal	11 Stat., 433	Mar. 3, 1859	1,000 00
Watervliet Arsenal, a part of which sum may be applied to the purchase of a piece of ground adjoining the arsenal on the south side, east of the Erie Canal	11 Stat., 433	Mar. 3, 1859	25,000 00

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1859-60

ORDnance REPAIRS VII, P 020.

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Appropriations for ordnance purposes, 1845 to 1860—Continued.

Objects for which appropriations were made.	Statutes at Large.	Date of appropriation acts.	Amounts.
Contingencies of arsenals.....	11 Stat., 433	Mar. 3, 1859	\$20,000 00
Repairs and improvements and new machinery at Springfield Armory.....	11 Stat., 433	Mar. 3, 1859	53,910 00
Repairs and improvements and new machinery at Harper's Ferry Armory.....	11 Stat., 433	Mar. 3, 1859	55,000 00
Compensation of civil superintendents at arsenals.....	10 Stat., 636	Mar. 3, 1855	5,000 00
Arming and equipping the militia.....	2 Stat., 490	Apr. 23, 1808	200,000 00
Total.....			19,524,464 65

Appropriations for the office of the Colonel of Ordnance, from 1845 to 1860.

Clerical personnel.	Statutes at Large.	Date of appropriation acts.	For the fiscal year—	Clerical compensation.	Contingent expenses.	Total.
1 clerk at \$1,200 per annum; 1 at \$1,150; 5 at \$1,000; 1 at \$800; and 1 messenger.....	5 Stat., 755	Mar. 3, 1845	1846	\$8,150	\$820	\$8,980
Do.....	9 Stat., 88	Aug. 10, 1846	1847	8,150	830	8,980
Do.....	9 Stat., 158	Mar. 3, 1847	1848	8,150	830	8,980
Per diem compensation of one clerk.....	9 Stat., 216	Mar. 27, 1848	1848	1,098		1,098
1 clerk at \$1,200 per annum; 1 at \$1,150; 5 at \$1,000; 1 at \$800; and 1 messenger at \$500.....	9 Stat., 288	Aug. 12, 1848	1849	8,650	} 800	10,250
1 clerk, temporarily employed.....	9 Stat., 288	Aug. 12, 1848	1849	609		
1 clerk at \$1,200 per annum; 1 at \$1,150; 5 at \$1,000; 1 at \$800; and 1 messenger at \$500, and 1 at \$3 per diem.....	9 Stat., 357	Mar. 3, 1849	1850	9,589	1,061	10,650
Do.....	9 Stat., 528	Sept. 30, 1850	1851	8,650			850	9,500
1 clerk at \$1,200 per annum; 1 at \$1,150; 5 at \$1,000; 1 at \$800; and 1 messenger at \$500.....	9 Stat., 604	Mar. 3, 1851	1852	8,650	} 750	9,400
Do.....	10 Stat., 81	Aug. 31, 1852	*1853	8,650		
Do.....	10 Stat., 195	Mar. 3, 1853	1854	8,650		
1 clerk at \$1,800 per annum; 1 at \$1,500; 4 at \$1,200; 2 at \$900; and 1 messenger at \$500.....	10 Stat., 553	Aug. 4, 1854	1855	10,400		10,400
1 clerk at \$1,800 per annum; 1 at \$1,600; 4 at \$1,400; 2 at \$1,200; and 1 messenger at \$800.....	10 Stat., 651	Mar. 3, 1855	1856	12,000	1,100	13,100
Do.....	11 Stat., 111	Aug. 18, 1856	1857	12,000			950	12,950
1 clerk at \$1,800 per annum; 1 at \$1,600; 4 at \$1,400; 2 at \$1,200; and 1 messenger at \$840.....	11 Stat., 213	Mar. 3, 1857	1858	12,240	} 950	13,190
Do.....	11 Stat., 795	June 2, 1858	1859	12,240		
Do.....	11 Stat., 410	Mar. 3, 1859	1860	12,240			900	13,140
Total.....						161,967

* By section 2 of the act of August 12, 1852 (10 Stat., 97), all salaries of \$1,200 and less were increased 20 per cent., and all below \$1,600 were increased 10 per cent., with the proviso that no salary should be increased to more than \$1,600. This increase was limited to the fiscal year 1853.

APPROPRIATIONS FOR THE NATIONAL ARMORIES, June 30, 1860-
 June 30, 1862: from
U.S. STATUTES AT LARGE, XII,

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Date	Purpose	Amount	Page
June 21, 1860	For July 1, 1860 to June 30, 1861		XII, 66.
	Manufacturing Arms.....	\$ 250,000	
	Springfield- Repairs and Improvements	63,625	
	of this sum, \$ 12,000 may be applied to the purchase of land.		
	Harper's Ferry- Repairs & Improvements.....	\$ 65,500.	
March 2, 1861- for July 1, 1861 to June 30, 1862			XII, 202
	For manufacture of arms.....	\$ 360,000	
	Springfield- Repairs & Improvements..	95,500. [59,500]	
	Harper's Ferry- Repairs & Improvements	64,500.	

C. W. Snell

APPENDIX V

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EXPENDITURES AT HARPERS FERRY ARMOY, 1841-61

<u>Fiscal years</u>	<u>For Repairs and Improvements</u>	<u>Total Appropriations</u>
1. 10/1/41-9/30/1842	\$20,699.64 (R.19, V.14, p.1397)	\$210,000 (R.20, V.6, p.639)
2. 10/1/42-6/30/1844	32,736.40 (R.19, V.14, p.1417)	180,500 (R.20, V.6, p.645)
3. 1844-1845	28,718.26 (R.19, V.14, p.1423)	112,000 (R.20, V.7, p.649)
4. 1845-1846	22,487.01 (R.20, V.1, p.7)	198,000 (R.20, V.7, p.653)
5. 1846-1847	(\$128,351.00) (R.20, V.7, p.659)	278,361 (R.20, V.7, p.659)
6. 1847-1848	75,269.62 (R.20, V.1, p.31)	258,534.20 1 Expenditure
7. 1848-1849	55,674.70 (R.20, V.1, p.49)	237,227.57 1
8. 1849-1850	38,173.61 (R.20, V.1, p.62)	219,414.25 1
9. 1850-1851	62,399.44 (R.20, V.1, p.83)	252,038.69 1
10. 1851-1852	44,631.80 (R.20, V.2, p.112)	263,145.29 1
11. 1852-1853	47,979.19 (R.20, V.2, p.144)	185,081.34 1
12. 1853-1854	60,023.04 (R.20, V.2, p.139)	176,662.76 1
13. 1854-1855	(35,100.00) (R.20, V.7, p.711)	179,227.53 1
14. 1855-1856	39,853.00 (R.20, V.3, p.245)	166,354.94 1
15. 1856-1857	45,081.99 (R.20, V.3, p.263)	217,023.02 1
16. 1857-1858	25,344.28 (R.20, V.3, p.282)	242,364.78 1
17. 1858-1859	(100,907.00) (R.20, V.7, p.731)	240,059.04 1
18. 1859-1860	(55,000.00) (R.20, V.7, p.733)	215,905.56 1
19. 1860-1861	(65,000.00) (R.20, V.7, p.734)	(240,500.00) (R.20, V.7, p.
	4,655,600.10	\$4,078,049.88
	\$985,746.58	

1. Figures 1847-1859 from Statement of Expenditures at Arsenals, War Department, Ordnance, National Archives R.G.156. Photostatic Collection, Map Case Drawer No.
3. Harpers Ferry National Historical Park, West Virginia.

PART II

Annual Reports of the Chief of Ordnance to the Secretary of War,- the Narrative sections except for the portion on National Armories, October 1, 1836 to June 30, 1852.

Extracted from the Serial Number Series of Public Documents published by the U.S. Congress, 1817 to 1861.

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No. 8.

REPORT OF THE CHIEF OF THE ORDNANCE DEPARTMENT.

ORDNANCE OFFICE,
Washington, November 28, 1838.

SIR: In pursuance of your instructions, I have the honor to present herewith statements of the operations in the Ordnance department during the year ending on the 30th September, 1838, as follows, viz:

1. Statement A shows the amount of available funds, and the amount of expenditures under each of the appropriations disbursed in this department during the period stated.

Total amount available for the service of the year ending September 30, 1838	-	-	-	-	\$2,495,146 01
Amount expended during the year	-	-	-	-	1,631,078 68

Amount applicable to expenditures in the following year	<u>\$864,067 33</u>
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Of the latter sum, there remained in the hands of disbursing officers on the 30th Sept. 1838	\$138,861 88
In the Treasury on the same date	- 725,205 45
	<u>\$864,067 33</u>

2. Statement B shows the state of the account of each of the disbursing officers of the department for each quarter of the year ending September 30, 1838.

4. Statement D shows the operations of the department during the year ending September 30, 1838, in procuring supplies under the act for arming and equipping the militia; from which it appears that the amount of expenditures for that object during the year has been \$272,974 75.

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the principal objects of expenditure having been the purchase and fabrication of the following articles, viz :

- 80 cannon for field artillery ;
- 30 carriages, and 4 sets of harness for ditto ;
- 16,800 small-arms ;
- 11,500 sets of accoutrements for ditto.

5. Statement E shows the apportionment of arms to the militia of the several States and Territories for the year 1837, founded on the returns furnished to this office by the Adjutant General of the army.

6. Statement F shows the kind and number of arms issued to the militia of the States and Territories during the year ending September 30, 1838.

7. Statement G shows the quantity and kind of arms and munitions of war issued for the service of the regular army, and of the militia in the service of the United States, during the same time ; the principal supplies being—

- 22 field guns, mounted complete ;
- 6 caissons, and 9 sets of harness for ditto ;
- 1,400 rounds of fixed ammunition, and 1,700 shot for ditto ;
- 6,700 small-arms ;
- 4,200 sets of accoutrements for ditto ;
- 9,200 lbs. gunpowder ;
- 125,000 ball cartridges ;
- 20,000 flints.

During the year ending September 30, 1838, there have been received, in rents from the United States lead-mines, 30,000 pounds of lead. With regard to these mines, I have to repeat the recommendation often before urged, to dispose of the title and interest of the United States in this property ; a measure which will be attended with benefit both to the country in which the mines are situated, and to the interests of the United States, who can, under the present circumstances, derive little profit from the possession, and that only by continual litigation and conflict with private interests.

In addition to the usual repairs and improvements at the arsenals and ordnance stations, during the period embraced in this report, progress has been made in the construction of new arsenals and depots at the following places, viz :

1. Fayetteville, North Carolina ;
2. Appalachicola, Florida, (nearly completed ;)
3. Little Rock, Arkansas ;
4. Memphis, Tennessee ;
5. Liberty, Missouri.

The contemplated operations of this department during the ensuing year, and the permanent improvements proposed at the various ordnance establishments, are set forth in the explanations and remarks accompanying the estimate for the service of the department in the year 1839, which has been already submitted to you.

I have the honor to be, with great respect, your obedient servant,
G. BOMFORD,
Colonel of Ordnance.

Hon. J. R. POINSETT,
Secretary of War.

Estimate
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D.

Statement of the arms and accoutrements, &c., procured, and the expenditures made, under the act for arming and equipping the militia, from the 1st October, 1837, to the 30th September, 1838.

- 11 twelve-pounder brass guns.
- 10 nine-pounder brass guns.
- 33 twenty-four-pounder howitzers.
- 4 twelve-pounder howitzers.
- 17 six-pounder iron guns.
- 6 twelve-pounder carriages, with implements and equipments complete.
- 16 six-pounder carriages, with implements and equipments complete.
- 6 twenty-four-pounder howitzer carriages, with implements and equipments complete.
- 2 twelve-pounder howitzer carriages, with implements and equipments complete.
- 4 sets of artillery harness.
- 6,300 muskets, complete.
- 640 carbines, complete.
- 7,050 pisto's, complete.
- 1,877 cavalry sabres.
- 1,000 artillery swords.
- 7,501 infantry cartridge-boxes.
- 10,991 cartridge-box belts.
- 9,425 bayonet scabbards.
- 11,561 bayonet scabbard-belts.
- 12,391 gun slings.
- 1,135 waist belts.
- 2,983 rifle pouches.
- 2,650 rifle-pouch belts.
- 1,555 pistol cartridge-boxes.
- 900 holsters, (pairs.)
- 3,861 sabre belts.
- 800 sword belts.
- 5,158 belt plates.

EXPENDITURES, VIZ:

Amount paid for arms, &c.	- - - - -	\$262,499 68
Amount paid for inspection, packing-boxes, storage, and distribution to the States and Territories,	- - - - -	10,475 67
		<hr/>
		\$272,974 75

ORDNANCE OFFICE,
Washington, November 28, 1838.

GEO. BOMFORD,
Colonel of Ordnance.

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No. 2.

REPORT FROM THE ORDNANCE DEPARTMENT.

ORDNANCE OFFICE,
Washington, November 29, 1839.

Sir: In obedience to your instructions, I have the honor to submit, herewith, statements of the operations in the Ordnance Department during the year, ended 30th September, 1839, as follows, viz:

1. Statement A, showing the amount of available funds, and the amount of expenditures under each of the appropriations disbursed in this department during the above period.

Total amount available for the service of the year, ended 30th September, 1839	-	-	\$2,021,543 62
Amount expended during the year	-	-	1,425,985 78
Amount applicable to the service in the following year	-	-	<u>\$595,557 84</u>
Of this latter sum there remained in the hands of disbursing officers, on the 30th September, 1839	-	-	\$95,203 36
Undrawn from the Treasury at the same date	-	-	500,354 48
			<u>\$595,557 84</u>

A - Copies

2. Statement B shows the state of the account of each disbursing officer of the department, for each quarter of the year, ended 30th September, 1839.

B Copies

C Copies

4. Statement D shows the operations of the department during the year ended 30th September, 1839, in procuring arms under the act for "arming and equipping the militia." The expenditure for that object during the year has been \$321,206 45, and the articles purchased and fabricated consist chiefly as follows, viz:

75 brass field cannon and howitzers.	} the whole with implements complete.
55 gun carriages for field service.	
26 caissons.	
3 travelling forges.	
2 battery wagons.	
5,840 muskets complete.	
1,950 sabres.	
1,000 sets of rifle accoutrements.	
1,493 sabre belts.	
1,150 pairs holsters.	
9,600 pistols complete.	
1,992 carbines complete.	
9,484 sets of infantry accoutrements.	
1,000 sets of cavalry accoutrements.	

5. Statement E shows the apportionment of arms to the militia of the several States and Territories, for the year 1838, founded on the return furnished to this office by the adjutant general of the army.

6. Statement F exhibits the number and kinds of arms issued to the States and Territories during the year ended 30th September, 1839, under the law of April, 1808, for arming the militia.

7. Statement G shows the quantity and kinds of arms and ordnance stores issued for the service of the regular army, and of the militia in the service of the United States, during the same period, among which are:

60 field guns and howitzers, with carriages, implements, and equipments complete.
33 caissons.
3 travelling forges.
3,000 cannon balls and shells.
800 rounds of grape and canister shot.
1,900 rounds shot and shells fixed.
1,200 rounds of grape and canister fixed.
5,609 muskets complete.
606 rifles.
2,146 carbines.
246 pistols.
990 sabres and swords.
5,000 sets infantry accoutrements.
52,416 flints.
30,000 lbs. powder.
600,000 ball cartridges for small arms.

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No report has been recently received from the agent of the United States having charge of the lead mines. The sale of the reserved mineral lands has been repeatedly recommended in reports from this office, as no benefit to the United States can result from the present system of leasing them.

With reference to the operations of this department during the present year, I respectfully state, that the board of ordnance officers has been assiduously engaged in reducing to a system the mode of fabricating all kinds of ordnance stores, in fixing their patterns, forms and dimensions, and preparing drawings of the same. Comparative trials have been made of different field guns of brass and iron, with a view to decide their proper weight and dimensions, as well as the material most suitable for field artillery. Brass guns have been manufactured which afford evidence of skill in that branch of the arts. The trials with iron are still in process, and will be prosecuted as long as the season will permit.

Artillery

In connexion with this subject, I am bound to advert to the advantages to be derived from establishing a national foundry, at which by suitable trials and experiments some process could be adopted, whereby a greater uniformity in the quality of castings might be attained. If a large number of cannon can be fabricated perfectly similar in their qualities, the heavy proof, to which all are now subjected, might be applied to but a small proportion, and the residue be tested with full service charges only. This course would prevent the greater number of guns from being injured in proving, as no doubt has been sometimes the case.

The superiority of small arms, recently fabricated, over those formerly made, evinces the utility of public establishments for improving this branch of manufacture, and the same beneficial results may be derived from a government foundry for cannon.

New Model
Muskets
to be
made

The manufacture of muskets of the new model will be commenced at the national armories early next year, a large proportion of the necessary tools and machinery having been provided.

The private armories employed by the United States in the manufacture of fire arms, under the law of 1808, for arming and equipping the militia, have been recently examined, to ascertain the means and ability of their owners to fulfil such contracts as may be made for supplying arms of the new model. A special report on this subject has been submitted, to which I respectfully refer, as exhibiting the amount of capital invested in this business.

The building operations of the Department have been successfully prosecuted during the past year, except at Little Rock, Arkansas, where the failure of contractors to furnish materials has produced some delay. In the meantime the plans for that work have been matured and arranged. The North Carolina arsenal has been pressed as far as the funds would permit. The Appalacicola arsenal and the depots at Liberty, Missouri, and Memphis, Tennessee, are completed according to their original plans except some small items of little cost.

