

ANNUAL REPORT

OF THE

BOARD OF VISITORS

TO THE

UNITED STATES MILITARY ACADEMY,

MADE TO THE

SPEAKER OF THE HOUSE OF REPRESENTATIVES,

FOR

THE YEAR 1894.



WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1894.

The following resolution was adopted June 4, 1894:

Resolved, That the Board of Visitors make a single report, in triplicate, of their proceedings, recommendations, etc., one copy, properly signed, to be submitted each to the Speaker of the House of Representatives, the presiding officer of the Senate, and to the Secretary of War."

REPORT
OF THE
BOARD OF VISITORS
TO THE
UNITED STATES MILITARY ACADEMY
FOR THE YEAR 1894.

The Board of Visitors to the United States Military Academy for the year 1894 assembled at West Point on the 1st of June, with every member present, as follows:

APPOINTED BY THE PRESIDENT OF THE UNITED STATES.

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| 1. Rev. ALEXANDER MACKAY-SMITH, D. D | Washington, D. C. |
| 2. Hon. GEORGE H. CRAIG | Selma, Ala. |
| 3. Dr. WILLIAM W. KEEN | Philadelphia, Pa. |
| 4. Hon. JOHN D. CRIMMINS | New York, N. Y. |
| 5. Col. THOMAS F. EDMANDS | Boston, Mass. |
| 6. Mr. JOHN J. DAVIS | Clarksburg, W. Va. |
| 7. Hon. EDWARD C. WALL | Milwaukee, Wis. |

APPOINTED BY THE PRESIDENT OF THE SENATE.

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| 8. Hon. WILLIAM B. BATE | Nashville, Tenn. |
| 9. Hon. REDFIELD PROCTOR | Proctor, Vt. |

APPOINTED BY THE SPEAKER OF THE HOUSE OF REPRESENTATIVES.

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| 10. Hon. JOHN C. BLACK | Chicago, Ill. |
| 11. Hon. WILLIAM H. HATCH | Hannibal, Mo. |
| 12. Hon. NEWTON M. CURTIS | Ogdensburg, N. Y. |

The organization of the Board was as follows:

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| Hon. WILLIAM B. BATE | President. |
| Hon. NEWTON M. CURTIS | Vice-President. |
| Hon. EDWARD C. WALL | Secretary. |

Immediately upon receipt of notification of the organization of the Board, the Superintendent of the Academy, Col. Oswald H. Ernst, Corps of Engineers, U. S. A., expressed by letter his readiness to afford every facility for a thorough inspection of the workings of all the

departments of the Academy and in general to do everything possible to assist the Board in its labors, and at 4.20 p. m. the Superintendent, accompanied by the academic board, associate professors, and military staff, called officially upon the Board at the hotel, and under their escort, and with the customary salute of seventeen guns, the Board proceeded to attend a review of the Corps of Cadets and later a reception at the quarters of the Superintendent, where it had the pleasure of meeting the officers and ladies of the post and the prominent citizens of the neighborhood.

In order to facilitate business and make the investigations as thorough as possible, the Board was subdivided into the following committees:

- (1) *Appointments and examinations.*—Rev. Alexander Mackay-Smith, D. D., chairman; Gen. John C. Black, Hon. John J. Davis.
- (2) *Discipline and instruction.*—Hon. George H. Craig, chairman; Dr. William W. Keen, Gen. Newton M. Curtis.
- (3) *Armament and equipment.*—Col. Thomas F. Edmands, chairman; Col. William H. Hatch, Gen. William B. Bate.
- (4) *Buildings, grounds, and lights.*—Gen. Redfield Proctor, chairman; Rev. Alexander Mackay-Smith, D. D., Hon. Edward C. Wall.
- (5) *Supplies and expenditures (for cadets).*—Col. William H. Hatch, chairman; Hon. John D. Crimmins, Col. Thomas F. Edmands.
- (6) *Fiscal affairs.*—Hon. John D. Crimmins, chairman; Gen. Redfield Proctor, Hon. George H. Craig.
- (7) *Hygiene and athletics.*—Dr. William W. Keen, chairman; Gen. John C. Black, Hon. John J. Davis.
- (8) *Miscellaneous.*—Hon. John J. Davis, chairman; Gen. Newton M. Curtis, Col. Thomas F. Edmands.

While to these committees was intrusted the duty of making a special study of the subjects enumerated, the Board proceeded from day to day to attend the examinations and witness the various military evolutions of the cadets. It was deeply impressed with the absolute fairness and thoroughness of the examinations, while the military evolutions of every character were admirably conducted. The reports of the various committees enter fully into all matters of detail, and to these the Board begs to invite special attention. It is the purpose of this, the report of the Board as a whole, to deal with matters of more general interest.

The recommendations of General Washington in 1796 have lost none of their pertinence of application during the past century. He said that—

The institution of a military academy is also recommended by cogent reasons. However pacific the general policy of a nation may be, it ought never to be without an adequate stock of military knowledge for emergencies. The first would impair the energy of its character and both hazard its safety and expose it to great evils when war could not be avoided. Besides that, war might not often depend upon its own choice. In proportion as the observance of pacific maxims might exempt a

nation from the necessity of practicing rules of military art, ought to be the case in preserving and transmitting, by proper establishments, the knowledge of that art. Whatever arguments may be drawn from particular examples, superficially received, a thorough examination of the subject will evince that the art of war is at once comprehensive and complicated, that it demands much previous study, and that the possession of it in its most approved and perfect state is of great moment to the security of a nation.

The lesson taught by the Franco-Prussian and Austro-Prussian wars illustrated, nearly a hundred years later, the wisdom of these suggestions of "the Father of his Country," as well as emphasized the wide difference between a knowledge of the art of war in its "most improved and perfect state" and an absolute system of military tactics and precedents. Germany, having recognized the modern system of the art of war to be one of engineering and concentration, triumphed alike over Austria and over France, and made patent to the world the value of military instruction to her whole people. A dispassionate review of the great movements and battles between the armies of this country during the late war between the States can not fail to emphasize the value and usefulness of military instruction given at the Military Academy, as well as by those military institutes of the States. While the extraordinary aptitude of our people for military duty was wonderfully illustrated in the late war, and while many officers wholly without previous military instruction made most remarkable and honorable careers in the leadership of large bodies of men, yet it is a well-recognized fact that the indomitable energy and undaunted courage of Grant and the genius and tactics of Lee, the maneuvers and skill of Johnston, and the persistency and dash of Sherman were in each case directed by the instruction received in their earlier years at West Point as much as by the experience obtained in the Mexican war, where again the value of the Military Academy was accentuated by the skill and information of her young graduates.

While military instruction in its widest scope is the primary object for which the Military Academy was established, yet in the opinion of this Board, as well as in the recommendations of previous boards, the widening of the educational advantages to be derived at West Point would be of inestimable value to the country. The practical value of the Military Academy at West Point to the country should not be confined to a training school for fifty or sixty young lieutenants, to be graduated annually, if its advantages of higher education can be extended, without material increase of expense, to a larger number of young men than can be provided with appointments in the Army each year. When General Grant expressed the opinion that the number of cadets should be increased to "one thousand" it was expected by him that an annual selection would be made of those required for the Army, and that the remainder of those graduating each year would return to civil life, where their scientific attainments would aid in the development of the country, and their military training be always at the call

of the authorities in time of need. However pacific may be the theoretic policy of this country, the fact remains that about one-sixth of its past existence as a nation has been spent in a state of war; and in that period of strife no consideration has been taken of periods of riot and insurrection, from the whisky rebellion to the Pullman troubles, during which many millions of dollars of property was destroyed and many valuable lives sacrificed to the imaginary pacific policy of the best fighting people on earth.

That "well regulated militia" which the Constitution names as "necessary to the security of a free State" has never fulfilled the expectations of the fathers. That form of military organization brought disappointment upon the country in the war of 1812-1815, and this may be considered as one of the reasons why the militia has never been "regulated," either by Congress or the States. In its place have risen that chief defense of the country, the great volunteer organizations of the States, in which much just pride is taken in nearly every State. Its thorough organization, development, and instruction requires the aid and information of efficiently trained officers.

It is not altogether impossible that the exigencies of government, both State and Federal, in this country, extending from ocean to ocean, covering nearly a continent and peopled with almost 70,000,000, many of whom are new comers and ignorant of liberty restrained by law, may yet demand an enlargement of the Army, or a more efficient organization of the volunteer system of the States.

However much our isolated position among the great military nations of the world may suggest a long period of peace, there have been repeated domestic experiences of which we should not lose sight and which indicate that the arm of local authority needs strengthening and support as well in a republic as in a despotism. We may shut our eyes and proclaim that ours is a pacific mission; that commerce and trade will win battles, and industry and enterprise gain us the victory—the best guaranty, however, is to prepare for war in times of peace. Hence, in the opinion of this Board, the Military Academy ought to be opened to a much larger number of young men for military education and training than at present it receives.

This Board does not suggest any considerable increase of appropriations for that enlargement, but it does most earnestly recommend the full and complete utilization of the plant already in existence by the increase of the number of cadets to 469—1 for each Senator, 1 for each Representative in Congress, and 20 for the President; or 361 to be nominated by members of the House, 88 to be nominated by the Senators, and 20 appointed by the President. The same ratio to be observed as the Senate and House of Representatives increase in members. The pay and current expenses of 469 cadets at \$540 each, the present annual cost, would amount to \$253,260. A table in the report of the Board for 1888 (p. 46) shows that the amount expended for pay and

current expenses averages \$258,635.50. There is manifestly a waste of money when 250 young men are educated for about the same amount that would educate 469 cadets through their military training. Inasmuch as a full corps of professors are paid just the same for a few as for many students, and all grounds, buildings, and appurtenances, as well as every necessary apparatus are at hand for the increased number now recommended, it will be wise economy therefore to keep that number present for duty as far as practicable.

In this recommendation the Board is sustained by the recommendations of the Boards which have preceded it for several years. That of 1888 considered "that it would be an act of sound policy to give the President the authority to appoint 10 cadets each year, not only as a means of maintaining the strength of the corps, but also for providing for many deserving young men who can in no other way secure admittance to the Academy." The Board for 1887 "renewed the recommendations made by the Board of Visitors last year, and recommends the revival of the law whereby the President was authorized to appoint at large 10 cadets annually." The same recommendations were made by the Board of 1889, while the Board of 1891, with emphasis, recommended the passage of an act fixing the strength of the corps of cadets at a maximum of 469. The same recommendation as to increase was made by the Board of 1892, which found, after a careful examination, that "the capacity of the Academy is able to accommodate about 500 cadets," but as that number would require additional expenditures, the Board further found, "on investigation, that a corps of 400 young men can be maintained and instructed with no further expense for buildings, nor the employment of other instructors. This being the case, there is a shortage of about 150 cadets—that is, the plant is ample to instruct 400 men instead of 250. In the opinion of your committee," says that report, "it would be wise policy to keep the corps up to its full working capacity, or as near thereto as it possibly can without increasing the number of professors or making additional expenditures for officers' quarters." And the Board of 1893 "renewed the recommendations of previous Boards of Visitors that the requirements for admission be raised, and that the number of cadets be gradually increased. We regard it as a pity that the largest possible number of youth should not share the advantages of the admirable plant, education, and training which West Point affords."

These recommendations, coming so repeatedly to Congress from Boards of Visitors organized under laws which required them to give "their views and recommendations concerning the Academy," ought to have received more consideration and attention than have heretofore been given to them. These Boards have discharged their "duty" under the law of their appointment without having been able to effect the apparent purpose of their appointment. Yet, notwithstanding this,

this Board now recommends an amendment to section 1315 of the Revised Statutes, so as to read substantially as follows:

SECTION 1315. The corps of cadets shall consist of two cadets from each State at large, one cadet from each Congressional district, one from each Territory, one from the District of Columbia, and twenty from the United States at large. They (the last named) shall be appointed by the President; those from the States at large, as nominations by the Senators; those from the Congressional districts, as nominations by the Representative from each district; those from the Territories, as nominations by the Delegates; and shall, with the exception of the twenty at large, be actual residents, for a period of two years preceding appointment, of the States, districts, Territories, and the District of Columbia, respectively, from which they purport to be appointed.

Under the Revised Statutes authority is vested in the Secretary of War to make regulations for carrying into effect all laws regulating the appointment of cadets.

The Board recommends that the paragraph relating to "alternates" be changed so as to provide, in the language of the subcommittee on appointments and examinations—

That each official possessing the nominating power select three young men, by forms sent out from the War Department, as Nos. 1, 2, and 3, to appear before the examining board. If No. 1 should fail, then No. 2 shall have a chance; if No. 2 shall fail, then No. 3 shall have a chance. It is suggested also that when failure occurs at the end of an annual examination, or by dismissal or resignation or death at any other time, that the vacancy then occurring be reported to the nominating person within ten days thereafter, and that he be requested to name and send his nominees before the examining board of the nearest post within thirty days, and upon failure to do so the President shall forthwith appoint from the district or State at large to which the vacancy attaches.

From this important subject, which, as has been shown, other Boards of Visitors have expressed substantially the same opinion, we pass to the consideration of subjects brought to our attention at the late visit to West Point.

The system in vogue at West Point is the essence of years of experience, and is not to be lightly criticised. Every energy is concentrated in the effort to mold the material presented to the officers of the Academy into finished, accomplished, and disciplined soldiers, men who in their turn must be ready to lead, to instruct, or command. To this end the cadet is from the very outset subject to a course of rigorous discipline, coupled with physical and mental training that requires his entire time and attention. These exactions continue almost without intermission during the four years' course. Many find it impossible to keep up to the required standard and are inexorably discharged, but those who endure to the end have earned, in addition to life employment in an honorable profession, a mental and physical development and an admirable scientific education.

The Board attended the examinations of every class in almost every branch of study. Its commendations would be too numerous to record. Its criticism is an old story, so old and so often made by previous Boards that it is strange that no organized effort has been made to overcome the fault. The halting English—the lack of facility of expression on the part of many of the cadets—is something painfully apparent, and points unerringly to the need of much greater instruction in the use of our mother tongue. The Board invites special attention to the recommendation under this head. It has nothing but praise for the theoretical instruction in every other respect.

Once out of the recitation room and in the ranks, however, the corps of cadets sprang beyond the bounds of criticism. In all their evolutions as infantry, cavalry, or artillery, the same precision, coupled with inimitable sense and grace, distinguished every exhibition, and while deeply impressed with the excellence of one and all, showing conclusively how thorough and intelligent has been their training, and how worthy their response, the Board must emphasize its admiration of the schools of physical culture and horsemanship. The result attained after one year in the gymnasium under Mr. Koehler, and three in the riding hall under Captain Craig, can hardly be equaled elsewhere. It is his remarkable efficiency in this most important branch of instruction that has led superintendent after superintendent, officers by the score, and every Board of Visitors since 1888, to urge upon Congress the propriety of rewarding Mr. Koehler with military rank, even if in only a subordinate grade.

The administration of the Superintendent, his staff officers and assistants, meets and merits the highest praise of the Board. But while the grounds and buildings, instruction and discipline, bearing and conduct of the officers and cadets, all command the admiration of the Board, it is compelled to express its surprise and disappointment that at this, the only military post in the United States whose band is paid by the Government, the martial music should be so utterly inadequate. Time was when the West Point band was fairly representative of the Academy and of the nation, but ever since Congress, by the act of 1877, cut it down to a leader and twenty-four men, with a pittance for pay, it has gradually dwindled to its present condition, with the result that the élite battalion of the Army, the show spot of America, the center of attraction for hundreds of visiting officers from abroad and thousands of our fellow-citizens at home, can be afforded only an indifferent band. The officers in charge do the best in their power with the means at hand, but musicians worthy of the name will not enlist or stay at West Point on such wages.

On Thursday, June 7, the Academy was visited by the Hon. Daniel S. Lamont, Secretary of War, upon whom, as a body, the Board called and paid its respects on the evening of his arrival. On Tuesday, June

12, the Board, in a body, attended the graduating exercises, on which occasion the annual address to the corps of cadets was delivered by the Hon. John C. Black, of the Board, and the diplomas were presented to the graduating class by Brig. Gen. George D. Ruggles, Adjutant-General of the Army. Then, having designated Col. Thomas F. Edmands to remain until after the admission of the new class, in his official capacity as a member of the Board to observe the proceedings and report thereon, and having, by letter to the Superintendent, expressed its thanks for the unvarying courtesies extended by him and all his subordinates, and its high commendation of the fidelity and ability with which they administered the affairs of the institution, upon which the efficiency of the Army in a great measure depends, the Board adjourned sine die.

Its recommendations are as follows:

1. Concurring with some of its predecessors, the Board recommends the reappointment each year of two or more members of the previous Board. This recommendation is made in the sincere belief that its adoption will result in largely facilitating the transaction of business and in increasing the influence and usefulness of the Board as an inspecting and advisory body. In this connection it is suggested that in order to compare the Military Academy at West Point with other similar institutions, the Secretary of War furnish the next Board and the following Boards of Visitors with a brief but sufficiently full résumé of the conditions for admission and the course of study in American semimilitary institutions and at the Naval Academy at Annapolis, and especially in the national schools of instruction in military and naval training in Great Britain, France, Germany, Austria, Italy, and Russia, together with any other data of importance pertaining to this subject. This would enable the Board to form much more correct comparisons between West Point and other schools.

The following recommendations, originating in the committees, are unanimously adopted by the Board:

- First. A change in the present law of appointment, so as to give each United States Senator the same privilege of nomination to the Academy each year as that possessed by the members of the House of Representatives, as well as to restore to the President the power formerly exercised of nominating ten candidates annually at large.

- Second. That each official possessing the nominating power select three young men, by forms sent out from the War Department, as Nos. 1, 2, 3, etc., to appear before the examining board. If No. 1 should fail, No. 2 will then have a chance; if No. 2 fail, then No. 3. It is suggested also that when failure occurs at the end of any annual examination, that this failure be reported to the Congressman or nominating officer within ten days, and that he be requested to name and send his

man before the examining board of the nearest post for examination within thirty days.

Third. A fuller English course, even at the expense of some of the 2,007 hours given to mathematics or some other study, or, better, by raising the requirements for admission.

Fourth. Raising the standard of admission to include all of geography and plane geometry, and a considerable part of algebra, if not all of it.

Fifth. Leave of absence, say once in seven years, in turn to each member of the academic board on full pay for six months or a year, with a view to the study of their respective departments by visiting allied institutions in this country and abroad.

Sixth. Restricting the duties of the chaplain to those of his profession.

Seventh. The immediate purchase of the articles enumerated in the report of the committee on armament and equipment; also of fifty cavalry horses, to be used exclusively for cavalry purposes.

Eighth. That the rank of first lieutenant of infantry be conferred upon Mr. Koehler, sword master and instructor in gymnastics, while so acting.

Ninth. That twenty-eight men of the cavalry detachment, while acting as artillery drivers, shall receive extra pay.

Tenth. An appropriation of \$40,000 for five sets of officers' quarters, costing \$8,000 each, and an appropriation of \$17,000, in addition to any former appropriation, for completing the reservoir; also at some future time, and as soon as practicable, an appropriation of \$35,000 for the erection of a tower on the academic building.

Eleventh. The kitchen of the cadets' mess hall should be enlarged, and the floor of the mess hall, now of wood, should be of tile or of stone mosaic laid in cement.

Twelfth. That the area wall of the cadet mess hall or Grant Hall be rebuilt, and at a greater distance.

Thirteenth. The immediate erection of a small hospital for infectious cases, to cost \$2,500.

Fourteenth. Concurs in the recommendation of the Superintendent concerning ten wooden houses occupied by twenty soldiers' families in Logtown, to the effect that new buildings be erected upon a high and healthy site, and the old buildings then removed. The appropriation asked for this purpose to be granted.

Fifteenth. The establishment of a chair of military hygiene and first aid to the injured, to be filled by the senior surgeon on duty at the Academy.

Sixteenth. That the gymnastic course now confined to the fourth class year be extended to cover the entire course of the corps of cadets; also the adoption of the Sargent system on measurements or some one equally good.

Seventeenth. The assistant professor in the department of law to be given the pay of a captain mounted.

Eighteenth. The adjutant of the Military Academy to have the pay of a captain mounted.

Nineteenth. The band hereafter to consist of leader and forty men; or, in other words, to be restored to the numbers and pay which it had before the reduction of 1877.

Twentieth. An immediate improvement in the fire-alarm system and the water supply.

In this connection attention is also invited to the recommendation of Colonel Edmands with regard to camp furniture, mattresses, and so on, for use in the cadet encampments; also to the correspondence herewith published resulting from the resolution of the Board that the Superintendent be requested to report the expense and all connected therewith, of preparing a direct-pressure fire system in connection with the new reservoir, as well as upon their request that he cause a careful examination to be made touching the practicability and lawfulness, under the terms of the bequest establishing the Cullum memorial, of the establishment and continuation in the Cullum Memorial Building of the library of the Military Academy.

CONCLUSION.

