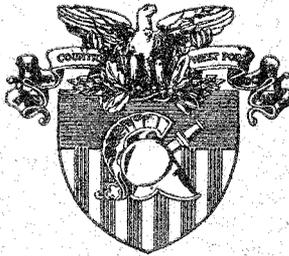
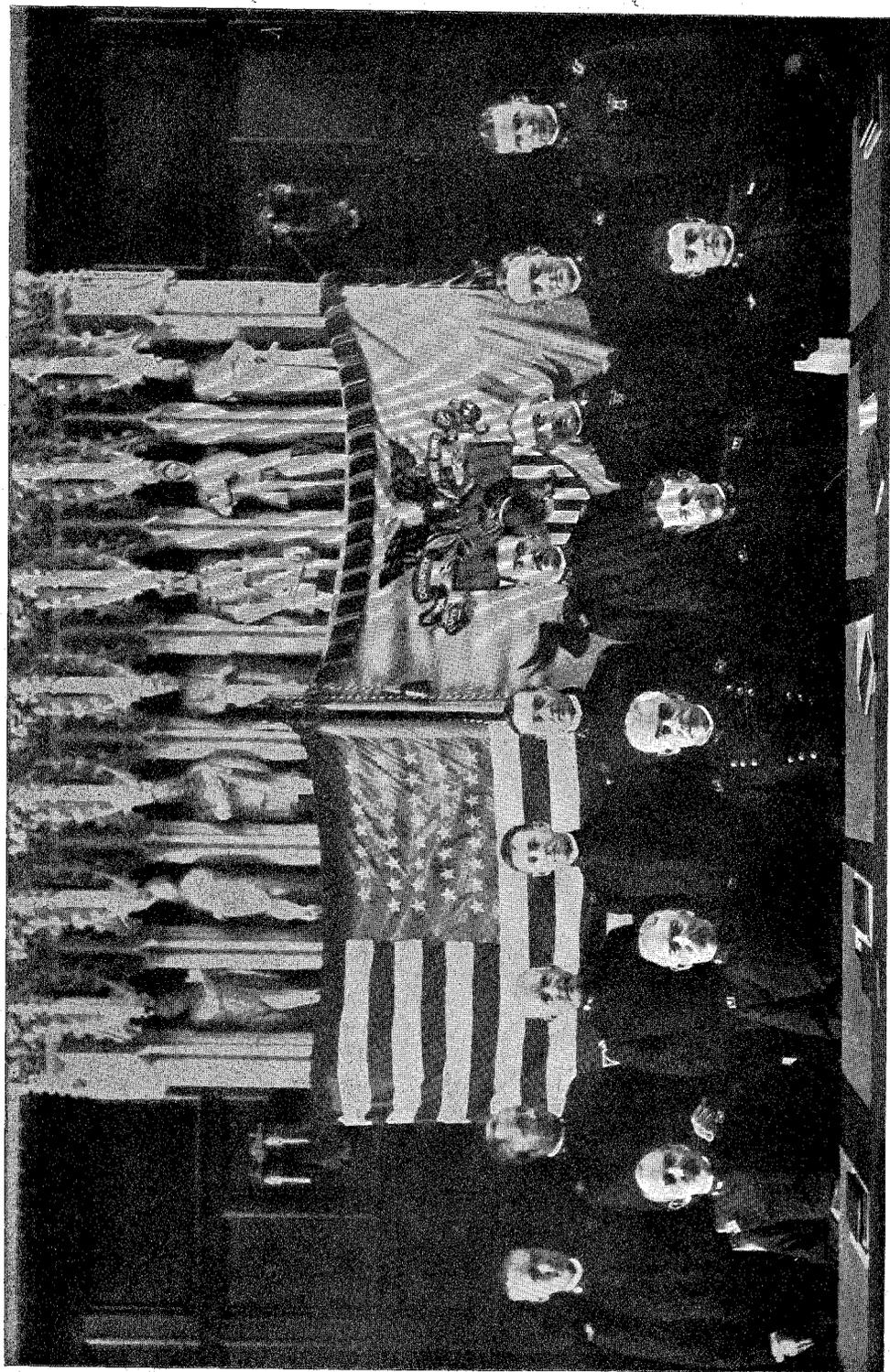


ANNUAL REPORT
OF THE
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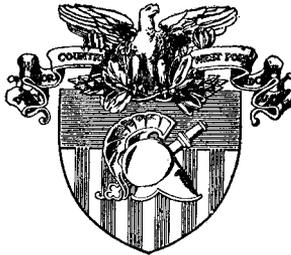
UNITED STATES
MILITARY ACADEMY

1912



THE ACADEMIC BOARD

ANNUAL REPORT
OF THE
SUPERINTENDENT



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ANNUAL REPORT OF THE SUPERINTENDENT OF THE UNITED STATES MILITARY ACADEMY.

