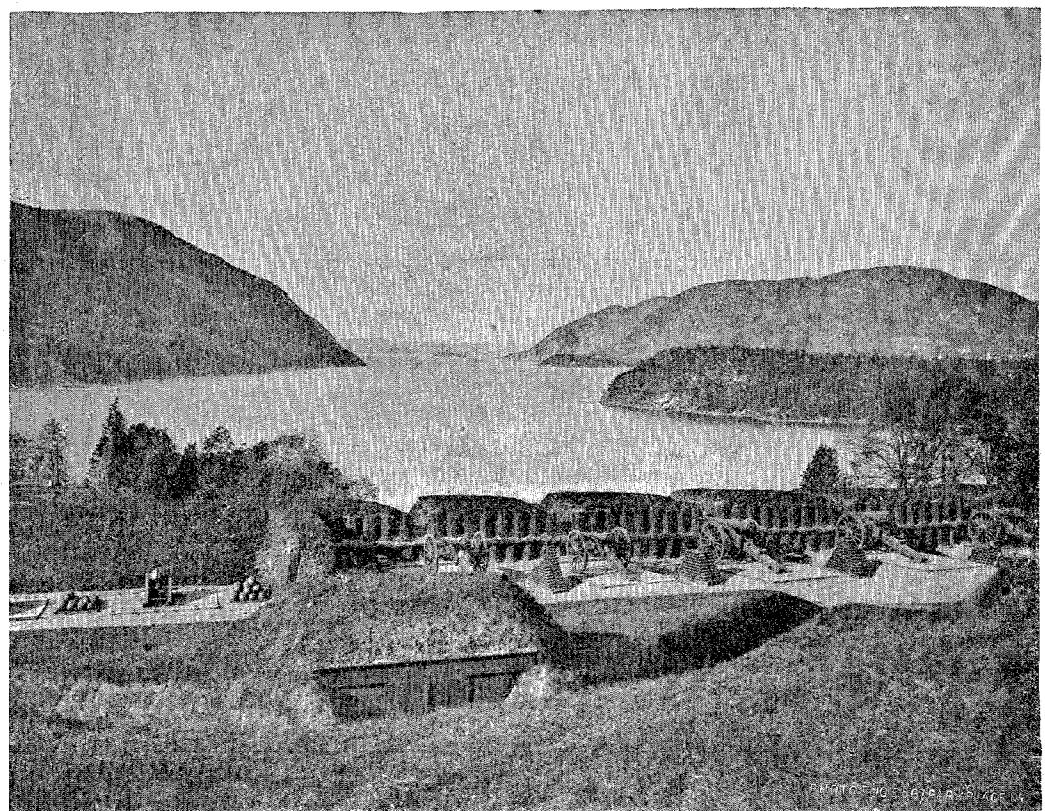

VIEW FROM WEST POINT, LOOKING NORTH, WITH SIEGE BATTERY IN FOREGROUND.

U.S.M.A. Board of Visitors.

ANNUAL REPORT

OF THE

BOARD OF VISITORS

TO THE

UNITED STATES MILITARY ACADEMY,

MADE TO

THE SECRETARY OF WAR,

FOR

THE YEAR 1887.

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WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1887.

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BOARD OF VISITORS.

Appointed by the President of the United States.

1. GEORGE W. CHILDS, Esq. (*President*).....PHILADELPHIA, PENNSYLVANIA.
2. Hon. W. A. COURTENAY (*Secretary*).....CHARLESTON, SOUTH CAROLINA.
3. General ROBERT H. ANDERSON.....SAVANNAH, GEORGIA.
4. Mr. GEORGE H. BATES.....WILMINGTON, DELAWARE.
5. Rev. JOHN W. BROWN .....BUFFALO, NEW YORK.
6. Dr. WILLIAM EVERETT .....QUINCY, MASSACHUSETTS.
7. MARTIN J. RUSSELL, Esq.....CHICAGO, ILLINOIS.

Appointed by the President pro tempore of the Senate.

8. Hon. FRANCIS M. COCKRELL .....WARRENSBURGH, MISSOURI.
9. Hon. JOSEPH N. DOLPH.....PORTLAND, OREGON.

Appointed by the Speaker of the House of Representatives.

10. Hon. CHARLES M. ANDERSON .....GREENVILLE, OHIO.
11. Hon. BENJAMIN BUTTERWORTH.....CINCINNATI, OHIO.
12. Hon. JOSEPH WHEELER (*Vice-President*)....WHEELER, ALABAMA.

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REPORT

OF THE

BOARD OF VISITORS

TO THE

UNITED STATES MILITARY ACADEMY.

SIR: The Board of Visitors appointed to attend the annual examination of the United States Military Academy for the year 1887 assembled at West Point June 2. The Board consists of the gentlemen named below, all of whom were present at the meeting and organization:

APPOINTED BY THE PRESIDENT OF THE UNITED STATES.

General ROBERT H. ANDERSON ..... Savannah, Ga.
GEORGE H. BATES, Esq ..... Wilmington, Del.
Rev. JOHN W. BROWN, D. D ..... Buffalo, N. Y.
GEORGE W. CHILDS, Esq ..... Philadelphia, Pa.
Hon. W. A. COURTENAY ..... Charleston, S. C.
Dr. WILLIAM EVERETT ..... Quincy, Mass.
MARTIN J. RUSSELL, Esq ..... Chicago, Ill.

APPOINTED BY THE PRESIDENT PRO TEMPORE OF THE SENATE.

Hon. FRANCIS M. COCKRELL ..... Warrensburgh, Mo.
Hon. JOSEPH N. DOLPH ..... Portland, Oreg.

APPOINTED BY THE SPEAKER OF THE HOUSE OF REPRESENTATIVES.

Hon. CHARLES M. ANDERSON ..... Greenville, Ohio.
Hon. BENJAMIN BUTTERWORTH ..... Cincinnati, Ohio.
Hon. JOSEPH WHEELER ..... Wheeler, Ala.

The Board was organized by the unanimous election of Mr. George W. Childs, of Pennsylvania, as president, Hon. Joseph Wheeler, of Alabama, as vice-president, and Hon. W. A. Courtenay, of South Carolina, as secretary.

A motion was adopted that the regular meetings of the Board should be held daily at 3 o'clock p. m., and the secretary was directed to notify General Wesley Merritt, Superintendent of the Military Academy, that the Board was organized and prepared to enter upon the discharge of their duties.

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In pursuance with this notification, General Merritt, accompanied by the members of the academic and military staffs, called upon the Board. The following programme for conducting the annual examination was presented by the Superintendent:

Orders No. 73.

HEADQUARTERS UNITED STATES MILITARY ACADEMY,
West Point, N. Y., May 16, 1887.

I. The annual examination will begin on Wednesday, the 1st proximo, and continue daily, Sundays excepted, from 9 o'clock a. m. till 1 o'clock p. m., and from 2.30 o'clock p. m. till 4.30 o'clock p. m., until finished.

II. The Academic Board will be divided into two committees.

The first committee to be composed of—

The professor of natural and experimental philosophy;
The professor of mathematics;
The professor of history;
The professor of civil and military engineering;
The instructor of ordnance and gunnery; and
The instructor of practical military engineering.

The second committee to be composed of—

The professor of modern languages;
The professor of drawing;
The professor of chemistry, mineralogy, and geology;
The commandant of cadets; and
The professor of law.

The first committee will sit in the library and examine orally—

(1) The first class in ordnance and gunnery.
(2) The first class in engineering.
(3) The second class in natural and experimental philosophy.
(4) The third class in mathematics.

And by written examination—

The fourth class in mathematics at 8 a. m., June 1, in the mess hall.

The second committee will sit in room No. 1, academic building, and examine orally—

(1) The second class in chemistry, mineralogy, and geology.
(2) The third class in French.
(3) The fourth class in French.
(4) The first class in Spanish.
(5) The first class in law.

By written examination—

The third class in French, at 8 a. m., June 1, in the philosophical academy.
The fourth class in French, at 8 a. m., June 2, in the mess hall.
The first class in Spanish, at 8 a. m., June 4, in the philosophical academy.
The fourth class in English, at 8 a. m., June 4, in the mess hall.

By inspection of marks and drawings:

The second and third classes in drawing.

In all the classes the oral examinations will begin with the lowest sections, and the examinations will be so conducted as not to interfere with the usual hours for meals of cadets.

III. The oral examination of the first class in Spanish will not be taken up until the written examination in that subject is completed.

IV. As each committee shall complete its labors of examination, its presiding officer will report the fact to these headquarters.

V. First Lieut. Sidney E. Stuart, Ordnance Department, and Second Lieut. Frederick S. Foltz, First Cavalry, are appointed the secretaries of the first and second com-

mittees, respectively. The record of each committee will be so kept as to show clearly the length of time occupied in examination by each department of instruction.

At the close of each day's proceedings the secretaries will report to the adjutant of the Academy the progress of the examination, and they will transmit to the secretary of the Academic Board the records of the proceedings of the committees as soon as they are completed.

VI. The instructors will report daily to the heads of their respective departments, and keep themselves informed as to the times when their services will be required.

VII. The following military exercises will take place during the examination:

Exercise.	Subject.	Date.
		1887.
Infantry	Review	June 2
	School of the battalion	June 4
	Battalion-skirmish drill	June 8
Artillery	Siege-battery drill	June 1
	Mortar-battery drill	June 1
	Light-battery drill	June 3
	Sea-coast-battery drill	June 6
Cavalry	School-of-the-company drill	June 7
	School-of-the-battalion drill	June 7
	School-of-the-soldier mounted drill	June 10
Practical	Ponton-bridge building	June 9
Military	Spar-bridge building	June 10
Engineering	Military signaling	
Ordnance	Practice with ballistic machines	
Small-arms	Use of the sword and bayonet	
	Military gymnastics	

This order of exercises may be changed on account of the weather, or for other causes.

VIII. The members of the first class will be graduated June 11, 1887.

By command of Brigadier-General Merritt.

W. C. BROWN,
First Lieutenant First Cavalry, Adjutant.

COMMITTEES OF THE BOARD.

The president having been authorized to divide the Board into such committees as was best calculated to facilitate their labors and to accomplish in the most practical manner the purpose of their appointment, announced the following as the committees:

Discipline and instruction.—General Robert H. Anderson, chairman, Dr. William Everett, and Rev. John W. Brown, D. D.

Police administration and fiscal affairs.—Hon. Francis M. Cockrell, chairman, Martin J. Russell, and George H. Bates.

Buildings and grounds.—Hons. Benjamin Butterworth, chairman, Francis M. Cockrell, and Martin J. Russell.

Cadets and cadet supply department.—Rev. John W. Brown, D. D., chairman, General Robert H. Anderson, and George H. Bates.

Ordnance and armament.—Hons. Joseph N. Dolph, chairman, Ben. Butterworth, and Charles M. Anderson.

Admissions, appointments, and miscellaneous matters.—Martin J. Russell, chairman, General Joseph Wheeler, Dr. William Everett, Hons. Joseph N. Dolph and Charles M. Anderson.

The several committees at once proceeded to make examinations of the various departments and subjects assigned them. These inquiries were prosecuted with diligence and with as much of thoroughness as the necessarily limited time would permit. The results are given in the reports of the several committees which are appended to the report of the Board, and to which the attention of the President and the Congress is respectfully invited.

RELATIONS OF THE BOARD OF VISITORS TO CONGRESS AND THE MILITARY ACADEMY.

The Board of Visitors are appointed in obedience to the requirements of section 1327 of the Revised States of the United States, which provides:

SEC. 1327. There shall be appointed every year, in the following manner, a Board of Visitors to attend the annual examination of the Academy. Seven persons shall be appointed by the President, and two Senators and three members of the House of Representatives shall be designated as visitors by the Vice-President or the President *pro tempore* of the Senate and the Speaker of the House of Representatives, respectively, at the session of Congress next preceding such examination.

The powers and duties of the Board of Visitors are prescribed in section 1328 of the Revised Statutes:

SEC. 1328. It shall be the duty of the Board of Visitors to inquire into the actual state of the discipline, instructions, police administration, fiscal affairs, and other concerns of the Academy. The visitors appointed by the President shall report thereon to the Secretary of War, for the information of Congress, at the commencement of the session next succeeding such examination, and the Senators and Representatives designated as visitors shall report to Congress, within twenty days after the meeting of the session next succeeding the time of their appointment, their action as such visitors, with their views and recommendations concerning the Academy.

The evident purpose of the appointment of a Board of Visitors was that the Executive and Congress might obtain such information as would enable them to act intelligently in providing the annual appropriations for carrying on the Academy, and to enact such laws and prescribe such regulations as may, from time to time, be deemed necessary for the successful continuance of the work of the institution. The duty of the Board is purely ministerial. They have no authority or power to direct, in the slightest degree, the management or administration of the Academy; nor was it intended that they should have such authority and power. They are sent to the Academy to examine and investigate, and having performed that duty the more important duty to report the results of their investigations remains. The duty of the Board to make a report is not only imperative, but is an important obligation, and the obligation is not lessened by the fact that it has been voluntarily assumed. The Board of Visitors are the representatives of the two highest departments of the Government, executive and legislative, clothed with authority to prosecute certain inquiries, "for the information of Congress," and charged with the responsibility to "report their action

as such visitors, with their views and recommendations concerning the Academy." The Board feel warranted in directing special attention to the duty and obligation imposed upon them by the statutes in the hope that Congress may be induced to give the Military Academy, through the report made by the present Board of Visitors, and those which will follow from future boards, a greater degree of attention than seems to have been bestowed on previous reports of this character.

An examination of reports made during the past twenty years shows great similarity of views, and an almost unbroken uniformity of recommendations for necessary legislation to maintain the Academy in a condition of efficiency, and to supply it with those adjuncts so essential to the successful prosecution of its labors. The fact that the reports covering the period of time named, emanating each year from a Board differing entirely in *personnel* from that which preceded, and whose members were, perhaps, personally unknown to those of preceding Boards, would indicate that the general administration of the Military Academy is commendable and satisfactory. This is creditable to the authorities of the Academy, and should be gratifying to the country.

The fact that the "views and recommendations concerning the Academy" follow with lamentable iteration and painful consecutiveness, would indicate that Congress does not draw information from the source specially created to supply such information, and gives little attention to the recommendations made for this branch of the public service—recommendations based on careful investigation, and made to Congress after conscientious deliberation. It avails nothing to expend time and labor, and public money, in making these annual examinations, and in preparing these Annual Reports, if they are to be treated by Congress and regarded by the public as merely perfunctory duties, undertaken out of respect for the statutes, and presented to Congress as a necessary but meaningless form. If the sphere of service of the Board of Visitors has come to be regarded as a mere conformity with the technicalities of the statutes—a mechanical performance of a prescribed routine—the law requiring the annual creation of such Board might as well be repealed. It has been pertinently observed, in this connection, by a previous Board of Visitors, that "wooden images standing in front of a shop, and directing attention to the business carried on within, are just as useful and a good deal cheaper than live men employed in performing an equally mechanical and stereotyped duty."

It may be that Congress has become convinced from the universal testimony of those appointed to make official investigation of the Military Academy, that the institution does not need special attention from the National Legislature. However this may be, it is apparent that a close scrutiny is made of the estimates presented for its maintenance and progress, for the purpose of reducing the appropriations asked for, regardless of the necessities of the Academy and in ignorance of the recommendations of the Board of Visitors. The reverse of this policy

should obtain in Congress. It has been correctly said of the U. S. Military Academy, that "the more it is investigated the better it appears, and for the direct administration and control of which no person is believed to have been selected for any other reason than fitness to discharge the trust confided to him." This should be, and undoubtedly is, gratifying to Congress, and it should, in the judgment of the Board, induce that body to exhibit the keenest interest in the welfare and progress of the Academy, and to do whatever is needful to increase its efficiency and extend its usefulness. The Board are convinced that this result would follow if members of Congress would examine the reports presented annually, or would extend their examinations to personal inspection of the institution.

UTILITY OF THE ACADEMY AND VALUE OF ITS WORK.

The purpose for which the Military Academy was established, the character and value of the work it has performed, the importance of properly maintaining all its departments fully abreast with the rapid progress of the age, and the necessity for the fostering care of Congress, is ably set forth in the report of the Board of Visitors for the year 1878. The Board is convinced that the perusal of this report will enlighten those who have given no special attention to the Military Academy and its intimate relations with the Government and people, and tend to remove much of the prejudice that prevails towards West Point.

The U. S. Military Academy is a public institution, instituted and supported by the Federal Government for the instruction of young men intended to hold commissions in and direct the Army of the United States. The report alluded to says:

No one familiar with the history of the country; no one capable of comprehending its entire circle of interests and contingencies; no friend of peace, however great may be his detestation of war, can reasonably doubt the wisdom of the motives that originally prompted to the foundation of the Academy, or of the policy which has ever since dictated its maintenance in a condition of high efficiency. The time may come when spears will be beaten into plowshares, and the nations will learn war no more; but that time has not yet come, and what is more, there are no present signs of its coming. The burden of all the speeches at the opening of the first great international industrial exhibition (the Crystal Palace) in London in 1851, was, that henceforth the doors of the temple of Janus were to be closed for a lengthened or permanent period. But war since that epoch has been carried on almost continuously, and on a scale more gigantic and destructive than the world has ever before experienced.

It is well, also, to remember that although civilization has continually advanced, few great civil reforms have been effected in modern times in any country without the intervention of the soldier and the instrumentality of the sword; and when, in exceptional instances, the appeal has not been made to the sword, the fear that sooner or later it would be has always proved a most potent agency in the hastening of such reforms. It is, furthermore, not to be disputed that in no department of human knowledge have recent change and progress been greater than in military science, and that a course of carefully arranged and protracted study is now more than ever necessary for the attainment of proficiency in such science.

In his exile at Chiselhurst, a few weeks before his death, the Emperor Napoleon III, commenting on the results of the late Franco-Prussian war, remarked that the

world was not well informed as to the causes of the disasters therein accruing to the French armies; that they were not because the French military forces were deficient in anything in respect to equipment or discipline, but because they fought under an old and previously accepted, but now to a great extent obsolete system of military tactics and precedents; while the German commanders, on the contrary, rightfully accepted modern war as a system rather of engineering, the ultimate end of which was to concentrate, on territory previously studied with the utmost care topographically, all the resources of the railroad and the telegraph equally with those of the breech-loading rifles and improved ordnance. And even more recently, the conflicts before Plevna, in the Turco-Russian war, seem to lead to the conclusion that great battles by daylight, where one party occupies a defensive position, are to be hereafter of very rare occurrence.

The position will doubtless be taken by some, that a military education, in the sense of that imparted by schools, is not necessary to the production of good soldiers, and that some of the most efficient military commanders and leaders of armies, in foreign as well as in our own recent wars, have not been men who were educated, or even intended, for the profession of arms, but have attained leadership and success mainly by force of native ability, and that circumstances and emergencies always call such men to the front as they are needed. But such an assumption, though true, is an unsafe one for a nation, possibly contending for existence, to rely upon, inasmuch as the hour and the man may not prove coincident. And even if it were otherwise, the self-educated commander would be the first to confess that his right arm was shorn of no inconsiderable part of its native strength, had he not the power to call for the execution of his orders upon those to whom all the details of modern military science, fortifications, engineering, gunnery, telegraphy, signal service, transportation, and the like, are familiar.

The idea of establishing a national military academy in the United States had its origin in the circumstances that during the war of the Revolution, and for a long period subsequent, the country was "dependent upon foreigners, trained in the military schools and armies of Europe, for the knowledge of the science and art of war necessary in the conduct of our military operations, whether defensive or offensive." And it was remarked by General Washington that the difficulties of that war would have been diminished and its duration shortened if that knowledge had been diffused through the Army. The first step toward founding a national military academy, moreover, was in consequence of a recommendation by Washington, as President, in his message of December, 1793; and in his last message, December, 1796, he further declared "that the desirableness of this institution (a military academy) had constantly increased with every new view he had taken of the subject." And his further recommendations under this head, which are as pertinent to-day as when they were submitted to Congress more than three-quarters of a century ago, read as follows:

"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 the rules of military art, ought to be its care in preserving and transmitting, by proper establishments, the knowledge of that art. Whatever argument 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 the possession of it, in its most improved and perfect state, is of great moment to the security of a nation. This, therefore, ought to be a serious care for every government; and for this purpose an academy, where a regular course of instruction is pursued, is an obvious expedient, which different nations have successfully employed."

What of economy in a pecuniary sense the establishment of the West Point Academy has brought to the nation in a single particular is shown in the following distinct and explicit testimony given by General Scott to a national commission in July, 1860:

"I give it as my fixed opinion that but for our graduated cadets the war between the United States and Mexico might, and probably would, have lasted some four or five years, within its first half more defeats than victories falling to our share, whereas in less than two campaigns we conquered a great country and a peace without the loss of a single battle or skirmish."

The war with Mexico and the United States extended over a period of about two years, and cost the latter country in round numbers about $120,000,000, or at the rate of $60,000,000 per annum. Assuming now the opinion of General Scott, as thus expressed, to have been warranted, and that the education and discipline of West Point really shortened the war with Mexico even by so brief a period as two years, and saved our armies from a series of humiliating and costly defeats, then, considering the utility of the Military Academy from an exclusively dollars and cents point of view, the institution is entitled to credit on the fiscal account between it and the nation by the sum of at least $100,000,000; as much so as if its graduates had earned the money and paid it directly into the national Treasury; or by a sum which, as near as can now be calculated, is more than 80 per cent. in excess of the aggregate cost of the Academy proper from the date of its foundation to the present time.

Of course these facts and statements are not new, but they are of a nature that will bear and require repetition, especially when we consider that the United States for one-sixth part of their existence as a Federal Nation have been in a state of war; and that for the future there is no good reason for supposing that the country is going to be any more exempt from the vicissitudes of nations than it has been in the past.

At the same time it is not to be denied that, by no inconsiderable portion of the people, West Point has been, and is now, regarded with something of a feeling akin to a suspicion and dislike. A part of this is undoubtedly due to the circumstance that the profession of arms in other countries has usually been antagonistic to civil liberty and the stability of free governments, and that the class of men educated exclusively with a view of following a military profession are, of necessity, by the nature of their training and the wearing of conspicuous insignia, made exclusive to a certain extent, and that thus an institution somewhat akin to an aristocracy seems to be established. General Scott, in 1860, speaks of the popular prejudice against the Academy as so wide-spread and general, "that it would certainly by this time have been abolished but for the admiration won by its graduates in the Mexican war;" adding, "that this generous and patriotic feeling is not likely to survive the present generation;" and that "hence the necessity of finding some means of preventing or diminishing the annual growth of the popular prejudice in question." It should be noticed, however, that General Scott attributed the origin of this popular prejudice to the number of rejections of applicants for admission as cadets, and the still greater number of failures after admission "consequent upon inadequate preliminary training and bad habits contracted at home," "the result of defective family discipline so common throughout our country." But, be this as it may, the fact that West Point, because it is an exclusive military school, and for other reasons, is with many an object of dislike and distrust cannot be doubted. And hence the importance, so long as the Academy is maintained, of sending to it annually, under the national authority, a Board of Visitors made up in the main of persons whose professions are not military or naval, and whose tastes, pursuits, and training are altogether civil, and antagonistic to the use of arms. Such a board, made up of citizens living in widely diverse sections of the country, selected, it is to be presumed, because of their qualifications to judge and investigate, and invested with the largest powers to investigate and report, are thus annually educated in respect to every detail of this peculiar national institution, and are prepared to become centers for the correct education and intelligent direction of local public opinion.

HINDERANCES TO INVESTIGATION.

At the outset of their labors the Board were confronted by obstacles that have doubtless been encountered by preceding Boards of Visitors. The authorities of the Academy, with a degree of courtesy, sincerity, and thoroughness seldom experienced in civil branches of the public service under like circumstances, extended the Board every facility and aid to further the work of investigation. There was no effort to withdraw or conceal even the most trifling affairs in any manner connected with the academic, military, or fiscal administration. On the contrary, everything was exposed; every officer was at all times prepared to exhibit and explain his branch or department of service. The officer at West Point whose department can not be visited for lack of time or other cause experiences a feeling of disappointment that is assuaged only by the consciousness of duty faithfully performed, and the hope that the following year his portion of the common labor of the Military Academy will come under the direct scrutiny of the Board. The existence of the obstacles alluded to, therefore, is not chargeable to the authorities of the Academy. The institution being a purely military school, conducted under military law, and administered under Army Regulations, is, to some extent, an enigma to civilians of the Board of Visitors, and more particularly to such as visit West Point for the first time. They are charged to investigate an institution and examine a system of education that are new and unknown to them, and must look for assistance and advice from the officials whose conduct and labors they are charged to investigate. This condition of dependence is embarrassing to the Board of Visitors as well as unjust to the authorities of the Academy. It is a condition that should not exist, and one which might be at least partially removed by the preparation and publication by the War Department of a small book or pamphlet containing the laws relating to the Military Academy, a sketch of its foundation and history, the work it has accomplished, the methods of instruction and government, regulations for the appointment and admission of candidates, qualifications required for admission, character and scope of preliminary examinations, and such other information in reference to the work expected to be performed by the Board of Visitors as would enable them to reach West Point with some intelligent ideas of the institution they are appointed to investigate and a proper comprehension of the nature of their duties.

The authorities of the Military Academy, under the authority of the War Department, could materially assist in this direction. Like all purely military institutions and bodies, West Point moves with the accuracy and unvarying motion of nicely adjusted machinery. Its government and methods of administration are always the same, and each successive Board of Visitors will necessarily go over much of the same ground and call for the same character of information. The

authorities of the Academy, therefore, should be instructed by the War Department to have prepared and printed for the Board of Visitors reports and statements explaining in detail the academic work of the institution, and exhibiting in tabulated or other convenient form all its fiscal affairs. General reports of this character should be preserved from year to year. Additions could be annually made with comparatively little labor and expense, and the Board of Visitors would be thus supplied with valuable data, by which the work and administration of the current year could be readily examined and compared with that of former years. The collection and publication of such data can be done under the general authority vested in the War Department over the Military Academy, and the Board earnestly recommend the honorable Secretary of War to direct that such information be hereafter formulated and published, and placed in the hands of the individual members of the Board of Visitors as soon as practicable after their designation.

It is true that much of this information is annually published, and it is also true that any information relating to the institution may now be obtained from the Academy authorities and the War Department. Such information, however, as is now published is scattered through a number of publications not easily accessible even when discovery of publication is made. The annual examination of the entire corps of cadets, the graduation of the first class, and the examination of candidates for admission take place in June, when the Board of Visitors are required to be present. The academic and military duties of all the officers at West Point during this commencement period are imperative, exacting, and continuous. These duties cannot be deferred or interrupted. And yet at this busy time the Board of Visitors, in the discharge of their duties, are obliged to call on the authorities of the Academy for personal assistance and for necessary information, to prepare which requires them to labor far into the hours of the night and frequently consumes the entire night. Much of this labor would be avoided if the data needed and called for every year were prepared prior to the time appointed for the annual inspection.

The Board are of opinion that the annual report of the Superintendent of the Academy should be printed, together with all the papers that accompany it. The present practice is to print this report without the accompanying papers, and to incorporate it in the annual report of the Lieutenant-General of the Army. No objection can be urged to this arrangement; but we recommend that hereafter the report of the Superintendent of the Academy, together with the reports of subordinate officers, be printed *in extenso* and issued as a separate pamphlet. This would give the Board of Visitors in compact form, provided the annual report is made as full and comprehensive as it should be, information that would be of material service to them, and

at the same time would furnish Congress and the public with the ready means of making themselves acquainted with the affairs of the Military Academy.

NEED OF ADDITIONAL CLERKS.

In this connection the Board would direct special attention to the fact that the clerical force allowed at West Point is inadequate in numbers, and that the compensation fixed for the citizen clerks is very much below what it should be, considering the character and amount of work accomplished, and the long, faithful, and meritorious services of those thus employed. A considerable portion of the clerical work is performed by enlisted men of the regular military force maintained at West Point. These soldier clerks are fully competent to perform the office duties for which they are detailed, and their number can be increased by detailing other soldiers from the several detachments stationed at the Academy; but such details carry additional compensation, and this must be provided by Congress. The Board would respectfully recommend that there be inserted in the Military Academy appropriation bill an item for the purpose alluded to, which might be made to read as follows:

For extra-duty pay of enlisted men detailed for clerical service at headquarters of the Military Academy, $600, or so much thereof as may be necessary.

With the assistance that would be afforded by this small increase to the annual appropriation the additional clerical force so much needed could be obtained, a department established for the collection of the records of the Academy, and the prompt supply of such information as might be called for by the Board of Visitors or other authority. Notwithstanding the enforced enlargement of the several departments of the Academy in consequence of the material progress in every department of instruction, and the numerical increase to the corps of cadets resulting from the increased representation in the House of Representatives under the last apportionment act, Congress has neglected to supply the means to properly provide for the additional expense thus incurred and the additional labor thus imposed. This neglect on the part of Congress has been the cause of great inconvenience to the academic authorities and a hinderance to the work of the institution.

AN APPEAL FOR TWO FAITHFUL OFFICERS.

Before leaving this subject, attention is especially directed to an act of injustice on the part of Congress, the result undoubtedly of ignorance as to the facts in this particular case, which should be fully and promptly corrected. Prior to 1878 the clerk to the disbursing officer and quartermaster, and the clerk to the adjutant in charge of cadet records, were paid an annual salary of $1,650 and $1,500, respectively. In the act of June 11, 1878, making appropriations for the Military Academy, these amounts were reduced to $1,200, without any reason being assigned for the reduction and without, it is safe to say, any knowledge

on the part of the committee which recommended it as to the character of the labors performed or the individual merits of the two officials so seriously to be affected. The duties discharged by these officers are not only important, responsible, and onerous, but require a degree of expert knowledge to perform them with intelligence and expedition that can be acquired only by long experience and training. Mr. Francis Newlands, clerk to the disbursing officer and quartermaster, has been continuously in the service of the Academy in his present position since February, 1847, and Mr. William Ward, clerk to the adjutant, has held that position continuously since May, 1851. Throughout the entire period of their service these two officials have not only performed their respective duties faithfully and satisfactorily, but have exhibited a degree of zeal and intelligence in the interest of the Military Academy that has been of great value to the institution, and that has resulted in saving money to the Government. In mere ability to perform their respective duties Messrs. Newlands and Ward, according to the testimony of all the officers of the Academy, by reason of the thoroughness of equipment that comes with forty years of experience, are not only capable of satisfactorily performing every duty, but are better qualified than any two men who could be obtained to undertake their work. But aside from the merely commercial consideration that enters into such matters, it is suggested that the long, efficient, and faithful services of these men entitle them to receive from Congress that consideration and kindly treatment that is invariably exhibited by individuals in private life towards employés under similar circumstances, and which is frequently exhibited by the two Houses of Congress in providing for their own veteran officers and employés. An examination of the quantity and quality of work performed by Messrs. Newlands and Ward shows it is not exceeded by that performed by many chiefs of division in the Executive Departments at Washington, who are paid almost twice as much salary, and is equaled by few of the clerks to the committees of Congress, whose salaries range from $1,200 to $3,000 for an average of six months' service each year.

At the last session of Congress, after repeated recommendations to this effect, the salaries of Messrs. Newlands and Ward were raised from $1,200 to $1,500 each. This was an act of partial justice. There can be no doubt that, measured with services of like quality and quantity in other public departments, these two officers fully earn $1,800 per annum. Their salaries should be fixed at that sum, and, in addition to that amount the Board recommend that, in recognition of valuable and faithful services, there be inserted hereafter in the annual appropriation bill for the Military Academy, the following paragraph:

For Francis Newlands and William Ward, as additional compensation during their continuance as clerk to the disbursing officer and quartermaster, and clerk to the adjutant in charge of records, respectively, $500 each; in all, $1,000.

There are abundant precedents for such action on the part of Congress, and in private business the precedents are still more numerous. Such

an act would compensate for the reduction in salaries made in 1878, and would undoubtedly receive public approbation.

The duties performed by the clerk to the treasurer, quartermaster, and commissary of cadets are equally as important and onerous as those performed by the two officers above referred to, and this officer should be rated as and paid the salary of a third-class clerk in the Executive Departments at Washington, viz: $1,600.

THE COURSE OF STUDIES.

So far as the Board is able to judge from an attendance upon the examinations of the cadets by the Academic Board, the best possible results are obtained from the course of study pursued. The alacrity exhibited in responding to inquiries and the degree of self-confidence displayed, particularly by the upper classes, show the force and value of military training in connection with early education, while the explanations of the students of the most difficult problems in mathematics show a thoroughness of instruction that bears convincing testimony to the value of the West Point system. Whatever difference of opinion there may be as to whether the curriculum is the best that could be adopted for this institution, it is certainly beyond controversy that the system and arrangements for instruction are admirably adapted to the thorough education of its students in the several branches taught to prepare them to become professional and successful soldiers.

It has been observed by former Boards of Visitors and by critics of the Military Academy, that too little time and attention are given to instruction in general literature, and that in consequence of this deficiency the cadets, when undergoing examination plainly show a lack of rhetorical training, and frequently give expression to ungrammatical sentences. There is much force in this observation, yet it is doubtful whether it is so serious a defect, considered in connection with the single purpose of education at West Point, as would appear upon casual examination. In an institution where young men are being prepared for the leading professions in civil life, a hesitating manner in speech, or the construction of ungrammatical sentences, might with propriety be taken to indicate a serious defect in the system of instruction. West Point does not aim to educate its graduates to be rhetoricians or orators, but to train them to become soldiers. In this work of special training, with the present standard for admission to the Academy, the amount of time can not be devoted to ethical instruction necessary to enable a student upon graduation day to draw plaudits from a critical audience and to prepare him for successful effort in the pulpit or forum. It is true that more time and greater effort should be given to instruction in English at the Military Academy, but until the standard for admission is raised this can not be done without curtailing the technical course of instruction, the value of which has been demonstrated by many years of experience and by many brilliant individual examples furnished by its graduates.

The occasional construction of an imperfect sentence when the cadet is undergoing examination by the Academic Board in presence of the Board of Visitors and such persons as may chose to attend the examination, should not cause surprise nor call for extended criticism. Similar errors might be discovered by the hypercritical at the oral examination of any college attended by similar surroundings. But if the cadets' style of expression is not exactly what it should be when undergoing a public examination, the complete mastery of his subject exhibited, the alertness of his mind, his absolute self-reliance, the readiness with which he responds to assaults upon his position from the professors, and his perfect physique and military bearing, more than compensate for occasional errors in mood or tense, and vindicate the efficiency and value of the West Point methods of instruction for preparing young men for the military service of the Government. "The exaction of a clear and complete exposition of any topic which is discussed, said a former Board of Visitors, itself involves a rigid, logical, and rhetorical training such as compensates to a good degree for formal instruction in the construction of sentences, the selection of words, and the arrangement of thoughts, and explains why, with so little formal rhetorical instruction, the graduates of the Academy so frequently exhibit the best qualities of a good English style."

The Board would not have it inferred from the space given to this subject that they desire to convey the impression that the style and forms of expression at the Military Academy are so seriously defective as to challenge attention and to call for criticism and censure. The defects alluded to are exceptional, and are incidental to impromptu speaking before an audience, particularly when the speaker has not had careful rhetorical training. The defect is not confined to West Point, and is not infrequently discovered in the extempore utterances of men who have large experience in public speaking, and who are among the honored and distinguished alumni of our leading colleges. Absolute correctness of speech under such circumstances as we are discussing, is an accomplishment to be acquired after leaving academic halls. It is implanted by the Alma Mater, but to arrest the attention and challenge the admiration of a critical world must be polished by hard and patient labor on the part of the alumnus.*

* In a letter returning the proof-sheets to the president of the Board, Dr. William Everett says: "I have very great pleasure in assenting to the report with scarcely an exception. But I wish very much Mr. Childs would consent to recast the paragraph about English. I hardly think it does justice to the candor either of former Boards or of my own criticisms in the appendix. I was present at a large number of recitations in the section which was less regularly visited by the other members, and was struck not by occasional and exceptional errors of language, but by frequent and painful breeches, not of rhetorical or logical niceties, but of the plain proprieties of speech which mark the gentleman. Surely a 'hesitating manner' of delivery is quite as bad in an officer who has to issue orders as in a civilian; and without going into the question of gaining applause on a platform we must regret seriously what looks like the slighting of what instruction is given in the language as of little account in comparison with the subject-matter."

SHOULD THE COURSE OF STUDIES BE EXTENDED.

There has been considerable discussion in recent years, much of it proceeding from facts and opinions furnished by superficial examinations of the Academy, as to whether the course of studies should be changed and extended by the addition of branches not now found in its curriculum. Such changes should not be hastily made, and only upon the suggestion and with the approval of the Academic Board, or upon the recommendation of a commission composed of men distinguished as teachers of youth, and after the most thorough investigation. The Academic Board have full authority to recommend such changes in the course of studies as they may deem necessary. Indeed, paragraph 9 of the Regulations for the Academy make it obligatory to recommend such changes.

> The Board shall * * * report to the War Department on the system of studies and instruction, proposing any improvements therein that experience may have suggested.

That is the language of Rule 9. There can be no doubt that the Academic Board, actuated by a desire to accomplish the greatest possible results for the Academy, as well as by a natural and laudable personal ambition in connection with the progress of the institution, will not hesitate to make recommendations for the improvement of the course of studies whenever it becomes necessary to do so. But it should not be forgotten that the standard for admission is fixed by law. Until that is advanced it would be useless to extend the course of studies, the effect of which would be to practically convert the Academy into a preparatory school, or, by admitting pupils who are unprepared to enter upon the established course of study, compel the faculty to declare them deficient at the first semi-annual examination and mark them for discharge from the Academy. Even with the present course of studies the prescribed examination for admission is believed by many persons who have given this subject careful study to be entirely too low—lower, in fact, than is required for admission to any of the leading colleges of the country. The law prescribes that to obtain admission to the Military Academy appointees "shall be required to be well versed in reading, writing, and arithmetic, and to have a knowledge of the elements of English grammar, of descriptive geography, particularly that of the United States, and of the history of the United States." Reference to a set of examination papers used at the preliminary examination in June, 1887, which will be found in the appendix, marked Exhibit B, will show that the Academic Board go as far as warranted by the law to ascertain whether the candidate knows the little that is required by the statute to insure admission. The trouble with many of those who succeed in gaining admission, and who are found deficient at the examinations in January and June following their admission, is that the deficients were specially trained, or "crammed," for the preliminary examination, and did not possess that

thorough knowledge of reading, writing, and arithmetic, and of the elements of English grammar, so essential to entrance upon the West Point course, and which is required by the statute above quoted.

The Board believe that if a knowledge of elementary algebra and geometry were added to the qualifications for admission much valuable time would be saved that might be devoted to the study of English literature or the modern languages, and that decidedly better results would be obtained. In view of the fact that the Government bears all the expenses of the education and maintenance of the cadet, and provides him with a life position upon his graduation, it is not too much to require that before entering the Academy the candidate shall have a knowledge of those elementary branches that are taught at every respectable high school and academy in the country.

THE STANDARD FOR ADMISSION.