From the initial meeting of the 1st of June until the thirteenth session on the twelfth day, no day passed without a formal and fully attended meeting of the Board. Meanwhile every possible feature of the Military Academy was thoroughly explored, every department studied, its buildings, barracks, quarters, armament, stores, supplies, and systems scrutinized, its methods of instruction and discipline carefully examined and freely criticized, its corps of officers and its corps of cadets questioned on every point of interest or importance. From first to last every official opportunity was afforded, every consideration shown, and every courtesy extended by persons of every rank and station connected with the Academy, and at the completion of a tour of duty that has been one full of earnest labor as well as pleasure the Board is unanimous in its hearty commendation. It has found the great military training school of the nation in the hands of men devoted to their duties and to its best interests. It has found the officers and instructors men of high character and purpose, of professional ability and personal worth. It has found the battalion of cadets a model of soldierly bearing, precision, and skill, while individually its members have impressed the Board as young athletes in whom the lessons of love of country and devotion to duty, of discipline, honor, and integrity—which are part and parcel of their daily life at West Point—have already borne abundant fruit, and will abide with them for all time.

It has found in the Military Academy of the United States an institution of which the people may well be proud, and which deserves the faith, confidence, and full support of the entire nation.

WM. B. BATE, *President.*

NEWTON M. CURTIS, *Vice-President.*

EDWARD C. WALL, *Secretary.*

ALEXANDER MACKAY-SMITH.

GEORGE H. CRAIG.

WILLIAM W. KEEN.

JOHN D. CRIMMINS.

THOMAS F. EDMANDS.

JOHN J. DAVIS.

REDFIELD PROCTOR.

JOHN C. BLACK.

W. H. HATCH.

DIRECT-PRESSURE FIRE SYSTEM.

MILWAUKEE, WIS., *June 18, 1894.*

COLONEL: I am directed by the Board of Visitors to report to you the following resolution, adopted by that Board:

Resolved, That the Superintendent be requested to report to the Board of Visitors, fully, and at the earliest practicable and convenient date, the expense and all connected therewith, of preparing a direct-pressure fire system in connection with the new reservoir, so as to afford complete protection to all the buildings on the reservation.

I am, Colonel, your obedient servant,

E. C. WALL, *Secretary.*

Col. O. H. ERNST,

Corps Eng., Supt. U. S. Military Academy, West Point, N. Y.

The above letter was referred by the Superintendent of the United States Military Academy to Capt. James L. Lusk, Corps of Engineers, who reported as follows:

WEST POINT, N. Y., *June 27, 1894.*

Respectfully returned to the adjutant, United States Military Academy, West Point, N. Y.

The estimated cost of the project outlined within is as follows:

8,000 linear feet 12-inch mains	\$20,000
2,000 linear feet 8-inch mains	4,000
9,000 linear feet 6-inch mains	13,500
15 additional fire hydrants	1,500
Total	39,000

Practically the same result can be effected by extending the existing system of mains supplied from Delafield reservoir, provided that the latter is repaired in accordance with estimates heretofore made. The estimated cost of the repairs to the reservoir and the extended fire service is as follows:

1,500 linear feet 12-inch mains	\$3,750
4,000 linear feet 8-inch mains	8,000
11,000 linear feet 6-inch mains	16,500
15 fire hydrants	1,500
Repairing and cleaning Delafield reservoir	5,000
Total	34,750

The water level of Delafield reservoir is only a few feet lower than that proposed for the new reservoir, and the direct pressure from the former can now be turned on in a few minutes, when required. Delafield

reservoir is, however, deficient in storage capacity, and the dam is in need of repairs, which it is hoped will be undertaken as soon as possible after the completion of the new reservoir.

The direct fire pressures possible from both Delafield reservoir and the new reservoir are ample for all buildings on the reservation except those connected with the new observatory, which must be reached by a steam fire engine. The estimated cost of the mains is high, owing to the certainty of encountering hard rock in laying them.

JAS. L. LUSK,

Captain, Corps of Engineers, in charge of the Water Supply.

LIBRARY OF THE UNITED STATES MILITARY ACADEMY IN THE
CULLUM MEMORIAL BUILDING.

MILWAUKEE, WIS., *June 18, 1894.*

COLONEL: I am directed by the Board of Visitors to report to you the following resolution adopted by that Board:

Resolved, That the Superintendent be requested to cause a careful examination to be made touching the practicability and lawfulness, under the terms of the bequest establishing the Cullum Memorial, of the establishment and continuation in the Cullum Memorial Building, to be hereafter erected, of the Library of the West Point Military Academy, so that the same shall not interfere with the memorial character of said building, and so that the books, manuscripts, and documents shall be safely kept.

I am, Colonel, your obedient servant,

E. C. WALL, *Secretary.*

Col. O. H. ERNST,

Corps of Eng., Supt. of U. S. Military Academy, West Point, N. Y.

The above letter was referred by the Superintendent of the United States Military Academy to Prof. John W. Clous, who reported as follows:

WEST POINT, N. Y., *June 21, 1894.*

Respectfully returned to the adjutant, United States Military Academy, West Point, N. Y.

The late Gen. Geo. W. Cullum, in the thirty-third item of his last will and testament (copy inclosed) bequeathed to the United States, under certain terms and conditions, the sum of \$250,000 for the establishment and maintenance of a memorial hall at West Point. This bequest, with the terms thereto annexed, was accepted by Congress in the act approved July 23, 1892, and in section 2 of that act a board of trustees was created and charged with the duty of erecting this memorial hall in accordance with the provisions of the will of the testator, and, on completion, of transferring the same to the United States for perpetual use as a memorial hall, to be devoted to the objects and purposes as defined in said will. These purposes are specified in that instrument as follows:

The memorial hall is to be a receptacle of statues, busts, mural tablets, and portraits of distinguished deceased officers and graduates of the Military Academy; of paintings of battle scenes, trophies of war, and such other objects as may tend to give elevation to the military profession.

By said will, and section 6 of the act above cited, no subject can be introduced into the said memorial hall without the approval of not less than two-thirds of the entire academic board of the United States Military Academy.

These provisions are clear and plain and require no interpretation or construction. A statement of them, in my opinion, sufficiently answers the within resolution of the Board of Visitors and justified the conclusion that Congress could not legally cause the establishment and continuation of the library of the Academy within the memorial hall to be hereafter erected.

J. W. CLOUS,

Senior Colonel and Deputy Judge-Advocate-General,

Professor of Law.

H. Mis. 34—2.

COPY OF THE THIRTY-THIRD ITEM OF THE LAST WILL AND TESTAMENT OF THE
LATE GEN. GEORGE W. CULLUM, RELATING TO THE ESTABLISHMENT OF A
MEMORIAL HALL AT THE UNITED STATES MILITARY ACADEMY.

Thirty-third. I give and bequeath to the Government of the United States the sum of two hundred and fifty thousand dollars, upon the following terms and conditions, viz: That during the life of Maj. Gen. James B. Fry and Peter S. Michie, hereinafter named, and, at furthest, within five years after my death, it will authorize to be built, and will build and maintain upon the public grounds at West Point, N. Y., a fireproof stone memorial hall, under the direction of the Superintendent of the Military Academy, three other members of the academic board thereof, and my military executor, Maj. Gen. James B. Fry, or, he not surviving at the time, another member of the academic board, all of whom I desire should be graduates of the Military Academy. This memorial hall I wish to be a receptacle of statues, busts, mural tablets, and portraits of distinguished deceased officers and graduates of the Military Academy, of paintings of battle scenes, trophies of war, and such other objects as may tend to give elevation to the military profession; and, to prevent the introduction of unworthy subjects into this hall, I desire that the selection of each shall be made by not less than two-thirds of the members of the entire academic board, the vote being taken by ayes and nays and to be so recorded. It is also my desire that this hall should be adapted for use on any ceremonial occasion taking place at West Point, N. Y., and for the assemblage and dinners of the Association of Graduates of the United States Military Academy; and, if practicable, I wish that lodging accommodations should be provided in some part of it for the members of that association while attending its annual reunions.

A true copy of extract from the last will and testament of Bvt. Maj. Gen. George W. Cullum, United States Army.

J. M. CARSON, Jr.,

First Lieut. Fifth Cavalry, Adj. U. S. Military Academy.

ADDRESS OF GEN. JOHN C. BLACK.

Mr. Superintendent, gentlemen of the faculty, cadets, and ladies and gentlemen: This occasion is momentous to the members of the class of 1894. You, young men, pass to-day from the seclusion of the Academy to the ranks made illustrious by your predecessors. While memory endures you will call to mind this assemblage and this event, for which you have so many years been in preparation. This hour fulfills your scholastic and training lives. Henceforth you are men of action and responsibility.

I congratulate you on the splendid scenes in which you have heretofore dwelt. Here, if anywhere in America, is classic ground. A century and more has passed since the patriot army, under Washington, took defensive position on the banks of the Hudson, interposing its rustic and untrained weakness between the armies of the North and the royal forces that held New York in unrelenting grasp; that dominated the Jerseys and all the rich central regions, and lay like an iron girdle, clasping closer, day by day, about the vitals of the young rebellion, severing its armies, squeezing out its life.

Unable to keep the open field, here came the continental power and builded old Fort Put and reared the river batteries, and filled the hillside with the bivouacs of the brave. How bravely and well they did their work history will long tell to a grateful posterity. By patience, by military skill, by resolute endurance, by a patriotism that suffered all things with equanimity for the country, they succeeded. Long passed away, their glory survives. It makes illustrious this beautiful region; here their shades will linger forever.

As I walk abroad, after silence and darkness have fallen on your busy days, it all but seems that the old Continentals are again on guard. The lights that gleam from villas and sparkle in the windows of lovely homes become again bivouac blazes; the voices of youth and loveliness turn to the challenging hail and answer of patriot war; the night winds bear the ghostly tread of immortals; we review the armies of Liberty and are in the encampments and fortresses of Freedom.

Here, too, as long as the Hudson shall roll to the sea, shall dwell the phantom population whom Washington Irving's genius, summoning from the recesses of three centuries ago, has made permanent denizens of the hills and valleys round about. They troop like elfins through the forest shades; they tread the watery marge; they sail the river's rolling waves; they climb the mountain side, fantastic hosts of the old

times. Ah, gentle master of the magic pen, thy touch has given immortality and woven a spell about these highlands that time nor the stern necessities of a far age can destroy—that pen, mightier than the sword, whose work was all of delight, of purity, and of honor.

But we turn from romantic surroundings to face this audience and review this class, gathered from the confines of the broad Republic, and representing New England, the Pacific, the Central region, and the sunny South. No more illustrious and charming assemblage to-day graces this continent, and we of the audience salute in you, the class, the future major-generals of the American Army. You are the sons of your country—a country which, while once there was doubt as to its purpose and destiny, now, after a century of existence, knows that it is to be united; that every element in its constitution and its laws that might have given color to the thoughts of divided allegiance has, by the teaching of war and the progress of events, come to be without doubt, and which lays upon you whom it educates no divided duty. You have been born in years of profound peace, although scions of the most warlike people. No class that has ever preceded you in this old Academy can say, as you can, “We have never heard the thunders of war nor seen the convulsions of strife.” Measured by the life of the oldest of you, a generation has passed since a gun shook the silence of the land. While the study of the arts of war has been your occupation, you have known it only by theory.

Yet you are the sons of the heroic. Heroism is that quality of manhood which seeks for a knowledge of right and duty, and which, having discovered it, does that duty, whatever may be the sacrifice, the pain, the loss. Heroism counts the cost, but does not hesitate when ascertained. Heroism lifts a man from the contemplation of consequences to himself. Heroism is highest manhood in action. To the upbuilding of this character the history and the few traditions of our beloved land alike contribute. [The speaker here adverted for illustrations to the accomplishments of Paulding, Van Wert, and Williams, Sergeants Jasper and Marion, of Ethan Allen, of May, of Fremont, of Perry, Decatur, John Paul Jones.]

To these men, however poor they might be, honor was everything. Love of their land was the lord paramount of their bosoms. Gold was nothing, although freely offered to some of them in such abundance as to promise release from all future care and rest from all future toil; but they were true to liberty and their dear country, and now that they are dust fame keeps them, and they live in our regard. What was true of them has been the rule in the service. But one American officer has preferred gold to duty. His name, which I will not speak in your hearing, goes through the ages solitary in infamy, covered with shame, the synonym of all that Americans loathe.

While witnessing your graduating exercises I have had occasion to observe the wonderful improvements in modern armament. I have

seen your rapid-fire guns that seem to stir a whirlwind of carnage and that apparently would destroy every living thing toward which they were directed; your smaller arms that carry bullets for a mile away; and have seen elsewhere those grim engines of war that rise to fire and sink into the earth for safety, until it would seem as if modern science had filled the battlefield with such terrors and such death-dealing powers that for men to stand opposed to them is simply exposure to butchery, without the opportunities for compensating strife, and make it seem as if war had lost all its character of glory and splendid beauty; all its opportunities for the exhibition of individual qualities, of chivalry, bravery, and manhood, and had become reduced to the mere slaughter of opposing armies by the rules of precise and deadly mechanism. Trust me that while such seems to be the case the opportunities for the display of heroism are not lost. There still will be—there must be—*room for the men who ride at the guns*, and the future of the dread occupation which you follow will contain the story of the cavaliers of the twentieth century as well as cherish the traditions of those of the earlier time. I repeat, there will always be room in the American service for the heroic; always place for those that shorten the distance between them and their foemen; always a highway to renown for the men who will ride at the guns.

What a country, gentlemen, is yours, and what the vastness of its material power; its unmobilized force is capable of furnishing an army of nine million men. What are you three-score youngsters to do with this mighty country? It is yours to scatter abroad the seeds of the knowledge that you have here acquired, to teach the mighty array of freeman, who look to you first as their dear sons and then as their instructors in the mighty science that you learn, the majesty of organization, the magnificence that pertains to the armies of the free. You are to make this country feel the effects of that discipline which makes you obedient to all lawful authority, observant of all just requirements, the preservers of righteous law, the defenders of the integrity, the honor, and the unity of this mighty land.

It is for you to interpret not alone to your fellow-citizens, but to all who shall see and know you what there is mysterious in the symbol that shines upon your breasts, upon your caps, and upon your breast-plates. It is for you to help make the "U. S." of the American Army greater than the mystic letters that blazed above the Roman eagle when its flight was over all the prostrate world.

What was the meaning of the "S. P. Q. R." of the Cæsars scholars quarrel about? All the conquered nations over whom their eagle flew knew that it meant spoliation, poverty, the quiet of disaster, the ruin of home, country, and law. They, the conquered, knew that it meant woe, that it meant unutterable burdens, that it meant slavery, that it meant that all the resources of the conquered earth were to be drawn to the imperial city, festering in her majesty and her spoils, dying at

last by her own corruption and the heated excesses of her power. But the "U. S." which adorns you, which shines wherever you go, which has been present through all the years of your academic life wherever you turned, which you will bear hence on your breasts and in your hearts: it is your business to teach that the words mean unity, strength, majesty, the dominion of law, the peace of contented people, the establishment of liberty, the growth, the glory, and the freedom of the people.

Here you have studied not alone the arts of destruction, but you have listened to the voice of law. Here you have been taught not alone of the customs of camps, but you know that you are children of the most majestic Republic that ever welcomed the world and humanity to a safe arena for the development of its highest energies. The land which you have been taught to love, whose laws you are trained to obey, whose institutions you hold in honor, and whose integrity it is yours to assist in preserving, is that land of whom the poet has said:

There's freedom at thy gates, and rest
 For earth's down-trodden and opprest;
 A shelter for the hunted head,
 For the starved laborer toil and bread.
 Power at thy bounds
 Stops, and calls back his baffled hounds.

Oh, fair young mother, on thy brow
 Shall sit a nobler grace than now.
 Deep in the brightness of the skies
 The thronging years in glory rise;
 And as they fleet,
 Drop strength and riches at thy feet.

Cadets of the Academy, soldiers of the Republic, we who witness your transformation and welcome you to the long list of glorious predecessors we charge you that you see to it—

That no harm befalls the Republic.

At the conclusion of General Black's address, Gen. George D. Ruggles, Adjutant-General of the Army, on behalf of the Secretary of War, delivered the diplomas to the graduates. He said:

Young gentlemen of the graduating class: I have been commissioned by the Secretary of War, in his absence, and as his representative, to deliver to you these testimonials of the academic board of the fact that you have successfully passed through the curriculum of this institution and have been fitted, and are worthy, to become commissioned officers in the Army of your country. I need not assure you that the gratification with which you will receive these diplomas can be measured only by the pleasure experienced by the academic board in conferring them and the pleasure with which I shall now proceed to deliver them to you.

As the Adjutant-General of the Army, in the name of the Army of the United States, I bid you welcome—hearty welcome—to the noble profession upon which you enter actively this day.

APPOINTMENTS AND EXAMINATIONS.

Committee on Appointments and Examinations.—MESSRS. MACKAY-SMITH, BLACK, and DAVIS.

Appointments.—Your committee beg to state that they have given much time and thought to this subject. They have been greatly aided by the appearance before them of several of the professors of the Academy, with whom they have discussed the subject at length. Whatever conclusions have been reached, therefore, are the result of joint deliberation between those who have been watching the matter of appointments for years, and visitors who, coming to the Academy with unbiased minds, have brought fresh views and unprofessional ideas to bear upon this important matter. The committee is unanimously of the opinion that immediate action of Congress is desirable in increasing the number of cadets. We are much impressed with the magnificent size and efficiency of the “plant” provided for the education of officers of the Army. The quality of the result produced is a legitimate source of pride to the country. But the classes graduated average only about fifty in the number of diplomas each year. When we consider that the increase in expense would be comparatively trifling if this average were doubled, we can not view with satisfaction the present state of affairs.

We do not regard the furnishing of officers to the general Army as the only important result to be attained by the Academy. The measure of the needs of that Army is not the only measure of the nation’s demand. That demand is that whenever the call to arms comes, with its appeal for volunteers, there should be found scattered here and there throughout the country, whether in barracks or civil life, a sufficient number of skillful officers to teach our untrained levies. At the outbreak of our civil war Grant was a farmer and Sherman a professor, but it was not mere chance that soon made them leaders of armies. We regard the education given at West Point as a thorough preparation for business life, with the privilege attached to it that its possessor carries everywhere with him information that may at any time become suddenly priceless to his country. The school is supported by the people; they have a right to enjoy the utmost possible results attainable, in quantity as well as quality. Under the present arrangement the opportunity to educate fifty additional men every year is being wasted; every year the chance to place fifty men here and there in the United States who, on emergency, can be centers of scientific military intelligence, is thrown away. Or, look at it merely from an economical

point of view, every year the cost of training an officer at the Academy is nearly twice the sum to which it might be reduced by doubling the number of cadets.

We beg, therefore, to urge upon Congress a change in the present law, so as to give each United States Senator the same privilege of nomination to the Academy each year as that possessed by members of the House of Representatives, as well as to restore to the President the power formerly exercised, of nominating ten candidates annually at large, instead of practically ten in four years, as at present. The number of candidates would thus be increased by over one hundred. The number of cadets would also be raised theoretically from 370 to about 470, but (allowing for failures) from about 280 to 290, the present average, to about 350. The Academy has accommodations for 370 cadets. This recommendation has been often made. Its reiteration, year after year, shows the serious need on which it is based in the opinion of those who have studied the question. Even with the 350 cadets the Academy would be keeping considerably behind its possible attainments, but a beginning would at least be made in the effort to prepare a country for war which in all its legislation is very properly tuned to the keynote of peace. The demand is all the more urgent since the military profession is year by year requiring more and more technical, mechanical, scientific information in its discharge. A modern officer, like a modern fort or an iron clad, requires twice as long to build as a generation ago. Our next war may in all probability be decided by certain factors in the problem for which our fathers had no name.

Examinations.—(a) *Entrance examinations.*—All that the committee can learn regarding these examinations shows that while they are rigid and result in the rejection of many candidates, there is yet a proper degree of flexibility exercised, and that applicants who impress the examining board as possessing soldierly qualities are not sent down on small technicalities. But the fact remains that, from one cause or another, there is a great failure in filling vacancies and in making appointments. The committee, therefore, concurs in the recommendation of the committee reporting on this subject in the report for 1892:

Let the examining board meet at the various posts as now designated. Let the nominating power (of applicants for examination to go before the examining board on March 1 of each year) select in the various Congressional districts three young men, by forms sent out from the War Department, as 1, 2, 3, etc. Let these three men go before the board at the March meeting, all for examination. If No. 1 fails, No. 2 will have a chance; if No. 2 fails, No. 3 will have a chance. We think that out of three men one could be secured. We would suggest when failure occurs at the end of any annual examination, that this failure be reported to the Congressman within ten days, and that he be requested to name and send his men before the examining board of the nearest post for examination within thirty days.

(b) *Examinations in course.*—These seem to the committee, after attending them for several days, to be absolutely fair and searching. We can not but regret, however, that the manner, as well as the

matter in recitation is not more carefully attended to. The pronunciation of the cadets is found at times to be indistinct. They do not enunciate clearly and evenly, and the voices are apt to be badly modulated, and harsh. The committee heard, at times, some words wrongly pronounced without correction by the examiner, but suppose that his failure to correct was due to the fact that a public examination rather than a private recitation was in progress.

