

ANNUAL REPORT

OF THE

BOARD OF VISITORS

TO THE

UNITED STATES MILITARY ACADEMY,

MADE TO

THE SECRETARY OF WAR,

FOR

THE YEAR 1885.



WASHINGTON:  
GOVERNMENT PRINTING OFFICE.  
1885.

BOARD OF VISITORS, JUNE, 1885.

---

APPOINTED BY THE PRESIDENT OF THE UNITED STATES.

1. Hon. JOHN BIGELOW ..... New York City, N. Y.
2. Col. CHARLES R. CODMAN ..... Boston, Mass.
3. Hon. GEORGE HOADLY ..... Columbus, Ohio.
4. Prof. EDWARD S. HOLDEN ..... Madison, Wis.
5. General FITZHUGH LEE ..... Alexandria, Va.
6. Mr. GEORGE L. MILLER ..... Omaha, Nebr.
7. General JAMES C. TAPPAN ..... Helena, Ark.

APPOINTED BY THE PRESIDENT OF THE SENATE.

8. Hon. JAMES B. BECK ..... Lexington, Ky.
9. Hon. JOSEPH R. HAWLEY ..... Hartford, Conn.

APPOINTED BY THE SPEAKER OF THE HOUSE OF REPRESENTATIVES.

10. Hon. JAMES H. BLOUNT ..... Macon, Ga.
11. Hon. WILLIAM D. KELLEY ..... Philadelphia, Pa.
12. Hon. ROGER Q. MILLS ..... Corsicana, Tex.

REPORT  
OF THE  
BOARD OF VISITORS TO THE MILITARY ACADEMY.

---

WEST POINT, N. Y., June 13, 1885.

SIR: The Board of Visitors appointed by the President of the United States to visit the Military Academy at West Point during the June examinations of 1885, and there to inquire into the actual state of discipline, police, administration, fiscal affairs, and other concerns of the institution, have the honor to make the following report:

The members appointed by the President, by the President of the Senate, and by the Speaker of the House of Representatives met together June 2, and organized the Board by the election of Governor George Hoadly, of Ohio, as president, and Prof. Edward S. Holden, of Wisconsin, as secretary, and appointed the following committees:

*On discipline.*—General Joseph R. Hawley, Col. Charles R. Codman, and General James C. Tappan.

*On fiscal affairs and concerns not provided for in other committees.*—Hon. William D. Kelley, Hon. Roger Q. Mills, and Hon. James H. Blount.

*On administration and police, buildings and grounds, sanitary conditions, and provisions for the illumination of the post.*—Hon. James B. Beck, Hon. Roger Q. Mills, Hon. Joseph R. Hawley, and General Fitzhugh Lee.

*On instruction, including preparatory education, the standard of admission, and the qualifications essential to graduation.*—General Fitzhugh Lee, Mr. George L. Miller, Hon. John Bigelow, and Prof. Edward S. Holden.

The conclusions of the Board of Visitors upon these and other matters follow.

DISCIPLINE.

The Board has carefully considered some questions that have been suggested to it and that naturally arise in the mind of the superficial spectator concerning certain features of the discipline of the Academy. Offenses that at first sight seem exceedingly small are reported in writing to the commandant, and by him to the Superintendent. To each offense is affixed a penalty of one or more marks of demerit and certain punishments, such as walks of varying duration, confinement to quarters, deprivation of amusements, &c. It is often thought that many of these offenses might be disposed of by rebuke, warning, or other minor punishment at the moment, to the saving of time and unnecessary formality and with equal good effect. Possibly there is some weight in these criticisms. But it is to be remembered that the present treat-

ment is the result of many years of experience under skillful commanders and instructors, very nearly all of whom of late years have been graduates of the Academy, with fresh and vivid recollections of their own life as cadets. So far as the Board can learn, the requirements are reasonable. Certainly they are strict—far more so in many things than the graduate is called upon to submit to. But the object is to teach regularity, system, and the great virtue of absolute, cheerful, and ready obedience to orders because they are orders. No willful act of disobedience can be adjudged of trifling importance. Thoughtless negligence is almost equally blameworthy. The cadet undergoes the training of a private soldier, but he is also taught the accomplishments of an officer, and is always treated in a manner that considers his sense of honor. Censure by name in the presence of his associates is almost never resorted to. He always has an opportunity of explaining any alleged offense for which he is reported. The marks of demerit or other punishments are never inflicted save after the consideration of the superior officers. This guards him against injuries by reason of haste or temporary excess of feeling. The greater mass of rules and regulations has been so long in force that scarcely an imaginable minor offense can be committed which is without precedent, and, in general, the cadet knows almost precisely what he is to expect if he permits himself to transgress.

Inasmuch as the standing of the cadet under the head of "discipline" enters into the calculations which assign him his rank at graduation, it is important that his record be carefully kept.

The general impression made by the appearance of the cadets in their various drills and reviews, in their barracks and mess-hall, and off duty gives a very favorable idea of the discipline and drill of the institution.

#### TARGET PRACTICE.

While the general principles that govern campaigns and battles must remain, the vast changes wrought in fire-arms during the last forty years have revolutionized the tactics of the battle field. The old smooth-bore musket was a clumsy weapon of very short range and little accuracy, offering no temptation to study and practice in its use. The changes to the percussion lock, the rifle, the breech-loader, and the magazine gun have made our modern small-arms weapons of great range and accuracy. They are deadly at the distance of more than a mile, and they amply reward great care in aiming at a distance of 1,200 yards. They and their ammunition are scientifically constructed and prepared. Away from heavy fortifications battles are won by the rifle. If they were to be won by the saber, it would be criminal to send men to combat who were unskilled in its use. The common soldier, intelligently and thoroughly skilled in the use of his rifled and breech-loading piece, which perhaps is also supplied with a magazine, has his effective value more than doubled.

The Board is of the opinion that every graduate of the Academy should be an expert in the use of the rifle, off-hand or lying down, at short or long range, completely understanding and competent to teach all that a scientific marksman ought to know. He should value his skill as highly as the best swordsman does his skill as a fencer. This would give the line officer the respect of his men. A liberal allowance of ammunition and systematic rules for practice would make good shots of the great majority of private soldiers, and call them to a drill which would be at the same time an amusement and a pleasure.

The Board has been gratified by exhibitions of the proficiency of the cadets as horsemen, and with the sword, the light battery, and the heavy gun.

It recommends that increased opportunity and instruction be given with a view to the highest excellence as marksmen with small-arms.

The Board of Visitors wishes to commend in strong terms the administration of the cadets' mess-hall, &c. The cadets are well fed, well clothed, well housed, and well cared for, at very moderate cost and to their own satisfaction.

#### FISCAL AFFAIRS.

We have examined carefully into the various sources of receipts and the several items of expenditures, and find that a wise and honorable conduct has uniformly characterized the transactions of all persons in charge of the fiscal operations of the United States Military Academy.

The tabular statements appended (see Appendix I) are plain and simple, and convey an accurate impression in relation to these operations which no form of speech can so easily do. The expenditure of all moneys save from the post fund has to be approved by the proper Auditor and Comptroller of the United States Treasury Department. In the matter of the pay of cadets this qualification is to be made, the Treasury Department simply receives receipts for the pay of cadets, and beyond these the Auditor and Comptroller do not go. In the use of this money much discretion has to be allowed to the officers of the post, because this fund has to be subdivided for the individual wants of the several cadets. A bimonthly inspection by some officer and a pass-book with each cadet seems to guard against all improper use of the same.

The post fund comes from the rent of post buildings, &c., as appears from the tabular statement, and is used under the direction of the superintendent and carefully watched by numerous inspections.

#### ADMINISTRATION AND POLICE, BUILDINGS AND GROUNDS AND SANITARY CONDITIONS, AND PROVISIONS FOR THE ILLUMINATION OF THE POST.

The Board has visited and carefully examined the various buildings now in use and inquired into the sanitary condition of the post. We find that the supply of water and sewerage is ample and the police regulations excellent. No change is now needed in the provision for the illumination of the post; many of the defects which were subject of serious complaints in past years are now removed. The cadet barracks, hospital, and other important buildings have been completed, the mess-hall, baths, &c., are in good order and well cared for, but there are other much needed buildings and changes which the Board recommends should be erected and made, the principal part of which are set forth in the letter of General Merritt, the Superintendent, addressed to the chairman of the committee on buildings, &c., and in the statement of Professor Tillman, which are as follows:

HEADQUARTERS UNITED STATES MILITARY ACADEMY,  
*West Point, N. Y., June 9, 1885.*

DEAR SIR: I quote below the remarks of Professor Tillman, of the United States Military Academy, giving briefly his views as to the necessity of a building for his de-

partment and the department of philosophy. I have no question but that these remarks will be of interest to you and the members of your committee, and for that reason submit them, concurring most cordially in all that Professor Tillman says.

I am, sir, very respectfully, your obedient servant,

W. MERRITT,

*Colonel Fifth Cavalry,*

*Brevet Major-General, United States Army, Superintendent.*

Hon. JAMES B. BECK,

*Chairman Sub-Committee of Board of Visitors on Administration,*

*Buildings, Grounds, &c., West Point, N. Y.*

It is now universally admitted that the subjects embraced at the Military Academy under the head of "the department of chemistry (chemistry, electricity, mineralogy, and geology)" are all intimately connected with the practical wants of mankind, that they are valuable means of mental training, that they are essential to general culture, and that the importance of these subjects is increasing at an astonishingly rapid rate.

The extended employment of chemistry and electricity in the art of war makes it difficult to overestimate the value of a knowledge of them to the expert Army officer. Every facility should, therefore, be given to this department to employ to the best advantage the time allotted to it. The fact that the time is very limited would seem to be additional reason for perfecting the means of instruction.

The natural sciences cannot be studied to the best advantage in entire independence of the experimental evidence upon which they rest. To study them without experiment is to lose in a large degree the instructive training which they should give and the cultivation of the powers of observation. Especially is it true that the facts and principles of chemistry should be closely associated with the experimental evidence upon which they depend. Such experiment increases beyond expression the interest of the student, and at the same time serves to better fix in the mind the principles of the science. An institution without the facilities for some experimental work on the part of the students is not prepared to teach the subject to the best advantage. It is not intended or desired to make, in any sense, specialists of cadets, but neither the mental discipline nor the permanent knowledge which the sciences should give can be obtained without the facilities for experiment. The building desired is intended to afford space for the best instruction which can be given in the limited time in the subjects of chemistry, electricity, mineralogy, and geology, and for the display of a large collection of minerals and geological specimens now at the Academy, and which are constantly being increased by presentation from graduates and others interested in the Academy, besides section-rooms and lecture-rooms for the department of philosophy, and also a large hall for examination and for other purposes. It is not believed that such space can be obtained by any arrangement or addition to the present academic building. For the best science teaching the building should be specially constructed, and any addition to the present academic building must of necessity conform to the general plan of that building, and cannot be made to meet the requirements. At the present rate of growth of chemical and electrical sciences any such arrangement can only answer a few years longer, and any outlay for such purpose will not be the most economical one. Besides the advantages to the cadets, such a building will afford the opportunity for a post-graduate course to many of the young officers who return here as instructors, and will thus be doubly beneficial to the Government.

HEADQUARTERS UNITED STATES MILITARY ACADEMY,

*West Point, N. Y., June 9, 1885.*

DEAR SIR: I have the honor to submit, as requested verbally by you, the following memoranda as to the buildings most needed at West Point. They are mentioned in the order of their importance, though those mentioned to include *five* are about equally necessary:

1. Gymnasium, to cost .....	\$30,000
2. Workshops .....	10,000
3. Addition to cadet laundry .....	5,000
4. Academy for department of chemistry and philosophy .....	175,000
5. Barracks for cavalry detachment .....	12,000
6. Sixteen sets of quarters for married enlisted men .....	14,000
7. Alteration of library building for accommodation of increased number of books now on hand .....	5,000

The statement as to the amount these buildings will cost is approximate only. In the estimates for the Military Academy to be submitted to Congress at its next session, the appropriations necessary, including these, will be carefully estimated for.

Very respectfully, your obedient servant,

W. MERRITT,

*Colonel Fifth Cavalry,*

*Brevet Major-General, United States Army, Superintendent.*

Hon. JAMES B. BECK,

*Chairman Sub-Committee of Board of Visitors on Administration,  
Buildings, Grounds, &c., West Point, N. Y.*

General Merritt rendered the Board every assistance in his power; he not only went with us in person whenever desired, but detailed the officers in charge of the property being especially examined to furnish us the information we sought. At our request he made out approximate estimates of the cost of the improvements we thought of most importance, and classified them so that if all are not provided for, the most urgent may be.

We are satisfied that the present gymnasium is unfit for the purpose, and that a new one should be erected near the angle of the cadet barracks on the west side, where suitable ground is now available, and the present gymnasium, or the principal part of it, should be converted into bowling alleys, for the use of the cadets. The cost of both will be about \$30,000. We are satisfied the health and vigor of the cadets will be promoted by the exercise thus afforded, and therefore earnestly recommend these improvements.

We examined the cadet laundry carefully; it is altogether too small. The sum of \$5,000 will build such additions as will make it suitable.

Ten thousand dollars will hardly supply the needed blacksmith and other shops, which are now in such a dilapidated condition as to be almost unfit for use.

We are satisfied that the barracks for the cavalry detachment ought to be located near the stables and riding hall. At present the men have to walk about a mile four times a day, on an average, to and from their work. In the winter season the exposure is great, and at all seasons there is much loss of time and great inconvenience. If the change proposed can be made for \$12,000, it ought to be done. When made it will vacate the building now in use, which would be available for a storehouse or for other purposes.

The quarters for the families of the enlisted men are very indifferent, and new ones as proposed are much needed.

With an appropriation of \$5,000 valuable changes could be made in the library building which would furnish accommodation for a large number of books now on hand; we think it should be made.