The educational standard for admission to the Military Academy was originally established April 29, 1812, by an act of Congress. It was not changed until June 16, 1866, when it was amended so as to require "a knowledge of the elements of English grammar, of descriptive geography, particularly that of the United States, and of the history of the United States." No change has been made in the standard since 1866, although there has been considerable advancement in the course of studies pursued at all the public schools and academies of every grade. It should not be overlooked that the Military Academy was established and is maintained not to furnish education for a certain number of young men, but primarily for the service of the country, and the best known methods and the most valuable material should be adopted and selected to this end. Admission to the Academy, as well as training after admission, should be conducted with strict regard to the interests of the Government as embodied in the military service. It is no valid objection to a higher standard for admission to say that the sons of poor parents would thus be excluded. The establishment of any standard is a discrimination in that sense. As before stated, West Point is not maintained to educate for the general duties and business of life such boys as members of the House of Representatives may designate. The public schools were established and are maintained to educate boys. West Point is maintained to train men for the performance of certain high and important duties to the country, and the Government should seek the most promising of its youth for this special service, and should not receive them until they are fully prepared to enter upon the course of study and training necessary to the end in view. In no other way can the usefulness of West Point be perpetuated and the reputation of the United States Military Academy as a national scientific school be maintained. The standard of forty or twenty years ago will not serve as a standard now. Qualifications that enabled young men to enter Harvard, Yale, Princeton, and other leading colleges in 1866 would not

secure admission to the freshman classes of those colleges now. Science and learning move too rapidly forward to permit those schools that would keep abreast of the enlightened progress of the age to rest upon past accomplishments or maintain their present prominence with present acquirements. If West Point does not lead, it should at least be equipped to keep up with the procession in the onward march of science and learning. It cannot stand still without being forced, in the very nature of things, to step backward. The standard for admission is the basis of success for advanced schools of learning. If that be maintained at the proper level, the course of studies will advance to meet every requirement, as a natural and logical sequence.

The Board of Visitors for 1878, in discussing the propriety of raising the educational standard of admission, said:

The West Point Military Academy is in no sense a charitable or benevolent institution. Its object is especially to give education in a department of learning which, save in very exceptional cases, will never be acquired without special teaching, and to put into and in control of the military forces of the country officers who in the time of emergency will not be found inferior in knowledge and experience to the officers of the armies of other nations, with whom they are liable to be brought into conflict and competition. It is an economic axiom, admitting of no exception, that the last thing a nation or individual can afford to do is to work with poor tools, and that in case of competition a nation or individual working in any art or profession with inferior tools will in the long run be obliged to succumb. With appointments made to West Point some ten or twelve months in advance of admission (as they now are) it seems unreasonable, also, to suppose that any young man of a really high order of natural talent, and a strong desire to enter the Academy, would allow so trifling an obstacle as an elementary knowledge of algebra and geometry to stand in the way of a realization of his aspirations and wishes.

The Board of Visitors for 1879, of which the learned Dr. Noah Porter, of Yale College, was president, said on this subject:

Under the operation of the present system the time and energies of an able corps of instructors are necessarily employed for nearly a year in giving instructions in those branches of elementary knowledge which are taught in the public schools of the country, and the early part of the curriculum suffers by comparison with that of most of the institutions for the liberal culture of young men of equal age with the cadets. The fact that in some respects this institution stands higher than any other, does not relieve it from this infelicity. While for many reasons it may be conceded that its pupils should not be admitted at an advanced age, it is only reasonable to insist that its lowest class should have mastered as much elementary knowledge as may be be gained by the average of the graduates of our highest public schools.

For the reasons explained in the foregoing pages, the Board recommend to Congress that the standard of educational qualification for admission to the Academy be raised. This, we believe, would give increased efficiency to the Academy, result in materially reducing the number of discharges annually made for deficiency, and add correspondingly to the number of its graduates.

It is frequently charged in the newspapers, and has been asserted on the floors of Congress, that at the preliminary examination technical and "catch" questions are propounded to the candidates, and that the

most difficult and complex problems that can be devised under those rules of arithmetic included in the examination are given for elucidation. An inspection of the examination papers used last June (see Exhibit B) shows there is no foundation for such charges. In order to show the lack of qualifications in some of the boys appointed, the Board procured copies of the examination papers of two candidates found deficient last June. In one case the candidate was deficient in geography and history. The other was deficient in arithmetic, grammar, and orthography. These are fair specimens, and the attention of members of the House of Representatives is especially invited to them. They will be found in the appendix, marked Exhibit C.

INSTRUCTION IN SPANISH AND GERMAN.

The report of the committee on discipline and instruction will be found in the appendix, marked Exhibit A, to which attention is invited. The Board would especially direct attention to the suggestion for the study of the German language. The prominence attained by Germany in military science suggests the question whether it might not be substituted with advantage to the public service for the study of French, while the large number of Germans in the United States suggests the policy and utility of such a change. If the study of German can be admitted to the course of studies without crowding out any study now pursued, it should be admitted. If its admission is contingent upon the sacrifice of French, the Board incline to the belief that the sacrifice would prove beneficial to the public service. Our large German population furnishes an excellent field for the recruiting officer in times of public peril. They are a homogeneous as well as military and patriotic people, and naturally prefer to form distinctive organizations. This was exhibited in the late war. The efficiency of regiments formed of German-American citizens would undoubtedly be increased by a knowledge of the German language on the part of our military officers. This observation, in a limited degree, will apply to the Regular Army, in whose ranks may be found a large number of Germans. A former Board of Visitors (1879) suggested that "the German language be substituted for the Spanish, as being one of the foremost languages of science in all its branches, the military included, and as furnishing an excellent discipline for understanding and writing English with intelligent judgment."

This Board do not believe the study of Spanish should be dropped or abridged at the Military Academy. On the contrary, we believe its study should be given more attention, and should be so taught that the graduates of the Academy might be able to conduct an ordinary conversation in that language. If we were educating officers for service on the continent of Europe, German and French would be the languages selected, and for the same obvious reasons Spanish and German should be selected here. The fact should not be overlooked that a Spanish-speaking people dwell upon our southern border, and that the same

race of people occupy the entire continent of South America and the islands of the Caribbean Sea. Every year is bringing the Government and the people of the United States into closer relations, civil and commercial, with these Spanish-speaking neighbors.

The extension of commercial and social relations enhances the importance of our official relations, and this should suggest the influence of diplomatic intercourse, and even the possible contingency of military operations. Furthermore, there are large numbers of people in the territory acquired from Mexico who speak the Spanish language only, and among these people a portion of the Army is constantly located. In addition, we have the Indians of the Southwest, all of whom speak Spanish. In dealing with these Indians a knowledge of Spanish would be of great assistance, and perhaps largely contribute to the removal of difficulties and misunderstandings that would prevent bloodshed. In the recent campaign against the Apache Indians, and when the military forces of the United States in pursuit of Geronomo had penetrated some distance into the Territory of Mexico, the killing of an experienced and brave officer, Capt. Emmet Crawford, of the Fourth U. S. Cavalry, might have been avoided had he been able to understand and speak the Spanish language. The unfortunate killing of Captain Crawford by a military force of Mexico, through a misunderstanding resulting from ignorance of the Spanish language on the one side and of the English on the other, gave rise to great public excitement among the people of the two countries, led to protracted diplomatic correspondence, and might have resulted in the most serious consequences to both countries had not commendable prudence and wisdom been exhibited by the executive authorities of Mexico and the United States.

For these reasons the Board believe it would be wise policy to extend the study of Spanish at the Military Academy. At present this language is taught only during a portion of the last year of the course, and it is not risking much to say that no man ever left the United States Military Academy who could carry on an ordinary colloquy in Spanish who had not been instructed in that language prior to admission to the corps of cadets. The instruction in Spanish is regarded as being of such doubtful utility at the Academy, in comparison with other studies, that it is questionable whether the instructors have a speaking acquaintance with it.

DISCIPLINE.

The general conduct and manly bearing of the individual cadet, the precision of movement, both on parade and drill, exhibited by the corps, and the good order and cleanliness of the cadet barracks show the high state of discipline prevailing at the Academy, and reflect the highest credit on the officers charged with the military instruction of the corps. The rules for the government of the cadets are purely military, and are administered with a degree of impartiality, and with a stern inflexibility that excite the admiration of those who inquire into the purpose and

influence of such rigidity, and the indignation of those who see only the repression of individual privileges, or the infliction of punishment apparently beyond reasonable proportion to the offense. Every rule and regulation for the enforcement and maintenance of discipline has a wise purpose and is the result of years of practical experience. Discipline at West Point has a dual purpose—punishment and instruction. Thus for offenses of trivial character a penalty is prescribed, not for punishment, but to impress upon the mind of the offender the fact that he has done something, or omitted to do something, in violation of Cadet Regulations. The punishment is slight and temporary, the instruction involved is lasting, should be, and usually is, corrective. That the discipline enforced is neither unjust nor tyrannical is shown by the cheerfulness of the cadets, the fact that no complaints are made by them, and the additional fact that no inconsiderable number of them pass from year to year without a single recorded demerit. When the list of offenses is taken into consideration this is remarkable. Being late at any of the numerous formations, inattention in ranks, shoes not neatly blackened and not properly aligned at foot of bed, coat unbuttoned (a single button is sufficient to secure a report), soiled clothes exposed at inspection of quarters, bed not properly rolled, failure to salute officer, and numerous other trifling acts of omission and commission form the penal code at West Point. Very few cadets pass a month without receiving reports, but at the end of every month for which the number of demerits recorded against any cadet is less than eight the difference between eight and that number is deducted from the record. Any cadet who has a record exceeding 125 demerits for the six months ending with December 31, or exceeding 90 for the time between January 1st and June 1st, is liable to dismissal for deficiency in discipline.

The Board can find nothing to criticise in the methods of government and discipline. In all the evolutions of the corps of cadets the highest standard of proficiency was displayed, and we sincerely believe that in every particular, whether as infantry, artillery, or cavalry, the corps of cadets can not be excelled by a similar number of the best-trained soldiers in the world.

GOVERNMENT OF THE CORPS OF CADETS.

While the Military Academy is ruled with all the severity of military law, the government of the cadets in all that relates to them as a community is based upon the purest democracy. Political or social influence, whatever these may do in having a boy appointed, can not be of the slightest service to him after he is admitted to the Academy. Then he stands upon his own individual worth and merit, can obtain no assistance from without and receive no favor from within, and must yield a ready compliance with every regulation. No indulgences are permitted, and no contributions of money or supplies from parents or friends are tolerated. He must wear the clothes, eat the food, and live in the quar-

ters provided for all by the Government, and is not permitted to make the slightest change in any of these. His parents can not visit him in his room, nor can he visit them, should they be on the Post, without the knowledge and permission of the officer in charge, and only then under prescribed rules, which he is bound on honor to observe, and for a prescribed period of time.

A single instance will serve at once to show the severity and wisdom of the West Point code. It is provided in Cadet Regulations:

No cadet shall enter any hall or room of the hotel except the office and the hall and parlors of the first story in the main building. No cadet shall take any meal at the hotel, nor shall he apply for permission to do so.

To a parent visiting a son these rules seem unnecessarily harsh and despotic. Why should not parents who journey to West Point have the privilege of having their son with them at the hotel if they so desire and are willing to pay for his entertainment? Why should they not have the privilege of giving him and his room mate, or a few of his favorite classmates, a little dinner or supper, or a carriage drive over the reservation? Thousands of parents have perhaps asked themselves these questions, but few have evolved satisfactory answers. In the first place, permission is denied because parents are liable to grant indulgencies to their sons that are believed by the academic authorities to be "in violation of good order and military discipline." But the principal reason for the prohibition is, that as the parents of all have not the means to entertain their sons at the hotel and with carriage drives, therefore the parents of no one cadet shall be given such privileges. This is the underlying principle at West Point, and it can not be too highly commended. Its value is shown by the feeling of equality, fraternity, and individual independence that prevails in the corps. The cadet gray extinguishes all distinction that might obtain on account of wealth, social or political prominence of parents, represses all feeling of social superiority, and binds men and classes together in bonds that are severed only by death. It is this, perhaps, that constitutes that undefinable quantity which has become known as "the West Point influence."

DAILY LIFE OF THE CADET.

The same strict regulations that require every article of clothing to be uniform extends to the barracks. The rooms of cadets are more than Spartan in the severe simplicity that prevails. Each room is occupied by two cadets. There are two alcoves at the rear, each of which is assigned to one of the occupants of the room. In these alcoves are placed single iron bedsteads. At all times, except between taps and reveille, the mattress and bed clothing must be rolled and packed in a prescribed manner, and beds cannot be "made down" until tattoo. The furniture consists of one table, of ordinary size, which is used jointly by the two

occupants during the hours appointed for study; two plain wooden chairs, one wash-stand, one wash-bowl and pitcher, one looking-glass, one slop and one water pail, two tumblers, one broom, and two sets of shelves made of plain pine boards. A rack for arms and accouterments, a prescribed number of wooden pegs in the walls, and red muslin curtains on the window serve as ornaments. This constitutes the entire furnishings of a room in the cadet barracks, and no other articles are allowed.

Two blankets and one quilted bed-cover are prescribed as the allowance for each cadet, and additional bed covering can be obtained only by permission of the Superintendent or upon the order of the surgeon. No covering of any description is permitted on the floor, and no pictures can be hung on the walls. There is a prescribed place for every article permitted in the room, every article must be in that place, and arranged as provided in regulations. All the rooms are exactly alike in size, arrangement, and furniture. Excluding the two hair mattresses, the entire furniture of any room in the cadet barr acks would not realize at public sale $15.

The occupants of each room in turn are detailed as "orderly." This detail continues for one week, during which time the orderly is responsible for the cleanliness and good order of the room. Except to "make up" and "make down" his room-mate's bed, the orderly's duties are those of chambermaid, and his responsibility is so prescribed that he is responsible even for the making-up of his room-mate's bed, as well as for any noise or other breach of regulations he may commit. The name of the orderly of each room is posted on the "orderly board," that it may be readily seen by the inspecting and other officers, who make frequent visits to ascertain that "all is right." The duties and responsibility of the orderly are thus defined by regulations:

He shall be responsible for the cleanliness of the w ash-stand, mantel-piece, shelves, and other fixtures; for the general police of the room, and for the strict observance of regulations and orders therein.

He will be responsible for the preservation of all property attached to the room, for the common use of its occupants.

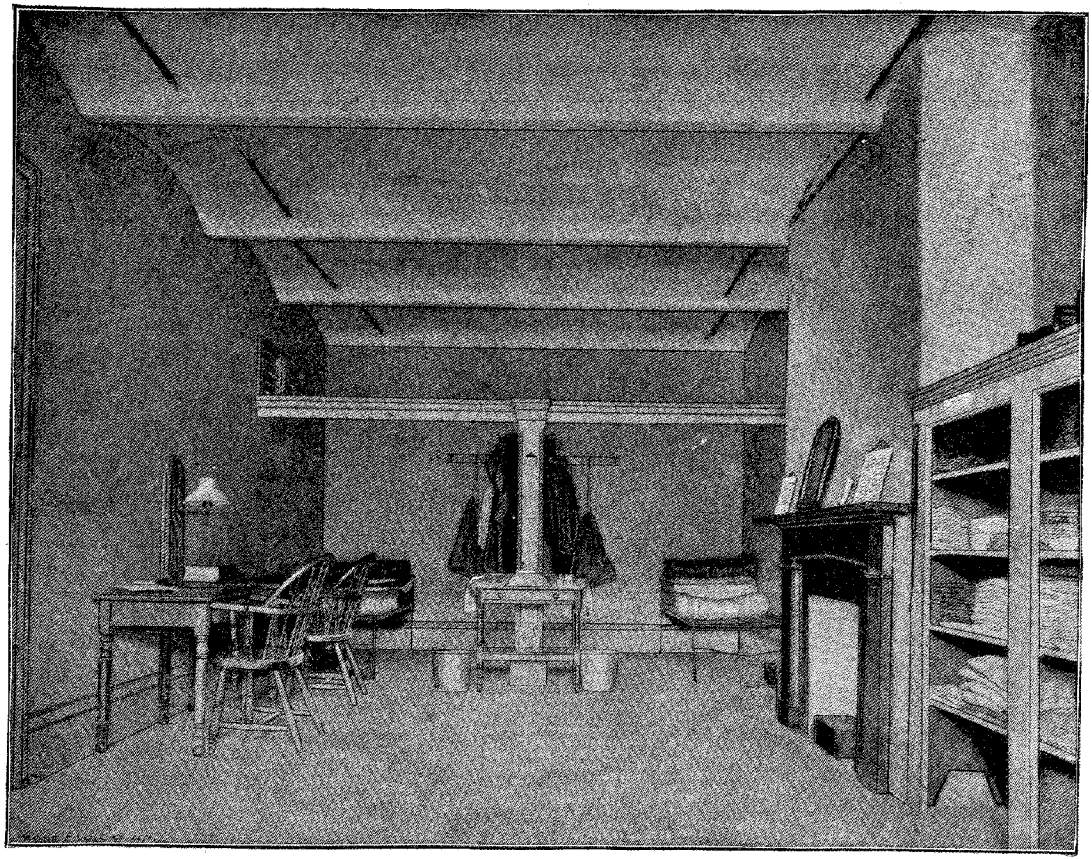
Every morning, immediately after reveille roll-call, he will thoroughly sweep every part of the floor of his room, brush the dust from the furniture, wood-work, and curtains, and sweep the dirt collected into the hall. The rooms will not be swept out at any other time during the day.

He will see that a light is in his room immediately after the evening *call-to-quarters*, and extinguished when the occupants are absent on duty.

Every night after tattoo and at or before taps he will cause all the lights in the room not authorized to be extinguished.

He will answer promptly and fully every official question put to him by proper authority concerning his duty as orderly.

The corps is divided into four companies, and in this division the class organizations are not recognized, each company being composed of cadets from all the classes. Each company and its quarters are su-



A ROOM IN CADET BARRACKS.

perintended by an assistant instructor of tactics, who is an officer of the Army. The regulations prescribe for each of these officers:

He will inspect the rooms of his division twice, and oftener when necessary, between reveille and tattoo; one of these inspections shall commence between half past 8 and 10.30 a. m., at which time he will see that the rules and regulations with reference to the police of quarters have been observed in every particular; the other inspections will be principally with reference to the general observance of the academic regulations. He will also frequently inspect between tattoo and reveille.

The inspection between tattoo and reveille is made by the officer in charge, who is one of the assistant instructors in tactics, and whose term of duty continues for twenty-four hours. This officer is stationed at the cadet guard-house. The windows of his office overlook the barrack area or yard, and no cadet can leave the barracks and cross the area without coming under his observation. It is the duty of this officer to be present at every formation and roll-call and to be present in the cadets' mess-hall at their meals. Thus it will be seen that the greatest simplicity prevails in the daily life of the cadet; that he is required to attend to his daily personal wants; that he is held to the most rigid accountability; that he is under constant surveillance and certain to be reported for any infraction of the almost Draconian laws by which he is governed. To those who have not followed this severe system of mental and physical training to its full fruition it seems harsh, cruel, and despotic. Those who have seen the raw material furnished for its manipulation and the perfect product turned out under its operations—have had the opportunity of contrasting the "plebe" when he enters with the graduate as he goes out—would not advocate any mitigation of its severity.

In order to show how the time of a cadet is passed at the Military Academy, a report giving this information was prepared at the request of the president of the Board of Visitors, and will be found in the appendix, marked D. A fourth class man, or "plebe," was selected for the illustration. The time of the upper classes is similarly occupied, except that the studies are different. A perusal of this report will show how cadets are occupied during each hour of the day and night. Such a system of individual accountability can not fail to contribute to a perfect state of discipline and promote a high state of morals in the corps of cadets.

METHOD OF APPOINTING CANDIDATES.

The opinion has obtained that members of the House of Representatives have the *right* to appoint candidates for admission to the U. S. Military Academy. This is an error. The *courtesy* has been extended by the President to Representatives of permitting them to nominate candidates, but they have no more right to make an appointment than they have to appoint a postmaster or a collector of customs. The law authorizing and regulating appointments to the Military Academy is found in

chapter 4 of the Revised Statutes, and the attention of members of the House of Representatives is specially invited to it. It provides :

SEC. 1315. The corps of cadets shall consist of one from each Congressional district, one from each Territory, one from the District of Columbia, and ten from the United States at large. *They shall be appointed by the President,* and shall, with the exception of the ten cadets appointed at large, be actual residents of the Congressional or Territorial districts, or of the District of Columbia, respectively, from which they purport to be appointed.

SEC. 1317. Cadets *shall be appointed one year in advance of the time of their admission to the Academy,* except in cases when, by means of death or other cause, a vacancy occurs which can not be provided for by such an appointment in advance. * * *

There can be no difference of opinion as to the construction of the law above quoted. The right to appoint is not only lodged in the President alone, but the obligation to appoint is imposed. The recommendation of the Representative is in no sense binding on the President, and gives the candidate so recommended by him no legal right to priority in the consideration of the President. The practice of appointing the person recommended by the Representative of the district in which a vacancy exists has been found, as a rule, to work satisfactorily; but the matter of appointment to the Military Academy has been so completely assumed as a right by the Representatives that it has come to be considered as a personal prerogative, to be given and withheld at pleasure. The result of this abuse—for it is an abuse—of the privilege extended by the President has been, and continues to be, detrimental to the public interests and expensive to the public Treasury. The Board would not be understood as recommending a withdrawal of the privilege of nominating candidates so long enjoyed by Representatives, and direct public attention to the matter simply to correct a popular error, and in the hope that it will result in the adoption of a regulation by the President that will *require* Representatives to promptly recommend candidates for appointment to the Academy with the alternative of a selection being made directly by the President. The importance and necessity for the immediate adoption of such a regulation is shown by the fact that a large number of districts are constantly unrepresented at the Academy, by reason of the indifference and neglect of members of the House of Representatives, and sometimes of the deliberate design of a Representative to keep the place vacant for a year or two in order to accomplish the appointment of a particular candidate in furtherance of his own political preferment.

The character and extent of this abuse will be better understood by reference to the facts and figures furnished by the records of the War Department as to the strength of the corps of cadets on the 1st of September of each year. When the class of 1887 graduated, in June last, the number of districts from which appointments were required was 151. For these vacancies there were appointed on the recommendation of members of the House of Representatives 142 principals and 44 alternates, leaving 9 districts from which no candidates were appointed. Of the

142 principals appointed, 129 reported in June, and of the 44 alternates 25 reported at that time. The number admitted to fill the 142 vacancies was 101.

The number of districts entitled to appointments to fill vacancies existing in July last was 62. To fill these, appointments were made of 51 principals and 14 alternates, thus showing that 11 members of the House of Representatives failed to recommend candidates for the August examination. The number of districts not represented on September 1, 1887, the date fixed for the beginning of the academic year, was 41.

The Board respectfully suggest that the proper authorities should give consideration to this subject with a view of establishing regulations that will reduce this large percentage of vacancies in the corps of cadets at the beginning of every academic year. The regulations of the War Department under which appointments are made should be revised and amended, and members of the House of Representatives should be *required* to recommend, one year in advance of the time fixed for admission to the Academy, not only a principal, but an alternate. Failure to do this should vacate the privilege of the Representative to name a candidate, and the President should, in that event, fill the existing vacancy in accordance with the mandate of the law, which directs that all cadets "*shall* be appointed by the President," and "*shall* be appointed one year in advance of the time of their admission to the Academy, except in cases where * * * a vacancy occurs which can not be provided for by such appointment in advance."

The number of districts now unrepresented at the Academy is not exceptionally large. Last year the number was 35, and the three years preceding 1886 the average was 33. In 1881 the number was 74, or more than 21 per cent. of the total authorized strength of the corps of cadets. This dereliction should be corrected as a matter of justice to the people of districts not represented, who are thereby deprived of cadets at the Academy, as well as in the interests of the Government. Fortunately this is not a matter that needs legislation to correct. The correction can be made by the President exercising his authority to appoint in every case, when the Representative fails to make a recommendation. With the machinery of the civil-service law in operation in all the Congressional districts, it is suggested that all applicants might be directed to appear before the civil-service examiners, with a view of appointment by the President, should the Representative neglect to recommend a candidate at the proper time.

In the report of the Board of Visitors for 1876 is found the following paragraph on the selection of candidates:

The question, in the judgment of the Board, reduces itself to this: How can the method of appointment, or the mode of selecting the appointees, be changed, so that a larger percentage of those appointed can be relied on as capable of bearing the strain of this necessarily rigorous discipline? The method of selection by competitive examination does not seem to meet the case, because the qualifications tested by such

an examination and those tested by the discipline of the Academy are not the same. An examination in the elementary English studies would often select mediocrity favored in its previous training, instead of talent capable of high training. The qualities which win at West Point are robust health, capacity to work and to endure, and aptitude for mathematics. Candidates should be preferred for their promise rather than for their attainments. If the appointing power is to remain in the hands of members of Congress they should hold themselves and be held by the public responsible, in a degree, for the successful career of those appointed by them. A member who should desire to do his duty in making an appointment could not turn it over to some committee of teachers to settle by competitive examination, but should take the pains necessary for ascertaining who among those desiring the position gives promise of the greatest ability of the kind required. It might serve to keep up the sense of responsibility in making these appointments if, in the Academy register, the name of the cadet should be accompanied by the name of his patron.

The official circular issued by the War Department furnishing information relative to the appointment and admission of cadets to the U. S. Military Academy, under the head of "Appointments," reads as follows:

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 applications.—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, exact age, 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 cannot be provided for by such appointment in advance. These vacancies are filled in time for the next annual examination.

Alternates.—Should the Representative, or Delegate, in Congress have reason to doubt the success of his nominee in passing the entering examination, he can nominate a legally qualified alternate. The alternate will be examined with the regular nominee, and admitted in the event of his success and the latter's failure to pass the prescribed preliminary examinations. The alternate, like the nominee, should be designated as nearly one year in advance of date of admission as practicable.

The second and fourth of these paragraphs provide regulations made by the Secretary of War under the general authority vested in that officer by section 1331 of the Revised Statutes, which provides:

SEC. 1331. The supervision and charge of the Academy shall be in the War Department, under such officer or officers as the Secretary of War may assign to that duty.

The Board recommend that the fourth paragraph be amended so as to require that alternates be named in every instance. The third paragraph is based on section 1317 of the Revised Statutes, and as it is given such prominence its purpose is evidently understood by the authorities. The Board respectfully suggest that the law and the reg-

ulation should be enforced. The language of the first paragraph, explaining how appointments are made, should be amended to conform to the statute. The words "President of the United States," should be substituted for the words "Secretary of War." The Secretary of War has no legal authority to appoint cadets to the U. S. Military Academy.

In connection with appointments to the Academy, the Board further recommend that prior to the time prescribed by the law for making appointments, the Secretary of War cause notice of approaching vacancies to be published in newspapers circulating in the Congressional districts in which the vacancies are to occur. This could be done without expense to the Government. At the same time if it were made public that the President would appoint from the list of applicants on file at the War Department, should the Representative of the district neglected to make a recommendation by a given date, there would be hereafter fewer districts unrepresented at the Academy at the beginning of each academic year, and perhaps fewer deficients found among those appointed.

VALUE OF COMPETITIVE EXAMINATIONS.

In connection with the appointment of candidates the value of the competitive system adopted in many Congressional districts is a pertinent inquiry. Each Congressional district having the legal right to send a boy to the Military Academy, every boy in the district with a desire to enter upon military life and possessing the prescribed qualifications, should be given an opportunity to compete for the appointment. It has been demonstrated that appointments under the competitive system have been far more successful than those made directly.

To show the relative value of the competitive and direct systems of appointment the Board had prepared a tabular statement showing the number of cadets appointed under both systems to the ten classes that graduated between 1877 and 1887, the number graduated, and the casualties under each mode of appointment. This table will be found interesting and suggestive. Of 502 cadets appointed by competition 306, or 61 per cent., graduated. Of 638 appointed directly 280, or 44 per cent., graduated. The failures among the competitive appointments reached 39 per cent., while the failures among the direct reached 56 per cent. The annexed table shows in detail the results of the two systems for the period named. The class last given in the table (1883) was the class that graduated last June.

Number of cadets admitted to the U. S. Military Academy, from 1873 *to* 1883, *inclusive, showing number appointed by competitive examination and directly, with number graduated and casualties under each mode of appointment.*

Years of entering.	Total number admitted.	Appointed by competition.						Appointed directly.					
		Graduated.	Resigned.	Discharged.	Dismissed.	Died.	Total.	Graduated.	Resigned.	Discharged.	Dismissed.	Died.	Total.
1873	118	34	3	10	....	....	47	42	10	19	....	....	71
1874	89	13	4	10	1	....	28	27	10	22	2	....	61
1875	121	30	8	6	2	....	46	34	18	22	1	....	75
1876	98	23	4	16	....	2	45	24	11	16	1	1	53
1877	96	36	4	11	....	....	51	20	8	13	4	....	45
1878	102	22	7	13	1	....	43	17	23	19	....	....	59
1879	88	29	4	14	....	....	47	13	14	14	....	....	41
1880	73	23	3	5	1	....	32	14	12	15	....	....	41
1881	85	19	6	8	....	....	33	24	10	18	....	....	52
1882	129	40	7	12	....	1	60	35	11	23	....	....	69
1883	141	*37	10	20	2	1	70	*30	16	23	1	1	71
Totals	1,140	306	60	125	7	4	502	280	143	204	9	2	638

* Including eight cadets turned back into the class of 1888.

	Per cent.
Competitive:	
Graduated	61
Failed to graduate	39
Direct:	
Graduated	44
Failed to graduate	56

When a cadet is found deficient he is "discharged." The law declares that "no cadet who is reported as deficient in either conduct or discipline, and recommended to be discharged from the Academy shall, unless upon recommendation of the Academic Board, be returned or reappointed." To evade this law a number of cadets who are deficient resign before their deficiency, already ascertained by the examinations, is officially promulgated by the Academic Board, and some of these succeed in securing reappointments. Those classified as "resigned," therefore, in the above table should be included among the "discharged" for deficiency. In his last annual report General Wesley Merritt, the very able and efficient Superintendent of the Military Academy, in directing attention to this subject, said:

If it is considered that the method of conducting competitive examinations could be materially improved, the advantages of the system properly conducted must be admitted. Instances are reported when deserving and intelligent lads, who pass a perfect examination in the studies required, are rejected because of some fancied superiority of physique on the part of one less proficient in studies. Moral character and mental capacity should be the important points in the Congressional competitive examinations; for while a well-developed physique is an advantage, its possession for a candidate is an insignificant qualification at the Military Academy as compared with the others mentioned. In other words, the system of training at the Academy can and will develop a youth's physical powers and make a hardy, robust man of a fragile lad, but no means at the disposal of those who conduct the Academy can be used to supply a defective early education, mental or moral.

An examination of the records of the Academy develops a fact which, if it was more generally recognized, would relieve the officers of the Academy of much useless labor and annoyance, and the friends of deficient cadets of a great deal of fruitless exertion and anxiety. The appointment of a candidate is conditional on his passing the preliminary examination, and the appointment as a cadet on passing the first

semi-annual examination after his admission—that is, the January examination. The records show that in nine cases out of ten cadets who are of doubtful proficiency at the January examination fail outright before the end of the second year's course; and in cases where cadets weak in their studies have been turned back to resume the course after failure the first year, they seldom succeed in completing more than one step beyond the stage of their original failure. In other words, the first six-months' course is a fair test of a youth's ability to succeed, and generally, if his position in his class is doubtful at this time, his deficiency is sure, sooner or later, to find him out. Parents and candidates should remember that, while it is a misfortune to fail in the course at West Point, it is no disgrace; always provided the failure is not due to idleness or vicious habits. They should also cheerfully accept the test and not court, by continuing at the Academy after a first failure, increased confusion and disappointment by repeating the failure which is so sure to follow. Failure after entrance is due either to a lack of application or a want of ability in the special studies taught at West Point. In the first case another trial is undeserved; in the other, for the reasons above given, it should not be desired.

The preventive for the evil of reappointing deficient cadets who resign is, to some extent, if not entirely, in the hands of the authorities of the Academy. A cadet known to be deficient, although not formally so declared, should not be given the privilege of resignation. If he declines to go forward and submit to the prescribed examination his refusal should be regarded as a confession of deficiency, and he should be discharged for and on that account. This would bar his reappointment. In addition to this the Superintendent should, immediately following the January examinations, specially report to the War Department the names of all such deficient and discharged cadets, that they might not be again designated by the President.

To further illustrate the superiority of the competitive system the Board had prepared a tabular statement showing the number of candidates admitted under each system of appointment, and the number that failed to pass the preliminary examination under each. It will be noticed that there is a large percentage in favor of competition. It is a singular fact, and must be regarded as significant in this connection, that the difference in the percentage of those admitted under the two systems is precisely the same as that between the percentage of those who graduated, as shown in the preceding table.

Candidates admitted and found deficient at preliminary examinations for admission to the Military Academy, from 1873 to 1887, inclusive, showing number appointed, both by the competitive and direct methods.

Years.	Competitive.		Direct.		Years.	Competitive.		Direct.	
	Admitted.	Deficient.	Admitted.	Deficient.		Admitted.	Deficient.	Admitted.	Deficient.
1873	57	16	61	58	1882	62	12	67	39
1874	26	10	63	56	1883	69	12	72	44
1875	46	20	75	47	1884	40	12	58	30
1876	38	11	60	42	1885	41	7	54	26
1877	46	27	50	60	1886	74	25	54	20
1878	40	6	62	39	1887	70	20	57	36
1879	46	13	42	21					
1880	32	10	41	24	Total	720	219	868	584
1881	33	18	52	42	Per cent	77	23	60	40

The conclusion is irresistible that a greater amount of material has been obtained for the Academy under the competitive system than by direct selection. It would, perhaps, be best to prescribe certain uniform and general rules for the conduct of competitive examinations; rules that would be observed at all such examinations throughout the country. All young men intending to compete should first be sent before a board of at least two competent surgeons for physical examination, and those found qualified in this particular should be furnished with a certificate to that effect by the surgical board. A member of the surgical board should not serve as a member to inquire into the mental qualifications of candidates. The surgeon's certificate should not state the degree of physical qualifications, as that A, B, and C are fully qualified, but C has a better development than the others. All who pass the physical inspection should come before the board for mental examination on a perfect equality, as is the rule at West Point. Cases have been brought to the attention of the Board where candidates competing for appointment have been defeated by the slight difference in the marks given on the physical examination of competitors. There should be no competition in physical development.

In considering the examination papers of competing candidates, the character and disposition of the candidates should be given careful consideration. The minds of young men naturally turn to a particular profession or calling. Some will turn to science or theology; others to law or medicine; others to the Army or Navy; and others to mechanics and business. Yet all these, impelled by the novelty of the contest, and the natural ambition of youth to excel his fellows, might appear before the examining board. We believe that the element of character, considered with regard to adaptability to the military service, should enter into this competition to some extent. Thus, a young man having no taste or inclination for military service might perform correctly five examples in arithmetic, while the young man who exhibited unquestionable promise as a soldier might be passed over because his work showed an error in one of the five arithmetical questions. The more studious young man being selected frequently discovers after entering upon the West Point course that the life of a soldier is distasteful, and if he does not become negligent in discipline and indifferent in study and drop out for deficiency, he resigns before half through with the course. As far as it can be done with prudence and fairness, all things being equal, or nearly so, so far as physical and mental qualifications are concerned, candidates should be recommended who manifest a natural taste for the military service, and who exhibit those unmistakable traits of character that give promise of making good soldiers. There is excellent reason why these peculiar qualifications should be given a fixed value or rating in making up the standard of qualification for competitive examinations. Those who possess them, in addition to the other qualifications, form the class of youth the Government needs for its

military service, and for which it is seeking to educate and train at the U. S. Military Academy.

STATISTICS OF THE ACADEMY FROM 1838 TO 1887.

The accompanying table shows the number of candidates appointed to the Military Academy, the number rejected and cause for rejection, the number admitted, and the number graduated for the forty-nine years ending August 31, 1887:

Year.	Number appointed.	Rejected by Academic Board.	For want of qualification in—							Rejected by Medical Board.	Appointment canceled.	Declined appointment.	Failed to report.	Alternates passed for whom no vacancies existed.	Admitted.	Graduated.
			Reading.	Writing.	Orthography.	Arithmetic.	Grammar.	Geography.	History.							
1838	132	2	1	1	1	1				1	1	1	16		111	45
1839	91	2			1	2				1		6	6		76	31
1840	106	8		1	1	8				2		4	8		84	42
1841	131	8	6	4	1	6					1	1	7		114	52
1842	144	17	4	5	6	8				9			9		109	56
1843	77	6		5	5	4				8			3		60	39
1844	96	14	4	7	1	13				1			6		75	25
1845	98	9	3	1	1	7				1		2	5		81	41
1846	121	5	2		2	4				1		3	9		103	59
1847	84	1	1		1					3		3	3		74	38
1848	84	2	1	1	2	2						1			81	38
1849	95									2		1	4		88	43
1850	98	3	1	2	2	2				2	1		2		90	44
1851	81	3	1	3	3	3			r				7		71	42
1852	102	7	4	5	5	4				3			2		90	43
1853	97	6	2	2	2	5				1	2		5		83	52
1854	120	4		2	2	2				4		2	7		103	46
1855	99	7	4	6	6	2				7		1	4		80	34
1856	101	17	2	5	12	6				4		2	6		72	49
1857	132	26	8	19	18	13				9		8	7		82	38
1858	108	19	6	12	11	13				4	2	1	7		75	27
1859	91	26	8	24	24	8							5		60	22
1860	84	12	4	7	7	7									72	41
1861	148	13	3	4	4	10				2	2		23		108	79
1862	96	11	1	8	7	4							4		81	28
1863	126	9	4	6	6	6				3		5	10		99	25
1864	101	15	4	11	11	9						1	12		73	27
1865	101	16	8	13	12	12				4		2	5		74	68
1866	95	17	7	9	9	13				1		5	2		70	41
1867	84	19	2	15	10	8	8	7	9	1		2	7		55	63
1868	127	34	8	12	12	16	25	15	19	3	1	2	11		76	54
1869	112	24	5	13	13	9	17	13	13	7		7	4		70	39
1870	163	73	15	30	30	28	54	42	40	4		16	5		65	58
1871	137	32	3	10	10	15	24	15	22	11	2	1	9		76	41
1872	165	35		19	19	11	17	18	15	20		1	14		95	57
1873	230	74	5	28	28	30	50	49	29	13		7	18		118	41
1874	175	66	4	25	25	30	46	36	19	4	2	2	12		89	41
1875	206	68	4	31	31	24	35	27	30	6		3	8		121	43
1876	167	53	4	22	22	23	31	17	21	3		3	10		98	48
1877	200	87	4	43	43	58	35	33	27	3	1		13		96	76
1878	174	46	3	27	27	29	30	23	27	1	2		20	3	102	43
1879	146	30	1	9	9	18	21	5	3		4		20	4	88	67
1880	139	34	3	14	14	21	18	14	10	2	1	1	22	6	73	52
1881	200	60	2	23	23	43	31	9	10	4	1	1	46	3	85	53
1882	216	51	2	18	18	39	26	10	17	3	2	4	18	8	129	37
1883	235	56	6	22	22	28	32	21	24	3		3	23	9	141	52
1884	178	42	6	15	15	19	22	14	14	9		1	22	4	100	37
1885	171	33	5	12	12	16	22	7	5	9		1	27	6	95	39
1886	215	45	8	16	16	32	19	5	12	7	1		24	10	128	77
1887	256	56	6	25	25	31	29	16	17	18	1	4	44	6	127	64
Total	6,669	1,303	185	592	587	702	592	396	383	204	28	108	561	59	4,466	2,305

STATISTICS RELATING TO THE CLASS OF 1887.

The statement given below shows the casualties in the class of 1887 during the four years of the term. Attention is directed to the fact that this class lost by "turned back" 18 members. Of those turned back only 8 remain. Six of these 8 had not attained that degree of proficiency to warrant their proceeding with the class they started with. It is believed they will all graduate in 1888. The figures demonstrate the correctness of General Merritt's views touching cadets of doubtful proficiency at the January examination following admission.

Number appointed June and August		235
Rejected by Academic Board	56	
Rejected by Medical Board	3	
Failed to report	23	
Declined appointment	3	
Alternates for whom no vacancies exist	9	
		94
Admitted		141
Discharged, deficient January, 1884	18	
Discharged, deficient June, 1884	10	
Turned back, June, 1884	8	
Resigned and dismissed first year of term	25	
Disharged, deficient January and June, 1885	7	
Turned back	9	
Resigned second year of term	1	
Discharged, deficient January and June, 1886	1	
Turned back	1	
Died	2	
		82
		59
Joined from previous classes		5
Number graduated		64

STRENGTH OF THE CORPS OF CADETS.

