

ANNUAL REPORT

OF THE

SUPERINTENDENT

OF THE

UNITED STATES MILITARY ACADEMY.

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1893.

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WASHINGTON:  
GOVERNMENT PRINTING OFFICE.  
1893.



## ERRATA

### To Annual Report of the Superintendent of the United States Military Academy, 1893.

- Page 14, Appendix "B," Line 5, for "portion" read *part*.
- Page 19, Appendix "D," for "Office Treasury, Quartermaster," etc., read *Office Treasurer, Quartermaster, etc.*
- Page 25, Appendix "F," under Water Supply and Pipe Line: Line 8, for "1892" read *1893*; Line 10, for "drought" read *draft*; Line 11, for "drought" read *draft*.
- Page 29, Appendix "G," under Gas Works, U. S. Military Academy: Line 5 for "barricks" read *barracks*.
- Page 30, Appendix "H," Line 10, for "institution" read *instruction*.



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HEADQUARTERS U. S. MILITARY ACADEMY,  
*West Point, N. Y., September 26, 1893.*

SIR: I have the honor to submit this my annual report for the Military Academy for the year ending September 1, 1893:

Having been appointed Superintendent by the President, by letter dated March 23, 1893, I assumed command of the Academy and of the post of West Point under the authority contained in paragraph 2, Special Orders, No. 65, Adjutant-General's Office, March 24, 1893, on the 1st of April last, relieving Col. John M. Wilson, Corps of Engineers. I found the institution in a state of efficiency as high as any that I have known it to reach.

PERSONNEL.

The number of officers and instructors on duty at West Point September 1, 1893, was 8 professors, 1 associate professor, 55 commissioned officers, 1 swordmaster, and 1 teacher of music; a total of 66. (See roster appended, marked A.) The number September 1, 1892, was 63. The increase during the year was effected by the assignment of one officer for duty in the department of modern languages, one in the medical department, and one as post commissary, in addition to the number which had previously been found necessary. On the 1st of October, 1892, Capt. Edward E. Wood, Eighth Regiment of Cavalry, was appointed by the President professor of modern languages to succeed Prof. George L. Andrews, who had retired from active service. On the 14th of March, 1893, First Lieut. Wright P. Edgerton, Second Regiment of Artillery, was appointed by the President associate professor of mathematics, an office created by act of March 1, 1893. In all 16 officers joined during the year and 13 were relieved.

It is believed that the present number is in excess of the absolute necessities of the case and may gradually be reduced as the terms of service of some of the officers concerned expire, unless the number of cadets be increased. The very great inconvenience to which some of the departments of instruction are subjected by a lack of the facilities to be furnished by the new academic building renders it necessary for them to have more instructors than they will require after the completion of that building.

The importance of selecting with care the officers detailed for duty as instructors at the Academy need not be enlarged upon. There are many officers, accomplished in their profession, who do not possess the peculiar qualities necessary to a good teacher of youth. That the field for selection should not be unnecessarily restricted is self-evident. Under the

rulings of the War Department and under the law there are unavailable for this duty (1) all officers on duty at civil colleges; (2) all artillery officers serving with light batteries; (3) all officers holding regimental staff positions; (4) all officers on detached service; (5) all engineer and ordnance officers, except those required in the departments of engineering, practical engineering, and ordnance; (6) all officers who have served less than four years after graduation. In addition to these disqualifications the quarters for officers at the post are so limited that it is necessary to take into account the family status of the officer, whether he be married or unmarried. The rulings referred to have no doubt been the result of necessity, either temporary or permanent, and may be modified as the necessity ceases. The act approved June 30, 1882, making appropriations for the support of the Military Academy provided as follows, viz: "And hereafter no graduate of the Military Academy shall be assigned or detailed to serve at said Academy as a professor, instructor, or assistant to either within four years after his graduation." If the object of this law be to prevent any person from being placed in authority over cadets who has himself been a cadet companion of theirs—and I can think of no other—it is both unnecessary and ineffective. The superintendent is authorized under the academic regulations to detail as many cadets to act as assistant instructors as may be required. The discipline of the corps is very largely maintained by the cadet officers. The law is not in sympathy with one of the most important fundamental principles taught here, viz: That personal relations and official relations have nothing to do with each other. It removes from the field of selection a large number of young officers in every way qualified as instructors. Their studies here are still comparatively fresh in their minds, they possess the special qualities which later on lead to their selection for special duties and the consequent disqualification under the rulings, and generally they are unmarried.

I recommend that Congress be requested to repeal the law.\*

The number of cadets, present and absent, September 1, 1893, was 318, including 3 foreigners receiving instruction by special authority of Congress in each case. The number September 1, 1892, was 290, including 2 foreigners. During the year 4 were discharged for disability, 14 were discharged for deficiency in studies, 11 resigned, and 51 were graduated; while there were admitted in all at the three examinations held in March, June, and August, respectively, 108, including 2 foreigners.

At the examination for admission in March 166 candidates, including 60 alternates, had been appointed. Of these 35 failed to appear and 81 were found not duly qualified, either mentally or physically, or both. Of the remaining 50 who passed 7 were alternates, whose principals also passed and for whom there were therefore no vacancies, leaving 43 who were admitted. At the examination in June of 149 candidates (principals and alternates) appointed 28 failed to appear, 63 failed to pass, and of the remaining 58, 3 were alternates whose principals also passed, leaving 55 who were admitted. At the examination in August of 15 appointed 1 failed to appear, 6 failed to pass, and 1 who passed was an alternate whose principal also passed, leaving 7 who were admitted. The experience of former years has been similar to this, and shows clearly that it is not practicable to keep the number of cadets up to the maximum authorized by law, and that there will always be many

\* Since writing the above the academic board has expressed its views upon the same subject in a resolution which, with remarks by the professor of mathematics, will be found in appendix H.

vacancies. The number now authorized is 371, omitting the foreigners, an excess of 56 above the number actually belonging to the Academy. It is desirable, I think, from every point of view that the Academy be worked up to the full capacity of its present plant. It should furnish all the officers for our Army in time of peace, which it can not now do, and if, in addition, it could send into civil life each year a few young men trained as its graduates are, the country would be the gainer by many times the trifling additional cost of their education. A moderate increase in the number of cadets authorized by law is accordingly recommended, such, for example, as would be obtained by appointing two at large from each State, to be nominated by the Senators representing the State in Congress.

#### ACADEMIC DEPARTMENTS.

The departments of philosophy, drawing, mathematics, chemistry, etc., history, etc., engineering, law, modern languages, tactics, practical military engineering, and of ordnance and gunnery have maintained the high standard of instruction for which they have always been noted. While the heads of these departments have not failed to keep abreast with all advances made in their special branches of knowledge and to introduce improvements when opportunity offered, the changes in the majority of them have been of a minor character and do not call for special mention here.

In the department of mathematics the appointment of an associate professor is an improvement in organization which will be of substantial benefit.

In the department of modern languages there has been a rearrangement of time, beginning with the present academic year, by which the study of Spanish is transferred from the first class to the third class, and the time allotted to the department for English, French, and Spanish is arranged so that but one of these studies shall occupy its attention at a time, instead of English and French alternating with each other, as before. There have been numerous changes of text-books in this department. The effect of the rearrangement is to give a more compact course, in which the various studies follow each other in more logical sequence, rendering it possible to accomplish more in a given time than under the old arrangement. Its effect upon the other departments is to leave vacant some sixty recitations in the first-class year, to be allotted hereafter between those departments.

In the department of ordnance and gunnery good progress was made in a general revision of the text-books. This work will be continued during the coming year.

The department of law is the only one headed by a full professor that is not provided with an assistant professor having the pay of captain mounted. It seems but just that this department should be placed upon the same footing in this respect as the others. I recommend that legislation authorizing the appointment of an assistant professor of law be solicited.

#### THE LIBRARY.

There were added to the library during the last fiscal year 578 volumes and 71 pamphlets—books containing less than 100 pages. There are now on hand 36,062 bound volumes and 5,328 pamphlets, besides many valuable manuscripts, maps, and portraits. The library has entirely outgrown the space heretofore allotted to it. One of the most

pressing needs of the Academy is the reconstruction internally of the library building, by which it shall be made fireproof and shall provide proper space for a convenient arrangement of the books and for reading rooms. The necessity for this and the manner in which it may be accomplished are explained in the report of the librarian, hereto appended, marked B, to which attention is invited for details.

#### HEALTH.

As a rule ailments among the cadets during the year were of minor character and of short duration. No case of typhoid fever, scarlatina, diphtheria, or other disease due to a lack of sanitary precautions, occurred among them. The health of the other portions of the command also, upon the whole, was good. For details attention is invited to the report of the post surgeon, hereto appended, marked C. The sanitary condition of the post is generally good, but there is an exception in the case of the ten old wooden buildings known as Logtown, occupied by twenty soldiers' families, situated on the slope of the hill west of the engineer barracks. Owing to the high and steep slope above these buildings it is difficult to keep them dry during the winter and spring. An estimate for improving the drainage in the vicinity has been submitted this year. In continuation of the policy inaugurated twenty years ago of removing all the old wooden quarters for soldiers' families from the slopes at the northern part of the post, an estimate has also been submitted for building new quarters upon high and healthy ground with a view to pulling these down.

#### DISCIPLINE.

The state of discipline of the corps has been generally excellent. It was necessary to convene a court-martial only once during the year, and in that case the cadet brought before it was acquitted. Offenses were committed in the latter part of August by three cadets which involved trial by court-martial, but the court had not been convened within the period covered by this report. The usual discipline was maintained in the other portions of the command by the usual methods.

#### ACCOUNTS AND SUPPLIES.

The system of keeping the accounts and of furnishing the cadets with supplies continued essentially as heretofore reported. An abundance of good, healthy food in sufficient variety was furnished at an average cost of about 52½ cents per man per day. Clothing, books, and other articles were furnished of good quality and at low rates. The only article of which serious complaint was made is the shoe. A board of officers has been appointed to investigate the subject. Attention is invited for details to the report of the treasurer and quartermaster and commissary of cadets hereto appended, marked D.

#### ARTILLERY.

Good progress was made during the year in replacing guns and carriages which had become obsolete with those of modern pattern. Important additions were made to the list of models and sample guns for the general theoretical instruction of cadets. For details attention is invited to the report of the instructor of ordnance and gunnery, extracts from which are hereto appended, marked E.

For many years the horses used in the light battery have been the same as those used for instruction in riding and cavalry drill, and the drivers have been obtained from the cavalry detachment. The arrangement has not been entirely satisfactory. Horses well fitted for light cavalry exercises are not the best for artillery purposes, and *vice versa*. It would be better if an entirely separate set of horses could be provided for the light battery, yet, in view of the fairly good results which have been obtained, I am not prepared to recommend so considerable an increase in the expenses of the Academy. Again, the service as artillery drivers has not been popular with the cavalry soldiers. Their instruction and service as drivers is additional to their regular duties, and is under officers different from their regular officers. It involves considerable wear and tear of clothing, for which they have not received compensation. This difficulty may be remedied by allowing the men a small amount of extra pay. Upon this subject the commandant of cadets says:

I would invite attention specially to an item which I have included in the estimates submitted this year, viz, \$840. This is for additional pay to noncommissioned officers, trumpeters, and privates of the cavalry detachment detailed on duty as drivers with the instruction battery of field artillery of the United States Military Academy. This item is to pay these twenty-eight men 30 cents a day for the time that they are so employed, viz, during the months of April, May, July, August, and October, and as a compensation to them for the additional wear and tear of their clothing while performing this work, which is in addition to that performed by their comrades. I believe if this item is approved, this additional pay will secure the very best men for service in this detachment, and the additional knowledge which they will possess as artillery drivers will not impair their efficiency as cavalymen.