Headquarters United States Military Academy,
West Point, New York, August 31, 1912.

SIR:—The undersigned respectfully submits report of the operations of the United States Military Academy from September 1, 1911 (the date of last report), to August 31, 1912.

Annual Inspection of the United States Military Academy.

Inspections of the military departments and business methods of the United States Military Academy are made annually by the Inspector General, or officers recommended by him, under specific instructions of the War Department.

The annual inspection for 1911 was made August 7-14, 1911. The officer making the inspection reported as follows:

* * * *Battalion of Cadets.*—The battalion was reviewed and inspected in full dress uniform. I found nothing to criticize in the Battalion of Cadets, either at review or inspection. * * * I observed closely the Corps of Cadets during the eight days that I was at West Point. Their discipline is excellent, harmony prevails, there seems to be no friction between the authorities and the cadets. There is perfect harmony between the Superintendent's office and the Commandant's office. The cadets themselves seem entirely satisfied with the manner in which they are treated by superior authority.

Discipline is enforced on the principles of fairness and justice with excellent results. The authorities being thoroughly sustained by the good feeling and subordinate disposition on the part of the cadets.

In addition to the review and inspection, I observed the cadets' instruction in field artillery, cadets as drivers.

Target practice, revolver and rifle, mounted and dismounted.

Subcaliber practice, artillery.

Company drills, companies under command of cadet first classmen.

Third classmen in surveying and use of instruments.

First Class in bridge building, military engineering.

First Class as a troop of cavalry, mounted, in the field, in camp.

The Battalion of Cadets minus the First Class on a practice march going into camp and the solution of a problem as follows:

One company sent in advance with instructions to select a location which should necessitate the deployment of the battalion. The position was well selected by the company sent in advance. The deployment to meet this condition by the other companies of the battalion was most satisfactory, both sides acting with energy, spirit and intelligence.

I observed that the cadets were well instructed in taking cover, wherever it was possible.

I inspected the cadet mess hall, found it as to kitchen and dining-room in excellent condition. Provisions were carefully selected and food well prepared. I found no complaints on the part of the cadets and personally tested the food provided for them and found it all that could be desired.

I saw also the instruction of the Fourth Class in their drills, setting-up, dancing, swimming, and artillery instruction. I found the instruction of the corps being carefully conducted in all respects. I made no attempt to test the efficiency of the cadets in the various exercises except in battalion and company drills and in the review and inspection before described.

The progress made by the course of instruction in all the details is most satisfactory. The battalion having attained a high degree of efficiency in infantry drill, from the squad to the battalion. I inspected camp and found it in most excellent condition. I visited the latrines at various times and found them at all times in excellent condition.

Every effort is made during camp to give as much instruction to the cadets as it is possible to do in the time occupied. While there were no complaints made by the cadets on account of hard work, it was plainly stated by a number of them that they were ready to go to sleep at any time, that they were constantly occupied during the entire morning from reveille until dinner call. I saw cadets at one hour in the morning at mounted pistol practice and the same cadets at another hour at subcaliber practice of artillery.

I found that the hours in the afternoon were largely occupied in polo, tennis, and other outdoor sports, which are voluntary on the part of the cadets.

I was present at the Academy the day of Admiral Togo's arrival. I had visited the corps the night before in camp, eight to ten miles from the post. They broke camp, marched into the post in the morning; they were formed to receive the Admiral at 10:30 a. m. On account of delay in his arrival they were kept under arms until after 12 o'clock.

A review followed in the afternoon, in quick and double time, reception to the Admiral which the First Class attended in the afternoon, a dress parade and passing in review by the companies in the evening. It seemed to me a very severe test on the physical endurance of these young men, but I observed them at a regular hop that night and the strain seemed not to have affected them, showing that their physical condition is excellent.