A stock of gunpowder has been provided, sufficiently large for a time of peace, but sound economy would dictate that an annual supply of saltpetre and brimstone should be procured while prices are low. These articles, being imported, can seldom be obtained during a war, and their preservation is effected without risk.

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Some progress has been made in the preparation of suitable machines for fabricating war rockets. These being nearly completed, afford promise of useful results.

With reference to the contemplated expenditures of the Department for the year 1840, I respectfully state, that the estimates have been prepared with all possible regard to economy, and it is believed that no reduction can be effected, without injury to some important branch of the service.

The constantly increasing duties of the ordnance department, require that the means for performing those duties should be augmented; some ameliorations, combining economy with efficiency, will be proposed, and made the subject of a separate report.

Very respectfully, I am, sir, your most obedient servant,

G. TALCOTT.

Lieut. Col. of Ordnance.

Hon. J. R. POINSETT,
Secretary of War.

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Sept 30, 1840

No. 2.

REPORT FROM THE ORDNANCE DEPARTMENT

ORDNANCE OFFICE,
Washington, November 30, 1840.

Sir: In obedience to your orders, I respectfully submit a report of the operations of the Ordnance Department during the year ending 30th of September, 1840.

I. Statement A shows the amount of available funds, and the amount of expenditures under each of the appropriations, disbursed during the fiscal year above named, as follows:

Total amount of appropriations for 1840, and balances of former appropriations	-	-	-	\$1,827,380 84
To which add remittances not received in 1839—(see remarks p. 77)	-	-	-	2,500 00
				<u>1,829,880 84</u>
Deduct amount deferred or postponed under the authority of the third section of the act of 20th of July, 1840	-	-	-	580,452 31
				<u>1,249,428 53</u>
Total amount available for the year	-	-	-	1,249,428 53
Amount expended during the year—(see discrepancies p. 77)	-	-	-	\$913,554 36
Amount carried to surplus fund	-	-	-	17,430 33
Amount due agents on the 30th of September, 1839	-	-	-	9,992 95
Amount not received previous to 30th of September, 1840	-	-	-	3,000 00
				<u>943,977 64</u>
Amount remaining unexpended	-	-	-	305,450 89
Add amount deferred, as above	-	-	-	580,452 31
				<u>885,903 20</u>
Total amount applicable to the service of the year 1841	-	-	-	885,903 20
Of this latter sum, there remained in the hands of disbursing officers on the 30th of September, 1840, deducting the amount due other officers	-	-	-	10,946 70
				<u>\$874,956 50</u>

A Copy

The end of the fiscal year being on the 30th of September, it may be said that the appropriations made in any one year are expended chiefly in the following year. This is strictly the case, when the appropriation laws are passed only at the close of a long session of Congress, as occurred in July last. At the short sessions, about seven months intervene between the

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enactment of the appropriation laws and the end of the fiscal year; during which period but limited sums are expended because time is required to perfect contracts which, in accordance with the law of May 1, 1820, cannot be made until the necessary funds are appropriated. A great saving of money, as well as labor, would result, if the appropriations were made prospectively, or a year in advance—that is, to become available on the 1st of October following a session of Congress, which, if prolonged even to July, would then produce no inconvenience to the service. So far as this department is concerned, the present time is peculiarly favorable for making this change.

B- copied

III. Statement C shows the operations of the department during the year ending 30th of September, 1840, in procuring arms under the act for arming and equipping the militia. The expenditure for that object during the year has been \$186,519 75; and the articles purchased and fabricated consist chiefly as follows, viz:

- 30 6-pounder brass guns.
- 14 6-pounder carriages.
- 8,430 muskets, complete.

- 1,500 carbines.
- 7,200 pistols.
- 500 sabres.
- 1,000 artillery swords.
- 2,000 sets infantry accoutrements.
- 161 sabre belts.
- 869 sword belts.
- 230 carbine swivels.

IV. Statement D shows the apportionment of arms to the militia of the several States and Territories for the year 1839, founded on the returns furnished to this office by the Adjutant General of the army.

V. Statement E exhibits the number and kinds of arms issued to the States and Territories, during the year ending 30th September, 1840, under the law of April, 1808, for arming the militia.

VI. Statement F shows the quantity and kinds of arms and ordnance stores issued for the service of the regular army, and of the militia in the service of the United States, during the same period. Amongst which are—

- 46 iron cannon for garrison service.
- 14 cannon for field service.
- 50 carriages, with chassés complete, for garrison service.
- 24 field carriages, caissons, and travelling forges.
- 2,160 cannon-balls.
- 50 10-inch shells.
- 20 24-pounder shells.
- 70 grape shot.
- 310 canister shot.
- 3,148 muskets, complete.
- 717 rifles.
- 903 carbines.
- 311 artillery swords.
- 1,619 sets infantry accoutrements.
- 9,424 pounds powder.
- 1,025,217 cartridges for small arms.
- 72,610 flints.

Nothing has been received, during the past year, of the amount due the United States from the product of the lead-mines. A special agent has been despatched to the mineral regions with authority to examine the state of all concerns pertaining to the mines of lead and copper. His report, when received, will be made the subject of a separate communication.

As regards the general operations of the department, it should be stated that the appropriations for 1840 were made by Congress at so late a period, (20th July,) that very few of the objects authorized could be effected during the year; moreover, the restrictions of the 3d section of the appropriation law having been applied to a large portion of the funds of this department, (viz: \$580,452 31,) the balances remaining in the Treasury on the 30th September last were consequently very large, and far beyond the usual amounts; and the operations at arsenals, the procuring of heavy cannon and projectiles for arming the forts, the supply of ordnance and ordnance stores generally, and of materials for use at the national armories, have been deferred to a great extent. Very little has been done, also, in the construction of arsenals, except at Little Rock, where the state of the work would not admit of much reduction in the expenditures; the supply of materials being ample, the work was prosecuted on a reduced scale only.

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Percussion for Flint
Lock Pistols

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The manufacture of muskets, according to the new model, has been successfully established at both the national armories, and at some of the private armories. The substitution hereafter of percussion, in place of the locks, which is becoming general in Europe, will render the arms as near perfect as can be attained; and, judging from the specimens of foreign arms of the improved patterns, recently imported, decidedly superior to any American manufacture.

Plans provided for the construction of war rockets have been found to require conditions; and it only remains to fix the details of their fabrication by a series of trials, in order to realize all the advantages which such projectiles are capable of affording.

Some experiments have been made during the past summer with heavy bomb-cannon. Their construction is an extension of the principles adopted thirty-three years ago in the fabrication of "columbiads" or chamber cannon. These trials have developed many new facts, which will lead to important changes in guns and projectiles. The details will be stated hereafter, in a separate report, by the Colonel of Ordnance, under whose supervision the subject has been placed.

The great cost of gun-carriages for garrison service, in consequence of the increasing scarcity on the seaboard of suitable timber, the length of time required to season it before using, and its want of durability in exposed situations, particularly along the Gulf coast, have been considered strong reasons for the adoption of cast-iron carriages. The trials of these, however, have not convinced us of their utility, or that they should be relied on for general use. It therefore became necessary to take measures for improving the durability of timber. The process called "Kyanizing," practised in England, and in this country to some extent, is very expensive. Under the belief that it will be found equally efficient, the process of mineralizing, by impregnating the timber with sulphates of iron and copper, has been adopted. This is effected at little cost, and its properties will be determined by the trials now making.

In pursuance of your instructions, several officers of the ordnance board have visited many of the cannon foundries, manufactories of small arms, powder-mills, and arsenals, in Europe; and have procured specimens of the arms and cannon now used by the principal nations of the World. A concise report of the various places examined, and the objects which claimed their attention, is presented herewith. The voluminous details and drawings collected will be prepared for a more extended communication.

I am happy to state that the ministers and diplomatic agents of the United States in the several kingdoms visited have offered every facility for the prosecution of the various inquiries; and it is proper to acknowledge the value of their efficient aid, whereby the officers were enabled to accomplish the objects of their voyage.

The duties confided to the ordnance board will be prosecuted to the completion with all possible assiduity; and the results of their labors when duly approved, it is proposed to print and publish for the benefit of the service, and for the government of all persons concerned.

Very respectfully, I am, sir, your obedient servant,
G. TALCOTT,
Lieutenant Colonel Ordnance.
Hon. J. R. POINSETT,
Secretary of War.

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NEW YORK, November 23, 1840.

The officers of the board of ordnance, designated to proceed to Europe on duty connected with the improvement of our system of artillery, by instructions from the Hon. Secretary of War, dated March 16, 1840, having proceeded to England and Scotland, thence to Sweden, Russia, Prussia, Belgium, and France, and visited several important arsenals, cannon foundries, manufactories of small arms, powder, &c., have the honor to submit a concise report of their proceedings; reserving the details, and explanatory notes and drawings, which require considerable time to arrange and prepare, for a future report.

The board sailed from New York on the 1st of April, and reached London on the 17th, announcing their arrival, and the purpose of their visit, to the American minister; upon whose application, permission was granted for the members of the board to visit the establishments at Woolwich and Chatham, the manufactory of arms at Enfield, and the powder-works at Waltham Abbey.

WOOLWICH.

On the 27th of April, and at subsequent times, the board visited Woolwich, and gave its particular attention to the process of moulding and casting bronze cannon.

The moulding is of that description denominated *clay-moulding*, and is performed, essentially, as described by Darstein as in use at the French foundries. The construction of the furnaces, the kind of fuel used, and the treatment of the metal during the casting, are also similar to those described by the same author.

The only guns casting at the time were the 24 and 12-pounder field howitzers.

The detailed dimensions of guns and shot, and the regulations for their proof and inspection, were obtained, and will be included in a future report.

CHATHAM.

Two of the board visited the establishment at Chatham, and examined the storehouses, ropewalks, and workshops.

This, being a naval establishment, did not present the objects to which the attention of the board was particularly directed. The arrangement of the shops, and the mode of working in them; the dimensions of the buildings, and observations of machinery, tools, &c.; and the examination of the ships on the stocks, were subjects that engaged the attention of the board; and such notes and memoranda as they were enabled to make will likewise be presented hereafter.

The absence of Colonel Paisley, and most of his officers and cadets, at Portsmouth, prevented an examination of the school for engineers under the command of that officer, to whom the board had letters from the War Office.

ENFIELD.

The manufactory of small arms at Enfield was also visited and examined by the board.

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The products of this establishment appear to be excellent; and the particulars, detailing the several operations, and describing the moulds, tools, furnaces, &c., will be given hereafter.

LOW MOOR.

The next place visited was the iron-works of the Messrs. Hird, Dawson & Hardy, at Low Moor, which gives employment to about 2,600 hands.

Six blast furnaces were in operation, each making an average of fifty tons of pig-iron weekly, which is refined and converted into bar-iron, or used for castings.

Their Government contract for 8 and 10-inch land mortars being near completed, the board saw no casting of them, but the processes of moulding, casting, boring, &c., are the same as at "Gospel Oak."

The boring machinery is likewise similar, but somewhat superior. The mode of fabrication will be detailed in a future report.

CARRON WORKS.

The two members of the board proceeded to Carron, from Low Moor via Liverpool and Glasgow, for the purpose of examining the machinery and furnaces of that establishment, and getting a few guns cast. The manufacture of cannon had, however, been discontinued, and the manager was not disposed to resume it.

The process of moulding formerly followed at Carron was fully described by Mr. Dawson, the manager, as being similar to that now pursued at Gospel Oak and Low Moor.

These works were established in the year 1771, and the present manager has been upwards of forty years at the establishment.

The officers next proceeded to Hull, via Edinburgh, and embarked for Gottenburg, and reached Stockholm on the 8th of June, where, through the attention of Mr. Hughes, the American chargé d'affaires, they were introduced to the several proprietors of the cannon foundries of Aker, Staffs, and Finspong; to several officers of the army; and to Captain Kondriaffs of the Russian artillery, superintending the fabrication and inspection of Russian iron guns being cast at the three foundries in Sweden.

Fifteen hundred heavy cannon have been made at these foundries, during the last three years, for the Russian Government.

ARSENALS AT STOCKHOLM.

One of these establishments, for clothing, camp and hospital equipage, &c. contains cloth sufficient for clothing an army of forty thousand men six years, and it is preserved by means of curtains of canvass saturated with tar, which enclose it, closely packed in piles about seven feet square.

Woollen cloths thus stored remain secure from moths many years without being aired.

ARTILLERY ARSENAL.

The artillery arsenal contains several batteries of field and siege artillery with their equipments; all in excellent condition.

The field carriages are similar to those sent to the United States; and, to complete the system, the travelling forge and caisson have been since furnished from the arsenal, and shipped to New York.

The Swedish carriages manœuvre, as we had repeated opportunities of witnessing, with great facility; and their strength has been tested by firing 1,600 service charges upon them.

The entire system is considered quite perfect by their artillery officers.

At *Carlsbad*, a few miles from the city, is a depot of 30,000 small arms of Swedish manufacture. At this place we likewise visited the school for engineer and artillery officers, the number under instruction being generally about *forty*.

A rocket corps of only twenty-five men and ten horses has been lately organized at this school, but its practice is at this time quite limited.

The construction of friction priming-tubes is carried on here. The board observed the process of fabrication, and obtained specimens.

The board were present, by invitation, to observe the manœuvres of two eight-gun batteries of horse artillery, which were executed with great rapidity, turning upon roads only eighteen feet wide, (with six horses to each carriage,) crossing deep ditches and other difficult places, for the purpose of showing the perfection of the carriages, and especially the effect of the regulator, in relieving the wheel horses from the weight and violent motions of the pole.

On the 29th June the two members detained at Birmingham arrived at Stockholm.

CANNON FOUNDRIES OF SWEDEN.

The three cannon foundries of Aker, Stafsjo, and Finspong, were visited by the board, and every facility was afforded by the noble and intelligent proprietors of those establishments, for the board to acquire a full knowledge of the process of smelting, moulding, casting, and boring iron cannon. The members devoted themselves to observing every operation, from the preparation of the mineral for the furnace, to the completion of the guns; and these repeated opportunities enabled the board to make full memoranda and sketches, and to collect specimens of ores and metals, which will be referred to hereafter.

It may here be stated that the process of *moulding in clay* is pursued at all these foundries; and that the cannon are cast directly from the *blast furnace*, or *first fusion*—a method which is believed to be peculiar to the Swedish foundries.

The trials that have been made, for the purpose of determining the strength and durability of Swedish iron cannon, having resulted highly favorably to their quality, the board was induced to order from each of the three foundries cannon for two field-batteries.

IRON-MINES OF DANNEMORA AND THE OESTERBY FORGES.

These great and celebrated mines are about eighty miles north from Stockholm, and produce ores yielding from 50 to 80 per cent. of iron.

They have been wrought upwards of one thousand years, and are now about six hundred feet in depth. The iron made from the Dannemora mines is all sold at prices far exceeding any other made in Sweden, for the purpose of being converted into steel in England.

Robert Carlos bar
20th of April

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Sept 30, 1841

No. 2.

REPORT FROM THE ORDNANCE DEPARTMENT.

NO MORE
Stables A B C
to Rep.

ORDNANCE OFFICE,

Washington, November 22, 1841.

SIR: In compliance with the instructions from the War Department of the 8th October, I have the honor to submit a report of the operations of the Ordnance Department, during the year ended September 30, 1841.

Fiscal Concerns.

Balance of funds available for the service of the Ordnance Department, on September 30, 1840:

Undrawn from Treasury	-	-	\$874,956 50	
In hands of disbursing officers	-	-	11,383 48	
				\$886,339 98

Amount received from sales, rents, and other sources				32,257 64
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Amount of appropriations for the year, 1841, viz:

By act of 3d March, 1841	-	-	\$1,071,345 85	
By act of 9th September, 1841	-	-	220,000 00	
				1,291,345 85

Total for the year 1841	-	-	-	2,209,943 47
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Amount of expenditures in the year ended Sept. 30, 1841 \$1,245,557 66

Balance available on 30th September, 1841, viz:

Undrawn from the Treasury	-	-	\$948,394 49	
In the hands of disbursing officers	-	-	15,991 32	
				964,385 81

Total	-	-	-	2,209,943 47
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The disbursing officers of this Department have promptly accounted, according to law and regulations, for all the funds placed in their hands.

Great convenience and advantage to the service would result from a change in the manner of making appropriations, so that the funds might become available on the 1st of October in each year; by which arrangement, contracts for work and materials might be made in the winter (the most favorable time for making them), and the appropriations for one year would be generally expended and accounted for before those for the next year became available.

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Armament of Fortifications.

The amount of expenditures under this head, during the year ended September 30, 1841, is \$90,784 02.

The principal stores procured, are—

70 seacoast cannon.

40 carriages for cannon.

800 cannon balls.

18,500 cubic feet of gun-carriage timber.

In order the better to secure the interests of the United States in procuring ordnance from private foundries, a condition has been introduced into the contracts for this year, that an officer or agent of the Ordnance Department shall be allowed to attend at the foundries during the manufacture of ordnance, to see that proper materials and suitable means are used for producing work of a good quality, which cannot always be satisfactorily ascertained by proof and inspection of the finished guns. This object would be still better secured by the establishment of a national foundry, where the necessary experiments on the use of different kinds of iron and different processes of manufacture might be tried, and where such a quantity of ordnance might be made as would enable the Department to direct and control the work at private foundries. A special report on this subject was made to you from this office on the 1st instant, and an item to authorize the purchase of a site for a foundry has, agreeably to your instructions, been introduced into the general estimate for next year.