The item was included in my annual estimates and is earnestly recommended.

There was no target practice with the siege guns, as it is believed that there is danger of bursting them. A new armament for the siege battery is expected at an early day.

#### VISIT TO THE COLUMBIAN EXPOSITION.

Under the authority contained in your letter of July 7, 1893, the battalion of cadets, the band and field music, a detachment of the hospital corps, and the camp attendants, all under the command of the commandant of cadets, were ordered to Chicago to witness the World's Columbian Exposition. They left here August 17, arriving at Chicago the following day, and left Chicago upon their return August 28. The members of the second class on furlough to August 28 were allowed to join in time for the visit. All but fifteen took advantage of the permission. With the exception of these fifteen, and two who were absent on sick leave, every cadet belonging to the corps accompanied it. A plat of the ground assigned for their use having been obtained a plan of their camp was prepared here and together with their camp equipage was sent in advance. Their tents were erected and camp ready for occupancy upon their arrival. A contract for the subsistence of the entire command had been made with one of the exposition restaurants located near the camp ground. The Quartermaster's Department furnished the necessary transportation. The exposition authorities gave every facility within their power, assigning for the camp ground the most desirable spot within the grounds, furnishing at their own expense the tent floors, remitting the usual royalty of 25 per cent upon the receipts of the restaurant, and reducing by that amount the cost of subsistence, furnishing free entrance and exit to the grounds, etc.

The object in sending the cadets to Chicago was not only to advance their education, but also to make friends for the Academy by exhibiting to large numbers of persons the excellence of their training. The visit was highly successful in both particulars. A serious breach of discipline by three cadets was immediately acted on by the commandant in a manner which prevented it from injuring the reputation of the corps. With this exception the bearing of the entire command was highly creditable. There was no accident and no sickness of consequence. I have little doubt that the visit has been of important benefit to the Academy.

#### BAND.

By the act of March 3, 1877, the Military Academy band was reduced to 1 teacher of music and 24 enlisted men, which is its present authorized strength. Of the enlisted men 6 receive \$34 per month, 6, \$20, and the remaining 12, \$17, with the usual allowances of enlisted men. At the time of this reduction the band consisted of 1 teacher of music and 40 enlisted musicians of whom 10 received \$34 and the remaining 30 received \$30 per month, with the usual allowances of enlisted men. Since that date every Superintendent of the Academy, with perhaps one exception, and many or all Boards of Visitors have recommended an increase of the band. The Board of Visitors this year recommend that the band be increased to at least 40 members and a leader. To any one familiar with music it needs no argument to prove that the present numbers and pay are not sufficient. Is a good band really necessary to the practical efficiency of the Academy, is the only question which can be asked. The answer is plain when the purpose which the band subserves is considered. Military pomp has a serious and practical object—the cultivation of the military spirit. It is in the same category with patriotic songs, discipline, and monuments to dead heroes. There is no more essential part of it than good music. I recommend that the band be restored to the numbers and pay which it had before the reduction in 1877. I recommend, further, that the leader receive the rank, pay, and emoluments of a second lieutenant of infantry. The increase is desired not for the purpose of gratifying an idle vanity or merely to provide pleasure, but to improve the finer polish given to the finished product of the Academy.

#### WATER SUPPLY.

The necessity of increasing the supply of water for the post has been fully pointed out in the reports of my predecessors. At its last session Congress appropriated \$16,000 for a new reservoir. A careful study of the ground, including a thorough exploration of the proposed site of the new dam, has been made this season. The indications are that a different character of dam will be required from that upon which the estimate and appropriation were based, and that the sum now available will not be sufficient. The question is receiving careful study and a new estimate will be prepared if necessary.

The existing reservoirs may be largely improved by strengthening and raising their dams and cleaning both the reservoirs and their watersheds. An estimate of \$25,000 has been submitted for that purpose.

The water supply has been under the charge of the instructor of practical military engineering. For details attention is invited to the extracts from his report, hereto appended, marked F.

## MASTER OF THE SWORD.

The swordmaster is also the instructor in gymnastics and swimming. He is a civilian, appointed by the Secretary of War. The present incumbent has worked up an admirable course of gymnastics for the corps of cadets. His system of calisthenics has been adopted by the War Department for the use of the Army. He is required to preserve discipline and to exercise control of cadets while under his instruction. It would greatly strengthen his hand if he should have military rank, and, in view of the great and increasing importance of his department, I recommend that legislation be solicited giving him the rank, pay, and emoluments of a first lieutenant of infantry.

## ADJUTANT OF THE ACADEMY.

The adjutant of the Academy is also secretary of the Academic Board and upon occasions of ceremony acts as aide-de-camp to the superintendent. His duties are at least as important as those of an assistant professor, and they are more onerous, while his personal expenses are greater. It seems but just that the officer holding this position should receive the pay of captain, mounted, as in the case of assistant professors. Legislation to that effect is recommended.

## BUILDINGS AND GROUNDS.

The report of the post quartermaster, who is also quartermaster and disbursing officer of the Academy, is hereto appended, marked G. Attention is invited especially to the explanations given therein why an increase of the detachment of Army-service men is necessary. The force is not sufficient to properly care for the post. The same is true of the regular annual appropriation for repairs and improvements. An increase of that item has been asked for in the estimates.

The new gymnasium building was completed sufficiently for use last autumn, and with the consent of the contractor it was occupied November 1, 1892. Certain small items of work remained to be done to finally complete the building, but these the contractor refused to do, alleging that they formed no part of his contract. The controversy over this subject has lasted through the year, though it seems now to be in a fair way to settlement. Final payment has not yet been made. The building has been thoroughly equipped with modern appliances. It has proved a source of great benefit, as well as pleasure, to the cadets. It is perhaps the most important addition to the equipment of the Academy that has been made for many years.

The progress made during the year upon the new academic building has been much less rapid than was hoped, and there is little prospect that any portion of it will be ready for use during the present academic year. The material and workmanship are satisfactory. The time for completing the contract has been extended to September 15, 1894, with the condition that all additional expenditures made necessary to the United States by reason of the extension of time are to be deducted from sums due the contractor. The contract is for completing the building without the high clock tower, which formed part of the original design, the funds available not being sufficient to include the tower. The construction of this tower is so important, both as an architectural feature and as a means of displaying prominently the clock, that I have submitted an estimate for an additional appropriation for the purpose of building it.

The new building for sinks and bathrooms for cadets and the new boiler house are well advanced, and it is hoped may be ready for use before the end of October.

The new gas works are also well advanced and it is expected will be completed about the end of October.

The contractors are behind time with all of these buildings.

In the cadet barracks new gas fixtures, each consisting of a two-light pendant, besides a sliding droplight, were placed in all the living rooms. With the abundant supply of gas to be provided by the new works there should be no further complaint of insufficient light.

The battle monument has made but little progress during the year, owing to a strike among the granite-workers, and unforeseen difficulties in the preparation of the polished shaft.

An extensive and much-needed improvement of the road leading south through what was formerly the Kinsley estate has been begun and is now well advanced. It is proposed to place the new set of officers' quarters, for which funds are now available, upon the east side of this road and thus to inaugurate the extension of the post southward over the new property. It is proposed also to move the south guardhouse and gate to a point much further south.

The roads upon the reservation, except upon the post proper, are not in good condition. A beginning has been made toward their amelioration by the purchase this year of a stone crusher. For use in connection therewith a heavy steam roller is badly needed. An estimate of \$4,500 for the purchase of one has been sent in since the regular annual estimates, and is recommended to the favorable consideration of Congress.

#### ESTIMATES.

The estimates for the next fiscal year were forwarded on the 29th of July. While somewhat larger than the appropriations for the current year they do not include anything which is not in my judgment for the good of the Academy, nor do they include everything which might with propriety be asked for. They are all commended to favorable consideration.

#### CONCLUSION.

In conclusion it gives me pleasure to state that I have received the earnest and cordial support of every professor and officer stationed here. They deserve and receive my hearty thanks.

Very respectfully, your obedient servant,

O. H. ERNST,

*Colonel of Engineers, Superintendent.*

The ADJUTANT-GENERAL, U. S. ARMY,  
Washington, D. C.

## A.

## UNITED STATES MILITARY ACADEMY.

WEST POINT, NEW YORK.

## SUPERINTENDENT.

Col. O. H. ERNST, Major, Corps of Engineers.

## MILITARY STAFF.

First Lieut. John M. Carson, jr., Fifth Cavalry, adjutant of the Military Academy post adjutant and recruiting officer.  
 Capt. William F. Spurgin, Twenty-first Infantry, treasurer of the Military Academy and quartermaster and commissary of cadets.  
 Capt. William H. Miller, assistant quartermaster, U. S. Army, quartermaster of the Military Academy, post quartermaster and disbursing officer.  
 First Lieut. Barrington K. West, Sixth Cavalry, post commissary of subsistence and post treasurer, in charge of post exchange.  
 Second Lieut. William C. Rivers, First Cavalry, assistant to post quartermaster and officer of police.  
 Maj. Philip F. Harvey, surgeon, U. S. Army, post surgeon.  
 Capt. C. N. Berkeley Macauley, assistant surgeon, U. S. Army.  
 First Lieut. Frederick P. Reynolds, assistant surgeon, U. S. Army.

## ACADEMIC STAFF.

Professors whose service at the Academy, as professor, exceeds ten years, have the assimilated rank of colonel, and all other professors the assimilated rank of lieutenant-colonel.

## DEPARTMENT OF NATURAL AND EXPERIMENTAL PHILOSOPHY.

Peter S. Michie, professor (14 Feb., 1871).  
 First Lieut. Frank S. Harlow, First Artillery, assistant professor.  
 First Lieut. Samuel E. Allen, Fifth Artillery; First Lieut. Lucien G. Berry, Fourth Artillery, instructors.  
 First Lieut. Samuel D. Freeman, Tenth Cavalry, in charge of observatory and astronomical observations.

## DEPARTMENT OF DRAWING.

Charles W. Larned, professor (25 July, 1876).  
 First Lieut. George H. Cameron, Fourth Cavalry, assistant professor.  
 First Lieut. Austin H. Brown, Fourth Infantry; First Lieut. Cecil Stewart, Fourth Cavalry, instructors.

## DEPARTMENT OF MATHEMATICS.

Edgar W. Bass, professor (17 April, 1878).  
 Wright P. Edgerton, \* associate professor (14 Mar., 1893).  
 First Lieut. George F. Barney, Second Artillery; First Lieut. Edmund D. Smith, Nineteenth Infantry; First Lieut. Robert L. Hirst, Eleventh Infantry; First Lieut. Daniel B. Devore, Twenty-third Infantry; First Lieut. John D. Barrette, Third Artillery; First Lieut. Frank McIntyre, Nineteenth Infantry; Second Lieut. Charles D. Palmer, Fourth Artillery; Second Lieut. John S. Winn, Second Cavalry, instructors.

## DEPARTMENT OF CHEMISTRY, MINERALOGY, AND GEOLOGY.

Samuel E. Tillman, professor (21 Dec., 1880).  
 First Lieut. John P. Wissar, First Artillery, assistant professor.  
 First Lieut. Harry Freeland, Third Infantry; First Lieut. Richmond P. Davis, Second Artillery; Second Lieut. Edgar Russell, Third Artillery, instructors.

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\* Associate professor with the rank of captain.