ALEXANDER MACKAY-SMITH, *Chairman.*

JOHN C. BLACK.

JOHN J. DAVIS.

DISCIPLINE AND INSTRUCTION.

Committee on discipline and instruction.—MESST. GEORGE H. CRAIG, WILLIAM W. KEEN, and NEWTON M. CURTIS.

The committee on discipline and instruction beg leave to report as follows:

In reviewing the course of study the committee found it impossible to obtain an accurate idea of the relative and proportionate amount of attention given to each study in the curriculum. Accordingly they requested the Superintendent to furnish them the sum total of the hours devoted to each study. This is given in the appended letter and table:

DEPARTMENT OF MODERN LANGUAGES,

West Point, N. Y., June 11, 1894.

SIR: In compliance with your request of this date, I have the honor to state with regard to the hours of recitation given to English language and literature, as follows:

Hours of recitation in fourth class year.....	84
Hours of study, fourth class year	210

This subject is taught in the fourth class year only.

Bearing in mind the destination of the cadet as an officer of the Army, and the kind and number of the branches of study essential thereto, the above allotment of time is, I think, sufficient.

Very respectfully, your obedient servant,

E. E. WOOD,

Professor Modern Languages, United States Military Academy.

HON. GEORGE H. CRAIG,

Chairman Committee on Discipline and Instruction, Board of Visitors.

Time employed in recitations and studies by the cadets of the United States Military Academy in each department in the four classes during each academic year.

Year and class.	Department.	Academic year, September 1 to May 31.		
		Hours of recitation.	Hours of study.	Total hours.
First year, fourth class	Mathematics	334½	669	1,003½
	Modern languages	185	376	
	History, geography, and ethics	Omitted in new course.		
	Drill regulations, United States Army.	Infantry, 46 hours practical instruction. Artillery, 35 hours practical instruction.		81
	Use of swords, etc.	Practical instruction 147½ hours.		147½
Second year, third class	Mathematics	334½	669	1,003½
	Modern languages	223	446	
	Drawing	288	None.	288
	Drill regulations, United States Army.	Infantry, 46 hours practical instruction. Artillery, 35 hours practical instruction. Cavalry, 46 hours practical instruction.		127
	Practical military engineering	Practical work in July and August.		
Third year, second class	Natural and experimental philosophy.	334½	669	1,008½
	Chemistry, mineralogy, and geology ..	186½	377	
	Drawing	185	None.	185
	Drill regulations, United States Army.	Infantry, 41 hours practical instruction. Artillery, 17½ hours practical instruction. Cavalry, 61½ hours practical instruction.		175½
	Practical military engineering	17½ hours practical instruction.		17½
Fourth year, first class	Civil and military engineering and science of war.	334½	669	1,003½
	Modern languages	50½	101	
	Law	92½	185	151½
	History, geography, and ethics	42	84	277½
	Practical military engineering	24½ hours practical instruction.		24½
	Natural and experimental philosophy.	Practical instruction in camp.		
	Drill regulations, United States Army.	Infantry, 36 hours practical instruction. Artillery, 17½ hours practical instruction. Cavalry, 101½ hours practical instruction.		155
Ordnance and gunnery	92½	185	277½	
	Grand total			7,837½

J. M. CARSON, JR.,

First Lieutenant Fifth Cavalry, Adjutant.

HEADQUARTERS UNITED STATES MILITARY ACADEMY,

West Point, N. Y., June 9, 1894.

Such a table gives a true perspective of the academic course. It affords room for some reflections and conclusions, especially as to the preponderance of some studies and the brevity or lack of others. Their conclusions are not intended in any sense as a reproach upon the

faculty, whom we recognize as men of the highest ability and learning and devotion to their work and the best interests of the Academy. They are the honest conclusions which we have reached after not a little careful consideration of the subject, and suggestions which we hope will be of value from independent men who are only desirous of adding to the prosperity of the Academy.

The committee were rather painfully impressed in the examinations with the halting English of a number of the cadets. During three of the four years, as is shown by the table, 1,375½ hours of recitation and study are given to "modern languages," but of this only 84 hours are given to recitations and 210 hours to the study of the English language and literature. French and Spanish are the only other two modern languages taught, and cover 1,081 hours for both.

It is of course perfectly clear that in the four years of the course here it is impossible to make the cadets both soldiers and scholars. Spanish has been selected presumably because of its usefulness to our officers on our Mexican frontier. French was perhaps selected many years ago because it was the polite language of European society. To a great extent this is still true, although English has largely supplanted it, even in diplomacy. The committee would submit for consideration whether German may not at some time in the future be profitably introduced. So far as we know, the modern literature of military affairs, whether of the science or the art of war, in German is more extensive and more valuable than that in French, or certainly in Spanish. While not prepared to recommend this step immediately, they would suggest that the academic board consider this question very seriously.

In the matter of English, however, the committee is very clear that much more time should be given to it. It is the mother tongue of almost every cadet; it must be constantly used by every officer in his orders, and as a medium of communication and making effective all his knowledge is quite as important as any of the scientific branches. Yet we find of a grand total of 7,837½ hours of study and recitation in the four years at West Point, over 2,000 hours given to the mathematical branches, over 1,000 hours each to two other modern languages and to modern physics, 227½ to law, 565½ to chemistry, mineralogy and geology, and only 294 hours to English. Every officer should know how to use the English language accurately and tersely. A single order written hurriedly amid the emergencies of battle, if not in clear and plain English may cause disaster, and even defeat. Besides this, the cadets come here at about nineteen years old on the average. At that age their knowledge of English and especially of English literature, is slight, and their taste unformed. Few essays or themes, we believe, are required of them by which they can cultivate an exact, graceful, and perspicuous style. They have no time out of study hours to pursue any courses of reading, and indeed such reading is discouraged by both traditions and regulations. We therefore recom-

mend a fuller English course, even at the expense of some of the 2,007 hours given to mathematics, or those given to some other study.

The same may be said to some extent of history, geography, and ethics. Faithful and diligent as any professor may be, and the professors here we know are, it is almost a travesty upon sound learning to force them to attempt to teach these three important branches in forty-two recitations and eighty-four hours of study. Geography ought to be completed, in our opinion, before the student sets foot within the limits of this academic institution. Even then, history and ethics should have each as large a field as all these three have at present.

We realize the fact that the cadets are worked up to their full capacity. No additional hours of study can be introduced into the curriculum without detriment to their health. The only two possible ways of attaining the desired end are either (1) by curtailing the more extended or least useful studies, or (2) by making the requirements for admission cover some of the subjects now taught in the Academy. Of these two the committee decidedly favor the latter, and would urge that all of geography and plane geometry, and a considerable part of algebra, it not all of it, be required for entrance. This would only require probably six months more of study before entering the Academy, and would provide very much needed time for English, history, ethics, hygiene, and possibly for German.

It is urged that this will cut off some poor boys who otherwise might enter, and even graduate. Even were this true, it would be better to cut off a few ill-trained poor boys entering as officers than by a less thorough training of the whole corps of cadets to expose the thousands of poor men in the ranks to the evils of poorly equipped officers. But West Point exists neither for the poor boy nor the rich boy, but to give the country the very best and most efficient officers to command its Army, upon which often depends security of life and property, public and private, in cases of domestic disturbances, and upon which must always absolutely depend victory in time of foreign war. No officer can be too well trained for such a command. It is very easy to provide officers too poorly equipped, and so invite defeat.

The increase suggested in the conditions for admission is very moderate. The present requirements were formulated nearly 40 years ago, when our public schools were poor and scattered, and the instruction given in them was very limited. This is not true now. The enormous strides made in preliminary education should make our war college also make equal advances. The public schools are ready to furnish better students just so soon as West Point will take them.

The Naval Academy at Annapolis requires some algebra, and the Army may take a lesson from its course and in turn give it a lesson by adding geography and plane geometry to the requirements here.

One other point of great importance to the faculty and instructors here we desire to mention. Nothing is a greater stimulus or more

instructive to any teacher than to visit other allied institutions in this country and abroad, to compare his teaching, his methods, his illustrations and experiments with those of others. It broadens his mind, gets him, or, better, keeps him out of ruts, and shows him very often that he and his college are not the ne plus ultra of the best technical education. In all other branches it is so, and undoubtedly, therefore, in the military profession.

Accordingly, the committee recommend that, say, once in seven years, in turn, the members of the Academic Board, at least, be given leave of absence on full pay for six months or a year, with a view to such study in their respective departments. Possibly some similar leave to the technical officers would be equally advantageous before they enter the service here.

The question of the restriction of the chaplain's duties to those of his office and his ceasing to act as a professor, and therefore a disciplinary officer, has been considered by the committee, entirely irrespective of course of the present excellent occupant of the office. We can not but think that his moral and spiritual efficiency may be hampered if not destroyed by his duties in instruction. We recommend, therefore, that the chaplain's duties be restricted to those of his profession. The presence of 1,500 persons on the reservation will afford him an ample parish for the exercise of every good office.

In order to compare this Military Academy at West Point with other similar institutions, the committee would suggest that immediately after the appointment of the next Board of Visitors they be furnished by the Secretary of War with a brief but sufficiently full résumé of the conditions for admission and the course of study in other American semimilitary institutions, and at the Naval Academy at Annapolis, and especially in the national schools of instruction in military and naval training in Great Britain, France, Germany, Austria, Italy, and Russia, together with any other data of importance pertaining to this subject. This would enable the Board to form much more correct comparisons between West Point and other schools.

The discipline of the Academy recommends itself highly to the committee. The regulation drills and the unexpected and unwelcome fire drill, made necessary by the burning of a coal shed, were evidences than which we could ask no better.

GEORGE H. CRAIG, *Chairman.*

NEWTON M. CURTIS.

W. W. KEEN.

ARMAMENT AND EQUIPMENT.

Committee on armament and equipment.—MESSRS. THOMAS F. EDMANDS, WILLIAM H. HATCH, and WILLIAM B. BATE.

The committee on armament and equipment subjoin a statement, prepared by Capt. Lawrence Bruff, showing what ordnance is now at West Point or expected soon; also what obsolete ordnance is at the post. This officer makes several important suggestions, in which the committee concur, and recommend their adoption, viz :

1. The construction of a butt or tunnel behind the target for the larger guns, to stop projectiles.
2. The prompt purchase of a specimen of each of the prominent machine and rapid-fire guns of the world as fast as produced.
3. A similar course to be pursued in regard to prominent examples of small arms.
4. Models of modern gun carriages to match the models of guns received during the past year or to be hereafter received.
5. A show case in museum for color stands, etc.

Another communication from Captain Bruff is subjoined, in which he recommends that the senior instructor in ordnance and gunnery at the Military Academy, now a first lieutenant, receive the pay of a captain mounted, in which recommendation the committee heartily concur.

In this connection the committee desires to express its thanks to Captain Bruff and Lieutenant Babbitt for the trouble taken by these officers, involving no small amount of manual labor, to exhibit the workings of the ordnance and models in their department.

A very important part of the equipment of the Military Academy is the horses used by the cadets. The committee is surprised to find that the repeated recommendations of previous Boards of Visitors for many years in succession have been thus far disregarded by Congress. It is false economy to spoil a cavalry horse by putting him into the team of a caisson or piece. Fifty good cavalry horses should be added to the equipment of this post.

The Superintendent of the Military Academy, however, states in his last annual report that he is not prepared to recommend so considerable an increase in the expense of the Academy, for the reason, doubtless, that other matters involving outlay are for the present more pressing; but the need of horses is apparent all the same.

The remarkable results of Captain Craig's instruction in cavalry, as shown by the horsemanship and drill of the cadets in the riding hall

and on the plain, have excited the admiration of the committee, and entitle him to great credit, especially when the difficulties he has to contend with are considered, while Lieutenant Dyer, the inspector in artillery, entitled to the same commendation, accomplishes similar results in his branch under similar drawbacks, where cavalry horses must be used in light-battery drill. Horses purchased with a view to this double duty are naturally unfit for either, and their double use practically spoils them for either duty.

An important adjunct in the training of the cadets for the mounted arms, particularly in the cavalry, is the complete gymnasium with which the Academy is equipped, where Mr. Koehler, who, in the opinion of the committee, should have the rank, pay, and emoluments of a lieutenant, has shown himself to be an instructor capable of developing to a high condition of physical training the young soldiers in whose performances the committee has taken great satisfaction.

The recommendation made by the commandant of cadets, contained in the report of the Superintendent of the Academy for 1893, that twenty-eight enlisted men of the cavalry detachment, while employed as artillery drivers, shall receive extra pay, has been embodied in House bill 5894, making appropriations for the Military Academy for the fiscal year ending June 30, 1895, and is cordially concurred in by this committee with the hope that it become a law.

The committee had not time in which to make a careful inspection of the signal equipment, nor has it seen any drill performed in this important branch of military duty; but inquiry induces the committee to believe that the equipment may be rather meager, and that perhaps there might advantageously be more signal instruction given during the whole course.

THOMAS F. EDMANDS, *Chairman.*
WILLIAM H. HATCH.
WILLIAM B. BATE.

UNITED STATES MILITARY ACADEMY,
OFFICE OF INSTRUCTOR OF ORDNANCE AND GUNNERY,
West Point, N. Y., June 7, 1894.

SIR: I have the honor to forward herewith, for the consideration of the Superintendent and the Board of Visitors, the following recommendation relating to the department of ordnance and gunnery:

I would respectfully recommend that the pay of the senior assistant instructor in the department of ordnance and gunnery be that of a captain mounted.

I make the recommendation for the following reasons:

(1) The only academic department at the Academy whose senior assistants do not receive this pay are those of law and ordnance and gunnery.

(2) Academic duties of the senior assistant in ordnance and gunnery extend through the academic year, beginning with September and ending the 1st of June, as with the other academic departments.

(3) The month of April, which is apparently an exception to this, is not so in reality, as the lectures and practical instruction, which in other departments are

scattered throughout the academic year, are, in the department of ordnance and gunnery, concentrated for convenience in this one month. So far as labor goes it includes more of it than the same time spent in instruction in the section room.

(4) In addition to his academic duties, the senior assistant in ordnance and gunnery is attached to the ordnance detachment; his duties require him to assist in looking after the condition of the armament here, keeping the batteries in order, and attending to numerous details outside the section room. This is not required of any assistant in any other academic department. There is no reason why, in my judgment, this discrimination as regards pay should be made against the senior assistant in the department of ordnance and gunnery, when his duties are the same and at times greater than those of the senior assistants of other departments, and, on the other hand, there is every reason why such discrimination should not be made.

Very respectfully, your obedient servant,

LAWRENCE L. BRUFF,

Captain, Ord. Dept., U. S. A., Instructor of Ordnance and Gunnery.

The ADJUTANT,

United States Military Academy.

UNITED STATES MILITARY ACADEMY,
OFFICE OF INSTRUCTOR OF ORDNANCE AND GUNNERY,

West Point, N. Y., June 7, 1894.

SIR: In accordance with request contained in your letter of this date, and by direction of the Superintendent of the United States Military Academy, I have the honor to submit for the information of your committee the following statement with reference to the present armament, and also a list of the obsolete guns and mortars on hand, known as "trophy guns."

The present armament is as follows:

In seacoast battery.—One 15-inch Rodman gun mounted on center-pintle carriage, with pneumatic buffers; one 15-inch Rodman gun mounted on front-pintle carriage, with hydraulic buffers; three 8-inch converted rifles, two on modern carriages; one 10-inch Rodman smoothbore gun on old carriage; one 200-pounder Parrott rifle on old carriage; one 13-inch smoothbore mortar on old carriage.

In battery Knox.—One 100-pounder Parrott rifle on old carriage; one 300-pounder Parrott rifle on old carriage; four 10-inch Rodman smoothbore guns on old carriages.

In siege battery.—Six 4.5-inch cast-iron rifled siege guns mounted on wooden carriages. These guns are not used except for drill purposes. Six 10-inch smoothbore mortars mounted on iron mortar beds.

In field battery.—One battery 3.20-inch steel breech-loading field guns with limbers, caissons complete, for mounted drill. One battery 3.20-inch steel breech-loading field guns with limbers. The caissons of this battery are of the old pattern, and the battery is used for foot drill. One battery 3-inch wrought-iron muzzle-loading rifles with limbers and caissons complete, old pattern. This battery is not required for drill purposes, and is used only as a saluting battery.

Machine guns.—One Gatling gun, caliber .45, model 1875, short barrel; one Gatling gun, caliber .45, model 1883, long barrel; one Gardner gun, caliber .45; one Maxim automatic machine gun, caliber .45.

Rapid-fire guns, etc.—One Hotchkiss revolving cannon, caliber 1.50; one Hotchkiss mountain gun, caliber 1.65; one Hotchkiss rapid-fire gun, 3-pounder; one Nordenfelt rapid-fire gun, 3-pounder.

CHANGES IN ARMAMENT.

Seacoast battery.—During the past year the following guns and carriages have been received at the post: One 8-inch steel breech-loading rifle; one barbette carriage for same.

As soon as the money is available this gun and carriage will be mounted in the seacoast battery in place of the right 15-inch smoothbore Rodman gun.

There is also on hand one 12-inch breech-loading mortar, cast iron, with steel hoops. This mortar is to be replaced by a 12-inch breech loading steel mortar which represents the latest model.

A carriage for this mortar has been ordered by the Chief of Ordnance to be shipped here, and its arrival is daily expected. When received and when the money is available, the mortar will be mounted in the seacoast battery in place of the present 13-inch smoothbore.

The 8-inch gun is a type of all the other high-powered steel guns. The larger ones, 10 and 12 inch, differing from it only in size and in a few minor details.

The mortar also represents its class. Hence these two guns and their carriages will thoroughly familiarize cadets with modern guns and carriages and with their workings.

Owing to the limited range available here (only about 2,100 yards) and to the fact that the projectiles are fired against the inclined face of a rock, there is considerable danger attending target practice with these guns. If it is desired to arm the seacoast battery throughout with modern high-powered guns, some arrangement for stopping these projectiles will be necessary, such as a butt or a tunnel at the end of the range.

Till this is provided it has been thought best to limit the modern armament to the two guns mentioned.

The subject of disappearing carriages has attracted much attention at home and abroad, and two such carriages, the Buffington-Crozier and the Gordon, have been successfully tested at the proving ground. One of these carriages, the Buffington-Crozier, has been selected by the Chief of Ordnance to be sent to the Military Academy, and as it mounts an 8-inch steel rifle, this will give a second gun of this caliber to be added to the armament. The carriage will be used also to illustrate the principles pertaining to this class.

In addition to this there are at present in the seacoast battery three front-pintle barbette carriages of old pattern. Two of these carriages mount a 10-inch Rodman smoothbore gun and a 200-pounder Parrott, respectively. These carriages are to be replaced by three altered front-pintle barbette carriages, of the latest pattern, as soon as emplacements can be provided for them. The carriages are now here.

The 10-inch Rodman and 200-pounder Parrott are to be replaced by two 8-inch converted rifles, which are also on hand. This will render the armament of the seacoast battery complete as at present contemplated.

Siege battery.—In the siege battery no progress has been made. It is proposed to mount four 5-inch steel breech-loading siege guns and two 7-inch steel breech-loading howitzers in this battery.

The guns are ready and can be sent here at any time, but the carriages are not yet ready. The latest information on the subject leads me to believe that the carriages will be furnished before June next.

The smooth bore mortars are to be replaced by 7-inch steel breech-loading siege mortars as soon as they can be furnished.

Battery Knox.—No changes are contemplated in this battery, as it is not used for purposes of instruction.

Field batteries.—No changes are required here, as it is believed the batteries as at present constituted fulfill all the requirements demanded of them. As soon as they are available it is intended to replace the old wooden caissons used with the 3.20-inch foot battery by modern caissons. The great demand for these carriages by

the Army has so far prevented the Chief of Ordnance from furnishing them for use here.

Machine and rapid-fire guns.—During the year there have been received one Nordenfelt rapid-fire gun, 3-pounder, mounted on a nonrecoil field carriage, and a Maxim automatic machine gun, caliber .45.

These machine and rapid-fire guns form important parts of the instruction of cadets. They are first studied with the aid of drawings in the recitation room, and afterwards the cadets are required to dismount and assemble the guns themselves and their attention especially directed to the distinctive features of each gun.

These guns are a very important feature of modern ordnance, and they can not be thoroughly understood without the aid of the guns themselves. Hence I deem it important that the Military Academy should possess all the prominent guns of this class before the public, and respectfully request that at least one of them be purchased each year. By this means, at a comparatively small expense, the Academy will possess a collection of these guns valuable for purposes of instruction and for the museum.

Small arms.—The recent changes in the caliber of the infantry rifle from .45 to .30 has introduced many changes in the mechanism of these arms both here and abroad. Two of these arms for the United States Army have been received here with a supply of ammunition, and the graduating class has been instructed in the management of the arm and its working. As in the case of machine and rapid-fire guns, these arms can only be studied with advantage from the guns themselves.

The Academy has practically none of the arms used in foreign services, and it should have all of them. I would therefore recommend that steps be taken to procure samples of these arms, with their ammunition, through our military attachés abroad.