In pursuance of orders received from the War Department on the 13th March last, and at subsequent times, as the forts were reported ready to receive their armament, there have been sent to the forts on the seacoast and on the northern frontier—

417 heavy cannon.

440 gun carriages.

With these supplies, added to those previously on hand, the fortifications at the following points will be furnished with a considerable part of their heavy armament:

Portland, Maine.
 Portsmouth, New Hampshire.
 New Bedford, Massachusetts.
 Newport, Rhode Island.
 New London, Connecticut.
 New York harbor, New York.
 Niagara, New York.
 Oswego, New York.
 Delaware river, Pennsylvania.
 Baltimore, Maryland.

Fort Washington, Maryland.
 Hampton Roads, Virginia.
 Beaufort, North Carolina.
 Cape Fear, North Carolina.
 Charleston, South Carolina.
 Savannah, Georgia.
 Pensacola, Florida.
 Mobile, Alabama.
 New Orleans, Louisiana.

A great quantity of ordnance, and a large number of gun carriages, cannon balls, and other ordnance stores (amounting to more than \$1,000,000), are yet required to complete the armament of these forts, and of others which will be ready to receive their armament during the next year; and it is highly desirable that the appropriations for this object should be more liberal than heretofore, in order to provide a suitable supply of cannon and carriages, which cannot be immediately obtained on an emergency.

A. F. U. S.

Purchase of Ordnance and Ordnance Stores.

Under the appropriation for this object the expenditures, during the year ended 30th September, 1841, have amounted to \$93,539 68.

The principal stores procured are as follows:

- 6 sea-coast cannon (experimental).
- 34 field cannon.
- 35 field carriages.
- 2,000 sets of infantry accoutrements.
- 1,000 sets of cavalry accoutrements.
- 1,000 sets of rifle accoutrements.
- 1,100 percussion cannon locks.
- 12,274 pounds cartridge paper.
- 9,000 cubic feet of field-carriage timber.

Of the appropriations for the purchase of materials for gunpowder, the sum of \$49,326 59 has been applied to procuring and placing in store—

- 564,756 pounds refined saltpetre.
- 74,858 pounds refined brimstone.

The principal supplies issued to the regular troops, and to the militia in the service of the United States, during the year, are—

- 6 field guns.
- 11 field carriages, with implements and equipments.
- 2,500 rounds of ammunition for field service.
- 25 sets of artillery harness for four horses.
- 3,754 muskets.
- 1,795 carbines.
- 481 pistols.
- 1,496 swords and sabres.
- 600 sets of cavalry accoutrements.
- 2,000 sets of infantry accoutrements.
- 400 sets horse equipments for dragoons.
- 930,835 ball cartridges for small arms.
- 163,935 blank cartridges for small arms.
- 74,739 flints.
- 382,460 percussion caps.

*Ordnance Officer placed in Charge
of National Armies.*

Arming and equipping the Militia.

The expenditures for this object, in the year ended September 30, 1841, have been \$224,277 02.

The principal arms and equipments procured during the year are as follows:

50 6-pounder brass guns.
 12 24-pounder howitzer carriages.
 23 6-pounder gun-carriages.
 3,160 muskets.
 2,560 rifles.
 2,000 carbines.
 7,200 pistols.
 1,500 artillery swords.
 8 cadet's swords.
 1,033 infantry cartridge boxes.
 1,967 infantry cartridge-box belts.
 1,393 infantry bayonet scabbards.
 3,219 infantry bayonet belts.
 500 infantry waist belts.
 500 infantry gun slings.
 2,924 infantry cartridge-box plates.
 14,161 infantry bayonet-belt plates.
 500 infantry waist-belt plates.
 452 carbine cartridge boxes.
 1,180 pistol cartridge boxes.
 1,442 pairs holsters.
 1,300 sabre belts and plates.
 2,000 artillery sword belts.

The following ordnance and stores have been issued to the States during the year:

12 six-pounder iron guns.
 51 " bronze guns.
 63 " carriages.
 4,960 muskets.
 180 Hall's rifles.
 1,119 common rifles.
 1,964 pistols.

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- 557 sabres.
- 810 artillery swords.
- 8 cadet's swords.
- 3,460 sets infantry accoutrements.
- 1,290 sets rifle accoutrements.
- 1,407 sets cavalry accoutrements.
- 810 artillery sword belts.

Statement A, hereto annexed, shows the apportionment of arms to the several States under the act of 1808. From an examination of this statement, it will be seen that the returns of the militia, on which the apportionment of arms is made, are very irregular and generally much in arrear; in consequence of which, the distribution of arms to the States is not in proportion to the real strength of the militia. It is worthy of consideration, whether a fair and equal distribution might not be made by such a modification of the act of 1808 as should require the distribution of arms to be made to the States in proportion to their population or representative numbers, instead of by the present rule.

Arsenals and Depots.

Of the appropriation for permanent improvements at the arsenals, the sum of \$162,940 16 has been applied, during the past year, to the objects embraced in the estimate presented to Congress. The construction of two new arsenals (at Fayetteville, North Carolina, and Little Rock, Arkansas) has been continued as far as the available means would allow.

A depot of arms, accoutrements, and ammunition, for 1,000 infantry, 100 riflemen, and 200 cavalry, has been established at each of the posts of Fort Winnebago and Fort Armstrong (Rock Island), for the purpose of arming the militia of the frontier in case of necessity.

Lead Mines.

Since the year 1836, the interests of the United States in these mines have been almost entirely neglected, and their rights disregarded by the miners and smelters. A new superintendent of the mines has been recently appointed, with instructions to take measures to reassert the rights of the United States in this property, by endeavoring to recover the rents due, and to make new arrangements for leasing the mines in future.

Being still of opinion that the true interests of the United States, and the prosperity of the mining country, will be best promoted by a sale of these lands, I take occasion again to urge the adoption of that course, which has for several years past been annually recommended to Congress.

Proceedings of the Ordnance Board.

Since the return of the members of the Ordnance Board from Europe, as mentioned in the last annual report from this office, the board have been employed in prosecuting their duty of revising and amending the armament and equipment of the troops. The system of guns, carriages, and equipments, for the field artillery, has been definitively arranged, and the necessary drawings and models prepared. The details of the systems of siege and

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garrison artillery are nearly completed. The subject of small arms has been revised with a view to the adoption of percussion locks for them; and models of new arms on this principle are in the course of preparation. The supplying of horse equipments for the dragoons having been assigned to this department in February last, patterns of new equipments have been adopted and are now in the service of the troops for trial, preparatory to the extensive manufacture of them. An Ordnance Manual, to guide the officers in the fabrication, inspection, and preservation of ordnance supplies of all kinds, has been prepared by the board, and published by authority of the War Department.

Organization of Ordnance Department.

Believing that experience has established the correctness of the opinion which prompted the reorganization of the Ordnance Department in 1832. I beg leave to call your attention to the propriety of completing the organization of the department by increasing the number of officers to meet the wants of the service. Previously to the reduction of the army in 1821, when the number of arsenals and depots was but ten, the Ordnance Department contained forty-four commissioned officers; at present, with twenty-three arsenals and depots, there are only twenty-eight commissioned officers in the department; and the wants of the service are but imperfectly supplied by employing, under the authority of the act of 3d March, 1813, a number of military storekeepers (now amounting to twenty), of whom the greater part receive the pay and emoluments of captain of ordnance.

The act of 5th July, 1838, for increasing the military establishment, added two majors and twenty lieutenants to the fourteen officers then in the Ordnance Department; but by a supplementary act of the 7th July, the number of lieutenants was reduced to twelve. I would now recommend an addition to the department of two captains, and twelve lieutenants; making the whole number of officers forty-two. This might be done with little or no additional expense to the Government, by reducing, at the same time, the number of military storekeepers; which, as well as the pay of that class of officers, should be fixed by law.

I have also to repeat the recommendation made in the last annual report, to make a different distribution of the money granted for the salaries of clerks in this office, by reducing the number to seven, and increasing the pay of the principal clerk to an equality with that of the chief clerks in other bureaux of the War Department; which cannot be done without authority of law.

Respectfully submitted:

G. BOMFORD,
Colonel of Ordnance.

Hon. J. C. SPENCER,
Secretary of War.

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No. 2.

REPORT FROM THE ORDNANCE DEPARTMENT.

ORDNANCE OFFICE,
Washington, November 1, 1842.

SIR: In obedience to your orders, I have the honor to submit a report of the operations of the Ordnance Department, during the year ended September 30, 1842.

Funds.

The balance of funds available for the service of the Ordnance Department, on the 30th September, 1841, was,

Undrawn from the Treasury	-	-	\$948,394 49
In the hands of disbursing officers	-	-	15,991 32

			964,385 81
Received from sales, rents, and other sources	-	-	13,731 94
Appropriation for the year 1842	-	-	1,130,775 00

Total for the year 1842	-	-	<u>\$2,108,892 75</u>
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Expenditures during the year ended 30th September, 1842	-	-	\$1,050,158 65
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Undrawn from the Treasury	-	-	1,018,208 12
In the hands of disbursing officers	-	-	40,525 98

Total	-	-	<u>\$2,108,892 75</u>
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All the disbursing officers of this Department have promptly accounted for the moneys placed in their hands, except in a single instance, where the distance of the station may account for the delay, and where the amount in hand is very small.

The late period at which the appropriations for 1842 were made by Congress (23d August last), has prevented the expenditure of anything beyond what was necessary to pay arrearages at the armories and arsenals. The almost entire stoppage of work at these establishments, for a period, and the reduced scale upon which it is proposed to continue operations, will render any specific appropriation for the usual objects of expenditure during the half year ending 30th June, 1843, unnecessary.

Armament of Fortifications.

The expenditures under this head, during the year ended September 30, 1842, amounted to \$173,251 75.

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- The product, or principal articles provided, are—
- 118 seacoast cannon.
 - 103 carriages for cannon.
 - 5 10-inch siege and garrison mortars.
 - 10,726 cannon balls.
 - 3,107 shells.
 - 60,608 cubic feet of timber for gun-carriages.
 - 146,000 pounds of bar iron.
 - 500 percussion cannon locks.

In pursuance of your orders, received at various times, the different forts have been supplied with their armaments; embracing 243 heavy cannon, and 263 carriages, with implements and equipments complete.

A great number of cannon, seacoast howitzers and mortars, with their carriages, beds, and implements, as well as shot and shells, are required to complete the armament of forts now under construction, and the amount of money usually appropriated every year for these articles will only furnish an adequate supply by continuing the appropriation for a series of years.

The officer appointed to attend at the foundries has been constantly employed on that service. His duties are to see that the materials used are of such quality, and the process of manufacture so conducted, as to produce ordnance of the best kind. His constant attention and supervision, as agent for this Department, are found to be beneficial, particularly in improving the quality of metal and accuracy of manufacture in iron cannon. Under his superintendence, trial guns have been cast at several foundries, and thoroughly tested; by which means the strength of the metal and the proper manner of treating it are accurately ascertained before proceeding to use it for the manufacture of guns. It is hoped, that, by the experience thus to be acquired, the danger of bursting in service, the greatest objection to the use of iron ordnance, will be almost, if not entirely, overcome, and that guns of this metal, by far the most durable and cheap, will be used with as much confidence as those of bronze. Two officers of this Department, being all that can be spared, are associated on this service with the agent at the foundries.

NR to Ward

It is thought that the establishment of a national foundry, where experiments on the different kinds of iron (of which our country furnishes so great a variety), and on the proper methods of its manufacture, might be conducted, would be advantageous in ascertaining the suitability of each kind for military purposes. A special report on this subject was made to you from this office on the 1st November, 1841, and an item for the purchase of a site for a foundry was introduced into the general estimate for 1842. No appropriation for this object was made, and the subject is again respectfully presented for consideration.

Purchase of ordnance and ordnance stores.

The expenditures for these objects during the year ending 30th September, 1842, amounted to \$119,286 38.

The principal articles procured are as follows, viz:

- 44 field guns, American.
- 28 field howitzers, American.
- 8 field guns, Belgian.
- 4 field howitzers, Belgian.
- 9 field guns, Swedish.

- 4 field howitzers, Swedish.
- 2 field carriages.
- 49 caissons.
- 16 travelling forges.
- 16 battery wagons.
- 4,150 swords and sabres.
- 1,000 sets cavalry accoutrements.
- 2,500 sets infantry do.
- 6,100 cubic feet timber for field carriages.
- 18,000 pounds bar iron.
- 200 percussion cannon locks.

The amount of expenditures under the appropriation for the purchase of saltpetre and brimstone has been \$20,000 08, which has been applied to purchasing and placing in store 307,693½ pounds of crude saltpetre.

The principal supplies issued to the regular troops and to the militia, in the service of the United States, are—

- 12 field cannon.
- 12 field carriages, with implements and equipments.
- 515 percussion cannon locks.
- 12 sets of artillery harness, for 4 horses.
- 1,707 rounds of fixed ammunition, for field service.
- 5,902 muskets, complete.
- 864 rifles.
- 346 barbines.
- 189 pistols.
- 1,200 sabres and swords.
- 1,602 sets infantry and rifle accoutrements.
- 48,246 flints.
- 1,479 fuses.
- 594,216 ball cartridges for small arms.
- 318,500 percussion primers.
- 5,546 pounds of bullets and buckshot.
- 67,713 pounds of powder.

Arming and equipping the Militia.

The expenditures for this object during the year ended 30th September, 1842, amount to \$199,907 14.

The principal arms and ordnance stores procured during this period are the following :

- 3,040 muskets.
- 2,000 carbines.
- 5,250 pistols.
- 3,500 rifles.
- 400 percussion cannon locks.
- 25 6-pounder bronze guns.
- 3 6-pounder carriages.
- 1,000 sets infantry accoutrements.
- 400 sets cavalry accoutrements.

The supplies issued to the militia of the different States and Territories, during the same period, are as follows, viz :

- 33 6-pounder bronze guns.
- 37 6-pounder carriages, with implements and equipments.
- 2 caissons.
- 4,200 muskets.
- 180 Hall's rifles.
- 1,840 common rifles.
- 190 carbines.
- 2,576 pistols.
- 1,748 sabres.
- 1,030 artillery swords.
- 3,910 sets infantry accoutrements.
- 180 do. Hall's rifle do.
- 640 do. rifle do.
- 1,375 do cavalry do.
- 190 do. carbine do.
- 150 infantry cartridge boxes.
- 150 bayonet scabbards.
- 150 waist belts and plates.
- 73 sabre belts.
- 1,030 artillery sword belts.
- 180 pairs holsters.
- 23 pistol cartridge boxes.

The apportionment of arms to the several States and Territories, under the act of 1808, is shown by the statement herewith sent, marked A.

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Arsenals and Depôts.

Of the amount appropriated for arsenals, \$100,481 07 have been expended in permanent improvements, and progression with the two new arsenals at Fayetteville, North Carolina, and at Little Rock, Arkansas.

Since the last annual report from this bureau, a thorough inspection of all the arsenals and ordnance depôts has been made by the colonel of ordnance, and his final report states that "their general condition is highly satisfactory, and creditable to the department;" "the improvements which it has been thought proper to suggest contemplate, in most cases, the completion of the plans on which the establishments were commenced, and not a change in what has been already done."

It is also considered necessary to incur some expense in providing the means for extinguishing fires, such as cisterns for water, fire-engines, and other apparatus. A due regard to the safety of the vast amount of military property in deposit at the arsenals seems to require it.

Under the authority of an act of Congress making an appropriation for "the purchase of site and rebuilding the arsenal at Charleston, South Carolina," a square of ground in the city has been purchased, and the jurisdiction vested in the United States. A favorable report, as to the suitability of the site for the purpose for which it was purchased, has been made by a board of officers appointed to examine it, and plans for its construction, with estimates founded thereon, have been made and approved. It is deemed important that this work should be commenced at once; and the sum of \$32,000 for this object is included in the general estimate for the next fiscal year. According to the estimates furnished by the officer at that station, this, with the balance of the former appropriation remaining in the Treasury, will be sufficient to complete the principal buildings.

During the year a complete and thorough inspection of the small arms in store at the arsenals and depôts has been commenced. The object of this inspection is to separate these arms into classes, according to their fitness for service. The officer to whom this duty was assigned is still engaged in its performance.

Statement B, hereto annexed, gives a detailed statement of ordnance and ordnance stores issued during the year to the forts and to the troops and militia in the service of the United States, including, also, supplies which have been furnished to the Navy Department.

I would respectfully call your attention to the subject of a secure depot for gunpowder. The cost of such an establishment is set forth in a report of a board of officers, dated 27th November, 1841, which may be found at page 341 of the documents accompanying the message of the President at the opening of the last session of Congress—being No. 13 of the document from the War Department.

Lead mines of the Upper Mississippi.

In the last annual report from this department, it was stated that measures were in progress for reasserting the rights of the United States in these mines, by again leasing them, and endeavoring to obtain the balances of rent due; and a brief review now of the previous occurrences seems to be necessary in the way of explanation.