After careful examination of all the present buildings, the Board, after full and free conference with the Superintendent and other intelligent officers, became satisfied that there was no building now on the grounds which could be either enlarged or changed so as to make suitable provision for the departments of chemistry and philosophy, and that the rooms now occupied for these purposes are wholly insufficient. We therefore recommend the erection of a new building between the present headquarters building and the chapel and library, at a cost not exceeding \$175,000. Professor Tillman has stated the reasons why this building is needed, so clearly that the Board, without repeating, adopt them.

There are other changes and improvements which might be made in the interest of the Military Academy which we do not now urge; for

example, we think that the horses used in the riding-hall should not be used either as artillery horses or for draught purposes. A number of other matters might be suggested which will require attention hereafter. We, however, suggest, as other Boards of Visitors have done, that a cottage or adjunct to the present hotel, containing, say, twelve comfortable rooms and a committee-room, should be provided, which ought to be set apart for the use of the Board of Visitors while here. We do not, however, urge that or any other subject if it interferes in any manner with the more urgent matter specified in the letter of the Superintendent, the necessity for all of which we recognize and earnestly recommend.

INSTRUCTION, INCLUDING PREPARATORY EDUCATION, THE STANDARD OF ADMISSION, AND QUALIFICATIONS ESSENTIAL TO GRADUATION.

From its foundation up to within the last thirty years or so the Military Academy was not only a special school for war, but also the best technical academy in the country in such subjects as engineering, mathematics, physics, &c. Since this date a great number of admirable technical schools of special subjects have been established, which devote from two to ten times as much attention to a particular study as can be given to it by the Military Academy.

It is therefore plain that the Academy is not to be regarded as a technical school of mathematics, physics, chemistry, or engineering. It is primarily a technical school for war; and mathematics, physics, &c., are taught for the sole purpose of fitting the mind of the cadet to follow the technical studies of the profession of war in the most thorough manner. It is the opinion of the Board that this fundamental principle must be constantly kept in view, and all its deliberations have been directed to the end of increasing the efficiency of the Academy as a technical war school.

To this end the Board recommends that some part of the strictly military subjects of tactics, outpost, advanced guard, &c., be studied in each year of the cadet's life at the Academy.

At the present time no theoretical instruction whatever in military subjects is given during the first two years at West Point. In the third year twenty-three hours in all are devoted to recitations in infantry, artillery, and cavalry tactics, and it is not until the fourth (and last) year that professional topics are reached. In the opinion of the Board, all changes which may be made in the course of study hereafter should be directed to the end of allowing more time to be devoted to the study of the science and art of war in all its relations, to the theory of tactics in its broadest form, and to those professional studies which more directly fit the graduated cadet for military service. Especially it should be sought to inspire the cadet with a love for his profession as well as a pride in it, and with a desire and taste for professional reading.

The Board of Visitors is aware of the difficulty of making any specific recommendations of real value, and would in general confine itself to laying down sound general principles.

We conceive, however, that the introduction of infantry tactics as a part of the fourth-class course and of artillery and cavalry tactics as a part of the third-class course would prove a strong stimulus to all cadets of these classes, and we are decidedly of the opinion that the change should be made, and that the principle of keeping at least one strictly military subject before the cadet should be recognized through-

out the three and one-half years subsequent to the first January examination.

We recommend that the medical officers at the post should deliver to the first-class cadets a course of lectures on the subject of hygiene, including the subjects of ventilation, drainage, clothing, and the best location for camps, &c., and that Parkes' Military Hygiene, or some equivalent text-book, be owned by each cadet of the first class.

We also recommend that a map of the United States, Canada, and Mexico be provided for each room in the cadet barracks. The maps should be a part of the permanent furniture of the room. It is of vital importance to the officers of our Army that they should be thoroughly acquainted with the geography of these countries, and there is no way to familiarize them with its principal features better than having such maps before their eyes during the entire four years of their academic course. The use of maps and diagrams as here proposed is capable of much further useful development, which need only be suggested here.

#### INSPECTOR OF THE ACADEMY.

The affairs of the Academy, both disciplinary and instructional, are under the general supervision of an inspector, which office is at present administered by the General commanding the Army, in addition to his other important duties. From the foundation of the Academy (1802) to 1866 this office was vested in the Chief of Engineers. It is respectfully recommended that the Chief of Engineers be again made the inspector of the Academy. The object to be attained by this change is to provide a permanent inspector of the Academy whose official duties are not so responsible or onerous as those of the Commanding General, and who can therefore give a much greater portion of his time to the administration of the Academy than is now practicable.

#### PRELIMINARY EXAMINATIONS.

Under the present system of appointments a candidate between the age of seventeen and twenty-two years is selected from every Congressional district in the United States by the Representative of that district. This gives a maximum of three hundred and thirty-four persons. In addition to these the President of the United States appoints ten candidates "at large" every four years. Formerly ten candidates "at large" were appointed every year by the President. It is the opinion of the Board that the number of appointments "at large" should be restored to ten per year. The candidates thus appointed have one year's notice, and are required to report at the Academy in June of each year and to pass an examination in reading, writing, arithmetic, geography, American history,\* and English grammar,\* as well as a physical examination. If they pass these two examinations they are admitted on probation, and if they successfully pass the examinations in mathematics and English in the January succeeding their entrance, they are then regularly received in the service as cadets and given a warrant in the United States Army.

The object of an examination on entrance should be to secure for the military service cadets of high character and of sufficient acquirements to enable them to follow with success the courses of study prescribed for the education of an officer.

---

\* The subjects of American history and English grammar were added in 1866.

The question of the standard of preliminary examinations is therefore closely bound up with the further question of the course of study prescribed within the Academy, and one cannot be changed without affecting the other.

To exhibit the nature of the questions asked at the entrance examination, some of the papers set in the years 1878-82 are here annexed in Appendix II.

A mere inspection of these papers is not sufficient to give a correct idea of the entrance examination. It requires to be further said that a mark of 66 per cent. on any subject is a pass-mark in that subject. If a candidate passes fairly well in all subjects but one, and below 66 per cent. in this one, he is always admitted. Again, different values are given to the different questions. For example, in the geography paper, the geography of the United States counts 60 per cent. and that of all foreign countries 40 per cent., so that a paper in which the questions on American geography were correctly answered, and in which nearly all the questions of foreign geography were answered erroneously, would pass the candidate.

In the arithmetical problems one or two are always included which are rather difficult. These are specially designed to give an opportunity to those candidates who have not studied arithmetic for some time to show their comprehension of mathematical *principles*. They are such as any person prepared to enter as a freshman in college should be able to solve, even if he has forgotten the details of the common operations of arithmetic. These more difficult problems are not *essential* for entrance.

If a candidate successfully answers all the simple problems he is admitted. If he makes bad errors in these simpler problems, but shows by his *method*, if attacking the more difficult ones, that he has correct mathematical conceptions, he is not excluded, even though the answers to these latter are not correct.

With these explanations the preliminary examination papers given in Appendix II can be understood.

It is an important fact that the candidates who are admitted, although they have made a partial failure on one or more of the subjects of the preliminary examination, constitute a very large proportion of the cadets who are rejected at the subsequent examinations of the first three years, thus showing the requirements of the preliminary examination to correspond to the present course.

The truly remarkable feature in the Military Academy is that with these requirements for admission (neither algebra nor geometry being expected) so much work can be done in the short period of four years. During this time not only is an extensive field of learning covered, but the firm foundation of a moral character is laid. We can see that this is accomplished by virtue of one peculiar feature which, so far as we know, is only found at the Military Academy. It is this: Each department is under a professor, who has general charge of all the students of his department and particular charge of none. The classes are divided into small sections of eight or ten students in each, and each section is put under the charge of an officer of the Army, who devotes his entire time to the teaching of two such sections.

The proportion of instructors to students at the Military Academy is very much greater than at other educational institutions, but it is precisely this proportion that makes the excellence of the Academy, and renders it possible to take a boy who only knows the rudiments of the English language, history, and arithmetic, and in four years to turn him

out at least a fair mathematician and fair engineer and a faithful public servant.

The average acquirements of the candidates are certainly not above those of students of the freshman classes of our colleges; the instructors at the Academy are of no higher grade than the faculties of our colleges; but the large number of instructors enables an amount of time to be given to the instruction of each cadet individually which is out of all proportions greater than that which is given in an ordinary college course.

In the mathematical studies the hours of recitation for each section are ninety minutes per day. During those ninety minutes there is time for each one of the ten men of the section to be thoroughly examined. The certainty that he will be called upon to recite every day, and that no possible failure can be hidden, induces each cadet to prepare his lessons with a thoroughness and faithfulness which is not obtained at any other institution of learning with which we are acquainted. The effect on the moral character of the cadet is most admirable. He learns in the recitation-room not to shirk any duty, and he also learns the fact that few in civil life learn so early, that every short-coming in the course of duty is sure to bring with it its corresponding penalty.

#### THE COURSE OF INSTRUCTION WITHIN THE ACADEMY.

The opinion is sometimes expressed that the more strictly mathematical courses at the United States Military Academy are too extended, and that some modification of these courses should be made in order to retain cadets whose tastes may not lie in the direction of mathematics, but who might still (it is said) prove valuable soldiers were the mathematical courses so modified as to allow them to graduate.

It is plain that these questions must receive the constant attention of the highly competent members of the Academic Board, who are, in the nature of things, most capable of forming a judgment, and most deeply interested in the success of the Academy.

It is known to the Board of Visitors that the mathematical studies at the Academy are no higher than those of similar schools abroad, and that they are lower than the requirements of many of the best foreign military schools.

It was, however, decided to ask for a formal expression of opinion from the Academic Board on these questions, and to this end the secretary of the Board of Visitors was directed to address the following letter to the members of the Academic Board:

BOARD OF VISITORS' ROOM, UNITED STATES MILITARY ACADEMY,  
*West Point, N. Y., June 9, 1885.*

GENTLEMEN: The subcommittee of the Board of Visitors on instruction respectfully request a brief opinion from each of you upon the two following points, *i. e.*:

1. Whether you regard the amount of time devoted to the study of mathematics (fourth and third classes), acoustics, optics, astronomy, mechanics (second class), as disproportionately great, relatively to other branches of instruction now taught at the Academy, for the purposes contemplated by this institution.

2. If you think any changes should be made in these mathematical branches, will you please to define these changes specifically.

Very respectfully, your obedient servant,

EDWARD S. HOLDEN,  
*Secretary.*

The ACADEMIC BOARD, *United States Military Academy.*

The answers of the various members of the Academic Board are given below :

HEADQUARTERS UNITED STATES MILITARY ACADEMY,  
West Point, N. Y., June 10, 1885.

SIR: Referring to your inquiry contained in communication of yesterday, I have the honor to say :

The amount of time devoted to the mathematical courses of study appears large compared with that given to other branches of instruction, in view of its objects under the laws establishing the Academy. Whether this course can be reduced to advantage will depend on, in a great measure, to what study time taken from mathematics is given. Necessarily, much study at any institution of learning is in the nature of mind and character cultivation. If the mind and character can be cultivated equally, and at the same time useful practical instruction be given, that study is best which will best accomplish both.

I am not prepared in the press of matters now before me to comply with your second request.

Very respectfully, your obedient servant,

W. MERRITT,  
Colonel Fifth Cavalry, Brevet Major-General, U. S. A., Superintendent.

Prof. EDWARD S. HOLDEN,  
Secretary of the Board of Visitors, West Point, N. Y.

UNITED STATES MILITARY ACADEMY,  
West Point, N. Y., June 10, 1885.

SIR: The Academic Regulations, paragraph 9, page 10 (edition 1883), provides that the Academic Board shall "report to the War Department on the system of studies and instruction, proposing any improvements therein that experience may have suggested." This privilege belongs to each member of the Academic Board, and whatever may be the action of the latter in the above-mentioned respects, any dissenting member may present his views in writing to be forwarded to the War Department. It is easy to criticise any existing system, and difficult to make a suggestion which involves a radical change, without at the same time disturbing the whole course of studies as they at present exist. The present course and its allotment of time are so intimately interwoven that any modification in the mathematics will require a complete recasting of all. The present system is the result of careful deliberation and adjustment on the part of the Academic Board for a period of nearly eighty years, and I do not think I have the right to express, as an individual member, any opinion contrary to its judgment, even were I to hold views antagonistic to the system as it now exists.

Since my opinion has been asked, however, I am glad to say that my experience as a cadet, as an officer in actual war service, as an instructor in mathematics, civil and military engineering, practical military engineering, mineralogy and geology, and as a professor in natural and experimental philosophy, the whole extending over a period of nearly twenty-six years, strongly confirms my opinion that "the amount of time devoted to the subjects named in your first question is not disproportionately great relatively to other branches of instruction now taught at the Academy for the purposes contemplated by this institution."

Very respectfully, your obedient servant,

PETER S. MICHIE,  
Professor of Natural and Experimental Philosophy,  
United States Military Academy.

Prof. EDWARD S. HOLDEN,  
Secretary of the Board of Visitors.  
(Through the adjutant United States Military Academy.)

UNITED STATES MILITARY ACADEMY,  
West Point, N. Y., June 10, 1885.

SIR: I respectfully submit the following statement of my opinion upon the two points specified in the communication from headquarters United States Military Academy dated June 9, 1885:

1. I do regard the amount of time devoted to the study of mathematics (fourth and third classes), and to the study of acoustics, optics, astronomy, and mechanics (second class), as disproportionately great relatively to other branches of instruction now taught, or that should be taught, at the Academy for the purposes contemplated by this institution.

2. I think that such changes should be made in the mathematical branches as to reduce the time now given daily to those branches to about three-fifths of the present amount.

Respectfully, your obedient servant,

GEO. L. ANDREWS,  
*Professor of Modern Languages.*

THE ADJUTANT UNITED STATES MILITARY ACADEMY,  
*West Point, N. Y.*

WEST POINT, N. Y., June 11, 1885.

SIR: In reply to your communication requesting my opinion as to whether or not the amount of time devoted to the study of mathematics, mechanics, astronomy, &c., is disproportionally great relatively to other branches of instruction now taught at the Academy, for the purposes contemplated by this institution, I have the honor to state that, while minor changes (provided for in the Regulations) may possibly be made with advantage from time to time, I believe that the present division of time is, on the whole, the best possible.