## DEPARTMENT OF HISTORY, GEOGRAPHY, AND ETHICS.

William M. Postlethwaite, chaplain, professor (21 Dec., 1881).  
 First Lieut. Daniel H. Boughton, Third Cavalry, assistant professor.  
 First Lieut. James A. Cole, Sixth Cavalry, instructor.

## DEPARTMENT OF CIVIL AND MILITARY ENGINEERING.

James Mercur, professor (29 Sept., 1884).  
 First Lieut. Joseph E. Kuhn, Corps of Engineers, assistant professor.  
 First Lieut. Henry C. Newcomer, Corps of Engineers; First Lieut. Thomas H. Rees, Corps of Engineers, instructors.

## DEPARTMENT OF LAW.

John W. Clous, lieutenant-colonel and deputy judge-advocate-general, U. S. Army, professor (28 Aug., 1890). (By assignment under act 6 June, 1874.)  
 First Lieut. Daniel H. Boughton, Third Cavalry; First Lieut. James A. Cole, Sixth Cavalry, instructors.

## DEPARTMENT OF TACTICS.

Lieut. Col. Samuel M. Mills, captain, Fifth Artillery, commandant of cadets and instructor of tactics (1 Sept., 1892).  
 Capt. Louis A. Craig, Sixth Cavalry, senior assistant instructor of cavalry tactics.  
 First Lieut. Alexander B. Dyer, Fourth Artillery, senior assistant instructor of artillery tactics.  
 First Lieut. Samuel W. Dunning, Sixteenth Infantry, senior assistant instructor of infantry tactics. Commanding band and detachment of field music.  
 First Lieut. Wilds P. Richardson, Eighth Infantry, assistant instructor of tactics. Commanding company of cadets.  
 First Lieut. William H. Allaire, Twenty-third Infantry, assistant instructor of tactics. Commanding company of cadets.  
 First Lieut. Willard A. Holbrook, Seventh Cavalry, assistant instructor of tactics. Commanding company of cadets.  
 First Lieut. T. Bentley Mott, First Artillery, assistant instructor of tactics. Commanding company of cadets.  
 Second Lieut. Matthew C. Butler, jr., Fifth Cavalry, assistant instructor of cavalry tactics.

## DEPARTMENT OF MODERN LANGUAGES.

Edward E. Wood, professor (1 Oct., 1892).  
 First Lieut. Cornélis DeW. Willecox, Second Artillery, assistant professor of the Spanish language.  
 First Lieut. Arthur F. Curtis, Second Artillery, assistant professor of the French language.  
 First Lieut. William S. Biddle, jr., Fourteenth Infantry; First Lieut. Arthur Thayer, Third Cavalry; First Lieut. Peter E. Traub, First Cavalry; First Lieut. Benjamin A. Poore, Sixth Infantry; Second Lieut. Marcus D. Cronin; Twentieth Infantry, instructors.

## DEPARTMENT OF PRACTICAL MILITARY ENGINEERING.

Capt. James L. Lusk, Corps of Engineers, instructor (31 March, 1893).  
 First Lieut. Mason M. Patrick, Corps of Engineers, assistant instructor.

## DEPARTMENT OF ORDNANCE AND GUNNERY.

Capt. Lawrence L. Bruff, Ordnance Department, instructor (17 Aug., 1891).  
 First Lieut. Edwin B. Babbitt, Ordnance Department; First Lieut. John C. W. Brooks, Fourth Artillery, assistant instructors.  
 Second Lieut. Charles S. Bromwell, Corps of Engineers, on duty with Company E, battalion of engineers.  
 Herman J. Koehler, master of the sword.  
 Arthur A. Clappé, teacher of music.

*List of officers, with relative rank, at the U. S. Military Academy.*

Name.	Corps or regiment.	On duty at Academy since—
<i>Colonels.</i>		
Ernst, Oswald H.	Corps of Engineers	April 1, 1893.
Michie, Peter S.	Professor (February 14, 1871)	April 23, 1867.
Larned, Charles W.	Professor (July 25, 1876)	August 28, 1874.
Bass, Edgar W.	Professor (April 17, 1878)	September 15, 1876.
Tillman, Samuel E.	Professor (December 21, 1880)	August 28, 1879.
Postlethwaite, William M.	Professor (December 21, 1881)	January 6, 1882.
<i>Lieutenant-Colonels.</i>		
Mercur, James	Professor (September 29, 1884)	October 7, 1884.
Clous, John W.	Professor (August 28, 1890)	August 28, 1890.
Mills, Samuel M.	Captain, Fifth Artillery, commandant of cadets.	September 1, 1892.
Wood, Edward E.	Professor (October 1, 1892)	August 28, 1889.
<i>Major.</i>		
Harvey, Philip F.	Surgeon, Medical Department	November 25, 1892.
<i>Captains.</i>		
Spurgin, William F.	Twenty-first Infantry	September 2, 1881.
Macaulay, C. N. B.	Assistant surgeon, Medical Department.	February 6, 1893.
Lusk, James L.	Corps of Engineers	March 31, 1893.
Bruff, Lawrence L.	Ordnance Department.	August 17, 1891.
Miller, William H.	Assistant quartermaster, Quartermaster's Department.	November 8, 1890.
Craig, Louis A.	Sixth Cavalry	August 28, 1890.
Edgerton, Wright P.	Associate professor (March 14, 1893)	January 28, 1889.
<i>First Lieutenants.</i>		
Dyer, Alexander B.	Fourth Artillery	August 31, 1892.
Wisser, John P.	First Artillery	August 29, 1886.
Boughton, Daniel H.	Third Cavalry	April 5, 1890.
Dunning, Samuel W.	Sixteenth Infantry	August 29, 1891.
Harlow, Frank S.	First Artillery	June 21, 1890.
Allen, Samuel E.	Fifth Artillery	August 20, 1892.
Kuhn, Joseph E.	Corps of Engineers	August 31, 1889.
Newcomer, Henry C.	Corps of Engineers	August 20, 1892.
Barney, George F.	Second Artillery	August 28, 1889.
Babbitt, Edwin B.	Ordnance Department.	August 28, 1890.
Patrick, Mason M.	Corps of Engineers	April 25, 1892.
Brooks, John C. W.	Fourth Artillery	August 28, 1889.
Freeman, Samuel D.	Tenth Cavalry	June 30, 1893.
Smith, Edmund D.	Nineteenth Infantry	August 17, 1891.
Richardson, Wilds P.	Eighth Infantry	February 10, 1892.
Rees, Thomas H.	Corps of Engineers	August 22, 1893.
Allaire, William H.	Twenty-third Infantry	June 15, 1893.
Hirst, Robert L.	Eleventh Infantry	August 17, 1891.
West, Barrington K.	Sixth Cavalry	February 18, 1893.
Cameron, George H.	Fourth Cavalry	August 28, 1888.
Cole, James A.	Sixth Cavalry	August 20, 1892.
Wilcox, Cornelis DeW.	Second Artillery	Do.
Carson, John M., jr.	Fifth Cavalry	May 15, 1890.
Curtis, Arthur F.	Second Artillery	August 20, 1892.
Holbrook, Willard A.	Seventh Cavalry	Do.
Brown, Austin H.	Fourth Infantry	February 9, 1892.
Biddle, William S., jr.	Fourteenth Infantry	August 21, 1892.
Devore, Daniel B.	Twenty-third Infantry	August 20, 1892.
Reynolds, Frederick P.	Assistant surgeon, Medical Department.	February 22, 1893.
Barrette, John D.	Third Artillery	August 20, 1892.
Thayer, Arthur	Third Cavalry	August 17, 1891.
McIntyre, Frank	Nineteenth Infantry	August 28, 1890.
Freeland, Harry	Third Infantry	June 16, 1890.
Stewart, Cecil	Fourth Cavalry	April 25, 1891.
Poore, Benjamin H.	Sixth Infantry	August 22, 1893.
Berry, Lucien G.	Fourth Artillery	August 20, 1892.
Traub, Peter E.	First Cavalry	November 11, 1892.
Mott, T. Bentley	First Artillery	July 1, 1890.
Davis, Richmond P.	Second Artillery	August 17, 1891.
<i>Second Lieutenants.</i>		
Russel, Edgar	Third Artillery	August 22, 1893.
Rivers, William C.	First Cavalry	October 7, 1891.
Cronin, Marcus D.	Twentieth Infantry	August 22, 1893.
Palmer, Charles D.	Fourth Artillery	August 20, 1892.
Winn, John S.	Second Cavalry	August 22, 1893.
Butler, Matthew C.	Fifth Cavalry	June 15, 1893.
Bromwel, Charles S.	Corps of Engineers	June 1, 1893.

## TROOPS.

*Battalion of Cadets.*

Lieut. Col. Samuel M. Mills, captain, Fifth Artillery, commanding.  
 Company A, First Lieut. Wilds P. Richardson, Eighth Infantry, commanding.  
 Company B, First Lieut. William H. Allaire, Twenty-third Infantry, commanding.  
 Company C, First Lieut. T. Bentley Mott, First Artillery, commanding.  
 Company D, First Lieut. Willard S. Holbrook, Seventh Cavalry, commanding.

*Hospital Corps.*

Maj. Philip F. Harvey, surgeon, U. S. Army, commanding.  
 Capt. C. N. Berkeley Macanley, assistant surgeon, U. S. Army.  
 First Lieut. Frederick P. Reynolds, assistant surgeon, U. S. Army.

*U. S. Military Academy Detachment of Army Service Men.*

Capt. William H. Miller, A. Q. M., post quartermaster, commanding.  
 Second Lieut. William C. Rivers, First Cavalry.

*Company E, Battalion of Engineers.*

Capt. James L. Lusk, Corps of Engineers, commanding.  
 First Lieut. Mason M. Patrick, Corps of Engineers.  
 Second Lieut. Charles S. Bromwell, Corps of Engineers.

*U. S. Military Academy Detachment of Ordnance.*

Capt. Lawrence L. Bruff, Ordnance Department, commanding.  
 First Lieut. Edwin B. Babbitt, Ordnance Department.

*U. S. Military Academy Detachment of Cavalry.*

Capt. Louis A. Craig, Sixth Cavalry, commanding.  
 Second Lieut. Matthew C. Butler, jr., Fifth Cavalry.

*U. S. Military Academy Band and Detachment of Field Music.*

First Lieut. Samuel W. Dunning, Sixteenth Infantry, commanding.

HEADQUARTERS U. S. MILITARY ACADEMY,  
*West Point, N. Y., September 1, 1893.*

Official: J. M. CARSON, JR.,  
*First Lieutenant, Fifth Cavalry, Adjutant.*

**B.**

U. S. MILITARY ACADEMY LIBRARY.  
*West Point, N. Y., September 11, 1893.*

The ADJUTANT, U. S. MILITARY ACADEMY:

SIR: I have the honor to submit the following statement in regard to the library, in accordance with your request dated West Point, N. Y., August 26, Circular No. 35:

The so-called library building was erected in 1841, and only a portion of it was assigned to the library of the Military Academy. This portion, a high-ceiling room 46 feet square and 31 feet high, is but a small portion of the building, which is 160 feet in length and 78 feet in breadth. The remainder was apportioned to the West Point Observatory and the philosophical department. A new observatory having been erected by the West Shore Railroad Company, is now occupied, and the instruments have been removed from the old piers in the library building, so that the main room under the dome, 27 feet in diameter, and the transit and mural circle towers at

the east and west ends of the building will be available for the uses of the library when the piers are removed. The remainder of the space is occupied now by the philosophical department for lecture and instruction purposes. This will be available as soon as the new academic building is completed, or rather when the south wing of that building is finished. To properly arrange all of the above for the purposes of the library it will be necessary to remove the massive stone piers, take down partitions and floors, and put in new windows and shelves. The building is not fireproof, and the opportunity for complete renovation will be so favorable that this obvious improvement of making the building fireproof should not be neglected. For the complete renovation of this building, to make it a suitable fireproof depository for the valuable collection of books, pamphlets, maps, portraits, etc., I have thought would require at least \$40,000,\* and I hereby renew my application that this amount be asked for at the present session of Congress.