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The difficulty of collecting the rents directly from so large a number of persons at the mines, induced an early abandonment of that course, and licences were granted to a smaller number of persons, possessed of the necessary capital and skill, authorizing them to establish smelting furnaces on these lands, and to use such timber as might be necessary in their operations; in consideration of which, they engaged to purchase the ore raised by the miners, and obligated themselves to deduct the rents due, and pay it over to the Government agent.

No general refusal or neglect on the part of the smelters to comply with these obligations occurred till the close of the year 1834, though some had expressed doubts of the legality of the measure, and, consequently, whether the obligations which they had entered into were of force, and these views were gradually embraced by others, while the miners finding that the smelters neglected to pay, refused to allow the deductions from themselves, till at length the returns of mineral dug, as well as the payment of rent, was refused by all.

To remedy this state of things, and enforce the collections, the suit against Gratiot & Burton was commenced, in December, 1836, but it was not till the January term, 1840, of the Supreme Court of the United States, that a final decision, confirming these licences, was obtained.

In the meantime, other difficulties had arisen. The superintendent of the mines, when the district of country in which they were situated was about being brought into market, had applied to have reserved from sale a number of sections and parts of sections which he had under lease to miners and smelters, or otherwise knew to contain mineral, and the Commissioner of the General Land Office, in communicating the same to the register and receiver of the Mineral Point land office, informed them that the President of the United States directed that the reservations should be made accordingly. He had previously called their attention to the language of the President's proclamation for the sale, which expressly declares, that "All tracts of land on which lead mines or diggings are indicated to exist by the official plats of survey, together with all such other tracts as from satisfactory evidence, to be adduced to the register of the land office prior to the date of sale, shall be shown to contain lead mines, shall be excluded from sale."

But, notwithstanding all this, the largest and most valuable portion of the lands in Wisconsin, so directed to be reserved, were, after being excluded from the public sale, admitted by these officers to private entry; laws had been passed by the local Legislatures, making certificates of entry evidence of title; judgments had been obtained by persons holding such certificates, against those holding by mining leases and permits; and these, finding themselves thus coerced by the local courts, now entirely refused to acknowledge the superintendent until the United States afforded them protection against such suits.

Mr. Flanagan, the present superintendent, was appointed 24th May, 1841, and his compensation was made to depend principally upon a per centage on his collections. In his first report (5th September, 1841) he stated that some of the old smelters expressed a willingness to settle for the balances due from them at the close of 1834, but many would have to be sued, and a large amount would be lost by the death, removal to parts unknown, or insolvency of principals and sureties. He also stated that the office at Galena was found to contain no evidence of the amount due for operations since 1834, and asked that even for the balances known to be due he might be

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authorized to compromise on liberal terms, preparatory to granting any further leases. Nothing, however, of consequence was effected, and, on the 29th of March, 1842, by your directions, a new set of instructions were given him, which may be considered the basis of all subsequent action.

A list furnished by Mr. Flanagan at this time from the books of the office at Galena, showed an aggregate of balances due from sixty-four persons amounting to 524,963 pounds of lead, beside 248,055 pounds due on notes and acceptances. These amounts he was authorized to settle by compromise, and was further authorized to grant leases to miners for the term of one year, they obligating themselves to make monthly returns of the mineral they raised, and to pay over 6 pounds out of every 100 pounds of the lead made from the same, and for the amount which he might receive on these compromises, as well as for that which he might receive on the leases, he was to be allowed 15 per cent. on such portion as he might show that he had shipped to the commanding officer of the United States arsenal at St. Louis. Subsequent instructions allowed him to charge the 15 per cent. in cases where the compromises for the old balances had been made for cash, upon his crediting the amount received on such compromises in his quarterly cash accounts.

Experience having, however, shown that the superintendent must be most of his time travelling among the miners, and the office at Galena consequently closed, Walter Cunningham, Esq., was, on the 7th of July last, appointed to take charge of the office, to act in conjunction with the superintendent, and to make the necessary returns, and Captain W. H. Bell, of this department, commanding the United States arsenal at St. Louis, was directed to visit the mineral country from time to time, as inspector, with a general supervision of the operations.

Reports still continuing, however, to be received, stating that the lessees were harassed by suits instituted, not only by the persons holding certificates of entry, but by persons in Illinois and Iowa who had only a pretence of pre-emption rights, and that several of them had been ejected by the judgments of the local courts, on the plea that the authority of the President for granting these leases did not appear, there was forwarded to Mr. Flanagan, on the 15th ultimo, in obedience to your directions, an exemplification of the order of the President, giving full power to the Secretary of War to designate persons to lease these mineral lands, and recognising the leases already granted, together with the order from you designating Mr. Flanagan, jointly with Mr. Cunningham, to grant the leases in future.

But little progress has been made, under all these difficulties, in settling the old balances, or in collecting the rents under the new leases. The enclosed tabular statement marked C, shows the number of townships set forth in Dr. Owens's report of 20th January, 1840, as embraced in what he considers the mineral region in this part of the country, and the sections on which the principal mines had been found. To this is added the number of entries allowed in Wisconsin of the lands specially directed by the President to be reserved from sale, and the number of leases granted from 1st May to 1st October last. Statement D shows the number of persons compromised with, and the amount of money and lead received thereon, the quantity of mineral reported to have been raised under the new leases, and the quantity of lead received as rent.

It is reported that this region is rich in ores of copper and zinc, but hitherto no leases have been granted for mining for any other metal than lead.

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Mines in the south part of Illinois.

A reserve was made in the Shawneetown land district in 1815, of fifteen sections in township 11, and ten sections in township 12, south range 7 east, and of twenty-seven sections in township 11, and fifteen sections and two half sections in township 12, south range 9 east, as containing lead mineral.

Many attempts are reported to have been made to work this mineral, but abandoned on account of its refractory character. In March last an application was received from B. Shackelford, S. Woodson, and A. G. Gordon, for a lease of this reserve, under the belief that they could succeed in extracting the metal; and a permit was granted to them on the 23d of April, allowing them for one year to examine and dig for lead and other ores on all of the sections and parts of sections in range nine, and to use such timber, stone, and fuel, found thereon, as might be necessary for their operations; they paying ten per cent. of the metal extracted, with the condition that if, at the expiration of the year, they had complied with the conditions, and Congress should not in the meantime have authorized the sale, they should have a lease for five years of such sections as they had found to contain mineral, and such contiguous ones as might be necessary for fuel, not exceeding, for this last purpose, ten half sections, they continuing to pay the same per cent. of metal as rent; and at the end of this five years, if they should have complied with the conditions, and the lands should still not have been authorized to be sold, a renewal for five years more upon like conditions, except that the right was reserved to increase the rent to one third of the metal extracted. And on the 1st of July a permit was granted to S. Morton, F. D. Word, and J. E. Gordon, for the reserved sections in range seven, under like conditions in every respect. No report of the proceedings under these permits have been yet received.

Mines in the State of Arkansas.

An application was referred to this office in July last, from a number of persons, stating that the lands in township 19, range 16, 19 and 20, range 17, and 19 and 20, range 18, in the north part of this State, were believed to be rich in lead and other ores, and that they were desirous of having an agent appointed, with instructions for leasing them on the usual conditions. Application was thereupon made to have these lands reserved from sale, which was accordingly done; but as it appeared that there were many persons then on the ground searching for mines, and a division into small tracts would consequently be necessary, it was thought advisable that an officer of this department should be sent to make the proper arrangements. It has been impossible to spare one for this purpose, and no steps have yet been taken for the leasing of these lands.

Respectfully submitted.

G. TALCOTT,
Lieut. Col. Ordnance.

Hon. J. C. SPENCER,
Secretary of War.

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REPORT OF THE COLONEL OF ORDNANCE.

ORDNANCE OFFICE,
Washington, November 1, 1843.

Sir: In obedience to your directions, I have the honor to submit a report of the operations of the Ordnance department during the last three quarters of the year ended June 30, 1843; my last report having embraced the concerns of the department to the 30th September, 1842.

Funds.

The amount of money available for the service of the Ordnance department on the 30th of September, 1842, was as follows:

Undrawn from the Treasury	-	-	-	\$1,018,208	12
In the hands of disbursing officers	-	-	-	40,525	98
				<u>1,058,734</u>	<u>10</u>
Received from sales, rents, &c.	-	-	-	33,607	72
Appropriations for the fiscal year ending June 30, 1844	-	-	-	989,405	00
				<u>2,081,746</u>	<u>82</u>

Expended during the three quarters ended June 30, 1843, including \$24,000 turned over to the quartermaster's department, and \$15,003 from the sales of unserviceable arms, turned into the Treasury	-	-	-	\$721,741	69
In the hands of disbursing officers 30th June, 1843	-	-	-	71,914	81
Undrawn from the Treasury	-	-	-	1,288,090	32
				<u>2,081,746</u>	<u>82</u>

The disbursing officers of this department have all promptly and accurately accounted for the moneys placed in their hands.

1. *Armament of fortifications.*

The expenditures under this head, for the three quarters of the fiscal year ended June 30, 1843, amounted to \$84,337 23. The principal articles procured by this expenditure are as follows:

11	32-pounder guns.	
8	10-inch	} Sea coast howitzers.
1	8-inch	
1	13-inch	} Sea coast mortars.
1	12-inch	
5	10-inch	
10	10-inch	} Siege and garrison mortars.
20	8-inch	

1 42-pounder } Casemate carriages.
 20 32-pounder }
 1 32-pounder }
 2 24-pounder } Barbette carriages.
 6 18-pounder }
 2 10-inch } Sea coast howitzer carriages.
 9 8-inch }
 1 10-inch mortar bed.
 9,036 42-pounder } Cannon balls.
 2,727 32-pounder }
 43,556 cubic feet of timber.
 54,520 pounds of bar iron.

Sound policy requires that the necessary measures be continued for arming the fortifications as their construction advances, and that materials, not of a perishable nature, and such as require time to prepare them for use, should be provided in advance. A full supply of timber for gun carriages should be furnished at the arsenals of construction, to prevent the necessity of procuring it on a sudden emergency, as under such circumstances it can seldom, if ever, be found of proper quality. The proportions and forms of garrison and sea-coast artillery have been determined, and the regulations in force are calculated to secure their being fabricated of the proper quality.

The importance of a national foundry is a subject on which the views of this department have repeatedly been given, and they remain unchanged. The want of such an establishment, by which (among many other advantages) standards of material and workmanship might be fixed, for the contract service of this branch of public supplies, has led to the adoption of a more strict supervision of the works of private foundries; a supervision so strict that *some* have objected to it as inquisitorial, and inconsistent with the private character of their works. This course, however, under the present mode of procuring cannon, is absolutely necessary to secure the interests of the Government in a matter involving such great cost, and on which our military efficiency so much depends.

2. Purchase of ordnance and ordnance stores.

The expenditures for these objects from the 30th of September, 1842, to the 30th of June, 1843, amount to \$69,544 65, and the principal articles procured are as follows:

1 32-pounder gun, for the ballistic pendulum.
 4 12-pounder } Carriages.
 25 6-pounder }
 2 24-pounder } Howitzer carriages.
 6 12-pounder }
 200 32-pounder cannon balls.
 200 32-pounder shells.
 47,393 pounds of grape and canister shot.
 6,200 pounds of grape and canister shot plates.
 4 Jenks's carbines.
 5,000 sets infantry } Accoutrements.
 500 sets rifle }
 720 non-commissioned officers' sword belts.
 38,707 cubic feet of timber, for field carriages.
 26,124 pounds bar iron.

3. The amount of the expenditures under the appropriation for the purchase of saltpetre and brimstone has been \$38,023 64, which has been applied to purchasing and placing in store 480,294 pounds of refined saltpetre.

6. *Arming and equipping the militia.*

The expenditures for this object, from the period embraced in the last report to the 30th June, 1843, amount to \$134,413 56, and the principal stores procured are as follows:

- 25 6-pounder bronze guns.
- 27 6-pounder carriages.
- 1,500 muskets.
- 2,100 rifles.
- 1,500 carbines.
- 3,750 pistols.
- 1,000 artillery swords.
- 2,000 artillery sword belts.
- 100 sabre belts.
- 235 pairs of holsters.

7. The apportionment of arms to the several States and Territories, under the act of 1808, is shown by the accompanying statement, (marked B,) and the supplies issued to the States and Territories between the 30th September, 1842, and 30th June, 1843, are as follows:

- 20 6-pounder bronze guns.
- 24 6-pounder carriages, with implements and equipments complete.
- 4 caissons, with implements and equipments complete.

- 3,440 muskets, complete.
- 25 Hall's rifles.
- 1,450 common rifles.
- 50 Hall's carbines.
- 460 pistols.
- 370 cavalry sabres.
- 1,310 artillery swords.
- 3,790 sets infantry } Accoutrements.
- 50 sets rifle }
- 200 sets cavalry }
- 150 sabre } Belts.
- 1,310 artillery sword }
- 100 pairs holsters.
- 100 Hall's rifle pouches and belts.
- 50 Hall's rifle waist belts and plates.
- 103 Hall's bayonet scabbards and belts.
- 50 Hall's rifles flask and pouch belts.
- 20 bayonets.
- 12 sets artillery harness.
- 402 percussion cannon locks.

The usual distribution to the militia has been made this year, subsequent to the 30th of June, and includes many articles issued, which are not embraced in this statement.

S. Arsenal and depots.

The expenditures under this head for three quarters ending 30th Jan 1843, have been \$53,615 54, being drawn from a balance remaining from the appropriations of the previous year, which has been applied to executing the constructions at the arsenals at Little Rock, in the State of Arkansas; Fayetteville, in the State of North Carolina; preparing for the construction of that at Charleston, South Carolina; and in repairing and improving those in other parts of the Union, by the addition of buildings necessary for the storage and preservation of the munitions of war provided for the future wants of the country. The inspection, which commenced last year, of all the muskets deposited at the arsenals, for purpose of classifying them according to quality, has been continued, and is not yet completed. Some of those falling into the 4th class, which embraces all made prior to 1812, and those of later fabric, which are defective, have been sold, under the provisions of the law of Congress passed March 3, 1825.

9. Ballistic pendulum.

In the general appropriation for the service of this department in 1840, provision was made, in pursuance of an estimate from this office, for constructing a ballistic pendulum, for the purpose of prosecuting, with great accuracy, the experiments essential to the advancement of the science of gunnery, and of extending our knowledge of the principles which should govern in determining the proper proportions of length, weight, &c. in the construction of cannon; also, to ascertain the best mode of manufacturing gun powder for ordnance service, and to establish a certain and satisfactory method of proving the strength of such powder. During the last year, the ballistic pendulum has been constructed.

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at the arsenal; and, in accordance with a programme approved at the time, a series of experiments on gunpowder has been commenced, which promises satisfactory results; but the experiments, requiring much time and care, have not yet been carried to the extent requisite for making a full report on the subjects to which they relate.

10. Artillery drawings.

In the preparation of detailed drawings of a uniform system of artillery much progress has been made, and the work is advancing towards completion. The drawings already finished, include, besides accoutrements for small arms, the heavy cannon and mortars for garrison and sea-coast defence, and almost the entire system of field and siege artillery; embracing carriages and caissons, travelling forges and battery wagons, with the various implements, equipments, and tools, requisite for field and siege arms. They consist of 140 sheets, and, with the different plans, elevations, and sections, comprise 2,269 distinct delineations. To complete the system, drawings of carriages and implements for casemate and barbette guns, and of mortar beds, remain to be executed.

The foregoing statements show the amount of expenditures intrusted to the officers of this department, with the product and disposition of the principal articles obtained. But, in addition to all this, it is the duty of the department to keep in repair the whole armament of the fortifications of the country, as well as the arms in the hands of the troops. It is, moreover, the grand depository of all that part of the military stores of the nation laid up, not less for the militia than for the regular army, and so expounded among the arsenals and depots, in every quarter of the Union, and meet at once the calls most likely to arise in any direction.

In these arsenals and depots every article undergoes a periodical examination, and is cleaned, oiled, lathered, or otherwise treated, so as to preserve it in the best condition for use: and at the end of every year a periodical inventory is forwarded to this office, which shows, not only what has been added within the year, but all that has been issued or otherwise disposed of, and every article remaining with its money value, at the lowest estimate of first cost and present condition.

The twenty-six inventories, prepared upon these principles, for the 30th year last, give an aggregate of the estimated values as follows:

Magazines, store-houses, quarters, barracks, workshops, and machinery	\$3,946,492 61
Artillery of every description, with carriages, equipments, and projectiles	1,928,009 06
Small arms of every description, with their accoutrements and ammunition, such as cartridges for cannon and small arms, powder not made-up into cartridges, and materials for the fabrication of powder and cartridges	3,826,221 07
Component parts of artillery carriages, and of small arms and equipments, not assembled and put together so as to form the finished article	591,570 40
Bought materials and tools in the store houses	248,093 18
Waste, and implements and tools of every description, for the current service	559,612 58
298,092 17	
Making a total of	17,895,021 07

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No. 8.

REPORT OF THE CHIEF OF THE ORDNANCE DEPARTMENT

ORDNANCE OFFICE, WASHINGTON, November 1, 1844

SIR: I have the honor to submit the following report of the operations of the Ordnance department during the fiscal year ending the 30th June 1844.

Funds.