Models of guns and carriages.—During the year the department has received from the gun factory at Watervliet Arsenal, the following steel models of our new service guns: One model 3.60 mortar, one-tenth size; one model 3.60 mechanism, one-half size; one model 3.20 field gun, one-tenth size; one model 3.20 mechanism, one-half size; one model 5-inch siege gun, one-tenth size, complete; one model 10-inch rifle, one-tenth size, complete; one model 12-inch mortar, one-tenth size, complete.

The advantage of having these models in the recitation room for purposes of instruction is very great, as has been shown during the present year. It is intended to complete the purchase of the models of all the service guns as soon as funds are available, and an estimate to that effect is contained in the present appropriation bill now before Congress. Models of all service carriages should also be provided, and an estimate for the purchase of these models is also before Congress. The amount asked for, however, is not sufficient to provide for the purchase of all these models, and it is recommended that an additional amount of \$3,000 be asked for. The cost of these models can not be estimated very closely, as the work is entirely new, but the above amount, with that already estimated for, will go far to provide them.

MUSEUM.

A room has been provided in the new academic building for a museum. There is a very valuable collection of flags, swords, guns, etc., belonging to the Academy, which should be properly stored and displayed. For this purpose funds are necessary to provide show cases, color stands, cabinets, etc., and I would respectfully recommend that the sum of \$2,000 be provided for this purpose.

RECAPITULATION OF RECOMMENDATIONS.

- (1) Purchase of machine and rapid-fire gun.
- (2) Acquisition of samples of small arms through military attachés.
- (3) Three thousand dollars for models of modern gun carriages.

(4) Two thousand dollars for show cases, color stands, etc., for museum.

Trophy guns.—A list of trophy guns on hand at the Military Academy is forwarded herewith as requested by the committee.

Very respectfully, your obedient servant,

LAWRENCE L. BRUFF,

Captain Ordnance Department, Instructor Ordnance and Gunnery.

Col. THOMAS F. EDMANDS,

Chairman of Committee on Armament, etc.

(Through headquarters United States Military Academy.)

List of trophy guns, etc.

Number.	Gun, etc.	Number.	Gun, etc.
REVOLUTIONARY TROPHIES.		MEXICAN TROPHIES—continued.	
1	3-pounder brass field gun, surrendered at Saratoga Convention.	1	4-pounder bronze mountain howitzer, surrendered at Monterey, caliber 3.75.
1	8-inch bronze howitzer, surrendered at Saratoga Convention.	1	4-pounder bronze mountain howitzer, surrendered at Monterey, caliber 3.75.
1	12-pounder brass gun, captured at Stony Point.	1	16-pounder bronze gun, surrendered at Vera Cruz, caliber 5.25.
1	10-inch brass mortar, captured at Stony Point.	1	16-pounder bronze gun, surrendered at Vera Cruz, caliber 5.25.
4	5½-inch bronze mortars, surrendered at Saratoga Convention.	1	16-pounder bronze gun, surrendered at Vera Cruz, caliber 5.32.
7	4½-inch bronze mortars, surrendered at Saratoga Convention.	1	12-pounder bronze gun, surrendered at Vera Cruz, caliber 4.8.
7	6-pounder bronze guns, captured at Stony Point.	1	12-pounder bronze gun, surrendered at Vera Cruz, caliber 4.75.
2	4-pounder bronze guns, captured at Stony Point.	1	12-pounder bronze gun, surrendered at Vera Cruz, caliber 4.7.
1	Brass culverin, presented to Congress by General Lafayette.	1	8-pounder bronze gun, surrendered at Vera Cruz, caliber 4.2.
MEXICAN TROPHIES.		1	6-pounder bronze gun, surrendered at Vera Cruz, caliber 3.75.
1	8-pounder bronze gun, captured at Resaca de la Palma, caliber 4.25.	1	6-pounder bronze gun, surrendered at Vera Cruz, caliber 3.75.
1	8-pounder bronze gun, captured at Resaca de la Palma, caliber 4.25.	1	4-pounder bronze gun, surrendered at Vera Cruz, caliber 3.5.
1	6-pounder bronze gun, captured at Resaca de la Palma, caliber 3½.	1	10-inch bronze mortar, surrendered at Vera Cruz.
1	6-pounder bronze gun, captured at Resaca de la Palma, caliber 3.6.	1	8-pounder bronze gun, captured at Cerro Gordo, caliber 4.2.
1	4-pounder bronze gun, captured at Resaca de la Palma, caliber 3.45.	1	6-pounder bronze gun, captured at Cerro Gordo, caliber 3.6.
1	4-pounder bronze gun, captured at Resaca de la Palma, caliber 3.35.	1	6-pounder bronze gun, captured at Cerro Gordo, caliber 3.4.
1	4-pounder bronze gun, captured at Resaca de la Palma, caliber 3.4.	1	4-pounder bronze gun, captured at Cerro Gordo, caliber 3.5.
1	4-pounder bronze gun, captured at Resaca de la Palma, caliber 3.5.	1	4-pounder bronze gun, captured at Cerro Gordo, caliber 3.5.
1	8-pounder bronze gun, captured at Matamoras, caliber 4.25.	1	4-pounder bronze gun, captured at Cerro Gordo, caliber 3.35.
1	4-pounder bronze gun, captured at Matamoras, caliber 3.35.	1	17-inch bronze mortar, surrendered at Peroto Castle.
1	4-pounder bronze howitzer, captured at Matamoras, caliber 3.75.	1	17-inch bronze mortar, surrendered at Peroto Castle.
1	4-pounder bronze howitzer, captured at Matamoras, caliber 3.75.	1	17-inch bronze mortar, surrendered at Peroto Castle.
1	6½-pounder bronze howitzer, captured at Matamoras.	1	17-inch bronze mortar, surrendered at Peroto Castle.
1	12-pounder bronze gun, surrendered at Monterey, caliber 4.8.	1	16-pounder bronze gun, captured at Contreras, caliber 5.2.
1	8-pounder bronze gun, surrendered at Monterey, caliber 4.25.	1	12-pounder bronze gun, captured at Contreras, caliber 4.8.
1	8-pounder bronze gun, surrendered at Monterey, caliber 4.25.	1	12-pounder bronze gun, captured at Contreras, caliber 4.85.
1	8-pounder bronze gun, surrendered at Monterey, caliber 4.25.	1	12-pounder bronze gun, captured at Contreras, caliber 4.8.
1	4-pounder bronze gun, surrendered at Monterey, caliber 3.15.	1	8-pounder bronze gun, captured at Contreras, caliber 4.2.
1	4-pounder bronze gun, surrendered at Monterey, caliber 3.15.	1	6-pounder bronze gun, captured at Contreras, caliber 3.75.
1	6½-pounder bronze howitzer, surrendered at Monterey.		

List of trophy guns, etc.—Continued.

Number.	Gun, etc.	Number.	Gun, etc.
MEXICAN TROPHIES—continued.		MEXICAN TROPHIES—continued.	
1	6-pounder bronze gun, captured at Contreras, caliber 3.85.	1	8-pounder bronze gun, captured at Matamoras, caliber 4.2.
1	6-pounder bronze gun, captured at Contreras, caliber 3.9.	1	6-pounder bronze gun, captured at Matamoras, caliber 3.8.
1	6-pounder bronze gun, captured at Contreras, caliber 3.5.	1	4-pounder bronze gun, captured at Matamoras, caliber 3.54.
1	4-pounder bronze gun, captured at Contreras, caliber 3.4.	1	Battery, 4 pieces—Rengold's Battery—Mexican war.
1	4-pounder bronze gun, captured at Contreras, caliber 3.6.	1	Battery, 4 pieces—Duncan's Battery—Mexican war.
1	4-pounder bronze gun, captured at Contreras, caliber 3.4.	TROPHIES FROM 1861 AND 1865.	
1	4-pounder bronze gun, captured at Contreras, caliber 3.45.	1	8-inch Armstrong rifle, United States, captured at Fort Fisher, N. C.
1	8-inch bronze howitzer, captured at Contreras.	1	3.68-inch Confederate steel rifle.
1	8-inch bronze howitzer, captured at Contreras.	1	3-inch Confederate cast-iron rifle.
1	8-inch bronze howitzer, captured at Contreras.	1	12-pounder Confederate S. B. gun, captured at Cedar Creek, Virginia.
1	8-inch bronze howitzer, captured at Contreras.	1	12-pounder Confederate S. B. bronze gun.
1	6½-inch bronze howitzer, captured at Contreras.	2	3-inch Brooks cast and wrought iron gun, captured at Vicksburg, Miss.
1	7½-inch bronze mortar, captured at Contreras.	1	6-pounder bronze Confederate gun, rifled, captured along Mississippi River.
1	16-pounder bronze gun, captured at San Antonio, caliber 5.25.	7	6-pounder bronze Confederate guns S. B., captured along Mississippi River.
1	16-pounder bronze gun, captured at San Antonio, caliber 5.25.	2	12-pounder bronze field howitzers, S. B., captured along Mississippi River.
1	4-pounder bronze gun, captured at San Antonio, caliber 3.45.	1	4.8-inch Brooks cast-iron rifled gun, captured along Mississippi River.
1	16-pounder bronze gun, captured at Churubusco, caliber 5.25.	2	24-pounder cast-iron rifled guns, captured along Mississippi River.
1	8-pounder bronze gun, captured at Churubusco, caliber 4.2.	2	24-pounder cast-iron S. B. guns, captured along Mississippi River.
1	8-pounder bronze gun, captured at Churubusco, caliber 4.2.	1	32-pounder cast-iron S. B. navy gun, captured on boat on Mississippi River.
1	8-pounder bronze gun, captured at Churubusco, caliber 4.2.	1	7.5-inch Blakely cast-iron rifled gun, captured at Vicksburg, Miss.
1	8-pounder bronze gun, captured at Churubusco, caliber 4.2.	1	8-inch Blakely cast-iron rifled gun, captured at Fort Morgan, Ala.
1	3-pounder bronze gun, captured at Churubusco, caliber 4.2.	1	8-inch navy cast-iron S. B. gun, captured along Mississippi River.
1	6-pounder bronze gun, captured at Churubusco, caliber 3.75.	2	Small brass guns, caliber 2.2.
1	6-pounder bronze gun, captured at Churubusco, caliber 3.7.	1	3.1-inch Clay breech-loading steel gun, captured at Danville, Va.
1	6-pounder bronze gun, captured at Churubusco, caliber 3.6.	1	Small Colt revolving gun.
1	6-pounder bronze gun, captured at Churubusco, caliber 3.55.	1	1.8-inch breech-loading S. B. cast-iron gun.
1	4-pounder bronze gun, captured at Churubusco, caliber 3.45.	2	6-pounder bronze rifled guns.
1	4-pounder bronze gun, captured at Churubusco, caliber 3.4.	1	30-pounder Brooks cast-iron rifled gun, captured at Richmond, Va.
1	4-pounder bronze gun, captured at Churubusco, caliber 3.57.	1	3-inch cast-iron rifled gun, captured at Richmond, Va.
1	6-pounder bronze gun, captured at Molino del Rey, caliber 3.85.	1	1½-inch cast-iron muzzle-loading rifle.
1	6-pounder bronze gun, captured at Molino del Rey, caliber 3.85.	1	12-pounder breech-loading cast-iron S. B. gun, found at Fort Richmond.
1	4-pounder bronze gun, captured at Molino del Rey, caliber 3.45.	1	6½ by 1½ inch gun built up of cast and wrought iron, captured at Richmond, Va.
1	24-pounder bronze gun, captured at Chapultepec, caliber 6 inches.	1	24-pounder cast-iron Cohorn mortar.
1	24-pounder bronze howitzer, captured at Chapultepec.	1	12-pounder cast-iron Cohorn mortar.
1	8-inch bronze howitzer, captured at Chapultepec.	2	4.5-inch Blakely cast and wrought iron guns, rifled, captured at Fort Pulaski, Ga.
1	4-pounder bronze howitzer, captured at Chapultepec.	2	42-pounder carronades, captured at Port Royal Harbor, South Carolina.
1	4-pounder bronze howitzer, captured at Chapultepec.	1	80-pounder Whitworth gun, captured on blockade runner near Charleston, S. C.
1	4-pounder bronze gun, captured at City of Mexico, caliber 3.3.	1	7-inch Brooks cast-iron rifle, captured at Charleston Harbor, South Carolina.
1	4-pounder bronze gun, captured at City of Mexico, caliber 3¼ inches.	1	10-inch columbiad cast-iron S. B. gun, captured at Charleston Harbor.
1	12-pounder bronze gun, captured at City of Mexico, caliber 4.7.	1	10-inch columbiad cast-iron S. B. gun, captured at Charleston Harbor.
1	4-pounder bronze howitzer, captured at Huamantla.	5	12-pounder brass field guns.
		1	3-inch cast-iron rifled gun.
		1	6-pounder bronze S. B. field gun, captured at Nashville, Tenn.
		1	6-pounder Blakely steel rifled gun, captured at Saulesbury, N. C.
		1	George cast-iron S. B. gun, caliber 1½ inch.
		1	3.7-inch Blakely steel rifled gun.
		1	1.9-inch small bronze breech-loading gun.
		1	3.67-inch steel or wrought iron gun.
		1	3.45-inch cast-iron rifled gun.

List of trophy guns, etc.—Continued.

Num-ber.	Gun, etc.	Num-ber.	Gun, etc.
	TROPHIES FROM 1861 AND 1865—continued.		TROPHIES FROM 1861 AND 1865—continued.
1	3-inch cast-iron rifled gun.	1	4-pounder cast-iron gun. This gun fired the first shot of the rebellion at the steamer Silver Wave, at Vicksburg.
1	3-inch Armstrong cast-iron rifled gun.		
1	900-pounder Blakely cast-iron rifled gun-burst at Charleston Harbor, South Caro- lina.	1	3-inch wrought-iron rifled gun. This gun fired the last shot of the rebellion. It belonged to Captain Elder's, Battery B, First United States Artillery.
1	3-inch Whitworth breech-loading steel rifle.		

BUILDINGS, GROUNDS, AND LIGHTS.

Committee on buildings, grounds, and lights.—Messrs. REDFIELD PROCTOR, ALEXANDER MACKAY-SMITH, and EDWARD C. WALL.

Your committee on buildings, grounds, and lights beg leave to report that after an investigation of the recommendations of the Superintendent in regard to appropriations for buildings and other improvements, while recognizing the necessity at some future day of all he asks for they regard it as inexpedient, in view of the financial depression which prevails throughout the country, for the Board to concur at present in all of his recommendations, but to confine its approval to those that appear to be imperatively necessary at present.

Your committee therefore recommend the appropriation of \$40,000 for the five sets of officers' quarters, costing \$8,000 each, and an appropriation of \$17,000, in addition to any former appropriations, for completing the reservoir.

Your committee also recommends that at some future time, and as soon as practicable, an appropriation of \$35,000 be made for the erection of a tower on the Academy building, without which it can never be considered as completely and creditably finished.

REDFIELD PROCTOR, *Chairman.*

ALEXANDER MACKAY-SMITH.

E. C. WALL.

SUPPLIES AND EXPENDITURES.

Committee on supplies and expenditures.—WILLIAM H. HATCH, JOHN D. CRIMMINS, and THOMAS F. EDMANDS.

The supplies and expenditures for cadets are under the charge of the right man in the right place, Capt. William F. Spurgin, Twenty-first Infantry, who has very properly been retained in his position much longer than the ordinary term for the detail of officers at the Military Academy. He knows his business, and does it in a manner which the committee investigating his department desires especially to commend.

In his department there are three divisions, viz, the store, the laundry, and the mess.

At the store are located the countingroom, where disbursements are made; the supply room, from which the cadets obtain all their supplies except food, and the tailor's workroom. The system of accounts with each cadet is so complete that his exact standing with the treasurer can be seen at a glance. The articles that the cadets may obtain from the supply room are charged to him substantially at cost, which is the wholesale price for large quantities. All garments worn by the cadets, except underclothing, are made in the tailor's shop, under Captain Spurgin's direction.

The laundry is admirably managed. As an instance of the business-like methods employed in its administration, the committee found that all the soap used therein is made on the spot from grease obtained by rendering the refuse fat from the mess hall kitchen. Formerly the cadets were charged for the washing done for each, but now the entire cost of washing is averaged and each cadet is charged alike.

The administration of affairs at the mess hall excited the admiration of the committee. The food is of the best quality that can be obtained, there is plenty of it, and it is excellently served. In providing if there is a wise recognition of the fact that it is to sustain young men, many of whom are in effect growing boys, whose appetites are stimulated by constant vigorous exercise, and whose bodies must endure physical and mental strain for an extended period of their lives. These young men get three hearty meals a day at an average cost of about 52 cents for the three.

The kitchen should be enlarged. The floor of the mess hall, now of wood, should be of tile or stone mosaic laid in cement.

The committee in every part of Captain Spurgin's department found neatness, system, and economy, resulting from the application of business sagacity and good sound common sense.

WILLIAM H. HATCH, *Chairman.*

JOHN D. CRIMMINS.

THOMAS F. EDMANDS.

FISCAL AFFAIRS.

Committee on fiscal affairs.—MESSRS. JOHN D. CRIMMINS, GEORGE H. CRAIG, and REDFIELD PROCTOR.

The committee on fiscal affairs have completed their personal inspection of the affairs of Maj. W. F. Spurgin, treasurer of the Academy and quartermaster and commissary of cadets, as well as of the affairs of Capt. W. H. Miller, assistant quartermaster and disbursing officer of the Academy. The methods and accounts have been fully explained, and your committee are enabled to make a fair report on the administration of these two important departments.

Major Spurgin supervises the mess and cadet stores and the administration of the laundry department; also the accounts of the cadets. We found in each department a perfect system of good order and complete accounts, all administered on the most economical and business-like plan. It would be difficult to say which of the numerous duties that this good officer conducts is the most to be commended without probably encroaching upon the work of the committee on supplies and expenditures for cadets, as your committee could not have separated their work in the examination of the fiscal affairs without becoming familiar with supplies. They beg leave to mention the satisfactory purchases and quality of food and material made for the account of the cadets. The committee were shown the methods for banking the moneys in the hands of the treasurer and the manner of checking the accounts of the cadets, and it is only necessary to say we commend the order, as well as the system.

The committee further report that they have made an examination of the books and accounts of Capt. W. A. Miller, disbursing officer of the post. The appropriations made for the support of the Military Academy include numerous items for buildings and grounds. The moneys are deposited to Captain Miller's account with the United States treasurer in New York City, and all accounts are paid by check. Frequent examinations are made by the duly authorized inspector from the War Department, as well as the Quartermaster-General's Department. The accounts are kept in so simple a manner that your committee could at a glance determine on their completeness.

The expenditures against each appropriation are kept under their respective heads, so that the balance to each account could be obtained

and the aggregate of the balances compared with the money on deposit and the general account balanced.

Captain Miller supervises the work of repairs, and the committee commend his practical value in this work.

Your committee, in their further examination, fear again that matter has suggested itself to them that might more appropriately be in the province of the committee on buildings, grounds, and lights. As your committee have had no means to learn what that committee may have in mind, as the work of the board is one, they would call the attention of the committee on buildings, etc., to the necessity of a new system of drainage for the ground floor of Grant Hall, or what is better known as mess hall, as well as a new flooring of tile or Portland cement; also the enlargement of the kitchen, which is of the same dimensions as when constructed in 1850. A tile floor for the mess room is very important. The area wall in rear of the building should be rebuilt, and at a greater distance from the building, so that better ventilation and light might be secured. The committee attach herewith the tabulated report of Major Spurgin and Captain Miller.

Your committee would again refer to the very efficient and economical administration of these two departments.

Very respectfully,

JOHN D. CRIMMINS, *Chairman.*

GEORGE H. CRAIG.

REDFIELD PROCTOR.

OFFICE TREASURER UNITED STATES MILITARY ACADEMY,
QUARTERMASTER AND COMMISSARY OF CADETS,

West Point, N. Y., June 7, 1894.

SIR: I have the honor to acknowledge the receipt of your communication of the 5th instant, and in reply thereto to transmit herewith the statement of the treasurer United States Military Academy, May 15, 1893, which was the last settlement of the books of this office prior to the inspection of the same by the committee on fiscal affairs, Board of Visitors, 1893; a statement of the receipts and expenditures under the different accounts kept in this office from May 15, 1893, to May 21, 1894, the date of the last settlement and statement of May 21, 1894.

Very respectfully, your obedient servant,

W. F. SPURGIN,

Captain, 21st Infantry, Treasurer Military Academy,

Quartermaster and Commissary of Cadets.

HON. JOHN D. CRIMMINS,

Chairman Committee on Fiscal Affairs, etc.

(Through headquarters United States Military Academy.)

Statement of the treasurer United States Military Academy, May 15, 1893.

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	10,333.81
Trust funds	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

Statement of receipts and disbursements made by the treasurer United States Military Academy during the period May 15, 1893, and May 21, 1894, date of last settlement.