The present strength of the corps of cadets is 304, divided as follows:

First class	45
Second class	53
Third class	77
Fourth class	129
Total	304
Vacancies	41
	345

The legal maximum strength of the cadet corps is 344. A young gentleman from Guatemala is receiving military instruction at the Academy under a joint resolution of Congress, which explains the addition of one to the number of cadets fixed by the statutes.

The report of the committee on admissions and appointments to the Academy will be found in the appendix, marked Exhibit H.

THE MILITARY ACADEMY AS A REPRESENTATIVE INSTITUTION.

It can not be successfully maintained that there has been favoritism or exclusiveness in the selection of young men for the Military Academy. Its students have been drawn from all ranks and classes of the people, and it may be correctly said that the corps of cadets is a typical representative body of the American people. The lower House of Congress is not more representative in this respect than the corps of cadets. The annexed table shows the occupations of the parents of candidates for admission to the Academy for the past forty-five years, the period covered being from 1842 to 1887.

Occupations.	Number.	Occupations.	Number.
Author	1	Superintendents of schools	4
Artists	2	Surveyors	4
Auctioneer	1	Undertakers	4
Brewer	1	Enlisted men	4
Butcher	1	Nurserymen	5
Collector	1	Dentists	7
Conductor	1	Secretaries	8
Cook	1	Speculators	10
Dairyman	1	Heads of corporations	10
Detective	1	Mining	12
Distiller	1	Real estate	11
Express business	1	Insurance	13
Inspector of police	1	Liverymen	12
Chief of police	1	Laborers	19
Saloon-keeper	1	Officers of volunteers	19
Superintendent of prison	1	Professors	22
Librarian	1	Ship-captains	22
Messenger	1	State officers	23
Museum-keeper	1	Members of Congress	24
Theater-manager	1	Contractors	24
Business manager of newspaper	1	Brokers	30
Prison warden	1	Railroad	31
Wagon-master	1	Engineers	35
Tanners	2	Unknown	35
Steward	1	Editors	40
Builders	2	School-teachers	42
Musicians	2	Hotel-keepers	42
Overseers	2	Agents	47
Policemen	3	Officers of the Navy	53
Politicians	2	Officers of the Army	254
Printers	2	Bankers and bank officers	58
Architects	4	Clerks	62
Barbers	3	County officers	64
Gardeners	3	United States civil officers	71
Journalists	3	Manufacturers	95
Photographers	3	Clergymen	103
Stock dealers	6	No occupation	182
Bakers	4	Mechanics	271
Lumbermen	4	Physicians	278
Millers	4	Lawyers and judges	465
Presidents of colleges	4	Merchants	515
Publishers	5	Farmers and planters	855

EXPENSES OF CANDIDATES PRIOR TO ADMISSION.

The Board recommend that the regulation of the War Department requiring candidates upon admission to deposit with the treasurer of the Military Academy the sum of $100 be rigidly enforced. Cases may arise when this rule should be suspended, but parents and guardians should be made to understand that the Government will not, except in very urgent cases, advance to the candidate, immediately on being admitted to the Academy, the necessary money to furnish him with an

outfit. Congress makes no appropriation to cover such advances, and the practice is of doubtful legality. In cases where cadets are found deficient and discharged at the end of six months there is a large loss sustained by the cadet fund if the cadets discharged be among those who neglected to make a money deposit. The uniform and articles of equipment actually cost about $90, and if the cadet is obliged to become indebted for this amount he must suffer a great variety of inconveniences and practice the most rigid economy for at least two years before he can free himself from debt. At the Naval Academy the amount required to be deposited by a candidate on admission is $204. This amount may be reduced to $174 by the candidate supplying himself with articles of clothing not required to conform to the standard pattern, such as white shirts, underclothing, necessary toilet articles, etc., but except in very rare cases, and upon satisfactory evidence that the amount to purchase the necessary outfit can not be raised by the candidate, the deposit is insisted upon as a condition precedent to admission.

In the circular issued by the War Department for the information of candidates, under the head of "Expenses of candidates prior to admission," is the following paragraph:

> The expenses of a candidate for board, washing, lights, etc., 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 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.

Parents and guardians should be governed by the foregoing instructions in preparing their sons and wards for admission to the Academy, and the authorities at the Academy should strictly observe them. Candidates should take with them to the Academy three white shirts, a change of underclothing, and a few pocket handkerchiefs. All supplies may be purchased at the Military Academy at cost price, and as these supplies are specially adapted to the needs of the cadets, it is better to obtain them at the Academy. No article of civilian dress is permitted to be worn by cadets, even collars, cuffs, and shoes being of a prescribed and uniform pattern. It is better, therefore, for candidates to take with them only such articles of clothing as they would take if starting off for a journey of a few days.

ADVANTAGES OF A MONEY DEPOSIT.

To illustrate the difference between the financial standing with the treasurer, of cadets who have and those who have not deposited the

required amount on admission, the Board present two accounts, which will be found in the appendix attached to Exhibit J–A. In one case a deposit of $100 was made; in the other $13.90. Two months thereafter, at the August settlement, the former was indebted to the Government to the amount of $38.63, while the latter's indebtedness was $120.11. Twelve months thereafter the settlement of the accounts of the same two cadets showed that the one who made the larger deposit had reduced his indebtedness to $1.35, while the other still owed $31.21. An examination of the items charged will show that the former purchased a number of necessary articles and a few that were not necessary, which the latter denied himself because of his large indebtedness. The annual pay of a cadet is sufficient to supply all that is needed to make him comfortable, but reasonable economy must be exercised to make his pay do this. The cadet is not permitted to handle any money. His pay is drawn and disbursed for him by the treasurer of the Academy in the manner explained in the appendix. (See Exhibit E–A.)

No allowance is made to cadets for traveling expenses to the Academy. The regulations of the Naval Academy provide:

> Each naval cadet, one month after admission, will be credited with the amount of his actual expenses in traveling from his home to the Academy.
>
> A naval cadet who voluntarily resigns his appointment within a year of the time of his admission to the Academy will be required to refund the amount paid him for traveling expenses.

The adoption of a similar regulation at the Military Academy would materially assist the candidates who are sons of parents of limited financial means, particularly those who come from the more distant sections of the country. All cadets discharged from the Military Academy are furnished the necessary funds to carry them home, whether or not they deposited money with the treasurer on being admitted. Upon graduation cadets are allowed the mileage fixed for officers of the Army when traveling under orders, and are paid for the distance between West Point and the post or station to which they are assigned by the War Department.

FISCAL AFFAIRS AND POLICE ADMINISTRATION.

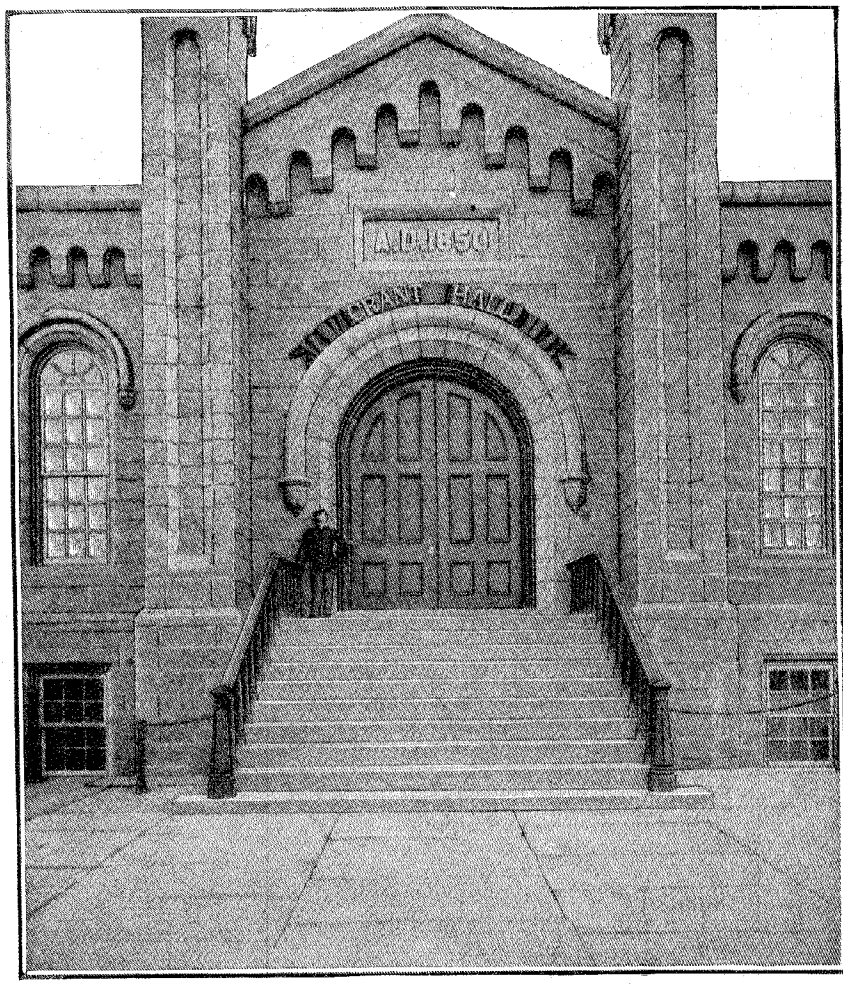
The fiscal affairs of the Academy (see appendix, Exhibits E and F) are in charge of Capt. Wm. F. Spurgin of the Twenty-first Infantry. The administration of this officer shows remarkable ability, and his fidelity to the interests of the Government is equaled by the great zeal displayed in watching over the physical comfort of the cadets. Captain Spurgin's duties are comprehensive and complicated, laborious and continuous. Upon the admission of the candidate Captain Spurgin takes charge of, registers, and opens an account with him; supplies him with all his room furniture, including bedding; causes him to be measured

for all the articles of uniform, from shoes to hat, and superintends their manufacture, for which he purchases all the supplies; provides for his subsistence and superintends the preparation and service of his meals; washes and mends his clothing; keeps a store to furnish stationery, trimmings, dry goods, toilet and other articles permitted by cadet regulations; conducts a tailoring establishment, a shoe manufactory, and a laundry, and in addition to all this draws the money from the Treasury appropriated for the pay of cadets; disburses and accounts for it in the manner explained in his report to the committee on fiscal affairs and police administration, which will be found in the appendix, marked Exhibit F–A.

In the discharge of these multifarious duties Captain Spurgin has displayed not only remarkable intelligence and fidelity, but remarkable talent, and particularly in his management of the cadet mess. This department is administered with the highest degree of efficiency and commendable economy. The Board believe that in the conduct of the cadet mess Captain Spurgin has attained the maximum of excellence with a minimum of cost. The food is carefully selected, well prepared and cooked, served in a manner to invite appetite, is abundant, wholesome, and varied. The kitchen, which undergoes the personal inspection of Captain Spurgin when each meal is being prepared, is well supplied and kept in a high state of cleanliness and order.

The cadet dining hall has been renovated and improved, and, under the direction of General Merritt, a number of portraits of graduates of the Academy who have achieved distinction in the military service of the country have been hung upon its walls, including those of Grant, John F. Reynolds, Sedgwick, Abert, Ord, Schofield, Merritt, and Capt. Bradford R. Alden, who was commandant from 1845 to 1852. These portraits have been collected without expense to the Government, and have been donated to the Military Academy with the understanding that they shall be kept on the walls of the cadet dining hall. Efforts are being made to add to these portraits those of Meade, Thomas, McPherson, Lyon, and other distinguished graduates who are dead, as well as those who are still living. Arrangements have been made to procure portraits of Generals Sherman and Sheridan, and it is expected these will be ready to hang in June next. The addition of such portraits to the dining hall not only adds to its attractiveness, but furnishes the cadets when at meals with themes for conversation, and can not fail to exert a wholesome influence upon the minds of these young men who are being trained to emulate the patriotism and heroism of the men by whose portraits they are surrounded.

General Merritt and Captain Spurgin, who conceived and inaugurated this plan of establishing a gallery of portraits of distinguished graduates at West Point, deserve special commendation for their efforts. Upon the occasion of the hanging of the portrait of General U. S.



ENTRANCE TO GRANT HALL.

Grant in June last, General Merritt issued an order directing that the building in which the cadet dining hall is located should hereafter be known as "Grant Hall" in all official communications. (See appendix Exhibit F–C.)

A report from Capt. C. W. Williams, assistant quartermaster, is furnished, showing the manner in which supplies are purchased for the military post of West Point. Captain Williams' report is printed in the appendix, marked Exhibit E–B.

CADETS AND CADET SUPPLIES.

This department might have been properly included in that of fiscal affairs and police administration, but the subsistence and care of cadets bears so important a relation to their mental progress, moral well-being, and physical training that its investigation was assigned to a separate committee, whose report will be found in the appendix, marked Exhibit F, to which special attention is invited. Accompanying the report of the committee is a tabular statement showing in detail the annual cost of provisions, property, etc., issued and consumed at the cadet mess for a period of thirteen years, and the annual amount charged for board during the same period. This statement is accompanied by a clear and full explanation of the methods of purchasing and issuing supplies for the mess, and many details connected therewith that will be found interesting and instructive. This statement is marked Exhibit F–A in the appendix.

Accompanying the report of this committee is another tabular statement showing in detail the amount of work turned out by the cadet laundry during the year ending April 30, 1887, together with the prices charged. An addition is very much needed to the laundry, for which an appropriation of $5,000 is asked, and which the Board recommend to Congress. (See appendix, Exhibit F–B.)

The Board earnestly approve the recommendation made by the committee for the continuance of Captain Spurgin in charge of this department, and invite the special attention of the War Department to his intelligent and efficient services in this branch, and to the commendations and recommendations of Boards of Visitors for the past four years. His position is one requiring great industry, good executive ability, adaptability and taste for the peculiar duties required, and approved integrity. Other officers might perhaps be found who would continue in a satisfactory manner the system established by Captain Spurgin, but the Board believe many experiments would be made at large cost of money, and the sacrifice of the present comfort and discipline of the corps of cadets, before an officer would be discovered who would discharge the duties of this position with the same degree of efficiency and fidelity as is displayed by Captain Spurgin. The interests of the Government, as well as those of the Academy, will be best pro-

moted by the retention of Captain Spurgin so long as he is able and willing to perform his present duties.

In this connection the Board reproduce extracts from the report of the Board of Visitors for 1886, which might be supplemented by similar commendations from the reports of preceding Boards. This report obtains additional force from the fact that it was written by General Egbert L. Viele, who graduated at West Point in 1846:

It is not often that in positions of the kind held by the treasurer of the post and cadet fund the occupant is found so thoroughly devoted to his duty and to the interest given him in charge as in the case of the present treasurer at West Point. * * * The duties of the fiscal officer include the very important duty of providing the necessary food for the cadets, and its proper preparation. No more responsible position could be held in connection with the Military Academy, and no one who is not peculiarly fitted for these duties could discharge them with satisfaction. There is nothing connected with the life of a soldier upon which so much depends as the proper cooking of his ration. At the same time, there is nothing a soldier suffers from more than badly cooked food. * * * Even more important is this matter of cooking to the young men who are being trained for a soldier's life and a soldier's duties. The close and unremitting attention to study demanded from the cadet, as well as the constant drill and exercise to which he is subject, requires, above all things, that the food furnished to him should be of the most nutritive character and so prepared as to be readily digested. This has not always been the case at the Academy.

The present system is not only an immeasurable improvement on that of former years in the quality and preparation of food, but, in addition, it is now served in a cleanly, orderly, and refined manner, in the place of the former offensive surroundings. The very odor of the old mess was revolting to an extreme degree. The present arrangement and conduct of the cadet mess seems to the Board of Visitors to be above criticism, and the economic management by which such a variety is secured at such a reasonable cost is certainly worthy of all praise.

Captain Spurgin undoubtedly possesses rare qualities for the duties to which he has been assigned. The eminent success of his administration of the commissary department could not have been accomplished without a peculiar talent (not readily found), and the Board unites in the recommendation that no change be made in this officer's detail so long as he is able and willing to perform his duty as he is now doing.

ORDNANCE AND ARMAMENT.

The report of the committee on ordnance and armanent (see appendix, Exhibit G) will doubtless be found of special interest to Congress in view of the importance that attaches to this general subject, and the wide discussion it has received and is still receiving in this and other countries. It will be seen from the report of the committee that the appliances at the Military Academy for proper and thorough instruction in the use of artillery, particularly of large guns for purposes of conducting offensive and defensive warfare, are deficient, and the Board earnestly urge upon Congress the propriety and necessity of supplying the Academy with at least one modern gun of the style and caliber recommended by the committee, as well as samples of the most improved field artillery and ammunition. There can be no doubt that the inter-

ests of the military service require that the cadets should be made familiar with the guns and appliances they will be called upon to use in case of actual hostilities, and therefore guns of the most improved patterns should be supplied for their instruction.

Attention is also directed to that portion of the report of the committee which deals with the subject of an instructed personnel for sea-coast defense, and to the papers presented by Captain Metcalfe and Professor Michie, bearing on this subject. The paper of Captain Metcalfe (see appendix, Exhibit G–A) explains the character and extent of the instruction in ordnance and armament at the Academy, the style of arms used in such instruction, closes with remarks on the present course of instruction in this particular branch, and recommends certain changes in connection therewith.

The paper of Professor Michie (see appendix, Exhibit G–B) will also be found of great interest in connection with the general subject of ordnance and armament, and its study at the Military Academy. The opinion expressed in this paper touching the value and utility of supplementing the West Point course of instruction by study and practical application at Willets Point, Fort Monroe, and Fort Leavenworth is commended to Congress and the War Department. The Board would suggest to Congress that it would be wise policy to equip these three schools of instruction and application in such manner that officers instructed by them would be thoroughly equipped in the several branches of military science. The recommendation of Professor Michie that the course of theoretical and practical instruction at these schools should begin where the West Point course terminates is commended to the consideration of the War Department. The Board would further recommend to the War Department that a system be adopted by which junior officers shall be ordered, within a fixed period following graduation at the Academy, to these schools of instruction and application.

CADET EQUIPMENT AND OTHER CADET FUNDS.

Attention is directed to the explanation in response to a request from the president of the Board, of the cadet equipment, cadet quartermaster, and cadet commissary funds, which is appended to this report and marked Exhibit J. It appears that the annual average amount of the equipment fund on hand is about $20,000, and that amount is invested in United States bonds, the interest received therefrom ($850 per annum) being expended in renewing and repairing cadet mess furniture, and in other directions for the comfort of the cadets. The manner in which the other cadet funds accrue and their method of disbursement are fully set forth in the paper alluded to.

The Board would urge the attention of Congress to these several funds. Their administration is highly creditable to the academic au-

thorities, and they are scrupulously used to contribute to the comfort of the cadets in the absence of adequate provision for this purpose by Congress. The equipment fund is peculiarly the personal and private fund of the cadets, formed from the $4 contributed to it by each of them every month for the purchase of uniform and equipments after their graduation. The other funds described were accumulated from the profits charged on supplies furnished cadets prior to the passage of the act of August, 1876. Such profits no longer exist, and therefore no additions are made to these several funds, all supplies now being furnished cadets at actual cost. But the Board respectfully submit to Congress that the proceeds of these funds should not be used to eke out deficiencies in the annual appropriations made by that body. It will be observed from the report that, according to the records of the treasury of the Academy, $35,983, the accumulation of savings made from cadet allowances, was expended in erecting buildings at West Point, and that, except $5,000 expended in 1858 and 1859, the entire amount named was expended since 1867. In 1874 a store-house was erected from this cadet fund at a cost of $11,724, and subsequently $2,127 was expended from the same fund to add a mansard roof, making the building cost $13,851. In addition to $35,983 accounted for, the treasurer reports other buildings erected from cadet funds, but which do not appear on the records of his office. The rent received from these buildings, as well as that received from the hotel, after defraying the cost of repairs, is applied to the cadet mess, as explained in the treasurer's report. The aggregate received for rent of these buildings, including $2,000 received from the hotel, is $3,000. One of the cadet buildings is occupied by the Government, for which no rent is collected, the accounting officers refusing to allow an expenditure for this purpose.

The Board believe that Congress should provide the necessary funds to erect all buildings required for the use of the Academy, and that provision should be made in like manner for renewal of furniture and necessary repairs. Coal and other materials for the manufacture of gas are furnished by the Government, but the expense of converting them is paid by the cadets, and the profits from this fund have been used in former years to renew worn-out machinery and make improvements to the gas-house. In like manner the laundry was largely built up by a tax on cadets. The erection of the buildings was required by the exigencies of the time, and for the reason that no assistance could be obtained from Congress. Finally, in 1876, Congress was induced to take some steps to relieve the cadets from the tax previously imposed, enacted that all supplies should be furnished at cost, and made some additions to the Military Academy appropriation bill. The charge for gas remains. This should be abolished, and Congress should make an annual appropriation for gas supplied cadets.

ERECTION OF A MEMORIAL HALL.

In connection with these cadet funds the Board would recommend that they be devoted to the erection at West Point of a memorial hall, which could be used for the graduating exercises in inclement weather, social gatherings of the cadets, concerts, hops, etc., meetings of the Association of Graduates, and other like purposes. Should such a hall be erected former cadets who were taxed to create these several funds would feel the same interest in it that would be felt by the cadets who might be enjoying it. Such a building is much needed at West Point, and the Board believes this would be a good method to obtain it. The interest on the equipment fund, and such other accumulation as may be collected from time to time, could be devoted to its maintenance and embellishment.

The question of erecting a memorial hall at West Point has been frequently discussed. At the last meeting of the Association of Graduates, held at the Military Academy in June, 1887, it was considered and the following resolution presented:

"*Resolved*, That, in the opinion of this association, a hall for the preservation of works of art, historical records, given to the association and which may be hereafter donated, should be immediately built."

It was proposed that the Association of Graduates should build such a hall, but this should not be expected from a class of men who have not the pecuniary means to enter upon such an undertaking. Congress should do this by means of a direct appropriation. But here is an opportunity to erect such a building without an appropriation of public money. This can be done by the Government reimbursing the Military Academy fund for the money expended in the erection of buildings for public use. The several items referred to in the report of the treasurer of the Academy aggregate nearly $36,000. Perhaps $20,000 additional was expended from the cadet fund for like purposes which should be returned by the Government. This matter is cordially commended to the attention of Congress.

HORSES FOR CAVALRY AND ARTILLERY EXERCISES.

The number of horses used in the instruction of cadets in cavalry and artillery exercises is insufficient. The total number of horses used for these exercises is 80, which is the entire strength of the Academy stables. That number is required for the cavalry exercises alone. Horses used for riding can not be used in harness without seriously impairing their efficiency for the former service. At West Point the same horses are used for both cavalry and artillery exercises, and this double service impairs their efficiency for both. The light battery consists of six guns and as many caissons. These require the services of 48 horses, exclusive of those necessary to mount the officers. The stables should

be increased by at least 50 horses, which would give the required number for the light battery, and thus enable the riding horses to be reserved exclusively for cavalry exercises. A communication on this subject, prepared at the request of the president of the Board, will be found in the appendix, marked Exhibit K. Should Congress make provision for the erection of additional barracks for the accommodation of enlisted men, the Board would suggest that one of the mounted batteries of the U. S. Artillery might be stationed at West Point. This would supply for the use and instruction of cadets a well-equipped light battery, without additional cost to the Government.

WEST POINT COMPARED WITH OTHER NATIONAL MILITARY SCHOOLS.

Comparisons are frequently made in the newspaper and periodical press between West Point and similar military schools of Europe, and as a rule West Point is made to suffer in such comparisons. The U. S. Military Academy could be made more efficient than it is if Congress would advance the standard for admission and give the institution that fostering care that it should receive. But, with all its deficiencies and hinderances to advancement, it can not justly be made to suffer in comparison with the national military schools of other countries. An English gentleman,* whose large experience with European armies as a field correspondent of the London press led him to examine the various national military schools, recently visited West Point. His views touching the general efficiency of the U. S. Military Academy were published in a series of letters in the New York World. In comparing West Point with Woolwich and Sandhurst, the two national military schools of England, the writer alluded to says:

The advantage, as it seems to me, of the American plan is that every officer entering the Army must know in theory at least how to handle "the three arms," that is, cavalry, artillery, and infantry, and must besides have a good idea of the supply services. So much is ground into him at West Point. In the British army he can not get this knowledge as a rule until he goes to the Staff College, and then only from books, not practically, as on the plateau overlooking the lovely Hudson Valley. Under the American scheme of education there could not arise such a misfortune for the country as the creation of what has for a long time been a curse in Great Britian—that is, the artillery "ring." * * * Woolwich is, in a way, the ark of the covenant, and it is flat blasphemy to say or do anything which seems likely to interfere with its privileges.

* * * * * * *

In the case of West Point there is no such exclusiveness, and neither can it be said of its alumni, as may be said of the whole body of British officers, that some of them are overeducated and most of them are undereducated—professionally speaking, of course. All the officers from West Point are not equally educated; probably no two men in the world are; and even if they could be the influences of a bright intellectual home, be it rich or be it poor, will always tell in after life in enabling a man to make the readiest use of the knowledge he has. But every officer trained at West Point, whether he goes into the engineers or the artillery or the cavalry, or the in-

* Mr. Charles Williams.

fantry or the ordnance (as Englishmen would say, ordnance stores), has the same chance as every other, and there is no probability when they go respectively to Willets Point, or Fortress Monroe, or Fort Leavenworth that they will there develop what is really a class distinction.

* * * * * * *

I know, indeed, of no establishment in the whole world in which the principle of putting and keeping every pupil on the same pecuniary level and preventing him from receiving aid of any sort from home is carried out as it is at West Point. Indeed, I know of none other where it has ever been tried or where it could possibly be carried out. But evidently it in no way affects the bearing of those *in statu pupillari.* It would not be possible to find in any part of Europe a more manly and a more gentlemanly set of young fellows than West Point at present holds. Their moral conduct is equal to their physical bearing, and even the rawest of them have apparently caught already the excellent spirit of the place, while it only needs to look at their faces to see that they are, in spite of hard mental work and severe training, as happy as the day is long.

* * * * * * *

A good deal has been said from time to time about the alleged needless length of the course at West Point and its too great thoroughness. There is no doubt that the two [four] years' course on the Hudson is equal to that at any military school in Europe, not even excepting the academy at Berlin. And cadets who have been two [four] years at West Point would be most valuable in any army.

At the same time, it is needful to consider the nature of the duties the cadets, when commissioned, have to perform. In the U. S. Army many duties fall to young officers which in other services fall to their seniors, who should have learned in the school of experience. And so long as the U. S. Army is organized upon its present footing it is, I think, indispensable that each officer should be from the first *in se ipso totus teres atque rotundus*—an all-round self-contained man. * * * I only wish England had such an institution, and that English cadets had such a variety of wholesome food so well cooked.

The opinions of this English writer, whose experience with armies in the field and investigations into military education make him a competent as well as intelligent critic, are commended to those Americans who can find little to approve in the U. S. Military Academy and whose prejudiced judgment leads them to belittle and undervalue the institutions of their own country when comparing them with those of the countries of Europe.

THE ANNUAL COST OF MAINTAINING THE MILITARY ACADEMY.

The expense of maintaining the Military Academy is not so great as is popularly supposed. It is frequently asserted on the floors of Congress, where the exact facts should be known, and in the public press, which has ample facilities to be correctly informed on this subject, that to maintain the U. S. Military Academy costs annually a greater sum than is really expended for that purpose. In considering this question the mistake is made of charging against the Academy the entire sum total of the annual appropriation act, allowing no credit or reduction for the unexpended balances covered back into the Treasury. Below will be found a tabular statement prepared for the Board from the books

of the Treasury Department that shows the several amounts appropriated and expended for the Military Academy during the ten years ending June 30, 1887:

Amounts appropriated for current pay and expenses, amounts actually expended, and amounts expended on buildings and grounds for the ten years ending June 30, 1887.

Year ending June 30—	Appropriated for pay and current expenses.	Expended for pay and current expenses.	Expended for buildings and gounds.	Total amount actually expended.
1878	$284, 904	$253, 077	$1, 700	$254, 777
1879	266, 930	268, 130	25, 872	294, 002
1880	265, 547	251, 655	53, 999	305, 654
1881	279, 324	236, 952	37, 000	273, 952
1882	282, 562	227, 823	39, 830	267, 653
1883	290, 287	269, 247	70, 267	339, 514
1884	279, 307	255, 083	30, 354	285, 437
1885	297, 683	271, 457	17, 167	288, 624
1886	294, 285	282, 186	14, 317	296, 503
1887	287, 785	270, 743	16, 000	286, 743
Total	2, 828, 614	2, 586, 353	306, 506	2, 892, 859
Annual average	.....	258, 635. 30	.....	289, 285. 90

It will be observed that the average annual expenditures for the period covered by the table was $258,635, which is about one-fourth the annual cost of maintaining a single regiment of infantry, and about one-half the amount annually expended by the State of Pennsylvania in the training of her national guard. Including the amount expended for buildings and grounds the average annual expenditures were $289,286. The aggregate cost of maintaining the Academy, including cost of buildings and grounds, for the past ten years was less than the sum required for the construction of one of the steel cruisers recently authorized by Congress.

The British Government expends annually to maintain Woolwich $160,000, and to maintain Sandhurst, exclusive of expenditures for buildings and works, $215,000, in all $375,000, or $100,000 in excess of the annual average expended at West Point. Then there is this difference in the two systems: The United States bears all the expenses of its cadets, while the British cadet is required to contribute largely for his subsistence. In referring to this point Mr. Williams, the writer previously quoted, fell into the common error that the cost of maintaining the U. S. Military Academy was nearly double what it is, and therefore in excess of the expenditures for the British system. But considering West Point as the more expensive system that writer says:

If the United States were to support the West Point Academy for the same class of pupils as are to be found at Woolwich and Sandhurst, they might as well call upon those receiving the instruction to do as they do in England and contribute towards the cost. Then, no doubt, the expenses of West Point might be reduced, but the principle of equal rights would not be maintained, and it would be worse for the pupils in another than the pecuniary sense, for they would lose their present priceless training in ecomony and self-restraint.

BUILDINGS AND GROUNDS.

Attention is specially directed to the report of the committee on buildings and grounds, which will be found attached to this report and marked Exhibit I. The urgent necessity for additional buildings is fully set forth in the report of the committee. The old frame buildings occupied as quarters by those of the enlisted men who are married are not fit for human habitation, and are as discreditable to the Government as they are uncomfortable to those who are obliged to occupy them. At the last session of Congress an appropriation was made to erect "sixteen sets of quarters for enlisted men and their families, to be built of brick, and in sets of four each, each set to contain four rooms." To build these sixteen sets of quarters, which represent sixteen four-room houses, the sum of $14,000 was appropriated.

It is respectfully submitted to Congress that it is neither good policy nor wise economy to erect dwelling-houses at West Point at a total cost for each house of less than $1,000. While such buildings should not be ornate and embellished, they should be made attractive on the outside and comfortable within. The Government should do as much in this direction for its tenants as is usually done by the most exacting of individual landlords. West Point is so prominent as a national institution that everything connected with it should be made worthy of a school that is regarded, at home and abroad, as typical of the American Nation. National pride, as well as a decent regard for the comfort of the soldier, who is no less a citizen because he has surrendered his personal privileges in devoting himself exclusively to the service of the Government, should induce Congress to furnish funds sufficient to make these dwelling-houses comfortable and commodious, and that they might be supplied with those conveniences necessary to the maintenance of good health. It is but fair to observe in this connection that Congress voted, for the erection of these dwelling-houses, the full amount of the estimate presented by the authorities of the Academy, and the Board notice with regret that these authorities should manifest such a degree of indifference to the moral well-being and physical comfort of enlisted men and their families as to make plans for dwelling-houses upon the same principle that plans for barracks were made fifty years ago, when little was known of hygienic laws and when the most simple sanitary agencies of the present day were unknown. In their report the committee on buildings and grounds very pertinently say:

> There is no true practical economy in erecting for quarters, for enlisted men who are married, buildings which are so small and cramped as not to afford adequate light and air, and room for ordinary comforts. The new quarters recently constructed * * * are too small. The addition of a few hundred dollars to the cost of each would have made them ample in size and comfortable in arrangement. * * * Either married men should not be enlisted, and no attempt made to provide quarters for families, or suitable and adequate provision should be made. What is done should be well done.

The necessity for the immediate erection of store-houses to protect the public property is plainly apparent. In consequence of this deficiency quartermaster's stores are required to be packed in the attics of the enlisted men's quarters, and frequently such stores and other valuable property are left exposed to the weather, resulting in damage and loss. The Board recommend that an appropriation be made to erect building of sufficient capacity to protect the public property.

THE CADET LAUNDRY.

An addition should be made to the cadet laundry. During the winter the capacity of the laundry is equal to the demands made upon it, but during the summer months it can not, with present facilities, keep up with the requirements. This extension was recommended by the last Board of Visitors and an estimate therefor was submitted to Congress. We respectfully urge that provision be made for this extension in the appropriation to be made for the next fiscal year. The amount of work performed at the laundry during the twelve months ending April 30, 1887, is shown in a paper prepared by the commissary of cadets. It is appended to the report of the committee on cadets and cadet supplies as Exhibit F–B. This exhibit will be found specially interesting. It shows in detail the number of pieces laundried, as well as the cost per piece. Thus it will be seen that there passed through the laundry during the period named 79,354 collars, at a cost of 1 cent each; 38,813 pairs of cuffs, at 2 cents each; 38,139 pairs socks, at 2 cents each; 34,618 pairs white gloves, at 2 cents each; 56,863 handkerchiefs, at 2 cents each; 27,994 undershirts and 26,981 pairs drawers, at 2 cents and 1 cent each, respectively; 8,028 white shirts and 4,684 night shirts, at 3 cents and 2 cents each, respectively; 33,337 pairs white trousers, at 4 cents each; 49,909 towels, at 2 cents each, etc.

CAVALRY BARRACK.

For several years past every Board of Visitors has directed attention to the urgent need for the erection of barracks for the accommodation of the cavalry detachment near the site occupied by the cavalry stables, and recommended an appropriation therefor. This Board respectfully renew these recommendations. The quarters now occupied by the cavalry detachment are located nearly one mile from the stables. No argument is needed to establish the inconvenience, absurdity, and positive loss of time and money in continuing the present arrangement. Several times during every day of the year the cavalrymen are obliged to march, regardless of the weather, between their quarters and the stables, the first journey being performed at an early hour, before breakfast. No discreet farmer or ranchman would tolerate such a system. Regardless of any feeling for the enlisted men, business prudence would suggest that the safety and protection of the horses and other property require

that the barracks of the cavalrymen should be located near the stables and riding hall. The Board recommend that the erection of cavalry barracks, sufficient to accommodate at least one hundred men, be authorized at the approaching session of Congress. The erection of these barracks would reduce to that extent the necessity for the erection of barracks to take the place of the old dilapidated frame buildings now occupied in "Camptown," and referred to in previous paragraphs of this report. A suitable brick building, containing proper accommodations for messing facilities, for bathing, etc., could be erected for $20,000 to $25,000.

LACK OF ACCOMMODATIONS FOR THE PUBLIC.

Attention is directed to the lack of accommodations for visitors to West Point. Until within the past few years it seems to have been the policy of those charged with command at West Point to erect barriers for the purpose of discouraging the public from visiting the Post. This policy was not directed by a desire to prevent public inspection, or hinder investigation, but sprung from the belief that the presence of any considerable number of visitors would interfere with the studies of the cadets, and would be harmful to the discipline of the corps. Under this policy a feeling was created in the public mind that West Point was an institution of exclusive and aristocratic tendencies, without sympathy with the great body of people who maintained it, and much of the popular prejudice that has heretofore prevailed towards the Academy is doubtless owing to this policy. Therefore it was that the authorities gave no consideration to the public and made no provision for their accommodation. Under the more liberal and enlightened administration of recent years this policy of exclusiveness has disappeared, and West Point has become a pleasant and attractive place for visitors, as the large crowds present at the daily maneuvers and parades of the corps of cadets abundantly testify.

In addition to the parents and relatives of cadets, many of whom pass several weeks at West Point during the summer months, large numbers of people are daily brought from the city of New York on excursion trains and boats. The close proximity of the Point to New York City, the easy and cheap transit, the grandeur of the scenery along the Hudson River, the natural and acquired beauty of West Point, the historic interest that attaches to it, and the general attractiveness presented by the pomp and circumstance of military life and preparation, combine to make the Point an attractive, interesting, and instructive resort for the people. A large proportion of the daily visitors are women and young persons under fifteen years of age.

There is not only an utter lack of proper accommodations for these visitors, but insufficient facilities to enable them to witness the parades and evolutions of the corps of cadets. A few iron settees are arranged along the walk bordering the north side of the parade ground. When

the corps is on parade these iron settees are supplemented by camp-stools that are brought a considerable distance in a two-horse wagon, attended by five or six men, whose services are required to place the stools and to collect and store them after parade. The number of persons who can be thus seated is perhaps one hundred and fifty. Evening parade is always witnessed, and particularly during the period of the annual examinations, by a large number of people. Seating accommodations could not be provided for all without encroaching on the parade ground, but the present accommodations can be readily increased by the addition of iron settees, placed under the grand old elm trees that protect and adorn the walk along the entire north side of the parade ground. In like manner a number of these settees should be placed along the walk leading from the quarters of the commandant of cadets, passing Trophy Hill, and the siege and water batteries to the hotel. These additional seats would not only furnish accommodations for persons attending the parades, drills, and exercises at the batteries, but would enable visitors at all times to find places for much needed rest. The Board earnestly recommend, in the interest and for the comfort of the general public, an immediate appropriation to supply iron settees and iron stools, such as are generally found in the public parks of our large cities. At least fifty additional settees and as many stools should be placed about the walks.

In this connection it is proper to direct attention to the fact that no facilities are provided whereby strangers may obtain relief from urgent calls of nature. Public decency, as well as regard for the comfort and health of those temporarily at West Point, demand that such facilities be speedily supplied. Attention was directed to this matter by the last Board of Visitors in the following language:

> In the interest of public decency, and to prevent defilement of the grounds, latrines and copious flow of water should be erected for public use. The Military Academy, a model in many respects, can well afford to set the example to American communities of those conveniences for public use naturally required where people congregate, and the absence of which in our cities is a fertile source of much disease and impurity

VISITORS' GALLERIES IN THE RIDING HALL.

What has been said touching the deficiency of accommodations for visitors to the grounds applies to those buildings to which the public have admission. The riding hall is a rectangular building 73 by 213 feet, and is admirably adapted for the purpose intended. From the north and south walls, respectively, a "gallery" for visitors projects over the track. These galleries are each 65 feet long, varying from 4 to 10 feet wide. At points 15 feet from either end the galleries extend back, thus giving a depth of 10 feet. Each is capable of holding about one hundred persons. They are a discredit to the Military Academy and a fraud upon the public. Riding in the hall is at all times interesting, but is specially interesting and attractive during the June ex-

aminations. The riding in the hall by the first class is one of the most prominent numbers on the programme of exhibition exercises, and there is always a large demand for admission to witness it. The entire south gallery is reserved for the Board of Visitors, and admission to it is secured only through their favor and that of the academic or military staff. The north gallery is open to the general public. Thus opportunity is afforded for about one hundred of the general visitors to witness the exercises in the riding hall. As no discrimination is practiced in admissions, it generally happens that those most interested in the riding exhibition, viz, the parents and relatives of the graduating class, which class does the riding, are excluded from the gallery, for the reason that those who preceded them fill the space. The galleries are at best illy adapted for the purpose intended. Except those who occupy the two first rows of benches, no one can see the track. This might be remedied by giving an inclination to the floor so that those in the rear could look over the heads of those in front. But the only effectual remedy is to remodel and enlarge these so-called "visitors' galleries," and to construct others on the east and west walls. This could be done at small expense, and the Board recommend the necessary appropriation. A diagram of one of the galleries in the riding hall will be found in the appendix attached to the Exhibit marked K.