The amount of money available for the service of the Ordnance department during the year was as follows:

Amount, per last report, undrawn from the Treasury 1st July, 1843	\$1,288,000
In hands of disbursing officers same day	71,913
The appropriations for the fiscal year 1844, including the standing appropriation for arming the militia, to the 31st December, 1843, were embraced in the last annual report, and were therefore included in the above amount "undrawn from the Treasury;" but \$100,000 more having been placed at the Treasury to the credit of the appropriation for arming the militia, to extend to the end of the new fiscal year, 30th June, 1844, that amount is now added	100,000
	<u>1,460,000</u>
Received within the year, from sales, rents, and for arms damaged in the hands of the troops	53,974
Total	<u>1,513,974</u>
Expenditures during the year	\$864,000
In hands of disbursing officers	28,157
Returned to the Treasury from sales	40,134
Undrawn from the Treasury	581,627
	<u>1,513,974</u>

Armament of fortifications.

The expenditures under this head have amounted to \$63,111 64 cts. the principal articles which have been fabricated and purchased by the department are as follows:

32-pounder casemate carriages	-	-	-	-
32 do. barbette do.	-	-	-	-
18 do. do. do.	-	-	-	-
42 do. cannon balls	-	-	-	-
32 do. do.	-	-	-	-
24 do. do.	-	-	-	-
8-inch shells	-	-	-	-
42-pounder grape shot	-	-	-	-
32 do. do.	-	-	-	-
24 do. do.	-	-	-	-
18 do. do.	-	-	-	-
12 do. do.	-	-	-	-
43,960 cubic feet of timber, and 25,418 pounds of bar iron.				

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The views of this department as to the propriety of providing the means for strengthening the fortifications, in proportion to the advancement in their construction, have been frequently stated, and remain unchanged. The policy of gradually providing material of an imperishable character, and which it would be very difficult, if not impossible, to procure in sufficient quantities in an emergency, such as cannon, shot, and shells, and of having ready a stock of seasoned timber, for the manufacture of gun carriages, implements, &c., seems to be unquestionable.

The construction of a national foundry is a subject which has been frequently mentioned in the reports from this department, and so fully discussed that I only revert to it now to state that its importance is undiminished, and again to call attention to it by reference to former reports.

Purchase of ordnance and ordnance stores.

The expenditures under this head have amounted to \$65,669 79, and the principal articles fabricated and purchased therewith are as follows:

Under field carriages	-	-	-	20
do. iron cannon (for pendulum)	-	-	-	1
do. cannon balls	-	-	-	96
do. shells	-	-	-	10
do. do.	-	-	-	332
do. Peck's rifles	-	-	-	40
do. of infantry accoutrements	-	-	-	5,500
do. of cavalry do.	-	-	-	500
do. non-commissioned officers' sword belts	-	-	-	750
do. foil-musket cartridges	-	-	-	150,000
do. foil rifle do.	-	-	-	50,000
do. foil carbine do.	-	-	-	50,000
do. pounds of cannon powder	-	-	-	1,300
do. percussion primers for cannon	-	-	-	40,000
do. cubic feet of timber	-	-	-	910
do. pounds of bar iron	-	-	-	31,372
do. percussion cannon locks	-	-	-	1,500

Purchase of saltpetre and brimstone.

The expenditures under this head have been \$29,753 76, which amount has been applied to purchasing and placing in the arsenals:

- 319,884 pounds of fused saltpetre, and
- 20,000 pounds of roll brimstone.

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Arming and equipping the militia.

The expenditures under this head have amounted to £172,152 8s. the principal articles fabricated and purchased therewith are the following:

6-pounder field carriages	-	-	-	-	-	-	-	-
4 do. do. do.	-	-	-	-	-	-	-	-
6 do. bronze cannon	-	-	-	-	-	-	-	-
12 do. do. howitzers	-	-	-	-	-	-	-	-
Caissons	-	-	-	-	-	-	-	-
Muskets	-	-	-	-	-	-	-	-
Rifles	-	-	-	-	-	-	-	-
Carbines	-	-	-	-	-	-	-	-
Pistols	-	-	-	-	-	-	-	-
Artillery swords	-	-	-	-	-	-	-	-
Pistol cartridge boxes	-	-	-	-	-	-	-	-
Pairs of holsters	-	-	-	-	-	-	-	-

The accompanying statements, marked A, B, and C, show the issue of ordnance and ordnance stores of every description to the regular army and the apportionment of arms for the year 1843 to the several States and Territories, under the act of 1808; and the muskets, or other arms issued thereof, which were issued to the State authorities during the year ending 30th June, 1844, in conformity with their requests.

Arsenals and depots.

The expenditures under this head have amounted to \$160,532 88; this sum includes the specific appropriation of \$32,000 for the arsenal at Charleston, South Carolina, which has been applied to that purpose, while the remainder has been applied to continuing the constructions at the arsenal at Little Rock, in the State of Arkansas, and erecting storehouses, workshops, and other buildings, at the other arsenals, building enclosing walls, grading, repairing, &c., in order to preserve and render more perfect the several establishments.

The inspection of muskets deposited at the arsenals and armories, for the purpose of classifying them according to quality, has been diligently prosecuted during the year, but is not yet completed; and further sales of muskets found unfit for issue have been made, in conformity with the act of March 3d, 1825, and the proceeds deposited in the Treasury as stated at the commencement of this report.

Ballistic pendulum.

The officer charged with the duty of prosecuting the experiments on the ballistic pendulum reports that these experiments have been completed.

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During the past year, in accordance with the programme adopted, with the exception of other points in practical gunnery, such as the effect of varying the windage and the weight of the balls, the manner of loading, &c.; also, but a pendulum for small arms has been constructed, and experiments have been made tending to useful practical results as regards the kind of powder and the charge most suitable for such arms. A full report is in preparation, in which these experiments will be presented in detail, with a general synopsis, and a statement of the principal conclusions to be derived from them. "but the preparation of it will necessarily be a work of some labor and time, as the mass of facts to be arranged and digested is very great."

Artillery drawings.

The preparation of detailed drawings of a uniform system of artillery has been continued during the past year, and as much progress has been made as the nature of the work and the force employed upon it would admit. In addition to the work heretofore reported, the drawings executed include barbette carriages, heavy sea-coast howitzers revised and modified, guns, and the various details connected with the construction of the cannon and musket ballistic pendulums: besides additional copies of some of the drawings belonging to the system of field artillery.

Duties of the department in relation to stores in use or in depot.

The foregoing statements show the amount of expenditures within the year by this department, and the product in part of the expenditures, as well as the principal issues. The duties of the department extend, however, to keeping in repair the whole armament of the fortifications of the country, as well as the arms in the hands of the troops, and to guarding and preserving all that part of the military stores of the nation laid up, not less for the militia than for the regular army, and which are so apportioned among the arsenals and depots in every quarter of the Union as to meet at once the calls most likely to arise from any quarter at the shortest notice.

In these arsenals and depots, as well as at the armories, every article is subjected to a periodical examination, and is cleaned, oiled, lathered, or otherwise treated, so as to preserve it in the best condition for use; and at the end of each year a perfect inventory is forwarded to this office, which shows not only what has been added within the year, but all that has been sold or otherwise disposed of, and every article remaining, with its money value at the lowest estimate, taking into view its first cost and present condition.

The twenty-six inventories prepared upon these principles for the 30th June last give an aggregate of the estimated values as follows:

Magazines, storehouses, quarters, barracks, work-shops, and machinery -	\$4,117,137 82
Artillery of every description, with carriages, implements, and projectiles -	1,880,321 90
Small arms of every description, with their accoutrements	9,258,203 84
Ammunition of all kinds, including not only powder and cartridges, but materials for the manufacture of powder	620,979 54
Component parts of artillery carriages and equipments, and small arms and equipments -	253,146 00

George Talbot
Chief of Arsenal

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No. 8.

REPORT FROM THE ORDNANCE DEPARTMENT.

ORDNANCE OFFICE,
Washington, October 31, 1845.

SIR: I have the honor to submit the following report of operations of the Ordnance Department during the fiscal year ended the 30th of June last.

Funds.

Amount per last report, undrawn from the treasury 1st July, 1844	-	\$581,667
In hands of disbursing officers same day	-	28,126
The appropriations for the fiscal year 1845, including the standing appropriation for arming and equipping the militia	-	857,480
Received during the year from sales, rents, and for damages to arms in the hands of troops	-	64,436
Total	-	1,531,649

Expenditures during the year	-	\$983,723 74
In hands of disbursing officers, June 30, 1845	-	36,959 74
Returned to the treasury from sales	-	41,231 95
Remaining in the treasury undrawn June 30, 1845	-	464,734 52
	-	1,531,649

Armament of fortifications.

The expenditures out of this appropriation, during the fiscal year, amounted to \$115,234 74. Of the articles procured, by purchase or fabrication, the following are the principal, viz:

- 5 sea-coast and garrison guns.
- 51 10 and 8-inch columbiads.
- 25 sea coast and garrison gun carriages.
- 20 8-inch columbiad carriages.
- 2 10-inch mortar beds.
- 100 42 pounder cannon balls.
- 9,785 10 and 8-inch shells.
- 57,836 grape shot, different calibres.
- 72,295 pounds bar iron.
- 13,439 cubic feet of timber for casemate and barbette carriages.

The number of pieces of ordnance which the different fortifications require, are as follows, viz:

For works constructed	-	3,525
For works under construction	-	122

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works projected, constituting a part of the system of fortifications	- 2,056 pieces.
Total number of pieces -	- <u>6,876</u>

Of these there are already provided, and on hand at the forts and arsenals, including all old and new, and of whatever quality, pattern, date, or mode of fabrication, 4,135. Omitting such as for peculiarity of pattern, material, length of service, or other reason, are not efficient and safe for use, there will remain 2,900; leaving to be provided 3,976, the cost of which will be about \$1,500,000; or, omitting the guns for the last noticed works (1,920 pieces,) cost \$710,400. The number of carriages of all kinds required, is the same as the number of pieces of ordnance. There are already constructed and on hand, at the forts and arsenals, 1,379 carriages, leaving to be constructed 5,497. The supply of timber on hand and under contract to be delivered, is sufficient for the fabrication of 1,857 carriages. There consequently still remains to be provided timber for 3,640 carriages, (cost, about \$273,000,) in order to supply the fortifications already constructed, under construction, and projected. Omitting the last, the supply required, and which should be laid in at once, would be for 1,584 carriages; or, considering the surplus which should always be on hand, for repairs and replacing worn out carriages, at least twice the quantity we now have. The cost of this timber, delivered and stored, will be about \$400,000.

The amount of the appropriations for this object heretofore usually made from year to year, has been too limited to allow the provision of such a stock of suitable material as will insure the prompt and efficient meeting of such demands as an emergency may require. The importance of laying in full supplies, especially of timber, and of erecting at the arsenals of construction commodious, safe, and permanent store-houses for its preservation, has been frequently urged by this department, and is again repeated. The chief officer of ordnance, who has been charged with the inspection of arsenals and of the armament of fortifications during the past year, in his report, says, on this subject: "At the arsenals of construction, it is important that the deposits of timber should be on the most liberal scale. In my late tour of inspection of the armament of fortifications, the great difference in the condition of carriages ascertained to be made of seasoned and those of unseasoned timber was sufficient to satisfy me, if other arguments were wanting, that any attempt at economy by limiting our supplies of carriage timber was a fatal error."

Although not pertaining strictly to a report of operations for the past fiscal year, I may state, in evidence of the urgent necessity of furnishing means to enable the department to proceed rapidly with the armament of fortifications, that, within the last four months, the engineer department has reported itself ready to receive their armament to the amount of 636 heavy sea-guns, which are recommended to be mounted "without delay." Carriages are yet to be made for these forts, which are among the most important to our defence, including several for the protection of the city of New York and Boston.

The estimate for the next fiscal year contains a sum for this object greater than has been usually appropriated, but more than is really wanted. The

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explanatory remarks on that item appended to the estimate are referred to in connexion with those here made.

Ordnance, ordnance stores, and supplies.

From the appropriation for this object there has been expended, during the fiscal year, \$94,663.74.

The following are the principal articles purchased and fabricated:

- 50 6-pounder bronze guns.
- 1 9-pounder trial gun.
- 50 6-pounder carriages.
- 8 caissons.
- 3,773 cartridge boxes.
- 8,665 cartridge box, waist, and sabre belts.
- 2,427 bayonet scabbards.
- 1,500 sword knots.
- 1,121 pairs of holsters.
- 3,007 carbine slings and swivels.
- 1,500 percussion cannon locks.
- 21,000 priming tubes.
- 606,200 percussion caps for small arms.
- 26,530 pounds laboratory paper.
- 118,696 pounds bar iron.
- 2,464 cubic feet of timber for field carriages.

Purchase of saltpetre and brimstone.

Of the appropriation for this purpose, the sum of \$49,932.16 has been applied to the purchase of 524,410 pounds of saltpetre, which has been received and stored at the arsenals. The saltpetre purchased from time to time laid up in store has been refined and fused, and run into solid masses of a size for handling. In this state it is packed in strong boxes, each containing about 400 pounds, and is more conveniently stored, besides the great advantage thus obtained in point of greater safety from fire, and it is believed, entire safety from liability to explode.

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Arming and equipping the militia.

The expenditures from the appropriation for this object, during the fiscal year, amount to \$174,911 99. The principal articles obtained therewith, for fabrication and purchase, are as follows, viz:

- 25 6-pounder bronze guns.
- 13 12-pounder bronze howitzers.
- 59 field carriages.
- 1,600 muskets.
- 2,100 rifles (percussion lock) and 1,800 rifles (flint lock.)
- 1,000 Hall's carbines.
- 4,500 pistols.
- 1,000 artillery swords.
- 500 musicians' swords.
- 1,805 musket, carbine, and pistol cartridge-boxes.
- 2,500 cartridge box, waist, sabre, and sword belts.
- 775 bayonet scabbards.
- 320 pairs holsters.
- 2,000 copper rifle flasks.
- 53,533 pounds iron for gun carriages.

The statements hereto appended, marked A and B, exhibit the apportionment of arms, for the year 1844, to the several States and Territories, under the act of 1808, according to the number of effective militia included in the returns of each; and the supplies of muskets, or other arms in lieu thereof, issued to them during the year ended 30th June, 1845, in conformity with the requisitions of the proper authorities. The issues of ordnance and ordnance stores of every description to the army, during the same period, are embraced in statement C.

Arsenals and depots.

The expenditures during the fiscal year, from the appropriation for "arsenals," amount to \$99,286 70. This sum has been applied to repairs and preservation of buildings, sites, and enclosures; to additions to old, and to the construction of new buildings, wharves, and enclosures, and to such permanent improvements, at the different arsenals and depots, as were stated in the remarks on the estimate, as the objects intended to be accomplished thereby. The work done under this head is more particularly set forth in the

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statement of principal operations, exclusive of ordinary work at the armories and arsenals, accompanying this report, and before referred to.

The experiments with the ballistic pendulums, which have been in progress for more than two years, have been so far completed as to enable the officer charged with conducting them to make a full report to this department. This report, embracing a description of the pendulums used, statements of the experiments in detail, with a summary thereof, and the conclusions derived from them, has been printed by order of the War Department. The chief points to which they relate will be found stated in a report from Washington arsenal, hereto appended.

The inspection of muskets at the arsenals and armories, for the purpose of classifying them according to quality, commenced in 1842, and since continued, has been completed. This inspection included all muskets made prior to 1832. It has been critically made, under the direction of an ordnance officer, by regular inspectors from each of the national armories, and has resulted in the following classification. The 1st class includes all good and serviceable arms at the armories and arsenals made since 1812 and contains 299,023 muskets. The 2d class includes all good and serviceable arms at the armories and arsenals made from 1821 to 1831 inclusive, which have not been in use, and contains 76,155 muskets. The 3d class includes all good and serviceable arms at the armories and arsenals made from 1812 to 1820 inclusive, which have not been in use; also all good and serviceable muskets made since 1812, which have been in use, and contains 228,291 muskets. These muskets are so classified, arranged, and reported at the different arsenals and depots; thus exhibiting not only the number but the quality and pattern of all the muskets in store. Percussion arms only are now manufactured, and measures are in progress for altering to percussion all the muskets of the 1st and 2d classes with flint locks. Those of the 3d class are not considered suitable for alteration. Muskets of the 4th class, which includes those made prior to 1812, as also all unserviceable or damaged arms of later date, not yet repaired, have been collected at depots for sale, agreeably to the act of March 3, 1825. Most of them have been so disposed of and the proceeds returned to the treasury, as stated in a former part of this report. There are, in addition, 24,629 muskets set aside for repairs, to be added, when repaired, to their appropriate class.

The regulations of the department now in operation relative to the inspection and proof of iron ordnance at the foundries will, it is believed, secure the reception by the government of none which may not be confidently relied on, and used with safety for a reasonable period of service. The quality of those received prior to the adoption of these regulations was not entitled to so much confidence. The department has not, however, failed to adopt every precaution in its power to exclude from use all iron of not of undoubted strength to resist the explosive force of service charges. A minute inspection of the metal of iron guns, in depot and at the foundry, under the supervision of the colonel of ordnance, has been made to a great extent, and is still in progress. The results already obtained authorize the expectation of a satisfactory accomplishment of the object in view. A report of the officer having the immediate superintendence of the work is hereto appended.

The establishment of a national foundry has been heretofore so fully discussed that nothing remains to be said concerning it, but to refer to the reports from this department and other public documents on the subject.