I observed the course of instruction every day that I was at West Point. I found nothing to criticize on the part of the cadets or officers sent to West Point as instructors. On the contrary, I was very much impressed from personal observation and conversation with a number of the cadets as to the great interest which they take in the course and the entire satisfaction on their part with the work that was required of them. * * *

The annual inspection for 1912 was made July 16 to 23, 1912, by Brigadier General George F. Chase, U. S. Army, who reports as follows:

I reviewed and inspected the Corps of Cadets in full dress uniform. They were well up to the standard in all respects. Cadet camp and the latrines connected with it were in satisfactory condition. In reference to other drills, the following drills and exercises were observed by the inspector:

Witnessed standing gun drill by members of the Fourth Class under instruction by 1st Lieutenant Forrest E. Williford, Coast Artillery Corps.

Instruction of members of Third Class, in use of range finder, etc., for field artillery by Captain Edward H. DeArmond, Field Artillery.

Target practice (record) of members of First Class (Fourth Class acting as markers) under Captain Frank A. Wilcox and 1st Lieutenant Chas. B. Moore. The commandant of cadets was also present.

Practical military engineering instruction, in building pile approaches for pontoon and trestle bridges, of members of the First Class by Captain Gilbert A. Youngberg and Captain William D. A. Anderson, assisted by the non-commissioned officers of the engineer detachment.

Swimming instruction of members of the Fourth Class by 1st Lieutenant Philip Mathews.

Witnessed battalion drill with members of the First Class detailed as officers, Third Class as non-commissioned officers and privates and Fourth Class as privates, commanded by Captain Rufus E. Longan.

Packing drill of members of Third Class under 1st Lieutenant Chas. H. Moore, assisted by three packers.

Instruction of members of First Class in giving commands under 1st Lieutenant Herman Glade.

Instruction in saber manual of members of First Class under 1st Lieutenant James S. Jones, 6th Cavalry.

Instruction of members of Third Class in mortar and 6-inch seacoast battery drill under 1st Lieutenant Sanderford Jarman, Coast Artillery Corps, and 1st Lieutenant Geoffrey Bartlett, Coast Artillery Corps.

Witnessed instruction in light artillery drill (harnessing, driving and duty as cannoners mounted) of members of First and Third classes by Captain Manus McCloskey and 1st Lieutenant Harvey D. Higley, assisted by 18 non-commissioned officers of artillery detachment.

Accompanied cadets on practice march. The cadets marched in three detachments. The First Class as a troop of cavalry with cadets detailed to act in all capacities from 1st sergeant to kitchen police, farrier and packer, under Captains John D. Long, 12th Cavalry, and Edward H. DeArmond, Field Artillery. They marched to a camping ground at Popolopen Creek, 6 1-2 miles from the post and went into camp.

The other two columns were each organized as a 3-company battalion composed of cadet officers detailed from the First Class and non-commissioned officers and privates from the Third and Fourth classes. One battalion under Captain Isaac Newell, 22d Infantry, the other under Captain Rufus E. Longan, Infantry. The instruction is being carried on progressively.

The cadets show reasonable proficiency considering the amount of instruction they have had in packing, camping, marching. No attempt was made by the inspector to test the proficiency of the Corps of Cadets in these drills.

They were mostly of an elementary nature, some of the classes going for the first or second time to the drills witnessed.

Excellent progress may be predicted judging from the care and proficiency of the officers in charge of these various exercises.

Discipline.

After careful observation of the conduct of the United States Military Academy since the day of my arrival, July 15, 1912, I am convinced that the discipline of the Academy is excellent. The cooperation of all branches that have come under my observation is most satisfactory.

There has been very great improvement upon police conditions of the reservation since my last visit. A number of unhealthy shacks, chicken-coops, stables, etc., have been removed; careful sanitary inspections have been insisted upon, resulting in an improved condition of the general health of the Corps of Cadets.

There is little left to be done by the authorities of the Military Academy. It will require the appropriations of money by Congress to replace the old and unsatisfactory buildings at the north end of the post below the plain. I refer to the engineer detachment barracks, army service detachment barracks, commissary store, quartermaster storehouse, post exchange, bakery, band barracks, and stables.

Corps of Cadets.

At the rendition of the last report there were 575 cadets in the corps and 57 vacancies.

Between September 1, 1911, and July 1, 1912, six cadets resigned and six were dismissed by sentence of court-martial.