VISITORS' ROOM IN CADET GUARD-HOUSE.

The Board also direct attention to the visitors' room on the second story of the cadet guard-house, located on the southern boundary of the barrack area, or court-yard. The regulations of the Academy very properly exclude visitors from the barracks, and therefore a room in which parents and others may receive and converse with cadets is necessary. Parents visiting their sons must apply to the cadet officer of the day or to the officer in charge, for permission to have them brought to the visitors' room. This permission is always granted. No one who has visited this visitors' room would suspect that consideration was given the public by those who constructed the cadet guard-house. Indeed, the entire building suggests that its construction was an afterthought, and that the mechanics who were employed in erecting the cadet barracks built the cadet guard-house without plans or direction, and for the sole purpose of using up the surplus materials.

In this small two-story building are located the officer in charge, who is required to remain there all night; the cadet guard, three or four enlisted men engaged in clerical duty, the musicians of the guard, and the visitors' room. A building more illy adapted to these several purposes could not be designed. The visitors' room is located on the upper floor, at the north end of the building. It is in the shape of an L, each angle being less than 16 feet long and 6 feet wide. Two passenger railway cars used on the streets of large cities, placed at right angles,

will convey a proper idea of the size and shape of this room devoted to the use of those who visit the National Military Academy. Should the parents or friends of several cadets occupy the room at the same time, as is frequently the case, there is no opportunity for private conversa, tion, and thus the very object of the visit of a parent to his or her son is frustrated, unless the parent and son obtain permission to stroll over the grounds while giving and receiving parental admonition and exchanging confidences. There is urgent demand for providing proper and adequate facilities for parents and relatives visiting cadets. It is not contended that several rooms should be furnished for this purpose, but the Board insist that whenever accommodations are provided for the public they should be ample for and adapted to the purpose intended.

The American people visit public institutions not as a privilege, but as an inherent right, subject, of course, to proper regulations, and they expect that at such institutions proper facilities and accommodations will be afforded them. In this particular instance a room is set apart for visitors to a public institution whose pupils number over 300 which contains only 140 square feet of floor space, and which, in addition to being badly shaped, ill ventilated, and difficult of access, is a discredit to the Government and an outrage upon the people who are forced to use it. If not immediately improved and extended this visitors' room should be closed or used for storage. The Board recommend that the cadet guard-house be extended east and west, and that in any improvement and extension that may be made proper consideration be given to furnishing accommodations for visitors. A diagram of the visitors' room will be found in the appendix. (See Exhibit D.)

ELECTRIC LIGHT.

Attention is directed to the recommendation of the committee on buildings and grounds, in which the Board concur, touching the lighting of the post and the substitution of electricity for gas. The gas-works need a general overhauling, which would involve the expenditure of a sum of money perhaps equal to one-half of the amount that would supply an electric-light plant. The Board believe it would be more economical to expend $10,000 now in establishing an electric-light plant than to expend one-half or one-fourth of that amount in repairing the gas-works. An estimate of the cost for introducing electric light is submitted with the report of the committee on buildings and grounds, and will be found in the appendix, marked Exhibit I–A. A statement submitted by the committee on fiscal affairs and police administration is also appended, marked Exhibit I–B.

CLOSETS FOR CADET BARRACKS.

The sinks and water-closets used by the cadets are located at a point in rear of the barracks, and distant from them nearly 250 feet. In case of

sudden sickness, and especially during the night and in bad weather, the exposure incidental to so long a journey might be attended with serious, perhaps fatal, results. It is recommended that suitable closets be constructed at such points as will enable cadets, in case of sickness, and at night, when the weather is bad, to reach them without leaving the shelter of the barracks.

NECESSITY FOR A TELEPHONE SYSTEM.

The reservation on which the Military Academy is located embraces 2,200 acres. For the most part this reservation consists of wild, rugged land, covered with forest trees and pierced by large mountains. The plain, on which are located the academic buildings, barracks, etc., stretches along the Hudson River for a distance of about 2 miles. The academic and other buildings are located on this plain, and are necessarily widely separated. The academic and headquarters buildings are one-half mile from the southern boundary of and entrance to the reservation. At the headquarters building are located the business offices of the superintendent and military staff. Headquarters is the focal point of all business and communication. The various divisions and departments of the Military Academy and military post of West Point are located at various distances from headquarters, many being over a mile, and a few—notably the observatory—being located at inaccessible points, to reach which one must climb steep mountain roads. The method of communication between these distant points is the same as was used eighty years ago, and, strange as it may seem to persons acquainted with the great advantages afforded by the use of the telegraph and telephone, there is considerable opposition to abandoning the stiff, formal, ceremonious, and painfully slow method of communication established at the beginning of the century. This method consists in the use of the "orderly." The orderly is an enlisted man, who is daily detailed as messenger to the several officers requiring the services of such an agent. The orderly appears in full dress, with side-arms, and is always picturesque, and particularly so when he is statuesque, standing at "attention," receiving orders or delivering messages. The continuance of this orderly system of communication at West Point is very "military," but in these days of steam and electricity is very ridiculous. The employment of messengers as a means of communication between officers in the same or contiguous buildings is necessary and economical, but to employ them to carry communications a mile or more is unwise, an unnecessary expenditure of valuable time, an inexcusable tax on human muscle, and a terrible trial of human patience and temper.

This antique system to be condemned needs but to be seen in practical operation at West Point. Here is an illustration of its working: Cadet Doe having obtained permission from the officer in charge to visit headquarters, that he may inquire about his "wash," which was returned

from the laundry minus four pairs of white gloves, appears before the quartermaster and commissary of cadets and presents his inquiry. That officer summons an orderly and thus addresses him: "Orderly, present my compliments to Mr. Mangler, at the cadet laundry, and say that I desire him to look around for four pairs of white gloves that were not returned with the wash of Cadet Doe." The cadet laundry is located more than a mile from headquarters. The orderly walks two miles to deliver the message.

The professor of natural and experimental philosophy desires to communicate with the officer in charge of the observatory, which is located at an altitude of at least 1,000 feet above the plain, and can only be reached by climbing a mile of mountain road. The orderly is summoned. "Give my compliments to Lieutenant Lookout, and say I desire him to have the transit circle polished up." The orderly travels two miles in going and returning, and consumes an hour of time to do what the telephone would accomplish in a few minutes and without any physical effort.

Instances might be multiplied to show the absurdity of continuing this "orderly" system. The Board assume that no argument will be needed by Congress to demonstrate the advantages that would attend the introduction of the telephone at West Point. The telephone is needed not only to facilitate communication between the several academic and military divisions, but as a security to the public property, and as a convenience for the general public. The outlying guard-houses, the hotel, railroad station, cadet laundry, cadet hospital, cadet kitchen, band barracks, observatory, and other buildings distant from the official center of the post, should be connected by an exchange system established at the cadet guard-house and communicating with the headquarters building and the quarters of the Superintendent, commandant of cadets, surgeon, quartermaster and commissary of cadets, adjutant, and such others as might be deemed necessary by the Superintendent. The cost of a telephone system would be comparatively trifling. The original expenditure would be not more than $2,500, and the cost of maintaining it would be simply the royalty or rent required for the use of instruments. The line could be kept in repair by the enlisted men of the post, and the exchange or central office could be attended by enlisted men also. Should the telephone or electric light be introduced the Board recommend that all wires be laid under the ground.

IMPROVEMENTS FOR GRANT HALL.

There is urgent need of improvements and repairs to the building now known as "Grant Hall," in which are located the cadet dining hall and kitchen. This building was erected nearly forty years ago, at a time when the cadet corps was smaller in numbers than now. The room for washing dishes is not sufficiently large for the purpose and should be

extended. This could be done with an expenditure of about $500. An additional $500 should be appropriated for general repairs on the building.

OFFICERS' QUARTERS IN CADET BARRACKS.

Attention has been called by former Boards of Visitors to the occupation of rooms in the cadet barracks by other than tactical officers, and such occupation received their unqualified disapproval. This Board join in condemning such use of the cadet barracks. At the present time there are twelve rooms occupied by officers employed in the various academic departments in addition to the thirteen rooms occupied by the tactical officers. It is proper to explain, however, that this occupation by officers not on duty with the battalion is not a question of choice but a matter of necessity. There are no quarters for these officers outside of cadet barracks. The Board recommend that several additional sets of officers' quarters be constructed. The total number of rooms in the cadet barracks is two hundred and eight, of which the cadets occupy one hundred and sixty-four. The remaining rooms are occupied as explained in the following communication from Capt. C. W. Williams:

HEADQUARTERS U. S. MILITARY ACADEMY,
QUARTERMASTER'S OFFICE,
West Point, N. Y., October 13, 1887.

SIR: In accordance with instructions contained in your letter of the 11th instant, I have the honor to submit herewith the following memoranda of information called for by the Board of Visitors, viz:

Number of divisions in cadet barracks, including angles	12
Number of rooms:	
In first division	20
Second division to tenth division, inclusive, 16 each	144
In angles (one 24 rooms and one 20 rooms)	44
Total number of rooms	208

which are occupied as follows:

By cadets	164
By tactical officers	13
By officers not on duty in Department of Tactics	12
By dentist for corps of cadets	2
By association of graduates	1
By bath rooms for officers	3
By store-rooms and armories	8
By light prisons for cadets	5
Total	218

Very respectfully, your obedient servant,

CHAS. W. WILLIAMS,
Captain and A. Q. M., U. S. A.

ADJUTANT U. S. MILITARY ACADEMY,

THE WATER SUPPLY.

Attached to the report of the committee on fiscal affairs and police administration (see Exhibit E–C) will be found a report on the Academy water-works, their capacity, and several sources of supply. It appears that the water supply is sufficient and satisfactory. It is thought that an additional filter-house should be built so as to permit one to be used while the other is being cleaned. Increased consumption of water would make necessary additional storage, which could be provided at comparatively small expense. A constant and sufficient supply of water is a matter of such great importance that no expense should be permitted to interfere with obtaining it. While the present supply is sufficient an emergency might arise that would lead to physical suffering and financial disaster by fire. As this can be guarded against by a small expenditure of money it is suggested that it would be prudent to authorize the necessary steps to be taken to provide additional storage.

THE PROPOSED GYMNASIUM.

At the last session of Congress appropriations were made for remodeling and rebuilding the Academic Building, for the erection of a gymnasium for cadets, and for the erection of new shops for mechanics. Plans for these several improvements have been made, and it is the intention of the authorities to begin and prosecute the work without unnecessary delay. The Board have learned that no bids for the construction of the proposed gymnasium could be obtained within the limit ($35,000) fixed by the appropriation, thus requiring a modification of the plans and a delay of the work. The gymnasium now at the Academy has long been a standing reproach. After a continuous struggle for years Congress was induced to make an appropriation to erect a suitable gymnasium. This new building should be architecturally in harmony with those that will surround it, and it should be so constructed as to be capable of furnishing every facility for military calisthenics. Whether this can be done within the sum named is doubtful. The Board would recommend an additional appropriation of $7,500, "or so much thereof as may be necessary," to give the Academy a first-class building to be used as a gymnasium.

CONCLUSION.

In concluding this report the Board of Visitors desire to express their acknowledgments for official and personal courtesies on the part of General Wesley Merritt and the officers of the academic and military staffs. Every facility was extended to enable the Board and the several committees to make thorough investigations, and, without being obtrusive or exhibiting a disposition to influence the judgment of the Board in any particular, all the officers of the Post were kind and attentive

and cheerfully rendered any service that was required to assist the Board in their duties. The Board are also indebted to Gen. Merritt for social and personal courtesies.

GEORGE W. CHILDS,
President.
JOSEPH WHEELER,
Vice-President.
W. A. COURTENAY,
Secretary.
ROBERT H. ANDERSON.
JOHN W. BROWN.
WILLIAM EVERETT.
MARTIN J. RUSSELL.
FRANCIS M. COCKRELL.
JOSEPH N. DOLPH.
CHAS. M. ANDERSON.
BENJ. BUTTERWORTH.

Hon. WM. C. ENDICOTT,
Secretary of War.

While concurring fully in the general views expressed, there are two subjects discussed in the report as to which I feel compelled to suggest not so much a dissent as a doubt.

(1) My mind is not clear as to the unqualified advantage of the system of discipline in vogue at West Point.

The details of police administration are excellent, and my doubts are only as to the theory on which the system is based. It seems to me a system tending to extinguish every spark of individuality in the cadets, to repress every aspiration for the introduction into one's life of an element above mere material comfort, to exclude from their daily life every softening influence, and to condemn them in their quarters to the rigid uniformity and plainness of a prison.

I recognize fully the great personal interest in the welfare of the cadets which is manifested by the officers of the Post and their wives; and I appreciate the force of arguments in support of this system, which are founded mainly upon the necessity of the military life and due preparation for it. At the same time I am inclined to think the influence of four years spent in the cadet barracks might be bettered by a less unattractive environment in the rooms. The shortness of our sojourn and the multiplicity of the subjects presented for our consideration prevented such an investigation of the subject as would warrant the expression of a decided individual opinion conflicting with that of my colleagues.

I can only say that I am not fully satisfied on this point. The judgment of the Academic Boards in favor of the present system has great weight with me, but I am constrained to observe that the evidence on every hand of extreme conservatism at West Point makes me doubt whether it is, in all cases, tempered with a disposition fairly to consider the advisability of rational changes. There are customs retained merely from force of habit which seem to one not in the Army inconsistent with the improved methods of the world at large, and possibly too close an adherence to a custom or a system merely because it is ancient.

I am therefore left in doubt whether the President and Congress can rely, as to all the details of discipline, upon the properly conservative judgment of the Academic Board on that subject.

It is a matter of vast importance, and time not having permitted a discussion of it in the meetings of the Board, I can only suggest it as the only point upon which I had any doubt as to the wisdom of the management of the Academy. It is a subject of sufficient interest to warrant the attention of Congress and of those charged with the discipline of the cadets.

(2) Upon the subject of competitive examinations I have always had some doubt whether they constitute the best system of testing the qualifications of applicants for admission to the Academy. While my views are not sufficiently matured upon the subject to record an absolute dissent from the recommendations of the report on this point, neither am I prepared to concur fully in them. The subject not having been discussed by the Board, my attention was not particularly drawn to it while at West Point.

The statistics presented in the report undoubtedly make a very strong case. My doubt rests upon the impression that, while competitive examinations may be the best test of scholarship, they do not determine whether a candidate possesses certain other qualifications equally essential in the mental and moral constitution of an officer. There may be serious defects of temperament which might not be discovered by the ordinary competitive examination. The power of selection, if exercised by members of Congress wisely and with a view solely to the good of the service, would, it seems to me, produce better results than to submit the whole matter to a competitive examination by a committee.

It is possible that a combination system might be more effective still. Under it a competitive examination might be provided for to determine what young men applying for appointment possess the necessary qualifications as to scholarship, and then the selection might be made from those who obtain a certain specified grade in the examination. This would be applying to the Military Academy a system analogous to that by which admission to the civil service of the Government is obtained under the existing laws.

GEO. H. BATE.

APPENDIX.

EXHIBIT A.

REPORT OF THE COMMITTEE ON DISCIPLINE AND INSTRUCTION.

WEST POINT, N. Y., ——— ——, 188—.

SIR: We beg leave to submit the following report of the committee on "discipline and instruction:"

The committee see no good reasons for recommending any changes in the rules and regulations for discipline which govern the institution at the present time. Their wisdom has been tested by time and experience, and the necessities of the military profession, and the soldier's life.

They believe also that the traditions of the Academy, or its unwritten law, sustain and enforce the virtues of truth and honor with an energy and impartiality which deserves the highest commendation. There is one point in the exercise of discipline which needs to be carefully guarded, and that is the authority of the Superintendent and the Academic Board. So far as the authority or influence of this Board is related to the instruction and examination of the cadets, or the determination of their rank and place in their classes, its decision should in all cases be final. Whatever discretion any superior civil or military officer may find occasion to exercise, the mitigation or reversal of the decisions of the Superintendent or Academic Board can only weaken the rightful authority of those who in such cases may be presumed to be the only competent and impartial judges, and the splendid discipline of the corps of cadets to-day is largely due to the support and co-operation of the President of the United States and the honorable Secretary of War, in sustaining the decisions of the Superintendent and the Academic Board.

The perfection of the drill of the cadets in their various military exercises deserves the highest praise, and is the most satisfactory evidence of the necessity and the value of the severity and the constancy of the discipline to which the cadets are subjected, from which there can be no exemption to any one who selects for himself the career of an officer of the Army.

The system of discipline enforced is based upon the Articles of War, the Regulations for the Government of the Army of the United States, and by the general regulations for the U. S. Military Academy.

The lieutenant-general commanding the Army, under the War Department, has supervision and charge of the Academy. He is required to watch over its administration and discipline and the instruction of the cadets, and to make reports thereof to the Secretary of War.

The Superintendent, and in his absence the next in rank, has the immediate command and government of the Academy, and is commandant of the military post of West Point. He renders, through the Adjutant-General of the Army, all required reports, returns, and estimates concerning the Academy.

The professors and other heads of departments and the officers on duty in those departments constitute the academic staff.

The commandant of cadets, and in his absence the next in rank in the tactical department, has the immediate command of the battalion of cadets. He is also the instructor in the tactics in the three arms of the service, and in the rules of military police, discipline, and administration.

For instruction in infantry tactics and military police and discipline the cadets are organized into a battalion of four companies, designated A, B, C, and D; A and D composing the tallest cadets of the corps and B and C those of least stature, each company being under the command of an officer of the Army, designated as assistant instructor of tactics, who has immediate supervision of the company. In addition to this officer, each company has a captain and 3 lieutenants taken from the first or senior class of cadets; a first sergeant and 4 line sergeants, taken from the second class; and 5 corporals, taken from the third class. These officers are invested with much responsibility, and are required to treat all subordinates with justice and impartiality, to report all violations of the Academic Regulations, and any neglect or inattention on drill and parade. These reports are submitted every morning to the commandant or acting commandant of cadets and by him sent to the Superintendent of the Academy; they are also published on parade by the adjutant for the information of all concerned. Each cadet receiving a report has a certain time in which to make his excuse. If he makes no satisfactory excuse the report is registered against him, and for certain offenses he receives the additional punishment, such as confinement, extra tours of guard duty, and deprivation of certain privileges. Should a cadet receive in a year over 215 demerits, he is reported as deficient in discipline, and is liable to dismissal from the Academy. A great majority of these demerit marks are for minor acts, caused by inattention and carelessness, which a cadet avoids the longer he remains at the Academy.

The corps of cadets is a thoroughly disciplined body of young men, and by their manly bearing and modest demeanor impress most favorably all who see them, and they all give unmistakable evidence of a healthy and strong mental and physical activity.

The moral tone of the corps is very high, and such a thing as a cadet being guilty of an untruth or ungentlemanly act is almost unheard of.

We desire to congratulate General Merritt and the officers under him for the thorough and most efficient manner in which they have performed the delicate and responsible task assigned them.

The course of instruction pursued by the students of the Military Academy is apparently in strict accord with the definite aims and ends for which the institution was established. However desirable it may be for a young man to graduate from the Academy to secure a well-assured benefit therefrom as a civilian, it is a fact made prominent in the foundation and development of this school that the object and purpose has never been, even in a relative sense, to fit the scholar for civil life, but to educate the beneficiary of the country for the country's welfare solely in the direction of military service. To this end all subjects and methods, direct and indirect, have been adopted in the instruction of the cadets. It is important that this should be noted, so that any criticism made from the stand-point of purely civilian education, may be met and corrected. Comparisons, if necessary, may be made very favorably, for the Academy, with other extensive and prominent educational institutions, yet it must be observed that the studies, which are in the line of its special work and object, must dominate those of a general character, or those which lead in other well-defined directions. At the same time it is but just to say, that the very best results have been obtained, as a preparation for civil life of the highest order, by the foundations here laid. By reference to the carefully-prepared report of the Board of Visitors of last year, it is shown that one hundred and ninety-two instructors of youth have been furnished to the country from the graduates of this Academy. Following these into the many and various positions of civil life which they have filled, it is discovered that not only nearly every industry is represented, but, as far as can be ascertained, the character of the institution has not suffered in the knowledge of this fact.

There has been no material deviation from the former methods in use for instruction, namely, by the general one of oral and written communication, or interchange between the teacher and the pupil, assisted by models or maps for illustration. To this latter important adjunct attention is particularly called. Object-teaching in the very nature of the case belongs to the educational interests of this school, and every possible support should be given by the Government to this department. Wherever and whenever visual illustration is afforded the student, the knowledge conveyed must be made more permanent. The observations of the student combined with the oral explanations of the instructor must obtain the best result. Recognizing the high value of this, we are compelled to say that the Academy needs still large concessions from the Government for this purpose. The very best machinery and instruments in the world should be in the possession of the U. S. Military Academy for the education of those whom the country has committed to its care, and for whom the country holds its Academic Board responsible.

The attention of the committee has been called to the statement, and which in some respects is an important fact, that the academic term of

four years does not suffice for advancing the student into the highest educational sphere of science which the age now seems to demand. A longer term has been tested and discontinued. It has been suggested that the standard of admission for candidates be raised, thus enforcing the appointee to obtain a more generous preparatory instruction before entering the Academy, and so relieving the professors and saving their valuable time from the rudimentary education now made necessary in the present régime. To all such, many objections have been and may still be urged, and thus far in the experience of the institution have not been thought sufficiently commended to warrant the changes. Your committee beg leave to offer a new suggestion, which it is believed will go very far in this direction to satisfy the demands of this age, and at the same time be free from the objections named. This is the establishment of post-graduate fellowships, similar to those which now exist in the large universities. The design would be to make such a fellowship a reward of merit, and would give to the graduate a residence of, say, three years for the prosecution of such special studies in the way of the most advanced scientific discoveries, and thus prepare the young officer for any future demands which the circumstances of peace or war should require of him for his country's good.

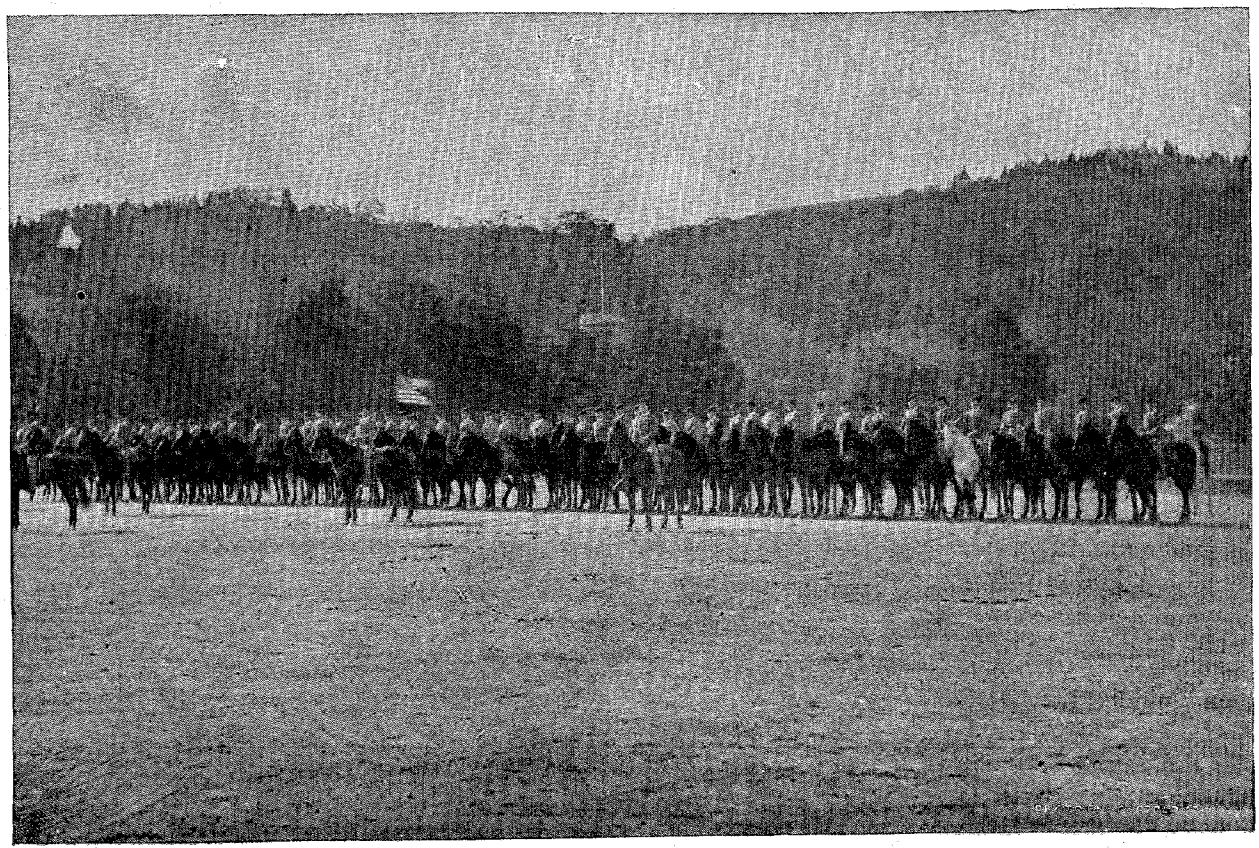
There are very many reasons which might be adduced and benefits named in behalf of such a scheme, which would appear to be in the line of action already taken by the Government in its establishment of military posts in several parts of the country as schools of practice in the several arms of the service, but it is deemed only necessary at this time to offer the suggestion and to recommend its consideration to the Academic Board, that it may be referred to the next annual Board of Visitors, should it meet with the approval of the educational corps, whose wisdom and experience may better judge of its feasibility and perfect a plan for its exercise.

Your committee can not pass from the general subject of instruction without commending the high moral standard attained by the cadets under the fostering care of the chaplain and of those to whom such interests are committed, as also the high standard of honor under which the youth are trained.

Very respectfully, your obedient servants,

R. H. ANDERSON,
Chairman.
JOHN W. BROWN.

Hon. GEORGE W. CHILDS,
President Board of Visitors U. S. Military Academy,
West Point, N. Y.



CADETS AT CAVALRY DRILL.

[Dr. William Everett having been suddenly called away, his views in regard to the system of instruction pursued at the Military Academy are presented in the following paper.]

In regard to the system and methods of instruction pursued at the Military Academy, it would be improper, in my judgment, as the result of a few days' inspection, at an exceptional time, to offer criticisms that could only be valuable as the result of continuous observation of the regular work. The objects of the institution are peculiar and not to be hastily criticised in accordance with general theories and experience drawn from those colleges that propose to educate the average youth for the ordinary professions. The Military Academy, which proposes to educate a limited number of picked youths for a specific end, must have its own needs and must maintain its own methods.

Moreover, the Academic Board deserves, and should receive, the confidence of this Board. That its members are men of conscience and honor, of gallantry and patriotism, it is almost impertinent to say; but they are also intelligent and practiced teachers, men who know their business and do not need to be taught. The committee does not desire to follow the practice, too common in America, of expecting teachers to do their work successfully under the constant inspection, suggestion, and even dictation of those whose knowledge of the art of teaching is very small, conditions which would ruin the work of any other trade or profession. The committee desire to put on record their belief that the professors and instructors of West Point deserve the entire confidence of the public as faithful, just, learned, and acute. They doubt not, also, that their disposition towards the cadets is one of entire good-will. The committee in attendance on the oral examinations, always a painful ordeal to the most proficient, have been much struck with the consideration displayed for the weaker members of the classes, to encourage and help them to make the most of what they know. It is to be hoped that the instructors will never hesitate to exercise this consideration nor allow any theory of inflexible justice or military precision to put out of the way the truth that they are dealing with men and not machines; organisms to be developed, not inanimate matter to be molded and hammered.

The committee would suggest that in several departments the strict four years' tenure of the instructors is likely to remove valued assistants to the professors not easy to replace. The profession of teaching is so different from other army work, especially in law, language, and natural science, that it seems very desirable to retain for a longer time than four years such officers as demonstrate their special fitness for it.

All teaching, and especially all military teaching, must depend largely on text-books. They never can be discarded, and it is a very shallow theory of education that encourages free variation from their well-chosen

words. For this reason they must be kept up to the last developments of the sciences. American education suffers greatly from the use of showy, crude, and patched text-books. The committee are glad to see that the present generation of West Point instructors have done much in the way of judicious selection from modern text-books, and preparation of new ones for themselves; and they trust that this work may be continued, and that no traditional respect for the honored instructors of past years will deter the Academic Board from discarding treatises once valuable but now antiquated.

The committee are happy to bear testimony to the good results obtained by the instruction as far as they can be ascertained from attendance on the oral examinations. The cadets in all classes and all branches answered in general to the demands made on them with precision, intelligence, and readiness. The committee would select for special commendation the recitations in strategic science of the first class. They regretted to observe in several cases no little imperfection in the use of language. It seems highly important that the instructors in all branches should insist upon correct English, in vocabulary, pronunciation and grammar, and that allusions to French military science should show a remembrance of the untiring efforts of the French instructors to inculcate a good pronunciation. A cultivated officer of the United States Army should be alive to the duty of curing himself of any early bad habits in using his own or foreign languages.

This consideration naturally leads to a most important addition which ought to be made soon to the Academy course. While this course is still, in general, the same as laid down by the late honored and gallant Thayer, it has from time to time admitted certain additions. The next should be the German language; and it is difficult to see how it can long be postponed. The pre-eminence of the Germans at this day in practical military science, their invaluable contributions to that, as to all other branches of knowledge, and the large German population of the United States are facts that have forced themselves upon the teachers in all our colleges and schools, and must soon be recognized at West Point. The committee will not undertake to say exactly how this study should be combined with the existing course; but the solution of the problem may ultimately be found in requiring one modern language for admission.

The study of a physiological text-book has recently come into the Academy. This in itself is well; but the method of its introduction, by the pressure of certain social reformers, is sufficiently eccentric.

The undersigned has intentionally omitted to handle many serious questions; but he would respectfully present the idea that the Academy never can be what the country demands unless those who administer its affairs are constantly awake to the developments in the art of teaching as well as of warfare, however much or little they accept of them.

Respectfully,

WILLIAM EVERETT.

EXHIBIT A–A.

INFORMATION RELATIVE TO THE APPOINTMENT AND ADMISSION OF CADETS TO THE U. S. 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 applications.—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, exact age, 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.—Should the Representative or Delegate in Congress have reason to doubt the success of his nominee in passing the entering examination, he can nominate a legally qualified *alternate.* The alternate will be examined with the regular nominee, and admitted in the event of his success and the latter's failure to pass the prescribed preliminary examinations. The alternate, like the nominee, should be designated as nearly one year in advance of date of admission as practicable.

ADMISSION OF CADETS.

A candidate upon receiving his appointment is ordered to report at West Point to the Superintendent of the Military Academy in time to appear before the Academic Board for examination at its meeting early in June, unless there be good reasons for designating another time.

The candidate, soon after his arrival at West Point, is subjected to a rigid physical examination by a board of experienced surgeons of the Army. If he passes successfully this examination, he is then examined by the Academic Board. These examinations are made with as little delay as practicable after the candidate reports to the Superintendent.

The candidate who passes successfully these examinations is admitted at once to the Academy without returning to his home. In January following he is subjected to another academical examination, and if he passes this one successfully, he receives a *warrant* as cadet, and is required to sign articles binding himself to serve the United States eight years from the time of his admission to the Academy, unless sooner discharged.

Qualifications.—The age for the admission of cadets to the Academy is between seventeen and twenty-two years. Candidates must be unmarried, at least 5 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.

Each cadet upon *his admission* shall take the oath of office prescribed by law, and *before receiving his warrant* shall, in the presence of the Superintendent, or of some officer deputed by him, subscribe to an engagement in the following form:

[United States Military Academy.]

I, ——— ———, of the State of ———, aged —— years —— months, having been selected for appointment as a cadet in the Military Academy of the United States, do hereby engage, with the consent of my (parent or guardian), in the event of my receiving such appointment, that I will serve in the Army of the United States for eight years, unless sooner discharged by competent authority. And 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, county, 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 to at ——— this —— day of ———, eighteen hundred and ——, before

——— ———.

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 and muscular tenuity; unsound health from whatever cause; indications of former disease; glandular swellings, or other symptoms of scrofula.
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 indications of a liability to a pulmonic disease.
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, extenuation, 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), sarcocele, hydrocele, hemorrhoids, fistulas.

*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.

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, unequaled length, bunions, overlying or supernumerary toes, etc.

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

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.

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.

Arithmetic.—In arithmetic, they must be able—

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

(2) 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;

(3) 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;

(4) 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;

(5) 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;

(6) 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;

(7) 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;

(8) 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.*]

Reduce $\dfrac{\dfrac{7\frac{1}{4}}{5\frac{1}{2}+0.5-0.725}}{\dfrac{4+3.45}{2\frac{1}{2}}}$ 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 $26\frac{1}{4}$, $28\frac{7}{8}$, and $29\frac{1}{6}$.

How many men would be required to cultivate a field of $2\frac{5}{8}$ 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, $\frac{7}{5}$.

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 $2\frac{1}{8}$ 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 $5\frac{1}{7}$ 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 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 correspond-

ng 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 preposition shows the relation, precisely what each conjugation 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 and 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—

(1) 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.

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

(3) 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.

(4) 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.

(5) 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 or 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.

These 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 relaxations of any kind can be made by the examiners.

Military instructions.—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.

Cadets are required to wear the prescribed uniform. All articles of their clothing are of a uniform 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, etc., 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, 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.

When any cadet of the U. S. 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 candidates 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.

[Books marked thus * are for reference.]

FIRST YEAR.—FOURTH CLASS.

Department.	Course of study, text-books, and books of reference.
Mathematics	Davies' Elements of Algebra; Davies' Legendre's Geometry; Church's Plane and Spherical Trigonometry; Davies' Surveying; Church's Analytical Geometry.
Modern languages	Keetel's Analytical and Practical French Grammar; Keetel's Analytical French Reader; *Spiers' and Surenne's Dictionary; Whitney's Essentials of English Grammar; Hart's Manual of Rhetoric and Composition; Abbott and Seeley's English Lessons for English People; Abbott's How to Write Clearly; *Webster's Dictionary.
History, geography, and ethics.	Lectures in ethics and in universal history.
Tactics of artillery and infantry.	Practical instruction in the schools of the soldier, company, and battalion; *Blunt's Rifle and Carbine Firing; practical instruction in artillery.
Use of 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; Church's Calculus; Church's Shades, Shadows, and Perspective; Chauvenet's Treatise on the Method of Least Squares.
Modern languages	Keetel's Analytical and practical French Grammar; Borel's Grammaire Française; Bôcher's College Series of French Plays; Roemer's Cours de Lecture et de Traduction, Vols. I and II; *Spiers' and Surenne's Dictionary.
Drawing	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.
Tactics of artillery, infantry, and cavalry.	Practical instruction in the schools of the soldier, company, and battalion; *Blunt's Rifle and Carbine Firing; practical instruction in artillery and cavalry.

THIRD YEAR.—SECOND CLASS.

Natural and experimental philosophy.	Michie's Mechanics (Solids); Bartlett's Mechanics (Fluids); Bartlett's Astronomy; Michie's Elements of Wave-Motion Relating to Sound and Light.
Chemistry, mineralogy, and geology.	Bloxam's Chemistry, fifth edition; Everett's Deschanel's Heat, Part II; Tillman's Principles of Chemical Philosophy; Brown's Eclectic Physiology; Thompson's Elementary Lessons in Electricity and Magnetism; Dana's Mineralogy; Le Conte's Elements of Geology.
Drawing	Free-hand drawing and landscape in black and white; constructive and Architectural drawing in ink and colors; *Reed's Topographical Drawing and Sketching.
Tactics of artillery, infantry and cavalry.	United States Army Artillery Tactics; Tidball's Manual of Heavy Artillery Service, U. S. A.; United States Army Cavalry Tactics; Upton's United States Army Infantry Tactics; practical instruction in the schools of the soldier, company, and battalion; practical instruction in artillery and cavalry.
Practical military engineering.	Myers Manual of Signals; 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; Wheeler's Military Engineering (Permanent Fortifications, Siège Operations, and Military Mining); Wheeler's Elements of the Art and Science of War; Mahan's Stereotomy; *Royal Engineers, Aide-Mémoire, Parts I and II.
Modern languages	Knapp's Spanish Grammar; Knapp's Spanish Readings; *Seoane's Neuman and Baretti's Dictionary.
Law	Woolsey'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 Historical Atlas.
Practical military engineering.	Practical instruction in the construction of ponton and spar bridges; in the preparation of siege materials, and in laying out field and siege works; practical instruction in astronomy, in surveying, in military reconnaissances, in field telegraphy, and night signaling; *Ernst's Manual of Practical Military Engineering; Myer's Manual of Signals.
Tactics of artillery, infantry, and cavalry.	Practical instruction in the schools of the soldier, company, and battalion; practical instruction in artillery and cavalry.
Ordnance and gunnery	Benton's Ordnance and Gunnery; Ordnance Pamphlets, Nos. 1, 2, 3, 4, and 5; Practical Pyrotechnics; Practical Ballistics.

EXHIBIT B.

THE PRELIMINARY EXAMINATION.

The following constitute a set of papers containing all questions laid before candidates for admission to the U. S. Military Academy at the preliminary examination held June, 1887.

EXAMINATION IN ENGLISH GRAMMAR.

Time allotted: Two and one-half hours.

DIVISION I.

[N. B.—Write the answers below, numbering them to correspond with the questions.]

1. What is a *participle?* How many *kinds* or *forms* of participles are there? Give an *example* of each kind.
2. What is a *verb?* For what are verbs *inflected,* and what is their inflection called? What is an *auxiliary verb?* Mention the principal auxiliary verbs.
3. Write the plural of *money, donkey, sky, wife, ox, spoonful, cargo, hero, thief, beau, son-in-law, mouse.*
4. Give the *principal parts* (present, past, and past participle) of the following verbs: *Build, flee, burst, buy, sing, swim, speak, grow, dig, fall, chide, fly, eat, lie* (to recline), *lie* (to tell a falsehood).
5. What is an *adjective?* How are adjectives *compared?* Compare *good, bad, little, many, strong, frightful.*

DIVISION II.

[N. B.—Write quite across both pages if necessary. In parsing give no rules, declensions, comparisons, or principal parts; but in other respects parse fully, being careful to give the subject of each verb, the governing word of each objective case, and to state precisely what each conjunction connects, between what words each preposition shows the relation, and to what each pronoun refers. Important omissions will be taken to indicate ignorance. Intelligible abbreviations are allowed.]

Parse the words in *italics* in the following sentences: Man *can conquer Nature only by obeying* her *laws, and* to obey those laws he must know *them. Hence it* is the *necessities* of the practical life *that* excite the first *efforts after* scientific knowledge, *and* it is under the pressure of the same necessities that man first *learns to surrender self-will* to the discipline of regular labor *and* of co-operation with his fellows.

DIVISION III.

Correct all errors that occur in the following sentences:

1. The army was badly cut up, but made good their retreat.
2. Whom, when they had washed, they laid her in an upper chamber.
3. I am resolved not to trust him, neither now nor at any time.
4. This scissors is so dull that I cannot use it.
5. No one ever heard of that man running for office.
6. A lady entered, whom I afterwards found was Miss Smith.
7. I am sure it could not have been them.
8. London in England is larger than any city in Europe.
9. These sort of expressions should be avoided.
10. This result, of all others, is most to be dreaded.
11. What sounds have each of the vowels?
12. Now, boys, I want every one of you to decide for themselves.
13. This is Tennyson's the poet's home.
14. Summer clothes herself in green, and decks itself with flowers.
15. This is as valuable, if not more so, than that.

16. The music sounded harshly.
17. The eye and ear have different offices.
18. He would neither go himself or send anybody.
19. Who doubts but what two and two are four.
20. He talks like you do.
21. He has not, I do not suppose, laid by much.
22. She not only dressed richly but tastefully.