Without going into a discussion of the relative merits of literary and mathematical studies for mental training or the purposes of this institution, I will simply refer to the fact that after a test of more than forty years, during which the division of time has been essentially the same as now, the United States Military Academy, considering its purposes, is acknowledged to-day, by military men of all civilized countries, to be the best in the world, and that the officers of the United States Army, as a class, are unsurpassed in their profession by those of any nation.

I consider the course referred to as the foundation of the Academy. Change the superstructure as you will, but let this foundation, which has been the life work of such men as Thayer, Mahan, Church, Bartlett, and Kendrick, remain undisturbed, until there is some indication of weakness in the results.

Very respectfully, your obedient servant,

EDGAR W. BASS,  
*Professor of Mathematics, United States Military Academy.*

Prof. EDWARD S. HOLDEN,  
*Secretary Board of Visitors,*  
(Through headquarters United States Military Academy.)

UNITED STATES MILITARY ACADEMY,  
*West Point, N. Y., June 10, 1885.*

SIR: In reply to the questions contained in the communication addressed by you in behalf of the subcommittee on instruction to the members of the Academic Board, I have the honor to submit the following:

1. I do regard the amount of time devoted to the study of the branches named as disproportionally great relatively to other branches of instruction now taught at the Academy, for a considerable portion of each class, *i. e.*, all of those whose position in the class at the end of a period named below renders their assignment to the cavalry and infantry arms of the service probable.

2. I think it would be desirable to keep the class as a unit in mathematical studies until the completion of descriptive geometry, *i. e.*, to include algebra, plane and spherical geometry, trigonometry, mensuration, and surveying, analytical geometry, descriptive geometry, but to make a greater modification in the amount required from the different sections from first to last. After the completion of descriptive geometry, the class to be divided, the upper half to complete the course as at present; the lower half to omit the calculus and devote the time gained to a study of military administration, camp and garrison duty, care of the horse and material of war, military supply, and services in the field. The class thereafter to remain so divided, the upper portion completing the course of acoustics, optics, astronomy, and mechanics, as now taught; the lower portion to take only the course of astronomy as now taught, and a modified course in the other subjects—descriptive and not mathematical in character—the time thus gained to be devoted to the study of social science and political economy.

Very respectfully, your obedient servant,

C. W. LARNED,  
*Professor of Drawing.*

THE SECRETARY OF THE BOARD OF VISITORS.  
(Through the adjutant United States Military Academy.)

WEST POINT, N. Y., June 10, 1885.

SIR: In reply to questions contained in your letter of yesterday, I have to state:

1. I do not regard the *amount of time* devoted to the studies named as disproportionately great, relatively to other branches of instruction now taught at the Academy, for the purposes contemplated by this institution.

2. In my opinion, no change is desirable in mathematics (fourth and third classes). In the second class (acoustics, optics, mechanics, and astronomy) I think that a reduction of time would be unwise, but that a modification of the course and the relative apportionment of time to the different subjects might be made to advantage.

I am unwilling to suggest specific changes without ample time to consider and discuss them in their bearings upon other subjects of study, and also in relation to the means (text books, &c.) for carrying them into effect.

Very respectfully, your obedient servant,

S. E. TILLMAN,

*Professor of Chemistry, Mineralogy, and Geology.*

The SECRETARY OF SUBCOMMITTEE OF INSTRUCTION, BOARD OF VISITORS.

(Through the adjutant United States Military Academy.)

WEST POINT, N. Y., June 10, 1885.

DEAR SIR: Your communication of the 9th I received on my return from New York last evening.

I would respectfully suggest that the questions therein stated are too important to be answered briefly, and too serious for a hurried reply.

They involve the discussion of such important considerations as—

1. Whether the preliminary examination should be increased, so as to relieve those studies in the course?

2. Whether those very studies are not necessary to the Corps of Engineers?

3. Whether all the cadets should be put through the same course of studies necessary to the Corps of Engineers?

4. And whether post graduate schools should not be established to give special instruction for the several staff corps of the Army, so as to relieve the Academy of the specific work of advanced studies for those corps?

I have the honor to remain, most respectfully, your obedient servant,

W. M. POSTLETHWAITE,

*Professor of History, &c.*

Prof. E. S. HOLDEN,

*Secretary, &c.*

(Through the headquarters United States Military Academy.)

NOTE BY THE BOARD OF VISITORS.

In order to avoid misapprehension, it seems proper to state that such post graduate schools are in existence, as follows: Engineer school at Willets Point, established in 1873, three years' course; artillery school at Fort Monroe, established in 1824, two years' course; infantry school at Fort Leavenworth, established in 1881, two years' course; cavalry school at Fort Leavenworth, established in 1881, two years' course.

HEADQUARTERS UNITED STATES CORPS OF CADETS,

*West Point, N. Y., June 10, 1885.*

SIR: In answer to your communication of the 9th instant, I have the honor to reply:

1. I do not regard the amount of time devoted to the study of mathematics (fourth and third classes), acoustics, optics, astronomy, and mechanics (second class) as disproportionately great, relatively to other branches of instruction now taught at the Academy, for the purposes contemplated by this institution.

2. I have no changes to suggest in these mathematical branches.

Very respectfully, your obedient servant,

H. C. HASBROUCK,

*Lieutenant-Colonel, Commandant of Cadets.*

Prof. EDWARD S. HOLDEN,

*Board of Visitors, present.*

UNITED STATES MILITARY ACADEMY,

*West Point, N. Y., June 10, 1885.*

SIR: I have the honor to reply to your communication of yesterday, in which you request the opinion of the members of the Academic Board in writing upon the two following points:

"1. Whether you regard the amount of time devoted to the study of mathematics (fourth, third, and second classes), as disproportionately great, relatively to other branches of instruction now taught at the Academy, for the purposes contemplated by this institution?"

"2. If you think any changes should be made in these mathematical branches, will you please to define these changes specifically?"

My answer is that, while I cannot but think that there is reason to regret that more time cannot be given than is now possible in the present arrangement of studies to the science of history, I am not prepared to express the opinion that the time devoted to mathematics is disproportionately great, relatively to other branches of instruction now here taught.

Very respectfully, your obedient servant,

H. P. CURTIS,

*Judge-Advocate, U. S. Army, Professor of Law, United States Military Academy.*

Prof. EDWARD S. HOLDEN,

*Secretary Board of Visitors.*

(Through headquarters of Academy.)

WEST POINT, N. Y., June 9, 1885.

SIR: In reply to your communication of to-day, I have the honor to state that, in my opinion, the time devoted to the study of mathematics (fourth and third classes) and philosophy (second class) is not disproportionately great, relatively to the other branches now taught at the Academy, for the purposes contemplated by this institution.

As a preparation for the course of civil and military engineering, and as a proper mental training for Army officers, I consider them the most important branches taught at the Academy.

Very respectfully, your obedient servant,

JAMES MERCUR,

*Professor Civil and Military Engineering,  
United States Military Academy.*

Prof. E. S. HOLDEN,

*Secretary Board of Visitors.*

(Through headquarters United States Military Academy.)

WEST POINT, N. Y., June 9, 1885.

SIR: Referring to your communication of to-day, I would say in answer to your first inquiry, *yes*.

With regard to the second, I would suggest a consideration on the part of the Board of Visitors as to the advisability of recommending a five-years' course of instruction in lieu of the present four-years' course. With a five-years' course the branches mentioned in your first inquiry could be left as at present, and provision made for the additions and extensions in other branches, in my judgment so unquestionably desirable.

Very respectfully, your obedient servant,

CLIFTON COMLY,

*Major of Ordnance, Instructor of Ordnance and Gunnery.*

Mr. EDWARD S. HOLDEN,

*Secretary Board of Visitors.*

UNITED STATES MILITARY ACADEMY,

*West Point, N. Y., June 10, 1885.*

SIR: I am in receipt of the request of the subcommittee of the Board of Visitors for a brief expression of opinion in writing upon the two following points:

"1. Whether you regard the amount of time devoted to the study of mathematics (fourth and third classes), acoustics, optics, astronomy, mechanics (second class), as disproportionally great, relatively to other branches of instruction now taught at the Academy, for the purposes contemplated by this institution?"

"2. If you think any changes should be made in these mathematical branches, will you please define these changes specifically?"

In reply, I have to say that I do not regard the amount of time devoted to the study of mathematics by the fourth and third classes as disproportionally great, giving as it does that thorough grounding in mathematics essential to the pursuit of the most scientific branches of military science, and at the same time revealing those cadets who can, and those who cannot, advantageously pursue these branches.

I do not regard the amount of time devoted to the study of acoustics, optics, astronomy, and mechanics by the second class as disproportionally great for those who

may advantageously pursue them (as determined in the pursuit of the preceding course in mathematics) and who are to become artillery, ordnance, or engineer officers.

I do regard the amount of time devoted to the study of the above branches in the second class-year as disproportionately great for those cadets who (as shown by the pursuit of the preceding course in mathematics) cannot advantageously pursue them, and who are to be commissioned in the infantry and cavalry.

I think a change *desirable* by which the mathematical branches may be greatly reduced during the second-class year (third year at the Academy) for those cadets who either cannot advantageously pursue them or have no need to pursue them, on account of the branch of the service which they will enter.

In the very limited time available for this communication I cannot touch upon much that may be said regarding the expediency or in expediency of such a change.

With the extended mathematical course which I believe should be taught here to those who are to enter the scientific branches of the service, I do not overlook the fact that graduates often leave the Academy with inadequate instruction in the English language; but, as I understand this institution to be maintained for the pursuit of those *special studies* essential to fit officers for every branch of the military service, I think it should not be burdened with imparting the very rudiments of education, and that the system of selection of candidates should be so improved that candidates may be secured with a more thorough and extended elementary education, especially in their own language.

Very respectfully, your obedient servant,

W. S. STANTON,

*Major of Engineers, Instructor in Practical Military Engineering.*

The SECRETARY OF THE BOARD OF VISITORS.

(Through the Superintendent of the Military Academy.)

Under the circumstances it was not practicable to allow adequate time for the preparation of full replies. The replies actually submitted indicate, however, that the Academic Board is not a unit on the matters in question.

The Board of Visitors would therefore commend this subject to the attention of the honorable Secretary of War, and would respectfully recommend that the Academic Board be asked to take into consideration the relative value of the various subjects now taught at the Academy, having regard to the special objects of the institution.

From the foregoing remarks of the Board of Visitors relating to the question of instruction at the United States Military Academy, the high opinion which we have formed of the Academy may be inferred. We, however, desire to be more specific, and to say that, in our best judgment, the whole department of instruction is in a highly effective state. The Academic Board, together with the whole corps of instructors, are full of intelligent zeal for the good of the Academy and of the military service.

The cadets appear to be actuated by good motives in doing their work, and there is no doubt but that this work is performed in an admirable manner on the whole. One point seems to deserve special mention. There is now no cadet at West Point who has not been recommended as proficient by the Academic Board, and we believe that the cheerful obedience yielded by the cadets is largely due to the fact that no outside influence has intervened to retain by arbitrary power cadets pronounced deficient in character or attainments by the Academic Board.

#### STATISTICS BEARING ON THE STANDARD OF PRELIMINARY EXAMINATION AND ON THE STANDARD OF SCHOLARSHIP WITHIN THE ACADEMY.

By the kindness of the Superintendent of the United States Military Academy the material for the following statistical tables has been furnished from the records of the adjutant's office and compiled by the adjutant and by the secretary of the Board jointly.

The tables are arranged by States and Territories.

For each State there is given—

1. The number of candidates reported in the years 1867-'84, both inclusive. Candidates not reporting, though appointed to fill vacancies, are excluded, and alternates are also excluded except when they take the place of a principal.
2. The number of cadets admitted in the years 1867-'84.
3. The number of cadets graduated in the years 1867-'84.
4. The number of candidates rejected on preliminary examination in the years 1867-'84.
5. The number of cadets rejected during the whole four-years' course in the years 1867-'84.
6. The per cent. rejected on preliminary examination during the years 1867-'84.
7. The per cent. rejected during the whole four years' course in the years 1867-'84.