There are at present 36,062 bound volumes and 5,328 pamphlets (books under 100 pages), besides very many valuable manuscripts, maps, portraits, etc., to be arranged and cared for. During the last fiscal year the increase was 578 volumes and 71 pamphlets. With the present accommodations no proper disposition can be made of many of these books. They fill the desks and tables in the library room that should be used for reading and consultation by the cadets and officers, and many are also piled on the floor in corners, so that a difficulty often occurs in getting them for ready reference. No more pressing demand exists than the immediate renovation of the library building. Its valuable books, scientific and professional, suffer deterioration, owing to imperfect shelving and protection. There are no proper arrangements from present lack of space, whereby officers and cadets can in quiet refer to such professional books as they may desire to consult. A single room, constantly open to the public, and in which all library business is transacted, is not conducive to the quiet and peace needed for study. But the building is very capable of being put into such a condition as will make it all that can be desired, should the sum above mentioned be appropriated, and I earnestly renew my recommendation.

Very respectfully, your obedient servant,

P. S. MICHIE,  
*Professor and Librarian.*

HEADQUARTERS U. S. MILITARY ACADEMY,  
*West Point, N. Y., September 13, 1893.*

A true copy.

J. M. CARSON, JR.,  
*First Lieutenant, Fifth Cavalry, Adjutant U. S. Military Academy.*

C.

U. S. MILITARY ACADEMY,  
SURGEON'S OFFICE, CADET HOSPITAL,  
*West Point, N. Y., September 11, 1893.*

The ADJUTANT, U. S. MILITARY ACADEMY.

SIR: In compliance with Circular No. 35, Headquarters U. S. Military Academy, dated West Point, N. Y., August 26, 1893, I have the honor to submit the following report of the work done in the medical department at this station for the year ending June 30, 1893, with such remarks and suggestions as the interest of the service seem to call for:

The mean strength of the command for the year is shown by the following table:

Officers .....	52.59
Cadets .....	259.43
Enlisted men .....	326.03
Civilians, officers' families .....	197.00
Civilians, soldiers' families, civilian employes, and their families .....	476.00

Total entitled to medical service ..... 1,311.05

The number of sick treated during the year was as follows: Officers, injured, 1; sick, 24; total, 25; cadets treated in hospital, injured, 97; sick, 398; total, 495. Aggregate number of days lost by cadets in hospital, 2,561. Cadets treated in

\* Increased by the Superintendent to \$50,000.

quarters and excused from some duty, 3,651. Cadets treated in quarters and not excused from duty, 1,280. Officers' families, servants, and other civilians who have received treatment from the cadet hospital, 324. The number of prescriptions put up at the cadet hospital during the year was as follows: For officers, 75; for cadets, 6,174; for civilian attachés, 693; total, 6,942.

There were performed during the year 111 vaccinations, of which number 107 were successful.

The prevalent forms of sickness requiring treatment in this hospital were as follows: Headache, 35; ephemeral fever, 60; diseases of the eye, including refractive, muscular, and inflammatory affections, 54; diseases of the digestive organs, 68; tonsillitis, 35.

It is gratifying to be able to report that not a single case of typhoid fever, scarlatina, diphtheria, or other disease due to a lack of sanitary precautions has occurred in the corps of cadets during the year. One death is reported in August, 1892, from "heart clot" complicating an attack of pleuro-pneumonia.

As a very general rule ailments among the cadets have been of minor character and of short duration. The reason for the large apparent aggregate of sickness is to be found in the fact that the constant mental and physical activity demanded of the cadet by the curriculum of West Point requires an organic and functional integrity of all parts of the body, and the most trivial ailment is sufficient to disqualify for some duty.

There was a daily average of 11.52 officers and cadets sick during the year; in April, 1893, occurred the largest daily average, when it rose to 16.17.

There were 97 cases treated in the cadet hospital for injury. Several rather severe casualties happened in outdoor games and in exercise at will in the gymnasium. Football contributed the bulk of such casualties, and in some cases the injuries were of such gravity as to threaten permanent disability, but happily in every instance complete recovery ultimately resulted. It is doubtful, in my opinion, if the benefits derived from playing this game, which I am free to acknowledge are very considerable in some directions, are commensurate with the risks it entails to life and limb, which, according to statistics, are much greater than are commonly supposed.

The cadet hospital is in excellent condition for the reception and treatment of the sick, having a liberal equipment of modern medical and surgical material and appliances, and being provided with ample means of drainage and ventilation. During the year a culinary department for cadet patients, entirely separate from the one used for the members of the hospital corps, has been put into successful operation with entirely satisfactory results. The food furnished the hospital has invariably been the best in quality and variety the market afforded, and the cooking has uniformly been excellent as verified by frequent inspections by the post surgeon.

Substantially all the work contemplated by last year's appropriation for cadet hospital has been done. The inclosed area in rear of building has been properly graded and thoroughly concreted to prevent dampness of basement walls and to secure thorough conduction of rain and snow water into the main house drain; the trenches containing return heating pipes in cellar have been covered by iron plates and neatly luted; the floors have been relacquered throughout, the iron work repainted, and the radiators rebrowned, etc., and other repairs of a minor character have been made, and the building is believed to be in very thorough repair. Repainting inside walls and ceilings (two coats) and woodwork throughout has just been finished (September 1).

Although it is hoped that the continued enforcement of approved sanitary measures will obviate the appearance of any contagious disease among the cadets it has been deemed prudent to submit estimates of cost and material for a small detached building to secure perfect isolation of a patient if necessary. The cadet hospital does not afford facilities for perfect quarantine, and as it is a costly permanent structure, it would be unwise, I think, to treat contagious diseases in it.

A set of quarters for the senior hospital steward, on duty at the cadet hospital, is a desideratum. It is the policy of the medical department to quarter hospital stewards outside of hospital buildings, and it is believed that this hospital is unique in not having a detached building for the steward's occupation. It is hoped, therefore, that the necessary appropriation will be made for such quarters and their erection begun as soon as possible.

The following estimates of cost and labor have been furnished by the post quartermaster for the prospective needs of the cadet hospital and for the two buildings referred to above:

For repairs, etc .....	\$2,788.70
For isolation hospital .....	3,007.50
For hospital steward's quarters .....	3,050.00
For soldiers' hospital .....	3,772.00
Total .....	12,618.20

The following medical officers are now or have been on duty at West Point during the year:

Maj. Henry McElderry, surgeon, post surgeon from July 1 to November 25, 1892.

Maj. Philip F. Harvey, surgeon, post surgeon from November 25, 1892, to date.

Capt. Henry S. Kilbourne, assistant surgeon, from July 1, 1892, to April 15, 1893.

Capt. C. N. B. Macauley, assistant surgeon, from February 5, 1893, to date.

First Lieut. Frederick P. Reynolds, assistant surgeon, from February 20, 1893, to date.

The services of three medical officers are, as a rule, indispensable to the proper discharge of the duties devolving on the medical department at West Point. The extent and varied character of the work would render embarrassment and overwork inevitable at times with a less number. An equitable proportion of these duties is assigned each officer, as follows: The post surgeon has general charge of the medical affairs of the Academy and post, and performs all professional service required at the cadet hospital and by officers and others requiring his attendance. The senior assistant has immediate charge of the soldiers' hospital, medical attendance upon enlisted men and their families, hygienic supervision of the barracks and quarters of the enlisted men, drill and instruction of the men of the hospital corps and company bearers. The junior assistant during the summer encampment reports to the commandant of cadets for night duty with the corps of cadets; in addition to this throughout the year he attends a portion of the sick among the enlisted men and their families, examines recruits, assists in stretcher drill, verifies medical reports, and assists in surgical cases, clinical analyses, etc.

The renovation and extension of the sanitary plumbing of the post was completed late in 1892, and since that time the system has appeared in all cases, as far as I have been able to learn, to effect complete removal of excreta and to prevent any reflux of deleterious effluvia. Although the introduction of the most modern and approved traps and flushes was not authorized, it is believed that the present facilities will, by the exercise of ordinary care, prove adequate for several years to come.

Fortunately there has been observed but little to condemn from a sanitary standpoint in connection with the Academy during the year, and hence but few sanitary recommendations have been required.

The following is a synopsis of those submitted with action taken:

#### BY THE POST SURGEON.

September, 1892: Recommendation that slop barrels in rear of Schofield Hall be covered, and the brick receptacle, as well as ground about it, be disinfected with chloride of lime. That the water of Delafield Reservoir be let out and the bottom cleaned. The reservoir had not been cleaned for fifteen years. (Maj. McElderry.) On inquiry I learn that the latter part of Maj. McElderry's recommendation was not carried out.

November, 1892: Recommendation that a garbage crematory be obtained for West Point. (Maj. McElderry.) Disapproved, as system in use deemed sufficient.

January, 1893: Owing to insufficient sleep obtained by cadets, recommended that they be allowed one hour more. (Maj. Harvey.) Carried into effect.

February, 1893: Recommendation for increased ventilation of cadet dormitories and quarters of civilian employes at cadet mess. (Maj. Harvey.) Approved.

March, 1893: Recommendation concerning the regulation of temperature in cadet rooms. Attention called to several basins in water closets out of order. Special care recommended in the collection and distribution of the water supply. (Capt. Kilbourne.) Approved.

April, 1893: Owing to possible prevalence of choleraic or allied disorders during the ensuing season, recommended that a thorough sanitary condition of all parts of the post be at once secured, and that extra efforts be made to keep premises in wholesome order. (Maj. Harvey.) Approved.

May, 1893: Reports stable in rear of officers' quarters No. 5 in an unsanitary condition. (Maj. Harvey.) Corrected.

#### ATTENDING SURGEON, SOLDIERS' HOSPITAL.

July, 1892: Reports that the bread is occasionally slack-baked and consequently wasted by the men. (Capt. Kilbourne.) Corrected.

August, 1892: Reports condition of water supply improved. (Capt. Kilbourne.)

September, 1892: Recommends daily removal of kitchen refuse from receptacle provided for it. Recommends coating of asphalt or other nonabsorbent material for the brick flooring of engineer barracks. Improved system of heating of engineer barracks recommended. Method of ventilation for band barracks recommended. Removal of fresh vegetables from basement of post guard-house recommended.

Recommends filtration of the water supplied to the soldiers' hospital. In the event of epidemic of cholera, should a case appear in the vicinity of the reservoir in the "Highlands," recommends surveillance. (Capt. Kilbourne.) Action: Recommendations for engineer and band barracks approved, but no funds available; other items approved and corrected.

October, 1892: On account of the number of cases of sore feet in the engineer company, trial of new soft shoe recommended (Capt. Kilbourne.) Approved.

November, 1892: Recommends removal of obstruction to flow of water in ravine near garden of army service detachment. (Capt. Kilbourne.) Corrected.

December, 1892: Recommends that provision be made for the removal of laundry and kitchen slop waters from the new soldiers' quarters in "Rugertown" by means of a sewer falling into the hospital main, and that the outside taps from the water supply be taken into these quarters. (Capt. Kilbourne.) Approved, except so much as relates to taking water taps into quarters. No funds are available at present for constructing the sewer suggested.