EXAMINATION IN HISTORY.

Time allotted: Two and one-half hours.

[Write concisely and legibly.]

1. What islands on the eastern coast of North America did Bartholomew Gosnold discover, and when did he discover them?
2. What portions of North America did the following nations claim by right of discovery or settlement?
   (1) The Spanish?
   (2) The French?
3. When, where, and by whom was the first permanent French settlement made in Canada?
4. When, where, and by whom was the first permanent settlement made in the colony of Massachusetts Bay?
5. By what treaty was King William's war terminated and with what result?
6. When and where did the following congresses meet:
   (1) First Colonial Congress?
   (2) First Continental Congress?
   (3) First Constitutional Congress?
7. Name one or more important events in the following administrations:
   (1) Washington's.
   (2) Madison's.
   (3) Buchanan's.
8. When was Tennessee admitted into the Union, and of what State was it formerly a part?
9. What is meant by the Monroe doctrine?
10. What was the nullification act of 1832?
11. Under what Presidential administrations, and by what means, were the following acquisitions of Territory made:
   (1) Texas?
   (2) Alaska?
12. What were the causes and duration of the following wars, and who were the contending parties:
   (1) War with Tripoli?
   (2) War of 1812?
13. Name and give the dates of three prominent events in General Grant's campaign of 1865.
14. What was the last amendment to the Constitution; under whose administration was it adopted, and what was its design?

What text-books on United States history have you studied?

EXAMINATION IN GEOGRAPHY.

Time allotted: Two and one-half hours.

1. What is meant by the axis of the earth? Its poles?
2. Name and locate the zones of the earth's surface.
3. What are parallels of latitude? Meridians of longitude?

4. Name the seas and gulfs of the eastern continents. Of the western continents.

5. Name the countries of Europe. Of North and South America.

6. Where are the following rivers: Ganges, Nile, Danube, Thames, Rio Grande, Orinoco, and into what bodies of water do they empty?

7. Locate the following cities, and name the bodies of water, if any, upon which they are located: Berlin, Amsterdam, Calcutta, Melbourne, Liverpool, Lyons, Lisbon, Callao.

8. Name the oceans, seas, gulfs, rivers, and straits through which you would pass in sailing from Cincinnati to St. Petersburg.

9. Where are the Scandinavian Mountains? The Carpathian Mountains? The Balkans? The Andes? The Himalayas?

10. Starting from Cape Town westward, name the bodies of waters through which you would pass in sailing entirely around the continent of Africa near the coast.

11. Name the principal islands of Australasia and the Malay Archipelago.

12. Starting from Duluth, at the head of Lake Superior, and traveling entirely by water through the Great Lakes, Atlantic Ocean, etc., to Saint Paul, name in order the States by and through which you would pass.

13. By the same route name, in order, the ocean, gulfs, lakes, bays, rivers, canals, and straits through which you would pass.

14. Bound Wisconsin, naming the large bodies of water forming portion of boundary, and contiguous States. Bound Kentucky, giving rivers and States forming boundary.

15. Name the Eastern States; the Middle States; the Southern States; the Western States.

16. Name the capitals of the Eastern States and of the Southern States, assigning each to its proper State.

17. Through what States and Territories will a straight line pass drawn from Richmond, Va., to San Francisco, Cal.?

18. Where are the following cities, and upon what bodies of water, if any, are they located: Oswego, Eastport, Pittsburgh, Atlanta, Des Moines.

19. Name eight large rivers of the Mississippi Basin whose waters reach the Gulf of Mexico through the Mississippi River.

20. Name ten large cities of the Atlantic seaboard.

State text-books upon this subject studied by you.

EXAMINATION IN ARITHMETIC.

1. Multiply 3 hundredths by 300 thousandths.

2. Separate 280 into two such numbers that $\frac{3}{7}$ of one is equal to the other.

3. A clock gains $3\frac{1}{4}$ min. in 23 hr. 59 min. 45 sec.; at noon it is 2 min. slow, when will it indicate correct time?

4. 1 U. S. wine gallon contains 231 cu. in. and 1 bushel contains 2,1504 cu. in.; how will a wine quart compare with a dry quart.

5. Reduce $\frac{(2+\frac{1}{5})\div(3+\frac{1}{7})}{(\frac{1}{2}-\frac{1}{3})\times(4-3\frac{2}{7})}$ to its simplest form.

6. If the diameter of the earth is 7,926 mi., what height in inches on a globe 2 ft. in diameter will represent a mountain 15,000 ft. in height?

7. If the pay of a man, a woman, and a boy be in the ratio 3, 2, 1; and 24 men, 20 women, and 16 boys receive £20 8*s*. a week, what will 27 men, 40 women, and 15 boys receive in 365 days?

8. If either 5 oxen or 7 horses will eat up the grass of a field in 87 days, in what time will 2 oxen and 3 horses eat up the same?

9. If 60 cannon firing 5 rounds in 8 min. kill 350 men in 75 min., how many cannon firing 7 rounds in 9 min. will kill 980 men in 25 min.?

EXAMINATION IN WRITING AND ORTHOGRAPHY.

This Union can not expire as the snow melts from the rock or a star disappears from the firmament. When it falls the crash will be heard in all lands. Wherever the winds of Heaven go, that will go, bearing sorrow and dismay to millions of stricken hearts; for the subversion of this Government will render the cause of constitutional liberty hopeless throughout the world. What nation can govern itself if this nation can not? What encouragement will any people have to establish liberal institutions for themselves, if ours fail? Providence has laid upon us the responsibility and the honor of solving that problem, in which all coming generations of men have a profound interest—whether the true ends of government can be secured by a popular representative system. In the munificence of His goodness, He put us in possession of our heritage, by a series of interpositions scarcely less signal than those which conducted the Hebrews to Canaan; and He has, up to this period, withheld from us no immunities or resources which might facilitate an auspicious result. Never before was a people so advantageously situated for working out this great problem in favor of human liberty; and it is important for us to understand that the world so regards it.

So the struck eagle, stretched upon the plain,
No more through rolling clouds to soar again,
Viewed his own feather on the fatal dart,
And winged the shaft that quivered in his heart.
Keen were his pangs, but keener far to feel
He nursed the pinion which impelled the steel;
While the same plumage that had warmed his nest
Drank the last life-drop of his bleeding breast.

1. Alienate.
2. Anecdote.
3. Abbreviate.
4. Benign.
5. Bequeath.
6. Blaspheme.
7. Buoyant.
8. Ceiling.
9. Chaldron.
10. Chapel.
11. Column.
12. Discern.
13. Dungeon.
14. Effervesce.
15. Essence.
16. Exhilarate.
17. Exonerate.
18. Facetious.
19. Forfeit.
20. Garrison.
21. Harassing.
22. Jeopardy.
23. Mitigate.
24. Nauseous.

Official copy.

W. C. BROWN,
First Lieutenant, First Cavalry,
Adjutant United States Military Academy.

EXHIBIT C.

EXAMPLES OF WORK OF CANDIDATES FOUND DEFICIENT.

The following papers show the character and extent of deficiency in qualifications found in two candidates at the preliminary examination of June, 1887:

[No. 79. June 17, 1887.]

EXAMINATION IN HISTORY.

Time allotted, two and one-half hours.

[Write concisely and legibly.]

1. What islands on the eastern coast of North America did Bartholomew Gosnold discover and when did he discover them?—The Elizabeth islands, Martha's Vineyard, Nantucket, and in 1562.

2. What portions of North America did the following nations claim by right of discovery or settlement?

(1) The Spanish?—The Spanish claimed Mexico and the north of that known as the Californias and New Mexico.

(2) The French?—New Acadia and the territory of Louisanna.

3. When, where, and by whom was the first permanent French settlement made in Canada?—By Du Monts and Champlain in 1572.

4. When, where, and by whom was the first permanent settlement made in the colony of Massachusetts Bay?—At Plymouth Rock, by Puritans in 1622.

5. By what treaty was King William's war terminated and with what result?—Aix la Chappelle; result accession of territory to the mother country from French.

6. When and where did the following congresses meet:

(1) First Colonial Congress?—Met at New York in 1690.

(2) First Continental Congress?—Met at Philadelphia in 1722.

(3) First Constitutional Congress?—Met at Washington City in 1790.

7. Name one or more important events in the following administrations:

(1) Washington's?—The whiskey insurrection.

(2) Madison's?—War of 1812.

(3) Buchanan's?—Debate of Kansas and Nebraska bill.

8. When was Tennessee admitted into the Union and of what State was it formerly a part?—In 1832 and was part of the old Louisana purchase.

9. What is meant by the Monroe doctrine?—No foreign nation shall have right to plant any colony on American territory.

10. What was the nullification act of 1832?—South Carolina proposed to withdraw from union and was prohibited from doing so by Jackson.

11. Under what Presidential administrations and by what means were the following acquisitions of territory made?

(1) Texas?—Under Polk's by force of arms.

(2) Alaska?—Under Lincoln's by purchase.

12. What were the causes and duration of the following wars and who were the contending parties?

(1) War with Tripoli?—Cause piracy on sea and imprisonment of citizens of U. S. Duration, 2 yrs.

(2) War of 1812?—Impressment of U. S. Seamen. Duration, 4 yrs.

13. Name and give the dates of three prominent events in Gen'l Grant's campaign of 1865.—Vicksburg July 12th, Donelson June 1st Appomattox Augt. 1st.

14. What was the last amendment to the Constitution, under whose administration was it adopted, and what was its design?—No slavery or involuntary servitude will be permitted in U. S. on acount of color race or previous condition. The 14th amendment come under Johnson's administration.

What text-books on U. S. history have you studied?

I have studied A. H. Stephen's U. S. Hist.

A true copy.

W. C. BROWN,
First Lieutenant First Cavalry, Adjutant Military Academy.

[No. 79. June 18, 1887.]

EXAMINATION IN GEOGRAPHY.

Time allotted, two and one-half hours.

1. What is meant by the axis of the earth? Its poles?—It is that imaginary line running through the center of the earth on which it is supposed to revolve. The Poles are the imaginary ends of the axes known as North and South Poles.

2. Name and locate the zones of the earth's surface.—The North and South Temperate, the Torid, and the two Frigid Zones. The torid extends $23\frac{1}{2}^{\circ}$ on each side

of equator; the North Temperate 23½° from Tropic of Cancer; the South Temperate 23° from Tropic of Capr.

3. What are parallels of latitude; meridians of longitude?—Parallels of latitude run east and west and meridians of longitude north and south; both are imaginary lines used in location of places.

4. Name the seas and gulfs of the Eastern Continents. Of the Western Continents.—Gulf of Guinea, Moab, Mexico, St. Lawrence, California, Finland, Geneva, Calcutta. Black Sea, Baltic, China, Japan, Marmora, North Sea, Irish, Caspian, Yellow, Yeddo.

5. Name the countries of Europe. Of North and South America.—Spain, France, Portugal, Denmark, Germany, Russia, Austria, Hungary, Holland, England, Ireland, Scotland, Wales. Of North America, United States, Mexico, Central America, Dominion of Canada. Of South America, Brazil, Ecuador, Peru, Argentine Rep. Bolivia, Chilli, French, Dutch, and English Guiana, Patagonia.

6. Where are the following rivers: Ganges, Nile, Danube, Thames, Rio Grande, Orinoco, and into what bodies of water do they empty?—Ganges in India empties in Medit; Nile in Africa outlet Congo R.; Danube in Austria empties in South Sea, Thames in England empties in Irish Sea; Rio Grande in Mexico empties in Gulf of Mexico, Orinoco in South America; empties in Pacific Ocean.

7. Locate the following cities, and name the bodies of water, if any, upon which they are located: Berlin, Amsterdam, Calcutta, Melbourne, Liverpool, Lyons, Lisbon, Callao.—Berlin, in Prussia, inland; Amsterdam in Holland, inland; Calcutta in India on G. of Cal.; Melbourne in Australia on coast of P. Ocion; Liverpool England on Thames; Lyons France on B. of Biscay, Lisbon in Spain inland Callao in Japan on Japan Sea.

8. Name the oceans, seas, gulfs, rivers, and straits through which you would pass in sailing from Cincinnati to St. Petersburg.—The Ohio R. Missippi R. Atlantic O. Baltic Sea, Ural R.

9. Where are the Scandinavian Mountains? The Carpathian Mountains? The Balkans? The Andes? The Himalayas?—Scandinavian Mts. bet Denmark and Norway, the Carpathian Mts. in Austria, Balkans in Rusia, Andes, South America; Himolayas, in Asia.

10. Starting from Cape Town westward name the bodies of waters through which you would pass in sailing entirely around the continent of Africa near the coast.—The Atlantic Ocean and Isthmus of Suez.

11. Name the principal islands of Australasia and the Malay Archipelago.—Australia, Tasmania, Felix Island, Robinson Crusoe's Island, and Barbadosias.

12. Starting from Duluth, at the head of Lake Superior, and traveling entirely by water through the Great Lakes, Atlantic Ocean, etc., to St. Paul, name in order the States by and through which you would pass.—Ohio, Illinois, Michigan, Massachusetts, Rhode Island, New Jersey and New York.

13. By the same route name in order the ocean, gulfs, lakes, bays, rivers, canals, and straits through which you would pass.—Atlantic Ocean, G. of St Lawrence, Ohio R. Erie Canal.

14. Bound Wisconsin, naming large bodies of water forming portion of boundary and contiguous States. Bound Kentucky, giving rivers and States forming boundary.—Wisconsin bounded on N by L Mich and State of Mich, on south by Ohio and Illinois, on East by L. Mich and Illinois, and West by Dakota and Montana. Kentucky in N by Ohio, S. by Indiana east by ———, W ———.

15. Name States east of Mississippi.—Minesota, Ohio, Illinois, Tennesee, Indianna, New York, New Jersey, Delaware, Marayland, Vermont, New Hampshire, Maine, Massachusetts, Rhode Island, Connecticutt.

16. Name the capitals of States east of Mississippi.—St. Paul, Columbus, Springfield, Jackson, Indianapolis, Albany, Trenton, Dover, Annapolis, Monttpellier, Augusta, Boston, Providence.

17. Through what States and Territories will a straight line pass drawn from Richmond, Va., to San Francisco, Cal.?—Virginia, Ohio, Illinois, Dakota, Montana, California.

18. Where are the following cities, and upon what bodies of water, if any, are they located?—Oswego, Eastport, Pittsburgh, Atlanta, Des Moines?—New York, on Erie, Maine, inland, Pennsylvania, inland, Georgia on Chattahochee, Illinois on Des Moines River.

19. Name eight large rivers of the Mississippi Basin whose waters reach the Gulf of Mexico through the Mississippi River.—Ohio, Missouri, Arkansas, Alleghany and Monongehela, Tennessee, Pearl and Red River.

20. Name ten large cities of the Atlantic sea-board.—New York, Jersey City, Boston, Brooklyn, Buffalo, Providence, Atlantic City, Washington City, Annapolis, Atlanta, and Pensacola.

State text books upon this subject studied by you.—Maury.

A true copy.

W. C. BROWN,
First Lieutenant, First Cavalry, Adjutant Military Academy.

[No. 87. June 17, 1887.]

EXAMINATION IN ENGLISH GRAMMAR.

Time allotted, two and one-half hours.

DIVISION I.

[N. B.—Write the answers below, numbering them to correspond with the questions.]

1. What is a *participle*? How many *kinds* or *forms* of participles are there? Give an *example* of each kind.

2. What is a *verb*? For what are verbs *inflected*, and what is their inflection called? What is an *auxiliary verb*? Mention the principal auxiliary verbs.

3. Write the plural of *money, donkey, sky, wife, ox, spoonful, cargo, hero, thief, beau, son-in-law, mouse.*

4. Give the *principal parts* (present, past, and past participle) of the following verbs: *build, flee, burst, buy, sing, swim, speak, grow, dig, fall, chide, fly, eat, lie* (to recline), *lie* (to tell a falsehood).

5. What is an *adjective*? How are adjectives *compared*? Compare *good, bad, little, many, strong, frightful.*

(1) A participle is word that takes the form of a preposition and a noun, or a noun and a verb.

(2) A verb is a word that expresses action, being, or state of being. An auxiliary verb is a *word that helps* or makes *more complete verb.*

(3) *Monies,* donkeys, skies, wives, oxen, spoonfuls, cargoes, *heros,* thieves, beaux, sons-in-law, mice.

Present.	Past.	Past participle.
Build.	Built.	*Building.*
Flee.	Fled.	Fleeing.
Burst.	Burst.	Bursting.
Buy.	Bought.	Buying.
Sing.	Sang.	Singing.
Swim.	Swam.	*Swimining.*
Speak.	Spoke.	Speaking.
Grow.	Grew.	Growing.
Dig.	Dug.	Digging.
Fall.	Fell.	Falling.
Chide.	Chided.	Chiding.
Fly.	Flew.	Flying.
Eat.	Ate.	Eating.
Lie.	Lay.	Lieing.
Lie.	Lied.	Lying.

(5) An adjective is a word that qualifies or limits a noun or pronoun. Adjectives are compared to a greater or less degree. Good, better, best; bad, worse, worst; little, less, least; many, more, most; strong, stronger, strongest; frightfull, more frightfull, most frightfull.

Division II.

[N. B.—Write quite across both pages if necessary. In parsing give no rules, declensions, comparisons, or principal parts; but in other respects parse fully, being careful to give the subject of each verb, the governing word of each objective case, and to state precisely what each conjunction connects, between what words each preposition shows the relation, and to what each pronoun refers. Important omissions will be taken to indicate ignorance. Intelligible abbreviations are allowed.]

Parse the words in *italics* in the following sentences: Man *can conquer nature only by obeying* her *laws, and* to obey those laws he must know *them. Hence it* is the *necessities* of the practical life *that* excite the first *efforts after* scientific knowledge, *and* it is under the pressure of the same necessities that man first *learns to surrender self-will* to the discipline of regular labor *and* of co-operation with his fellows.

Can conquer is a verb, regular transitive, indicative mood, present tense sing no third person to agree with noun man.

Nature is a noun, sing no. third person sing no. objective case, object of verb, can conquer.

Only is a participle.

By is a preposition showing the relation between *the participle 'only'* and noun laws.

Obeying is an *adjective modifying the noun laws.*

Laws is a noun, plural no. third person, neuter gender, objective case, object of prep by.

And is a conjunction connecting clause *by obeying &c* with *claus to obey &c.*

Them is a pronoun, plural no, neuter gender, third person objective case object verb must know.

Hence is a conjunction connecting the first sentence with the last.

It is a personal pronoun *antecedent understood* sing no, neuter gender, third person, *possessive case.*

Necessities is a noun, plural no, third person, neuter gender, objective case, *object of verb "it is."*

That is a conjunction connecting *life* with *excite.*

Efforts is a noun, plural no, neuter gender, third person, objective case object of verb excite.

After is an adverb modifying the verb excites.

And is a conjunction connecting the word *knoledge with clause it is under &c.*

Learns is *an adverb modifying* verb to surrender.

To surrender is a regular *intransitive* verb indicative mood, present tense, sing no, third pers to agree with noun man.

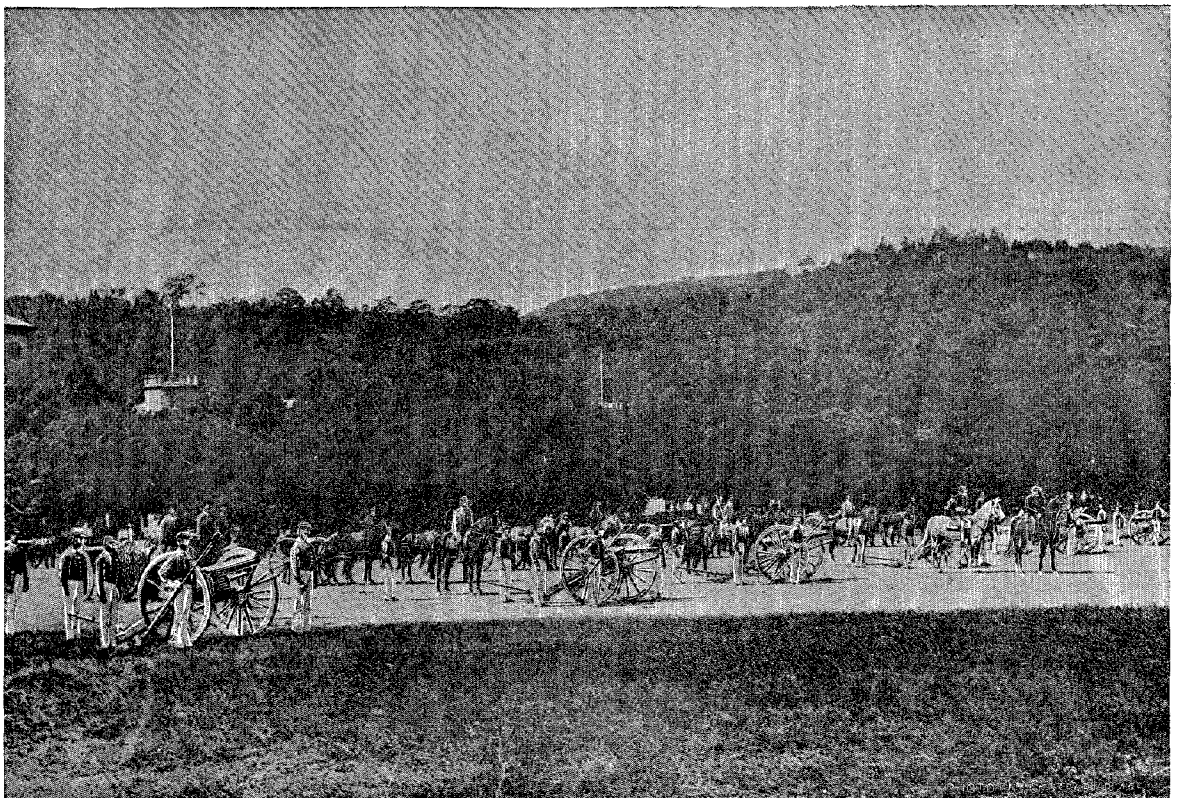
Self-will a noun, sing no, neuter gender, third person, objective case object of verb to surrender.

And is a conjunction connecting the *clause* 'of regular labor' with the *clause* 'of co-operation &c.

Division III.

Correct all errors that occur in the following sentences:

1. The army was badly cut up, but made good their retreat.
1. The army was badly cut up, but made good *their* retreat.
2. Whom, when they had washed, they laid her in an upper chamber.
2. Whom, when they had washed her they laid in an upper room.
3. I am resolved not to trust him, neither now nor at any time.
3. I have resolved not to trust him, *neither* now or at any time.
4. This scissors is so dull that I can not use it.
4. *This* scissors are so dull that I can not use them.
5. No one ever heard of that man running for office,



CADETS AT FIELD-ARTILLERY DRILL.

5. No one heard of that man running for office.
6. A lady entered, whom I afterwards found was Miss Smith.
6. A lady entered, who I afterwards found was Miss Smith.
7. I am sure it conld not have been them.
7. I am sure it could not have been they.
8. London in England is larger than any city in Europe.
8. London in England is larger than any other city in Europe.
9. These sort of expressions should be avoided.
9. *These* sort of expressions should be avoided.
10. This result, of all others, is most to be dreaded.
10. This result, of all *others*, is most dreaded.
11. What sounds have each of the vowels?
11. What sounds *have* each of the vowels?
12. Now, boys, I want every one of you to decide for themselves.
12. Now, boys, I want every one of you to decide for himself.
13. This is Tennyson's the poet's home.
13. This is Tennysons the poet's home.
14. Summer clothes herself in green, and decks itself with flowers.
14. Summer clothes herself in green, and decks herself with flowers.
15. This is as valuable, if not more so, than that.
15. This is as valuable, if not more. *than that.*
16. The music sounded harshly.
16. The music sounded harsh.
17. The eye and ear have different offices.
17. The eye and ear have different offices.
18. He would neither go himself or send anybody.
18. He would neither go himself nor send anybody.
19. Who doubts but what two and two are four?
19. Who doubts that two and two are four?
20. He talks like you do.
20. He talks like you or the way you do.
21. He has not, I do not suppose, laid by much.
21. I (or do not) don't suppose he has laid much by.
22. She not only dressed richly but tastefully.

A true copy.

W. C. Brown,
First Lieutenant, First Cavalry, Adjutant Military Academy.

[No. 87.]

EXAMINATION IN WRITING AND ORTHOGRAPHY.

This union can not expire as the snow melts from the rock, or a star dis[1]*apears* from the fir[2]*miment*.

When it falls the crash will be heard in all lands.

Wherever the winds of the heavens go, that will go, bearing sorrow and dismay to millions of stricken hearts; for the subversion of this Government will render the cause of constitutional liberty ho[29]*pless* throughout the world. What nation can govern itself if this nation can not?

What encouragement will any people have to establish lib[3]*erl* institutions for themselves if ours fail?

Providence has laid upon us the responsibility and the honor of sol[23]*veing* that problem in which all coming generations of man have a profound interest.

Whether the true ends of government can be secured by a popular represent[24]*itive* system.

In the munificence of His goodness He put us in po[4]*sess*ion of our heritage by a series of interpositions scarcely less signal than [5]*thoes* which conducted the Hebrews to Can[25]*an*; and He has up to this period with[6]*eld* from us no imun[7]ities or resources which might *vicilitate* [8] an auspicious result.

Never before was a people so advantageously situated for working out this great problem of human liberty; and it is important for us to understand that the world so regards it.

So the stru[26]*ch* eagle stretched upon the plain,
No more through rolling clouds to war again;
Viewed his own feather on the fatal dart,
And winged the shaft that quivered in his heart.
Keen were his pangs but keener far to feel
He nursed the pinion which impelled the stee[27]*le*,
While the same plumage that had warmed his nest;
Drank the last life drop of his bleeding breast.

I. Al[28]*ianiate.*
II. Anecdote.
III. Abbreviate.
IV. Be[9]*nine.*
V. Be[10]*quathe.*
VI. Blaspheme.
VII. Bu[11]*oient.*
VIII. Ceiling.
IX. Cal[12]*dronn.*
X. Chap[13]*pel.*
XI. Column.
XII. Dis[14]*ern.*
XIII. Dungeon.
XIV. Ef[15]*fervesce.*
XV. Essence.
XVI. Ex[16]*erhilerate.*
XVII. Ex[17]*erhonerate.*
XVIII. Vi[18]*cisious.*
XIX. For[19]*fiet.*
XX. Garrison.
XXI. Har[20]*rassing.*
XXII. Je[21]*apordy.*
XXIII. Mitigate.
XXIV. Nau[22]*scious.*

A true copy.

W. C. Brown,
First Lieutenant, First Cavalry, Adjutant Military Academy.

[No. 87.]

EXAMINATION IN ARITHMETIC.

Time allotted: Three and one-half hours.

1. Multiply 3 hundredths by 300 thousandths.

.3
.300
.900 Ans.

2. Separate 280 into two such numbers, that $\frac{3}{7}$ of one is equal to the other.

One no. $= \frac{7}{7}$ the other $= \frac{3}{7}$

$$\frac{7}{7} + \frac{3}{7} = \frac{10}{7}$$

```
10)280(28        28        280
   20            3         84
   80            84        196
```

196 = the larger number.
84 = the smaller number. Ans.

3. A clock gains $3\frac{1}{4}$ min. in 23 hr. 59 min. 45 sec.; at noon it is 2 min. slow; when will it indicate correct time?

3 minutes 15 seconds = 195 seconds.

```
 60        23
  3         60
 180       1380
  15         59
 195       1439
             60
           87340
             45
           87385 seconds in 23 hours 59 min. 45 seconds.
```

```
87385)195.000(2.0022
      174 770
       202 300
       174 770
```

54545.45+ sec. = 54545=4545=15.1515 hours.

15.1515+12 m. would = 3.1515 o'clock a. m. Ans.

4. 1 U. S. wine gallon contains 231 cu. in.; and 1 bushel contains 2150.4 cu. in. How will a wine quart compare with a dry quart?

```
4)231(57.75 cu. in. in one licquid quart.
  20
   31          Error in division.
   28
    30
    28
     20

32)2150.4(67.5125 cu. in. in dry quart.
   192
    230
    224
     764                  67.5125
     160                  57.75
      40                   9.7625
      32
       80
       64
       160
```

A wine quart will be 9.7625 cubic inches less than a dry quart. Ans.

5. Reduce $\frac{(2+\frac{1}{5})\div(3+\frac{1}{7})}{(\frac{1}{2}-\frac{1}{3})\times(4-3\frac{3}{7})}$ to its simplest form.

$$\frac{(2+\frac{1}{5})\div(3+\frac{1}{7})}{(\frac{1}{2}-\frac{1}{3})\times(4-3\frac{3}{7})} = \frac{\frac{11}{5}}{\frac{1}{6}\times\frac{4}{7}} = \frac{\frac{11}{5}}{\frac{2}{21}} = \frac{\frac{77}{10}}{\frac{2}{21}} \text{ Ans.}$$

6. If the diameter of the earth is 7926 mi., what height in inches, on a globe 2 ft. in diameter, will represent a mountain 15000 ft. in height?

For every inch high on the mountain the earth is 2567.7215 inches in diameter. On a globe 24 inches in diameter a mountain would be as many inches high as 2567.7215 is contained times in 24 inches, or .00942.

```
   7926                      18000ϕ)46219088ϕ(2567.7215
   5280                             36000
  634040                            102190          2567.7215)24.000000942
 15852                               90000                        2290992
39630                                121908
41849240                             108000
      12                              139088
43698480                              126000
41849240                               130880
462190880 in. in diameter.             126000
502190880                               48800
Error in multiplication.                36000
                                         28000
   15000                                 18000
      12                                 10000
   30000
  15000                       Method correct.
  180,000 in high.
```

The mountains on a globe 2 feet in diameter would be .00942 inches high. Ans.

7. If the pay of a man, a woman, and a boy be in the ratio 3, 2, 1; and 24 men, 20 women, and 16 boys receive £20 8*s*. a week, what will 27 men, 40 women, and 15 boys receive in 365 days?

```
24 men, 20 women, 16 boys earn 34.2856 in one day
   3)34.2856
     11.4285$ each would receive
   82 persons will receive                11.4285
                                             82
                                         228570
                                        914280
                                       937.1270$ shilling in one day
                                            365
                                       46856350
                                      56227620
                                     28113810
                                     342051.3550

                20)342051.3550(17102.56525
                   20
                   142
                   140
                     20
                     20
                       51
                       40
                       113
                       100
                        1305
                        120
                         105
                         100
                           50
                           40
                           100
```

£17102.56525. Ans.

8. If either 5 oxen or 7 horses will eat up the grass of a field in 87 days, in what time will 2 oxen and 3 horses eat up the same?

One ox can eat the grass in 435 days
1 horse " " " " " 609 days

1 ox eats $\frac{1}{435}$ in one day

1 horse eats $\frac{1}{609}$ in one day.

2 oxen eat $\frac{2}{435}$ in one day

3 horses eat $\frac{3}{609}$ in one day

3 horses and 2 oxen eat $\frac{841}{88305}$ in one day

$$\frac{2}{435}+\frac{3}{609}=\frac{406}{8805}+\frac{435}{88305}=\frac{841}{88305}$$

```
406   841)88305(105 days that 2 oxen and 3 horses can eat it 105 days.  Ans.
435       841
841        4205
           4205
```

9. If 60 cannon firing 5 rounds in 8 min. kill 350 men in 75 min.; how many cannon firing 7 rounds in 9 min., will kill 980 men in 25 min.?

```
                    37.5
                     7 5
                    1875
                   2625
                   28125 shots kill 350
350)28125(8.36 shots to kill one man
    2800
     1250                    980
     1050                   8.36
      2000                  5880
      2000                 2940
                          7840
                          8192.80 shots to kill 980 men.
```

State the text-books on this subject you have studied.
Robinsons, Barns, and Olneys.
A true copy.

W. C. BROWN,
1st Lieut., 1st Cavalry, Adjutant Mil'y Acad'y.

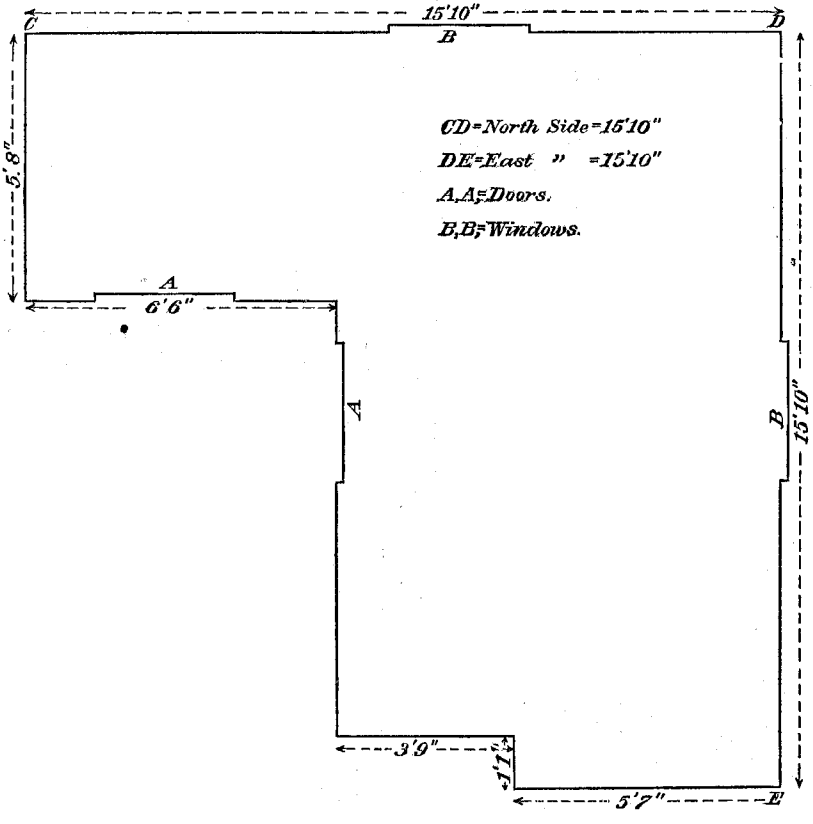
EXHIBIT D.

DIAGRAM OF VISITORS' ROOM IN CADET GUARD-HOUSE.

WEST POINT, N. Y., *October* 12, 1887.

SIR: In compliance with verbal instructions from you of this date, I have the honor to submit the following:

1. Plan of visitors' room in cadet guard-house.



HOW THE TIME OF CADETS IS PASSED.

2. How the time from reveille till taps is employed by a fourth classman.

(1) *In barracks.*—At 6 a. m. attends reveille in the area of barracks with his company; from 6 to 6.20 a. m. makes up his bed, sweeps his room, and puts it in order; makes his toilet, and, if on sick report, goes to the hospital at 6.15.

At 6.30 marches to breakfast; at 7 marches from breakfast.

From 7 to 8 attends to one or more of a number of little things that he may have to do, such as having shoes blacked, hair cut, equipments varnished, drawing articles from quartermaster store, inspecting bulletin board to copy the reports for which he intends submitting explanations, interviewing the commandant, submitting his official written communications, mailing his letters, inspecting his marks in his studies for the week previous. If on guard, attends guard-mounting, which usually takes about twenty-five minutes. If not on guard, he usually manages to study for half an hour during this time.

From 8 a. m. to 1 p. m. attends instruction in mathematics one hour and a half, gymnastics or fencing thirty-five minutes, and, every other Saturday, ethics one hour; the remainder of the time he devotes to study.

At 1 p. m. he marches to dinner; at 1.40 marches from dinner, and does whatever he wishes until 2 p. m.

From 2 till 4 p. m. attends instruction in English or French one hour, and studies one hour.

At 4.15 he goes to drill till 5.30, if the weather permits; during the winter, 1st November till 15th March, he has no drill at this hour, and usually devotes the time to dancing or recreation in the gymnasium.

About 5.40 p. m. he attends parade, after which he spends half an hour at supper, and after this half an hour at recreation, usually in visiting his friends in their rooms or strolling around the grounds.

Within half an hour after supper, about 7.30 p. m., call to quarters sounds, and he studies until 9.30. If on guard, he will walk post one-third of the time between twenty minutes after return from supper and 9.45 p. m.

After 9.30 he can make down his bed and retire. If he chooses, he may remain up for purpose of study until 11 p. m.

On Saturdays there are no recitations or drills after 1 p. m. But if the cadet has been sufficiently careless or heedless of the regulations, he is very apt to spend the time from 2 p. m. until retreat, about 6 p. m., on extra duty—that is, walking post equipped as a sentinel.

The afternoon of Saturday is usually spent in the library, at play on the ball or tennis ground, walking over the public lands (reservation), with friends at officers' quarters, cleaning equipments, bathing, or reading in quarters.

In the evening he can visit in barracks, study or read, or attend a meeting of the Dialectic Society or a band concert.

On Sundays there are no recitations. At 8 a. m. he attends inspection on the plain, or in bad weather on stoop of barracks, which usually consumes about thirty minutes.

At 9 o'clock he repairs to his quarters, which are inspected at 9.30.

At 10.40 he attends roll-call and inspection before marching to church.

At 12 m. he is marched from church, and then is free to do whatever suits him until 1 p. m.

At 1 p. m. he marches to dinner; returns at 1.40 p. m., and is free until 3.

At 3 p. m. call to quarters sounds, and from then until 4 p. m. he is obliged to remain in his room, but may devote the time to reading, study, or sleep, as he likes.

He may attend Sunday School from 3 to 4, if he chooses. From 4.30 until parade, about 6 p. m., he is free.

Sunday evening is passed as any other, except that he is not obliged to study and can attend the prayer-meeting conducted by the cadets.

Guard duty is the same on Sunday as on week days, except there is an hour more in the morning and one hour and a half more in the afternoon, one-third of which he will have to take if on guard. Sunday tours, however, only come once in every seven or eight weeks.

(2) *In camp.*—Attends reveille roll-call at 5.30 a. m., makes his bed, polices his tent and its vicinity. If on sick report, goes to hospital at 5.45.

Marches to breakfast at 6, returns at 6.30.

Goes to drill from 7 to 7.45.

Attends troop parade at 8; if on guard, attends guard-mounting after parade.

Attend drill from 9 till 10.

Attends instruction in swimming from 10.30 till 12.30 every other day.

Marches to dinner at 1 p. m. and returns at 1.40 p. m.

Usually devotes time from 1.40 to 2.15 to some one little thing that must be attended to in odd moments, such as being measured for clothing or shoes, cleaning gun and equipments, writing explanations.

At 2.15 he marches to the dancing academy, where he receives instruction until 3.30 p.m.

If on the police detail, he attends police call at 4 p. m.. Attends drill from 4.30 to 5.30.

Attends dress parade at 6.30 p. m.

After parade he marches to supper and returns within half an hour, after which he is free to do as he pleases until tattoo, at 9.30, but he usually has to devote the time to writing to his friends, or writing explanations, or to putting his equipments in order; yet he often manages to get quite a lot of fun out of this time by singing and playing with his fellow cadets, etc.

At 9.30 he attends tattoo roll-call, and at taps, at 10 p. m., he must be in bed.

Once in every seven or eight days he goes on guard; then he is on post as a sentinel for two hours and off four from 9 o'clock a. m. one day till 9 o'clock a. m. the following day. The day he marches off guard he is excused from all military duty until 1 p. m.

Very respectfully, your obedient servant,

HENRY KIRBY,
First Lieutenant, Tenth Infantry.

Col. H. C. HASBROUCK,
Commandant of Cadets.

EXHIBIT E.

REPORT OF THE COMMITTEE ON POLICE ADMINISTRATION AND FISCAL AFFAIRS.