States and Territories.	Candidates reported (excluding alternates), 1867-'84.	Cadets admitted, 1867-'84.	Cadets graduated, 1867-'84.	Rejected on preliminary examination, 1867-'84.	Rejected during whole course, 1867-'84.	Per cent. rejected on preliminary examination.	Per cent. rejected during West Point course.
Alabama.....	66	34	15	32	19	48.48	55.88
Arizona.....	5	4	3	1	1	20	25
Arkansas.....	41	21	9	20	12	48.78	57.14
California.....	32	24	9	8	15	25	62.5
Colorado.....	4	4	4	0	0	0	0
Connecticut.....	26	19	12	7	7	26.92	36.84
Dakota.....	4	4	4	0	0	0	0
Delaware.....	11	7	1	4	6	36.36	85.71
District of Columbia.....	6	5	3	1	2	16.66	40
Florida.....	11	9	3	2	6	18.36	66.66
Georgia.....	63	37	23	26	14	41.27	37.83
Idaho.....	8	3	2	5	1	62.5	33.33
Illinois.....	137	97	50	40	47	29.19	48.35
Indiana.....	104	69	34	35	35	33.65	50.72
Iowa.....	57	43	24	14	19	24.56	44.18
Kansas.....	26	18	8	8	10	30.77	55.15
Kentucky.....	91	51	24	40	27	43.95	52.94
Louisiana.....	42	23	10	19	13	45.23	56.52
Maine.....	28	19	17	9	2	32.14	10.52
Maryland.....	60	37	15	23	22	38.33	59.45
Massachusetts.....	71	58	40	13	18	18.31	31.63
Michigan.....	61	44	25	17	19	27.87	43.65
Minnesota.....	21	18	8	3	10	14.28	55.55
Mississippi.....	49	29	13	20	16	40.81	55.17
Missouri.....	97	62	30	35	32	36.08	51.61
Montana.....	9	4	2	5	2	55.55	50
Nebraska.....	10	7	2	3	5	30	71.42
Nevada.....	9	4	3	5	1	55.55	25
New Hampshire.....	17	14	10	3	4	17.65	28.57
New Jersey.....	46	37	20	9	17	19.56	45.94
New Mexico.....	5	5	2	0	3	0	60
New York.....	251	181	97	70	84	27.88	46.40
North Carolina.....	68	39	20	29	19	42.64	48.71
Ohio.....	151	103	62	48	41	31.78	39.8
Oregon.....	6	5	4	1	1	16.66	20
Pennsylvania.....	214	146	71	68	75	31.77	51.37
Rhode Island.....	15	9	6	6	3	40	38.33
South Carolina.....	43	21	11	22	10	51.16	47.62
Tennessee.....	103	55	22	48	33	46.60	60
Texas.....	47	31	10	16	21	34.04	67.74
Utah.....	6	5	3	1	2	16.66	40
Vermont.....	16	15	14	1	1	6.25	6.66
Virginia.....	74	38	21	36	17	48.64	44.73
Washington.....	9	6	2	3	4	33.33	66.66
West Virginia.....	33	17	8	16	9	48.48	52.94
Wisconsin.....	49	40	21	9	19	18.36	47.5
Wyoming.....	11	7	1	4	6	36.36	85.71
At large.....	207	148	109	59	39	28.67	28.35

*States in order of increasing per cent. of rejections on preliminary examinations.*

Ordinal No.	States.	Per cent.	Ordinal No.	States.	Per cent.
1	Colorado .....	0.00	25	Pennsylvania .....	31.8
2	New Mexico .....	0.00	26	Maine .....	32.1
3	Dakota .....	0.00	27	Washington Territory .....	33.3
4	Vermont .....	6.3	28	Indiana .....	33.7
5	Minnesota .....	14.3	29	Texas .....	34.0
6	District of Columbia .....	16.7	30	Missouri .....	36.1
7	Oregon .....	16.7	31	Delaware .....	36.4
8	Utah .....	16.7	32	Wyoming .....	36.4
9	New Hampshire .....	17.7	33	Maryland .....	38.3
10	Massachusetts .....	18.3	34	Rhode Island .....	40.0
11	Wisconsin .....	18.4	35	Mississippi .....	40.8
12	Florida .....	18.4	36	Georgia .....	41.3
13	New Jersey .....	19.6	37	North Carolina .....	42.6
14	Arizona .....	20.0	38	Kentucky .....	44.0
15	At large .....	23.7	39	Louisiana .....	45.2
16	Iowa .....	24.6	40	Tennessee .....	46.6
17	California .....	25	41	West Virginia .....	48.5
18	Connecticut .....	28.9	42	Alabama .....	48.5
19	Michigan .....	27.9	43	Virginia .....	48.6
20	New York .....	27.9	44	Arkansas .....	42.8
21	Illinois .....	29.2	45	South Carolina .....	51.2
22	Nebraska .....	30.0	46	Nevada .....	55.6
23	Kansas .....	30.8	47	Montana .....	55.6
24	Ohio .....	31.8	48	Idaho .....	62.5

*States in order of increasing per cent. of rejections during whole West Point course.*

Ordinal No.	States.	Per cent.	Ordinal No.	States.	Per cent.
1	Colorado .....	0.00	25	Illinois .....	48.4
2	Dakota .....	0.00	26	North Carolina .....	48.7
3	Vermont .....	6.7	27	Montana .....	50.0
4	Maine .....	10.5	28	Indiana .....	50.7
5	Oregon .....	20.0	29	Pennsylvania .....	51.4
6	Arizona .....	25.0	30	Missouri .....	51.6
7	Nevada .....	25.0	31	Kentucky .....	52.9
8	At large .....	26.4	32	West Virginia .....	52.9
9	New Hampshire .....	28.6	33	Kansas .....	55.2
10	Massachusetts .....	31.0	34	Mississippi .....	55.2
11	Idaho .....	33.3	35	Minnesota .....	55.6
12	Rhode Island .....	33.3	36	Alabama .....	55.9
13	Connecticut .....	36.8	37	Louisiana .....	56.5
14	Georgia .....	37.8	38	Arkansas .....	57.1
15	Ohio .....	39.3	39	Maryland .....	59.5
16	District of Columbia .....	40.0	40	Tennessee .....	60.0
17	Utah .....	40.0	41	New Mexico .....	60.0
18	Michigan .....	43.6	42	California .....	62.5
19	Iowa .....	44.2	43	Florida .....	66.7
20	Virginia .....	44.7	44	Washington Territory .....	66.7
21	New Jersey .....	45.9	45	Texas .....	67.7
22	New York .....	46.4	46	Nebraska .....	71.4
23	Wisconsin .....	47.5	47	Delaware .....	85.7
24	South Carolina .....	47.6	48	Wyoming .....	85.7

*Per cent. of rejections on preliminary examination from 1867 to 1884.*

States.	Per cent.	States.	Per cent.
NEW ENGLAND STATES.		CENTRAL STATES.	
Maine .....	32.1	New York .....	27.9
New Hampshire .....	17.7	New Jersey .....	19.6
Vermont .....	6.3	Pennsylvania .....	31.8
Massachusetts .....	18.3	Ohio .....	31.8
Rhode Island .....	40.0	Indiana .....	33.7
Connecticut .....	26.9	Illinois .....	29.2
Average .....	23.6	Average .....	29.0
SOUTHERN STATES.		WESTERN STATES.	
Virginia .....	48.6	Iowa .....	30.8
North Carolina .....	42.6	Minnesota .....	14.3
South Carolina .....	51.2	Wisconsin .....	18.4
Georgia .....	41.3	Michigan .....	27.9
Alabama .....	48.5	Nebraska .....	30.0
Florida .....	18.4	Colorado .....	0.0
Mississippi .....	40.8	Dakota .....	0.0
Louisiana .....	45.2	Kansas .....	30.8
Arkansas .....	48.8	Missouri .....	36.1
Texas .....	34.0	Average .....	20.9
Kentucky .....	44.0	PACIFIC STATES.	
Tennessee .....	46.6	Oregon .....	16.7
Delaware .....	36.4	California .....	25.0
At large .....	23.8	Washington Territory .....	33.3
Average .....	42.0	Arizona .....	20.0
		Nevada .....	55.6
		Average .....	30.1

Very little reliance can be placed upon conclusions drawn from these statistics.

The figures are correct, but the division into the forty-eight groups by States and Territories has made the number of separate results in each group so small that it is doubtful whether or no any real meaning remains in the figures. The cases of Colorado, New Mexico, and Dakota illustrate this. If there were a sufficient amount of such statistics the percentage of candidates rejected on preliminary examination ought to be roughly proportional to the illiteracy of the population from among whom the candidate was selected.

Again, the percentage of the cadets admitted into the Academy and then rejected during the four years' course at West Point should show, in the average of a sufficiently great number of cases, the mental aptitude of the population from which the cadet was selected for military studies.

Such conclusions cannot be drawn from the tables given above; first, because the amount of data is too small; and second, because the United States is not divided into small communities of fixed population like the component states of the German Empire, for example. A cadet appointed from Colorado may have been born and educated in Iowa of parents born and educated in New England.

The statistics relating to the Southern States are particularly defective, because the representation of these States has totally changed in character between the years 1867-1884.

The present Superintendent has collected from each candidate a quantity of interesting statistics relating to his previous education, circumstances, &c. Similar though less complete data exist for past years.

It would be a valuable contribution to American educational statistics if the data now available regarding the Military Academy could be thoroughly discussed by an expert.

All of which is respectfully submitted.

GEO. HOADLY,

*President.*

EDWARD S. HOLDEN,

*Secretary.*

JOHN BIGELOW.

CHARLES R. CODMAN.

FITZHUGH LEE.

GEORGE L. MILLER.

JAS. C. TAPPAN.

Hon. WILLIAM C. ENDICOTT,

*Secretary of War, Washington, D. C.*

## APPENDIX I.

### DOCUMENTS RELATING TO THE FISCAL AFFAIRS OF THE UNITED STATES MILITARY ACADEMY.

HEADQUARTERS UNITED STATES MILITARY ACADEMY,  
West Point, N. Y., June 8, 1885.

SIR: In reply to your request of the 5th instant, I have the honor to inclose herewith statements of the disbursing officer of the Military Academy marked: (a) Current and ordinary expenses; (b) miscellaneous items and incidental expenses; and (c) buildings and grounds; and statements of the treasurer of the Military Academy, marked A and B, which will show "all public moneys received and disbursed by officers of the Military Academy during the current fiscal year," including "moneys received through the regular appropriations and from any other source; also what sums have been deducted from the pay of the cadets and for what purpose."

Very respectfully, your obedient servant,

W. MERRITT,

*Colonel Fifth Cavalry, Brevet Major-General, U. S. A., Superintendent.*

Hon. W. D. KELLEY,

*Chairman Committee on Fiscal Affairs, Board of Visitors, West Point, N. Y.*

#### (a) CURRENT AND ORDINARY EXPENSES.

*Statement of money received and expended under each appropriation during the fiscal year ending June 30, 1885.*

	Appropriated.	Expended to June 5, 1885.	Available.
Repairs and improvements.....	\$11,000 00	\$10,034 28	\$965 72
Fuel and apparatus.....	13,000 00	12,803 13	196 87
Gas pipes, &c., and annual repairs.....	900 00	118 64	781 36
Fuel for cadet mess, laundry, and shops.....	3,000 00	2,983 21	16 79
Stationery.....	600 00	410 80	189 20
Postage and telegrams.....	300 00	167 33	132 67
Transportation of discharged cadets, materials, &c.....	2,000 00	817 33	1,182 67
Printing: Type, materials, diplomas, registers, &c.....	1,000 00	747 53	252 47
Clerk to disbursing officer and quartermaster.....	1,200 00	1,100 00	100 00
Clerk to adjutant.....	1,200 00	1,100 00	100 00
Clerk to treasurer.....	1,200 00	1,100 00	100 00
Department of mathematics.....	200 00	96 07	103 93
Department of civil and military engineering.....	1,100 00	847 14	252 86
Department of chemistry, mineralogy, and geology.....	2,930 00	1,524 96	1,405 04
Department of natural and experimental philosophy.....	8,075 00	7,362 49	712 51
Department of modern languages.....	200 00	155 07	44 93
Department of history, geography, and ethics.....	300 00	299 41	59
Department of drawing.....	960 00	765 37	194 63
Department of law.....	250 00	124 46	125 54
Department of tactics.....	1,330 00	1,055 87	274 13
Department of ordnance and gunnery.....	300 00	231 23	68 77
Department of practical military engineering.....	900 00	688 50	211 50
Expenses of the Board of Visitors.....	3,000 00	.....	3,000 00
	54,945 00	44,532 82	10,412 18

\* Additional amount made available by act approved February 12, 1885.

W. MERRITT,

*Colonel Fifth Cavalry and Brevet Major-General, U. S. A.,  
Superintendent and Disbursing Officer.*

UNITED STATES MILITARY ACADEMY,

*West Point, N. Y., June 8, 1885.*

## (b) MISCELLANEOUS ITEMS AND INCIDENTAL EXPENSES.

Statement of money received and expended under each appropriation during the fiscal year ending June 30, 1885.

	Appropriated.	Expended to June 5, 1885.	Available.
Gas, coal, oil, &c.....	\$3,500 00	\$3,463 15	\$36 85
Water pipes, plumbing, &c.....	1,500 00	1,468 65	31 05
Cleaning public buildings (not quarters).....	500 00	453 50	46 50
Brooms, brushes, &c.....	200 00	126 45	73 55
Chalk, crayons, slates, sponge, &c.....	300 00	267 35	62 65
Compensation to organist of chapel.....	200 00	150 00	50 00
Compensation to librarian.....	120 00	90 00	30 00
Pay of engineer of heating and ventilating apparatus.....	1,200 00	1,100 00	100 00
Pay of assistant engineer.....	1,000 00	916 66	83 34
Pay of five firemen.....	2,700 00	2,475 00	225 00
Pay of assistant librarian.....	1,000 00	916 66	83 34
Increase and expense of library.....	1,200 00	906 81	293 19
Furniture for cadet hospital and repairs.....	100 00	99 24	76
Purchase of bedding and necessary articles for use of candidates.....	500 00	39 60	460 40
Contingencies for Superintendent.....	1,000 00	750 00	250 00
Renewing furniture in section rooms.....	500 00	461 55	38 45
	15,520 00	13,654 92	1,865 08

W. MERRITT,

Colonel Fifth Cavalry and Brevet Major-General, U. S. A.,  
Superintendent and Disbursing Officer.

UNITED STATES MILITARY ACADEMY,  
West Point, N. Y., June 8, 1885.

## (c) BUILDINGS AND GROUNDS.

Statement of money received and expended under each appropriation during the fiscal year ending June 30, 1885.

	Appropriated.	Expended to June 5, 1885.	Available.
Repairing roads and paths.....	\$500 00	\$399 52	\$100 48
Continuing breast-height wall.....	500 00	499 89	11
Completing new 12-inch water main.....	2,000 00	1,938 90	61 10
Completion of new hospital for cadets.....	5,000 00	3,853 26	1,146 74
Reflooring academic building.....	2,580 00	2,580 00	
Reflooring cadet barracks and piazza.....	2,420 00	2,420 00	
New skylights for drawing academy.....	350 00	349 95	05
Water works.....	520 00	505 00	15 00
Additional bath tubs and repairs.....	{ \$2,000 00 } { *\$1,000 00 }	3,000 00	2,055 07
Cadet laundry: One No. 4 washer, &c.....	360 00	345 00	15 00
Cadet mess: One bake oven.....	650 00	650 00	
New ice cooler or refrigerator †.....	300 00	300 00	
	18,180 00	15,896 59	2,283 41

\* Additional amount made available by act approved February 12, 1885.

† Made available by act approved February 12, 1885.

W. MERRITT,

Colonel Fifth Cavalry and Brevet Major-General, U. S. A.,  
Superintendent and Disbursing Officer.

UNITED STATES MILITARY ACADEMY,  
West Point, N. Y., June 8, 1885.