Disbursements.		Receipts.	
Assistant treasurer	\$161,785.15	Assistant treasurer	\$161,977.32
Athletic Association	1,434.36	Athletic Association	1,304.81
Balances paid	17,225.93	Balances paid	17,383.21
Barber	594.15	Barber	594.15
Cadet cash	15,178.65	Cadet cash	15,201.65
Cadet hospital	2,527.54	Cadet hospital	2,344.57
Cadet laundry	9,894.62	Cadet laundry	7,190.32
Cadet quartermaster	66,691.53	Cadet quartermaster	69,405.77
Cadet subsistence department	61,138.35	Cadet subsistence department	60,843.64
Conffectioner	226.00	Conffectioner	226.00
Corps of cadets	190,883.38	Corps of cadets	188,775.63
Damages, ordnance .....	.35	Damages, ordnance .....	.35
Dancing	515.55	Dancing	515.55
Dentist	986.00	Dentist	1,011.00
Deposits	18,064.03	Deposits	18,568.03
Dialectic Society	654.65	Dialectic Society	708.12
Equipment fund	11,540.00	Equipment fund	13,862.00
Expressage	42.76	Expressage	42.76
Gas fund	1,244.76	Gas fund	1,244.76
Hops and german	1,587.41	Hops and german	1,516.83
Miscellaneous fund	33.85	Miscellaneous fund	23.61
Miscellaneous items	247.08	Miscellaneous items	247.08
Oath	26.50	Oath	26.50
Paymaster	162,145.15	Paymaster	162,145.15
Periodicals	50.25	Periodicals	50.25
Photographer	6.00	Photographer	6.00
Policing barracks	5,472.19	Policing barracks	5,472.19
Young Men's Christian Association ..	175.46	Young Men's Christian Association ..	175.20
Total	730,371.65	Total	730,852.44

Statement of the treasurer United States Military Academy, May 21, 1894.

Assistant treasurer	\$34,365.82	Athletic Association	\$93.20
Cadet cash	75.00	Cadet laundry	1,575.81
Dentist	110.00	Cadet quartermaster	13,048.05
Hops and german	70.58	Cadet subsistence department	759.83
Trust funds	20,000.00	Corps of cadets	9,273.67
Cash on hand	1,364.44	Deposits	704.00
		Young Men's Christian Association ..	14.68
		Equipment fund	30,422.00
		Dialectic Society	80.32
		Miscellaneous fund	14.28
Total	55,985.84	Total	55,985.84

The equipment fund will be reduced on settlement with the graduating class of this year by the sum of \$10,512.

Respectfully submitted.

W. F. SPURGIN,

Captain, 21st Infantry, Treasurer United States Military Academy.

UNITED STATES MILITARY ACADEMY,
 QUARTERMASTER'S OFFICE,
West Point, N. Y., June 7, 1894.

SIR: In accordance with your request I have the honor to inclose herewith, for the information of the Board of Visitors, abstracts pertaining to money accountability, viz:

Appropriations for the support of the United States Military Academy.
 Special contingent fund United States Military Academy.

Very respectfully, your obedient servant,

W. H. MILLER,
*Captain and Asst. Quartermaster U. S. A.,
 Disbursing Officer U. S. Military Academy.*

Hon. JOHN D. CRIMMINS,
Chairman subcommittee Board of Visitors on Fiscal Affairs.
 (Through headquarters United States Military Academy.)

Abstract of receipts and expenditures pertaining to the special contingent fund United States Military Academy between July 1, 1893, and June 5, 1894.

On hand July 1, 1893	\$1,298.97
Receipts:	
By rent of West Point Hotel.....	\$2,000.00
By rent of post-office cottage.....	112.50
By rent of public stables.....	75.00
By rent of confectionery store (retiring house)	350.00
By transfer of balance on hand July 1, 1893, of the United States Military Academy gas fund.....	511.62
By sale of coke	711.47
By sale of coal tar	546.00
By sale of gas and gas fixtures to officers	2,029.24
By sale of gas to civilians.....	571.73
By sale of gas to public buildings.....	653.51
By sale of gas and gas fixtures to cadets.....	1,244.76
By sale of old iron.....	290.92
By sale of old lead.....	342.74
By sale of old copper and brass	145.08
By sale of old lime barrels	5.00
	9,589.57
Total	10,888.54
Expended, to include June 5, 1894	8,257.72
	2,630.82
Balance on hand June 5, 1894.....	

I certify that the above abstract is correct, and that the expenditures reported have all been made upon vouchers approved by the Superintendent United States Military Academy.

W. H. MILLER,
*Captain and A. Q. M., U. S. Army,
 Treasurer Special Contingent Fund U. S. Military Academy.*

Abstract of appropriations made for the support of the United States Military Academy, received and disbursed by Capt. W. H. Miller, assistant quartermaster, United States Army, disbursing officer United States Military Academy, for the period commencing July 1, 1893, and ending June 6, 1894.

REGULAR APPROPRIATIONS.

	Current and ordinary expenses.	Miscellaneous items and incidental expenses.	Buildings and grounds.
<i>Fiscal year 1892.</i>			
On hand July 1, 1892	\$971.64	\$97.58	.....
Received since			
Total	971.64	97.58	.....
Expended	19.58	7.50	.....
Unexpended balance on hand	952.06	90.08	.....
<i>Fiscal year 1893.</i>			
On hand July 1, 1893	11,772.83	2,945.85	\$25,348.14
Received since	10.00		46,496.00
Total	11,782.83	2,945.85	71,814.14
Expended	6,100.87	2,805.05	67,718.74
Unexpended balance on hand	5,681.96	140.80	4,095.40
<i>Fiscal year 1894.</i>			
On hand July 1, 1894			
Received since	69,000.00	22,000.00	56,000.00
Total	69,000.00	22,000.00	56,000.00
Expended	55,114.13	21,999.53	40,946.32
Unexpended balance on hand	13,885.87	.47	15,053.68
<i>Fiscal year 1893-94.</i>			
On hand July 1, 1893	600.00	2,470.92	.....
Expended	357.00	1,189.62	.....
Unexpended balance on hand	243.00	1,281.30	.....
<i>Deficiency appropriation, 1893.</i>			
On hand July 1, 1893	200.00		.....
Expended	200.00		.....

SPECIAL APPROPRIATIONS.

[Acts approved February 12, 1889.]

	New academic building.	New gymnasium.
On hand July 1, 1893	\$11,153.93	\$12,241.66
Received since	135,000.00	.....
Total	146,153.93	12,241.66
Expended	109,029.42	599.69
Unexpended balance on hand	37,124.51	11,641.97

I certify that the above abstract is correct, and that the expenditures stated have been made by me on vouchers approved by the Superintendent of the United States Military Academy.

W. H. MILLER,
*Captain and Assistant Quartermaster, United States Army,
 Disbursing Officer United States Military Academy.*

WEST POINT, N. Y., June 7, 1894.

HYGIENE AND ATHLETICS.

Committee on hygiene and athletics.—Messrs W. W. KEEN, JOHN C. BLACK, and JOHN J. DAVIS.

The committee have carefully inspected the reservation and its buildings, especially the plumbing and drainage of each and of the entire post, the water-closets and bathrooms, the hospitals, the gymnasium and its system of instruction, the question of athletic sports, the water supply, and the general condition of the health of the entire command.

As a result they feel that they can commend in the highest degree the sanitary conditions prevailing at West Point. No better proof of this can be given than that in a command exceeding thirteen hundred in number not a single case of typhoid fever, diphtheria, or other disease due to a want of good sanitation or arising by direct infection occurred during the entire academic year, ending September last. The location of the post is an exceptionally favorable one. While there is an extensive plateau, suitable for military maneuvers, the bulk of the reservation is on the sides of beautiful mountains which are as pleasing to the esthetic sense as the location is favorable to the best sanitary conditions.

The river affords the most exquisite views, surpassed by none among the most beautiful rivers of Europe. At the same time, its waters being salty, and having a tidal rise and fall of about three feet, afford excellent means of drainage, without any noxious influence upon cities situated lower down upon its banks. While sufficiently near to large towns and the city of New York for convenient access—a great advantage both in a social and a military sense—the isolation of the reservation shields it from any danger from those contagious and infective diseases incident to all populous centers.

It is, however, always possible that cases of scarlet fever, smallpox, diphtheria, and other similar contagious diseases may be imported and might cause serious outbreaks of such disorders. The periodical inspection of all persons at the post by the medical officers, and their vaccination or revaccination, in case of evidence of insufficient protection, we are informed, is rigidly carried out and will protect the command, except in possible accidental and sporadic cases. But scarlet fever, diphtheria, etc., especially among the children at the post and the young men who may not be protected by a previous attack of scarlet fever, can not be fully guarded against. The present hospitals, either for the cadets or the enlisted men, can not afford the prompt and effective isolation of such cases by which the spread of the disease

may be quickly checked without danger that the other occupants of such hospitals may themselves contract such disease, and that they may be spread more widely through the necessary and nonisolated attendants. Hence the committee recommend that a small hospital for contagious diseases be provided at a cost of about \$2,500.

The water supply, as pointed out in the annual reports by the Superintendent and the post surgeon, needs careful attention. The appropriation bill for the Military Academy, which has already passed the House and is pending in the Senate, appropriates \$25,000 for increasing the capacity of the reservoirs in order to avoid the short supply always experienced during the summer drought, and for cleaning them. One of them has not been drained for fifteen years. The Superintendent has informed us that to accomplish the ends in view in a proper and effective way will require \$17,000 more, or \$42,000 in all. There is no more important adjunct to health than a pure and abundant water supply. The committee, therefore, urge that the recommendation of the Superintendent be carried out and that the additional appropriation of \$17,000 asked for be approved.

The various water-closets and facilities for bathing have been carefully examined. On the whole, the entire post has the best facilities in both of these respects. The water-closets, urinals, and bath tubs for the enlisted men and cadets are of the same pattern, and in number and quality leave nothing to be desired. Exceptions, however, exist in the cadets' bathrooms and the gymnasium. In the former there are ten bathrooms without tubs. The four "needle" baths in the bathroom building are uncompleted and therefore can not be used, and there are no "needle" baths in the gymnasium. In the pending appropriation bill all these deficiencies are provided for, and the committee warmly approve of the additions.

In the Superintendent's report the unsanitary condition of the ten wooden houses occupied by soldiers' families in "Logtown" is referred to. The committee visited these houses and found them old, unsightly, and unwholesome. The cellars, especially, are low and damp, in some cases covered with a layer of water, and in the winter and spring must be in a much worse and more unwholesome condition. The committee approve of the Superintendent's suggestion that new quarters be erected upon a high and healthy site, and that the old buildings be then removed, and urge that the appropriation asked for this purpose be granted.

The committee visited the cadets' barracks and mess hall and took unexpected meals with the cadets. In the barracks the only recommendation of the committee is that inclined tops be provided for the study tables. So much time is devoted to study, drawing, and writing during the four years spent here that everything conducive to the preservation of the best eyesight is of the highest importance. Though the cadets are admitted after a most rigid physical examination,

including careful tests of the eyesight, the committee are impressed with the considerable proportion of the cadets who need to wear glasses.

It has been conclusively shown by oculists in various countries that the number of pupils in schools and universities requiring artificial aids to sight increases progressively from the lowest to the highest grades with serious rapidity. In army officers this may become a grave defect, especially in the field, where repairs to glasses and new glasses can not be had. The post surgeon has furnished us with the following table, showing the serious effects upon the eyesight of the cadets such that nearly one-fifth of them have required the aid of glasses. This arises chiefly from the continued eye strain from reading, writing, and drawing. We are glad to learn that in many if not in most cases, when the cadets leave the Academy and are relieved of this incessant near use of the eyes, they are able to discontinue the use of their glasses. It is still more important, however, to avoid those conditions which have made such use of glasses needful.

WEST POINT, N. Y., June 7, 1894.

DEAR SIR: In compliance with your verbal request I herewith inclose a comparative statement, by years, of cases of impaired vision, due mostly, if not exclusively, to eye strain, occurring in the United States Corps of Cadets from June 1, 1890, to June 1, 1894, together with the average strength of the corps, by years, for the same period.

So far as the records of this hospital show, eye examinations were begun and prescriptions for glasses first made by medical officers at the Academy in 1890. I am informed that prior to that cadets requiring artificial correction of visual defect consulted specialists in New York City.

Very respectfully, your obedient servant,

P. F. HARVEY,
Major and Surgeon, U. S. A., Post Surgeon.

Prof. W. W. KEEN, M. D.,

Chairman of the Committee on Hygiene and Athletics, etc.

Cadets at the United States Military Academy treated for eye strain for the periods:

June 1, 1890, to June 1, 1891.....	27
June 1, 1891, to June 1, 1892.....	73
June 1, 1892, to June 1, 1893.....	49
June 1, 1893, to June 1, 1894.....	38
Average strength of the United States Corps of Cadets:	
June 1, 1890, to June 1, 1891.....	257.52
June 1, 1891, to June 1, 1892.....	252.45
June 1, 1892, to June 1, 1893.....	257.97
June 1, 1893, to May 1, 1894 (11 months).....	283.04
Or a percentage in—	
1890-91.....	10.5
1891-92.....	29
1892-93.....	19.1
1893-94.....	13.4

An average of 18 per cent for the four years.

The committee are glad to observe that the insufficient light in the barrack study room—one of the most fertile causes of defective vision—frequently alluded to by previous Boards of Visitors, has been remedied. They urge that every other possible cause producing decreased acuteness of sight should be carefully eliminated. Among these the substitution of inclined instead of horizontal tops for the study tables and the preservation of a proper distance of the eye from the book or paper—thirteen inches—are important and practicable. The former can easily be provided by the Academy, but the latter can only be obtained by the personal cooperation of the cadets themselves. The committee therefore urges upon the cadets most rigidly to avoid stooping or bending over their desks, and thus avoid the production of near-sightedness and other defects and diseases which are at once a discomfort and a danger; and that from time to time the post surgeons direct the attention of the cadets to the danger and its simple and efficient remedy.

In the mess hall the committee, at the very threshold, were struck by the disagreeable odor arising from the soap and water and food-soaked wooden floor, in spite of the fact that the doors and windows were open. They heartily approve, therefore, of the pending appropriation for a tile floor in the mess hall. The food was excellent, and so far as they could learn by inquiry from cadets and others was sufficiently varied and of good quality. In reply to verbal and written inquiries, the following communications were received in relation to instruction in hygiene:

UNITED STATES MILITARY ACADEMY,
SURGEON'S OFFICE, CADET HOSPITAL,
West Point, N. Y., June 3, 1894.

DEAR SIR: In compliance with your verbal request I take pleasure in submitting the following remarks upon the desirability of instituting at West Point a course of instruction in military hygiene and in methods of rendering immediate aid to the wounded:

The extreme importance of this instruction in military life is so generally conceded that medical officers are required by regulations to teach the private soldiers of the line how to aid the sick and wounded and transport them. But the full measure of usefulness of sanitation to the Army can not be exerted until those who command understand the fundamental principles of hygiene and appreciate their importance.

Military hygiene is not a new science. Its beginnings are to be found in the dawn of medicine; but notwithstanding its established importance in the promotion of military efficiency, the combatant officer of our Army has never been taught to regard it as a necessary part of his military education. He is instructed in law, chemistry, mineralogy, geology, philosophy, French, Spanish, drawing, astronomy, and other sciences more or less opposite to the profession of arms, but there has never been any serious attempt made to teach him the practical principles of sanitary science even in their elementary form, so that he will understand what is necessary to do to preserve the health of his command and keep it at its highest state of effectiveness. He is taught the duties of every other staff corps of the Army, but remains ignorant, unless self-taught, of the art of fighting the most deadly enemy of armies—disease.

One who commands should know the rationale upon which opinions and actions are based in all departments of his command. Ignorance in any particular endangers proportionally his ability to exercise an intelligent supervision over all.

If it is acknowledged that this instruction is a necessary part of the education of an army officer, the proper time to instill it is during the academic course, when one instructor will suffice. If postponed for a post-graduate course there would have to be four instructors at least, one each at the infantry, cavalry, artillery, and engineer schools.

Disease has always claimed three to ten times more victims in war than the shot and shell of the enemy. To-day in our little Army there are 500 men constantly sick and noneffective from preventable diseases.

Although medical officers have struggled valiantly with the problem of sanitation, they need the intelligent assistance of their nonmedical brethren of the line to attain the perfect results they so ardently desire.

At the Naval Academy a chair of hygiene and first aid was established some years ago, Surgeon Beyer holding this chair and supervising also the physical training of the cadets. The instruction has been productive of the most satisfactory results. Throughout the civilized world the importance of this instruction is being recognized, and its benefits in every direction can not be overestimated.

I should think a sufficient practical knowledge of hygiene and first aid could be given to the first class at the Military Academy, to which class this instruction might be confined, in twelve lessons of an hour or so each. It is believed that the present course might be so arranged as to easily admit of this slight addition.

The essential subjects to be considered would be: (1) The soldier, his training, food, clothing, and shelter; (2) the diseases and injuries to which soldiers are especially liable; (3) the hygiene of barracks and quarters, and of camps and troops in the field, and (4) the immediate aid and transportation of sick or injured officers and men.

In the British army the medical officers supervise the amount and kind of gymnastic exercises, and it would seem that such an arrangement is best adapted to accomplish the end in view. A knowledge of the human body in health and disease, the symptoms which indicate organic defects and the training required to best overcome them, is a part of the equipment of all medical officers.

The present course of gymnastics at the Academy is an excellent one, and it is believed that the relation to this department of the medical officer need only be an advisory one and confined to the giving of professional opinions concerning the existence of organic defects, so as to put the instructor on his guard in cases of possible danger from violent exercises.

If the Board of Visitors is favorable to the introduction of this course, it would seem that it should be entrusted to an officer of the Medical Corps as best equipped to teach it, and it is respectfully suggested that a medical officer on duty at the Academy could take charge of it provided, he were relieved of some of his present duties while engaged in delivering the course.

I am, dear sir, very respectfully, yours,

P. F. HARVEY,

Major and Surgeon, United States Army, Post Surgeon.

Dr. W. W. KEEN,

Chairman of Committee on Hygiene and Athletics, etc.

WEST POINT, N. Y., June 5, 1894.

SIR: In reply to your communication of this date in regard to the number of recitations in hygiene which were had in my department, I have to state that eleven recitations were given to the subject-matter contained in Tracy's Anatomy,

Physiology and Hygiene. I assume that your question has reference to the above named book. Six of the above number were advance lessons, the others review.

It may be pertinent to add that many principles of hygiene are taught in other parts of my course, both from the text and by lecture, as heating, ventilating, disinfectants, and the proper sites for camps, etc.

Very respectfully,

S. E. TILLMAN,

Professor Chemistry, etc., U. S. Military Academy.

Hon. J. J. DAVIS,

Secretary Committee Hygiene and Athletics.

In addition to these letters the committee held conferences with the Superintendent, Colonel Ernst, and the medical officers of the post, Drs. Harvey and Reynolds, and others. The Superintendent, Colonel Ernst, was opposed to the views of Surgeon Harvey, as indicated both verbally in his conference with the committee and by the following letter :

WEST POINT, June 6, 1894.

SIR: I have the honor to acknowledge receipt of your favor of the 4th instant, transmitting a letter addressed to your committee by the post surgeon, and a copy of a resolution adopted by the committee inviting me to meet the committee on the following morning. Owing to a pressure of duties and the shortness of the interval, I was unable to make a written reply to your letter before the meeting. My views upon the general subject of the letter were given to the committee at the meeting, and are opposed to those of the post surgeon.

The letter is herewith returned.

Very respectfully, your obedient servant,

O. H. ERNST,

Colonel of Engineers, Supt.

Hon. J. J. DAVIS,

Secretary Committee on Hygiene and Athletics, etc.

It would appear that the entire instruction in this important branch is limited to six advance lessons (with five review), together with incidental allusions to various sanitary subjects by the professors of chemistry, engineering, etc. One lecture we learn was given also by one of the medical officers last winter on first aid to the wounded. This very brief course, while of value, seems to the committee to be wholly inadequate to the proper instruction of officers who are to have the care of the lives and health of thousands of men.

The mere rudiments of anatomy, physiology, and hygiene in relation only to their personal health can not be acquired by the cadets in so short a course; and when to these are added the important questions of the proper or improper feeding, clothing, housing, and training of the soldiers in peace and during the exigencies of war, the prevalence and prevention of disease, which makes far greater inroads upon the effective military strength of an army than do the shot and shell of the enemy, and the complicated problems of the effective yet practicable sanitation of barracks and camps, thorough instruction in this department is seen to be not only desirable, but urgent, and in fact necessary. Though some instruction is given in sanitation at posts of instruction after graduation, yet so far as the committee can learn there is no complete course given at any of these posts, nor is it given at each of such

post-graduate schools, nor are all of the cadets invariably after graduation sent to one of these. Here is the only place at which all of them can acquire any knowledge of this subject of vital importance to the Army, especially when in actual service.

The sanitation of armies during war is not merely a medical question. However desirable the medical requirements may be military necessities may make it needful to disregard them, even at serious risk to the health of the Army. But in probably the majority of cases this is not true, and when not so the importance of the proper location and sanitation of camps and barracks and of those medical precautions which may be highly conducive to the health and therefore to the success of an army should be fully understood by the officers of the staff and line, so that they may appreciate their stringent necessity and act in accordance with them instead of inviting disaster by their violation. This violation will be none the less injurious or even fatal to the military success of an army because it is committed unintentionally and purely from ignorance of the laws of health, for these laws require obedience and enforce their own penalties as rigidly as the laws governing military operations themselves.