DEAR SIR: The committee on "police administration and fiscal affairs" submit the following report:

Your committee called upon General W. Merritt, Superintendent, for full and detailed reports touching the police administration and fiscal affairs of the Academy, and received from him the following communication and accompanying reports, hereto attached and made a part hereof, to wit: Letter of General Merritt; report of Capt. Philip M. Price, captain of Engineers, as to water supply; report of Capt. C. H. Rockwell, captain, Fifth Cavalry, quartermaster Military Academy, as to gas supply, roads, and paths, with list of men in his employ; report of Capt. C. W. Williams, assistant quartermaster, U. S. Army, disbursing officer, with accompanying exhibits of appropriations and expenditures and mode of purchases, etc. and report of Capt. W. F. Spurgin, treasurer, quartermaster, and commissary of cadets; and a memorandum for estimates of desired appropriations, and also a memorandum of suggestions from Prof. P. S. Michie as to appropriations for "special apparatus," submitted to Rev. Dr. Brown, of the Board of Visitors, and deemed sufficiently important to incorporate herein.

Your committee made a thorough examination of the police administration and fiscal affairs and take pleasure in reporting that the police

administration is efficient and the fiscal affairs are systematically and economically administered. The officers extended to the committee every desired facility.

Most respectfully,

F. M. COCKRELL.
GEO. H. BATES.
M. J. RUSSELL.

Hon. GEORGE W. CHILDS,
President Board of Visitors, U. S. Military Academy.

WEST POINT, N. Y. *June* 9, 1887.

DEAR SIR: I have the honor to inclose papers referring to the matters of fiscal affairs and police administration of the Military Academy. These have been made with as much reference to details as time and the duty of the officers would permit. If any explanation is needed or more detailed reports I will be glad to have them furnished. I would hand these inclosures to you in person, but am especially occupied to-day with duties connected with the completion of the examination.

I have the honor to be very respectfully yours,

W. MERRITT,
Brig. Gen., U. S. Army.

Senator F. M. COCKRELL,
Chairman Committee of Fiscal Affairs and Police Administration, Board of Visitors.

EXHIBIT E-A.

STATEMENT SHOWING HOW THE PAY OF CADETS IS DRAWN FROM THE TREASURY AND HOW DISBURSED.

HEADQUARTERS U. S. MILITARY ACADEMY,
OFFICE TREASURER, QUARTERMASTER, AND COMMISSARY CADETS,
West Point, N. Y., June 21, 1887.

SIR: I have the honor to submit the following, believing that the information given is that which you verbally requested when your committee visited my office the 9th instant.

The pay of a cadet is $45 per month. At each regular muster, viz., February 28, April 30, June 30, August 31, October 31, and December 31, muster-rolls of each company of cadets are made out by the tactical officers in charge of cadet companies the same as such rolls are made out throughout the service.

The corps of cadets is mustered by the commandant of cadets on said rolls, and after he, the commandant, has signed them they are transmitted to this office, where they are closely examined and afterwards transmitted to the chief paymaster of the Department of the East, Governor's Island, New York Harbor, for payment.

The chief paymaster designates an officer of the pay department under him who shall pay said rolls. Said officer deposits the amounts due on said rolls with the assistant treasurer of the United States at New York City to the credit of the treasurer of the Military Academy, to be drawn upon by the latter in his official capacity only.

The cadet is thus credited every two months with his pay, but he never handles any part of it, excepting when he goes on furlough or severs his connection with the

Academy by graduation or otherwise. The treasurer of the Academy keeps the account of each cadet. The cadet possesses an account book, and can see at any settlement just how his account stands, and the items of debits and credits which enter into it.

Out of the monthly pay of each cadet, which, as stated above, is $45 per month, there is set aside, under no circumstances to be spent prior to his graduation, the sum of $4, which leaves $41 as the monthly pay of each cadet available for all his needs.

Out of this $41 all of the cadet's expenses are paid. He pays for his subsistence, clothing, text-books, washing, policing barracks, gas, barber, baths, shoe-black, etc.

His subsistence costs, on an average, about $16 per month. His expenditures for clothing depends upon the care which he takes of the same. His washing bills, greatest in summer when white clothing is worn, also depends upon the care he exercises in reference to exterior white clothing. The charge for policing barracks is 85 cents per month. The barber's charge is for hair-cutting only, and is 13 cents for each cutting.

The charge for gas is 50 cents per month. This charge is really not a charge for gas, since the coal out of which the gas is made is furnished by Congressional appropriation, but is a charge for *conversion of coal into gas* for which there is no appropriation.

The bills for baths, shoe-blacking, etc., vary slightly, but usually run from 60 cents to 75 cents per month.

The foregoing exhibits how the pay of the cadet is expended.

When a cadet severs his connection with the Academy by graduation or otherwise his account is made up and settled to the proper legal date, and whatever amount is due is paid over to him in person.

The $4 which is set aside each month constitutes what is known as the cadet's equipment fund, and in four years amounts to $192. This sum the cadet expends at graduation in purchasing his equipments as an officer.

MILITARY ACADEMY POST FUND.

This fund accrues from rents received for the West Point Hotel—$2,000 per annum; the quarters occupied as a post-office, $150 per annum; the small brick building occupied by Mr. Denton as a confectionery, $150 per annum; and the stone stable occupied by John Denton & Son, $200 per annum; or a total of $2,500 per annum from all sources.

The fund is expended in keeping the buildings above mentioned in repair and for any other public purpose to which the Superintendent of the Academy may see proper to direct its expenditure. Expenditures are made only on his order.

The published annual report of the Board of Visitors to the United States Military Academy for the year 1885 exhibits, pages 27, 28, and 29, item by item, the receipts and disbursements of the fund from July 26, 1884, to May 22, 1885, a period embracing nearly one year.

The miscellaneous character of the expenditures for said year is characteristic of the expenditures for any other year, rendering it extremely difficult to show the same by grouped classifications of objects of disbursement.

The following will exhibit in a condensed form the receipts and disbursements for the period above referred to:

RECEIPTS.

Balance on hand from previous period	$626.09
For rents, hotel, etc	1,912.50
For ice	134.00
By errors	60.50
Total receipts	2,733.09

DISBURSEMENTS.

Repairs to public property, purchases, etc	$2,032.29
On account of public grounds	368.62
Hotel insurance	175.00
Publication for office; for post Sunday School, children of soldiers; lecture, etc	113.00
Balance on hand	43.89
Total disbursements	2,733.09

The receipts and disbursements (80 vouchers of the latter) are classified for the year ending May 31, 1886, as follows:

RECEIPTS.

Balance on hand	$43.89
Rents	3,500.00
Sales of ice	28.52
Total	3,572.41

DISBURSEMENTS.

Repairs to public property, purchases, services, etc	750.74
On account of public grounds	1,275.36
Hotel insurance	175.00
Publications	111.92
Balance on hand	1,259.39
Total	3,572.41

The receipts and disbursements for the year ended May 31, 1887, are classified as follows:

RECEIPTS.

Balance on hand	$1,259.39
Rents	2,500.00
Total	3,759.39

DISBURSEMENTS.

Repairs to public property, purchases, services, etc	1,894.76
On account of public grounds	82.21
Porterage	1,123.98
Hotel insurance	175.00
Publications	54.66
Balance on hand	428.78
Total	3,759.39

Trusting that the foregoing furnishes the information desired,

I am, very respectfully, your obedient servant,

WM. F. SPURGIN,

Captain, Twenty-first Infantry, Treasurer, Quartermaster, and Commissary of Cadets.

Hon. FRANCIS M. COCKRELL,

Board of Visitors, Chairman Committee on Police Administration and Fiscal Affairs, Washington City, D. C.

EXHIBIT E-B.

METHOD OF DISBURSING THE MONEY APPROPRIATED FOR THE MILITARY ACADEMY.

HEADQUARTERS U. S. MILITARY ACADEMY,
OFFICE OF THE DISBURSING OFFICER,
West Point, N. Y., June 9, 1887.

SIR: In compliance with verbal instructions of the Superintendent, I have the honor to transmit herewith an abstract showing the amounts appropriated, disbursed, and remaining unexpended under the several heads of appropriations for the support of the Military Academy during the fiscal year 1886-'87.

The funds which abstract shows as received have been supplied by request of the honorable Secretary of War upon timely requisitions of the Superintendent of the Military Academy, forwarded at such times only as the necessities of the service demand.

The amount reported as disbursed is covered by vouchers which are abstracted for each quarter of the year, entered on proper "account-current," and then forwarded to the honorable Secretary of War through proper military channels. Having reached the War Department, these papers are first examined and approved and then transmitted to the Treasury Department for audit. All of the above copies are made in duplicate, and the remaining copies are retained in this office for reference, and for examination by such officials as may be properly designated.

All disbursements, whether for labor or material, are made upon the order of the Superintendent, and except as provided by law, only after competition has been secured.

The method of securing competition is as follows: When time permits and the quantity of supplies needed justifies the expenditure, an advertisement enumerating classes of stores desired and inviting proposals is inserted six times in two or more newspapers designated by the War Department; public notices of the same purport are posted in conspicuous places, and thirty days are allowed to elapse between date of advertisement and opening of bids. Every applicant is supplied with complete schedules of stores desired, and, in addition, schedules are sent to all firms known to be reliable and desirous of competing. For this purpose a book is kept in the office, in which the names of all such firms are carefully entered. After bids are opened they are abstracted, and the items are as a rule considered separately, and contract is in every case awarded to the lowest bidder. These abstracts, together with bids, etc., are forwarded to the Treasury Department and are examined along with vouchers to which they relate.

When the exigencies of the service demand an early delivery of a small quantity of supplies, public posters only are used. When the immediate delivery of supplies is necessary, purchase is made from dealers of good standing and at regular market prices. However, such care has been taken by officers needing supplies to anticipate the necessities of the service that I can state that open market purchases are very rare and only for small quantities.

As explaining this system, I inclose a copy of my last newspaper advertisement and public poster.* I also inclose a copy of Orders No. 202, Headquarters U. S. Military Academy, series of 1886, regulating the rendition of estimates, from which it will be seen that effort is made to anticipate the necessities of every department in time to allow and, by having all estimates submitted at one time, justify the expense of securing the fullest competition.

In submitting this report it is proper to state that the above system is believed to be strictly in accordance with law and decisions of the United States Treasury officials.

* The newspaper advertisement and poster are in the usual form, and their insertion here is not deemed necessary.

The amount reported as unexpended is deposited to my official credit as disbursing officer, in the sub-treasury of the United States in New York City. At end of the fiscal year such funds as are not needed to cancel outstanding indebtedness will be transferred to the Treasurer of the United States.

Very respectfully, your obedient servant,

CHAS. W. WILLIAMS,
Captain and Ass't Q. M., Disbursing Officer.

The ADJUTANT U. S. MILITARY ACADEMY.

Appropriations for the support of the U. S. Military Academy for the fiscal year ending June 30, 1887.

[Disbursed by Capt. Charles W. Williams, A. Q. M., U. S. Army, disbursing officer of the U. S. Military Academy.]

	Appropriated.	Expended, to include June 7, 1887.	Unexpended on hand.
Current and ordinary expenses	$50, 830. 00	$36, 305. 53	$14, 524. 47
Miscellaneous items and incidental expenses	16, 120. 00	13, 392. 89	2, 727. 11
Buildings and grounds	10, 020. 00	8, 749. 89	1, 270. 11
Pay of professors, extra pay to officers, and pay of cadets, teacher of music, band, one master of the sword, which appropriation is expended by the pay department, U. S. Army, and in no way under control of the disbursing officer U. S. Military Academy	220, 835. 00	(*)	(*)
	297, 805. 00	58, 448. 31	18, 521. 69

*Unknown.

I certify that the above abstract is correct, and that the expenditures reported have all been made by undersigned on vouchers approved by the Superintendent of the U. S. Military Academy.

CHAS. W. WILLIAMS,
Capt. and A. Q. M., D. O.

WEST POINT, N. Y., *June* 9, 1887.

[Orders No. 202.]

HEADQUARTERS U. S. MILITARY ACADEMY,
West Point, N. Y., November 29, 1886.

The following instructions relative to the preparation of estimates for supplies, etc., are published for the information and guidance of all concerned:

ANNUAL ESTIMATE FOR CONSTRUCTION OR REPAIRS.

I. An annual inspection of all public buildings, water-works, roads, etc., will be made, and the quartermaster Military Academy will forward an estimate of all labor and all material required during the ensuing fiscal year for their repair, so as to reach these headquarters on or before May 1 of each year.

II. That this estimate may be as complete as possible, the quartermaster Military Academy is directed to confer with officers having immediate charge of buildings, furniture, etc., and obtain from them the details of all construction and repairs required in their several departments, and embrace them in his estimate.

III. Where work is to be done by contract, the kind, quantity, and estimated cost of labor and material should be stated in detail, and separately for each building.

ANNUAL ESTIMATE FOR GENERAL SUPPLIES.

I. In order that proper provision may be made for the necessities of the service, the quartermaster Military Academy is hereby directed to prepare and forward in time to reach these headquarters by the first day of May of each year, an estimate of the fuel, gas, coal, and all other supplies required for general use in the quartermaster's department during the ensuing fiscal year. The quantity of stores estimated for should be based on the quantities used in previous years, and due allowance should be made for stores remaining on hand at end of fiscal year.

II. Estimates of all supplies, including books, stationery, apparatus, repairs to apparatus, etc., which will be required during ensuing fiscal year, will be prepared in time to reach these headquarters on or before May 1 of each year, by the heads of departments, and by all other officers receiving stores through the disbursing officer Military Academy.

PERIODIC ESTIMATES.

In case additional stores are required during the year estimates may be forwarded to reach these headquarters on August 1 for stores required during the fourth quarter of the year; on November 1 for stores required in first quarter; on February 1 for stores required in second quarter.

SPECIAL ESTIMATES.

I. Officers should endeavor, so far as practicable, to include in their periodical estimates all the articles that will be required during the period estimated for, to avoid the necessity of special estimates and requisitions, which must not be made unless the exigencies of the service so require, and when made must set forth fully why the articles were not included in the last stated estimate.

II. In this connection attention is invited to the following ruling by the Treasury Department:

"It is not sufficient for the officer to state on the face of the voucher that the transaction was in open market, the exigency of the service requiring immediate delivery or performance of the service, as the case may be, but he should submit a statement of the facts which he claims caused such exigency, so that the accounting officers may be able to determine whether such exigency existed, and if so, whether it was caused by his own laches."

III. All officers submitting special estimates are required to forward with their estimates a full statement, in duplicate, as to why the stores are needed for immediate use, and why the necessity for their use could not have been anticipated.

GENERAL INSTRUCTIONS.

I. All estimates should show the appropriation from which each article estimated for is to be purchased.

II. No letters of transmittal being required, estimates should be forwarded by indorsement; only one copy of each estimate is desired.

III. Where special brands of articles are called for and none other will be accepted, a note to that effect should be made.

IV. Where articles have been estimated for and not received, they should not be included in subsequent estimate unless a note to that effect is made.

V. In all cases the specifications for labor and material should be prepared with great care, and such description given that undesirable articles are excluded. "Assorted" articles should not be called for; actual sizes and definite description should in all cases be stated. Strict attention to these instructions will prevent the return of estimates for correction.

By order of Colonel Merritt.

W. C. BROWN,
First Lieutenant, First Cavalry, Adjutant.

LETTER FROM PROFESSOR MICHIE ON METHODS OF PURCHASING.

WEST POINT, N. Y., *June* 8, 1887.

MY DEAR SIR: Before the appropriations granted by law can be expended, the law requires that bids shall be advertised for. In the department of philosophy, and, presumably, the same in other departments, these restrictions seriously delay the expenditure of the appropriations granted *for special apparatus*, and have sometimes even prevented the appropriation from becoming available within the fiscal year. It is then covered into the Treasury of the United States as an unexpended balance. Thus, last year application was made for bids for certain optical crystal for a siderstat for this latitude, and for a concave diffractive grating with its special apparatus for mounting, but without success. Apparatus of this special nature must be constructed by expert instrument makers under careful supervision, and can not be obtained in open market. It would seem to be more advantageous for instruction to exempt all special models and apparatus required by the several departments of the Academy from the restrictions now imposed, except those mentioned in the regulations of the Academy.

Respectfully,

P. S. MICHIE.

Rev. Dr. BROWN.

EXHIBIT E–C.

STATEMENT SHOWING THE SOURCES OF FRESH-WATER SUPPLY, CAPACITY FOR STORAGE, AND METHOD OF DISTRIBUTION.

UNITED STATES MILITARY ACADEMY,
West Point, N. Y., June 8, 1887.

SIR: In compliance with the verbal directions of the Superintendent, I have the honor to submit the following report on the water supply of West Point:

Until December, 1879, the post was supplied from the Delafield, Cro' Nest, and Sinclair reservoirs, which were and are now adequate for the greater part of the year, but which fail at times in mid-summer and in the fall, so that previous to the purchase of Round Pond it was necessary at times to remove water-backs from ranges, prohibit the use of bath-rooms and water-closets, and supply families with water by a cart.

With an appropriation of $40,000 in the act approved January 20, 1879, Round Pond was purchased, and a line of 6-inch pipe 20,698 feet long was laid from it to the Delafield reservoir, which was ready for use in December of that year.

Round Pond has an available capacity of about 48,000,000 gallons. It is situated in the mountains southwest of the post, at a height of 870 feet above the plain. The land purchased by the Government, including about 11 acres, which is the area of the pond itself, amounted to nearly 50 acres. Of this not more than 30 acres drains into the pond, and there is no indication of any source of supply to the pond other than this surface drainage. A small stone dwelling was built for the use of the keeper of the pond. The water is drawn from the pond into the 6-inch pipe by siphonage. Should the pond be emptied during any season, it is doubtful if it would be refilled during the following winter and spring sufficiently for the supply of the post during a succeeding dry summer. Should this trouble be experienced at any time in the future, it could be remedied by the purchase by the Government of a tract of land to the west of the pond, on which is a stream dry in summer, but discharging in the winter and spring a large volume of the purest water through an excellent channel down the mountain side. The water could easily be piped into Round Pond, and so insure its being filled every spring.

The Cascades is a mountain stream dry in summer, but which discharges a large quantity of pure water during the winter and spring. In 1880 a branch pipe 150 feet long was laid from the foot of the Cascade to the Round Pond pipe-line, at a point 7,558 feet from the Delafield reservoir. By this means Delafield reservoir is kept full as long as there is water in the Cascade, and the time for drawing on the Round Pond supply is postponed until July in ordinary seasons.

Delafield reservoir, situated just above the water and filter houses, has an available capacity of about 9,000,000 gallons. It is supplied with water from a drainage area of about 37 acres, which, however, never supplies enough water for the consumption of the post, and, as before stated, its natural supply is supplemented by the water drawn from Round Pond and the Cascades.

Sinclair reservoir, situated just beyond the cavalry detachment garden, has a capacity of about 1,300,000 gallons. It is supplied from a stream which is dry in the summer and fall, and which delivers a superabundance of water for all the needs of the post during the remainder of the year. A 6-inch iron pipe runs direct from this reservoir to the water house.

Cro' Nest reservoir, situated about 800 feet beyond the Sinclair reservoir, has a capacity of only about 300,000 gallons, but is supplied by a stream of the purest water coming down the side of Cro' Nest Mountain.

The stream is of the same character as that supplying Sinclair reservoir. These two reservoirs, therefore, contribute nothing to the supply of the post during the time when there is likely to be any scarcity of water. A 6-inch iron pipe connects Cro' Nest reservoir with the pipe line from Sinclair reservoir. The water from these reservoirs, as well as that from Delafield reservoir, can all be carried into the filter house and filtered before entering the water house for distribution to the post, or can be carried direct to the water house.

The water and filter houses are well built of stone, and serve the purposes for which they are intended satisfactorily. The filter beds are composed of layers of broken stone, gravel, and sand, the total thickness being 54 inches. Their area is 1,400 square feet.

There should be another filter house adjoining the present one and similar to it, in order that one could be used while the other is being cleaned and aerated.

With the exception of the desirability of a second filter house, the water supply is satisfactory and sufficient for the present needs of the post.

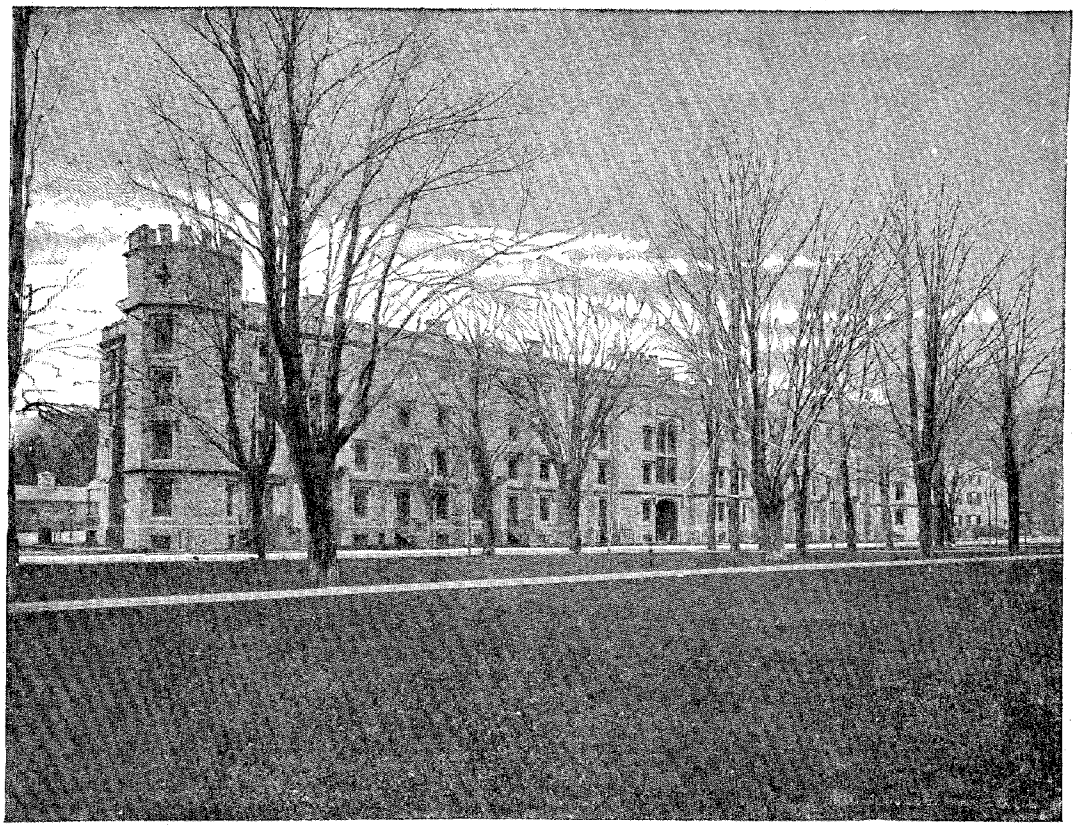
Should the consumption of water be much increased it would become necessary to provide additional storage reservoirs. This could be done at a moderate expense along the streams which supply either Sinclair or Cro' Nest reservoirs at points above these reservoirs.

In July, 1885, Major Stanton, then in charge of the water supply, estimated the daily consumption of water to be about 359,000 gallons in winter and 250,000 gallons in the spring, the much greater winter consumption being due to so many faucets being left to run continuously in order to prevent freezing. There is a superabundance of water, however, in the winter, and there is no objection to this apparent waste, as there are no means of storing the surplus water. The supply of water being entirely by gravity, an increased consumption involves no increase of cost.

Very respectfully,

PHILIP M. PRICE,
Captain of Engineers.

The ADJUTANT U. S. MILITARY ACADEMY.



CADET BARRACKS.

EXHIBIT F.

REPORT OF THE COMMITTEE ON CADETS AND CADET SUPPLIES.

WEST POINT, N. Y., *June* 8, 1887.

The committee on cadets and cadet supplies beg leave to report:

We find this department in the immediate charge of Maj. William F. Spurgin, U. S. Army, treasurer, quartermaster, and commissary of cadets, to be in excellent condition and worthy of high praise. The contrast with the state of things in former years, when the mess was the occasion of continual complaint and often personal encounter between cadets, growing out of the insufficiency and character of the food, with the present management shows how worthy of commendation it is. The supplies are ample and of the best quality, and the service refined and orderly. The dining hall has been furnished and decorated in a tasteful and attractive manner, and its walls are adorned with portraits of distinguished officers of the Army, among which is an excellent one of General Grant, recently presented by Mr. George W. Childs, the president of the Board of Visitors for this year.

Your committee have made a very thorough and critical examination of the whole work, from the laundry up to the accounting office, and are convinced that the system now brought to such completeness is the best that can be devised. It must be evidently the growth of years, and only a peculiar fitness for and long experience in this work could have brought it to such efficiency. Your committee, therefore, believe that any sudden change in its administration would prove disadvantageous, and we recommend its continuance under Major Spurgin.

Your committee approved the recommendation made by the commissary for the enlargement of the laundry, but as the property belongs to the committee of buildings and grounds, you are respectfully referred to their report.

The accompanying papers are herewith submitted as a part of the report, and furnish information made by Major Spurgin, by request of the committee, as to the detail of work in the department.

JOHN W. BROWN, *Chairman.*
R. N. ANDERSON.
GEO. H. BATES.

Hon. GEO. W. CHILDS,
Chairman of the Board of Visitors.

EXHIBIT F-A.

STATEMENTS SHOWING COST OF SUBSISTING CADETS PER CAPITA AND EXPENSES OF LAUNDRY.

U. S. MILITARY ACADEMY,
West Point, N. Y., June 6, 1887.

SIR: In compliance with your verbal request I have the honor to transmit herewith the inclosed papers, exhibiting (1) the cost of subsisting cadets per man, per annum, for the period of thirteen years ending April 30, 1887; (2) the work performed at the cadet laundry, West Point, N. Y., for the year ending April 30, 1887.

To each paper I have added notes relative to the matter to which it refers.

Very respectfully, your obedient servant,

WM. F. SPURGIN,
Captain, Twenty-first Infantry,
Treasurer, Quartermaster, and Commissary of Cadets.

Rev. JOHN W. BROWN,
Board of Visitors,
Chairman Committee Cadets and Supply Department.

[Endorsement.]

HDQRS. U. S. MILITARY ACADEMY,
West Point, N. Y., June 7, 1887.

Respectfully forwarded to Rev. John W. Brown, Board of Visitors. The appropriation mentioned for extension to cadet laundry is approved and recommended to the favorable consideration of the Board of Visitors.

By command of Brigadier-General Merritt.

W. C. BROWN,
First Lieutenant, First Cavalry, Adjutant.

Abstract of cost of provisions, property, etc., used, issued, and consumed at the cadets' mess, U. S. Military Academy, West Point, N. Y., from May 1, 1874, *to April* 3, 1887 (13 *years*).

From—	To—	Provisions.	Contingent property.	Furniture.	Incidentals.	Total.	Average No. of cadets.	Cost of board.	Assessed for board.
May, 1874	April, 1875	$47, 826. 05	$3, 062. 32	$1, 078. 07	$8, 064. 35	$60, 030. 79	249	$244. 84	$251. 40
May, 1875	April, 1876	51, 649. 25	2, 768. 83	1, 725. 72	8, 562. 67	64, 706. 47	274	236. 56	236. 00
May, 1876	April, 1877	42, 479. 24	2, 134. 11	2, 143. 88	8, 892. 93	55, 650. 16	293	205. 21	201. 50
May, 1877	April, 1878	38, 540. 18	2, 016. 58	984. 14	8, 270. 40	49, 811. 30	254	198. 37	197. 50
May, 1878	April, 1879	36, 698. 03	1, 856. 75	789. 15	8, 359. 42	47, 703. 35	274	174. 97	182. 52
May, 1879	April, 1880	36, 792. 63	1, 491. 11	417. 03	7, 995. 30	46, 696. 07	254	182. 10	183. 50
May, 1880	April, 1881	34, 320. 72	1, 486. 78	783. 56	8, 119. 62	44, 710. 68	235	190. 63	188. 00
May, 1881	April, 1882	35, 005. 36	1, 458. 95	937. 74	5, 743. 89	43, 145. 94	206	210. 06	210. 00
May, 1882	April, 1883	43, 294. 14	1, 036. 25	972. 05	5, 894. 72	51, 197. 16	239	214. 88	216. 00
May, 1883	April, 1884	48, 722. 04	1, 679. 48	1, 161. 06	5, 304. 23	56, 866. 81	270	211. 44	211. 00
May, 1884	April, 1885	44, 494. 20	1, 315. 58	1, 770. 50	5, 929. 99	53, 510. 27	269	195. 86	197. 00
May, 1885	April, 1886	43, 252. 14	1, 762. 09	1, 926. 74	7, 119. 34	54, 060. 31	275	193. 07	193. 00
May, 1886	April, 1887	41, 877. 28	3, 259. 09	1, 254. 75	9, 182. 33	55, 573. 45	271	193. 74	196. 00

NOTES RELATIVE TO THE CADETS' MESS, U. S. MILITARY ACADEMY.

All supplies are purchased in open market as they are needed. Meats, butter, and groceries are ordered weekly. Flour is purchased in quantities sufficient to last two months. Fruits and other perishable articles when required. All supplies are re-

ceived and cared for by a commissary sergeant, U. S. Army, detailed for duty in the cadets' subsistence department. A return of provisions, furniture, etc., received, issued, and remaining on hand is made out every two months. This return shows everything that has been received, when received, from whom purchased, and cost thereof; everything expended, all sales of bread to officers and others living at the Academy, sales of scrap food, soap grease, etc. The period covered by a return is termed a settlement. A settlement covers the period embraced in two calendar months, and always is that period for which the corps is mustered, and which is the same as the muster of troops, occurring at end of February, April, June, August, October, and December. Thus there are six settlements per year. The subvouchers for this return are: (1) The original invoice of supplies purchased. (2) Daily issues of provisions at the cadets' mess. (3) Daily issues of contingent property, etc. (4) Daily issues to the cadets' hospital. (5) Statement of sales (handed in daily to office). The reverse side of this blank exhibits all stores received during the previous day to that on which it is handed in. As invoices are kept in the office, receipts of stores can be and are compared with them. (6) Pay-roll of employés. When a return is made up, a board of officers, denominated the board of audit, consisting of the commandant of cadets, quartermaster of the Academy, and senior tactical officer, convenes according to regulations, and examines vouchers, and approves or disapproves of same, and determines, upon consultation with the commissary of cadets, the amount for board each cadet shall be charged for the two months. When the corps is large and the cost is proportionally small, cadets are usually charged slightly more than the actual cost of board, and the overcharge is placed to the credit of the mess fund. Again, when the corps is small and the cost of board proportionately large, which is usually the case after the January examination and until the arrival of the new cadets in June, the amount usually charged each cadet is slightly less than the actual cost, and the difference is charged against the mess fund. During the year the amount charged varies from the actual cost but slightly, whilst the cadet is charged settlement after settlement about the same price for subsistence, enabling him to calculate closely upon certain proportions of his pay which will be available for other needs. The board of audit having acted upon the return, and having signed their proceedings, which then becomes part of the return, it is submitted to the Superintendent of the Academy for his action. The return having received the approval of the Superintendent, the treasurer settles all accounts by check on the assistant treasurer of the United States, New York, taking a receipt therefor on the face of the voucher showing the purchases. The labor of the department is divided as follows:

(1) All clerical labor appertaining to invoices, vouchers therefor, return, etc., is performed in this office (treasurer's).

(2) The commissary sergeant keeps record of supplies received, expended, and remaining on hand, taking an inventory at end of each month, or oftener if desirable, and has charge of all supplies except the fresh meats, milk, and other supplies which necessarily are kept in the refrigerator.

(3) One chief baker and one assistant bakes all breads, cakes, and pies.

(4) One "chef," with one assistant, one scullion, and one scrubbing girl, prepares and cooks all meats, vegetables, soups, side dishes, in fact, everything except the bread, as above noted, and coffee and tea. He carves all meats in the kitchen before sending them to table, places the same on platters, giving to each platter, when roast beef is served, such proportions of rare or well-done meat as the waiters, who, knowing the wants of their tables, ask for. Such carving diminishes waste since the "chef" properly cares for all odds and ends, bones, etc. He keeps the soup-stock boiler in constant operation, placing therein all suitable bones, scrap meats, unconsumed drippings, etc. He renders all beef kidney fat. The cracklings therefrom are deposited with the soap fat, while the rendered fat is placed in empty butter-tubs and stored for future use in cooking French fried potatoes, and the many other arti-

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cles which require to be fried in beef fat. This rendered beef fat (tallow), being pure, can be used in a great variety of ways in cooking, as a substitute for lard or butter.

The fresh meats are all State killed. Each quarter of beef has a tag attached showing date of killing, etc. Four different brands of flour are used in each batch of bread, and in all bakings. One brand possesses strength, another sweetness, another body, and another color or some other quality different from the other brands. From such a combination the most satisfactory results are obtained. A menu, the result of a consultation betwixt the "chef" and commissary, is made in the afternoon daily, for dinner and supper the following day and for breakfast second morning following. This plan affords the "chef" ample time to make his arrangements ahead and to enable the commissary to vary the menu daily and to keep well informed as to expenditures. Formerly it was considered the correct plan to have a menu prepared which would for an indefinite future inform cadets of the articles of diet at each meal every day of the week, week in and week out. As they always knew before going to the hall what they would have after getting there, their appetites were impaired by such knowledge. Under the present plan they never know previous to entering the hall what they will have, and their appetites are good, not having been killed by the disgust engendered from long foreknowledge of certain and, perhaps, disliked, dishes which they would encounter at specified meals. The commissary has no regular times for making inspections; he is certain to be at the mess at meal times and liable to drop in at any time. Visitors are admitted at all times and into every part of the establishment; their presence is an assistance, inasmuch as it causes the employés to always have the place in perfect order, ready for inspection. Thorough and complete cleanliness in every place, visible and invisible, is insisted upon. Only the best of provisions are purchased. Coffee, which is half Java and half Mocha, is used. The Eureka tea and coffee urns are used in making tea and coffee. These are conveniently located near the hall and are under the especial charge of the head-waiter. When the tea and coffee are ready for the tables, urns holding sufficient of each to supply tables seating ten men each are filled and placed upon the table. In cold weather and when necessary lighted spirit-lamps are placed under the urns on the tables. The crockery used is the white American hotel china, which costs about the same as the best white English earthen or stone ware. The food is served in three courses: First, soup; second, meats and vegetables; third, dessert. All food unconsumed in the hall is carried out and turned over to the "chef," who disposes of it by serving it out to the employés and by placing surplus in refrigerator. The scraps of food which are left on the plates, an inconsiderable quantity, are taken care of by the head-waiter and sold to indigent persons, who gladly seek it daily. No employè has any perquisite outside of his wages and board. Liberal wages are paid to the end that employes will have the interests of the department at heart, and by practicing economy insure the continuance of their position and wages.

Respectfully submitted.

WM. F. SPURGIN,
Captain, Twenty-first Infantry,
Treasurer, Quartermaster, and Commissary of Cadets.

WEST POINT, N. Y., *June* 6, 1887.

EXHIBIT F-B.

Statement exhibiting the work performed at the cadet laundry, West Point, N. Y., during the year ending April 30, 1887.

Month.	Bathing suits.	Bed-spreads.	Belts, shoulder.	Belts, sword.	Belts, waist.	Blankets, single.	Clothes-bags.	Collars.	Cuffs, pairs.	Drawers.	Dusters.	Gloves, pairs.
1886.												
May	1	....	1,379	329	1,385	45	261	7,045	3,377	2,905	1	3,055
June	2	....	1,349	249	1,437	8	300	6,106	2,710	1,866	12	2,728
July	5	....	1,550	284	1,555	.....	977	8,058	3,781	2,275	1	3,788
August	20	3	2,301	368	2,302	26	870	11,205	4,730	2,598	....	5,307
September	16	5	1,888	406	1,893	97	294	8,354	3,536	2,324	2	4,308
October	1	1	1,100	218	1,101	22	580	5,716	2,930	2,204	....	2,642
November	....	2	1,218	266	1,220	8	.....	6,485	3,604	2,574	....	2,867
December	....	2	943	161	746	12	290	5,205	2,816	2,077	....	2,100
1887.												
January	....	1	834	208	836	4	790	6,267	3,411	2,397	....	2,415
February	....	1	654	174	654	2	.....	4,716	2,513	1,900	....	1,613
March	....	....	727	168	728	.....	759	4,890	2,629	1,916	....	1,634
April	1	3	1,004	243	1,005	16	250	5,307	2,776	1,946	1	2,161
Total	46	18	14,947	3,074	14,862	240	5,371	79,354	38,813	26,982	17	34,618

Month.	Handkerchiefs.	Jackets, gray.	Jackets, white.	Pillow-cases.	Shirts, night.	Shirts, under.	Shirts, white.	Socks, pairs.	Towels.	Trousers, gray.	Trousers, white.	Vests.	Sheets.
1886.													
May	5,497	5	677	1,226	479	2,972	934	4,048	5,025	25	3,723	...	1,914
June	3,925	6	185	705	310	1,899	853	2,714	3,228	21	4,157	...	1,224
July	4,562	4	656	684	259	2,413	301	3,309	3,519	13	7,033	...	939
August	4,981	4	1,289	678	276	2,774	351	3,896	4,065	6	9,910	...	892
September	4,837	8	670	1,113	404	2,422	458	3,473	4,431	27	8,495	1	1,716
October	4,197	....	5	1,053	410	2,236	689	3,049	3,899	5	7	..	1,678
November	5,559	....	.....	1,335	525	2,694	941	3,688	4,856	6	4	...	2,222
December	4,616	....	.....	1,056	422	2,141	767	2,842	4,064	....	4	...	1,626
1887.													
January	5,677	2	5	1,261	472	2,443	724	3,253	4,985	3	4	...	1,892
February	4,179	2	2	958	358	1,950	622	2,576	3,875	3	.....	...	1,433
March	4,419	....	1	968	378	1,974	661	2,503	3,957	10	.....	...	1,473
April	4,414	8	.....	999	391	2,076	727	2,788	4,005	8	.....	..	1,502
Total.	56,863	39	3,490	12,036	4,684	27,994	8,028	38,139	49,909	127	33,337	1	18,511

Charges for laundry work.

Articles.	Price.	Articles.	Price.
	Cents.		*Cents.*
Bathing suits	3	Jackets:	
Bed-spreads	10	Gray	10
Belts:		White	4
Shoulder	1	Pillow-cases	3
Sword	1	Shirts:	
Waist	1	Night	2
Blankets, single	10	Under	2
Clothes-bags	3	White	3
Collars	1	Socks, per pair	2
Cuffs, per pair	2	Towels	2
Drawers	1	Trousers:	
Dusters	4	Gray	10
Gloves, per pair	2	White	4
Handkerchiefs	2	Vests	4
		Sheets	3

The capacity of the laundry is ample during the winter. Its capacity is overtaxed during the summer, when white clothing is worn and when two complete washings for the entire corps are turned out twice weekly. I have the honor to request that the extension to the laundry recommended by the Board of Visitors of last year, and which extension met the approval of the Superintendent, and was by him included in the annual estimates, be again recommended by the Board of Visitors for the year 1887, should the same be considered by it necessary. The additional space required is especially needed for the purpose of extending the drying rooms, and by them admitting in stormy weather prompt execution of work, which now in such weather is necessarily retarded.

Respectfully submitted.

WM. F. SPURGIN,
Captain, Twenty-first Infantry,
Treasurer, Quartermaster, and Commissary of Cadets.

WEST POINT, N. Y., *June* 6, 1887.

EXHIBIT F–C.

DESIGNATION OF GRANT HALL.

[Orders No. 88.]

HEADQUARTERS U. S. MILITARY ACADEMY,
West Point, N. Y., June 4, 1887.

[Extract.]

* * * * * * *

IV. The building used for cadet dining hall shall hereafter be known officially as "Grant Hall," in honor of the great graduate of the Academy, whose portrait, a present to West Point and the country from Mr. George W. Childs, sanctifies the hall as a gallery for the portraits of graduates.

* * * * * * *

By command of Brigadier-General Merritt.