HEADQUARTERS UNITED STATES MILITARY ACADEMY,  
OFFICE TREASURER, QUARTERMASTER, AND COMMISSARY CADETS,  
West Point, N. Y., June 6, 1885.

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

SIR: In obedience to instructions I have the honor to submit the following, viz :

A.—Statement showing balance sheets of the treasurer United States Military Academy, July, 1884, and May, 1885, and moneys received and expended between those dates.

JULY 26, 1884.

Assistant treasurer.....	\$13,680 18	Balances paid.....	\$441 26
Cadet cash.....	20 90	Cadet laundry.....	2,580 86
Hops and german.....	756 19	Cadet quartermaster.....	4,413 77
Trust funds.....	20,000 00	Cadet subsistence department.....	2,246 95
Balance (cash on hand).....	3,050 91	Corps of cadets.....	3,853 93
		Deposits.....	5 00
		Equipment fund.....	18,306 00
		Gas fund.....	930 09
		Miscellaneous fund.....	1,313 19
		Miscellaneous items.....	1,795 50
		Observatory fund.....	995 54
		Post fund.....	626 09
	<u>37,508 18</u>		<u>37,508 18</u>

I.—Assistant treasurer.

July 26, 1884. Balance to debit.....	\$13,680 18
Deposited (through paymaster).....	131,892 00
	<u>145,572 18</u>
Checks drawn (total amount).....	111,694 99
	<u>33,877 19</u>
May 22, 1885. Balance to debit.....	

II.—Balances paid.

July 26, 1884. Balance to credit.....	441 26
Charged to cadets.....	2,929 58
	<u>3,370 84</u>
Paid to cadets.....	3,370 84
	<u></u>

III.—Barber and shoeblick.

Received.....	1,718 45
Disbursed.....	1,718 45
	<u></u>

IV.—Cadet laundry.

July 26, 1884. Balance to credit.....	2,580 86
Receipts.....	8,972 31
	<u>11,553 17</u>
Disbursements.....	7,337 98
	<u>4,215 19</u>
May 22, 1885. Balance to credit.....	

V.—Cadet quartermaster.

July 26, 1884. Balance to credit.....	4,413 77
Receipts.....	54,116 97
	<u>58,530 74</u>
Disbursements.....	52,899 08
	<u>5,631 66</u>
May 22, 1885. Balance to credit.....	

## UNITED STATES MILITARY ACADEMY.

VI.—*Cadet subsistence department.*

July 26, 1884.	Balance to credit .....	\$2,246 95
	Receipts .....	48,371 19
		<hr/>
	Disbursements .....	50,618 14
		49,000 54
May 22, 1885.	Balance to credit .....	1,537 60
		<hr/> <hr/>

VII.—*Cadet cash.*

July 26, 1884.	Balance to debit .....	20 90
	Paid to cadets .....	4,289 93
		<hr/>
		4,310 83
	Charged to cadets .....	4,310 83
		<hr/> <hr/>

VIII.—*Confectioner.*

Receipts .....	318 25
Disbursements .....	318 25
	<hr/> <hr/>

IX.—*Corps of cadets (see B).*

July 26, 1884.	Balance to credit .....	3,853 93
	Credited to cadets .....	139,149 04
		<hr/>
		143,002 97
	Charged to cadets .....	130,611 75
		<hr/>
May 22, 1885.	Balance to credit .....	12,391 22
		<hr/> <hr/>

X.—*Damages, ordnance.*

Received .....	12 57	
Disbursed .....	12 00	
	<hr/>	
May 22, 1885.	Balance to credit .....	57
		<hr/> <hr/>

XI.—*Dancing.*

Received .....	600 00
Disbursed .....	600 00
	<hr/> <hr/>

XII.—*Dentist.*

Received .....	695 00
Disbursed .....	695 00
	<hr/> <hr/>

XIII.—*Deposits.*

July 26, 1884.	Balance to credit .....	5 00
	Received from cadets .....	5,268 79
		<hr/>
		5,273 79
	Credited to cadets .....	5,166 94
		<hr/>
May 22, 1885.	Balance to cadets .....	106 85
		<hr/> <hr/>

XIV.—*Dialectic society.*

Receipts .....	88 00	
Disbursements .....	43 00	
	<hr/>	
May 22, 1885.	Balance to credit .....	45 00
		<hr/> <hr/>

XV.—*Equipment fund.*

July 26, 1884.	Balance to credit.....	\$18,306 00
	Charged to cadets.....	11,528 00
		<hr/>
		29,834 00
	Credited to cadets.....	1,342 00
		<hr/>
May 22, 1885.	Balance to credit.....	28,492 00
		<hr/> <hr/>

XVI.—*Expressage.*

Received.....	37 53
Disbursed.....	37 53
	<hr/> <hr/>

XVII.—*Gas fund.*

July 26, 1884.	Balance to credit.....	930 09
	Receipts.....	3,248 89
		<hr/>
		4,178 98
	Disbursements.....	3,245 11
		<hr/>
May 22, 1885.	Balance to credit.....	933 87
		<hr/> <hr/>

XVIII.—*Hops and german.*

July 26, 1884.	Balance to debit.....	756 19
	Disbursed.....	476 42
		<hr/>
		1,232 61
	Received.....	1,232 61
		<hr/> <hr/>

XIX.—*Miscellaneous fund.*

July 26, 1884.	Balance to credit.....	1,313 19
	Received.....	10 84
		<hr/>
		1,324 03
	Disbursed.....	132 84
		<hr/>
May 22, 1885.	Balance to credit.....	1,191 19
		<hr/> <hr/>

XX.—*Miscellaneous items.*

July 26, 1884.	Balance to credit.....	1,795 50
	Received.....	505 81
		<hr/>
		2,301 31
	Disbursed.....	2,301 31
		<hr/> <hr/>

XXI.—*Oath.*

Received.....	25 50
Disbursed.....	25 50
	<hr/> <hr/>

XXII.—*Observatory fund.*

July 26, 1884.	Balance to credit.....	995 54
	Disbursed.....	440 42
		<hr/>
May 22, 1885.	Balance to credit.....	555 12
		<hr/> <hr/>

XXIII.—*Paymaster.*

May 22, 1885. Charged to paymaster.....	\$131,892 00
Received from paymaster.....	131,892 00
	<hr/> <hr/>

XXIV.—*Periodicals.*

Received.....	89 90
Disbursed.....	89 90
	<hr/> <hr/>

XXV.—*Photographer.*

Received.....	606 25
Disbursed.....	606 25
	<hr/> <hr/>

XXVI.—*Policing barracks, &c.*

Received.....	2,768 71
Disbursed.....	2,768 71
	<hr/> <hr/>

XXVII.—*Postage.*

Received.....	18 02
Disbursed.....	18 02
	<hr/> <hr/>

XXVIII.—*Post fund.*

July 26, 1884. Balance to credit.....	626 09
Receipts.....	2,107 00
	<hr/>
	2,733 09
Disbursements.....	2,689 20
	<hr/>
May 22, 1885. Balance to credit.....	43 89
	<hr/> <hr/>

XXIX.—*Trust funds.*

4 per cent. United States bonds, par value.....	10,000 00
4½ per cent. United States bonds, par value.....	10,000 00
	<hr/>
	20,000 00
	<hr/> <hr/>

MAY 22, 1885.

Assistant treasurer.....	\$33,877 19	Cadet laundry.....	\$4,215 19
Trust funds.....	20,000 00	Cadet quartermaster.....	5,631 66
Balance (cash on hand).....	1,266 97	Cadet subsistence department.....	1,537 60
		Corps of cadets.....	12,391 22
		Damages, ordnance.....	57
		Deposits.....	106 85
		Dialectic society.....	45 00
		Equipment fund.....	28,492 00
		Gas fund.....	933 87
		Miscellaneous fund.....	1,191 19
		Observatory fund.....	555 12
		Post fund.....	43 89
	<hr/>		<hr/>
	55,144 16		55,144 16
	<hr/>		<hr/>

B.—Statement showing receipts and disbursements on account of cadets from July 1, 1884, to April 30, 1885.

RECEIPTS.

	1884.			1885.		Total.
	July and August.	September and October.	November and December.	January and February.	March and April.	
Balance July, 1884.....						\$3,853 93
Deposits.....	\$198 30	\$2,174 40	\$432 12	\$753 71	\$519 00	4,077 53
Equipment fund.....		96 00	252 00	994 00		1,342 00
Cadet quartermaster.....	41 59	274 18	654 65	824 63	30 46	1,825 51
Travel pay.....				1,828 50		1,828 50
Pay.....	25,200 00	27,907 50	27,321 00	25,257 00	24,390 00	130,075 50
						143,002 97

DISBURSEMENTS.

Equipment fund.....	2,240 00	2,448 00	2,504 00	2,168 00	2,168 00	11,528 00
Mess board.....	7,414 80	9,658 75	9,714 90	8,573 10	8,595 70	43,957 25
Mess damages.....	3 53	7 16	5 73	8 58	2 85	27 85
Cadet quartermaster.....	10,051 84	13,616 68	8,525 94	10,139 42	6,947 40	49,281 28
Cadet laundry.....	2,241 31	2,310 89	1,694 58	1,415 42	1,226 23	8,888 43
Baths and shoe-black.....	361 94	186 60	186 24	267 06	282 00	1,283 84
Barber.....	67 06	91 81	91 56	94 10	88 58	433 11
Confectioner.....	79 75	58 00	73 50	52 00	55 00	318 25
Policing barracks.....	676 80	526 70	537 84	465 75	512 90	2,719 99
Dialectic society.....		88 00				88 00
Gas fund.....	197 40	217 00	213 95	197 75	191 10	1,017 20
Dentist.....	220 00	75 00	235 00		165 00	695 00
Ordnance, damages.....		4 50	1 68	6 39		12 57
Library damages.....	5 05					5 05
Postage due.....	2 05	2 80	4 20	5 89	3 08	18 02
Expressage.....	11 35	5 60	9 85	9 68	1 05	37 53
Periodicals.....	3 40	2 00	11 50	60 50	12 50	89 90
Hops and german.....	976 24	121 80	57 07	77 50		1,232 61
Dancing lessons.....	600 00					600 00
Photographs.....		504 00	81 25	21 00		606 25
Oath (notary public).....		7 25		18 25		25 50
Engineering (books).....		120 00		158 25		278 25
Miscellaneous items.....	24 36			193 20	9 90	227 46
Cash.....	211 31	362 25	3,023 27	533 50	380 50	4,310 83
Balance paid.....		210 61	97 86	2,621 11		2,929 58
Balance April 30, 1885.....						12,391 22
						143,002 97

Respectfully submitted.

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

*Capt. William F. Spurgin, Twenty-first Infantry, treasurer Military Academy, in account with the post fund during the period from July 26, 1884, to May 22, 1885.*

DISBURSEMENTS.

Date.	To whom.	On what account paid.	
1884.			
July 23	T. S. & J. D. Negus.....	Repairing lever clock.....	\$13 45
July 31	Chadborn Caldwell Manufacturing Company.	Repairing cut mower.....	7 30
Aug. 1	New York Herald.....	One year's subscription, daily edition, for headquarters U. S. Military Academy.	7 50
1	New York Times.....	do.....	7 50
1	New York Tribune.....	do.....	8 50
1	W. A. Burbridge.....	Two chains, at \$5 each.....	10 00
8	Pay roll.....	Carpenter service, Denton's stable, wagon transportation, trees, &c.	14 50

*Capt. William F. Spurgin, Twenty-first Infantry, treasurer, &c.—Continued.*

## DISBURSEMENTS—Continued.

Date.	To whom.	On what account paid.		
1884.				
Aug. 12	T. S. Coolidge .....	(Charged in error—credited August 12).....	\$60 00	
12	William O. Nailler & Co..	Grass seeds .....	48 80	
12	West Point Foundry Association.	Repairs to wagon, &c .....	5 31	
19	Bigelow & Main .....	Books for cadets' Young Men's Christian Association.	13 80	
19	Cadet quartermaster's department.	Articles for treasurer's office, headquarters, chapel, library, &c.	12 55	
Sept. 1	Pay roll .....	Laborers employed on post-office building .....	93 50	
6	do .....	Repairing chair, upholstering, &c .....	2 50	
17	C. Harrison & Co .....	Material for repairs, &c., to quarters at post-office.	46 61	
17	J. A. Roebling's Sons & Co.	Wire for steel weights of lever clock .....	3 37	
17	William Nelson .....	Piping for repairs to water-works .....	2 76	
17	Chadborn Caldwell Manufacturing Company.	Repairs to lawn-mower .....	3 80	
17	Brown Lime Manufacturing Company.	Thirty barrels slack lime for use as fertilizer.	21 00	
18	N. Dain & Sons .....	Lumber for repairs of quarters at post-office .....	37 93	
18	William Shondel .....	Tin roofing, galvanized chimneys, &c .....	16 00	
19	Patterson Bros .....	Hair for padding harness, iron, screws, &c .....	34 15	
19	do .....	Iron for tree wagon, and hinges for post-office cottage.	18 96	
23	Shannon & Co .....	Repairs to lightning-rods at hotel and magazine.	9 25	\$497 04
Oct. 4	C. H. Joosten .....	Flower seeds for grounds connected with cadet hospital.	16 45	
4	William Hannon & Co .....	Flooring laid in officers' mess .....	100 00	
4	W. & J. Sloane .....	Thirty-three and one-third yards of carpet, parlor of officers' mess.	50 00	
6	Pay roll .....	Employés at hotel, post-office, ice houses, &c .....	29 50	
10	Q. O'M. Gillmore .....	Bill paid S. Brooks for repairs to water-wagon.	10 00	
16	American Sunday School Union.	School books, &c., post Sunday-school .....	5 71	
18	Pay roll .....	Laborers employed on ice runs .....	33 00	
20	C. H. Joosten .....	Flower seeds .....	4 00	
21	W. & J. Sloane .....	Curtains and fixtures in Superintendent's office.	47 99	
23	Thomas Shaw's Sons .....	Doors, sashes, &c., for hotel and post-office ..	37 25	
23	Doernus & Corbett .....	Two chairs, one couch, and one easy chair .....	170 00	
31	Pay roll .....	Employés in ice runs, post-office, Denton's stables, &c.	145 00	
Nov 4	A. K. Smith .....	Re-imbusement for seeds purchased for officers' yards.	26 80	
12	Charles Harrison & Co .....	Two clocks for hotel .....	2 74	
13	N. Dain & Sons .....	Lumber for repairs of ice runs, soldiers' quarters, post-office, dam, &c.	310 63	
13	Chadborn Caldwell Manufacturing Company.	Repairs to lawn-mower .....	12 50	
13	Patterson Bros .....	One thousand and eight pounds half round iron for repairs to ice runs.	40 68	1,042 25
18	S. Fletcher Allen .....	Repairs at saw-mill .....	25 21	
18	E. J. Denning & Co .....	Ninety-nine and three-fourths yards moreen at 50 cents, for chapel.	49 88	
Dec. 19	Miller & Yates .....	Professional services on account of ground improvements.	35 00	
19	N. Dain & Sons .....	Four pieces spruce lumber for ice runs .....	8 64	
30	A. S. Barnes & Co .....	Sunday-school books .....	16 80	
31	W. A. Wilde & Co .....	do .....	1 35	
31	American Sunday School Union.	Subscriptions to books .....	1 13	
1885.				
Jan. 5	A. B. Berard .....	Box rent at post-office .....	2 00	
15	Cadet quartermaster's department.	Waste paper .....	1 44	
15	M. Brechbiel .....	Repairing chairs .....	4 00	145 45
29	Cowlshaw, Nicol & Co .....	Material used in covering cushions in post chapel.	64 50	
30	C. H. Butler .....	Five hundred flower pots, at 2 cents each .....	10 00	
30	Ward & Logan .....	Repair of looking-glass in Superintendent's quarters.	4 30	
Feb. 6	Cooke & Co .....	One hundred and forty-five feet galvanized iron pipe, repairs at hotel.	26 60	
13	Patterson Bros .....	Bar iron and proof chains for ice runs .....	5 70	
23	H. D. Lewis .....	Services as teamster, hauling ice .....	3 50	
25	John Moonan .....	Salt hay, fifteen bales .....	29 21	
Mar. 4	Subsistence Department United States Army.	Two hundred and twenty-four pounds salt .....	1 57	