As the result of the semi-annual examination in December, 1911, thirty-one cadets of the Fourth Class were deficient in studies and discharged.

As the result of the examination held in March, 1912, by reason of the completion of the mathematical course by the then Third Class and a portion of said course by the then Fourth Class, three cadets of the Third Class were deficient and conditioned to make up the deficiency in June, which they did, and nine cadets of the Fourth Class were deficient and discharged.

Of the forty cadets of the Fourth Class deficient in studies in the December, 1911, and March, 1912, examinations, twenty-one failed at a candidates' examination prior to the one at which they were admitted, and two took a prior examination for admission to the Naval Academy.

Twenty-four of the thirty-one cadets discharged in the January, 1912, examination and the nine discharged in March, 1912, through their Senators, Congressmen, or otherwise applied under R. S. 1325 for the recommendation of the Academic Board with a view to their reappointment.

Thirteen of the former and five of the latter were recommended for reappointment.

From the above two pertinent conclusions may be drawn:

1st.—The great desire on the part of the cadets declared deficient to be given additional opportunity by reappointment with a view to mastering the course and graduating, which indicates satisfaction on their part with the Academy.

2d.—That many of these cadets discharged for deficiency failed at prior candidates' examinations and that their reappointment was requested indicates that in these instances at least particular individuals are reappointed possibly to the exclusion of others in said districts who may desire the appointments.

In this connection it may be well to consider the following decision of Judge Advocate General Holt of July 2, 1869, approved by Attorney General Hoar:

The intent of Congress in this Act, was, it is believed, to nationalize the Army, by selecting for its future officers persons having their legal residences, not in certain preferred localities, but as equally as practicable distributed throughout the States and Territories; the number appointed from each State being based on its population, and being fixed by the number of Congressional districts therein. From each such district one cadet and one only is to be taken; the States and Territories being thus represented in the Army precisely as they are represented in the lower house of Congress.

It is to be observed that the appointment is not given to the Member of Congress personally, but to the district; it is the district, which, in the words of the Act is "entitled" to the appointment. However convenient, therefore, it might be for the member to exercise the power of appointment or nomination at discretion, he can legally exercise it only as the organ of the district. It is the *district*, that is, the *people* of the district, *as such*, in which is vested the right "to have one cadet at said academy", and if in any form or manner this right fails in any case to be duly recognized and acted upon by the member, so far the purpose of the statute is disregarded and its letter violated. If, for instance, a person is selected for the appointment who has no such local association with the district as is contemplated by the law, not only are other candidates (against whom there is not this objection) unjustly set aside, but the district itself is deprived of its rightful representative in the public military service.

The existing law governing the appointment of cadets is based on the law cited in the above decision, from which it will appear that appointments to the United States Military Academy belong to the people of the district who have a right to be represented, and, therefore, that the repeated appointment of certain individuals does not seem fair to the numerous youths of the district concerned who may desire these appointments.

In my last annual report I remarked:

* * * in the light that these appointments belong to the several States and Congressional districts, it is suggested that examinations be held in each district at which any eligible youth may appear, the one passing the best examination to be appointed.

While this method is pursued in many instances with good results, if resorted to generally it is believed that the maximum number of cadets authorized by law would be appointed.

In 1869 General Sylvanus Thayer, the Father of the Academy, than whom no one better understood its purposes and needs, indicated the following change as of first importance:

A change in the mode of filling cadet vacancies, so as to secure to the Academy the most talented and worthy of the candidates by means of competitive examinations on a high standard of attainments * * *. The examinations to be open to all having the prescribed qualifications.

Congressional action looking to the reinstatement or reappointment of cadets dismissed by sentence of court-martial is believed to be detrimental to discipline and to the best interests of this institution.

As a result of the June, 1912, examination the entire First, Second and Third classes were proficient, seven of the Fourth Class were deficient in studies and discharged, and ten were turned back to join the next Fourth Class.

A very conscientious effort is made on the part of the professors and instructors in the academic departments to aid cadets in maintaining proficiency. During recreation hours the year round instructors are available in all departments to give cadets who desire it additional instruction and help.