72 vs 110
1st
CABO 299023
1821-31- 76,155
1812-30-228,291
4832
3rd

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The preparation of detailed drawings for a complete uniform system of property has constituted part of the office duties during the year. It is still in progress, and advancing to completion as fast as the force employed in its execution, necessarily limited by its uniformity, will admit.

The duties of the department embrace also repairs of the whole armament of our fortifications and of the arms in the hands of our regular troops; the procurement, care, and preservation of all the military stores of the country for the land service, as well for the militia as for the regular army, with the correspondence and accountability connected therewith. These stores are deposited at the arsenals and depots in different parts of the country, and are so apportioned among them as it is thought will best secure their preservation, and at the same time meet the calls most likely to arise in any direction. Each article is periodically examined, and receives such treatment as is necessary to put or keep it in good condition for use. Inventories are annually prepared and forwarded to this office, exhibiting all the property added to the stock during the year, and how obtained; all that has been taken therefrom, and how disposed of; with the quantity remaining, and its money value estimated according to cost and condition. These inventories, made up to the 30th June last, exhibit the following aggregates of estimated value:

Lands, magazines, store-houses, quarters, barracks, workshops and machinery	\$3,794,240 01
Artillery of every description, with carriages, implements, and projectiles	1,966,641 89
Small arms of every description, with their accoutrements and appendages	8,951,046 77
Ammunition of all kinds, including powder and materials for its manufacture	645,661 60
Component parts of artillery carriages and equipments, and of small arms and accoutrements	335,053 47
Wheeled carts, implements and tools of every description in use or in current service	291,473 19
Wrought materials and tools in store	534,875 40
Total	\$16,518,992 33

The funds and property in the hands of agents of this department have been regularly accounted for, and their accounts examined in this office and transmitted to the Treasury Department for settlement. During the year there has been no delinquency in this respect.

MINERAL LANDS.

The mineral lands of the United States, the supervision of which is assigned to this bureau, in addition to its duties as above described, are next in order.

Lead mines of the upper Mississippi, or the Galena district.
The mining district which has heretofore borne the designation of the Mississippi embraces 17 townships and fractional townships in the west corner of Illinois, the mineral lands in the Territory of Wisconsin from the Illinois line north to the Wisconsin river, and those on the east side of the Mississippi in the Territory of Iowa; but, since the organization of a new district lying higher up the Mississippi, which will be

George Talcott
Chief of Ordnance

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No. 6.

REPORT OF THE CHIEF OF ORDNANCE.

June 30, 1846

ORDNANCE OFFICE,
Washington, November 10, 1845

Sir: I have the honor to submit the following statement of the operations of the Ordnance department during the past year, taking up the subjects in the same order as in my last annual report.

FUNDS.

Amount, as by last report, undrawn from the treasury on the first of July, 1845	\$464,734
In hands of disbursing officers, same date	36,952
Amount of appropriations for the fiscal year 1846, including the standing appropriation for arming and equipping the militia	1,152,596
Received during the year from sales, rents, and for damages to arms in the hands of troops	41,803
Total	1,696,085

Amount of expenditures during the year	\$1,396,728
In hands of disbursing officers, June 30, 1846	61,737
Remaining in the treasury undrawn, June 30, 1846	237,567
	1,696,032

ARMAMENT OF FORTIFICATIONS.

Out of the appropriation for this object there has been expended during the fiscal year, the sum of \$273,294 18. The principal articles procured by purchase and fabrication are the following, viz:

- 125 seacoast and garrison cannon, different calibres.
- 76 ten and eight inch columbiads
- 393 seacoast and garrison gun carriages, complete.
- 46 do do upper do
- 81 do do chassis.
- 20 twelve-pounder truck carriages.
- 11,187 cannon balls of different calibres.
- 4,285 shells of different calibres.
- 21,991 grape shot of different calibres.
- 32 twenty-four pounder spherical case shot.
- 7,858 cubic feet of timber for casemate and barbette carriages.

Arrangements have been made, within the year, for procuring a full supply of gun carriage timber, to the amount of about 87,000 cubic feet. The necessity for having, at the arsenals, deposits of gun carriage timber on the most liberal scale, will be obvious, when it is stated that at

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Three years' seasoning is absolutely necessary before it can be used for constructions of this kind; and it is much improved by having five years' seasoning. It is good policy and economy to keep the arsenals supplied with this kind of timber to the full extent of their capacity for its proper storage and preservation, and to increase those means, where required, by the erection of permanent timber storehouses. There have been ordered for the different fortifications, during the past year, 199 seacoast and garrison guns, 30 ten and eight-inch seacoast howitzers, 70 flank howitzers, 64 columbiads—in all 363 pieces of heavy ordnance; also, 533 case and barbette gun-carriages; nearly all of which orders have been completed with, and the rest are in rapid progress of execution. Work on account of armament of fortifications has lately been partially suspended, in consequence of the more pressing demands for arms, ammunition, and other ordnance supplies for the troops in the field; and the estimate under this head for the next fiscal year does not contemplate its resumption to anything near the capacity of our arsenals of construction.

The minute inspection of the metal of iron ordnance, which was received before the establishment of our present regulations for the government of orders employed in its fabrication by this department, has been continued during the year, and is still in progress. The report of the officer having the immediate superintendence of this work, which is conducted under the general directions of Colonel Bomford, is appended, and will show fully what has been done in this matter during the year. Prior to the adoption of the present regulations, there was no other test for iron cannon but the powder-proof, which experience has shown cannot be relied on. The strength, density, and character of fracture of the metal are now examined, and constitute a regular part of the inspection. Since ordnance officers have been stationed at foundries, and had the immediate supervision of the casting of cannon, their quality has been greatly improved; indeed, it is believed that not a single bad gun has been received. All the cannon previously cast are being classified according to quality, with the purpose of replacing such as are inferior by those of known strength.

ORDNANCE, ORDNANCE STORES, AND SUPPLIES.

The expenditures from the appropriation under this head, during the fiscal year, have amounted to \$133,965 88. The principal articles, procured by purchase and fabrication, are as follows, viz:

- 40 6 pounder bronze guns.
- 9 12-pounder bronze howitzers.
- 24 6 pounder field carriages, complete.
- 4 12-pounder mountain howitzer carriages, complete.
- 16 caissons.
- 8 travelling forges.
- 4,000 6-pounder cannon balls.
- 4,000 12-pounder shells.
- 256,863 pounds of canister shot.
- 4,000 spherical case shot, 12 and 6 pounder.
- 150 Colt's carbines and pistols.
- 16,195 cartridge boxes; musket, carbine, and pistol.
- 21,316 cartridge-box, waist, and sabre belts.
- 9,150 bayonet scabbards and frogs.

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12,780 gun slings.
11,466 brushes and picks.
250 rifle pouches and belts.
1,007 pairs of holsters and caps.
250 sabre knots.
407 carbine swivels.
4,031 rounds of ammunition for field artillery.
778,180 cartridges for small arms.
751,390 percussion caps.
3,080 cannon percussion locks, repaired.
3,000 cubic feet of timber, for field-carriages.
There have also been procured during the fiscal year, by purchase and fabrication at the arsenals, the following ordnance supplies, paid for out of the appropriation for "Mexican hostilities:"
8 siege carriages.
14 siege mortar beds.
1 caisson.
4,067 cannon balls of different calibres.
772 shells of different calibres.
12,282 rounds of ammunition for siege and field cannon.
2,707,353 cartridges for small arms.
350,428 percussion caps.
100,000 cannon percussion primers.
55,203 pounds of gunpowder.
2,000 complete sets of infantry accoutrements.

PURCHASE OF SALTPETRE AND BRIMSTONE.

During the fiscal year there has been expended out of this appropriation the sum of \$42,224 95. It has been applied to the purchase of 100,000 lbs. of refined sulphur and 484,848 lbs. of refined saltpetre. The stock of these materials, which has been provided and laid up in store during several years past, now amounts to 3,368,681 lbs. of saltpetre and 734,560 lbs. of sulphur. With the additional quantity of saltpetre to be procured from the balance of the appropriation on hand, there will be a sufficient stock of these articles to make five millions of pounds of gunpowder. I have asked for funds to increase this supply, deeming the quantity on hand insufficient; and taking into consideration the possibility of the success of a discovery which, it is said, will supersede the use of gunpowder.

George Talcott
Col. Genl

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June 30, 1847

No. 20.

REPORT FROM THE ORDNANCE DEPARTMENT.

ORDNANCE OFFICE,
Washington, November 20, 1847.

SIR: In presenting the annual report of the principal operations of the Ordnance Department for the last fiscal year, I must, before coming to details, state in general, that the existence of war during that period has imposed so great an amount of duty as to call for the constant and utmost exertions of all its officers. It is believed, however, that all demands on the department have been promptly answered, and that the quality of its arms and stores is unsurpassed by any which have heretofore been furnished. Of the various supplies provided, the principal of which are more particularly stated in other parts of this report, the batteries of field artillery form an important part. The degree of perfection attained in their construction, is believed to have been fully experienced in our success in the terrible conflicts which have characterized the war in Mexico. The present is deemed a suitable occasion for presenting a brief sketch of the measures taken to improve that arm, or rather to create the system now existing.

Mexican
war

It is known that brass cannon have been procured by the government, from time to time, since the beginning of the present century, but their little durability and great cost had always forbidden the idea of their general use; wherefore iron field guns were adopted and used during the war of 1812. Soon after the resuscitation of the Ordnance Department, in 1832, efforts were made, under the orders of the War Department, to devise iron guns suitable for field service, and various patterns were carefully prepared; the best of which sustained the necessary tests, and promised to fulfil all that was required. During the process of experiments with iron guns, it was decided also to attempt the fabrication of bronze artillery, it being necessary to use that material for certain light pieces. A private foundry was selected, and an officer specially charged with the duty of superintending operations, which, in the course of a year, resulted in the manufacture of sound bronze cannon. Others were subsequently improved in their alloy and perfected in their proportions, and the unexpected bursting of one or two of the new iron field guns about that time, without an apparent or adequate cause, led to the adoption of bronze field artillery.

Field
Artillery

The gun carriages, caissons, and other parts of the field train have been carefully adjusted and established by the ordnance board, from time to time, under the orders of the War Department, and also the mode of preparing the ammunition, equipments, and supplies, including the percussion lock and primer; the whole forming our present system of field artillery.

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D.R. P. 680

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Having thus provided a suitable material, the general-in-chief was induced, in 1842, to order a regular course of practice with field batteries. A liberal allowance of ammunition for target firing was supplied; and this practical instruction, joined to the previous sound theoretical education of the officers, has resulted in giving to the personnel of our artillery a degree of skill never surpassed.

The great quantity of arms and ordnance stores which it has been necessary to prepare and issue has compelled me to keep most of the ordnance officers at the arsenals on their appropriate duties. As many have been sent to Mexico as could possibly be spared for service in the field, although they constitute but a small portion of those who are anxious to participate in the labors, dangers, and glories of the armies in that country. Of the thirty-six officers composing the corps, an average of thirteen have been on service in Mexico.

Gun-cotton, the knowledge of which had just reached this country at the date of my last report, has been submitted to experiments to test its fitness as a substitute for gunpowder. The limited trials made have not shown it to be well adapted to use in fire-arms. Its explosive force, or bursting effect, is far greater than that of gunpowder; its nature, in this respect, assimilating more to that of fulminates, a property which seems well suited to mining purposes.

Taking up the subjects in the order usually followed, the following presents a summary of the principal operations of this department during the past fiscal year:

Funds.

Amount, as by last year's report, undrawn from the treasury on the 1st of July, 1846.....	\$237,567 90
In hands of disbursing officers same date.....	61,737 93
Amount of appropriations for the fiscal year 1847, including the fixed annual appropriation for arming and equipping the militia.....	2,191,900 52
Received during the year from sales, rents, and for damages to arms in hands of troops.....	23,622 25
	<hr/>
	2,514,828 60
	<hr/>
Amount of expenditures during the year.....	\$1,973,364 95
Balance of the appropriation for mineral lands transferred to the Treasury Department.....	16,716 05
In hands of disbursing officers June 30, 1847.....	98,540 53
Remaining in treasury undrawn June 30, 1847.....	426,207 07
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	2,514,828 60
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Armament of fortifications.

Out of the appropriation for this object there has been expended, during the fiscal year, the sum of \$181,646 13.

The principal articles procured by purchase and fabrication, are the following, viz:

- 25 32-pounder cannon.
- 1 12-inch columbiad.
- 34 8-inch columbiads.
- 20 8-inch siege howitzers.
- 124 24-pounder howitzers, for flank defence.
- 187 sea-coast and garrison gun-carriages, complete.
- 116 do do upper carriages.
- 42 do do chassis.
- 8 10-inch mortar beds.
- 971 8-inch shells.
- 93 12-pounder shells.
- 3,544 8-inch cannon balls.
- 35,693 grape shot of different calibres.
- 27,279 cubic feet of gun-carriage timber.

Arrangements have been made for procuring further supplies of gun-carriage timber. The necessity of placing at the arsenals of construction this material, on a liberal scale, will be obvious when it is stated that at least three years' seasoning is absolutely required before it can be used for constructions of this kind; and it is much improved by being kept five years.

There have been sent to the different fortifications during the past year, 26 pieces of ordnance and 53 gun-carriages and mortar beds. Work on account of the armament of fortifications has been partially suspended during the year in consequence of the more pressing demands for arms, ammunition, and other ordnance supplies for the troops in the field; and the estimate, under this head, for the next fiscal year, does not contemplate its resumption to anything near the capacity of our arsenals of construction.

The minute inspection of the metal of iron cannon, which had been manufactured and received before the establishment of the present regulations for the government of foundries employed by this department in their fabrication, has been completed. The necessity for, and advantages of this inspection, were stated in my last annual report. It proves conclusively the insufficiency of the powder proof alone as a test. The number of cannon which have been examined is 2,505; all of which have been classified according to the respective values of the tensile strength, density, and character of fracture, given by a sample from each gun. This classification, according to the apparent quality and strength of metal, will be further tested by a comparative trial of several guns of each class, and of various calibres, from each foundry, which should be proved to extremity, some with service and others with increased charges, in order to ascertain both their relative and their absolute endurance. The report of the officer having the immediate super-

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intendence of this work, which is conducted under the general direction of Colonel Bomford, is appended, and will show fully what has been done in this matter. Attention has been given to the armament of several of the forts which required repairs, and pent houses furnished to protect the carriages.

Ordnance, ordnance stores, and supplies.

The expenditures from the appropriation under this head during the fiscal year have amounted to \$570,161 52.

The principal articles procured by purchase and fabrication are as follows, viz:

- 10 10-inch siege mortars.
- 10 24 and 12-pounder siege gun carriages.
- 32 field gun carriages.
- 20 mountain howitzer carriages.
- 10 caissons.
- 40 travelling forges.
- 41 battery wagons.
- 705 sets of artillery harness for two horses.
- 29,869 cannon balls, different calibres.
- 35,052 shells, different calibres.
- 92,740 lbs. cannister shot, different calibres.
- 25,487 spherical case shot, different calibres.
- 26,611 rounds of ammunition for cannon, of different calibres.
- 3,752 sabres and swords of the various kinds.
- 22,150 sets of infantry, rifle, and cavalry accoutrements complete.
- 7,071 cartridge boxes.
- 9,225 cartridge box belts.
- 6,155 bayonet scabbards.
- 4,875 gun slings.
- 18,200 brushes and picks.
- 564 rifle pouches.
- 2,278 belts of various kinds.
- 1,487 pairs holsters and housings.
- 12,150,811 cartridges for small arms.
- 3,961,054 percussion caps.
- 1,129,151 pounds of lead.
- 861 pounds laboratory paper, and
- 3,363 cubic feet of timber.

There have also been procured during the fiscal year, by purchase, and by fabrication at the arsenals, the following ordnance supplies, which have been paid for out of the appropriation for "Mexican hostilities."

- 15 24-pounder guns.
- 6 8-inch guns.
- 3 12-pounder siege guns.
- 19 8 and 10-inch siege mortars.
- 15 12 and 24-pounder field howitzers.

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- 24 mountain howitzers.
- 41 beds for 8 and 10-inch mortars.
- 108 gun carriages of different descriptions.
- 36 caissons.
- 24 travelling forges.
- 4 battery wagons.
- 279 sets of artillery harness for two horses.
- 20,523 cannon balls, different calibres.
- 89,347 shells for mortars, columbiads, and cannon.
- 2,294 grape shot.
- 6,940 spherical case shot; and
- 62,214 pounds of canister shot of different calibres.
- 53,218 rounds of ammunition for siege and field guns.
- 2,510 cavalry sabres.
- 500 non-commissioned officers' swords.
- 22,350 sets of infantry, rifle, and cavalry accoutrements.
- 17,379 cartridge boxes.
- 32,073 belts of various kinds.
- 9,584 bayonet scabbards.
- 12,488 gun slings.
- 41,488 brushes and picks.
- 428 rifle pouches.
- 3,207 pairs of holsters and housings.
- 298,726 pounds of musket, rifle, and cannon power.
- 13,529,592 cartridges for small arms.
- 3,326,682 percussion caps,
- 41,159 pounds laboratory paper.

Purchase of saltpetre and brimstone.

During the fiscal year there has been expended from this appropriation the sum of \$40,064 94. It has been applied to the purchase of 458,666 pounds of fused saltpetre, and 100,000 pounds of brimstone. The stock of these materials, which have been provided and laid up in store during several years past, now amounts to 3,368,681 pounds of saltpetre, and 34,560 pounds of sulphur; enough to make about 45,000 barrels of new powder.