In addition to this it needs no argument to convince any intelligent man of the importance of every soldier and officer knowing how to render effective first aid to the injured and wounded, especially in an occupation one of whose chief objects and dangers is the infliction and reception of such wounds and injuries. In fact, in the past, especially in small commands on duty without a medical officer, most valuable lives actually have been lost to the Army and the country for the want of exactly such knowledge. Instruction in first aid is given with reasonable fullness to the soldiers at this command, as each of them serves in turn as a company bearer. Prospective officers should certainly be as well instructed as their men, and if possible better.

Instruction in anatomy, physiology, and hygiene is technical, and in the opinion of the committee should be given by the senior medical officer of the post, as the surgeons are the only officers who are fully fitted for these duties. In the Naval Academy such a chair has been established and is filled by a surgeon, and the Army should not be behind the Navy in this important practical as well as scientific study. In response to an inquiry by the committee the following letter was received from Dr. Beyer giving a résumé of his course and the examination questions, both of which impress the committee most favorably.

BRANCH OF PHYSICAL TRAINING, NAVAL ACADEMY,

Annapolis, Md., June 6, 1894.

SIR: I have the honor to acknowledge your letter of June 4, requesting me to furnish you with some information with regard to the course of physiology and hygiene given at this Academy.

The course begins with several lectures on general biology for a foundation and intended to give the cadets some elementary ideas of "living things." Anatomy and physiology are next taken up; the instruction is also given in the form of lectures with practical demonstrations. The text-book used is Martin's Human Body.

After the cadets have acquired a sufficient amount of knowledge of living things and the human body, lectures on general hygiene are introduced, gradually leading up to the special branches of hygiene concerning naval and military operations. Finally every cadet is taught the principles and practice of First Aid to the Injured, embodied in a book with this title published by the Naval Institute here in 1892, from which copies can still be obtained. In all there are about thirty lectures delivered during the year, and the examinations are held at the end of each month in writing. The instruction is made as practical as can be done, and a copy of the questions of the last written examination is herewith inclosed.

It is also an important part of this branch to systematize and supervise the gymnastic drills. Numerous short addresses are given the cadets in the gymnasium during their exercises; they are instructed in the use of every special piece of apparatus in order to enable them to use the apparatus with the best possible advantage to themselves. Any cadet needing special development in certain parts receives special attention to insure perfect symmetry of growth. Repeated measurements are made and progress is noted.

I feel that my account is imperfect and must be so, since it is impossible to put everything on paper having a bearing on the subject. I consider this department an important one, and am thoroughly interested in the work. If you could conveniently stop at the Academy for a short time I would gladly show you much more.

Respectfully,

HENRY G. BEYER,
Surgeon in Charge of Branch.

DR. W. W. KEEN,
Chairman Committee on Hygiene, West Point, N. Y.

UNITED STATES NAVAL ACADEMY, BRANCH OF PHYSICAL TRAINING.

Examination in physiology, February 24, 1894.

1. Define biology and its subdivisions.
2. Mention the distinctive properties of living matter.
3. Describe the cell and its constituent parts.
4. How do cells multiply? Describe the process.
5. What is morphology?
6. Name, and define three of the functions of living matter.
7. Enumerate the bones belonging to the "appendicular skeleton."
8. Describe a typical dorsal vertebra.
9. Describe the humerus.
10. Give a general description of an articulation.
11. Describe the hip joint in detail.
12. What are ciliated cells, and where found?
13. Mention the properties of muscular tissue.
14. Give a general description of an ordinary skeletal muscle.
15. Give the origin and insertion of the biceps.

Examination in physiology and hygiene, March 23, 1894.

1. Describe the heart and its valves.
2. Name and place the principal arteries.
3. Give the function of the red blood corpuscles.
4. What is the pulse due to? Give and describe tracing.
5. Describe the lymphatic system of vessels and glands.
6. Mention the principal muscles of respiration.
7. Define the thoracic and abdominal types of respiration.
8. Give the minute anatomy and function of the skin.
9. What is the function of the kidneys?

10. What is the influence of nicotine on the blood and its various constituents?
11. What will be the probable influence of the new small-arm rifle and projectile on the death rate of future battles?
12. Why will deaths from hemorrhage in the field occur more frequently than formerly?

Examination in physiology and hygiene, April 27, 1894.

1. Give the chief divisions of the nervous system.
2. Describe the typical brain cell.
3. Give the minute anatomy of a nerve cord.
4. Describe the origin of a spinal nerve.
5. How are nerves divided according to function?
6. Explain reflex action.
7. Name the active principle of saliva; give its action.
8. Name and describe the different glands of the stomach.
9. Give the chief constituent of gastric juice.
10. What are the peptones?
11. Describe the mucus layer of the duodenum.
12. Where and how is digested food absorbed and passed on into the blood?

Examination in physiology, May 25, 1894.

1. Trace the complete digestion of a simple meal consisting of carbohydrates, proteids, and fats.
2. Give the acute and chronic effect of alcoholic beverages.
3. What are bacteria and how are they classified?
4. Describe one of the methods of sterilizing the skin.
5. How is sea water to be prepared before it can be made potable through distillation?
6. Describe the manual and instrumental methods of compressing the femoral artery in cases of hemorrhage.
7. How would you treat a poisoned wound?
8. Tell how to resuscitate an apparently drowned man.
9. Treat a case of unconsciousness occurring in fire room.
10. State how to distinguish apparent from real death.

After careful consideration, especially of the objections urged by Colonel Ernst in his interview, the committee recommend that a chair of anatomy, physiology, hygiene, and first aid to the injured be established at West Point; that it be filled by the senior surgeon; that his duties should include the supervision of all athletics, and that his course should cover thirty lessons and demonstrations at the least.

Our conference with the Superintendent as well as our investigation of the course of study impressed us, however, with the fact that as arranged at present it will be difficult to find time for increased instruction in this branch without injuring the health of the cadets, except by curtailing to some extent the instruction given in some of the other departments. The committee therefore would recommend that the eleven recitations now held by the professor of chemistry in this department be given to the proposed chair of anatomy, etc. They are inclined also to think that however, desirable, the study of mineralogy and geology is not so directly concerned in army life and health as the proposed studies, and that the necessary time for the proposed course in hygiene, etc., could be secured by slightly curtailing the course in these departments, unless the academic board should think it better to retrench in

other departments of study. The subject is so obviously desirable and indeed imperative that we feel that these administrative details may surely be left to the Superintendent and the academic board to be carried out.

In the athletic department it is to be remembered that exercise per se is a part of the entire course. The cavalry drill, alike in the school of the troop and of the trooper, excited our admiration, both as a military operation and a capital physical exercise. The same may be said of the daily infantry drill, the sword exercise, and fencing. But only the systematic examination, measurement, and testing of each man will reveal accurately wherein he excels and wherein he lacks, and prescribed gymnastic exercise will repress the excess in one direction and remedy the deficiency in another. The universal testimony to the great efficiency of Mr. Koehler, who at present is in charge of such gymnastics, has given much pleasure to the committee. Exercise in the gymnasium as a prescribed course is limited to the first year in the Academy, and has produced admirable results. Unless found impracticable, we would recommend that such exercise should extend through the entire four years. We would especially urge also that, as at the Naval Academy, the Sargent or other similar system of measurements, records, and athletic prescriptions be introduced, so that each man may be brought up to the maximum of physical development, especially in directions in which he may be defective, which can only be determined by such a system.

The committee are glad to note that, in common with most college presidents who have investigated the matter, the Superintendent is convinced that athletic sports and games are conducive both to scholarship and discipline, and they are of the opinion that such pastimes should be encouraged to the utmost, both for recreation and health. The Superintendent and post surgeon have, however, called attention to the frequency and serious nature of the accidents arising in football. The following tables, prepared by Dr. Harvey from the hospital records, show the comparative frequency and severity of the accidents from gymnastics, riding, and football:

TABLE NO. 1.—*List of casualties among United States cadets due to football, riding, and gymnastics for a period of three months in 1892.*

Football injuries, September 1, 1892, to November 30, 1892.....	37
Injuries in riding hall, October 15, 1892, to January 15, 1893.....	26
Injuries in gymnasium	10
Number of men—	
Who played football	27
Under instruction in riding hall.....	198
Under instruction in gymnasium.....	101
Days lost from—	
Football accidents	106
Riding injuries	71
Accidents in gymnasium ¹	58

¹Forty-six days of the fifty-eight lost by one accident (fracture).

TABLE NO. 2.—Casualties among United States cadets due to football, riding, and gymnastics, for a period of three months in 1893.

Football:	
Sprains—Slight	4
Severe	32
Contusions and lacerations	17
Fracture both bones of leg	1
Riding, injuries of all kinds	17
Gymnasium, injuries of all kinds	9
Number of football players (approximate)	34
Number under instructions in riding hall	184
Number under instructions in gymnasium	106
<i>Total injured.</i>	
Football	54
Riding	17
Gymnasium	9
Total	80
Injuries in riding and gymnasium usually very slight.	
Days lost from—	
Football accidents	277
Injuries in riding ¹	57
Injuries in gymnasium	11

	1892.	1893.
Per cent of accidents per man in—		
Football	1.05	1.6
Riding .....	.11	.09
Gymnasium .....	.10	.08
Per cent of days lost per man in—		
Football	3.93	8.01
Riding .....	.35	.31
Gymnasium .....	.10	.15
Per cent of men off duty per diem in—		
Football	1.18	3.01
Riding .....	.79	.63
Gymnasium .....	.64	.12
Per cent of days lost per accident in—		
Football	2.98	5.01
Riding	2.74	3.04
Gymnasium	5.80	1.02

To obtain the comparative percentages of football and riding accidents multiply the percentages of football accidents by 3, as football is only played once a week, and riding is done three times a week.

To obtain the comparative percentages of football and gymnasium accidents multiply the football percentage by 6, as the exercise in the gymnasium is taken six times a week.

The percentages and the remarks following them were added by the chairman of the committee. Dr. Harvey suggests the following as a fairer basis of comparison:

Memorandum.—It is proper to add that although match games of football have been played only Saturday afternoons at the Academy, there have been practice games Wednesday afternoons at which there have happened a few casualties, but not enough to materially invalidate the correction suggested in the last paragraph.

¹ Twenty-seven days of the fifty-seven lost by one case (kick).

However, it might be said in all fairness to football that, as compared with riding accidents, the percentage of accidents per man in football, shown by the table, should be doubled and trebled when compared with accidents in riding and in the gymnasium.

So far as we know, this is the first contribution of accurate comparative data of these three forms of athletics in the same institution, under identical surroundings and by the same class of men. If the frequency of gymnastics (six times a week), of riding (three times a week), and of football (once a week) are taken into account it shows that per man playing there were respectively from about twenty to over one hundred times as many accidents in football as in the riding hall and in the gymnasium, and that the gravity of the accidents as measured by the number of days lost per man playing or per man injured, or by the number of men off duty per diem, is vastly greater from football than from either of the other two forms of athletics. If these conditions were to continue it would be a serious question whether football should be allowed, in spite of its manifest advantages. The price paid would seem to be too high for the advantages gained. If the rules of the game are so altered as to eliminate the unnecessary dangers, the committee would decidedly and emphatically favor this game as well as all other athletic sports. From the daily papers we learn that the rules have recently been amended so as to eliminate the "mass plays" which are the chief sources of danger, and if this be so, we hope that football will not only be allowed, but encouraged.

The question of interacademic games is quite different. The Superintendent has discussed this question in a separate report, to which we refer, and in his conclusion that such games would be better abandoned we concur.

W. W. KEEN, *Chairman.*
JOHN C. BLACK.
JOHN J. DAVIS.

MISCELLANEOUS AFFAIRS.

Committee on miscellaneous affairs.—Messrs. JOHN J. DAVIS, NEWTON M. CURTIS, and THOMAS F. EDMANDS.

The committee on miscellaneous affairs finds the following recommendations made in his last annual report by the Superintendent of the Military Academy.

DEPARTMENT OF LAW.

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.

The committee recommends such an increase in rank and pay.

ADJUTANT OF THE ACADEMY.

The adjutant of the Academy is also secretary of the academic board, and upon occasions of ceremony acts as aid-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.

The committee recommends such an increase in rank and pay.

MASTER OF THE SWORD.

The sword master 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.

The committee recommends that the rank and pay thus indicated be given the sword master while so acting.

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 recommends that the band be increased to at least forty members and a leader. To anyone 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 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.

The committee concurs in the above recommendations.

A communication from Mr. Arthur A. Clappé is appended, showing the details and extra cost of the proposed increase of the band. The committee is inclined to think that \$34 per month, as stated by the Superintendent, instead of \$35 per month, as set forth by Mr. Clappé, will be sufficient for the ten first-class musicians. Otherwise there appears to be no difference in figures.

The band as now constituted is not a credit to the United States, and should be increased to at least forty members.

By a resolution of the Board of Visitors one of its members was requested to remain at West Point after the graduation exercises to observe the examination and entrance of the new class.

The candidates who were examined and passed in March last were entered as fast as the work could be performed after June 12, and were given second-hand uniforms for use until their own uniforms could be made. Active work upon their instruction was immediately commenced.

Formerly it was the custom to keep the new cadets in their civilian clothing until the uniforms for which they were measured could be completed. As all this work is done on the post at the tailor's shop established by the quartermaster, whose force is necessarily limited, the civilian clothing worn by the new cadets was generally ruined before their uniforms were completed. Nor is such clothing suitable for work like military drill, especially the vigorous and straining motions of the setting-up exercises with which the instruction commences.

The second-hand uniforms given the new cadets are the best of the garments left behind by graduating classes. Before being issued again every article is thoroughly cleansed and repaired. Many of them look as good as new, and easily last for the short time they are required. The new cadets are very glad to get them, and the change from the old method is very much to be commended, not only because the feelings of the newcomers are spared, but because the pride they can feel in their appearance as soldiers makes the work of their military instructor so much the easier, a considerable economy in the time being thus effected.

“Plebe drill,” as it is called, now gives little amusement to spectators, except in the ridiculous manners assumed by some of the young cadet drillmasters, who, fourth-class men themselves only a few days before, give themselves airs which cause observers to laugh at them rather than at their pupils.

Meanwhile, the candidates who reported immediately after the graduation day for the first time were being examined in various branches—arithmetic, writing and orthography, geography, English grammar, and United States history—copies of the papers used in each of which are hereby subjoined. The figures “Wt. 6.,” etc., given opposite the questions denote the weight that a correct answer carries. The paper on writing and orthography was the only one done from dictation.

On the night of June 9 a serious fire occurred near the gas house, by which a portion of the coal supply intended for the gas works was consumed, together with certain trestlework belonging to a narrow gauge railroad track. At this fire the cadet engine became unserviceable. The engine of the enlisted men did good service. The battalion of cadets performed a very creditable piece of work in preventing the spread of the fire.

The Superintendent of the Academy ordered a board of officers to investigate the cause of the fire, but the report had not been received when the committee left West Point. The committee has, however, by its own observation, formed the opinion that the fire-alarm system should be improved, and that it is false economy to withhold from the post the most complete and modern apparatus for this purpose.

Moreover, it would seem advisable to have a standpipe or some means of obtaining direct pressure upon hydrants, by which powerful streams may be directed without the use of steam fire engines, and the committee is of the opinion that more water mains and more hydrants should be supplied.

On the 13th of June, the day after the first class had graduated and the third class had gone on furlough, the new first and third classes went into camp. The admirable discipline and careful attention to every military detail make the encampment the model for all the troops in the country to follow in all things, except perhaps one, that is the internal arrangement and overburdening of the tents with too much luggage in the form of extra clothing, unnecessary bedding, trousers cases, etc.

The suggestion is made that a light rack to contain the trousers case might easily be constructed for the rear of each tent, on which rack the arms and equipments, hats, and a reasonable amount of extra clothing might be supported.

A hanging shelf under the ridgepole and a backboard hinge to the rear of the tent floor to stand up against the rear pole would be convenient and add to the orderly appearance of the tents, besides making the task of keeping them in order much easier to the cadets.

The bedding furnished each cadet includes no mattress. Consequently, the more "comfortables" a man can secure for his own use to interpose between him and a hard tent floor the more comfortable he can make himself. The result is an unsightly pile of bedding in the corner of each tent. A simpler plan would be to furnish each cadet with a mattress, 7 feet long by 2 feet 3 inches wide, to be kept in the tent only between tattoo and reveille, and piled during the day in a separate tent for each company, either in one of the streets, or, better still, at one side and slightly detached from the camp, where the mattresses could thus be thoroughly aired every day. This plan has been successfully adopted by volunteer militia for many years.

JOHN J. DAVIS, *Chairman.*

NEWTON M. CURTIS.

THOMAS F. EDMANDS.

EXAMINATIONS.

Each candidate received the following notice:

“GENERAL DIRECTIONS FOR APPOINTEES.

“*First day.*—Grammar, 9 a. m. to 11.30 a. m.; writing and orthography, 2 p. m. to 4 p. m.

“*Second day.*—History, 9 a. m. to 12 m.; geography, 2 p. m. to 4.30 p. m.

“*Third day.*—Arithmetic, 9 a. m. to 12.30 p. m.; reading, 2.30 p. m.

“Appointees should come prepared to remain in the examination hall during the entire time allotted to each subject.

“Appointees will not bring to or take from the examination hall any paper, blank or otherwise, but they may bring pens.

“Appointees will not communicate with each other in any way whatever, or make use of any unauthorized information during any examination.

“Upon all their papers appointees will write distinctly their numbers, the date and place of examination.”

On the other side of the paper containing the above information was printed information containing directions for the examination in arithmetic, which was substantially alike for all the examinations, as follows:

“DIRECTIONS FOR EXAMINATION IN ARITHMETIC.

“Write your number distinctly.

“Do not make a noise by moving your chair.

“Arithmetical solutions are required, but full credit will be given for any correct solution.

“Sufficient work to indicate clearly the method and operations is required in all examples.

“Indicate your answer in each example by writing *Ans.* near it.

“Answers to examples without solution will not receive credit.

“Work to include four decimal places, when necessary, is sufficiently accurate.

“Reduce all fractional results to simplest form.

“A rule is not received as a reason for a principle, or in place of a solution.

“Do not attempt to solve examples upon extra paper with a view to copying.

“Do not copy the questions or examples upon the sheet of your work, but be careful to put your work in each case in the space having the same number.

“Draw a line with your pen through erroneous work, and begin again. Do not erase with a knife or eraser.

“You are advised to take the examples in the order as given. Should anyone delay you too long, pass on to others. After trying all you can return to the unsolved ones in case there is time.

“You will receive credit for all correct work done; therefore, do what you can in each case, even though you may not be able to complete the solution or obtain a correct result.

“Numerical errors do not count as much against you as errors in methods.

“Keep your eyes and attention upon your own work. Communication of any kind is forbidden. Bring no blank paper or memorandum to the examination hall.

“Do not mark upon this paper. Bring it to the examination in arithmetic.

"When you have finished your work look it over carefully, and state the arithmetics you have studied.

"When all is completed to your satisfaction, take your hat, this paper, the list of examples, and the paper with your solutions and answers (three papers in all) to the officer in charge of the examination.

"Walk on your toes so as not to disturb others.

"After papers have been handed in they will not be returned.

"Assume the following data:

"1 pound avoirdupois = 7,000 grains troy.

"1 pound avoirdupois is the weight of 27.7015 inches of distilled water.

"1 cubic foot of water weighs 1,000 ounces avoirdupois.

"25 pounds avoirdupois = 1 quarter.

"1 fathom = 6 feet; 1 hand = 4 inches.

"40 square rods = 1 rood. R.

"1 United States gallon liquid or wine measure contains 231 cubic inches.

"1 English imperial gallon contains 277.274 cubic inches.

"1 gallon beer measure contains 282 cubic inches.

"1 bushel dry measure contains 2,150.422 cubic inches.

"The ratio of a to b is $\frac{a}{b}$ $\frac{a}{b}$:

"1 ounce troy = 31.1 grams."

EXAMINATION IN ARITHMETIC, JUNE, 1894.

[Time, three and a half hours.]

1. Wt. 8. The sum of two numbers is 365 and their difference is 0.0675; what are the numbers?

2. Wt. 8. What part of 3.003 is $\frac{2}{3}$ of 0.057?

3. Wt. 7. If 3 kilometers are as much under 2 miles as 5 kilometers are over 3 miles, how many yards are there in a kilometer?

4. Wt. 11. B is a town on a river, between and equidistant from A and C. The direction of the current is from C toward A. A boat goes from B to A and back to B in 5 hours 15 minutes, and it goes from A to C, against the current, in 7 hours; how long will it take the boat to go from C to A?

5. Wt. 11. Simplify $\frac{5\frac{2}{3} - \frac{2}{3}}{1\frac{1}{5} \text{ of } \frac{2}{3} - 10\frac{1}{3}} \times \frac{2}{3}$ of $\frac{1\frac{1}{2} \text{ of } 4\frac{1}{9}}{13\frac{7}{8} \text{ of } 5\frac{1}{8}}$. Give result in form of a decimal.