To recapitulate as to the last Fourth Class, the largest in the history of the Academy:

Vacancies for the class admitted in 1911	300
Admitted as result of three candidates' examinations	262
Discharged for deficiency in studies (one cadet also deficient in conduct)	46
Discharged for deficiency in conduct	1
Discharged by sentence of court-martial	2
Resigned	17
Turned back for deficiency in studies	10
	<u>76</u>
	186

The present strength of the class, 195, is accounted for by cadets who were turned back for deficiency in studies at the annual examination of June, 1911, cadets suspended, and foreign students, fourteen in all, five of whom have since left the Academy for various reasons.

This result in respect of the Fourth Class is not unusual and indicates about the average percentage of fourth classmen who are eliminated during the first year.

Generally speaking, a cadet who is proficient during the first year should with conscientious effort master the rest of the course and graduate.

It is believed that any boy thoroughly versed in a proper high school course is not only qualified to pass the entrance examination but to master the course and graduate.

The standard of the entrance examination is only such as will determine that the candidates are sufficiently grounded in certain subjects necessary to successfully pursuing the course at the Academy.

The failures at the entrance examinations and during the first year may be attributed to poor preparation and lack of proper grounding in the preliminary studies.

Appointments should be made a year in advance so that the candidate may have ample time to prepare for the entrance examination about the scope of which, mentally and physically, he is thoroughly informed.

It is doubtful if the best results are obtained by sending candidates to the ordinary preparatory schools where they are merely coached with a view to passing the entrance examination, and where they are not under the surveillance and supervision that usually obtain in a military school where the pupils are not only taught and coached but where they live in barracks or dormitories under military discipline and training which will be of benefit to

them on entering the Academy. There are many such military schools throughout the United States. The New York Military Academy, Cornwall-on-Hudson, is under an able retired officer of the Army, and the curriculum, administration and discipline are predicated on West Point standards. Candidates are accepted at this school with a view to their preparation for West Point and Annapolis.

So much of the Act of Congress approved April 19, 1910, as provides that for six years from July 1, 1910, whenever any cadet shall have finished three years of his course at the Academy his successor may be admitted, *should be made to apply for all time*.

With the completion of the new academic building now in course of construction, and the enlargement of the mess hall, there will be ample accommodations for 700 cadets. It is in the interest of economy as well as the service and country that at least that number of cadets be authorized.

The following gives the result of the examination held in April, 1912:

Total number of candidates (principals and alternates, including one foreigner).....	444
Failed to report.....	92
Failed to complete examination.....	11
Qualified mentally, rejected physically.....	23
Qualified physically, failed mentally.....	126
Mentally and physically disqualified.....	41
Qualified alternates for whom no vacancies exist.....	28
Unable to report for examination by reason of sickness...	1
Qualified and admitted, including one foreigner.....	122
Total.....	444

After this examination there still existed 92 vacancies. An additional examination to fill these vacancies was held July 1, the successful candidates were admitted August 1, 1912. The following is the result of this examination:

Total number of candidates (principals and alternates, including two foreigners).....	88
Reported but did not take examination (foreigners).....	2
Failed to report.....	30
Failed to complete examination.....	5
Qualified mentally, rejected physically.....	6
Qualified physically, failed mentally.....	25
Mentally and physically disqualified.....	7
Qualified and admitted (including 3 ex-cadets and two candidates who qualified at prior examinations).....	13
Total.....	88

It will therefore be noted that only forty-one candidates actually reported for the mental examination, five of whom failed to complete it because they were hopelessly deficient in one or more of the earlier subjects in which they were examined. Only eight of those examined were qualified and admitted, and of the forty-one examined,

- 27 received 50% or less out of 100% in Algebra,
- 30 received 50% or less out of 100% in Geometry,
- 11 received 50% or less out of 100% in English Grammar,
- 10 received 50% or less out of 100% in Composition and Literature,
- 4 received 50% or less out of 100% in Geography, and
- 21 received 50% or less out of 100% in History,

which emphasizes that there is something wrong with the method of selection and the preparation and education of the young men of the country.

A candidate nineteen years of age, born and educated in this country, who spent nine years in the primary schools and four years in a high school, three years on descriptive geography and two years on physical geography, could not define "geography," "delta," "meridian," "parallel," or "cape," or bound Missouri, Utah, Nebraska, or Georgia, who located Charleston as the capital of Virginia, Nagasaki as a river in China, and who could not locate Magdalena Bay, Rio de Janeiro, or Vera Cruz, is hopeless as a candidate for entrance to this or any institution of learning, has not profited by any education he claims to have received, and does not read the newspapers to any purpose.