January, 1893: Use of basement of band barracks as squad room for a portion of the army service detachment recommended discontinued. (Capt. Kilbourne.) Approved.

February, 1893: On complaint of prisoners in post guard house, recommended that they be allowed one additional blanket. (Capt. Macauley.) Approved.

March, 1893: Recommends that some arrangement be made by which the use of the attics of the engineer barracks as dormitories may be discontinued. Recommends that the vacated rooms in the basement of the band barracks be not again occupied as dormitories or squad rooms. Recommends grading of road in "Logtown" to prevent melted snow and rain water from draining into houses, also that ditches be dug around upper sides of outbuildings of quarters Nos. 97, 99, 101, and 105, their floors being continually wet. Recommends that the enlisted men be forbidden to wear the "barrack shoe" outside their quarters. (Capt. Macauley.) Action: The discontinuance of the use of the attic of engineer barracks and basement of band barracks as dormitories, and the digging of the ditch around the upper sides of outbuildings, approved. Grading of road in "Logtown" approved. Estimate to be submitted to Congress.

April, 1893: Recommends cleaning of obstructed ditch (for excess of spring water) in front of subdispensary. (Capt. Macauley.) Corrected.

May, 1893: Recommends a more frequent removal of the contents of the filter at the water house because of turbidity of general supply. (Capt. Macauley.) Approved.

June, 1893: Recommends that all earth closets be emptied every day, and that fresh earth be placed in them, after emptying, to the depth of an inch. (Capt. Macauley.) Approved as follows: Earth closets to be emptied every day and dry earth to be sprinkled in them when used.

The following is a summary of the data of general interest from the records of the soldiers' hospital for the year ending June 30, 1893:

Average strength of enlisted command.....	326.06
Number of enlisted men treated in hospital.....	97
Number of enlisted men treated in quarters.....	366
<hr/>	
Total.....	463
<hr/>	
Average number of civilians entitled to medical service.....	476
Total number of civilians taken sick.....	504
Number of births occurring in the families of enlisted men and civilian employes.....	29
Number of enlisted men discharged on surgeon's certificate of disability....	3
Number of recruits examined for the period beginning May 1, 1893, and ending June 30, 1893.....	24
(The number for the year can not be furnished, the old "Register of Physical Examination of Recruits" having been forwarded to the Surgeon-General, as required by Army regulations.)	
Number of vaccinations and revaccinations—	
Total vaccinations.....	4
Total revaccinations.....	30
Number of deaths among soldiers and their families and civilian employes and their families.....	13

Of this number one soldier only died (September, 1892); cause of death, compression of the brain, the result of an accident. Other causes of death in this category were cholera infantum, convulsions, diphtheria, and consumption.

The total number of prescriptions compounded at the soldiers' hospital was 4,055.

The several duties of the medical officers acting in the capacity of assistants to the post surgeon have been most intelligently, faithfully, and zealously discharged; and discipline, efficiency, and attention to duty among the enlisted men of the hospital corps have, in the main, been highly satisfactory.

Very respectfully, your obedient servant,

P. F. HARVEY,

*Major and Surgeon, U. S. Army, Post Surgeon.*

HEADQUARTERS U. S. MILITARY ACADEMY,  
*West Point, N. Y., September 23, 1893.*

A true copy.

J. M. CARSON, JR.,

*First Lieutenant, Fifth Cavalry, Adjutant, U. S. Military Academy.*

D.

HEADQUARTERS U. S. MILITARY ACADEMY,  
OFFICE TREASURY, QUARTERMASTER, AND COMMISSARY CADETS,  
*West Point, N. Y., September 14, 1893.*

The ADJUTANT OF THE U. S. MILITARY ACADEMY,  
*West Point, N. Y.:*

SIR: I have the honor to submit the following relative to my duties as treasurer of the Military Academy, quartermaster and commissary of cadets, for the year ending June 30, 1893, referring to each duty under the proper heading:

TREASURER OF THE MILITARY ACADEMY.

The business of the treasurer's office during the year has necessitated the keeping of twenty-eight separate accounts with cadets and others, all funds handled by the treasurer being such as are received bimonthly from the paymaster, U. S. Army, as pay of the cadets, and from officers on account of purchases made by them at the cadet quartermaster's department store, cadet mess for certain supplies sold them there, and for the washing of collars and cuffs at the laundry. The treasurer of the Academy receives no funds direct from the United States Treasury.

The treasurer's accounts have been inspected regularly every two months by an officer detailed by the Superintendent for that purpose, as well as by the special committee of the board of visitors in June, all of which inspections have been reported most satisfactory to the inspectors. The accounts kept are the same as noted in my annual report for 1892, with two new ones, viz: Athletic Association and Young Men's Christian Association.

The statement of the treasurer, U. S. Military Academy, dated May 16, 1892, which was the last statement made prior to the expiration of the fiscal year 1891-1892, was as follows:

Assets.		Liabilities.	
Deposited with the assistant treasurer of the United States, New York.	\$30,834.37	Cadet laundry .....	\$4,519.39
Miscellaneous items to be charged ..	40.79	Cadet quartermaster's department ..	6,714.06
Invested in United States bonds .....	20,000.00	Cadet subsistence department .....	1,944.77
Cash on hand in office safe .....	3,496.42	Corps of cadets .....	12,176.04
		Deposits .....	225.00
		Dialectic society .....	24.35
		Equipment fund .....	28,750.00
		Miscellaneous fund .....	17.97
Total .....	54,371.58	Total .....	54,371.58

The following statement of receipts and disbursements under each account exhibits the totals of such between May 16, 1892, the date of the last statement, fiscal year 1891-'92, and May 15, 1893, the date of the last statement prepared in this office prior to June 30, 1893, six bimonthly statements having been made during the year, namely:

No.	Receipts.	Amount.	Disbursements.	Amount.
1	Assistant treasurer, check drawn.	\$145,797.88	Assistant treasurer (deposits)	\$149,521.50
2	Balances paid	17,764.05	Balances paid	17,921.33
3	Barber	533.53	Barber	533.55
4	Cadet cash	10,498.16	Cadet cash	10,586.16
5	Cadet hospital	1,961.51	Cadet hospital	1,778.54
6	Cadet laundry	6,680.91	Cadet laundry	6,920.19
7	Cadet quartermaster's department	72,751.09	Cadet quartermaster's department	69,131.34
8	Cadet subsistence department	54,870.45	Cadet subsistence department	55,760.67
9	Confectioner	452.00	Confectioner	452.00
10	Corps of cadets	177,795.85	Corps of cadets	178,590.47
11	Damages, ordnance, and stoppages.	13.50	Damages, ordnance, and stoppages	13.50
12	Dancing	600.00	Dancing	600.00
13	Dentist	539.00	Dentist	674.00
14	Deposits	16,985.20	Deposits	16,788.20
15	Dialectic society	450.33	Dialectic society	447.83
16	Equipment fund	12,720.00	Equipment fund	13,370.00
17	Expressage	32.84	Expressage	32.84
18	Gas fund	1,252.31	Gas fund	1,252.31
19	Hops and germans	1,668.36	Hops and germans	1,668.36
20	Miscellaneous fund	6.55	Miscellaneous fund	
21	Miscellaneous items	1,105.74	Miscellaneous items	1,064.95
22	Oaths	30.15	Oaths	30.15
23	Paymaster	149,521.50	Paymaster	149,521.50
24	Periodicals	73.42	Periodicals	73.42
25	Photographer	84.00	Photographer	84.00
26	Policing barracks	5,599.55	Policing barracks	5,599.55
27	Athletic Association	326.25	Athletic Association	279.81
28	Young Men's Christian Association	31.80	Young Men's Christian Association	16.86

It will be observed that accounts 3, 9, 11, 12, 17, 18, 19, 22, 23, 24, 25, and 26 appear and disappear in the above statement, no balances being carried. This is the case because only such sums are charged the cadets proportionally as will settle the indebtedness necessarily incurred in connection with each object denoted by the name of the account. From this statement it will be seen that cadets expended during the year, for the purposes indicated in the following list, Table No. 1, the sum set opposite each account. These sums can be compared with the expenditures for the same objects during the fiscal year 1891-'92, as shown in Table No. 2:

Table No. 1.	Amount.	Table No. 2.	Amount.
Hair cutting	\$533.55	Hair cutting	\$540.25
Confectionery	452.00	Confectionery	316.00
Dentistry	674.00	Dentistry	954.00
Expressage	32.84	Expressage	44.20
Gas	1,252.31	Gas	1,255.90
Hops	1,668.36	Hops	1,641.17
Oaths	30.15	Oaths	24.00
Periodicals	73.42	Periodicals	92.00
Photographs	84.00	Photographs	54.00
Policing barracks	5,599.55	Policing barracks	5,866.63
Athletic Association	279.81	Athletic Association	
Support cadet hospital	1,961.51	Support cadet hospital	1,928.61

The cost of toilet paper used in cadet sinks, candles consumed in camp (in 1892), blacking, blacking brushes, and matches is included in the sum charged against policing barracks, as well as the pay roll of the men employed in policing barracks, which latter amount was for the year \$4,920.

The following is the statement of the treasurer at date, May 15, 1893, the last inspection of his accounts prior to end of the fiscal year:

Assets.		Liabilities.	
Assistant treasurer	\$34,557.99	Athletic Association	\$222.75
Balances paid	157.28	Cadet hospital	182.97
Cadet cash	98.00	Cadet laundry	4,280.11
Dentist	135.00	Cadet quartermaster's department	10,333.81
Trust fund	20,000.00	Cadet subsistence department	1,054.55
Cash on hand	873.65	Corps of cadets	11,381.42
		Deposits	200.00
		Young Men's Christian Association	14.94
		Dialectic society	26.85
		Equipment fund	28,100.00
		Miscellaneous fund	24.52
Total	55,821.92	Total	55,821.92

The amount of the equipment fund as given above was reduced because of settlement with this year's graduating class by the sum of \$9,558. The experiment tried this year of settling the accounts of graduates prior to date of graduation worked exceedingly well, and the plan will be pursued in future.

CADET QUARTERMASTER'S DEPARTMENT.

During the year ending June 30 last the department manufactured for cadets—

Dress coats.....	333	White trousers.....	1,096
Overcoats.....	175	Gray flannel trousers.....	138
Blouses.....	413	Tennis trousers.....	27
White jackets.....	279	Gray riding trousers.....	57
Gray trousers.....	624		

During the same period there were manufactured for officers, graduates, and fur-  
lough men—

Blouses.....	3	Riding trousers.....	0
Dress coats.....	1	Civilian coats.....	12
Uniform trousers.....	35	Civilian vests.....	15
Capes.....	1	Civilian trousers.....	24
Overcoats.....	1		

There were repaired during the year—

Dress coats.....	298	Civilian suits.....	49
Overcoats.....	285	Pairs of gloves.....	695
Blouses.....	647	Pairs of socks.....	2,845
Trousers.....	2,613	Pairs of shoes.....	1,373

Year before last the business of the store was conducted on the following basis: Seven per cent was added to the face invoice of supplies, the discounts arising from cash payments accruing to the store. Under this charge the fund increased.

Inasmuch as it is the intention to charge only such percentages as will pay the running expenses of the store, viz, the charges for salaries of cutter, clerks, janitor, driver of wagon, policewoman, and freight charges, the manner of transacting the business was changed to the following basis, viz:

All discounts received because of spot cash payments were deducted from the face of the invoice and 4 per cent was charged on such reduced amount.