Capt. William F. Spurgin, Twenty-first Infantry, treasurer, &c.—Continued.

DISBURSEMENTS—Continued.

Date.	To whom.	On what account paid.		
1885.				
Mar. 4	C. F. Reynolds & Co.....	Two lights plate glass, for cases in library museum.	\$10 75	.....
25	Cadet quartermaster's department.	Waste paper for headquarters building.....	1 32	\$156 95
30	A. S. Barnes & Co .....	Picture frame.....	41 50	.....
Apr. 1	Prof. W. W. Baily .....	Lecture delivered in cadets' mess-hall.....	25 00	.....
6	American S. S. Union.....	Sunday periodicals for Sunday-school.....	3 65	.....
6	W. A. Wilde & Co .....	Sunday-school literature .....	4 80	.....
15	Patterson Brothers .....	Leather belting and saws for saw-mill.....	35 35	.....
17	W. & J. Sloane .....	Material for public rooms, Superintendent's quarters.....	34 20	.....
18	William O. Mailler & Co.....	Grass seed .....	19 65	.....
21	H. W. Shelton, agent.....	Insurance on public buildings .....	175 00	.....
21	C. H. Joosten .....	Flowers .....	16 15	.....
23	N. Dain & Sons .....	Lumber for repairs at hotel.....	39 56	.....
24	New York Plow Company .....	Plow and shears .....	7 80	.....
28	A. Hirte .....	Traveling expenses .....	4 00	.....
28	West Point Foundry Association.	Material for repairs.....	37 66	.....
30	Pay roll.....	Plumbers, carpenters, masons, laborers employed on repairs at hotel.....	215 50	.....
May 1	Chas. Scribner's Sons .....	Volume XVIII, Encyclopedia Britannica .....	5 00	.....
1	William O. Mailler & Co. ....	Grass seeds .....	9 85	.....
2	D. H. Patty .....	Trees .....	96 00	.....
4	Subsistence Department United States Army	Salt .....	32	.....
9	New York, Ontario and Western Railroad Company.	Freight on plow .....	12	.....
18	C. F. Reynolds .....	Paints, dyes, &c .....	16 37	.....
18	C. Harrison & Co .....	Lead pipe for repairs at hotel.....	29 75	.....
18	Patterson Brothers .....	Screws, hinges, &c., repairs at hotel.....	4 98	.....
18	Chadborn Coldwell Manufacturing Company.	Repairing lawn-mowers, &c .....	24 80	847 01
		Balance on hand.....		43 89
				2,733 09

This statement is a correct exhibit of all receipts and disbursements on account of the Military Academy post fund for the period from July 25, 1884, date of treasurer's statement, to May 22, 1885, date of last statement of treasurer United States Military Academy. Receipts on right page, expenditures on left.

Respectfully submitted.

W. F. SPURGIN,

Captain Twenty-first Infantry, Treasurer United States Military Academy.

RECEIPTS.

Date.	From what source received.	On what account.		
1884.				
July 26	By balance .....			\$626 09
Aug. 12	S. S. Coolidge .....	(Error—gas fund).....	\$60 00	.....
29	A. H. Craney .....	Rent .....	500 00	.....
Sept. 4	D. Truesdell .....	Ice .....	106 00	.....
5	J. Denton & Son .....	Rent .....	50 00	.....
10	A. H. Craney .....	On account.....	250 00	.....
19	do .....	do .....	250 00	.....
20	Joseph Denton .....	Rent .....	37 50	1,253 50
29	A. B. Berard .....	Rent to date .....	37 50	.....
Oct. 6	D. Truesdell .....	Ice .....	28 00	65 50
1885.				
Jan. 3	A. B. Berard .....	Rent .....	37 50	.....
7	J. Denton & Sons .....	do .....	50 00	.....
22	Joseph Denton .....	do .....	37 50	125 00
Feb. 3	Colishaw N. & Co.....	(Error—returned).....	50	.....
March 25	Joseph Denton .....	Rent .....	37 50	38 00
31	A. B. Berard .....	do .....	37 50	.....
April 1	J. Denton & Son .....	do .....	50 00	.....
4	A. H. Craney .....	On account .....	250 00	.....
9	do .....	do .....	250 00	587 50
May 20	Joseph Denton .....	Rent .....		37 50
				2,733 09

## APPENDIX II.

*EXAMINATION PAPERS WHICH HAVE BEEN SET TO CANDIDATES BETWEEN 1878 AND 1882.*

**JUNE, 1878.**

### EXAMINATION IN ARITHMETIC.

Time allotted : Three hours.

#### DIVISION I.

1. Find the number of times  $\frac{7}{8}$  of  $\frac{5}{8}$  of a cubic yard contains 1,377.57 cubic inches.

2. Reduce  $\frac{9\frac{1}{2} - \frac{1}{2}}{63} \times \frac{4\frac{1}{2} - 3\frac{1}{2}}{\frac{1}{3}}$  to a simple fraction.

$$\frac{9\frac{1}{2} - \frac{1}{2}}{63} \times \frac{4\frac{1}{2} - 3\frac{1}{2}}{\frac{1}{3}}$$

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

3. Reduce  $\frac{5\frac{1}{2} + \frac{7\frac{1}{2}}{0.5}}{4 + 3.45}$  to an equivalent decimal.

$$\frac{4 + 3.45}{2\frac{1}{2}}$$

4. Five cubic feet of gold weigh 98.20 times, and 2 cubic feet of copper weigh 18 times, as much as a cubic foot of distilled water; how many cubic inches of copper will weigh as much as  $\frac{1}{3}$  of a cubic inch of gold?

5. If a person travels  $15\frac{1}{2}$  miles a day, and receives 2.76 shillings for each 19,360 feet passed over, how many gallons of wine, at 132.8 farthings a pint, could he buy with the money received, after traveling 7 days 10 hours 4 minutes and 48 seconds?

#### DIVISION II.

1. Define the least common multiple of two or more numbers; and give the rule for obtaining it.

2. Define the greatest common divisor of two or more numbers; and give the rule for obtaining it in the case of two small numbers.

3. Define a fraction; and explain the difference between a common fraction and a decimal fraction.

4. Explain why multiplying the denominator of any fraction is equivalent to dividing the fraction by the multiplier.

5. Give the rule for obtaining the value of a denominate fraction in integers of lower denominations.

6. Give an example of each of the following, and in the same order as indicated : An improper fraction, a simple fraction, a compound fraction, a complex fraction, and a mixed number.

7. 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.

8. Explain how to change any fraction to an equivalent fraction having a given fractional unit. Illustrate by finding how many 17ths there are in  $\frac{1}{4}$ .
  9. State when four numbers are in proportion; and give an example.
  10. Give the rule for reducing a compound denominate number to a decimal of a given denomination.
- (The candidate will state the text-books in this subject that he has studied; and write his number in a legible hand.)

## EXAMINATION IN ENGLISH GRAMMAR.

Time allotted: Two hours.

*(Directions: Write your number and the date in the places indicated.)*

## DIVISION I.

1. What is English grammar?
2. What is a verb? What are its properties?
3. Give the first person singular of all the tenses in the indicative mood of the verbs *drive, smite*.
4. State the difference between a transitive and an intransitive verb; give an example of each.
5. What is a participle?
6. Construct a sentence (or sentences) illustrating the use of the participle as a part of a verb, as an adjective, and as a verbal noun.
7. Name the interrogative pronouns, and give the rule for their use in reference to persons and things.
8. How must pronouns agree with the nouns for which they stand?

## DIVISION II.

*(Directions: In parsing, rules are not to be given. Each word must be fully parsed, so as to show what it is, and its relation to other words in the sentence.)*

Parse the following sentence: "Young men entering military life should be actuated by the highest motives that govern humanity, and learn to fear dishonor more than death."

## DIVISION III.

Correct all the errors in the following sentences:

1. Who should I trust if not he who I have lived with?
2. Everybody ought to follow the dictates of their own conscience.
3. By no means be not seen.
4. Each have their own faults.
5. He done it, for I seen him do it.
6. He writes like I do.
7. No one does it more easily than her.
8. Neither he or I were in fault.
9. Between you and I he acted very unwisely.
10. Was it you or him that did it? It was me.
11. Each of the States are represented.
12. I was not there nor my sister neither.
13. I ought to have told him to have gone and got it.
14. Henry is older, but not so tall as James.
15. England expects every man to do their duty.
16. Every one of your arguments are absurd.
17. A too great variety of studies weaken the mind.
18. Every man should act suitable to his station in life.
19. Henry learned me to skate.
20. He did not act with that loyalty as was expected.
21. I was once thinking to have written a poem.
22. Lake Superior is the largest of any lake in the world.
23. Which of your four brothers is the younger.
24. The general with all the soldiers were taken.

[N. B.—The candidate will name the text-books on this subject which he has studied.]

## EXAMINATION IN GEOGRAPHY.

Time allotted: Two hours.

[Note: Write your number, not your name. Write legibly.]

1. What river of the United States flows into the Gulf of California? In what direction does it flow?

2. Name the five great lakes on or near the northern boundary of the United States. What river carries their waters to the ocean? In what direction does it flow? Name its principal tributaries.

3. Name the longest river of the United States? What are its three principal tributaries?

4. Where is Great Salt Lake? Where is Lake George? Where is Lake Champlain? Lake Michigan?

5. Bound Kentucky; name and locate its principal city; name also its political capital.

[Note: In bounding States, the 5th, 6th, and 7th questions, name the adjoining States as well as the water boundaries, rivers, &c.]

6. Bound South Carolina, and name its principal city, and name also its political capital.

7. Bound Missouri, and name its principal city.

8. What is the political capital of New York? Of Ohio? Of Illinois? Of Missouri? Of New Hampshire? Of Virginia? Of Louisiana?

9. How many States in the Union? Which is the largest State in area? Which is the smallest State in area? Which has the greatest number of inhabitants?

10. Name the Pacific States. Name the Gulf States in order, beginning on the east. Name, in order, beginning at the north, the Atlantic States. What States border on the British possessions, or on the Great Lakes?

11. How many Territories belong to our Union? Which one touches the Pacific Ocean? Which ones touch Old Mexico?

12. Name the principal mountain ranges of North America. Locate them.

13. Going all the way by water (excluding canals), from Saint Paul, Minn., to West Point, N. Y., through what bodies of water would you pass, and along what States would you pass? What three large cities would you see?

14. Locate the following bays: Baffin's, Hudson's, Raritan, Delaware, Chesapeake.

15. What gulf separates North from South America? What land connects them?

16. What is the principal river of South America, and into what does it flow? Give the latitude of its mouth, about.

17. What and where is the principal mountain range of South America?

18. Locate the following capes: Cape St. Roque, Cape St. Lucas, Cape Farewell, Cape North, Cape Mendocino, Cape Race.

19. Name the three principal oceans of the world. Which is the largest?

20. How many continents or grand divisions on the globe? Which is the largest? Which the most civilized? Which the least civilized?

21. Name the five principal powers of Europe, and five of the lesser powers.

22. What are the principal mountains of Europe, and where are they?

23. Into what does the Danube flow?

24. Into what does the Rhine flow?

25. What water separates Ireland from England; and what separates England from the continent?

26. Where is the Black Sea? Where is the Baltic? The Adriatic Sea?

27. What sea is between Africa and Asia? What isthmus connects Africa and Asia?

28. What high mountain range in the northern part of India?

29. What large islands in the Indian Ocean are crossed by the equator?

30. In going all the way by water, and by the Suez Canal, from Calcutta to St. Petersburg, along what waters will you pass?

[The candidate will state the text-book or books that he has studied upon this subject.]

## EXAMINATION IN HISTORY.

Time allotted: Two hours.

[Write very legibly, and fill in your number and the date where indicated above.]

1. Give the names of four of the principal Spanish discoverers and explorers in America and the countries visited by them, together with the dates of their explorations.