Purchase of gunpowder.

The expenditures from the appropriation under this head have been \$100,000,

The following quantities have been procured therewith:

- 468,182 lbs. cannon powder.
- 162,506 lbs. musket powder.
- 83,978 lbs. rifle powder.
- 10,000 lbs. pulverized nitre; and
- 5,000 lbs. mealed powder.

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Arming and equipping the militia.

There has been expended during the fiscal year, from the standing appropriation for this object, the sum of \$163,039 97. The principal articles obtained for the same, by purchase, and fabrication at the arsenals, are as follows, viz:

- 80 6-pounder bronze cannon.
- 19 12-pounder bronze howitzers.
- 4 4-pounder carriages, } with implements and equipments.
- 16 caissons, }
- 40 sets of artillery harness for two horses.
- 1,440 muskets, with appendages.
- 2,700 percussion rifles.
- 1,500 percussion carbines.
- 3,750 percussion pistols.
- 20 cadet swords, and
- 912 cubic feet of timber for field carriages.

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1847

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Dr, p. 685

The apportionment of arms due to each State and Territory under the act of 1808, is made annually in this office, according to the number of effective militia included in the latest returns from each, and issues are made to the amount of the apportionment, in such arms and equipments of the prescribed models, as the proper authorities of the States and Territories may request. Statements A and B, hereto appended, exhibit the last apportionment and issues thus made. From the first of these statements it will be seen that some of the States have not made returns for several years, and as these returns are the only data on which the apportionment can be made, it is probable that these omissions diminish the quotas of such States, and that they do not receive as much as their actual effective militia force entitles them to. The fault in such cases lies with the States, and the only remedy is, greater attention to regularity in making their returns.

Issues to troops in the field.

American
War

The following statement exhibits the principal articles which were issued to troops ordered to Mexico, both of the regular army and volunteers, or sent to that country for issue to the troops already there, from the 30th of June, 1846, the time embraced in my last annual report, to the 30th of June, 1847, the time to which all the other matters, treated of in this report, are brought up, viz:

- | | |
|---|---|
| 21 18 and 24-pounder siege cannon, | } With carriages and
beds, implements
and equipments
complete. |
| 14 8-inch siege howitzers, | |
| 50 8 and 10-inch siege mortars, | |
| 9 cohorns, | } Do. |
| 28 6 and 12-pounder bronze field cannon, | |
| 14 12 and 24 do do howitzers, | |
| 14 12-pounder mountain howitzers, | |
| 42 cassions; 18 travelling forges; 19 battery wagons. | |
| 919 sets of artillery harness for two horses. | |
| 21,400 rounds of ammunition for siege artillery. | |
| 30,373 do do field do. | |
| 67,045 8 and 10-inch shells for mortars. | |
| 1,000 cannon balls, loose. | |
| 414,500 pounds of powder, besides that in the above rounds. | |
| 20,000 cannon primers; 1,328 war rockets. | |
| 24,530 muskets; 3,720 rifles, with their appendages. | |
| 2,190 carbines; 1,110 pistols, do do. | |
| 2,140 cavalry and horse artillery sabres. | |
| 1,935 non-commissioned officers' and musicians' swords. | |
| 22,090 sets of infantry accoutrements: | |
| 3,720 do rifle do. | |
| 2,990 do cavalry do. | |
| 12,951,000 cartridges for small arms. | |
| 417,000 flints do. | |
| 1,022,400 percussion caps do. | |

George Talcott

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Head 537
DTC 1. P. 340

REPORT FROM THE ORDNANCE DEPARTMENT.

ORDNANCE OFFICE,
Washington, November 14, 1848.

Mexican
war

SIR: The operations of this department during the last year, which are stated in this report in the usual detail, have been conducted, it is believed, with uniform correctness and despatch, and with as much regard to economy as was consistent with the superior quality and abundance of the arms, ammunition and other supplies which it has furnished. The increased amount of duties devolving on all the branches of the military service during the continuance of the Mexican war, has scarcely been at all abated as regards this department, since its termination. The collection, arrangement, repairs, and preservation of the ordnance and ordnance stores brought back from Mexico, impose as heavy duties as were originally required for their preparation and issue from the arsenals; duties which call for much industry and attention on the part of our officers and men, and which, I have every reason to believe, have been properly discharged; no exception thereto can come to my knowledge.

The test of practical experience, always the surest and best guide, may now be appealed to, in favor of the superior excellence of our armament for each description of troops. It may be confidently asserted that it is not surpassed by that of any nation; and although the bravery and skill of the *personnel* of our armies were, undoubtedly, the first and chief source of our late successes, the excellence of the *matériel* must also be taken into account in reckoning the causes which produced them. This department has not failed to take advantage of the opportunity which actual service in the field has presented for ascertaining and adopting all the improvements, and of correcting such defects as were therein made apparent.

Whilst skill in the use of small arms is almost universal in the country, a knowledge of the proper management of artillery is confined to but a small portion of our regular army, and, perhaps, a few volunteer companies. It is to be hoped that this knowledge, the theory of which forms an important part of the education received at the military academy, may not be suffered to decay for the want of such practical schools as can be furnished by a few companies authorized to be armed and equipped as light artillery. I consider it a matter of great importance to the country, from a military point of view, that all these companies should be armed, equipped, and supplied as to enable them to keep up a perfect knowledge of all the manœuvres and details of service peculiar to their appropriate arms.

Although the state of war has caused a partial suspension

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of the branches of work in this department, it has not materially interfered with its operations in supplying the state governments under the law for "arming and equipping the whole body of militia of the United States." The supplies thus furnished will be particularly stated under that head in the detailed statement of the principal operations of the department during the past year, which are now taken up in the usual order.

Funds.

Amount, as per last year's report, undrawn from the treasury on the 1st July, 1847.....	\$426,207 07
In hands of disbursing officers, same date.....	98,540 53
Amount of appropriations for the fiscal year 1848, including the fixed annual appropriation for arming and equipping the militia.....	1,229,859 00
Received, during the year, for sales, rents, and for damages to arms in the hands of troops.....	38,222 83
	<hr/>
	1,792,829 43
	<hr/>
Amount of expenditures during the year.....	1,363,120 43
In hands of disbursing officers, June 30, 1848.....	87,391 64
Remaining in treasury, undrawn, June 30, 1848.....	342,317 36
	<hr/>
	1,792,829 43
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Armament of fortifications.

There has been expended from the appropriation for this object, during the fiscal year, the sum of \$93,327 14.

The principal articles, procured by purchase and fabrication at the arsenals, are the following, viz:

- 20 24-pounder iron cannon.
- 25 24-pounder howitzers, for flank defence.
- 60 casemate carriages, complete.
- 78 casemate upper carriages.
- 36 barbette carriages, complete.
- 4 barbette carriages, upper.
- 397 grape-shot, of different calibres.
- 600 percussion cannon locks.
- 1,702 cubic feet of gun-carriage timber.

The fortifications have received, during the past year, additions to their armaments of only a few flank howitzers and carriages; and, with repairs, painting, and other work requisite to preserve them from decay, constitute all that has been done under this head at the forts.

Since the commencement of the Mexican war, operations in this branch of work have been almost entirely suspended in conse-

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quence of the more pressing demands for arms, ammunition, and other ordnance supplies for troops in the field. The estimates and appropriations have been correspondingly reduced; they have been limited to the amount necessary for meeting engagements already made, principally for supplies of gun-carriage timber, for finishing work in hand, and for the necessary repairs and preservation of the armament at the forts. This department will be prepared for a full resumption of work on this account by the beginning of the next fiscal year; the estimate, therefore, although larger than usual, is the *least* sum that can be advantageously applied to this important object with our present means for construction: with any less amount the use of much of our valuable machinery, tools, workshops, &c., will be lost. The proper employment of these and the resumption of work at the foundries, which has been almost entirely discontinued for some time past, will furnish occasion for the profitable expenditure of the entire amount of the estimate.

Ordnance, ordnance stores and supplies.

The expenditures from the appropriation on this account, during the past fiscal year, amount to \$392,691 07.

The principal articles procured by purchase and fabrication at the arsenals are as follows, viz:

42 bronze field cannon, different calibres.
 107 field gun carriages.
 6 mountain howitzer carriages.
 16 12-pounder block house carriages.
 70 caissons.
 65 travelling forges.
 17 battery wagons.
 4 mortar wagons.
 789 sets of artillery harness for two horses.
 40 india rubber powder bags.
 208 india rubber tarpaulins.
 1,531 6-pounder cannon balls.
 4,968 shells of different calibres.
 9,906 spherical case shot, of different calibres.
 66,633 lbs. of canister shot, of different calibres.
 386,925 lbs. of pig lead.
 27,434 rounds of ammunition, for field cannon, of different calibres.
 355 strapped shells.
 4,404,300 cartridges for small arms.
 14,288,431 percussion caps.
 82,711 lbs. laboratory paper.
 433,144 lbs. musket, rifle, and cannon powder.
 300 percussion rifles.
 300 carbines.
 2,250 percussion pistols.
 1,260 Colt's patent pistols.

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- 4 rifle wall-pieces.
- 2,860 cavalry and horse artillery, sabres.
- 2,692 non-commissioned-officers', musicians', and artillery swords.
- 14,850 complete sets of accoutrements for cavalry, infantry, and riflemen.
- 6,444 cartridge boxes.
- 5,495 cartridge box belts.
- 2,811 bayonet scabbards, with frogs.
- 3,182 musket and carbine slings.
- 291 brushes and picks.
- 216 rifle pouches.
- 4,889 belts of various kinds.
- 800 copper rifle flasks.
- 188 carbine swivels.
- 1,560 pairs of holsters and caps.
- 12,952 cubic feet of gun-carriage timber.

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Arming and equipping the militia.

The expenditures during the last fiscal year, from the standing appropriation for this object, amount to \$305,755 60. The principal articles obtained on this account by purchase and fabrication at the arsenals, are as follows, viz:

32 6-pounder bronze cannon.
38 6-pounder carriages.
22 caissons.
48 sets of artillery harness for two horses.
800 muskets.
7,400 percussion rifles.
900 carbines.
3,002 percussion pistols.
2,780 cavalry and artillery sabres.
1,008 non-commissioned officers' swords.
12,989 sets of accoutrements for cavalry, infantry, and rifemen.
5,389 cartridge boxes.
9,430 bayonet scabbards with frogs.
12,271 belts of various kinds.
705 musket and carbine slings.
7,331 brushes and picks.
100 rifle pouches.
310 carbine swivels.
357 sabre knnts.
11,500 cubic feet of gun-carriage timber.

The apportionment of arms to each State and territory, made under the regulations established in conformity with the act of 1838, according to the number of effective militia included in the latest returns from each, is shown in statement A, and the issues to the amount of the apportionment in statement B, both hereto appended.

Statement C, also annexed, exhibits the issues to United States troops during the year.

Arsenals and depots.

The expenditures from the appropriation for "arsenals," during the past fiscal year, amount to \$123,574 56.

This appropriation is always made on detailed estimates, in which each object to be effected is specially designated. The expenditures therefrom have been exclusively applied to the accomplishment of these objects. They include all additions and

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improvements at the arsenals of a permanent character; also repairs and alterations of, and additions to, buildings already erected and the construction of new ones. The statements from the commanding officers of arsenals which accompany this report are referred to for a more particular account of the work done under this head.

The average number of enlisted ordnance men during the year, was 575; at the end of the year, 30th June, 1848, there were 587. These men are of three classes, viz: mechanics, artificers, and laborers. The first includes carriage-makers, blacksmiths, and artificers; the second, men skilful in the preparation of ammunition and in other duties of the laboratory, and clerks at the arsenals; and the third, those employed in guard and police duties and in performing miscellaneous work. The enlisted force in service at the end of the year was distributed as follows, viz: at the arsenals and depots in the United States, 427; at the depots in Mexico, 32; and with the army in Mexico, 59 in the siege train, and 69 in the howitzer and rocket company. These last have since been discharged. The men have all been usefully employed; and I take pride in referring to the reports of their gallantry on all occasions where there has been an opportunity for its display.

The officers of the corps have all been actively and usefully employed. Whilst those who had the good fortune to participate in the glorious victories of the armies in Mexico, have received the reward of advancement in rank, it is hoped that the less brilliant, though not less useful services of others, who were kept away from such opportunities for distinction, may yet meet with similar rewards.

George Talbot
Chief Ordnance

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- 1,361 sabre knots.
- 120,330 cartridges for small arms.
- 8,939,000 percussion caps for small arms.
- 25,141 pounds of lead.
- 21,490 cubic feet of timber for carriages.

Statement C, hereto annexed, shows the quantities and kinds of arms, ammunition, and other ordnance supplies furnished to the United States troops during the year ended June 30, 1849. During the same time, emigrants to California, Oregon, and New Mexico have been supplied, under the resolution of Congress of 2d March, 1849, with arms and ammunition to the value of \$9,344 83.

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George Talcott

Brar Bugges & Plaly ordon

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Arming and equipping the Militia.

From the standing appropriation for this object are defrayed the expenses of procuring and delivering to the States and Territories, on requisition from the proper authority thereof, such arms and equipments of the prescribed patterns as may be due. The quota of each is annually apportioned at this office under the act of 1808, according to the number of militia included in the returns made to the Adjutant General of the army. Some of the States, as will be seen from the statement (A) hereto annexed, have not made returns for many years; and as these returns are the only data from which the supplies for each State can be determined, they continue to receive according to the number of militia last reported, which is probably much less than the actual number would entitle them to. Moreover, the method of arriving at the aggregate militia force is not uniform throughout the States. For these reasons it is obvious that the actual issues do not give, as required by the 3d section of the act of 23d April, 1808, "to each State and Territory, respectively, in proportion to the number of effective militia in each;" nor is it probable, judging from past experience, that sufficient accuracy and regularity in the returns to regulate the issues as therein required can be attained. It is, therefore, suggested as a better method of apportioning the arms and equipments to the several States and Territories, that the annual quota of each be according to population or to representation in Congress. This will, of course, require a change in the existing law.

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prate for the armament—but the reverse is true; the fewer the points that are fortified, the greater the need of armament. Although neither forts nor guns may ever be brought into actual use in war, it by no means follows that it is therefore useless to provide them, or that expenditures on such account are wasteful: although they may never *repel* an attack, they may prevent one.

ORDNANCE, ORDNANCE STORES AND SUPPLIES.

The operations under this head during the year, have included the objects for which the appropriation was made, viz: the preparation and furnishing of ordnance supplies of all descriptions for the troops in the United States service, the alteration of flint-lock arms to percussion, experiments in artillery, and on gun-metal and repairs of siege and field artillery.

The principal articles which have been procured by purchase and by fabrication at the arsenals, are the following, viz:

6 12-pounder bronze guns.
 5 32-pounder bronze howitzers.
 1 12-pounder " howitzer.
 24 12-pounder " mounted howitzers.
 1 6-pounder iron gun.
 20 12-pounder carriages.
 20 6-pounder "
 45 12-pounder howitzer prairie carriages.
 5 mortar beds.
 7 caissons.
 1,500 percussion rifles.
 980 cavalry sabres.
 452 cannon locks altered.
 200 bayonet scabbards.
 6,337 waist and pouch belts.
 2,345 rifle pouches.
 1,000 carbine swivels.
 994 cavalry sabre belts.
 60 carbine slings.
 700 rifle cartridge boxes.
 260 non-commissioned officers' and artillery sword belts.
 360 sword knots.
 500 gun slings.
 270,500 percussion caps for Colt's pistols.
 30,000 Maynard's primers.
 1,486 rounds of field artillery ammunition.
 57,925 friction tubes for cannon.
 393,304 cartridges for small-arms.
 100 signal rockets.
 8,179 cubic feet of field carriage timber
 101,037 flint-lock small arms have been altered to percussion—of which 96,871 are muskets, and 4,166 pistols; and 988 Colt's revolving pistols, ordered last year, have been inspected, received, and paid for from the special appropriation for that object.
 The expenditures from this appropriation, during the year, amount to \$230,015 36.

The arms, ammunition, and other ordnance supplies furnished to the United States troops, during the year ended 30th June, 1851, are shown in the statement hereto annexed, marked C.

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1851

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No. 1. P. 449

ARMING AND EQUIPPING THE MILITIA.

The law of 1808, for "arming and equipping the whole body of the militia," makes a standing appropriation from which are defrayed the expenses of procuring and delivering annually to the several States and Territories, on requisitions from the proper authority, such arms and equipments of the prescribed patterns as are due. The quota of each is determined at this office, and apportioned, every year, according to the militia returns made to the Adjutant General of the army. The statement hereto annexed, marked A, shows the apportionment, thus made, for the present year. It will be seen from it that some of the States have not made returns for many years, and that from some of them no returns have yet been received. As these returns are the only data for determining the quota of each State, these States receive arms only in proportion to the number of militia last returned; giving none to some, and less to others than the actual number of their militia, if regularly returned, would probably entitle them to. Moreover, the method of arriving at the aggregate militia force is not uniform in the several States. The actual issues, therefore, do not give, as the third section of the act of April 23, 1808, prescribes, "each State and Territory, respectively, in proportion to the number of effectual militia in each;" nor is it probable, judging from past experience, that sufficient regularity and uniformity in the returns to apportion the supplies as the law prescribes, can be attained. It is, therefore, suggested and recommended as a better method of apportioning the arms and equipments to the several States and Territories, that the annual quota of each be according to population by the latest census, or according to representation in Congress. To effect this will require legislation. At the same time, it might be thought worthy of consideration whether some provision should not be made for supplying the new States, which have not participated in the issues heretofore made under the law of 1808, and whose military supplies furnished by the General government are far behind those of the other States in proportion to their militia force.