The fund on this basis diminished \$1,013.48, or from \$43,789.46 to \$42,775.98, which was the value of the cadet quartermaster's department fund June 30 last, consisting of supplies and money.

I recommend that during the present year the business be conducted on the following basis, viz, add 4 per cent to the face invoice of supplies.

This matter of charges is one which must be adjusted from year to year, since whilst the running expenses are fixed, or nearly so, the value of the fund varies according to the amount of business done. One year ago the prices of the following articles of clothing were reduced as follows:

Dress coats from.....	\$16.75 to \$15.43
Overcoats from.....	22.75 to 21.40
Blouses from.....	13.32 to 12.04
Gray trousers from.....	6.96 to 5.92

The diminution of the fund by \$1,013.48 is partly due to this reduction in prices. If my recommendation to charge 4 per cent on the face value of the invoice is approved the above articles will be charged at the following prices, viz:

	Cents.
Dress coats, \$15.90, increase of.....	47
Overcoats, \$22.36, increase of.....	39
Blouses, \$12.40, increase of.....	36
Gray trousers, \$6.13, increase of.....	23

The plan adopted this last year of manufacturing for the incoming fourth class prior to its arrival all articles of clothing on old cadets' average measurements worked most satisfactorily and secured the complete outfitting of the class in a shorter period than the work was ever before accomplished, and the same plan will be carried out in future.

CADET SUBSISTENCE DEPARTMENT.

The cadet mess hall, the kitchens, bakery, and dormitories are all in good condition. The average daily cost of subsistence per cadet during the year was 52.22 cents, an increase over the cost the year previous of 2.62 cents per day, due to the increased

cost of supplies. In my report for the fiscal year 1891-'92, I gave a minute and detailed account of the manner in which the affairs of the mess are conducted, and, therefore, omit any reference to the same at this time.

The cadet garden is not so good a one as was the old garden, the territory of which was taken for the extension of the post cemetery; however, it is improving from year to year. I invite attention to the fact that the southern boundary of the reservation has no wall or fence to protect it and the reservation from the incursion of cattle belonging to the citizens of Highland Falls. In obedience to the instructions of the Superintendent, the manure pile formerly located in front of the gardener's quarters is being removed to the rear of the same. I recommend that the present front entrance to the grounds be walled up; that an entrance to them from the back road in rear of gardener's house be made, using the gate now used in front; that the interior stone wall which divides the territory in front of the gardener's house into two lots be removed, and that the stones of which it is composed be placed on the outer wall running from the crossroads northwesterly. (This last wall is in some places lower than the road. The removal of this wall will give one large lot, which can be set in grass.) That the building at the garden be given a coat of paint.

These things having been done, the locality will be greatly improved.

Inasmuch as there is no appropriation for these improvements, I respectfully request that the same may be executed by the post quartermaster, he employing his teams and the men of his detachment to do the work.

#### CADET LAUNDRY.

The laundry building and machinery are in good condition. The following articles were laundried during the year:

Clothes bags .....	4, 774	Collars .....	97, 194
Sheets .....	22, 953	Shoulder belts .....	17, 343
Pillow cases .....	16, 346	Waist belts .....	17, 930
White shirts .....	22, 716	Sword belts .....	2, 543
Nightshirts .....	13, 972	Gray trousers .....	397
Undershirts .....	43, 978	Gray jackets .....	126
Drawers .....	43, 590	Blankets, single .....	373
White trousers .....	47, 188	Comfortables .....	96
White jackets .....	3, 170	Bathing suits .....	127
Towels .....	76, 106	Vest .....	1
Socks, pairs of .....	40, 892	Articles from cadet hospital .....	4, 082
Gloves, pairs of .....	38, 461		
Handkerchiefs .....	83, 965	Total .....	640, 993
Cuffs, pairs of .....	42, 670		

An excess over the number of articles laundried last year, exclusive of the work done for the cadet hospital, of 128,746 pieces. I am of the opinion that this increase is due to the fact that the laundry charges are proportional.

Respectfully submitted.

WM. F. SPURGIN,  
*Captain Twenty-first Infantry, Treasurer U. S. Military Academy,  
Quartermaster and Commissary of Cadets.*

A true copy.

J. M. CARSON, JR.,  
*First Lieutenant Fifth Cavalry, Adjutant.*

#### E.

WEST POINT, N. Y., *September 4, 1893.*

The ADJUTANT U. S. MILITARY ACADEMY:

SIR: In accordance with instructions, I have the honor to submit the following report of the principal operations in the department of ordnance and gunnery at the U. S. Military Academy during the fiscal year ending June 30, 1893:

\* \* \* \* \*

In the machine shop the following full-size wood models of projectiles have been made for use in the instruction of cadets and for the ordnance museum:

Two models 12-inch mortar shell, two models 12-inch solid shot, two models 10-

inch solid shot, two models 8-inch solid shot, two models 5-inch shell, two models 3.6-inch shell, two models 3.2-inch shell, two models 3.2-inch shrapnel; total, 16. These have been lettered, lacquered, and prepared for use.

The Thurston testing machine has been repaired and made ready for use.

A number of sample boards for small-arm cartridges have been prepared, showing the different steps in the manufacture of the small-arm ammunition.

A large quantity of old zincs on hand have been remelted and recast for use with the gravity batteries at the instrument house.

A large quantity of stores belonging to the museum have been cleaned, packed, and shipped to the World's Fair at Chicago, authority therefor having been given by the proper authorities.

A platform for the Hotchkiss rapid-fire gun has been built and laid at the ordnance firing ground; a cabinet for copper cylinders for crusher gauge, and a powder case for samples of powder made for the section room; also rests for star gauges for use in practical instruction; and repairs to bier which is used on the artillery caisson at funerals have been made; fencing muskets for the gymnasium have been stocked; models of rifling and boring tools made, and the boat belonging to the department and used in placing the targets, etc., repainted.

The barrack room and exterior woodwork of buildings have been painted, also the instrument and firing houses, and the ballistic pendulum house at the north dock.

The brick pavement at instrument house has been relaid, two new 8-inch barbette carriages assembled at the seacoast battery, the materials for mechanical maneuvers overhauled, cleaned, and repaired, the 15-inch gun carriages repaired, and covers made for all the machine and rapid-fire guns. Drawings have been made, for use in the section room, of all the more complicated materials referred to in the course of instruction, and this work is still in progress. Also drawings have been made of all the parts of the breech mechanism of the different machine and rapid-fire guns in the possession of the department, for the use of cadets in dismounting and assembling these guns in the course of practical instruction.

The lithographic plates required in the text-book on exterior ballistics and gun construction have been prepared, printed, and bound with the book.

The wires at the instrument house have been rearranged and drawings made showing their arrangement in detail.

This work is still in progress.

The models and projectiles belonging to the museum and stored in the basement of cadet barracks have been moved and arranged in order.

#### MUSEUM.

When the old academic building was torn down in June, 1891, it became necessary to remove and store temporarily the articles belonging to it. The projectiles and some of the models were stored in the basement of cadet barracks, the trophy flags in the attic of the east building at the ordnance laboratory, and the arms and remaining models in the attic of the west building. As stated previously, some of these stores were shipped to Chicago for exhibition at the World's Fair. Two regimental and one national color belonging to the Sixth United States Infantry have been asked for by the colonel of that regiment, and their transfer to him has been approved by the honorable Secretary of War.

A number of articles have been received for the museum, among them a Jarmann gun, caliber .399, which was presented by Gen. Otto Nyquist, aid-de-camp to His Majesty, the King of Sweden; the epaulettes of Gen. Totten and the inkstand of Gen. Cullum, both presented by Col. Craighill, U. S. Corps of Engineers.

As soon as the new academic building is completed and the room for the museum available, it is believed that many valuable additions will be made to the already large collection of the Academy.

#### ADDITIONS TO ARMAMENT.

During the year the ordnance department has supplied the gun carriages, limbers, and caissons complete for a new 3.20 field battery. The guns were already on hand, but were mounted on old wooden 3-inch carriages, and the battery could only be used for foot drill.

The new carriages are of the latest light pattern steel, and the old battery with heavy carriages is used for foot drill. As soon as they are available it is intended to replace the heavy carriages with light ones.

There are at present two complete field batteries of six guns each, 3.20 inch, at the Academy, and the field armament is complete.

Requisitions have been made for an Easton and Anderson carriage for the 12-inch

steel-hooped breech-loading mortar, and it is believed that the carriage will soon be delivered here.

The appropriation for the construction of the platform was made by the last Congress and is now available.

The 12-inch mortar is here ready for mounting. A requisition has also been made for an 8-inch barbette carriage for the 8-inch steel breech-loading rifle. It is believed that this carriage will be ready during the present year, and the money for its platform is also available.

The gun can be obtained at any time. Three new front pintle barbette carriages for 8-inch converted rifles will be procured as soon as platforms can be provided for them. They are intended to replace the present obsolete carriages in the seacoast battery, the two 8-inch converted rifles to be mounted on them, to replace the present 10 inch Rodman smoothbore and 300-pounder Parrott, are already here.

The money for these platforms is now available. Four 5-inch siege guns and two 7-inch howitzers with their carriages have been asked for to fit out the siege-gun battery. The delay in receiving them is due to the carriages, but they should be ready at an early date.

A Maxim automatic machine gun and a Nordenfelt rapid-fire gun have been ordered from the manufacturers.

They are now making the machine gun, drawings of the chamber having been sent them, and they should be received in the next few months. A Driggs-Schroeder rapid-fire gun has been estimated for in the annual estimates this year. It is hoped that the department may be enabled to obtain each year a sample of the leading machine and rapid-fire guns of the world for the benefit of cadets and as an addition to the museum.

#### SMALL-ARMS AND AMMUNITION.

As soon as the manufacture of the new small-caliber rifle shall have progressed sufficiently at the National Armory it is intended to obtain samples of the gun in its various stages of manufacture, and also of its ammunition, for purpose of instruction and for the museum.

#### MODELS.

An appropriation was made by the last Congress for the manufacture of models of guns of the field, siege and sea-coast service. These models are now being made at the Watervliet Arsenal. They are intended to show on a reduced scale the gun and its mechanism complete, and will be very valuable for purposes of instruction and as an addition to the museum. A further estimate has been submitted this year for funds to complete these models and to make models of all the carriages belonging to them.

During the year there have been obtained from the Frankford Arsenal various models of the service shrapnel, cartridges, primers, etc.

From the American Projectile Company, Boston, Mass., samples of electric-welded projectiles of their manufacture, which they very kindly furnished without cost to the department; also samples of the Hotchkiss ammunition, furnished similarly by the Hotchkiss Company.

The models of all the service projectiles, full size in wood, have been made here, the material being furnished by the Ordnance Department.

#### BALLISTIC INSTRUMENTS.

A new Breger chronograph, made by Queen & Co., of Philadelphia, has been purchased, and the old Schultz chronoscope altered by the same firm, replacing to spark and coil by Marcel Deprez registers. These registers are now on exhibition at the World's Fair. There are thus four good ballistic instruments belonging to the department, and greater facilities than ever before are extended to cadets to become familiar with the working of these instruments. In addition to this the Ordnance Department is now making four rifled barrels fitted with crusher gauges for use with these instruments, and independent targets are being arranged by which all the instruments can be used.

The mercury densimeter has been repaired and is now used in the determination of the specific gravity of powder.

I have no recommendations or suggestions to make.