2. Give the same facts of three English explorers prior to 1620.

3. Who explored and named the gulf and river of Saint Lawrence, and for whom did he claim the country?
4. Give dates and important facts connected with the settlement of the following named colonies, stating the different settlements therein, by whom made, the motive of immigration, and under whose auspices established: (1) Virginia; (2) Massachusetts; (3) New York; (4) Maryland.
5. How many colonial wars between France and England, and by what names are they severally known?
6. Where and when was the treaty of peace between Great Britain and the United States signed after the war of revolution, and what were the geographical limits assigned by its provisions?
7. When did slavery exist in the New England States?
8. When were the Articles of Confederation between the colonies agreed to by Congress, and when ratified? When did the Constitutional Convention meet, who was its presiding officer, and how long before the Constitution was fully ratified by all of the States.
9. What were the causes of the war of 1812, and its results?
10. When was the city of Washington taken by the British, and what were the circumstances of its capture?
11. State the limiting dates of the following administrations, and the principal events occurring therein: (1) Jackson; (2) Polk.
12. What was the political condition of the country at the beginning of the civil war; what great questions were at issue, and what parties brought forward candidates for the Presidency? Who were these candidates?
13. What States adopted ordinances of secession?
14. What men composed the Cabinet of President Lincoln during his first administration, and what office did each hold?
15. When was the emancipation proclamation issued?
16. What movement of the Confederate forces resulted in the battle of Gettysburg; when was it fought, and what its effect?
17. What campaign preceded the surrender of Lee; what was the last important battle of the war, and when did Lee surrender?

[Name the text-books you have studied upon this subject.]

**JUNE, 1879.**

**EXAMINATION IN ARITHMETIC.**

Time allotted: Three hours.

**DIVISION I.**

1. Divide 3,380,321 by MDCCXCIX and express the quotient by the Roman system of notation.
2. Divide 11.01 by .00038.
3. Change .013 to an equivalent fraction whose denominator is 135.
4. Find the greatest common divisor of  $26\frac{1}{2}$ ,  $28\frac{3}{4}$ , and  $29\frac{1}{6}$ .  

$$8\frac{3}{4} - \frac{7\frac{3}{4}}{1.5}$$
5. Reduce  $\frac{2\frac{2}{7}}{7\frac{3}{11} + \frac{19}{19}}$  to an equivalent decimal.
6. Reduce 8 miles 7 furlongs 5 rods 4 yards 6 feet  $2\frac{3}{4}$  inches to rods and decimal of a rod.
7. Find the least common multiple of 32, 34, and 36.
8. If 22,400 soldiers have provisions to last three weeks, how many must be sent away in order that the provisions may last seven weeks?
9. If twenty men can do a piece of work in twelve days, how many men could perform three times as much in one-fifth of the time?
10. A cistern is filled by a pipe "A" in twenty minutes, by a pipe "B" in twenty-four minutes, and is emptied by a tap "C" in thirty minutes. What part of the cistern will be filled in fifteen minutes if "A," "B," and "C" are all turned on together?

## DIVISION II.

1. Give the rule for reducing a compound number to a decimal of a higher denomination.
  2. Explain what the denominator and numerator of a fraction, each, represent.
  3. Explain the difference between a common fraction and a decimal.
  4. Give the rule for multiplying one decimal by another.
  5. What is the effect of annexing a cipher to a decimal, and why?
- [Name the text-books on this subject you have studied.]

## EXAMINATION IN ENGLISH GRAMMAR.

Time allotted: Two hours.

## DIVISION I.

1. What is meant by the *subject of a sentence*?
  2. What is the *predicate* of a sentence, and what is the *essential word in the predicate*? What is *case*? What *cases* are used in English?
  3. What is *declension*? What is *conjugation*? What parts of speech are declined? What part of speech is conjugated?
  4. What is a *pronoun*? What are the classes of *pronouns*? What is the difference between a *noun* and *pronoun*?
  5. Give the *present infinitive, past or imperfect tense, and past or perfect participle* of the verbs, *catch, choose, bid, dream, lay, lie, see, shake, eat, hurt, know*.
- [Answers to be numbered to correspond with the number of the question.]

## DIVISION II.

Parse the following sentence: "He said that I did not come last Tuesday, though I had promised that I would come to see him before he left town."

[*Directions:* Write quite across both pages if necessary. Parse each word fully. State what each conjunction connects, between what words each preposition shows the relation, the subject of each verb, the verb of which each nominative case is subject. Give no rules, principal parts, declensions, or comparisons.]

## DIVISION III.

Correct all errors that occur in the following sentences:

1. It is not only the duty but interest of young persons to be virtuous.
2. You cannot read too much of the classics, nor too well.
3. He regards his word, but you do not.
4. The more I see of his conduct, I like him better.
5. In seeking to dig up one fact, it is incredible the number of facts I unearthed.
6. The hyena, they pretend to have been brought from Abyssinia.
7. In England, every one is free as soon as they touch the land.
8. A silk dress or a flowered bonnet were then great rarities.
9. The protest laid quietly on the table.
10. The miller was bound to have returned the flower.
11. To this, in a great measure, has been attributed the successes of the Moslems.
12. He is too reckless and indolent that we should put confidence in him.
13. A conjunction connects words, phrases, and clauses.
14. How could my horse get away without somebody untied him?
15. There is no other umbrella here but mine.
16. It was your brother to whom I was mostly indebted.
17. I have an abhorrence to such politicians.
18. Congress has not, nor never had, the Constitutional power to intermeddle thus.
19. She dresses suitable to her station and means.
20. I only bought the horse and not the buggy.
21. I would not have let her gone to such a place.
22. There is a strong necessity for us being more frugal.
23. Whether one or more persons was concerned, does not appear.

[N. B. The candidate will state what text-books on this subject he has studied.]

## EXAMINATION IN GEOGRAPHY.

Time allotted: Two hours.

[Note: Write your number, not your name.]

1. What is the latitude of the tropic of Capricorn?
2. What political divisions are crossed by the tropic of Cancer?
3. What city of the eastern continent is on about the same latitude as New York? What as the Straits of Belle Isle? What as New Orleans?
4. Name the political divisions of South America.
5. Describe the position of, and give the government to which belongs each of the following islands, or groups of islands: Phillipine, Jamaica, Feejee, Bahama, St. Helena, Azores, Martinique, Java.
6. Name two peninsulas of the northern part of Europe. Three of the southern part of Asia.
7. Give the capes along the western coast of the United States, commencing at the north.
8. What is the most northern point of Africa?
9. What is the highest mountain system in the world?
10. Where are the following mountains? (Locate definitely.) Atlas, Ozark, Ural, Green, Cambrian, Mt. Fairweather.
11. Name the principal seas, gulfs, bays, channels, and straits of the Atlantic Ocean, in the eastern continent, north of the equator.
12. Name and locate eight of the largest lakes wholly or partly in the United States.
13. Name two great lakes on each side of the Alps.
14. Give the five largest rivers of the United States, in order of their length.
15. Name the rivers emptying into the Baltic Sea.
16. What States and Territories are traversed by the Rocky Mountains?
17. What States would you cross going on foot, by the most direct line, from Portland, Me., to New Orleans?
18. Bound Indiana, Dakota, Louisiana. (The rivers, lakes, and mountains on the boundaries will be given.)
19. Name and locate the principal sea-ports of the United States on the Atlantic coast.
20. Give the body of water on which stands each of the following cities: Berne, Nashville, Stockholm, Montgomery, Trieste, Calcutta, Frankfort, Lynchburg, Rome, Cleveland, Warsaw, Manchester, U. S.
21. Give, roughly, in miles, the distance between the following places: New York and Liverpool; London and Canton.
22. On what bodies of water would you sail, and what capes would you pass, in going, entirely by water, from Richmond to Vienna? From Chicago to New York?
23. Across what rivers and by what cities would you pass traveling by rail from Boston to Pike's Peak, by way of New York?

[The candidate will state the text-books on this subject that he has studied.]

## EXAMINATION IN HISTORY.

Time allotted: Two hours.

[Write very legibly, and fill in your number and date as indicated above.]

1. What European nations made settlements within the *present* limits of the United States? Give the locality and date of each.
2. Give dates and other important facts connected with the settlement of the following colonies: Connecticut, Rhode Island, Maryland, Georgia.
3. Describe the different kinds of colonial government.
4. When was the first colonial confederacy formed? What colonies composed it? What was its object?
5. Give the date of the last French and Indian war. What was its cause? Who were the most prominent generals concerned in it? What was its result?
6. Give an account of the colonial convention at Albany in 1754. What was its object and result?
7. When and where did the first *Colonial* Congress meet? What was done by it?
8. What military operations occurred between the first *Continental* Congress and the Declaration of Independence?

9. Name the principal causes of the Revolutionary War.
10. When did that war *practically* cease? When was the treaty of peace signed?
11. What European power first recognized our independence? What other benefits did we derive from it?
12. When was the northwest territory organized? What important ordinance was passed in regard to it?
13. What rebellions occurred between 1785 and 1800?
14. When, where, and why was the Federal Constitution formed? When did it go into effect? When adopted by all the States?
15. Give the boundaries of the United States as they were in 1783.
16. What war occurred during Jefferson's administration?
17. When, from whom, and at what price was Louisiana purchased? What territory did it embrace? What was the chief object of the purchase?
18. What caused the war of 1812? Was our success greatest on the land or on the sea?
19. What is the Monroe doctrine?
20. What was the Missouri compromise? Why so called? When was it made? When repealed?
21. Under whose administration did the Mexican war occur? How long did it last? What was its result?
22. What caused our civil war? Name the States in rebellion. When and where did the war formally begin? When, where, and how did it end? What was one of its chief results?
23. What additions have been made since this war to the Constitution of the United States?

[Name the text-books on this subject you have studied.]

**JUNE, 1880.**

EXAMINATION IN GEOGRAPHY.

Time allotted: Two hours.

1. What is geography? How is it divided?
2. What are latitude and longitude? How do they differ?
3. What is the equator?
4. What are the tropics? Why so called? Name and locate them.
5. What is a peninsula? Name the two largest in the world.
6. Bound the United States. (Name the land and water boundaries definitely.)
7. Name the States and Territories on the northern boundary. Name those on the eastern boundary. Name those on the southern boundary. Name those on the western boundary.
8. How is the Arctic Ocean connected with the Pacific? How with the Atlantic?
9. What is the latitude of New York (about)? Through what countries of Europe and Asia does it pass? Near what cities in Europe and Asia?
10. What rivers flow into the Mississippi from the east? Through or by what States do they flow? What rivers flow into it from the west? What rivers of the United States flow into the Atlantic? What rivers flow into the Pacific?
11. Name and locate the mountain ranges of the United States.
12. Bound the following States, and name their capitals: Georgia, Florida, Illinois, Texas, New York, Rhode Island.
13. Where is Cape Sable? Where is Cape Hatteras? Where is Cape Race? Where is Cape St. Lucas?
14. What States are touched by Lake Michigan?
15. Name the four largest islands of the West Indies.
16. Name and locate the States of South America. Name their principal cities.
17. How would you go by water from Saint Louis to Vienna? How would you go by land and water?
18. Name all the political divisions of Europe, and their capitals.
19. Name and locate the principal mountain ranges of Europe.
20. What three rivers take their rise in the Alps? In what direction do they flow? And where do they empty?
21. What islands are between the Indian and Pacific Oceans?
22. What countries are washed by the Bay of Bengal?
23. Name the two principal rivers of Hindostan. Where do they rise and where empty?

24. Where is Cape Lopatka? Where is Cape Comorin? Where is Cape Guardafui? Where is Cape Finisterre? Where is Cape St. Vincent?
25. Where are the following cities? (Locate definitely) Yeddo, Shanghai, Calcutta, Hamburg, Bordeaux, Florence, Louisville, Columbus.
26. Through what parts of South America does the meridian of New York pass?

## EXAMINATION IN ENGLISH GRAMMAR.

Time allotted: Two hours.

## DIVISION I.

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

1. What is a pronoun? What are the classes of pronouns? Give examples of each class of pronouns.
2. Give the infinitive mood, imperfect or past tense, and the perfect or past participle of *beat, bid, break, shine, sing, bend, build, kneel, lead, mean*.
3. What is a verb? What is the conjugation of a verb? Name the moods. Name the tenses. What are auxiliary verbs?
4. What is a phrase? What is a clause? What is a sentence?

## DIVISION II.

[N. B.—In parsing, write across both pages, if necessary. Give no rules, declensions, comparisons, or principal parts. In other respects, parse fully. Give case, number, person, mood and tense of each word, according as it has one or more of these properties. Give the subject of each verb, the governing words of each objective case, the relation shown by each preposition, precisely what each conjunction connects. Omissions will be taken to indicate ignorance.]

Parse the *words in italics* in the following paragraph:

"The *preposition* and the *word which it governs* form together what is called a *prepositional phrase*. Such a phrase has a value in the sentence *resembling that of the two qualifying or limiting parts of speech, the adjective and the adverb*, and it is to be estimated and named *according to this value*."

## DIVISION III.

Correct all the errors that occur in the following sentences:

1. I have no doubt but what he will come.
2. Each of the ladies, like two good actresses, were perfect in their parts.
3. Neither law nor opinion superadd artificial obstacles to the natural ones.
4. He knows better than withhold information.
5. Let they who raise the spell beware the Fiend.
6. Her nature was altogether different to that of Alice.
7. You know as well as me that he never swerves from his resolution.
8. He found two French ladies in their bonnets, who he soon discovered to be actresses.
9. Between you and I, he has made a great mistake.
10. He made her one of the clumsiest bows that was ever performed by a mortal.
11. Seated close to him was a strange figure, whom he felt was no earthly being.
12. To have prevented their depreciation, the proper course would have been to have made a valuation of all the property.
13. She uttered such cries that pierced the heart of every one who heard them.
14. She behaved unkindly than I expected.
15. They that honor me, I will honor.
16. Neither flatter or condemn the rich or the great.
17. I will lie me down in peace and take my rest.
18. George was the most diligent scholar whom I ever knew.
19. There is, in fact, no impersonal verbs in any language.
20. The winter has not been so severe as we expected it to have been.
21. Who are you looking for?
22. I shall take care that no one shall suffer no injury.
23. The trial is over, and the jury have rendered a verdict of guilty.