The expenditures during the year from the appropriation for arming and equipping the militia amount to \$202,671 17. The principal articles obtained on this account, by purchase and fabrication at the arsenals, are as follows, viz:

- 6 12-pounder bronze guns.
- 22 6-pounder do. do.
- 3 32-pounder do. howitzers.
- 10 12-pounder do. do.
- 22 6-pounder carriages.
- 2 caissons.
- 4,560 percussion rifles.
- 4,000 do. pistols.
- 500 carbines.
- 510 cavalry sabres.
- 611 rifle pouches.
- 444 pouch belts.
- 902 cavalry sabre belts.
- 490 sword knots.
- 400 carbine slings.
- 250 carbine swivels.

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C.

Ordnance and ordnance stores issued to the army and to the several military posts for the year ending June 30, 1851.

- 5 6-pounder bronze guns.
- 1 12-pounder bronze howitzer.
- 6 12-pounder bronze mountain howitzers.
- 1 16-inch bronze stone mortar.
- 1 12-pounder siege and garrison gun.
- 1 8-inch columbiad.
- 10 32-pounder barbette carriages, with implements, equipments, &c.
- 10 24-pounder barbette carriages, with implements, &c.
- 1 12-pounder siege carriage, with implements, &c.
- 1 16-inch mortar bed.
- 30 carriages for field artillery, with implements, &c.
- 5 caissons, with tools and spare parts.
- 1 battery wagon, with tools, &c.
- 5 travelling forges, with tools, &c.
- 2 sling carts.
- 1 mortar wagon.
- 2 gins.
- 18 sets artillery harness, for two wheel-horses.
- 18 sets artillery harness, for two lead-horses.
- 5,200 cannon balls of different calibres.
- 110 10-inch shells.
- 1,116 rounds of ammunition, for field service.
- 3,419 muskets and appendages.
- 2,546 rifles and appendages.
- 715 carbines and appendages.
- 2,226 musketoons and appendages.
- 2,404 pistols and appendages.
- 529 Colt's pistols and appendages.
- 1,666 sabres for cavalry and horse artillery.
- 375 swords for non-commissioned officers and musicians.
- 8,095 sets of accoutrements for infantry riflemen and cavalry.
- 229 infantry cartridge boxes.
- 598 sabre belts.
- 500 pairs of holsters, with caps.
- 6,000 cartridges for field service.
- 2,850 cartridges for siege and garrison service.
- 988,000 cartridges for small-arms.
- 1,251,000 percussion caps for small-arms.
- 30,000 Dr. Maynard's percussion primers.
- 38,150 cannon percussion primers.
- 19,000 friction primers.
- 31,920 pounds of cannon powder.
- 50 signal rockets.
- 5,500 pounds of paint.
- 27 pent-houses.
- 38,200 pounds of bullets and buckshot.

68 artillery saddles,	} Grinsley's patent.
68 valise saddles,	
112 bridles,	

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Adams

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NATIONAL ARMORIES.

The following table exhibits the expenditures at the national armories during the fiscal year, for manufacturing arms and for all other objects.

	Harper's Ferry.	Springfield.	Total.
For the manufacture of arms, appendages, tools, &c., and purchase of materials for the same.....	\$197,478 29	\$169,074 78	\$366,553 07
For repairs, improvements, and new machinery, including buildings, dams, &c....	44,631 80	34,440 89	79,072 69
	242,110 09	203,515 67	445,625 76

The manufactures at Harper's Ferry armory include 13,400 percussion muskets and 3,227 steel-barrel percussion rifles, with appendages for the same—consisting of extra cones, wipers, and screw-drivers, 2,072 assorted components for repairs of arms at other posts, 48,473 hammers, cones, and screw-drivers, for altering flint-lock arms to percussion. For the last two months of the year, manufacturing operations at this armory were entirely suspended in consequence of the overflow of the grounds and workshops by the flood of April 18 and 20th. This suspension has diminished the product of the armory. To make good the damages of the flood has caused an expenditure not foreseen and not provided for in previous estimates, to cover which an item has been included in the estimate last rendered. The manufactures at Springfield armory include 21,500 percussion muskets, of which 2,000 are of the model in use by the cadets, with 56,629 appendages for the same, and 216,205 hammers, cones, and screw-drivers for altering flint-lock arms. Work on buildings and machinery also been done, the description and extent of which are stated in the annexed reports of the commanding officers of the armories, which are referred to for information in detail respecting the operations of the year. The cost of the finished muskets manufactured at Springfield armory during the year, averaged \$8 74½; at Harper's Ferry armory the cost of the muskets averaged \$9 99½, that of the steel-barrel rifles \$11 60½. The inspector of arsenals and armories, during the past year has visited and minutely and critically examined the condition and management of the two national armories. His inspection represents their general condition to be excellent; the operations to be conducted with skill and system; the buildings and machinery to be kept in the best order; the artisans and other workmen employed to be intelligent and to perform their work willingly, diligently, and fully; and all in authority to exert their energies for the promotion of the public interest. I annex hereto copies of these inspection reports in full, to which I invite attention for a proper understanding of the condition of these public establishments under their present system of superintendence. A recent personal inspection of the Springfield armory enables me to speak in similar terms of the excellence of its condition and management; and my experience in the affairs of the

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Establishments for many years convinces me, fully and entirely, that, were they were placed under the present system, many important improvements have taken place, which are, in my judgment, due to the

The change has produced a great, if not entire, reformation of the abuses formerly existing. Like all other reformations, it has met with opposition, and the reformers have had to encounter the ill-will and hostility of those who had profited by the abuses and are interested in restoring the former state of affairs, and to contend against their personal endeavors to effect that end, as well as the influence they could command in other quarters. A full and thorough inquiry into the merits of the two systems will, it is confidently believed, convince any unprejudiced person of the superiority of the present system over that which preceded it. Such has been the effect of the two investigations heretofore made—the one by a board composed exclusively of civilians, the other by a military court of inquiry. I refer with confidence, in support of my opinion, to the facts elicited by those investigations, to be found recorded in public documents, (Executive Doc. No. 14, first session Twenty-ninth Congress, and Senate Doc. No. 14, first session Twenty-ninth Congress,) and ask that no action be taken to effect a change may take place, at least until preceded by such an inquiry, and found therefrom to be expedient.

The number of serviceable small-arms at the armories and arsenals on the 30th June, 1852, was about 629,745; of which there were 193,061 new percussion muskets; 251,509 percussion muskets altered from flint-lock, and 73,992 flint-lock muskets—in all 548,562 muskets; 45,599 new percussion rifles; 4,700 percussion rifles altered from flint-lock, and 3,855 flint-lock rifles—in all 54,184 rifles; 9,435 new percussion pistols; 6,450 percussion pistols altered from flint-lock, and 11,114 flint-lock pistols—in all 26,999 pistols. The opinion expressed in my last annual report, in regard to the number of small-arms that would constitute a proper provision for the nation, is still entertained, and, in support of it, I refer to the views therein expressed.

ARSENALS AND DEPOTS.

There has been no change in the number of arsenals and ordnance depots during the year. The expenditures from the appropriation for arsenals, during that time, have amounted to \$153,888 50, which have been applied to the objects stated in the estimates on which the appropriation was based. The work done consists of repairs and preservation of buildings and sites, the erection of new and additions to old buildings, and all improvements of a permanent character. The reports of the commanding officers accompanying this give a detailed account of this work and of other principal operations at each, and are referred to for particulars. The annual inventories, which are rendered to include the 30th June of each year, show the aggregate valuation of the property in charge of the Ordnance department to have been, at the beginning of the present fiscal year, about 19,000,000 of dollars.

I again recommend that such of the arsenals as are not required for military purposes be disposed of. There are several of them of which no use can be made as arsenals, and their maintenance is a

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Henry K Craig,
Coe Johnson

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States and Territories, where they are, from want of proper shelter and the means of repair, exposed to deterioration and to entire loss. The distance of these depôts from the Atlantic arsenals and magazines might make such loss a great national misfortune.

ARMAMENT OF FORTIFICATIONS.

Under this appropriation a number of guns of heavy calibre have been heretofore procured, and the number would have been much greater; but, as it is contemplated to change the proportions of the various calibres in our coast fortifications, it was deemed advisable to defer the procurement of these guns for the time. The difficulty of procuring suitable timber for the carriages of heavy guns, and the time required for seasoning, renders the delay in procuring the guns less important.

Contracts that were entered into for timber for 500 carriages for guns of the largest calibre have not been complied with, and it is apprehended that other means will have to be resorted to before the necessary supply can be obtained.

There has been expended under this appropriation during the year \$20,968 96, and the principal results are the construction of—

- 5 32-pounder barbette carriages and their chasses.
- 30 24-pounder barbette carriages and their chasses.
- 6 32-pounder casemate carriages and one chassis.
- 13 24-pounder flank defence howitzer carriages complete.
- 1 8-inch columbiad carriage and chassis.
- 25 garrison and casemate guns.

ORDNANCE, ORDNANCE STORES, AND SUPPLIES.

The operations under this head are principally in the purchase, fabrication, and supply of artillery for field, siege, and mountain batteries, with their carriages, forges, caissons, wagons, implements, harness, and ammunition; pistols, swords, and accoutrements of all kinds.

The expenditures under this head during the year have amounted to \$171,162 67, and the result has been chiefly the procurement of—

- 7 12-pounder and 28 6-pounder bronze guns.
- 7 32-pounder and 6 12-pounder bronze howitzers.
- 30 12-pounder howitzers, mountain.
- 15 24-pounder and 10 12-pounder siege guns.
- 8 8-inch siege howitzers.
- 2 32-pounder guns, and 1 42-pounder casemate carriage, (experimental.)
- 3 12-pounder mountain howitzer carriages.
- 20 24-pounder and 10 18-pounder siege carriages.
- 151 Sharp's carbines; 1 Colt's pistol.
- 129 cannon balls of different calibres.
- 150 shells of different calibres.
- 541 spherical case-shot of different calibres.
- 960 infantry cartridge-boxes.

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4,550 infantry cartridge-box belts.
5,579 infantry waist-belts.
6,228 bayonet-scarbards, with frogs.
1,000 rifle waist-belts.
1,865 cavalry sabre-belts.
720 artillery sabre-belts.
9,315 cap-pouches.
1,896 sword-knots.
500 carbine-slings and swivels.
350 carbine cartridge-boxes.
461 sword shoulder-belts.
4,257 waist belt-plates.
408,644 pounds of pig-lead.
1,781 rounds of ammunition for field service.
35,850 cartridges for small-arms.
3,362 cartridges for siege and garrison guns.
75,000 percussion-caps.
376,620 Maynard's primers.

Statement C, hereto annexed, exhibits the quantities and kinds of arms, ammunition, and other ordnance stores issued to the United States troops during the year.

Henry K. Clegg
Colonel

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1854

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Arming and Equipping the Militia.

The amount of expenditures, during the fiscal year, from this appropriation, was \$156,145 43. The principal articles procured on this account by purchase and fabrication were:

- 5 prairie carriages.
- 12 caissons.
- 1,900 rifles and appendages.
- 4,000 cavalry pistols and appendages.
- 1,000 Colt's pistols and appendages.
- 690 cavalry sabres.
- 1,000 horse artillery sabres.
- 500 artillery swords.
- 9,941 infantry cartridge-boxes.
- 10,183 infantry cartridge-box belts.
- 15,304 infantry waist belts.
- 6,608 infantry bayonet scabbards and frogs.
- 11,413 gun-slings.
- 1,333 cap-pouches.
- 324 sword shoulder belts.
- 2,000 copper powder-flasks.
- 636 rifle-pouches.
- 1,650 flask and pouch belts.
- 3,000 rifle cartridge-boxes.
- 1,030 cavalry sabre belts.
- 236 pairs of holsters.
- 569 sabre knots.
- 300 horse artillery sabre belts.
- 600 artillery sword belts.
- 160 pistol cartridge boxes.
- 13,000 percussion caps.

The apportionment of arms and the supplies furnished to the militia during the year are shown in the statements A and B hereto annexed. I respectfully renew the recommendation, heretofore frequently made,

W. P. G. J.

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SECRETARY OF WAR.

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and which experience has shown to be requisite for the apportionment to each State and Territory of its proper and just quota, of a change in the present law, so as to adopt for all the States and Territories the mode of apportionment authorized for the State of Iowa by the act of 3d March, 1853, which was according to representation in Congress.

Arsenals and Depots.

The expenditures from the appropriation for arsenals, during the last fiscal year, amount to \$63,684 54. The work done under this head includes repairs and preservation of public buildings, fences, wharves, &c., the erection of new and additions to old buildings, and all improvements of a permanent character. The reports of the commanding officers of the principal arsenals, hereto annexed, give detailed statements of the chief operations at each. The whole number of arsenals and depots, which have been in use during the year, are twenty-six: one of which has lately been broken up, and the site directed to be sold.

During the last session of Congress the inquiry was made as to the expediency of ceding the arsenal near St. Louis to that city, on which subject a special report was made from this office, dated January 27, 1854. As this matter may be again brought up for action, I refer to that report as containing the only conditions on which the cession can be made without very great injury to the public service and interest. The estimate there made for erecting an arsenal on the public reservation near Jefferson Barracks, and the removal of the ordnance stores, should be increased to \$300,000. The whole of this amount will probably be required to place the arsenal and public supplies in as serviceable a condition as before the cession, and it is but little, if any, more than a third of the present value of the land alone which it was proposed to cede to the city.

I have included in my estimates for the next year the means for establishing arsenals in Texas, New Mexico, and Oregon, and for continuing the construction of the arsenal in Benicia as soon as a satisfactory title to the site can be obtained. The want of such title has prevented the expenditure of the appropriation for the Benicia arsenal, made at the last session of Congress; but it is expected that the title will be secured sufficiently early to allow the advantageous application of that sum, and also the amount of the present estimate, before the close of the next year. The necessity for these arsenals is stated in the remarks appended to my estimate therefor.

The exclusion of the enlisted men of ordnance (the only enlisted men in the army so excluded) from the benefits of the act to increase the pay of the rank and file of the army, is so manifestly unjust towards them, and so evidently the mere result of the phraseology of the act, and contrary to its spirit and intent, that a reference to it is supposed to be sufficient to insure its correction by explanatory legislation. As there is no conceivable reason for excluding this portion of the rank and file of the army from the benefits conferred on all the rest, I trust that the attention of the legislature will be called to it, and that a declaratory act will be passed including the enlisted men of ordnance

Henry K. Craig
Cot. Ordnance

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1308

REPORT OF THE

private manufacture, that are more suitable for predatory warfare and personal rencontres than for the use of the militia of the country.

The building for an armory for the volunteers of the District of Columbia has been completed, and is used by them. An enlisted man of the ordnance department has the charge of it until some other arrangement can be made for its custody.

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Arsenals.

There are in the United States twenty-three occupied arsenals, including the depots in Texas, New Mexico, and Washington Territory. In my last report I referred to the acquisition of a site for an arsenal in Texas, and of the representations which were afterwards made against the site so acquired. Since then the officer assigned to the construction of that arsenal has made a report in favor of a position in the city of San Antonio, and that report having the approval of this office awaits your sanction. No suitable site has yet been found for the depot in New Mexico; and the site selected for a depot

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at Fort Vancouver having been found to be interfered with by the possessory claims of British subjects, the project of building there has been abandoned for the present by your authority.

The erection of a small depot at Fort Leavenworth having been authorized by you, the work will be commenced as soon as an officer can be detailed to superintend it.

The amount expended for arsenals during the year was \$100,707 89, and this expenditure has been applied to the objects specially designated in the estimates on which the appropriation was based. They include repairs and preservation of the buildings, fences, wharves, &c.; the erection of new and additions to old buildings, and all improvements of a permanent character. The statements of operations at the principal arsenals hereto annexed are referred to for a more detailed account of the work done under this head. The estimate which I have made under this head is based on special estimates of the commanding officers, carefully examined in this office, and only the most important objects included.

In addition to the foregoing statements of expenditures, under the ordinary heads of appropriation, the following were made out of special appropriations, viz:

For testing gun metal for heavy cannon.

400 barrels of gunpowder	\$7,800 00
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For purchase of gunpowder for the Pacific coast.

936 barrels of gunpowder ;	\$16,848 00
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For purchase of best breech loading rifles.

200 Colt's rifles	\$12,841 45
1,400 Sharp's carbines	42,350 00
10 Carbines, Schroeder's patent	300 00
200 Burnside's carbines	6,000 00
	61,491 45

For the purchase of ground for the extension of Washington arsenal.

Payment to owners of the ground	\$75,209 77.
For surveys, legal investigations of title, and recording of deeds, &c.	2,647 82
	77,857 69

In prosecuting experiments on the strength of gun metal, and in proving cannon, evidences of a variation in the force and effect of gunpowder have been detected to an extent not before supposed to exist, attributable to causes not yet clearly ascertained, though no

Henry K. Craig,
 Col of Ordnance