6. Wt. 11. Two farmers own adjoining farms of 300 and 500 acres, respectively. They unite the farms and take in a third partner who pays them \$800, each to own a third share of the combined farms. How is the \$800 to be divided between the original two farmers?

7. Wt. 15. The wages of A and B together for $22\frac{1}{2}$ days amount to the same sum as the wages of A alone for $38\frac{1}{2}$ days. For how many days will the sum pay the wages of B alone?

8. Wt. 14. 54 men dig a ditch at the rate of 81 feet per day; after 13 days' work 8 men are replaced by 8 boys, and 11 days after that the length of the ditch finished is 1,889 feet. How many feet does 1 boy dig in 1 day?

9. Wt. 15. A cistern is continuously and uniformly supplied by a stream running into it. It has 10 discharge pipes, each of which discharges 1 gallon per hour. The 10 pipes together will empty it in $2\frac{1}{2}$ hours, and 6 pipes will empty it in $5\frac{1}{2}$ hours. In what time will 3 pipes empty it?

The cistern is supposed to be full at the beginning in each case, and the supply stream continues to run in.

PLACE, _____,
 June —, 1894. No. —.

EXAMINATION IN ENGLISH GRAMMAR.

[Time allotted, two and one-half hours.]

Directions.—On the dotted line opposite the word “place” the candidate will write the name of the place where his examination occurs; opposite the word “June” he will write the day of the examination; opposite the word “No.” he will write, in figures, his number.

DIVISION 1.—*Weight, 15.*

N. B.—Write the answers below, numbering them to correspond to the questions. An additional sheet of paper may be used if necessary; it must be numbered and dated as at the top of this page.

Wt. 3. (1) Give the principal parts (present tense, past tense, and past participle) of the following verbs: 1, choose; 2, crow; 3, eat; 4, freeze; 5, knit; 6, let; 7, mow; 8, slay; 9, lie (to recline); 10, throw; 11, stick; 12, fly; 13, arise; 14, sit; 15, burst.

Wt. 3. (2) Write the plurals of the following nouns: 1, motto; 2, lasso; 3, fairy; 4, monkey; 5, wolf; 6, belief; 7, axis; 8, synopsis; 9, man-of-war; 10, pailful; 11, Norman; 12, f; 13, phenomenon; 14, tooth brush; 15, focus.

Wt. 3. (3) Write the feminine form of the following nouns: 1, giant; 2, ambassador; 3, sorcerer; 4, hero; 5, testator; 6, Englishman; 7, peacock; 8, conductor; 9, he-bear; 10, duke; 11, dog; 12, traitor; 13, sultan; 14, king; 15, mankind.

Wt. 3. (4) Write the possessive case of the following words: 1, we; 2, women; 3, Charles; 4, they; 5, prince; 6, man-of-war; 7, it; 8, Frederick the Great; 9, Duke of Wellington; 10, sons.

Wt. 3. (5) 1, define a sentence; 2, define a clause; 3, define a phrase; 4, what is the infinitive mood? 5, what is a participle?

DIVISION 2.—*Weight, 45; weight of each word, 2.25.*

N. B.—Write across both pages if necessary. In parsing give no rules, declensions, comparisons, nor principal parts of verbs, but in other respects parse fully, being careful to give the *subject of each verb*, the *governing word of each objective case*, the *antecedent of each pronoun*, and to state precisely what *each conjunction connects and between what words each preposition shows the relation*. Important omissions will be taken to indicate ignorance. Intelligible abbreviations are allowed.

Parse the words in italics in the following sentence: *On this question of principle while actual suffering was yet afar off, our fathers raised their flags against a power to which, for purposes of foreign conquest and subjugation, Rome, in the height of her glory, is not to be compared—a power which has dotted over the surface of the whole globe with her possessions and military posts.*

- | | |
|--------------|--------------------|
| 1. on | 11. for |
| 2. while | 12. and |
| 3. suffering | 13. Rome |
| 4. yet | 14. in |
| 5. afar | 15. to be compared |
| 6. off | 16. power |
| 7. raised | 17. which |
| 8. against | 18. over |
| 9. to | 19. surface |
| 10. which | 20. with |

DIVISION 3.—*Weight, 40; weight of each sentence, 2.*

N. B.—In correcting these errors the candidate will draw his pen through the error and write the correct word or words above.

Correct all errors in the following sentences, remembering that evasion is no correction.

1. Choose between these four houses.

2. He jumped in a cab.
 3. They were very respected.
 4. He is very sensitive of cold.
 5. That custom has been formerly quite popular.
 6. Ask that man, he who stands by the window.
 7. Are either of these places marked on the map?
 8. You can hardly find a more universal blunder.
 9. I gave it to a man whom I thought was the owner.
 10. I found it harder than I thought it would have been.
 11. I have written to him so that he might be ready for us.
 12. There is both a large and small dictionary in the room.
 13. He hadn't ought to have told her about it.
 14. Scarcely one in twenty could write their own names.
 15. He was illy equipped for the journey.
 16. Nothing else but weeds will grow on it.
 17. She was disgusted with him for acting so silly.
 18. Which is the heaviest, her's or mine?
 19. I have and ever shall insist on the necessity of economy.
 20. Each have their own faults.
- N. B.—The candidate will write below the names of the text-books on grammar that he has been using during the past year.

PLACE, _____,
 _____, 189—. No. _____.

EXAMINATION IN WRITING AND ORTHOGRAPHY.

DIRECTIONS TO APPOINTEES.

Commence on this page and write until it is filled, then write on the second and third, consecutively. Write on both sides of the paper. Leave an interval of two lines between the prose and the poetry. Write the selected words opposite their corresponding numbers on the 4th page. Misplaced and omitted words will be counted as errors. Every illegible word will be counted as an error in spelling. (This includes words in which *e* and *i* are written alike with the dot placed between them, and all similar devices.) After the entire paper is written ample time will be given to revise and correct it. Corrections must be made by drawing a line through words wrongly spelled and rewriting them. No erasures with knife or eraser are allowed.

While the Declaration was the subject of general conversation in England, military operations recommenced on the continent. The preparations of France had been such as amazed even those who estimated most highly her resources and the abilities of her rulers.

Both her agriculture and her commerce were suffering. The vineyards, the interminable cornfields, had failed to yield their increase; the looms were silent; and merchant ships were rotting in the harbors. Yet the monarchy presented to its numerous enemies a front more haughty and more menacing than ever.

Louis had determined not to make any advance toward a reconciliation with the new government of England till the whole strength of his realm had been put forth in one more effort.

A mighty effort in truth it was, but too exhausting to be repeated. He made an immense display of force at once on the Pyrenees and on the Alps, on the Rhine and on the Meuse, in the Atlantic and in the Mediterranean.

That nothing might be wanting which could excite the martial ardor of a nation eminently high-spirited, he instituted, a few days before he left his palace for the

camp, a new military order of knighthood, and placed it under the protection of his own sainted ancestor and patron.

In fields of air he writes his name,
 And treads the chambers of the sky,
 He reads the stars and grasps the flames,
 That quivers round the throne on high.
 In war renowned, in peace sublime,
 He moves in greatness and in grace,
 His power, subduing space and time,
 Links realm to realm, and race to race.

- | | | | |
|----------------|-----------------|------------------|----------------|
| 1. Apology. | 7. Buoyant. | 13. Dungeon. | 19. Palace. |
| 2. Accelerate. | 8. Collision. | 14. Excel. | 20. Puncture. |
| 3. Adjacent. | 9. Compel. | 15. Exonerate. | 21. Quotient. |
| 4. Balance. | 10. Dalliance. | 16. Gnawing. | 22. Scourge. |
| 5. Balloon. | 11. Damaged. | 17. Intrepidity. | 23. Supersede. |
| 6. Bequeath. | 12. Descendant. | 18. Limited. | 24. Surgeon. |

A true copy :

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

PLACE, _____,
 June —, 1894. No. —.

EXAMINATION IN UNITED STATES HISTORY.

[Time allotted, three hours.]

N. B.—Write your answers as legibly and concisely as possible, without omitting material facts.

If there is not space enough for your answer, write on a separate sheet and number question on sheet, and make a note of it on this paper.

6. (1) What explorations or discoveries were made by the following named individuals:
 - (1) Magellan.
 - (2) Cordova.
 - (3) De Monts.
3. (2) What parts of North America were colonized by the French?
4. (3) What were the London and Plymouth companies, and what territory was granted to each, 1606?
4. (4) Give the history of Maine during the colonial period.
4. (5) When, where, and under what circumstances were the Carolinas separated?
3. (6) What were the terms of the treaty of Utrecht, which ended Queen Anne's war?
3. (7) What were the terms of the treaty of Aix la Chapelle, which closed King George's war?
6. (8) Give an account of the expedition against Canada in 1775.
4. (9) Give an account of the siege of Boston.
4. (10) Give an account of the battle of Long Island.
8. (11) What part was taken in the American war by the following named individuals?
 - (1) Lafayette.
 - (2) Benedict Arnold.
 - (3) Horatio Gates.
 - (4) Count de Grasse.

- 6. (12) By what party was Thomas Jefferson first elected President, and what were the political principles of this party?
- 6. (13) Give an account of the Mormons.
- 3. (14) Give an account of Dade's massacre.
- 6. (15) State the principal steps of the political struggle that led to the war of the Rebellion.
- 6. (16) Give the names and results of six important battles of 1864.

Battles.

Victors.

- 6. (17) In what war were the following battles fought? What were the opposing forces, and which side won?

War.	Forces.	Victors.
Dade's massacre		
Chancellorsville		
Brandywine		
Plains of Abraham		
Resaca de la Palma		
Lundy's Lane		

- 8. (18) What part was taken in American history by each of the following named individuals?
 - (1) Stephen Decatur.
 - (2) Edwin M. Stanton.
 - (3) S. F. B. Morse.
 - (4) John Wilkes Booth.
- 4. (19) Give an account of the Modoc war.
- 6. (20) What is meant by civil service reform, and when was the civil service bill passed?
 - (21) What histories of the United States have you read or studied?

PLACE, _____, _____,
June _____, 1894. No. _____

EXAMINATION IN GEOGRAPHY.

[Time allotted, two and one-half hours.]

- 1. Name the continents of the Eastern Hemisphere. Is there land connection between them?
- 2. What oceans wash the shores of North America?
- 3. Name and locate the three most important mountain ranges of South America.
- 4. Name the large rivers of North America, whose mouths are on the north and west coast of the continent.
- 5. Where do the following rivers rise and empty; give the general direction of their flow: Obi, Niger, Bramapootra, Zambesi, Ganges, Danube.
- 6. What Mexican States are contiguous to Texas?
- 7. Name four of the principal upland cities of Mexico.
- 8. In going along the coast from Rio Janeiro to Callao what countries are touched?
- 9. Name, in order, the states along the northern coast of Africa, between Gibraltar and Suez.
- 10. Bound the Australian colony of New South Wales, and name its principal river

11. Give the boundaries of Asiatic Russia, and state what countries it includes.
12. Locate, definitely, the following cities of Germany, and state upon what waters situated, if any: Hanover, Cologne, Leipsic, Stettin.
13. Give the political and natural boundaries of Spain; name four of the largest rivers that drain the country.
14. In going from London, England, to Belfast, Ireland, by boat, name the waters passed over.
15. To what countries do the following islands belong: Cuba, San Domingo, Bahamas, Jamaica, Bermudas; which is farthest north, farthest south?
16. In the Atlantic States north and east of New York, name the two important mountain ranges or ridges; name the river which drains the valley between them and state where it empties; what are the two most important cities on this river?
17. For what industry is Pennsylvania most noted; what are the chief products of this industry? Name five of the principal cities of Pennsylvania, and state where each is located.
18. In going from Wheeling to New Orleans by boat, what waters are traversed and what States are successively passed on the left hand? Locate definitely the capitals of each of these States.
19. Name all the States which have two waterways to the ocean (one through the Lakes and the other through the Mississippi River). Name and locate definitely their capitals.
20. What States lie, wholly or in part, west of the Rocky Mountains, and also wholly or in part north of the central Pacific Railroad?
21. What States lie, wholly or in part, between the Mississippi and Missouri rivers? Name and locate definitely their capitals.
22. What States and Territories are in part drained by the Colorado of the West. Name and locate definitely their capitals.
23. The meridian of San Francisco passes through what States? Its parallel passes through what States and Territories?
24. Bound the States of Georgia, Nevada, Michigan.

INFORMATION RELATIVE TO THE APPOINTMENT AND ADMISSION OF
CADETS TO THE UNITED STATES MILITARY ACADEMY.

APPOINTMENTS.

How made.—Each Congressional district and Territory—also the District of Columbia—is entitled to have one cadet at the Academy. Ten are also appointed *at large*. The appointments (except those *at large*) are made by the Secretary of War at the request of the Representative or Delegate in Congress from the district or Territory; and the person appointed must be an actual resident of the district or Territory from which the appointment is made. The appointments *at large* are specially conferred by the President of the United States.

Manner of making application.—Applications can be made at any time, by letter to the Secretary of War, to have the name of the applicant placed upon the register that it may be furnished to the proper Representative or Delegate when a vacancy occurs. The application must exhibit the full name, date of birth, and permanent abode of the applicant, with the number of the Congressional district in which his residence is situated.

Date of appointments.—Appointments are required by law to be made one year in advance of the date of admission, except in cases where, by reason of death or other cause, a vacancy occurs which can not be provided for by such appointment in advance. These vacancies are filled in time for the next annual examination.

Alternates.—The Representative or Delegate in Congress may nominate a legally qualified second candidate, to be designated the *alternate*. The alternate will receive from the War Department a letter of appointment, and will be examined *with the regular appointee*, and if duly qualified will be admitted to the academy in the event of the failure of the principal to pass the prescribed preliminary examinations. The alternate will not be allowed to defer his reporting at West Point until the result of the examination of the regular appointee is known, but must report at the time designated in his letter of appointment. The alternate, like the nominee, should be designated as nearly one year in advance of date of admission as possible.

ADMISSION OF CADETS.

Candidates, upon receiving their conditional appointments, will be instructed to appear for mental and physical examination before a board of Army officers to be convened at the military post nearest their respective places of residence on the 1st day of March annually (except when that day comes on Sunday, in which case the examinations will commence on the following Tuesday). The candidates who pass successfully will be admitted to the Academy, without further examination, upon reporting in person to the Superintendent at West Point before 12 o'clock m. on the 15th day of June.

Candidates selected to fill the vacancies unprovided for at the examinations held in March, and those which may occur after that time, will be instructed to report at

NOTE.—There being no provision whatever for the payment of the traveling expenses of either accepted or rejected candidates for admission, no candidate should fail to provide himself in advance with the means of returning to his home in case of his rejection before either of the examining boards, as he may otherwise be put to considerable trouble, inconvenience, and even suffering on account of his destitute condition. If admitted the money brought by him to meet such a contingency can be deposited with the treasurer on account of his equipment as a cadet, or returned to his friends.

West Point for examination early in June. The candidates who pass successfully this examination will be admitted at once to the Academy without returning to their homes.

Immediately after reporting to the Superintendent for admission, and before receiving his warrant of appointment, the candidate is required to sign an engagement for service in the following form, in the presence of the Superintendent, or of some officer deputed by him:

"I, ———, of the State (or Territory) of ———, aged ——— years ——— months, do hereby engage (with the consent of my parent or guardian) that, from the date of my admission as a cadet of the United States Military Academy, I will serve in the Army of the United States for eight years, unless sooner discharged by competent authority. ——— ———.

"In the presence of
—————."

The candidate is then required to take and subscribe an oath or affirmation in the following form:

"I, ———, do solemnly swear that I will support the Constitution of the United States and bear true allegiance to the National Government; that I will maintain and defend the sovereignty of the United States paramount to any and all allegiance, sovereignty, or fealty I may owe to any State or country whatsoever; and that I will at all times obey the legal orders of my superior officers and the rules and articles governing the armies of the United States. ——— ———."

"Sworn and subscribed, at ———, this ——— day of ———, eighteen hundred and ———, before me. ——— ———."

Qualifications.—The age for the admission of cadets to the Academy is between seventeen and twenty-two years. Candidates must be unmarried, at least five feet in height, free from any infectious or immoral disorder, and, generally from any deformity, disease, or infirmity which may render them unfit for military service. They must be well versed in reading, in writing (including orthography), in arithmetic, and have a knowledge of the elements of English grammar, of descriptive geography (particularly of our own country), and of the history of the United States.

CHARACTER OF EXAMINATIONS.*

Physical examination.

Every candidate is subjected to a rigid physical examination, and if there is found to exist in him any of the following causes of disqualification to such a degree as would immediately, or at no very distant period, impair his efficiency, he is rejected:

- (1) Feeble constitution; unsound health from whatever cause; indications of former disease; glandular swellings, or other symptoms of serofula.
- (2) Chronic cutaneous affections, especially of the scalp.
- (3) Severe injuries of the bones of the head; convulsions.
- (4) Impaired vision, from whatever cause; inflammatory affections of the eyelids; immobility or irregularity of the iris; fistula lachrymalis, etc.
- (5) Deafness; copious discharge from the ears.
- (6) Loss of many teeth, or the teeth generally unsound.
- (7) Impediment of speech.
- (8) Want of due capacity of the chest, and any other indication of a liability to a pulmonic disease.

* It is suggested to all candidates for admission to the Military Academy that, before leaving their place of residence for West Point, they should cause themselves to be thoroughly examined by a competent physician and by a teacher or instructor in good standing. By such an examination any serious physical disqualification or deficiency in mental preparation would be revealed, and the candidate probably spared the expense and trouble of a useless journey and the mortification of rejection.

It should be understood that the informal examination herein recommended is solely for the convenience and benefit of the candidate himself, and can in no manner affect the decision of the academic and medical examining boards at West Point.

(9) Impaired or inadequate efficiency of one or both of the superior extremities on account of fractures, especially of the clavicle, contraction of a joint, deformity, etc.

(10) An unusual excurvature or incurvature of the spine.

(11) Hernia.

(12) A varicose state of the veins of the scrotum or spermatic cord (when large), hydrocele, hemorrhoids, fistulas.

(13) Impaired or inadequate efficiency of one or both of the inferior extremities on account of varicose veins, fractures, malformation (flat feet, etc.), lameness, contraction, unequal length, bunions, overlying of supernumerary toes, etc.

(14) Ulcers, or unsound cicatrices of ulcers likely to break out afresh.

Academical examination.

Reading.—In reading candidates must be able to read understandingly, with proper accent and emphasis.

Writing and orthography.—In writing and orthography they must be able, from dictation, to write sentences from standard pieces of English literature, both prose and poetry, sufficient in number to test their qualifications both in handwriting and orthography. They must also be able to write and spell correctly from dictation a certain number of standard test words.

Arithmetic.—In arithmetic they must be able—

1st. To explain, accurately and clearly, its objects and the manner of writing and reading numbers—entire, fractional, compound, or denominate;

2d. To perform with facility and accuracy the various operations of addition, subtraction, multiplication, and division of whole numbers, abstract and compound or denominate, giving the rule for each operation, *with its reasons*, and also for the different methods of proving the accuracy of the work;

3d. To explain the meaning of reduction—its different kinds, its application to denominate numbers in reducing them from a higher to a lower denomination and the reverse, and to equivalent decimals; to give the rule for each case, *with its reasons*, and to apply readily these rules to practical examples of each kind;

4th. To explain the nature of prime numbers and factors of a number—of a common divisor of two or more numbers, particularly of their *greatest common divisor*—with its use, and to give the rule, *with its reasons*, for obtaining it; also the meaning of a common multiple of several numbers, particularly of their *least common multiple*, and its use, and to give the rule, *with its reasons*, for obtaining it, and to apply each of these rules to examples;

5th. To explain the nature of fractions, common or vulgar, and decimal; to define the various kinds of fractions, with the distinguishing properties of each; to give all the rules for their reduction, particularly from mixed to improper and the reverse, from compound or complex to simple, to their lowest terms, to a common denominator, from common to decimal and the reverse, for their addition, subtraction, multiplication, and division, *with the reason* for each change of rule, and to apply each rule to examples;

6th. To define the terms ratio and proportion; to give the properties of proportion and the rules, and *their reasons*, for stating and solving questions in both simple and compound proportion, or single and double rule of three, and to apply these rules to examples.

7th. *The candidates must not only know the principles and rules referred to above, but they are required to possess such a thorough understanding of all the fundamental operations of arithmetic as will enable them to combine the various principles in the solution of any complex problem which can be solved by the methods of arithmetic. In other words, they must possess such a complete knowledge of arithmetic as will enable them to take up at once the higher branches of mathematics without further study of arithmetic.*

8th. It is to be understood that the examination in these branches may be either written or oral, or partly written and partly oral, that the definitions and rules

must be given fully and accurately, and that the work of all examples, whether upon the blackboard, slate, or paper, must be written plainly and in full, and in such a manner as to show clearly the mode of solution.

The following examples and questions in arithmetic are a few of those which have been used at past examinations. They are given in order to indicate more clearly what is required, but it should be distinctly understood that entirely different ones are used each year:

Multiply 4.32 by .00012.