JUNE, 1881.

## EXAMINATION IN ENGLISH GRAMMAR.

Time allotted: Two hours.

## DIVISION I.

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

1. What is a noun? What is number? What is case? Into what classes are nouns divided? Give an example from each class.
2. What is a pronoun? Into what classes are pronouns divided? Give an example from each class. What is a relative pronoun? What is a personal pronoun?
3. What is a conjunction? How do you parse a conjunction?
4. What is a sentence? What is a clause? What is a phrase? Give an example of each.
5. Give the principal parts—the infinitive, imperfect tense, and perfect participle of the following verbs: *begin, choose, lay, lie, say, set, flee, eat, rise, forsake, dig.*

## DIVISION II.

[N. B.—In parsing, write across both pages if necessary. Intelligible abbreviations are allowed. Give no rules, declensions, or principal parts. Parse fully in other respects. Give case, number, person, mood, and tense of each word according as it has one or more of those properties. Give the subject of each verb, the governing word of each objective case, the relation shown by each proportion, precisely what each conjunction connects. Omissions will be taken to indicate ignorance.]

Parse the words in italics in the following paragraph:

*Contentment produces, in some measure, all those effects which the alchemist usually ascribes to what he calls the philosopher's stone; and if it does not bring riches, it does the same thing by banishing the desire of them. If it cannot remove the disquietude arising from a man's mind, body, or fortune, it makes him easy under them. He is blessed indeed whose circumstances suit his temper; but surely he is more blessed who can suit his temper to any circumstances.*

## DIVISION III.

Correct all the errors that are to be found in the following sentences:

1. There is no probability of Stephen arriving to-day.
2. Chess fascinates its votaries more perhaps than any game.
3. In this connection no principles can be laid down, nor no rules given, that will cover every point.
4. There is no doubt but that Germauny has produced many great men.
5. There is no other dictator here but use.
6. Set forth such arguments as seems to you the most conclusive.
7. Every one of your arguments are absurd.
8. Not friendship, not success, not wealth, make a man truly happy.
9. Could you not prepare your lessons better if you try?
10. You should not have told her to have returned so soon.
11. The jury could not agree, and so the judge allowed it to separate.
12. Them shoes are not too large; I have no fears but what they will answer.
13. Of what use are fierceness of gesture or loudness of tone to the orator?
14. Whom, when they had scourged him, they let him go.
15. No Roman emperor was so cruel nor tyrannical as Nero.
16. I have and ever shall insist on the necessity of strict economy.
17. Your garden looks much better since you wed it.
18. He is one of those unfortunates that is always discontented with his lot.
19. In the torrid zone a wet and dry season take the place of winter and summer.
20. This ring is almost as dear to me as her who gave it.
21. Let all good men rejoice at this, even he who has never rejoiced before.
22. I do not think he ought to do it, but you think he had.
23. When our ships sail among the people of the eastern islands, those people do not ask for gold.

[N. B.—Name the text-books that you have studied on this subject.]

EXAMINATION IN HISTORY.

Time allotted: Two hours.

[Fill in your number above. Write legibly.]

1. Who were the Huguenots? When and where did they first settle in North America? What became of their first settlements?
2. Who were James Cartier and John Cabot? What parts of North America did they discover? When?
3. Who was Roger Williams, and how is he connected with the history of Rhode Island?
4. By what nation and when was Delaware colonized?
5. Describe the different kinds of colonial government, giving an example of each.
6. Describe Braddock's campaign, giving the year.
7. What was the "stamp act," and what its effect on the colonies?
8. When did the second Continental Congress meet? Give three of its earliest important measures.
9. What peace was signed 20th January, 1783?
10. By what political body was the original Constitution of the United States framed? When did it go into effect? What government did it supplant?
11. Who were the Presidents of the United States between 1797 and 1817?
12. What war was the United States engaged in during Madison's administration? What was its cause?
13. When, how, and from whom were Louisiana, Florida, and Alaska acquired?
14. What was the Monroe doctrine?
15. What was the Missouri compromise? When enacted? When repealed?
16. What were the cause, object, and result of the "nullification" measures taken by South Carolina in 1832?
17. In what war was the United States engaged during Polk's administration? What was the most important campaign during the war?
18. What was "Dorr's rebellion"? What its cause and result?
19. What State first passed an ordinance of secession in 1860?
20. What was the immediate reason for the secession of the Southern States?
21. With what act of military violence did the rebellion commence?

[Name the text-book on this subject you have studied.]

EXAMINATION IN GEOGRAPHY.

Time allotted: Two hours.

1. What is geography?
2. What is a great circle of the earth?
3. Into what zones is the earth's surface divided?
4. What lines bound the zones?
5. What is the latitude of these boundary lines?
6. Name the grand divisions of land in each continent?
7. Which is the smallest continent?
8. Into what oceans is the water of the earth's surface divided?
9. Behring's Strait connects what waters, and separates what lands?
10. Name the great mountain ranges of North America.
11. Where are the White Mountains? The Green Mountains?
12. What States and Territories of the United States touch the Pacific Ocean?
13. What States and Territories of the United States touch the Atlantic Ocean?
14. What States and Territories of the United States adjoin Mexico?
15. What States and Territories of the United States adjoin British America?
16. Name all lakes and rivers which form parts of the boundaries of the United States.
17. Bound, definitely, Arkansas, Indiana, New York, Georgia. (The rivers and mountains forming part of the boundaries need not be given.)
18. Going from Omaha to San Francisco, by the Union and Central Pacific Railroad, through what States and Territories would you pass?
19. Name the large rivers of the United States which flow into the Pacific.
20. Where is the Yukon River; the Mackenzie River? Where do they empty?
21. Where is Baffin's Bay? The Bay of Fundy?
22. Where is Venezuela? Name its largest river.
23. Name the largest river of Brazil, what is its course, and where does it empty?

24. Where is Chili, with reference to Peru?
25. What is the capital of Peru?
26. Where are the Falkland Islands?
27. Name the five great powers of Europe? Name their capitals.
28. Locate the Pyrenees Mountains; the Ural Mountains; the Apennines.
29. Where is the Bay of Biscay? The Gulf of Bothnia? The Sea of Marmora?
30. Name the two largest rivers in Europe.
31. Where do they empty?
32. What political divisions are separated by the Strait of Gibraltar?
33. Where is the Red Sea?
34. What States to the east and west of Algeria?
35. Where is the Transvaal Republic? Name some of the neighboring colonies.
36. Where is Madagascar?
37. What is the course of the Nile, and where does it empty?
38. Name at least four of the political divisions of Asia. What is the capital of China?
39. Name some of the largest rivers of India.
40. Where is Ceylon? Borneo? Sumatra?
41. Where is Bass Strait?
42. Give at least two of the political divisions of Australia.
43. What is the largest city of Australia?
44. How would you go from Pittsburgh, Pa., to Yankton, Dak., by water? By and through what States would you pass?

[State books studied on this subject.]

**JUNE, 1882.**

**EXAMINATION IN HISTORY.**

Time allotted: Two and one-half hours.

[Fill in number and date as indicated above. Write concisely and legibly, and number your answers according to the numbers of the questions.]

1. What territory was discovered by Sebastian Cabot, and for what kingdom did he claim the land?
2. Describe the extent of the territory discovered by Champlain, and state for what country he claimed the land.
3. Describe the extent of the territory discovered by De Soto, and state for what empire he claimed the land.
4. Describe the extent of the discoveries of Sir Henry Hudson, and state for what country he claimed the land.
5. When and by whom were the foundations of Jamestown laid?
6. Who were the Puritans?
7. What led them to seek a home in this country?
8. When and where did they settle?
9. Give some account of the colony planted by William Penn.
10. State some of the causes of King Philip's war.
11. State some of the causes of the French and Indian war which lasted from 1754 to 1763.
12. Give some account of the campaign of Frye and Washington during the French and Indian war.
13. Give an account of Braddock's campaign.
14. Give an account of the capture of Quebec by General Wolfe.
15. State some of the results of this French and Indian war.
16. State some of the causes of the American Revolutionary war.
17. Give an account of the battle of Trenton.
18. Give an account of the siege of Yorktown and its result.
19. Name the Presidents of the United States in their order.
20. What were the causes of the War of 1812?
21. Give an account of the battle of New Orleans.
22. What was the cause of the Mexican war?
23. Who commanded the American army at the battle of Buena Vista?
24. Who commanded the American army at the capture of the city of Mexico?
25. Give some of the causes of the war of secession.
26. When and where was the first gun of this war fired, and by whose order?
27. When and where and to whom did General Lee surrender?
28. What questions did the war of secession settle?

[N. B.—Name the text-books which you have studied on this subject.]

EXAMINATION IN GEOGRAPHY.

Time allotted: Two and one-half hours.

1. What is the latitude of the parallels bounding the zones?
2. What is an archipelago?
3. What is an isthmus?
4. What is a promontory?
5. What are the political divisions of North America?
6. Name the States and Territories which bound Vermont, Georgia, Illinois, Arizona, Wyoming.
7. How many States in the United States?
8. How many Territories in the United States? Name the Territories.
9. What are the capitals of the following States, and upon what waters are they situated, if any: Mississippi, Indiana, Pennsylvania, North Carolina, Oregon, Colorado, Minnesota.
10. Name the States and Territories touched by the waters of the Tennessee River, the Arkansas River, the Colorado River, including only its tributary, the Green River. The Colorado which empties into the Gulf of California is referred to.
11. Name the four largest cities in the United States.
12. Where they are situated?
13. What political divisions of Mexico adjoin the United States?
14. Where is Honduras?
15. Name the political divisions and waters which bound it.
16. Name the political divisions of South America which border on the Pacific Ocean.
17. What political divisions of Europe bound Switzerland?
18. What are the capitals of Spain, Austro-Hungary, German Empire?
19. Upon what rivers are they situated, and where do these rivers empty?
20. Where are the Straits of Messina?
21. Where is Cyprus?
22. Where are the Philippine Islands?
23. Where is Cape Guardafui?
24. Where are the following places, and upon what waters are they situated: Cairo, Madras, Calcutta, Canton, Nagasaki?
25. Name the political divisions of Africa which touch the Mediterranean?
26. Where is Queensland? What political division borders it on the south?

EXAMINATION IN ENGLISH GRAMMAR.

Time allotted: Two and one-half hours.

DIVISION I.

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

1. What is a noun? What cases have nouns? What is a noun in apposition?
2. What is a verb? What is tense? What forms has the present tense?
3. The principal parts of the verb *break* are *break, broke, broken*; give the corresponding parts of *blow, freeze, smite, steal, win, let, set, bind, stay, sit*.
4. Write the plural of the nouns *loss, hero, duty, money, wife, ox, hoof, woman, pea, Miss Brown*.

DIVISION II.

[N. B.—In parsing give no rules, declensions, conjugations, comparisons, or principal parts; in other respects parse fully, being particular to give the subject of each verb, the governing word of each objective case, and to say what each adverb or adjective qualifies, precisely what each conjunction connects, what relation is shown by each preposition, to what each pronoun refers. Important omissions will be taken to indicate ignorance. Write across both pages if necessary.]

Parse the words in *italics* in the following sentence:

“*When, in the course of human events, it becomes necessary for one people to dissolve the political bands which have connected them with another, and to assume among the powers of the earth the separate and equal station to which the laws of nature and of nature's God entitle them, a decent respect to the opinions of mankind requires that they should declare the causes which impel them to the separation.*”

## DIVISION III.

Correct all the errors that occur in the following sentences :

1. It could not have been her.
2. He not only ought, but must, succeed.
3. These flowers smell very sweetly and look beautifully.
4. This work is one of the best that has ever appeared.
5. What is the difference between an adjective and participle ?
6. This one seems more preferable than the other.
7. Bismarek is greater than any German statesman.
8. He would not be persuaded but what I was greatly in fault.
9. Of all the other qualities of styles clearness is the most important.
10. Either the young man or his guardian have acted improperly.
11. The wages of sin is death.
12. The ebb and flow of the tides were explained by Newton.
13. Did you expect to have heard so poor a speech.
14. We have done no more than it was our duty to have done.
15. Every one is the best judge of their own conscience.
16. The regiment had no less than a hundred men fell in the engagement.
17. The spirit, and not the letter, of the law are what we ought to follow.
18. I am afraid of the man dying before a doctor can come.
19. Distribute their presents between James and his brothers.
20. The jury could not agree, and so the judge allowed it to separate.
21. Just think of me entering into one of the fashionable saloons of Saratoga in such a garb.
22. Cotton, as a crop, is more valuable, but not so certain, as corn.
23. You must have felt the needle have passed into the flesh.

## EXAMINATION IN ARITHMETIC.

Time allotted : Three and one-half hours.

1. How many times will £641 14s. 11½d. contain £2 15s. 6¾d. ?
2. Find the smallest number greater than 3, which when divided by 54, 69, 132, will give in each case a remainder  $2\frac{3}{10}$ .
3. On October 12, 1881, A was 33 years 6 months 16 days old, and B was 42 years 3 months 2 days old ; on what day, month, and year was B exactly five times as old as A, and why did he not remain so ?
4. A does  $\frac{7}{10}$  of a piece of work in 14 days, he then calls in B, and they finish the work in 2 days. In how many days could B do the work alone ?
5. Multiply 4.32 by .00012.
6. Explain the reason for placing the decimal point in the answer to example 5. [The rule for so doing is not the reason.]
7. If 35 men do a piece of work in 24 days, in how many days will  $2\frac{1}{2}$  of that number do a piece of work  $7\frac{1}{2}$  times as great, provided the second set of men work twice as fast as the first, but only work one-third as long in the day ?
8. Separate  $772\frac{3}{8}$  into three numbers, which shall be in the same proportion as  $2\frac{1}{10}$ ,  $\frac{7}{10}$ , and  $\frac{3}{8}$ .
9. How many 15ths are there in 1.03 ?
10. At a game of ball 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 ?

[State the text-books on this subject that you have studied.]