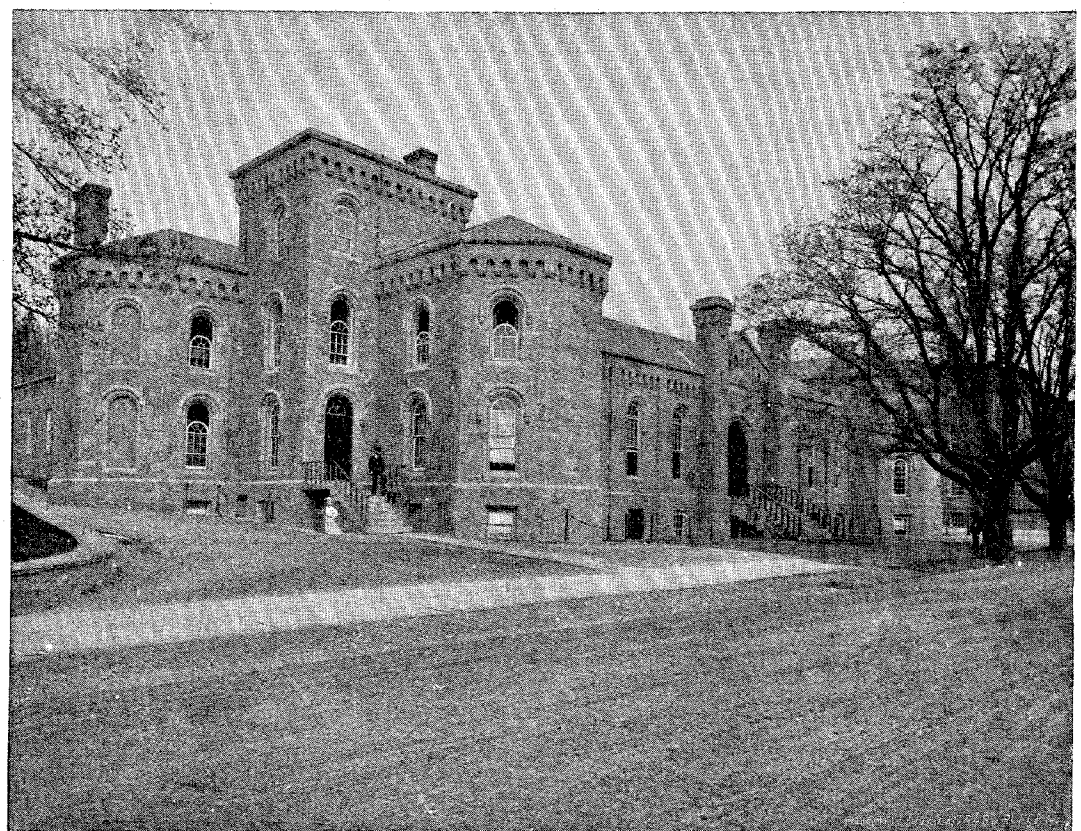
W. C. BROWN,
First Lieutenant, First Cavalry, Adjutant.

EXHIBIT G.

REPORT OF THE COMMITTEE OF THE BOARD OF VISITORS TO THE UNITED STATES MILITARY ACADEMY CHARGED WITH INVESTIGATION AND REPORT UPON ORDNANCE AND ARMAMENT.

The committee on ordnance and armament have not felt quite certain as to the scope of the subjects they were expected to investigate and report upon. So far as they have been able to learn, there is no precedent to guide them. The first committee of a Board of Visitors to West Point "on ordnance and armament," the one appointed by the Board of 1886, does not appear to have made a written report.

Ordnance is defined to be "heavy weapons of warfare, cannons, or great guns, mortars, or howitzers; artillery."



PERSPECTIVE VIEW OF GRANT HALL

Armament, in its broadest signification, means "all arrangements made for defense of a fortification with musketry and artillery."

While the committee believe that they might have confined themselves to an investigation and report as to the amount, character, and condition of the ordnance and the character of the armament at the Academy, they have concluded, with a view of discharging their entire duty, and without desiring to encroach upon the jurisdiction of the other committees of the Board, to consider and report also upon the question of instruction in ordnance, gunnery, and military engineering. They attended the oral examinations of the first class in ordnance and gunnery and in engineering, and witnessed the military exercises which took place during the examinations. The programme for such exercises, announced previous to the examination, was, with slight changes, principally as to time, on account of bad weather, substantially carried out, and is as follows:

Exercise.	Subject.	Date.
		1887.
Infantry	Review	June 2
	School of the battalion	June 4
	Battalion-skirmish drill	June 8
Artillery	Siege-battery drill	June 1
	Mortar-battery drill	June 1
	Light-battery drill	June 3
	Sea-coast-battery drill	June 6
Cavalry	School of the company and battalion	June 7
	School of the soldier mounted	June 10
Practical military engineering	Ponton-bridge building	June 9
	Spar-bridge building	June 10
	Military signaling	
Ordnance	Practice with ballistic machines	
Small-arms	Use of sword and bayonet	
	Military gymnastics	

In the judgment of the committee the exercises were conducted in a manner most creditable to the cadets and their instructors. The several drills were subject to little criticism, if any, and showed that the training of the cadets in the several arms of the service had been careful and thorough.

There appears to be a sufficiency of sabers and revolvers for the instruction of the cadets in cavalry drill, and they are armed with the Springfield cadet rifle, somewhat lighter that the Army regulation weight, and well adapted to infantry drill.

Besides a battery of saluting guns in Battery Knox, not used for instruction, and a number of siege pieces and one sea-coast gun in Fort Clinton, used only in the mechanical maneuvers conducted during the summer encampment, there are used in instruction, as appears from the appended letter of Captain Metcalfe, the following artillery:

Field battery.—Six light 12-pounder guns, foot battery and for saluting; twelve 3-inch W. I. rifles, M. L., for foot battery and for light-battery drill; one 3.20 B. L. rifle, W. L., converted, experimental.

Machine guns.—One Gardner, 2-barrel, caliber 0.45; four Gatling guns caliber 0.45, M. L., 1876, long barrel; one short barrel; one 1883, long barrel, Accles feed; one Hotchkiss revolving cannon, caliber 1.50.

Mountain gun.—One Hotchkiss B. L. rifle, caliber 1.65.

Siege battery.—Three 8-inch mortars; three 10-inch mortars; six 30-pounder Parrott, C. I., M. L. rifles.

Sea-coast batteries.—One 15-inch C. I., S. B. Rodman gun, C. P. carriage, pneumatic buffer; one 15-inch C. I., S. B. Rodman gun, front pintle, hydraulic buffer; one 8-inch rifle, converted, front pintle carriage, hydraulic buffer, cast-iron 10-inch S. B., lined with steel; one 8-inch rifle, converted, iron tube, center pintle carriage, hydraulic buffer; one 8-inch, rifle, converted, iron tube, front pintle carriage, friction recoil check; one 10-inch Rodman, C. I., S. B., C. P. carriage, hydraulic buffer; one 200-pounder Parrott, unserviceable; one 13-inch sea-coast mortar, C. P. carriage.

The above are mounted in the sea-coast battery near the north dock.

The committee considered the question as to what other guns and equipments, if any, were desirable for the purpose of instruction and practice. They believe that the cadets should, as far as possible, be made familiar with the guns and appliances they would be called upon to use in case of actual hostilities, and they recommend the addition to the artillery now at the Academy, as soon as they can be procured, of at least one modern breech-loading, built-up, forged steel rifle, and samples of the other improved guns and ammunition which may be adopted for the Army, and also "samples of the most meritorious recent inventions in small-arms and equipments, both domestic and foreign."

The committee also concur in the recommendation of Captain Metcalfe, which is apparently approved by General Merritt, that there be purchased for the use of the Academy "a set of typical wood and metal working machines to illustrate machine construction."

The course of study at the Academy is especially arranged for instruction in the fundamental principles of the military profession. It embraces the mathematical branches, analytical mechanics, astronomy, sound, light, heat, chemistry, mineralogy, and electrics, and, in a condensed course, the essential principles of ordnance, gunnery, and military engineering. The committee considered the question whether the present course of instruction in ordnance and gunnery, and especially in artillery, is as thorough as practicable, considering the character of the institution and the object for which it was created, and find that with an academic term of four years it is not practicable to give more time to such instruction than is at present allowed.

The committee consider it of the utmost importance that graduates of the Academy should be afforded an opportunity to continue, after graduation, the study of the several branches of the military art, especially those who enter the Artillery and Engineer Corps, which are more directly connected with coast defenses.

There is an urgent necessity for an instructed personnel for coast defenses. The question of coast defenses is the important military question of the hour in the United States, and the construction of an adequate system of defenses for the protection of our great commercial sea-port cities can not be much longer delayed. The danger is too imminent and the risk too great to longer justify the inaction of Congress. A quarter of a century has revolutionized the modes and appliances of offensive and defensive warfare, and made the guns, forts, and war ships of twenty-five years ago comparatively useless; and it is believed by many that there are being perfected inventions which may make the most approved implements of warfare of to-day useless in their turn. Since the close of the war of the rebellion the United States has not kept pace with foreign nations in the matters of a navy and coast defenses. While the great powers of Europe are fortifying their coasts with forts and turrets with the most approved armor, mounting batteries of modern steel rifles, providing themselves with powerful navies of armored ships, carrying the most powerful guns that have yet been made, and providing an instructed personnel to operate them, we have acted as if we supposed the time had arrived, foretold by phrophecy, when the nations shall "beat their swords into plowshares and their spears into pruning hooks." But, as has been said, "Peace is the dream of philosophers, but war is the history of man."

Our 4,000 miles of sea-coast, lined with great commercial cities, which are depots for the agricultural and manufactured products of the country, the centers of great lines of transportation stretching far into the interior and reaching every productive region of the country, containing many thousands of millions of destructible property, are exposed to destruction or to tribute in case of foreign war. A single modern war vessel of one of the most insignificant of the naval powers of the world could take possession of any one of our sea-port cities. We have no fortified harbor into which our vessels, engaged in coastwise and foreign commerce, could retire for safety in case of war. We have not a single modern war ship, and not a fort that could withstand the fire of a modern steel gun.

Such a state of affairs is not creditable to the American people. It is a source of national danger. Our unprotected coasts challenge insult and invite attack. The best way to command respect is to be prepared to punish insult. The surest guaranty of peace is to be prepared for war.

In case of a war between the United States and a foreign nation, whether before or after we shall have provided ourselves with modern appliances for defense, the great and decisive battles would undoubtedly be fought between the modern-armored war ships of the enemy and our sea-coast batteries, fixed or movable, with the accessories of torpedoes, torpedo boats, and other and perhaps new means of defense. In

such a contest the infantry and cavalry would be spectators, and the result of the contest would be decided by the effective power of our sea-coast batteries and auxiliary defenses, supplemented by the experience and skill of the officers and men who operated them.

An instructed personnel for sea-coast defense appears to the committee, therefore, to be of the utmost importance and to be constantly increasing in importance with the advent of new inventions of improved implements of warfare. This subject was admirably presented in a paper by Professor Michie, of the Academic Board, published in the Journal of the Military Service Institute of the United States for March, 1887. Every thoughtful reader of that article must be impressed with the idea that guns, forts, and ships—the material means of defense—are not alone sufficient for coast defense, but an instructed corps of intelligent officers and men is quite as important.

The committee have considered the question whether such instruction can be profitably secured at the Academy by an extension of the academic term, and have come to the conclusion that it can not; that it can be better and more economically secured by a school of instruction to which the graduates of the Academy who enter the engineer and artillery corps can be sent immediately after graduation—a school at which the study of theories shall be combined with practice with modern appliances, and at which more freedom of discussion, comparison of ideas, and familiarity with business methods may be had than is possible during the academic course—a school at which the course of instruction shall not embrace that already received at the Academy, but for which the academic course shall be a necessary preparatory course.

The several members of the committee, by personal interviews with the Superintendent of the Academy and members of the academic and military staffs, obtained much valuable information. On the 7th instant they addressed to General Merritt a communication, of which a copy is hereto attached, marked G–A; in answer to which Genl. Merritt transmitted to the committee a communication from Captain Metcalfe, instructor in ordnance and gunnery at the Academy, with his indorsement thereon, which is hereto attached, marked G–B. At the request of the committee Professor Michie briefly communicated to them in writing his views as to the best means of securing professional improvement to the graduates of the Academy, after graduation, in the several branches of the military art, and his communication is hereto attached, marked G–C.

All of which is respectfully submitted.

J. N. DOLPH,
BEN. BUTTERWORTH,
CHAS. M. ANDERSON,
Committee.

EXHIBIT G–A.

CORRESPONDENCE WITH GENERAL MERRITT.

ROOMS OF THE BOARD OF VISITORS,
West Point, N. Y., June 7, 1887.

MY DEAR GENERAL: One of the committees of the Board of Visitors is "on ordnance and armament," and is composed of Hon. Benjamin Butterworth, Hon. Charles M. Anderson, and myself. To enable the committee to prepare its report, it would like to receive the information, suggestions, and recommendations called for under the following head:

(1) What is the character and extent of the instruction in ordnance and armament at the Academy?

(2) What arms are used in such instruction?

(3) Is the course of instruction as comprehensive as is consistent with the character of the institution? If not, what do you recommend in that regard?

(4) Is it desirable to have, for the purpose of instruction, other or additional arms or equipments? And if so, what do you recommend?

(5) If further instruction in ordnance and armament is desirable, can it be profitably provided at the Academy by an extension of the academic term, or should it be provided by a separate school of instruction?

(6) What do you recommend as the best means of securing an adequate course of instruction in artillery practice?

(7) Are the grounds of the Academy sufficient for drill with batteries of modern guns?

The committee will be pleased to receive any further suggestions and recommendations upon the subject referred to that you are pleased to make, and, if agreeable to you, the committee would be glad to have the personal views of Captain Metcalfe upon the subjects embraced in the fourth, fifth, sixth, and seventh questions.

Very respectfully yours,

J. N. DOLPH,
Chairman Committee on Ordnance and Armament.

General WESLEY MERRITT,
Superintendent U. S. Military Academy.

EXHIBIT G–B.

STATEMENT SHOWING CHARACTER AND EXTENT OF INSTRUCTION IN ORDNANCE AND ARMAMENT, CHARACTER OF ARMS USED AT THE ACADEMY, ETC.

WEST POINT, N. Y., *June* 10, 1887.

SIR: I have the honor to submit the following report in reply to the questions contained in a letter from the Hon. J. N. Dolph, chairman committee on ordnance and armament, Board of Visitors. (No. 662, series 1887, H. Q. U. S. M. A.)

Question 1. What is the character and extent of the instruction in ordnance and armament at the Academy?

Answer. As far as the department of ordnance and gunnery is concerned, the instruction is from books throughout the academic year, except during the month of April, when it consists of field experiments devoted principally to verifying previous computations, and to observing the effects of the fire of field cannon and machine guns upon troops and earthworks, separately and in combination.

The extent of the instruction is as follows:

The class is divided into halves, which recite for one hour, between 2 and 4 p. m., every other week day, Saturdays excepted, except during the month of April, when the entire afternoon, from 3 to 5.15, is devoted to practical ordnance and practical military engineering in such proportions as are agreed upon by the respective instructors.

The elements of the course are as follows:

The ingredients of gunpowder, its manufacture, inspection, proof, and properties, particularly of modern large-grain powder. The high explosives, viz, guncotton, nitro-glycerine, dynamite, explosive gelatine, and the fulminates are similarly treated and compared.

Projectiles, their classification; the objects of the rifle motion, and illustrative examples from different countries; the fabrication and inspection of projectiles.

Rockets, their structure, principles, and use.

Artillery, its history. The cannon metals, their preparation and properties; furnaces of different kinds described; the use of testing machines; the laws connecting internal pressures and resistances of hollow cylinders and the means of equalizing the strains resulting from the explosion of gunpowder within them. The work of fired gunpowder, and the means employed to calculate the power of guns in advance of their construction. The interior form of cannon, as to caliber, length of bore, chambering, rifling, venting, windage, etc.

In connection with this part of the course a visit is made to the West Point foundry at Cold Spring, and one of the Thurston torsional testing machines for metals recently purchased, is operated by the cadets.

Artillery carriages, harness, etc. The functions and construction of the wheel, and of various carriages, wagons, caissons, forges, etc., used in the field, siege, and sea-coast services. Also, artillery machines and implements.

Timber used in construction. The various kinds, their properties and uses.

Cannon of the field, mountain, siege, and sea-coast services, described as to manufacture and characteristics. Also, prominent examples taken from the principal foreign services.

Pyrotechny, including the preparation and packing of ammunition for the military service. The construction and properties of fuses and primers of various kinds.

The union of the gun and ammunition is treated of in gunnery, which discusses the motion of projectiles and their effects.

Ballistics treats of the motion of projectiles. It requires as a fundamental datum the velocity of the projectile at the muzzle of the piece. The means for determining this by calculation are explained, and also those for its direct measurement by ballistic machines. These are operated in the section room and eventually on the firing ground in verifying problems solved in the theoretical course, as above described.

The class takes notes of these experiments and is required to state its own conclusions; the free discussion of results being particularly sought, under the idea that more can be learned from the study of failures than from the mere acceptance of success. Special pains are taken to save unnecessary clerical and arithmetical work, so as to afford them all the time possible for reflection and comparison.

The theoretical course in ballistics relates to determining the equations of the trajectory *in vacuo* and in air; the latter as interpreted by Bashforth and Nivens, with

an account of the former's experiments. Many practical problems in gunnery are given out as part of this course. For example: Having a given projectile with a given muzzle velocity and elevation, let it be required to find—

(1) The range.

(2) The velocity at the end of the range, or the striking velocity as against armor.

(3) The maximum height of the trajectory.

(4) The angle of fall or arrival.

(5) The time of flight for the whole range or to any intermediate point.

(6) The dangerous space for a target of a given height or the permissible error in estimating distance.

Or, having given the projectile and the muzzle velocity due to a certain charge of powder, to determine the angle of elevation under which the piece must be fired to reach a given range.

These are a few of many possible problems.

These discussions suppose a perfect projectile in a perfect gun. To make their deductions accord with practice we next study the nature and causes of the deviation of projectiles, both spherical and oblong.

This leads us to the pointing of fire-arms and to a discussion of sights.

The next step leads to the fire itself, by a classification of artillery fires of different kinds, according to the direction of the fire and the kinds of projectile used.

So far we have kept at the gun's end of the trajectory. As a proper preface to the effects of fire, we now study the material and manufacture of armor; chilled cast iron; wrought iron; compound, and steel; paying particular attention to the behavior of the different kinds under impact. Penetration is discussed under the principal hypotheses now prevailing; also the effect on penetration of recent improvements in projectiles.

The subject of the effects of fire fittingly concludes the subject of artillery. It treats of the fire from field artillery, from siege artillery, both in the attack and defense, and explores the armament and fire of sea-coast defenses with the relations existing between them and the passive obstructions offered by torpedoes.

As the chances of hitting depend so much upon knowing the distance of the object fired at, the subject of range-finders is studed both practically and theoretically.

In the matter of hand-arms we begin by discussing those used for cutting and thrusting, and take the manufacture of swords, sabers, etc.

In fire-arms we make an analysis of the different systems of breech-loading arms, based upon their special mechanical features, and discuss, also, the functions and requisites of the parts common to all fire-arms. This is supplemented by the practical analysis of samples of fire-arms taken from the museum, in which their weak and strong points are brought out in an essay read at the conclusion of the daily recitation. I consider this to be one of the most important features of the course, for it is largely upon the verdict of these young officers that our choice of a magazine arm will eventually depend.

A short discussion is given to the manufacture of fire-arms and metallic ammunition.

Question 2. What arms are used in such instruction?

Answer. *Field battery.*—Six light 12-pounder guns, foot battery and for saluting; twelve 3-inch W. I. rifles, M. L., for foot battery and for light-battery drill; one 3.20 B. L. rifle, W. I., converted, experimental.

Machine guns.—One Gardner, 2 barrel, caliber 0.45; four Gatling guns, caliber 0.45 M. L., 1876, long barrel; one short barrel; one 1883, long barrel, Accles feed; one Hotchkiss revolving cannon, caliber 1.50.

Mountain gun.—One Hotchkiss B. L. rifle, caliber 1.65.

Siege battery.—Three 8-inch mortars; three 10-inch mortars; six 30-pounder Parrott C. I., M. L. rifles.

Sea-coast batteries.—One 15-inch C. I., S. B. Rodman gun, C. P. carriage, pneumatic buffer; one 15-inch C. I., S. B. Rodman gun, front pintle, hydraulic buffer; one 8-inch, rifle, converted, front pintle carriage, hydraulic buffer, cast-iron 10-inch, S. B., lined with steel; one 8-inch rifle, converted, iron tube, center pintle carriage, hydraulic buffer; one 8-inch rifle, converted, iron tube, front pintle carriage, friction recoil check; one 10-inch Rodman, C. I., S. B., C. P. carriage, hydraulic buffer; one 200-pounder Parrot, unserviceable; one 13-inch sea-coast mortar, C. P. carriage.

The above are mounted in the sea-coast battery near the North Dock. There is also a battery of saluting guns in Battery Knox, which can hardly be said to be used for the instruction of cadets, and a number of siege pieces and one sea-coast gun in Fort Clinton, used during the mechanical maneuvres conducted during the summer encampment.

The cadets are also individually armed with the Springfield cadet rifle, and have a sufficiency of sabers and revolvers for their instruction in cavalry drill.

Question 3. Is the course of instruction as comprehensive as is consistent with the character of the institution? If not, what do you recommend in that regard?

Answer. The course is comprehensive in plan, but much of it is out of date, and details receive disproportionate attention. Portions of it repeat matter already taught.

It should aim first to apply the principles taught in preceding courses of mechanics and chemistry, and in treating of new matter should be comparative rather than merely descriptive. It cannot make specialists, but in time it may establish a body of valuable principles which specialists may apply to special cases. It should treat more analytically than is now done the main subjects of the present day, viz., gunpowder, cannon construction, and that of carriages, and should give more attention to the subject of magazine rifles and the equipment of the soldier.

I believe that the course could be improved by the study of the principles of machine construction, since these embrace in their highest development many of the principles governing the construction and operation of the complicated engines used in modern war. We are greatly indebted to the mechanics of this country for recent progress in arms, and I believe that even an elementary knowledge of their methods could with great ultimate advantage to the country be united to the more strictly professional topics required by the soldier. Aside from this, and as a matter of general education for life in a pre-eminently mechanical country, I consider some knowledge of machine tools and appliances to be a necessary addition to our course.

The term *ordnance* has, in my opinion, too restricted an application when confined to artillery. It should also, within necessary limits, include the principles involved in the design of all material of war which is by *ordinance* or regulation supplied to the arms of the service to which the greater part of the graduates are assigned.

Question 4. Is it desirable to have, for the purpose of instruction, other or additional arms or equipments; and, if so, what do you recommend?

Answer. The Chief of Ordnance will undoubtedly supply as rapidly as they can be procured samples of the new cannon, carriages, and ammunition now under consideration.

We should also have samples of the most meritorious recent inventions in small-arms and equipments, both domestic and foreign.

But particularly, a set of typical wood and metal working machines to illustrate the principles referred to in answer 3. I have soldiers competent to operate them for the cadets, many of whom, I believe, will take their own time to familiarize themselves with the machines. This impression is derived from the number who have utilized in their recreation hours the permission by the Superintendent to study the present imperfect collection of arms in the ordnance museum.

This machinery should be procured before the new museum is occupied, or space should be left for it.

Question 5. If further instruction in ordnance and armament is desirable, can it be profitably provided at the Academy by an extension of (the) academic term, or should it be provided by a separate school of instruction?

Answer. I believe that the present time allowed for ordnance and gunnery will suffice if properly employed.

Question 6. What do you recommend as the best means of securing an adequate course of instruction in artillery practice?

Answer. For this Academy such theoretical instruction as is outlined above and in Answer 1, combined with the practical instruction therein referred to and supplemented by that given by the tactical department.

Question 7. Are the grounds of (the) Academy sufficient for drill with batteries of modern guns?

Answer. Not for firing drill, for which this country is not suited.

GENERAL REMARKS.

I would respectfully indicate the advantages which would follow the permanent appointment of the instructor of ordnance and gunnery. The subject has increased very much in its importance since the office was established in 1857, and now four years is hardly enough to prepare and test such a course as is required. Few would willingly undertake the course on the slight contingency of remaining to complete it as it should be. There are no text books from which such a course could be taken; its principal sources are the extended Government reports and the more or less biased articles in the scientific journals. All this should be winnowed and the best condensed and combined into a suitable form for instruction of a homogeneous character, by a process full of difficulty, and, from its tentative nature, prone to error.

A permanent professor could in time work out a consistent scheme, borrowing its illustrations from the phases of the time. But a new man, whose duties have been special in his previous service, needs at least a year to become familiar with what already exists, and by the time he becomes capable of improving it his time has come to go. This disperses the responsibility for the condition of the course.

Very respectfully, your obedient servant,

HENRY METCALFE,
Captain of Ordnance, Instructor of Ordnance and Gunnery.

The ADJUTANT U. S. MILITARY ACADEMY,
Present.

[Indorsement.]

HDQRS. U. S. MILITARY ACADEMY,
West Point, N. Y., June 15, 1887.

Respectfully forwarded to Senator J. N. Dolph, Washington, D. C.

The within is so full that there is nothing to add which my time will permit now.

I dissent from the recommendation for more permanency for the instructor of ordnance and gunnery at the Academy.

The best talent and most competent ability for instruction in this live subject must be infused into the Academy fresh from the Army about every four years.

W. MERRITT,
Brig. Gen. and Bvt. Maj. Gen., U. S. Army, Superintendent.

EXHIBIT G-C.

OPINIONS OF PROFESSOR MICHIE ON THE CHARACTER AND SCOPE OF INSTRUCTION AT THE MILITARY ACADEMY.

WEST POINT, N. Y., *June* 7, 1887.

SIR: In compliance with your request to give you my individual opinion as to the character and scope of the instruction given at the Military Academy relating to the question of sea-coast defense, I have the honor to say:

(1) The course is specially arranged for instruction in the fundamental principles of the military profession. Of necessity, therefore, scientific studies occupy a prominent position. These subjects, and their relative apportionment of time, have constantly received the most earnest attention of the Academic Board, and the present curriculum is the result of its best judgment.

(2) These studies embrace the mathematical branches, analytical mechanics, astronomy, sound, light, heat, chemistry, mineralogy, and electrics. Following these the essential principles of ordnance gunnery and military engineering are given in condensed though thorough courses.

As long as the attainments for admission to West Point now required by law remain unchanged, it is absolutely impossible, in my opinion, to do more in the direction of professional training than is now accomplished. I am firmly convinced that the scientific instruction now given, though limited for the reason given, is thorough as far as it goes, and is fundamental, and on the whole it is sufficiently comprehensive to fit our graduates for any duties they may be required to perform in the Army. But though our graduates may be regarded as equipped for the learning of their profession, they are by no means experts in any of the branches of the military art. Hence their professional improvement must be provided for in the Army and under its direction.

(3) The practical schools of application, viz., that for the engineers at Willets Point, for the artillerists at Fort Monroe, and for the cavalry and infantry at Leavenworth, are designed to carry on the professional instruction of the junior officers of the Army. It would seem that these schools would subserve the end of their establishment in the best manner should their courses of theoretical and practical instruction commence where that at the Military Academy ends. They should be equipped with the best modern appliances, and have in their administration the ablest officers in the several courses to be found in the service. When these schools are brought to this high and proper standard, I am certain that those graduates of the Academy who are favored by their instruction will acquire that skill in their profession which is now demanded by the exactions of modern sea-coast defense. Briefly, then, it is my opinion that the Academy can do no more than it now is doing for its pupils, but that the Army can do a great deal more than it has done in the past; and that the proper field of investigation for increased knowledge, skill, and enthusiasm for the military profession is the Army itself and its practice schools.

Very respectfully, your obedient servant,

PETER S. MICHIE,
Professor of Philosophy.

Hon. JOSEPH N. DOLPH,
United States Senator and Committee of the Board of Visitors.

EXHIBIT H.

REPORT OF THE COMMITTEE ON ADMISSIONS, APPOINTMENTS, AND MISCELLANEOUS MATTERS.

The BOARD OF VISITORS:

Your committee on admissions, appointments, and miscellaneous matters begs respectfully to report as follows:

The academic buildings are constructed with a view to the accommodation of the maximum number of cadets as contemplated by the law regarding their appointment. The assignment of professors and instructors is made in the same view. Appropriations by Congress for the maintenance of the Academy are based upon the supposition that the authorized number of cadets will be in attendance. This number is 344. Nevertheless, through various causes—failure to report for examination and failure to meet the requirements of that ordeal being the most conspicuous—the regular attendance is always below the maximum. The average of attendance is at times as low as 275, and is rarely in excess of 300. The situation as regards attendance of cadets when the class for this year was graduated may be instanced. The vacancies numbered 154. The reported appointments are 144. Of these probably 40 will fail to attain the not unreasonable standard of admission. Additional vacancies will occur through the ordinary casualties which, during the four years of instruction, greatly reduce the number of a class.

It is desirable that the full number of cadets shall be instructed, and to maintain, or closely to approximate, the maximum it is clear that additional appointments may be made without danger of taxing the Academy beyond its present capacity. In this view your committee renews 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 ten cadets annually. Of these it is respectfully suggested that where otherwise qualified the sons of officers of the Army killed in battle are worthy of the first consideration. Whether further enlargement of the power of cadet appointment shall be made by vesting Senators of the United States with authority to name a candidate once in four years is so entirely a matter personal to Congressmen that, though your committee may think it proper and desirable, its suggestion is merely tentative.

Assuming action upon the part of the President and every member of Congress, the number of appointments under the proposed enlargement of power would be increased, but, practically, the present authorized maximum of attendance upon the Academy would not be exceeded.

If, as does not now seem probable, a demand should arise for decided increase in facilities for such education by the United States as is given at West Point, the propriety of duplicating the Academy at some point within the Mississippi Valley will no doubt occur to Congress.

An impression seems to obtain in some parts of the country that the examination for admission to the Academy is too difficult. The publication in recent reports of successive Boards of Visitors of the examination papers, with some of the defective answers, should convince any American citizen that the standard is by no means too high for our country. If there are any States or Territories that provide no such preparation for young men of seventeen and eighteen, it is a cause for their bettering themselves in the great interest of education, and not for lowering the standard at West Point. It is also suggested that the examples of many prominent colleges might be followed in dividing the admission examination between two years, allowing the candidate to present himself on a part of the requirements and to complete his examination next year. It is found in practice that this greatly relieves the strain and anxiety of examination, and results in admitting larger numbers.

MARTIN J. RUSSELL,
JOSEPH WHEELER,
WM. EVERETT,
JOSEPH N. DOLPH,
CHAS. M. ANDERSON,
Committee.

EXHIBIT I.

REPORT OF THE COMMITTEE ON BUILDINGS AND GROUNDS.

WEST POINT, N. Y., *June*, 1887.

SIR: Your committee on buildings and grounds have, in the discharge of the duty assigned them, made needful inquiry to ascertain what improvements in matter of new structures and betterments are necessary to insure proper comfort and conveniences to officers and men on duty here. We found the buildings, with the exceptions hereinafter noted, in good repair and suitably adapted for the uses for which they were erected. The old frame buildings under the hill, near the river, used for quarters for enlisted married men, are dilapidated, and are, in fact, falling to pieces through decay. They are alike unseemly and uncomfortable. Part of them will be replaced, or rather others built in their stead during the coming year, an appropriation having been made by the last Congress for that purpose. The others should be replaced with proper brick or stone buildings as speedily as practicable.

It is submitted that there is no true practical economy in erecting for quarters for enlisted men who are married buildings which are so small and cramped as not to afford adequate light and air and room for ordinary comforts.

The new quarters recently constructed cost less than $1,000 each. They are too small. The addition of a few hundred dollars to the cost of each would have made them ample in size and comfortable in arrangement; and as these are permanent structures—built to endure—it is recommended that those that are to be built hereafter contain more room and better facilities for light and air. Either married men should not be enlisted and no attempt made to provide quarters for families, or suitable and adequate provision should be made. What is done should be well done.

The store-houses are not sufficiently ample to contain the property of the post. Much inconvenience results from having to place quartermaster's stores in the attics of soldiers' quarters, while some property is necessarily left exposed to the weather. While no recommendation is now made that a building be immediately constructed, it is suggested that the commandant of the post submit a plan and estimate of the cost of a suitable building sufficient to afford ample room for supplying any deficiency in the matter of storing public property at this post.

Attention was called to the condition of the water supply, with suggestion that it is inadequate. We are of opinion that with only ordinary care, the supply of water is ample, and we see no need of enlarging the source of supply or making any immediate change or addition to the works.

The laundry is too small; and while it is made to do, we submit that the building should be enlarged by an extension on the north end 35 feet in length, of the same height of present building. A plan and estimate is herewith submitted.

Our attention was called to the inadequacy of the coal-houses. The quartermaster is unable to put the usual supply of coal under roof. While this is so, in view of the probability that some other system of heating may be adopted which will require less coal and the further fact that the increase of room for storing coal is rather a convenience than a necessity, we do not recommend any increase.

Our attention has been called to the necessity for a night-closet in or near the cadet quarters. In view of the exposure to which the members of the corps may be exposed in case of sickness while in quarters, we recommend that a suitable closet be provided, and a plan and estimate are submitted.

The gas works need overhauling in some particulars. One of the gasometers is worthless, and must, if the present system of lighting is maintained, be replaced.

In connection with lighting it has been submitted to us that a better and more economical system would be to establish a plant for electric lights. A plan and estimates are submitted. It is recommended by the Superintendent, General Merritt, who is certainly cautious and economical in expending the public money.

Your committee, after inquiry and consideration of the subject, concur in the recommendation of the Superintendent that an appropriation

of $10,000 be asked for establishing a plant for lighting the post buildings and grounds by electricity.

Your committee have had constantly forced upon their attention the necessity for a telephone system at the post. We have considered the objections to the adoption of the system here, which are, that there are orderlies and soldiers on hand to carry orders, summon parties whose presence is required, call carriages, etc., and do not deem them sufficient. It is impossible to see why the use of the telephone at the post would militate against the efficacy of the school in any behalf, and the members of the Board can attest the fact that much time and effort is wasted and inconvenience suffered waiting to have a request complied with or order executed which would require but a moment if the telephone was used, but which now requires an hour, with no corresponding advantages. We recommend that certain lines of telephonic communication between leading points at the post be established.

A question has been presented touching the proper site for quarters for the enlisted men having charge of the cavalry and artillery horses. At present some of these men are provided with quarters nearly a mile from the stables. This is inconvenient, and your committee think needlessly so. We are of opinion that suitable quarters can be erected near the site of the stables; and it is submitted that at least a part of the buildings about to be erected for quarters should be located on ground adjacent to the stable site.

It is observed that no proper walks and retiring rooms are provided for strangers visiting the post. It is recommended that this want be provided for, and an appropriation asked therefor.

It is proper to say that the most commendable care is taken of the public buildings and grounds, and your committee commend the management of the Superintendent and other officers in charge in the administration of their duties as appertaining to the buildings and grounds.

We do not feel called upon to make other or further recommendations.

BEN. BUTTERWORTH.
FRANCIS M. COCKRELL.
MARTIN J. RUSSELL.

Hon. GEORGE W. CHILDS,
President Board of Visitors.

EXHIBIT I–A.

MEMORANDA RELATING TO GAS AND ELECTRIC LIGHTING.

The present gas works were established about the year 1856. Appropriations were made for the improvement of the gas works as follows:

July 1, 1866	$6,000.00
July 1, 1867	20,000.00
Total	26,000.00

Of this there was expended:

Fourth quarter, 1868	$695.43
First quarter, 1869	164.96
Covered into the United States Treasury	25,139.61
Total	26,000.00
Appropriated for fiscal year ending June 30, 1883	5,000.00
Expended January 1, 1884, for holder, $3,000; balance ordinary repairs, including new purifier, etc	4,999.90
Covered into the Treasury	.10
Total	5,000.00

Annual appropriation for support of gas works for the ensuing, current, and for several years past, $3,500. This appropriation is used almost exclusively for the purchase of gas coal. An annual appropriation of $900 is made for retorts and the other necessary repairs.

The cost of an electric plant is estimated at about $10,000, the cost of maintaining which when placed would be immaterial, as the present steam-heating plant would in its present state supply all the power, and the engineer could with his asistants attend to it in addition to his present duties.

Itemized statement of cost of electric-light plant.

One 80-horse-power engine	$1,600.00
Foundation for same	150.00
Dynamo foundation	30.00
Belt for dynamo	75.00
Setting and handling	60.00
Running 10 days for instruction	40.00
Piping	175.00
Incidentals	25.00
Condenser	350.00
Piping for condenser	100.00
	2,605.00
10 per cent. to be added	260.50
	2,865.50
300-light dynamo, with lamps, sockets, regulator, indicator, and base frame	2,067.00
Wiring for 311 lamps	1,446.00
Fixtures for 311 lamps	311.00
Alteration of building containing steam-heating plant	1,675.92
	8,665.42
Add 10 per cent for contingencies	866.54
Total	9,531.96

EXHIBIT I-B.

STATEMENT SHOWING OPERATIONS AND CONDITION OF GAS WORKS.

UNITED STATES MILITARY ACADEMY,
QUARTERMASTER'S OFFICE,
West Point, N. Y., June 9, 1887.

SIR: In compliance with verbal instructions from the Superintendent, I beg to submit the following relating to the gas works and the care and preservation of the public grounds, roads, and paths on the reservation.

Gas works.—1,981 feet 6-inch, 3,826 feet 4-inch, and 1,680 feet 3-inch cast-iron pipe mains.

Kind of works.—Coal gas, with a capacity of 20,000 cubic feet of gas per day.

Pressure, 2 feet 5 inches. Illuminating power, about 17 candles. No appliances for determining the amount supplied.

Amount of coal used during the fiscal year ending June 30, 1886, 854 tons of Westmoreland gas goal, at a cost of $4.10 per ton of 2,240 pounds; 48 tons Cannelton coal at $11 per ton of 2,240 pounds.

Mode of purifying.—Glens Falls Jointa lime.

Amount of lime used, 168 barrels, at $1.12½ per barrel.

Number of street lamps, 48, which includes lamps in camp, which are used only during the summer encampment.

The improvements required for good service and economy: A new gas-holder of same capacity as present one, and a station meter. In fact the present works are strained to their utmost capacity, and should any accident happen to the only holder we would be without gas until repairs could be made.

Consumed, when running full: 35,000 cubic feet one night.

GOVERNMENT LAND.

The land owned by the United States and reserved for public use at West Point, N. Y., consists of 2,200 acres.

There are 12½ miles of roads and 4½ miles paths. These are kept in repair by labor of enlisted men; the material for same (gravel) being obtained by them on the reservation.

I beg also to inclose a list of the men who, under my direction, were employed yesterday, the 8th instant, showing the duty each man performed.

Very respectfully, your obedient servant,

C. H. ROCKWELL,
Captain, Fifth Cavalry, Quartermaster M. A.

The ADJUTANT.

List of men by name, and how employed on the 8th day of June 1887.

[Non-commissioned officers: Sergeants, 7; corporals, 5.]

No.	Name and rank.	How employed.
	Sergeants.	
1	William Hall	Overseer.
2	Patrick Malone	Do.
3	William Naughton	Janitor academic building.
4	Jeremiah Dinan	Painter in charge.
5	Hubert Kimenau	Overseer.
6	Frank P. Bailey	Carpenter; in charge of mechanics.
7	Edward Mahedy	In charge of ice party and laborers.

List of men by name, and how employed on the 8th day of June, 1887—Continued.