Very respectfully, your obedient servant,

LAWRENCE L. BRUFF,  
*Captain, Ordnance Department, U. S. Army,*  
*Instructor of Ordnance and Gunnery.*

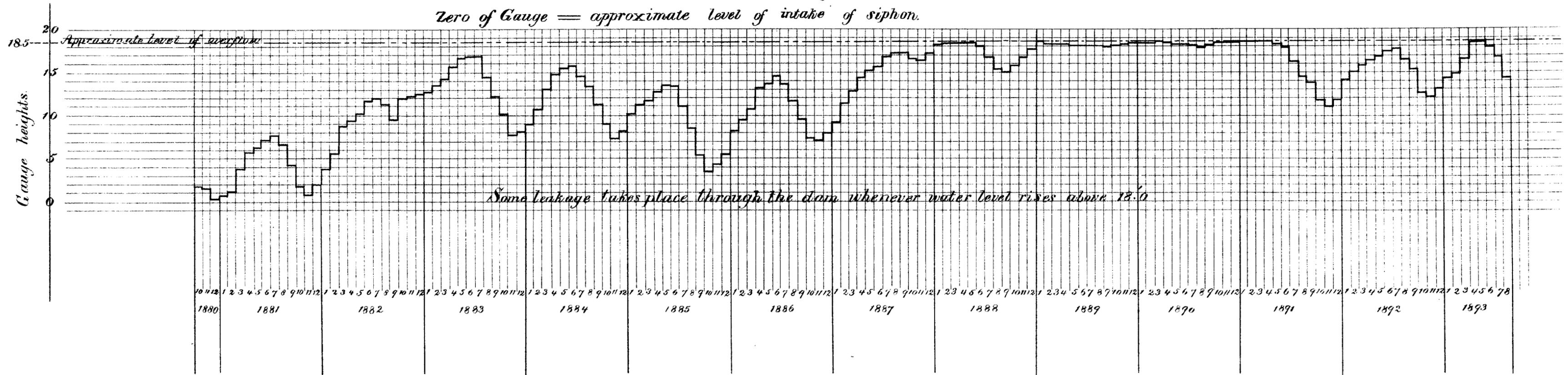
A true extract.

J. M. CARSON, JR.,  
*First Lieutenant, Fifth Cavalry, Adjutant.*



*Curve of Average Monthly Gauge Heights, Round Pond,  
during 14 years.  
October, 1880. ——— August, 1893.*

*Zero of Gauge = approximate level of intake of siphon.*



F.

WEST POINT, N. Y., *September 11, 1893.*

The ADJUTANT, U. S. MILITARY ACADEMY,  
*West Point, N. Y. :*

SIR: Complying with the requirements of Circular No. 35, Headquarters U. S. Military Academy, West Point, N. Y., August 26, 1893, I have the honor to submit the following report concerning the operations of the department of practical military engineering for the year ending August 31, 1893:

WATER SUPPLY AND PIPE LINE.

During the short but extreme drought of the summer of 1893 the water level of Round Pond fell so low as to cause anxiety for a time. The season was most favorable for a test of the water supply under the present conditions of storage. During November, 1892, Round Pond was drawn down to 11.5 feet, the lowest level for the year. The water continued to rise during the winter and spring until, on April 6, 1893, it reached 18 feet, the level where loss begins to take place by leakage through the dam. The unusually high reading of 19 feet was recorded on May 4, 5, and 6, 1892, being about half a foot above the crest of the spillway. Without any draft through the siphon the level fell so as to record 17.9 feet on June 9. On June 19 the level of 18 feet was again reached and maintained until the drought began on July 1. The level fell steadily to 13.6 feet on August 23, the last day of drought during the year under consideration.

For the purpose of study the average monthly gauge readings at Round Pond have been plotted for the whole period during which they have been kept; that is, from October, 1880, to August, 1893, inclusive. A tracing showing the resulting curve is sent herewith, marked B. It shows conclusively that the existing means of water storage must be largely supplemented if the danger of a water famine is to be averted.

After fully considering the subject I am of the opinion that a new reservoir should be formed at the site previously adopted, viz, the hollow south of Fort Putnam. An appropriation having been made for this purpose explorations for a site for a dam have been under way for several months. The work has been delayed by want of suitable plant and by difficulty in procuring good laborers, but is now almost completed. The indications are that, owing to the character of the ground and the scarcity of suitable material for an earthen dam, a structure of that kind is not to be recommended, but that a masonry dam should be built instead. The whole question is receiving careful study and will soon be made the subject of a special report.

The existing reservoirs are not in good condition, and in my annual estimates I submitted an item of \$25,000 for making substantial improvements in this respect. The dams in several instances need strengthening and raising, while the reservoirs and their watersheds are in need of cleaning to improve the condition of the water. The leaks in the dam at Delafield Pond are well known to need attention. The Crownest dam requires repointing. The Cascades dam should be tightened, and the existing crude intake replaced by a suitable one. The dam at Round Pond can be raised and tightened to advantage, as was clearly shown during last spring, when considerable excellent water was lost by overflow and leakage. The Sinclair Pond dam needs strengthening, and the existing wooden spillway, located about the middle of the dam, should be replaced by a masonry structure, placed in the natural bank.

The pipe line has rendered excellent service, and has needed only routine repairs. New roofs have been placed on the water house, the filter house, and the Delafield Pond gate house. Slight repairs have been made to the siphon house at Round Pond. Surveys pertaining to the proposed new reservoir are in progress.

Very respectfully,

JAS. L. LUSK,  
*Captain, Corps of Engineers,*  
*Instructor Practical Military Engineering.*

HEADQUARTERS U. S. MILITARY ACADEMY,  
*West Point, N. Y., September 20, 1893.*

A true extract.

J. M. CARSON, JR.,  
*First Lieutenant, Fifth Cavalry, Adjutant.*

## G.

QUARTERMASTER'S OFFICE, U. S. MILITARY ACADEMY,  
West Point, N. Y., September 11, 1893.

The ADJUTANT, U. S. MILITARY ACADEMY,  
West Point, N. Y.:

SIR: I have the honor to submit herewith the following report of the operations of the Quartermaster's Department at West Point, N. Y., for the fiscal year ending June 30, 1893, prepared in accordance with instructions from your office, dated August 26, 1893:

## QUARTERMASTER'S DEPARTMENT, U. S. ARMY.

The duties pertaining to this department consist in providing fuel, forage, and straw for the public animals and for officers' private horses; stoves for heating part of the officers' and enlisted mens' quarters; means of transportation by land and water for troops and animals; in furnishing the animals required for artillery, cavalry, and draft purposes, and in procuring and distributing clothing and equipage for the command.

The following appropriations have been drawn upon either for funds or supplies in order to meet the demands made upon the department:

*Appropriation for regular supplies.*—No allotment was made, but funds were furnished as necessity demanded, and were expended in the payment under formal contracts for fuel, forage, and straw, and stores required for sale to officers, and for issue.

*Appropriation for incidental expenses.*—An allotment of \$10,500 was made, and in addition thereto the sum of \$113.63 for various purposes. Of this amount \$10,493.25 was expended in payment for services rendered by civilian clerks, extra-duty pay to enlisted men, and \$120.38 for purchase of miscellaneous supplies and services.

*Appropriation for Army transportation.*—No allotment was made under this head, but funds were supplied as necessity demanded and were expended in the payment of mechanics, teamsters, transportation of funds, and \$660 for the purchase of four draft animals. The department was, on requisition and quarterly estimates, provided under this appropriation with means of transportation, such as wagons, carts, harness, and materials for the repair of same, etc.

During the fiscal year there has been shipped 98,728 pounds of freight and transportation furnished, by rail and water, for 501 persons and 42 horses.

*Appropriation for clothing and equipage.*—No allotment of funds was made under this head of appropriation with the exception of \$5 for inserting new linings on cape of overcoat, but clothing and equipage required by the command were furnished from depots of the Quartermaster's Department upon proper estimates and issued to troops upon approved requisitions.

The amounts received, disbursed, etc., under the various heads of appropriation were as follows:

Received from the Quartermaster-General of the Army:	
Regular supplies.....	\$33,569.19
Incidental expenses.....	10,613.63
Army transportation.....	4,826.20
Clothing and equipage.....	5.00
	<hr/>
	49,014.02
Received from sales to officers.....	4,485.50
Received from sales at auction.....	278.10
	<hr/>
Total.....	53,777.62
	<hr/>
Disbursed, etc.:	
Regular supplies.....	33,449.26
Incidental expenses.....	10,609.88
Army transportation.....	4,686.10
Proceeds of sales.....	4,763.60
Outstanding debts.....	127.68
Unexpended balances to be deposited.....	141.10
	<hr/>
	53,777.62

Formal contracts for furnishing fuel, forage, and straw were entered into as follows:

With: James Weyant, June 8, 1892, 250 cords hard wood.  
 Ward & Olyphant, June 8, 1892, 1,900 tons anthracite coal.  
 John Noonan, July 22, 1892, 190,000 pounds oats.  
 Charles L. Rickerson, July 22, 1892, 110 tons hay.  
 Charles L. Rickerson, October 19, 1892, 680,000 pounds oats, 95 tons straw.  
 Thomas Shepard, October 19, 1892, 420 tons hay.  
 William E. Dante, October 20, 1892, 15 tons middlings, 15 tons shorts.  
 William Lewis, June 15, 1893, 150 cords hard wood.

The demands made upon the Department for services of mechanics and laborers warrants me in recommending that the present enlisted working force, known as the detachment of army-service men, Quartermaster's Department, be increased from 117 to 150 men, for the following reasons:

The authorized strength of the detachment of army-service men, quartermaster's department, is 117 men. Of this number there are at present 63 men who are daily available for work in the quartermaster's department: 21 mechanics, 18 laborers, 18 teamsters, and 6 overseers, the remainder performing various other duties that render them unavailable for purposes of policing and repairs at the post. The work to be performed, both police and mechanical, has increased of late years with the growth of the post, but the detachment, with the exception of an increase of seven men, has remained the same for the past ten or twelve years, and this increase was offset by the transfer of certain special-duty men. The buildings of the post have increased thirty-seven in number during the same period. The sewer, water, and gas pipes have been extended to meet the new additions, and have to be kept in good order. The new buildings are scattered and the police work is thus increased at least 20 per cent. The purchase of the Kinsley estate necessitates the care of more roadway and adds two more buildings to the repair list. The telephone system adds two more men to the list of those on special duty. The introducing of power machinery in the quartermaster's workshops requires the services of one man as engineer and the enlargement of the quartermaster's storage buildings requires the services of an extra man, adding two to the list of special-duty men. The number of printers in the headquarters printing office has been increased from three to four, adding one to the special-duty list. One man employed at the post exchange adds another to the list on special duty. The addition of quarters of officers and enlisted men has necessitated the increase of laborers and teamsters delivering fuel and necessary policing. The system of advertising for all supplies, and the clerical work consequent thereupon, has necessitated the increase of the number of clerks employed previously to double the number, adding two men to the special duty list.

On completion of the academic building there will have to be supplied three or four janitors in addition to those who were in the old academic building.

Upon completion of the enlargement of the gas plant the present force of men employed at the gas works will have to be increased by the addition of four, at least.

The changing of the former style of privies to earth-closets will require the services of two additional men as scavengers.

The average number of men who can avail themselves of a furlough under the provisions of paragraph I, General Orders, No. 80, Adjutant-General's Office, series of 1890, is about six, thereby reducing the working force by that number for a period of three months, provided all take advantage of the order. Consequently the actual strength present will average only about 112.

The present enlisted working force is not, in my opinion, sufficiently large to keep the buildings and grounds of the post in proper order and at the same time furnish the details required by the several offices and the academic departments.