I went into this at some length in my last annual report and I am satisfied that the only way to keep the Academy up to the maximum authorized strength is to open up the appointments to competitive examination in the districts concerned, advertising the vacancies a year in advance of the examination and permitting any eligible youth of that district to compete.

Additional examinations on short notice with little time for the candidate to prepare are inadvisable.

The experience last year with the additional July examination was about the same as this year.

The large membership of the classes now entering the Academy makes it of paramount importance that new cadets should enter

in June and have the benefit of the entire summer encampment for military instruction.

Notwithstanding the efforts of the department in ordering this additional examination there are nevertheless existing at the present time seventy-nine vacancies.

Department of Tactics.

The usual program of theoretical and practical instruction was carried out during the year under the able supervision of the commandant of cadets, Lieutenant Colonel Fred W. Sladen, 11th Infantry, with marked improvement in the instruction and discipline of the corps, which, in measure, is due to the example of the First Class and the standard set by its higher officers in their acceptance of responsibility and their exercise of authority.

The following is an extract from the report of the commandant of cadets:

Owing to the admission in June and August, 1911, of a class of 264, the corps during the past year has been the largest in its history, reaching a maximum of 574.

The encampment was enlarged by 48 tents to accommodate the increase, and upon its conclusion, A, B, and C companies were quartered in nine divisions of south barracks; D, E, and F in eight complete and two half divisions in north barracks. The commander of the second battalion and the assistant instructors of tactics commanding companies therein were established in offices in the north cadet guardhouse.

While the corps is still tactically a battalion, it has during the past year been administered as two. The battalion commanders have been held responsible for the care and police of the barracks occupied by the battalions, as far as possible for the discipline of the battalion, for the investigation of delinquencies, reference of explanations, drafting of recommendations in routine cases, and the careful scrutiny of all requisitions and communications.

By the detail to additional duty in this department of an officer on duty in the department of drawing, it became possible to detail an assistant instructor of tactics to duty in the capacity of an adjutant or executive officer, and to have him devote his entire time to that duty.

The result has been most satisfactory. The commandant's office has been reorganized, records put into shape and kept up to date, and all reports made and communications handled without delay.

In view of the fact that the Corps of Cadets is now occupying both barrack buildings, it is urgent that, when appropriation for completing new construction can be obtained, the contemplated corps headquarters building be constructed. For the best administration and supervision, this building should open on the areas of both barracks. This would necessitate the demolishing of the west wing of south barracks which in the interest of economy might be

done at the time of construction of corps headquarters building and the stone used in the latter. With the removal of the department of modern languages from the first division of barracks, slight alterations in the angle of south barracks now occupied by officers and the use of the 22d and 23d divisions of north barracks, so far unused, there will be sufficient accommodation for the corps at the present maximum strength without the west wing (four divisions) of south barracks.

Further accommodations due to possible future increase in the corps should, if constructed, be made as an east wing to south barracks or placed on the south side of the south area, approximately on the line of the south guard-house and the old buildings alongside of it.

At present with the offices of half of the officers of this department in one building and half in another, proper administration with supervision and coordination cannot be maintained, and a great deal of time is needlessly wasted. With the location of the entire department in the new building under the plan proposed, this would be overcome and the officers concerned would still be in close proximity to their company barracks and easily accessible to the cadets concerned.

Furthermore, all academic formations which now in the interest of economy of time, are held in the area of south barracks, to the disadvantage of cadets living in north barracks, could be held at a central point in the area proposed; surrounded by both barracks and the headquarters building. All cadets would thus be placed on an equality as to distance to places of formation, and the sections would consume in marching to their recitation rooms, a period of time less than a minute greater than that now needed.

In winter during stormy weather, the battalion could be formed for meals in this area under the protection of barracks, instead of on the walk in front, and consume less time in going to and returning from the mess hall.

The only serious breaches of regulations during the year were those cases of certain third and fourth classmen who obtained liquor, and a few minor cases of hazing. The results obtained in discipline were due in no small measure to the example set by the First Class and to the assistance given the department by the majority of the First Class officers. The class has left an imprint on the corps which will be of benefit to it, and the standards set by its higher officers in the acceptance of responsibility and the exercise of authority will, it is hoped in the interest of discipline, be reached by their successors.