Explain the reason for placing the decimal point in the answer. [*The rule for so doing is not the reason.*]

$$5\frac{1}{2} + \frac{7\frac{1}{4}}{0.5} = 0.725$$

Reduce $\frac{4 + 3.45}{2\frac{3}{4}}$ to an equivalent decimal.

Divide 3380321 by MDCCXCIX, and express the quotient by the Roman system of notation.

Change .013 to an equivalent fraction whose denominator is 135.

Find the greatest common divisor of $26\frac{1}{2}$, $28\frac{2}{3}$, and $29\frac{3}{4}$.

How many men would be required to cultivate a field of $2\frac{3}{8}$ acres in $5\frac{1}{2}$ days of 10 hours each if each man completed 77 square yards in 9 hours?

Separate $772\frac{3}{8}$ into three numbers which shall be in the same proportion as $2\frac{1}{2}$, $\frac{7}{10}$, $\frac{6}{10}$.

5 cubic feet of gold weigh 98.20 times as much as a cubic foot of water, and 2 cubic feet of copper weigh 18 times as much as a cubic foot of water. How many cubic inches of copper will weigh as much as $\frac{7}{9}$ of a cubic inch of gold?

Find the least common multiple for the numbers $\frac{3}{4}$, 2.1, 5.25, $\frac{7}{8}$.

A wins 9 games out of 15 when playing against B, and 16 out of 25 when playing against C. How many games out of 118 should C win when playing against B?

A and B run a race, their rates of running being as 17 to 18. A runs $2\frac{3}{4}$ miles in 16 minutes 48 seconds, and B runs the entire distance in 34 minutes. What was the entire distance?

A and B can do a piece of work in 4 hours, A and C in $3\frac{3}{8}$ hours, B and C in $5\frac{1}{4}$ hours. In what time can A do it alone?

English shillings are coined from a metal which contains 37 parts of silver to 3 parts of alloy; one pound of this metal is coined into 66 shillings. The United States silver dollar weighs 412.5 grains, and consists of 9 parts silver to 1 part of alloy. What fraction of the United States dollar will contain the same amount of silver as one English shilling?

Give the rule for reducing a decimal of a given denomination to integers of lower denominations.

What is the effect of dividing the denominator of a fraction by a whole number, and why?

Explain the difference between a common fraction and a decimal.

What is the effect of annexing a cipher to a decimal, and why?

If the same number be subtracted from both terms of an improper fraction, what will be the effect? Why?

Give the rule for reducing a common fraction to an equivalent decimal, and explain why the resulting decimal will be equal to the common fraction from which it is obtained.

Give the rule for dividing one decimal by another, and explain why the decimal point in the quotient is placed where the rule directs.

Define reduction, and state the different kinds.

Grammar.—In *English grammar* candidates must be able—

1. To define the parts of speech and give their classes and properties; to give inflections, including declension, conjugation, and comparison; to give the corresponding masculine and feminine gender nouns; to give and apply the ordinary rules of syntax.

2. To parse fully and correctly any ordinary sentence, omitting rules, declensions, comparisons, and principal parts, but giving the subject of each verb, the governing word of each objective case, the word for which each pronoun stands or to which it refers, the words between which each proposition shows the relation, precisely what each conjunction connects, what each adjective and adverb qualifies or limits, the construction of each infinitive, and, generally, showing a good knowledge of the function of each word in the sentence. Omissions will be taken to indicate ignorance.

3. To correct in sentences or extracts any ordinary grammatical errors, such as are mentioned and explained in ordinary grammars.

It is not required that any particular grammarian or text-book shall be followed; but rules, definitions, parsing, and corrections must be in accordance with good usage and common sense. The examination may be written or oral, or both written or oral.

Geography.—Candidates will be required to pass a satisfactory examination, written or oral, or both, in *geography*, particularly of our own country. To give a candidate a clear idea of what is required the following synopsis is added to show the character and extent of the examination. Questions are likely to be asked involving knowledge of—

1st. Definitions of the geographical circles, of latitude and longitude, of zones and of all the natural divisions of the earth's surface, as islands, seas, capes, etc.

2d. The continental areas and grand divisions of water of the earth's surface.

3d. The grand divisions of the land; the large bodies of water which in part or wholly surround them; their principal mountains, location, direction, and extent; the capes, from what parts they project and into what waters; their principal peninsulas, location, and by what waters are they embraced; the parts connected by an isthmus, if any; their principal islands, location, and surrounding waters; the seas, gulfs, and bays, the coasts they indent, and the waters to which they are subordinate; the straits, the lands they separate, and the waters they connect; their principal rivers, their sources, directions of flow, and the waters into which they empty; their principal lakes, location and extent.

4th. The political divisions of the grand divisions. Their names, locations, boundaries, and capitals. General questions of the same character as indicated in the second section made applicable to each of the countries of each of the grand divisions.

5th. The United States. The candidate should be thoroughly informed as to its general features, configuration, location, and boundaries, both with respect to neighboring countries and latitude and longitude; its adjacent oceans, seas, bays, gulfs, sounds, straits, and islands; its mountain ranges, their location and extent; the sources, directions, and terminations of the important rivers and their principal tributaries; the lakes, and, in short, every geographical feature of the country, as indicated above. The location and termination of important railroad lines and other means of communication from one part of the country to another should not be omitted. The States and Territories are to be accurately located with respect to each other by their boundaries, and as to their order along the Atlantic Coast, the Gulf of Mexico, the Pacific Coast, the Northern frontier, the Mexican frontier, and the Mississippi, Missouri, and Ohio rivers. The boundary and other large rivers of each State, as well as all other prominent geographical features should be known. The names and locations of their capitals, and other important cities and towns are likewise to be known. In short, the knowledge should be so complete that a clear mental picture of the whole or any part of the United States is impressed on the mind of the candidate. More weight is attached to a knowledge of the geography of the United States than to that of all other countries combined.

History.—The candidate should make himself familiar with so much of the *History of the United States* as is contained in the ordinary school histories. The examination

may be written or oral, or partly written and partly oral, and will usually consist of a series of questions similar to the following:

I. Name the earliest European settlements within the present limits of the United States—when, where, and by whom made. When did the settlements made by other nations than the English come under the dominion of Great Britain, and of the United States?

II. What was the difference between the Royal, the Chartered, and the Proprietary colonies? How many colonies were there originally in Massachusetts and Connecticut? When were they united? How many in Pennsylvania? When were they separated?

III. In what wars were the colonies engaged before the Revolution? What were the principal events and results of those of King William, Queen Anne, King George, and the French and Indian?

IV. What were the remote and the immediate causes of the American Revolution? Explain the navigation act, the stamp act, writs of assistance. When did the war of the Revolution properly begin? When, where, and how did it end? Give the particulars of Arnold's treason. Who were the most prominent generals in this war? Name the most important battles and their results.

V. The Constitution of the United States—why and when was it formed? When was it adopted?

VI. Give the names of the Presidents of the United States in their order. Give the leading events of the administration of each one; for example, that of—

Washington: Indian war; trouble with France; Jay's treaty; the whisky rebellion, etc.

Jefferson: War with Tripoli; purchase of Louisiana; the embargo, etc.

Madison: War of 1812; its causes; the principal battles on land and sea; peculiarity of its last battle, when ended, etc.

Monroe: Indian war; cession of Florida; Missouri compromise, etc.

Jackson: Black Hawk and Seminole wars; the United States Bank; nullification, etc.

Polk: The Mexican war; its causes; principal battles; result of it, etc.

Pierce: Repeal of Missouri compromise; troubles in Kansas, etc.

Buchanan: Civil war; how begun, etc.

Lincoln: War of secession; its causes; its results, social and political; explain doctrine of State sovereignty; alienation between Northern and Southern States; doctrine of secession; give an account of principal battles.

Johnson: Fourteenth amendment; tenure of office bill; Johnson's impeachment.

Grant: Fifteenth amendment; Alabama claims and treaty of Washington; Electoral Commission.

ACADEMIC DUTIES.

The academic duties and exercises commence on the first of September and continue until the first of June. Examinations of the several classes are held in January and June, and at the former such of the new cadets as are found proficient in studies and have been correct in conduct are given the particular standing in their class to which their merits entitle them. After each examination, cadets found deficient in conduct or studies are discharged from the Academy, unless the Academic Board, for special reasons in each case, should otherwise recommend. Similar examinations are held every January and June during the four years comprising the course of studies.

The examinations are very thorough, and require from the cadet a close and persevering attention to study, without evasion or slighting of any part of the course, as no relaxation of any kind can be made by the examiners.

Military instruction.—From the termination of the examination in June to the end of August the cadets live in camp, engaged only in military duties and exercises, and receiving practical military instruction.

Except in extreme cases, cadets are allowed but one leave of absence during the four years' course. As a rule the leave is granted at the end of the first two years' course of study.

PAY OF CADETS.

The pay of a cadet is \$540 per year, to commence with his admission to the Academy, and is sufficient, with proper economy, for his support. No cadet is permitted to receive money, or any other supplies, from his parents, or from any person whomsoever, without the sanction of the superintendent.

Each cadet must keep himself supplied with the following mentioned articles, viz:

Two pairs of uniform shoes, *one pair of overshoes (Arctic), *six towels, face; *two towels, bathing; one mattress, one pillow, *two pillow-cases, 36"x45"; *four sheets, 1 $\frac{1}{4}$ "x4 $\frac{1}{4}$ "; *two blankets, white; *one comfortable or quilted bed cover, one wash-bowl, *one tumbler, *one bottle of indelible ink, *one clothes brush or whisk broom, *one hairbrush, *one toothbrush, *one nailbrush, *one shaving brush and mug, *one shoe brush, *one razor, *one razor strop, *two pairs of white suspenders, *six white shirts, *two nightshirts, *six summer undershirts, *six winter undershirts, *six pairs of summer drawers, *six pairs of winter drawers, *six pairs of summer socks, *six pairs of winter socks, *six pocket handkerchiefs, *six pairs of cuffs, twelve white linen collars, six pairs of white Berlin gloves, two sets of white belts, one chair, *one penknife, one account book, *one trunk.

Candidates are authorized to bring with them the articles marked *. They are, however, informed that such articles can be purchased at regulated prices from the cadet quartermaster's department at West Point after their arrival.

Cadets are required to wear the prescribed uniform. All articles of their uniform are of a designated pattern and are sold to cadets at West Point at regulated prices.

EXPENSES OF CANDIDATES PRIOR TO ADMISSION.

The expenses of a candidate for board, washing, lights, &c., after he has reported and prior to admission, will be about \$10. Immediately after being admitted to the institution he must be provided with an outfit of uniform, the cost of which will be about \$90, making a total sum of \$100, which must be deposited with the treasurer of the Academy before the candidate is admitted. It is best for a candidate to take with him no more money than will defray his traveling expenses, and for the parent or guardian to send to "*The treasurer of the U. S. Military Academy*" the required deposit of \$100. Any deviation from the rule as to the amount or manner of making the deposit must be explained in writing by the parent or guardian of the candidate to the Superintendent of the Academy.

ASSIGNMENT TO CORPS AFTER GRADUATION.

The attention of applicants and candidates is called to the following provisions of an act of Congress approved May 17, 1886, to regulate the promotion of graduates of the United States Military Academy:

"That when any cadet of the United States Military Academy has gone through all its classes and received a regular diploma from the academic staff, he may be promoted and commissioned as a second lieutenant in any arm or corps of the Army in which there may be a vacancy, and the duties of which he may have been judged competent to perform; and in case there shall not at the time be a vacancy in such arm or corps, he may, at the discretion of the President, be promoted and commissioned in it as an additional second lieutenant, with the usual pay and allowances of a second lieutenant, until a vacancy shall happen."

GENERAL QUALIFICATIONS.

A sound body and constitution, suitable preparation, good natural capacity, an aptitude for study, industrious habits, perseverance, an obedient and orderly disposition, and a correct moral deportment are such essential qualifications that can-

didates knowingly deficient in any of these respects should not, as many do, subject themselves and their friends to the chances of future mortification and disappointment by accepting appointments at the Academy and entering upon a career which they can not successfully pursue.

Course of study and books used at the Military Academy.

FIRST YEAR.—*Fourth Class.*

Department.	Course of study, text-books, and books of reference.
Mathematics	Davies' Elements of Algebra. Davies' Legendre's Geometry. Ludlow's Elements of Trigonometry. Davies' Surveying. Church's Analytical Geometry. *Ludlow's Logarithmic Tables. Williams' Composition and Rhetoric. Abbott's How to Write Clearly. Meiklejohn's English Language. *Smith's Synonyms Discriminated. *Roget's Thesaurus of English Words.
Modern languages...	*Webster's Dictionary. De Peiffer's French Pronunciation. Keetel's Analytical and Practical French Grammar. Castarède's Treatise on the Conjugation of French Verbs. Roemer's Cours de Lecture et de Traduction, Vol. I. Böcher's College Series of French Plays, Vol. II. *Spiers' and Surene's French Pronouncing Dictionary. Lectures in Ethics and in Universal History.
History, geography, and ethics.	
Drill regulations, U. S. Army.	Practical Instruction in the Schools of the Soldier, Company and Battalion—Infantry. Practical Instruction in the School of the Cannoneer—Siege and Light Artillery.
Use of the sword, etc..	*Blunt's Firing Regulations for Small Arms. Instruction in Fencing and Bayonet Exercise and Military Gymnastics.

SECOND YEAR.—*Third class.*

Mathematics	Church's Analytical Geometry. Church's Descriptive Geometry, with its application to Spherical Projections, Shades, Shadows, and Perspective. Bass' Introduction to the Differential Calculus. Church's Calculus. Johnson's Treatise on the Method of Least Squares. Borel's Grammaire Française. Hennequin's Lessons in Idiomatic French. Revue Militaire de l'Étranger.
Modern languages ...	The Weekly Figaro. Edgren's Compendious French Grammar. De Peiffer's French Pronunciation.
Drawing.....	*Spiers and Surene's French Pronouncing Dictionary. Constructive Problems in Plane Geometry, Point Paths, Topography, and plotting of surveys, with lead pencil, pen and ink, and colors; construction of the various problems in Descriptive Geometry, Shades and Shadows, and Linear perspective, and Isometric projections; practical surveying in the field. *Reed's Topographical Drawing and Sketching, including Photography Applied to Surveying.
Drill regulations, U. S. Army.	Practical Instruction in the Schools of the Soldier, Company and Battalion—Infantry. Practical Instruction in School of the Cannoneer—Light Artillery; and School of the Trooper—Cavalry. Practical Instruction in Small-Arms Target Practice.
Practical military engineering.	*Blunt's Firing Regulations for Small Arms. Practical Instruction in the Construction of Ponton, Spar, and Trestle Bridges.

Books marked thus * are for reference.

*Course of study and books used at the Military Academy—Continued.*THIRD YEAR.—*Second class.*

Department.	Course of study, text-books, and books of reference.
Natural and experimental philosophy.	Michie's Analytical Mechanics. Michie and Harlow's Practical Astronomy. Young's General Astronomy. Michie's Elements of Wave Motion relating to Sound and Light. Bloxam's Chemistry (seventh edition).
Chemistry, mineralogy and geology.	Tillman's Elementary Lessons in Heat (second edition). Tillman's Essential Principles of Chemistry. Tracy's Anatomy, Physiology, and Hygiene. Thompson's Elementary Lessons in Electricity and Magnetism. Tillman's Elementary Text-Book of Mineralogy. Le Conte's Elements of Geology (third edition). Free-hand Drawing and Landscape, in black and white. Mechanical and Architectural Drawing, in ink and colors.
Drawing.....	Constructive Details: Ordnance Constructions. *Reed's Topographical Drawing and Sketching, including Photography Applied to Surveying.
Drill regulations, U. S. Army.	United States Army Artillery Drill Regulations. Tidball's Manual of Heavy Artillery Service, U. S. A. United States Army Cavalry Drill Regulations. United States Army Infantry Drill Regulations. Practical Instruction in the Schools of the Soldier, Company and Battalion—Infantry.
Practical military engineering.	Practical Instruction in School of the Cannoneer—Sea Coast Artillery; and in the Schools of the Trooper, Troop, and Squadron—Cavalry. Practical Instruction in the Construction of Ponton Bridges; in laying Gun Platforms, and in the Construction of Revetments and Obstacles. Practical and Theoretical Instruction in Military Signaling.

FOURTH YEAR.—*First class.*

Civil and military engineering and science of war.	Wheeler's Civil Engineering. Wheeler's Field Fortifications. Mercur's Mahan's Permanent Fortification, edition of 1887. Wheeler's Military Engineering (Siege Operations). Mercur's Military Mining. Mercur's Elements of the Art of War. Mahan's Stereotomy.
Modern languages....	*Royal Engineers, Aide-Mémoire, Parts I and II. Knapp's Spanish Grammar, Knapp's Spanish Readings. *Seoane's Neuman and Baretti's Dictionary.
Law.....	Davis's International Law. Cooley's General Principles of Constitutional Law in the United States. Winthrop's Abridgment of Military Law. General Orders No. 100, A. G. O., 1863.
History, geography, and ethics.	Swinton's Outlines of the World's History. *Labberton's New Historical Atlas and General History.
Practical military engineering.	Practical Instruction in the construction of Ponton, Trestle, and Spar Bridges; in the preparation and application of Siege Materials; and in laying out Field and Siege Works. Practical Instruction in Military Reconnoissances, on foot and mounted; in Field Telegraphy, Night Signaling, and the use of the Heliograph.
Natural and experimental philosophy.	*Ernst's Manual of Practical Military Engineering. Practical Instruction in Astronomy.
Drill regulations, U. S. Army.	Practical Instruction in the Schools of the Soldier, Company and Battalion—Infantry; of the Trooper, Troop, and Squadron—Cavalry; and of the Battery—Artillery.
Ordnance and gunnery	Bruff's Gunpowder and Interior Ballistics. Metcalf's Ordnance and Gunnery. Ingall's System of Exterior Ballistics.

Books marked thus * are for reference.

UNITED STATES MILITARY ACADEMY BAND.

WEST POINT, N. Y., June 6, 1894.

Sir: In compliance with request of your honorable committee, I beg to submit the following particulars concerning the band stationed at the United States Military Academy:

The band as at present constituted consists of one teacher of music (a civilian under contract) and twenty-four musicians, rated and paid as follows, viz:

1 teacher of music, per annum	\$1,080
6 first-class musicians (enlisted), each \$408 per annum	2,448
6 second-class musicians (enlisted), each \$240 per annum	1,440
12 third-class musicians (enlisted), each \$204 per annum	2,448
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Total	7,416

These amounts are included in the United States Military Academy appropriation bill.

My experience here has convinced me that the above classification is productive of great discontent amongst the musicians, for the reason that, while a similar amount of work is required from all and there exists but little distinction in grades of ability, the second and third classes are disproportionately compensated as compared with payments made to members of the first class.

The first-class men, apparently contented with their condition, reenlist at the expiration of each term of service; but those of the lower classes almost always apply for discharge at the end of the three years' term. Thus membership of second and third classes is subject to frequent change, much to the injury of the band's efficiency. And this brings in view the fact that the stipend of \$20 and \$17 a month, paid to second and third class men, respectively, is so small as to seriously hamper efforts made to keep those grades full with the class of musicians necessary to effectively perform the important duties required of the band at this post.

Musicians in civil life equal with the grade required here receive much higher rates of compensation for their services, as may be perceived from the statement that regiments of the National Guard of New York City when in camp pay the musicians of their respective bands at the rate of \$40 a man per week for duties precisely akin to those performed by the United States Military Academy band during the months of June, July, and August, not to say anything of the remaining nine months of the year. For such a period, covering about thirteen weeks, and for a band of twenty-four musicians, the expenditure of the regiments referred to would be, including bandmaster at \$80 per week, \$13,520; or nearly twice as much for service of twenty-four musicians for three months as the United States Government pays a similar number of musicians for twelve months' work.

It is generally admitted that to maintain a good band it is necessary to have a sufficient number of properly qualified musicians adequately paid. The United States Military Academy band is too small and three-fourths of its members are inadequately paid. To overcome these defects I would suggest the band be increased in membership and pay and that the present classification be modified. To me it appears advisable the band should consist of forty musicians, as follows:

10 first-class musicians at, each, \$35 per month, per year	\$4,200
30 second-class musicians at, each, \$30 per month, per year	10,800
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	15,000

representing an increase in the appropriation of only \$8,664 a year. This addition of musicians and money would enable the authorities to maintain a band at this post fully capable of performing the duties required, and in manner such as to be commensurate with the dignity of the United States Military Academy and to fitly represent the military music of the nation.

In conclusion, I would suggest the incumbent of the position of teacher of music be accorded the rank, pay, and allowances of a commissioned officer, chiefly for purposes of discipline, and also to obtain for him certain social advantages from which, as a civilian, he is at present excluded.

I am, sir, respectfully,

ARTHUR A. CLAPPÉ,

Teacher of Music, United States Military Academy.

Hon. JOHN J. DAVIS,

Chairman Miscellaneous Affairs.

(Through Superintendent United States Military Academy.)

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