The detachment on June 30, 1893, was employed as follows:

Available for work in the quartermaster's department:	
Overseers .....	6
Skilled mechanics .....	21
Laborers .....	18
Teamsters .....	18

Otherwise employed:

Clerks in quartermaster's office .....	4
Messenger and janitor in quartermaster's office .....	1
Cooks in detachment mess .....	3
Warehouseman in quartermaster's storehouse .....	1
Clerk to adjutant .....	1
Printers .....	4
In post exchange .....	1
In subsistence storehouse .....	4
In U. S. Military Academy library .....	2
Mail carrier .....	1
Policemen .....	2

## Otherwise employed—Continued.

School teacher.....	1
At reservoirs, water-supply system.....	2
Janitors, academic building.....	2
On telephone system.....	2
Watchmen; 1 at north dock, 1 at south dock.....	2
In charge of grounds and greenhouse attached to quarters assigned for use of Superintendent U. S. Military Academy.....	1
Care of post cemetery.....	2
Gardener, detachment garden.....	1
In gas works.....	6
In academic departments.....	6
	— 49
To which add:	
Absent with leave.....	1
Vacancies.....	4
	— 5
Total.....	117

The present number of draft animals authorized for the quartermaster's department at this post is insufficient, and, for reasons stated above, an increase of from 37 to 45 is considered necessary to meet demands.

## QUARTERMASTER'S DEPARTMENT OF THE U. S. MILITARY ACADEMY.

My duties in this branch are defined in paragraph 12 of the U. S. Military Academy Regulations.

Contracts entered into by me during the year and those made in previous years and remaining in force in the fiscal year to which this report relates were as follows:

Name of contractor.	Date of contract.	Amount.	Purpose.
J. E. and A. L. Pennock.....	May 18, 1891	\$447,981.00	New academic building.
John Moore.....	Sept. 25, 1891	45,500.00	Completing new gymnasium.
Brown, Green & Adams.....	Apr. 13, 1892	200.00	Military Academy Register.
Ward & Olyphant.....	Aug. 29, 1892	14,820.00	3,300 tons anthracite coal.
Wm. McMeekin.....	Sept. 1, 1892	1,200.00	Roof wing, quarters No. 39.
Narragansett Machine Co.....	Sept. 27, 1892	951.77	Delivery gymnasium outfit.
Cassidy & Son Manufacturing Co.....	Oct. 27, 1892	2,080.00	160 pendants, cadet barracks.
Jeremiah J. Kennedy.....	Feb. 22, 1893	41,993.00	Enlarging gas works.
Wm. McMeekin.....	Apr. 24, 1893	23,447.00	New cadet sinks, etc.
David S. Wells.....	June 6, 1893	8,102.00	1,900 tons anthracite coal.
Do.....	June 24, 1893	734.25	75 tons cannel coal.
A. S. Swords & Co.....	...do.....	13,871.00	3,300 tons anthracite coal.
Westmoreland Coal Co.....	...do.....	4,548.00	1,200 tons gas coal.

Under contracts above named the following buildings were completed and improvements made in the year, viz:

New gymnasium; roof of wing of quarters No. 39; 160 two-light pendants, with slide lights in cadet barracks.

The following buildings are in course of erection:

New academic building, new sinks and bathrooms for cadets, new gas works, new boiler house, under contract dated July 7, 1893.

The following is an exhibit of my money accountability during the year

Exhibit showing receipt, disbursement, etc., of funds pertaining to appropriations for the support of the U. S. Military Academy during the fiscal year ending June 30, 1893.

	Current and ordinary expenses.	Miscellaneous items and incidental expenses.	Buildings and grounds.	New academic building.	New gymnasium.	Total.
On hand July 1, 1892:						
Appropriation 1890				\$37,012.71	\$39,993.25	\$77,005.96
Appropriation 1891	\$3,662.42	\$1,886.26	\$8,571.72			14,120.40
Appropriation 1892	9,028.71	2,458.98	2,589.01			14,076.70
Received from Treasurer United States on approved estimates:						
Appropriation 1890				79,300.00		79,300.00
Appropriation 1891	172.38					172.38
Appropriation 1892	90.00					90.00
Appropriation 1893	65,511.25	22,020.00	64,000.00			151,531.25
Appropriation 1893-'94.	600.00		4,150.00			4,750.00
Deficiency 1893	2,000.00					2,000.00
Total	81,064.76	26,365.24	79,310.73	116,312.71	39,993.25	343,046.69
Unexpended balances deposited to credit of Treasurer United States:						
Appropriation 1891	3,327.32	1,886.26	453.68			5,667.26
Appropriation 1892		.15	.90			1.05
Deposited to credit of Treasurer United States:						
Appropriation 1892	4,511.12	474.53	61.02			5,046.67
Disbursed during the year:						
Appropriation 1890				105,158.78	27,751.59	132,910.37
Appropriation 1891	511.48		8,118.04			8,629.52
Appropriation 1892	3,635.95	1,886.72	2,527.09			8,049.76
Appropriation 1893	53,734.42	19,074.15	38,681.86			111,490.43
Appropriation 1893-'94.			1,679.08			1,679.08
Deficiencies 1893.	1,800.00					1,800.00
On hand June 30, 1893:						
Appropriation 1890				11,153.93	12,241.66	23,395.59
Appropriation 1892	971.64	97.58				1,069.22
Appropriation 1893	11,772.83	2,945.85	25,318.14			40,036.82
Appropriation 1893-'94.	600.00		2,470.92			3,070.92
Deficiencies 1893	200.00					200.00
Total	81,064.76	26,365.24	79,310.73	116,312.71	39,993.25	343,046.69

GAS WORKS, U. S. MILITARY ACADEMY.

As director of the gas works I am charged with providing the necessary illuminating gas for the needs of the post. In order to properly light the buildings and grounds of the Academy Congress appropriated for the last fiscal year the sum of \$5,000 for the purchase of gas coal, oil, candles, lanterns, matches, chimneys, and wicking for lighting the Academy, chapel, library, cadet barracks, mess hall, shops, hospital, offices, stables, and riding-hall, sidewalks, camp, and wharves. As the gas consumed costs more than the amount appropriated, all that which is consumed at places not enumerated in the act is sold at actual cost of manufacture with a small increase for contingencies which includes a portion of the deficiency above named, and, also, provides for contingent repairs which experience has shown to be necessary from time to time. The remainder of the deficiency is charged to cadets. They pay for gas at the rate of 35 cents per month for the time they are actually present. The sale of gas as above, of coke, coal tar, etc., constitutes a fund known as the "Gas Fund," which is expended under the direction of the Superintendent of the Academy in the purchase of additional gas coal when necessary, lime for purifying purposes, retorts, gas fixtures, and repairs of same, pay of labor employed in making gas, and such other expenditures as pertains to the gas-making plant of the Academy. During the fiscal year ending June 30, 1893, the receipts and expenditures pertaining to the gas fund were as follows:

Receipts:

From sales of coke	\$564.03
From sales of coal tar	543.00
From sales of gas to officers	2,407.39
From sales of gas to civilians	708.30
From sales of gas to Quartermaster's Department, U. S. Army	456.40

## Receipts—Continued.

From sales of gas to cadets in barracks .....	1,089.76
From sales of gas fixtures to cadets .....	169.79
From sales of old gas-pipe .....	43.00
<b>Total</b> .....	<b>5,981.67</b>
On hand July 1, 1892 .....	143.03
<b>Expended during the year</b> .....	<b>6,124.70</b>
<b>Unexpended balance on hand June 30, 1893</b> .....	<b>5,580.29</b>
	544.41

Under the provisions of the act making appropriations for the support of the Academy, approved March 1, 1893, all proceeds from the sale of gas are to be paid into the post fund.

The old gas works, established in 1857 at a cost of about \$7,500, originally occupied a one-story stone-building (date of erection and cost unknown) on the northern slope of the plain, near the ordnance laboratory. This building, 75 by 23 feet, with a one-story brick addition erected in 1886, 44 by 7 feet, embraced the retort room, the purifying room, and engine and boiler room. In the cellar were located the center seal, tar well, and washer. The condensing room, 17 feet 4 inches by 7 feet, occupied a brick addition erected in 1882 at a cost unknown. The gas fitting room, built in the same year, stood a few yards east of the original building. The gas holders are situated a few yards south of the retort room, with a capacity of 20,000 and 14,250 cubic feet, respectively. With the exception of the original building and the two gas holders, all the old works are being removed to make way for the new works, now being erected under the appropriation for the purpose contained in this year's appropriation bill. These works are provided with an additional holder of 50,000 cubic feet capacity and with the most approved appliances for the economical making of gas, and they will be capable of yielding, if necessary, 125,000 cubic feet of gas every twenty-four hours.

Very respectfully,

W. H. MILLER,  
*Captain and Assistant Quartermaster, U. S. Army,*  
*Disbursing Officer, U. S. Military Academy.*

True copy.

W. H. MILLER,  
*Captain and Assistant Quartermaster, U. S. Army.*

H.

WEST POINT, N. Y., *September 28, 1893.*

The SECRETARY OF THE ACADEMIC BOARD:

SIR: Due to the fact that engineer and ordnance officers, officers on detached service, officers at Forts Monroe, Leavenworth, and Riley, artillery officers on duty with light batteries, general and regimental staff officers, officers on duty at colleges, and graduates of less than four years' service, are not as a rule available, it is now difficult to secure good instructors for many of the subjects taught here. The result of these restrictions is to deprive the Academy in most cases of its highest graduates as instructors.

The law preventing the detail of a graduate as a professor or instructor within four years of his graduation was never recommended by the Academic Board, and works to the disadvantage of the institution here in many important branches.

Experience in the Army does not necessarily improve an officer's knowledge of subjects not of a purely military character. In many branches the sooner an officer returns the better teacher he makes. This is particularly the case in the departments of mathematics and modern languages. Within four years after graduation the best instructors in a class are in most cases secured for other important duties. It seems but just that the Academy should have the benefit of its best productions.

Referring to instructors at West Point, the Board of Visitors for 1872 remarks: "The Military Academy breeds in and in."

This is not only true of the Military Academy, but of all good conservative institutions of instruction. For an academy with a special object there is no one feature more essential than the continuous "breeding in and in," so to speak, but it is of equal importance that the "stock" should be kept good.

The late Prof. Church in referring to the claims of this Academy for its highest graduates as instructors remarked that it should be borne in mind that this Academy is the "goose that lays the golden eggs."

With a view of increasing the facilities for obtaining the best possible instructors for the Academy, I respectfully submit the following resolution for the consideration of the Academic Board:

*Resolved*, That the Academic Board respectfully recommend to the honorable Secretary of War the establishment of a rule giving, as far as possible, to the Military Academy precedence in the details of officers, and the repeal of so much of an act making appropriations for the support of the Military Academy for the fiscal year ending June 30, 1883, and for other purposes, as reads, "and hereafter no graduate of the Military Academy shall be assigned or detailed to serve at said Academy as a professor, instructor, or assistant to either within four years after his graduation."

Very respectfully, your obedient servant,

EDGAR W. BASS,  
*Professor of Mathematics, U. S. Military Academy.*

HEADQUARTERS, U. S. MILITARY ACADEMY,  
*West Point, N. Y., October 5, 1893.*

The above resolution was unanimously adopted by the Academic Board at its meeting of September 28, 1893.

J. M. CARSON, JR.,  
*First Lieutenant, Fifth Cavalry,*  
*Adjutant, U. S. Military Academy, Secretary Academic Board.*