No.	Name and rank.	How employed.
	Corporals.	
1	Michael Farrell	Mason; repairing walls of foundation of Mr. Denton's quarters.
2	John Herrick	Plumber; cadet mess-hall.
3	Michael Gilfeather	In charge of prisoners at cemetery.
4	Francis Moore	Policeman.
5	Daniel Hogan	Do.
	Privates.	
1	Allen	Clerk in adjutant's office; daily duty.
2	Archambault	Laborer; mowing.
3	Becker	Painter; painting at cemetery.
4	Bommer	Teamster; repairing stables.
5	Bosch	Blacksmith; working in shop.
6	Branigan	Janitor; headquarters building.
7	Brennan	Laborer; moving chairs and tables, etc., academic building.
8	Brownley	Teamster; plowing company gardens.
9	Burns, James	Laborer; in charge of cemetery.
10	Burns, William	Laborer; in cemetery.
11	Campbell	Laborer; in gas-house.
12	Carroll	Laborer; policing plain roads, and paths.
13	Cashman, James	Teamster; police cart.
14	Cashman, Michael	Teamster; in company garden.
15	Cashman, Patrick	Teamster; coal and wood delivery cart.
16	Coady, John	Nurse; soldier's hospital.
17	Coady, Patrick	Cook's police.
18	Coffee, James	Laborer; filter-bed of water house.
19	Coffee Michael	Teamster; jobbing cart, hauling materials for mechanics.
20	Cox, James	Teamster; commissary delivery wagon.
21	Cox, John	Teamster; hauling clay for repair of stables.
22	Crawford	Laborer; on ditch for plumbing.
23	Curtis	Painter; fences and jobbing.
24	Dietrich	Carpenter; public quarters.
25	Doyle	Assistant janitor of library.
26	Dutcher	Cavalry stables
27	Dutoit	Gas-house.
28	Denyre	Assistant janitor; headquarters building.
29	Enright	Tinner; repairing leaders on officer's quarters.
30	Farrell	Wheelwright; in shops.
31	Finnen	Assistant janitor; in academic building.
32	Freis	Janitor and assistant librarian.
33	Fritsch	Carpenter; at Lieutenant Landis's quarters.
34	Godfrey	Clerk; quartermaster's department.
35	Graber	Teamster; fire-engine.
36	Hager	Carpenter; band stand for cadet hops.
37	Hayden, James	Laborer; cleaning filter-bed.
38	Hayden, Michael	Do.
39	Herrick	Night-watchman, public buildings, and store-houses.
40	Hickey	Gas-house.
41	Johnson	Subsistence department.
42	Jones, Hugh	Cook; cadets' hospital.
43	Jones, William	Laborer; helper to mason.
44	Joyce	Carpenter; repairing cadet camp-lockers.
45	Kelly	Laborer; at Round Pond reservoir.
46	Kenny	Laborer; company garden.
47	Kimmenau	Teamster; hauling manure and camp stools.
48	Kleitz	Laborer; ice wagon.
49	Kreig	Nurse cadet; hospital.
50	Kuhn	Gas-house.
51	Kunath	Saddler; in shop.
52	Lake	Teamster; hauling packages from dock.
53	Langan	Laborer; walks, roads, and paths.
54	Lee	Carpenter; in shop.
55	Lehrer	Assistant cook.
56	Lewis	Bugler cadet; barracks.
57	Lohman	Watchman; water-house.
58	Macklin	Laborer; filter-bed.
59	Mahan, Bernard	Stable police.
60	Mahan, Patrick	Laborer; academic building.
61	Marcy	Draughtsman; department of engineering.
62	McGilton	Cook for artillery detachment.
63	McGrath	Teamster; moving slates, etc., academic building.
64	Miller	Printer; at headquarters.
65	Monaghan	Teamster; hauling gravel on roads.
66	Moran	Laborer; spreading gravel on roads.
67	Naughton	Laborer; academic building.
68	Nold	Laborer; on road back of cadet commissary.

List of men by name, and how employed on the 8th day of June, 1887—Continued.

No.	Name and rank.	How employed.
69	Noonan	Laborer; public grounds.
70	Oberle	Blacksmith; in shop.
71	Odell	Wheelright, carpenter; in shop.
72	O'Flynn	School teacher.
73	O'Hare	Plumber; camp water-wagon.
74	O'Laughlin	Guard; south dock.
75	O'Neill	Do.
76	Pfister	Carpenter; woodsheds at band barracks.
77	Post	Teamster; repairing stalls of stable.
78	Pyles	Mowing grass.
79	Quicke	Janitor at observatory.
80	Reidy	Room orderly, and in charge of soldier's chapel and fire-alarm gong.
81	Raakstool	Teamster; garbage cart.
82	Ryan	Painter; at cemetery.
83	Reilly	Laborer; roads and paths, cutting weeds.
84	Schanhard	Laborer in quartermaster's stables.
85	Schlichter	Laborer; chemical department.
86	Schmidt	Teamster; police cart; garbage.
87	Schoepf	Laborer in gravel bank.
88	Schreiber	Post baker.
89	Seiber	Blacksmith; in shop.
90	Shelley	Laborer; mowing grass in cemetery.
91	Smith	Laborer; quartermaster's store-houses.
92	Smyth	Teamster; hauling clay.
93	Treacy, Daniel	Carpenter; camp equipments.
94	Treacy, Thomas	School teacher.
95	Wehnert	Carpenter; on public buildings.
96	Winklemann	Laborer; philosophical department.
97	Wise, John	Gas house.
98	Wise, Matthew	Teamster; ice wagon.
99	Wunderlick	Carpenter; jobbing in shop.
100	Kurbad	Laborer; on roads and paths.

Respectfully submitted.

C. H. ROCKWELL,
Captain, Fifth Cavalry, Acting Assistant Quartermaster.

Memoranda for estimate, buildings and grounds.

Repairing roads and paths, including roads and bridges on reservation, and for material for macadamizing the roads $3,500.00

For the erection of shed for storage of coal 6,150.00

NOTE.—There is insufficient storage for coal. It now has to be piled out of doors, exposed to snow and rain during a great part of the year; it becomes wet, freezes, and causes more or less loss.

Engine house 4,500.00

Additions to cadet laundry 5,000.00

The capacity of laundry is insufficient for the increased number of cadets. The appropriation should be made immediately available.

For plant and fixtures for lighting the cadet barracks and academic building with the Edison electric light, viz: One 80-horse-power engine and foundation for same; one 300-light dynamo with foundation, condenser, regulator, indicator, piping, fixtures, wire, and lamps for same; for the necessary alterations and addition to the present boiler house for properly placing the engine and dynamo, all set up, ready for use 9,000.00

The roads within the immediate limits of the post would be greatly improved if covered with asphalt. It would require 16,714 square yards; cost unknown.

EXHIBIT J.

STATEMENT SHOWING ORIGIN OF THE EQUIPMENT AND OTHER CADET FUNDS, HOW RAISED, FOR WHAT PURPOSES USED, ETC.

HEADQUARTERS U. S. MILITARY ACADEMY,
OFFICE TREASURER, QUARTERMASTER, AND COMMISSARY CADETS,
West Point, N. Y., October 10, 1887.

SIR: I have the honor to acknowledge the receipt of "Memoranda of information desired by the Board of Visitors, 1887," and to herewith return said paper together with the desired information.

Very respectfully, your obedient servant,

WM. F. SPURGIN,
Captain, 21st Infantry, Treasurer, Quartermaster, and Commissary of Cadets.

Mr. GEORGE W. CHILDS,
President of the Board of Visitors, U. S. Military Academy, Philadelphia, Pa.
(Through headquarters U. S. Military Academy.)

Memoranda of information desired by the Board of Visitors, 1887.

1. Average amount on hand of equipment fund?
2. How invested, and in what?
3. Is any part of it not invested, and if not, how much?
4. What is done with profits on investments?
5. What constitute "cadet savings," and for what purpose are proceeds of such savings expended?
6. Average amount of such savings per annum?
7. How much is received per annum for rent of hotel, and what is done with proceeds?
8. Amount expended the five years ending June 30, 1887, in repairing hotel?
9. Amount received from rent of other public or cadet buildings. How are proceeds applied?
10. Number and character of buildings constructed from cadet savings or other cadet funds, and amount expended in such construction?
11. Transcript of settlement of a fourth classman for months of May and June, 1886, who deposited on his admission $100?
12. Same of fourth classman who did not make deposit?
13. Similar transcript for May and June, 1887, of same two cadets?

In reply to interrogatories 1, 2, 3, and 4:

The equipment fund, which accrues from sums set aside from the pay of each cadet, viz., the sum of $4 per month during his service at the Academy, that he may have a sum at graduation sufficient to purchase his necessary outfit as an officer, is smallest each year immediately after settlement with the graduating class of that year.

There are six settlements of cadet accounts each year, each settlement occurring immediately after each regular muster.

The following will exhibit the equipment fund for the six settlements of said accounts occurring during the fiscal year ending June 30, 1887, viz:

Settlement of date—	
July 17, 1886	$18,514
September 29, 1886	20,554
November 26, 1886	22,930
January 28, 1887	25,232
March 22, 1887	25,444
May 25, 1887	27,396
Total (six statements, same fund)	140,070

Dividing said total by six, the number of statements, we obtain $23,345, as the average equipment fund for the year.

The equipment fund at this date, October 10, 1887, as determined by last settlement, viz, settlement of September 30, 1887, is $18,576.

Of the funds in the hands of the treasurer of the U. S. Military Academy not employed in purchasing supplies to meet the requirements of the different cadet supply departments, the sum of $20,000 is invested as follows, viz: $10,000 in United States 4½ per cent. bonds and $10,000 in United States 4 per cent. bonds, all registered. The sum so invested, it will be seen, is at times less than the equipment fund and at other times greater than the equipment fund, but less than the average of the equipment fund.

It would not be exactly correct to say that the equipment fund as such is invested. Only this, that the sum which can be spared from the working capital, belonging to cadet funds and to a few other funds belonging to the Academy, viz, the Military Academy post fund, the gas fund, and other minor accounts, is about, or, as has been shown, is less than the average equipment fund.

The investment of a portion of the funds in possession of the treasurer of the Academy is sanctioned by long usage.

The report of the Board of Visitors to the U. S. Military Academy in the year 1843 notices at length the investment then made, and approves the "system pursued of investing the same for the benefit of the corps of cadets," etc.

Formerly the interest received from invested funds was devoted to defraying a portion of the expenses for clerical labor in treasurer's office. For the past five years the interest which accrues has been accredited to the cadet subsistence fund and expended for the direct benefit of the corps of cadets, not in the purchase of food, but in supplying new ranges, tables, chairs, and other mess furniture of a permanent character. The decorations of their dining-hall were paid for out of accrued interest.

Only a portion of accrued interest accredited to the cadet subsistence fund has been expended.

The fund guaranties the replacement of property which may suddenly become unserviceable and which may require immediate renewal.

The foregoing is intended as a full answer to interrogatories 1, 2, 3, and 4.

In replying to interrogatories 5 and 6, referring to "cadet savings."

Each cadet is accredited with his pay at each settlement, and is charged with all expenditures. Should he have balance to his credit, such balance is a saving appertaining exclusively to the cadet, to be expended, together with his future pay, for his future necessities; or, if not expended, to be paid him on his severing his connection with the Academy, by graduation or otherwise.

There are certain funds belonging to cadets, viz: (1) The cadet quartermaster's department fund; (2) the cadet subsistence department fund; (3) the laundry fund.

Lest the accruments appertaining to these funds may be referred to as "cadet savings" in interrogatories 5 and 6, I have the honor to embody in this paper my remarks relative to those funds submitted in my annual report to the Superintendent of the Academy under date of September 13 last.

CADET QUARTERMASTER'S DEPARTMENT.

This department possesses a fund which, prior to 1876, had accumulated and increased from the percentage above cost or profits charged cadets for supplies furnished them, such as clothing, bedding, text-books, shoes, and, in short, supplies of every description furnished them.

Since 1876 an effort has been made to prevent either an increase or diminution of this fund by regulation of prices for supplies furnished cadets, so that the same may

be furnished them at actual cost, as required by act of Congress making appropriation for the support of the Academy for the fiscal year ending June 30, 1877, approved August 7, 1876.

Since the services of a cutter in the clothing branch and a cutter in the shoe branch of the department, and the necessary clerical assistance and freight must be paid for out of the fund, in the absence of Congressional appropriations for defraying such expenses, it becomes imperative to calculate the cost of clothing, shoes, and other supplies at the time the same are delivered to cadets.

To arrive at such actual cost, the wholesale cost of the purchases has been taken as a basis, and an advance thereon has been charged as follows: On merchandise, 5 per cent; on clothing, 10 per cent., and such percentages are credited to the fund. Whether the fund increases or diminishes during the year depends upon the number of cadets in the corps and their needs, and consequently the business done by the department.

Officers stationed here frequently make purchases at the store, and have their clothing repaired. Occasionally they have new clothing made, but not often. Of course the percentages paid by them are credited to the fund.

All supplies for the department are purchased in open market wherever the best authorized articles can be obtained at the lowest prices, and when the same are required.

All uniform clothing and shoes are manufactured here at the Academy, and the same are inspected at time of issue by the commandant of cadets, or an officer of the tactical department designated by him. Such inspection insures complete uniformity. All purchases are settled for by check drawn upon the assistant treasurer of the United States, New York. Vouchers are regularly prepared, which set forth all facts in regard to the transaction.

The acknowledgment of the receipt of pay for purchases is appended to, and forms part of, the voucher, as is usual in Government vouchers. Purchases are usually paid for within ten days, that the fund may receive the benefit of "spot" cash discounts, the same being noted on the face of the voucher. Every expenditure is supported by the proper voucher, and all vouchers are examined and acted upon by a "board of audit," provided for by paragraph 332, Regulations of the U. S. Military Academy, and which convenes after each settlement of cadet accounts, occurring after each regular muster.

The board of audit is composed of the commandant of cadets, the quartermaster of the Military Academy, and the senior tactical officer. The proceedings of the board are submitted to the Superintendent of the Academy for his action, which is final.

The following exhibits the value of the fund during the past seven years, such value, as before stated, consisting of money and supplies:

Years.	Value.	Years.	Value.
1881	$35, 139. 49	1885	$34, 920. 04
1882	35. 576, 39	1886	34, 516. 68
1883	33, 754. 70	1887 (June 30)	37, 163. 43
1884	37, 916. 22		

As shown by the above, the fund ran behind some years and ahead others, such increase or diminution depending upon size of the corps, and, therefore, the business transacted and the expenses of the department.

In 1886 the fund of the department ran behind $403.36. During the year ending June 30 last the fund increased $2,646.75, said increase being due to increase in business over the previous year, and to the sum saved because of cash discounts on purchases.

This latter sum amounted during the year to $1,413.80, leaving the increase of $1,222.95 due to increase of business.

During the year cadets were charged the following percentages, which, as before explained, are necessary to pay current expenses:

	Per cent.
On merchandise	5
On clothing	10
On repairs	10

Having no reason to think otherwise than that the business of the department will be as great this year as last, and that, therefore, there will be a further increase of the fund, I have the honor to recommend that cadets be charged, during the coming year, the following percentages, viz:

	Per cent.
On merchandise	5
On clothing	5

At the end of the year, should the fund have increased, a further diminution of percentages can be made. If the fund should decrease, the percentages can be increased.

CADET SUBSISTENCE DEPARTMENT.

As purveyor of cadet's mess, it becomes my duty to purchase and care for all supplies for the mess, to determine the bill of fare for each day, and to be responsible for the proper preparation and serving of food; in short, for the subsistence of cadets in all matters.

Purchases are usually made weekly, the best of food only being purchased.

An effort is made to furnish cadets with wholesome, well-prepared, properly-served food, in variety, and such as is required by growing young men who are called upon to do constant physical and brain work.

The following statement will exhibit each settlement during the year: (1) The average number of cadets subsisted; (2) the actual cost of their subsistence; (3) the amount charged as determined by the board of audit.

Cadet subsistence department.

Period of settlements.	Number of cadets present.	Actual cost per cadet.	Amount charged each cadet.
July and August, 1886	234	$33.88	$34.00
September and October, 1886	307	31.64	32.00
November and December, 1886	303	32.10	33.00
January and February, 1887	266	30.59	31.00
March and April, 1887	257	32.49	33.00
May and June, 1887	246	34.79	34.00
Total for the year (average)	269	195.49	197.00

From this it will be seen that each cadet was charged for his year's subsistence $1.51 more than the actual cost of the same.

The year previous each cadet was charged for his year's subsistence thirty-nine (39) cents less than the actual cost of the same.

The board of audit, before referred to, examine all vouchers appertaining to the mess, and also determines the price which shall be charged for board. When the corps is small and the cost proportionally increased, the Board may name a price less than the actual cost. When the corps is large, and the cost therefore proportionally less, the Board may name a price greater than the actual cost. Amounts overcharged or undercharged are credited or charged against the mess-fund account.

Such a system of determining the cost of subsistence enables the cadet to calculate upon the amount he will be charged for board, and therefore the amount of his pay which will be available for other purposes.

From the above table it will be seen that the cost of subsistence of each cadet during the year was 53.97 cents per day.

The actual cost of subsistence of cadets includes the expense of subsistence of cadets in hospital; the subsistence of the hospital stewards, matrons, and attendants at the cadet hospital, less the value of their army ration, which is credited to the cadet subsistence fund; the issue of bread to the drawing academy;* and the meals during the encampment of the officer in charge, who is required during his tour of duty to remain constantly with the battalion.

On June 30 last the cadet subsistence fund amounted to $3,325.39, and was accounted for as follows:

Supplies on hand, paid for, not consumed	$1,212.03
Cash in hands of treasurer	2,113.36

The average number of cadets subsisted during the year was 269; the year previous, 274. The capacity of dish pantry room is not sufficient.

I have requested the quartermaster to have estimate prepared which will show, the cost of the extension of the same to required size.

I earnestly trust that such estimate may meet approval and that Congress may grant the necessary appropriation, the same to be made available immediately.

CADET LAUNDRY.

The laundry building was erected out of funds appropriated by Congress. All the machinery in the laundry, excepting one washer, was paid for out of the laundry fund.

This fund has arisen during past years, because of cadets being charged for laundry work a price slightly in excess of the actual cost, that there might be the means always at hand to replace worn-out machinery, make repairs, etc.

Without such a fund, and without Congressional appropriation, it would be impossible to replace unserviceable machinery, or to purchase new machinery required. The laundry fund amounted July 1, 1886, to $3,979.56. On May 25, 1887, the last settlement during the fiscal year ending June 30, 1887, the fund amounted to $4,403.69, showing an increase during the year of $424.13. The laundry now needs a 6 new No. Eastman's automatic ironing machine, which will cost when put in place about $900. It also needs for ironing white trousers of cadets two recently invented ironing machines especially adapted for the purpose, costing when put in place about $200 each making a total cost of new machinery required about $1,300.

Should Congress make an appropriation for this machinery, I would recommend that the price charged cadets for laundry work be reduced, that the laundry fund be not further increased.

Should Congress not make appropriation for the above required machinery, I recommend that the prices now charged be continued in force.

The prices charged for laundry work are as follows:

Articles.		Price.	Articles.		Price.
		Cents.			*Cents.*
White shirts	each	3	Drawers	per pair	1
Undershirts	do	2	Socks	do	2
Night shirts	do	2	Gloves	do	2
Cuffs	per pair	2	Handkerchiefs	do	2
Collars	each	1	White pants	do	4
White jackets	do	4	Blankets, single	each	10
Belts	per sets	3	Spreads	do	10
Sheets	each	3	Clothes bags	do	3
Pillow cases	do	3	Vests	do	4
Towels	do	2	Dusters	do	4
Gray pants	do	10	Bathing suits	do	3
Gray jackets	do	10			

* Used for erasing lines, cleaning paper, etc.

The laundry building is entirely too small. I have the honor to earnestly request that the estimate for extension of laundry submitted last year and year previous be again submitted.

The work performed at the laundry gives good satisfaction.

The laundry is exclusively for cadets, but since the machinery used in laundrying cuffs and collars is capable of extra work above that required for the cadets, officers are authorized to have said articles done up at the laundry, paying for said work the same prices as cadets, the money so recovered being placed to the credit of the laundry fund.

In reply to interrogatory No. 7:

The rent of the West Point Hotel is now $2,000 per annum. Said sum has been the annual rent of the hotel for several years past.

On September 20, 1887, proposals for the lease of the hotel for a period of five years, commencing November 1, next, were received. The lease was awarded Mr. A. H. Craney, the present lessee, at the sum of $3,500 per annum. The lessee will, under his contract, be required to expend annually a sum on repairs to the hotel not to exceed $500, the repairs to be such as may be determined upon by a board of officers appointed by the Superintendent of the Academy during the first week in March of each year.

The records in this office show that during the five years ending June 30, 1887, the sum of $2,899.27 was expended from the Military Academy post fund in repairs and insurance on the hotel. All rent received from the hotel is credited to the Military Academy post fund. The report of the Board of Visitors to the Military Academy in 1830 sets forth the origin of this fund, then known as the land fund, with the authority therefor. (See Ex. Docs., 1830–'31, p. 117, *et seq.*)

Interrogatory No. 10 will be considered next, as paving the way for interrogatory No. 9.

The records show that in 1867–'68 one double two-story frame building was erected for the clerk and cutter employed in the cadet quartermaster's department, at a cost of $10,508.92. Said cost was defrayed from the cadet quartermaster's department fund, the history of which fund is given in this paper under heading "cadet quartermaster's department."

The cutter employed in the clothing branch of the cadet quartermaster's department occupies one-half of said building; the other half has been leased for several years past to Mr. John Denton, lessee of the public stables at West Point, at a rental of $200 per annum. It has been occupied, at first by Mr. John Denton, and latterly and at present by Mr. Jo. Denton and family, Mr. Jo. Denton being a son of Mr. John Denton.

The sum received as rent from Mr. Denton has been placed to the credit of the fund out of which the building was erected, viz: the cadet quartermaster's department fund.

The records show that in 1858 and 1859 the brick cottage on a line with the post-office building was built as a store-house, or confectionery, at a cost of $5,013.76, which cost was defrayed by the cadet quartermaster's department fund. This building is now known as the cadet cottage, and is now and has been occupied for years past as officers' quarters.

The cadet quartermaster's department received rent for said building during the years 1882 (part of), 1883, 1884, and part of 1885, from the quartermaster's department U. S. Army, at the rate of $24 per month, the cadet quartermaster's department fund defraying during the meanwhile the cost of necessary repairs. The sum of $888 was received as rent. The payments by the quartermaster for the rent of said building were disallowed and the treasurer of the Academy refunded the sum of $888, above referred to.

The building, it is understood, is occupied as quarters for officers simply because there is an insufficiency of quarters for the officers stationed here.

The records show that in the year 1874 the brick three-story building located southwest of the cadet barracks was constructed at a cost of $11,724.70, which sum was furnished by the cadet quartermaster's department fund, for the purpose of store-rooms, tailor and shoe shops, cadet quartermaster's department. Further, that a mansard roof was placed on said building in the year 1880, at a cost of $2,127.75, making the total cost of the building as it now stands, $13,852.45.

Vouchers on file in this office show that the brick building now occupied by Mr. Denton as a confectionery was built in the year 1878 as a market, at a cost to the Military Academy post fund of $2,368.59. This building rents for $150 per year, and the amount is credited to the Military Academy post fund.

Vouchers on file in this office show that the brick building now used as a schoolhouse for children of officers at the post was constructed in the year 1877 at a cost to the Military Academy post fund of $1,820.87. No rent is derived from this building.

The frame cottage now occupied as a post-office and residence of the postmaster, built when or at what cost I am unable at present writing to state, the same having been built such a long time ago, is rented for the sum of $150 per annum, and this sum is credited to the Military Academy post fund.

Mr. John Denton occupies the old stone building which stands north of the confectionery as a stable. I have no knowledge as to when said building was erected. He pays rent for same at present time of $200 per annum.

Recently the franchise of public liveryman at West Point was leased to the highest bidder for a term of five years, carrying with it the occupancy of this stone building and the residence belonging to the cadet quartermaster's department, now occupied by Mr. Joseph Denton, previously referred to. Mr. John Denton was the only bidder, offering for said franchise the sum of $350 per annum, with the liability for annual repairs to the amount of, on the dwelling $100, on the stable $50, or a total of $150.

This matter is in abeyance.

Mr. C. H. Butler, store-keeper, in small frame house at foot of the hill, and west of the post-office, pays to the cadet subsistence department the sum of $25 per month as rent of said building, and of that portion of a frame building located opposite the last set of office quarters north end of the post, occupied by him as a residence. I possess no information as to when or out of what fund said buildings were constructed, nor of the origin or reason for crediting the rent paid to the cadet subsistence department. I found such credit made when I first entered upon my duties here.

A double brick one and one-half story building was erected in 1878–'79, located on the hill south of the barrack area, at a cost to the cadet subsistence fund, as appears from the records, of $2,420.85. This building was built for, and is occupied by, employés of the cadet subsistence department, and whilst it brings in no rent it enables the department to retain the services of such employés at less expense than would be the case were no quarters supplied them.

I intend the foregoing as full answers to interrogatories 9 and 10.

I have the honor to inclose herewith papers marked A, B, the first exhibiting the account of cadet who made smallest deposit on entering in 1886 for his first settlement after entering, and for settlement one year thereafter; the second, B, exhibiting state of account of a cadet who, entering same year, deposited $100, settlements being the same as in cadet A.

The foregoing is respectfully submitted as answers in full to all interrogatories.

WM. F. SPURGIN,

Captain, 21st Infantry, Treasurer, Quartermaster, and Commissary of Cadets.

EXHIBIT J—A.

Cadet ———, in account-current with the treasurer of the Military Academy, July 1 *to August* 31, 1886, *and May* 1 *to June* 30, 1887.

			Date of order.	Authorized to receive the following articles from the cadet quartermaster's department.	Amount.	Total.
			1886.			
			June 15	Account book, 60 cents; blankets, $5.20	$5.80	
				Chair, $1.75 comfortable, $1.30	3.05	
				Mattress, $9.50; pillow, $2.40	11.90	
				4 pillow cases, $1; 4 sheets, $2.20	3.20	
			22	6 sets belts, $2.16; shoe brush, 50 cents	2.66	
				2 C. bags, 76 cents; 6 collars, 55 cents	1.31	
				F. cap, $3.02; pack envelopes, 6 cents	3.08	
				6 pairs unf. gloves, $1.62; mug, 14 cents	1.76	
				Helmet and trimmings	4.75	
				Ind. ink, 18 cents; ink, 3 cents	.21	
				Pen-holder, 3 cents. 6 pens, 4 cents	.07	
				Quire unf. paper, 13 cents; pins, 6 cents	.19	
				Cake soap, 8 cents; soap dish, 9 cents	.17	$38.15
			22	2 towels, 40 cents; tumbler, 3 cents	.43	
			24	4 pairs cuffs, 68 cents; razor, $1.61	2.29	
				Shaving brush, 49 cents; razor strop, 30 cents	.79	
				Flannel jacket	6.40	
				Flannel pants	4.75	
				Overcoat, $23.25; 8 pairs white pants, $28.80	52.05	
				D. hat and pompon	2.90	
				Inf. Tactics	1.40	
			July 1	Bathing suit	.53	
			8	5 stamps, 10 cents; 2 pairs cuffs, 34 cents	.44	
				2 quires, unf. paper, 26 cents; cosmic oil, 14 cents	.40	
			15	6 collars, 55 cents; pomade, 14 cents	.69	73.07
Cr. By deposit		$13.02	29	3 sets belts	1.08	
Pay from July 1 to August 31, 1886, inclusive		90.00	Aug. 5	5 stamps, 10 cents; 12th, 5 stamps, 10 cents	.20	
		103.02	12	6 collars, 55 cents; 6 pens, 4 cents	.59	
				Bottle ink and quire note paper	.10	
			26	Waste paper, 11 cents; pair suspenders, 53 cents	.64	
Dr. To equipment fund	$8.00		30	Bourdon	1.50	
Board from June 12, 1886, date of reporting, to August 31, 1886, 81 days	44.30			Rhetoric	1.10	
Laundry	6.72			English grammar	.95	
Baths, shoe-black, etc	1.40			Slate	.20	
Barber	.39			Record book	.63	
				Pad	.11	

Policing barracks	2.40	
Gas fund	70	
Dancing	2.80	
Amount paid cadet quartermaster's department	36.31	
		103.02

Dr. By pay from May 1 to June 30, 1887, inclusive		90.00
Cr. To equipment fund	8.00	
Board	34.00	
Laundry	7.36	
Baths, shoe-black, etc	1.50	
Barber	.39	
Policing barracks	2.00	
Printing	.20	
Gas fund	1.00	
Amount paid cadet quartermaster's department	35.55	
		90.00

1887.			
	Balance due from last settlement		49.63
May 5	10 stamps, 20 cents; cake soap, 7 cents	.27	
	Shoe-laces, 8 cents; 4 yards shade cord, 5 cents	.13	
12	Box matches, 2 cents; bottle Ind. ink, 4 cents	.06	
	Spool thread, 10 cents; bottle mucilage, 7 cents	.17	
	Pad, 11 cents; pair suspenders, 57 cents	.68	
26	Package w. paper, 11 cents: box pomade, 14 cents	.25	
	Bottle cosmic oil, 14 cents; 1 pair garters, 35 cents	.49	
	2 pairs colored socks	.62	
			2.67
June 9	Hair-brush, 75 cents; pair cuff buttons, 65 cents	1.40	
	3 pairs hop gloves, $1.32; 10 stamps, 20 cents	1.52	
	Package envelopes, 15 cents; quire note paper, 13 cents	.28	
	Quire unf. paper, 13 cents; 6 pens, 4 cents	.17	
30	Overshoes	.65	
	Shoes	6.00	
	15 stamps	.20	
	Bottle ind. ink	.18	
	Waste paper	.11	
	Shoes repaired	1.05	
	Overcoat repaired	1.60	
	Dress coat repaired	.30	
	4 white pants repaired	1.00	
			14.46
	Amount		66.76
	Paid		35.55
	Balance due		31.21

Dress coat	18.10	
2 w. jackets	8.00	
Winter shoes	6.00	
Winter shoes	6.00	
		45.20
Amount		156.42
Paid		36.31
Balance due		120.11

Cadet ———, in account-current with the treasurer of the Military Academy, June 15 to August 31, 1886, and May 1 to June 30, 1887.

Cr. By deposit		$100.00
Pay from July 1 to August 31, 1886, inclusive		90.00
		190.00
Dr. To equipment fund	$8.00	
Board from June 15, 1886, date of reporting, to August 31, 1886, 78 days	42.70	
Laundry	6.75	
Baths, shoe-black, etc	1.40	
Barber	1.51	
Policing barracks	2.40	
Gas fund	.70	
Dancing	2.80	

Date of order.	Authorized to receive the following articles from the cadet quartermaster's department.	Amount.	Total.
1886.			
June 15	Account book	$0.60	
	Blankets	5.20	
	Chair	1.75	
	Comfortable	1.83	
	Mattress	9.50	
	Pillow	2.40	
	4 pillow-cases, $1; 4 sheets, $2.20	3.20	
22	6 sets belts, $2.16; 2 C. bags, 76 cents	2.92	
	6 collars, 55 cents; F. cap, $3.02	3.57	
	Package envelopes, 6 cents; 6 pairs unf. gloves, $1.62	1.68	
	Helmet and trimmings	4.75	
	Bot. India ink, 18 cents; ink, 3 cents	.21	
	Mug, 14 cents; pen-holder, 3 cents	.17	
	6 pens, 4 cents; quire unf. paper, 13 cents	.17	
	Pins, 6 cents; soap, 8 cents; soap dish, 9 cents	.23	
	2 towels, 40 cents; tumbler 3 cents	.43	
			$38.61
26	4 pairs cuffs, 68 cents; 4 pairs socks, $1.20	1.88	
	2 summer night shirts, 70 cents; 2 pair drawers, 88 cents	1.58	
	Shaving brush, 49 cents; shaving soap, 6 cents	.55	
	Flannel jacket, $6.40; flannel pants, $4.75	11.15	
	Overcoat, $23.25; drill shoes, $5	28.25	
	D. hat and pompon	2.90	
	Inf. tactics	1.40	
July 1	1 razor, $1.61; 4 towels, 80 cents	2.41	
	Tooth powder, 35 cents; bathing suit, 53 cents	.88	
			51.00
8	6 collars, 55 cents; quire paper, 13 cents	.68	
15	Cosmic oil, 14 cents; 3 pairs unf. gloves, 81 cents	.95	
	1 pair suspenders	.53	
29	Tacks, 3 cents; pomade, 14 cents; gun brush, 10 cents	.27	
Aug. 5	6 collars, 55 cents; garters, 35 cents	.90	
	3 sets belts, $1.08; 4 pairs unf. gloves, $1.08	2.16	
	6 vest buttons and rings	.18	
26	Package waste paper	.11	
	Bunch shoe laces	.09	
	Button pliers and buttons	.85	
	6 pairs unf. gloves	1.62	
	4 vest buttons and rings	.12	
	Box matches	.03	
	Bourdon	1.50	
	Rhetoric	1.10	
	Slate	.28	

Amount paid cadet quartermaster's department	123.74	
		190.00
Cr. By balance from last settlement		29.49
Pay from May 1 to June 30, 1887, inclusive		90.00
		119.49
Dr. To equipment fund	8.00	
Board	34.00	
Damages to mess property	.02	
Laundry	8.12	
Baths, shoe-black, etc	1.50	
Barber	.39	
Policing barracks	2.00	
Printing	.20	
Gas fund	1.00	
Periodicals	3.00	
Hops and german	2.61	
Amount paid cadet quartermaster's department	58.65	
		119.49

1887.			
May 5	Record book	.63	
	Pad	.11	
	8 pairs w. pants	28.80	
	2 white jackets	8.00	
	Dress coat	18.10	
	Unf. shoes	4.75	
	Shoes repaired	1.00	
			72.76
	Amount		162.37
	Paid		123.74
	Balance due		38.63
12	20 stamps, 40 cents; 2 pair drawers, 88 cents	1.28	
19	1 bunch shoe-laces, 11 cents; 20 stamps, 40 cents	.51	
30	1 box matches, 2 cents; stamps, 30 cents	.32	
	25 1-cent stamps	.25	
June 9	Tennis racket, $4.25; 6 tennis balls, $2.10	6.35	
	Pair suspenders, 57 cents; pair pumps, $2.10	2.67	
16	20 stamps, 40 cents; Ind. ink, 18 cents; w. paper, 11 cents	.69	
	W. paper, 11 cents; shoe brush, 10 cents	.21	
23	Matches, 3 cents; soap, 7 cents; camp chair, $1.31	1.41	
	Needles, 5 cents; 12 collars, $1; 3 night shirts, $1.05	2.20	
	18 vest buttons and rings	.54	
	6 pairs cuffs, $1.02; 30 stamps, 60 cents	1.62	
			18.05
30	6 handkerchiefs	.90	
	3 pairs hop gloves	1.32	
	1 paper pins	.04	
	1 box matches	.02	
	1 hair brush	.75	
	1 pair suspenders	.57	
	Dress coat	18.10	
	Grey pants	6.80	
	Shell jacket	6.40	
	Shoes	6.00	
	Shoes repaired	1.05	
			41.95
	Amount		60.00
	Paid		58.65
	Balance due		1.35

EXHIBIT K.

STATEMENT SHOWING THE NUMBER OF HORSES USED AND REQUIRED FOR CAVALRY AND ARTILLERY DRILLS, AND DIAGRAM OF GALLERY IN RIDING HALL.

WEST POINT, N. Y., *October* 13, 1887.

SIR: I have the honor to make the following replies to the questions contained in your memorandum of the 12th instant:

(1) Number of horses used in mounted drills and in riding hall?

The number used in mounted drill varies somewhat with the size of the first and second classes, as a half of one class is drilled with a half of the other at battalion drill. When the classes are so small that there are not enough cadets available to form a battalion a sufficient number of soldiers is detailed to drill with them. Usually the number of horses used is about seventy. The number used in the riding hall will also vary with the number of men in the first, second, and third classes.

During the coming winter eighty-seven cadets will ride in the hall every day for five days in the week. The cadets are divided into squads, usually of from twenty to thirty, that ride at different hours. Different sets of horses are used for each squad, as far as practicable, in order to have fresh horses relieve tired ones. This winter every horse in the stable not on sick report will be used once a day, and probably from fifteen to twenty of them twice a day.

(2) Number of horses required for cavalry exercises exclusively?

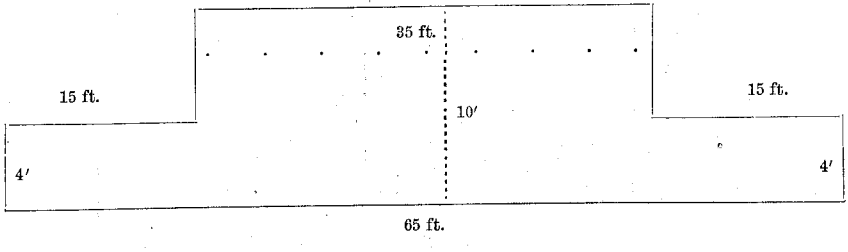
There are now eighty horses in the stables. There are always a few sick and lame, and considering the number used at battalion drill and the work imposed on them in the hall, the number could not safely be made smaller. Horses that have been used by one squad in jumping hurdles should not be ridden again at drill on the same day.

(3) Number of horses necessary to light battery drill? Give number of guns in battery.

The number of guns in the battery is six. The number of horses required for teams and for mounted officers and non-commissioned officers is sixty-two. Withthe customary allowance of surplus horses to replace others temporarily sick and disabled the battery requires from seventy-four to seventy-six horses. However, with the present number, eighty, it is difficult to get enough that will work well together in harness for the teams, and some are unsafe to use for draft at all. Horses fit for riding are rarely fit for team purposes, and *vice versa*.

(4) Give length and breadth of riding hall, inside measurement; also size of galleries for visitors.

The riding hall is of rectangular shape, 73 feet by 213 feet. The two galleries project 4 feet over the track and are 65 feet long. At 15 feet from each end they extend back 10 feet from the front. The following diagram shows their shape and dimensions:



Very respectfully, your obedient servant,

J. H. DORST,
Captain, Fourth Cavalry.

The COMMANDANT OF CADETS.

EXHIBIT L.

LIST OF PAPERS PREPARED FOR THE BOARD OF VISITORS.

HEADQUARTERS UNITED STATES MILITARY ACADEMY,
West Point, N. Y., October 14, 1887.

DEAR SIR: In accordance with your request as contained in letter of Mr. John M. Carson, of the 30th ultimo, I have the honor to inclose herewith the following tables and memoranda for use in the preparation of the report of the Board of Visitors, viz:

(1) Table showing the number of candidates admitted and found deficient at preliminary examinations for admission to the Military Academy from 1873 to 1887, inclusive, showing number appointed both by the competitive and direct methods.

(2) Tabular statement of number of cadets admitted to the U. S. Military Academy from 1873 to 1883, inclusive, showing number appointed by competitive examination and directly, with number graduated and casualties under each mode of appointment.

(3) Table showing the occupations of fathers of cadets admitted to the Military Academy from 1842 to 1887, inclusive.

(4) Table showing number of candidates appointed to U. S. Military Academy, number rejected, and number admitted during the eight years ending September 1, 1887.

(5) Table showing the number of cadets admitted in 1880, 1881, 1882, and 1883, who graduated with classes other than their own.

(6) Statistics relating to the class of 1887.

(7) True copies of the examination papers of a candidate deficient, in June, 1887, in writing and orthography, arithmetic, and grammar, and those of another candidate deficient in geography and history.

(8) Letter containing information as to employment of time of a cadet of the fourth class while in barracks and camp, with data as regards size of the visitors' room, etc.

(9) Letter containing information as to the number of rooms occupied in cadet barracks by cadets and officers.

(10) Letter containing information as to number of horses required at cavalry and artillery drills.

Very respectfully, your obedient servant,

W. C. BROWN,
First Lieutenant, First Cavalry, Adjutant.

Mr. GEORGE W. CHILDS,
President Board of Visitors U. S. Military Academy.

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