The prescribed courses of theoretical and practical instruction have been carried out. During the prescribed season for practice with those arms—

- 3 expert riflemen,
- 66 sharpshooters,
- 7 marksmen, and
- 2 expert revolver shots,

were qualified in the First Class.

Weekly practice marches and field exercises were held during the summer period. The Third and Fourth classes went out as infantry under officers detailed from the First Class. The remainder of the First Class alternated weekly as cavalry and field artillery. The commands were fully equipped for field

service with regulation equipment. They left the post Friday afternoons and returned Saturday noon, camping on the Popolopen and Round Pond reservations. All work incident to making and breaking camp, packing wagons, care of riding animals, and artillery teams, etc., was done by cadets. Minor tactical exercises were held by the infantry command, and in those of the cavalry and field artillery, instruction was given in the field duties of the soldier of those arms. As the camping places are on government reservations there have been no claims for damages, or troubles with property owners on account of trespass, and no expense involved. As Saturdays were set aside for field exercises, and commands left Friday afternoons, no drill days were lost, a fact to be considered with classes so large that each member gets but a few days' instruction in those subjects, at which from their nature and the material available, but few can be instructed at a time. The new infantry field equipment except the poncho and shelter half were used during the summer. The excepted articles have since been issued and instruction had in their use.

It is believed that the results fully justified the week's visit of the First Class to Sandy Hook in August. Practice under service conditions was had with 6 and 10-inch rifles and 6-inch mortars. The class was comfortably quartered in a set of barracks temporarily vacated by a company of coast artillery.

The installation of the mortar battery in Execution Hollow was completed in time for use during the spring drill season.

The completion this year of the remainder of the riding hall has made available sufficient space to accommodate two detachments under instruction at the same time. It is believed that this will simplify to some extent the question of hours of attendance of the three classes in riding during the academic year.

This institution was again successful in winning the intercollegiate fencing meet held in New York City. Withdrawal from the Intercollegiate Fencing Association is recommended. Fencing forms a part of the prescribed course of instruction for cadets, and is not a sport which requires the stimulus of competition with other colleges. Furthermore, the time of the instructor in fencing is naturally devoted to the few composing the team, to the exclusion of many who, in recreation hours during the winter period, report for voluntary instruction. It is believed also that more interest should and could be aroused in fencing with service arms, the broadsword and bayonet, but for the interest attracted to foil fencing by the intercollegiate bouts and the final meet with its two days' visit in New York City.

The new class admitted on June 14 is making rapid progress and it is expected to take them up for duty with the battalion by July 4 next.

While there would be advantage in having a continuous area so that from a centrally located headquarters building it could be under observation, it is doubtful if it should be done by the demolition of the west wing of south barracks.

It may be advisable to swing the wing around and join it on to the north barracks, thus making a continuous barrack front and putting the proposed headquarters building well to the rear of the

angle now between the two barracks. This would make additional accommodations for any future increase in the corps.

An east wing to the south barracks should not be erected and if additional barracks be desired, they should be built south of the present area of the south barracks along the line now occupied by the old south barracks sink, boiler-house and guard-house. An east wing to the present south barracks would interfere with the light of the west academic building which is objectionable.

It is sincerely hoped and truly in the interest of the Academy and the instruction and discipline of the Corps of Cadets that Colonel Sladen remain and complete the ordinary four years' tour as commandant; there is no duty to which he may be assigned that will be so important or fruitful of such beneficial and lasting results to the service.

Academic Departments.

The return to the usual four year academic period and the corresponding revision of the curriculum to fit that period has worked satisfactorily and with marked improvement over the four years and three months' course experimented with from 1908 to 1910, inclusive.

Department of Civil and Military Engineering.

The course in civil and military engineering and the art of war remained unchanged during the year and was carried out satisfactorily. All cadets were proficient at the semi-annual and annual examinations.

The following is the report of the professor of engineering:

The course in civil and military engineering began Friday, September 1, with a class membership of 96, including one foreign student.

The class was divided into halves, A and B, formed of the odd and even numbers according to standing in philosophy, and each half was subdivided into five sections according to standing.

Although all sections used the same text-books, by means of omissions the subject matter was divided into five distinct courses graduated to the ability of the students forming each section. Transfers between sections were made every two weeks.

The course was conducted by oral and written recitations and a written general review and was completed on December 22. A written examination of six hours was then held for all cadets who had not made a mark of 2.2 on this general review. The eight cadets who took this examination all passed it satisfactorily.

During the course two lectures were delivered on the Panama Canal, a model of which had been recently placed on the walls of the Academy Building, and in connection with the course Colonel William M. Black, of the Corps of Engineers, kindly consented to deliver a lecture on the engineering features involved in the raising of the battleship Maine.

The course in military engineering and the art of war began Tuesday, January 2, and was completed June 4. The course was conducted by oral and written recitations.

The course in military engineering consists of the usual subjects of field fortification, permanent fortification and siege works; that in the art of war covers army organization, etc., and such military operations as are essential to a complete understanding of the campaign and battle of Gettysburg. A visit to that field is made by the class about the end of April.

On the return from that field, the class was divided into two parts; the 1st, 2d and 3d, A and B sections continuing the study of the art of war, elements of strategy and historical campaigns, while the other sections reviewed the work of the preceding months.

At the end of the course a written examination was held for the cadets who had made an average mark of less than 2.4 on the entire course. The six cadets who took this examination all passed it satisfactorily.

During the course there were several illustrated lectures on the Russo-Japanese War and short talks on various military topics.

A new text-book on army organization was introduced during the year. The department is at present engaged in revising its text-book on field fortification.

Department of Natural and Experimental Philosophy.

The course in natural and experimental philosophy consisting of mechanics, sound, light, and astronomy was carried out satisfactorily during the past year. Owing to the return to the four years' course and the change of the curriculum hereafter only the Second Class will receive instruction in philosophy, thus completing instruction in this department in one academic year with one class rather than distributing it through portions of two academic years to two classes, a decided improvement over the former method.

The following is an extract from the report of the professor of philosophy:

Beginning in September, 1911, with only the Second Class under instruction in philosophy—halves of the class alternating daily—the operation of the schedule which carried the department through both the third and second class years ceased with the term recently closed. The class had completed the course in mechanics in its third class year, and in passing to the new schedule, which limits instruction in philosophy to the Second Class, it was necessary to suspend instruction in mechanics for the year. * * *

The class under instruction began with 99 members and lost none by failures in academic work, though one was unable to finish the course on account of illness. At the semi-annual examination thirty members of the class were examined in sound and geometrical optics, and all were declared proficient, the marks on examination grading from 2.73 down. At the annual examination only three members of the class were examined in astronomy, and they passed with marks 2.72, 2.62, 2.37.

Nothing of special importance beyond the usual routine has developed, but it may be mentioned that the freest possible conference in instruction, consistent with proper discipline, has been encouraged, and the results have shown that the class has greatly benefited thereby. More than the usual amount of time for special instruction has been available, on account of some adjustments of courses in passing to the new schedule of studies, and this has partly accounted for the small number taking the final examination.

Department of Mathematics.

The course in mathematics was carried out satisfactorily during the year. The Third Class by reason of having entered in March, 1910, completed its course in mathematics in March, 1912. Hereafter the course in mathematics will begin with the academic year and be completed in two full academic years rather than covering portions of three academic years.

The following is an extract from the report of the professor of mathematics:

For the Fourth Class the prescribed course in mathematics for the year required daily recitations between September 1 and June 4. This class was the first to resume the four-year course. (A four year and three months' course had been in operation since March, 1908.) Algebra through logarithms and geometry were taken in the fall term. The text-book and subjects were practically the same throughout the class.

The separation of the class into three divisions took effect on January 2 and continued to June. Algebra was concluded; plane and spherical trigonometry and plane and solid analytical geometry were completed. The course for the divisions in these subjects were the same as with the previous class except that the extra work taken in the additional period time assigned that class was omitted; also C. Smith's Coordinate Geometry, a revised edition of C. Smith's Conic Sections was adopted to replace the latter text.

Examinations were held in December, March and June with the following results:

	Number in Class.	Deficient.	Turned Back.	Discharged.
December.....	254	19	—	19
March.....	226	9	—	9
June.....	211	14	7	7

For the Third Class the prescribed course in mathematics required daily recitations from September to March. Linear perspective, differential and integral calculus and least squares were taken as in previous years. A new text on linear perspective was used with much satisfaction. This was prepared in the department by Captain George B. Pillsbury, Corps of Engineers, associate professor, with the editorial supervision of the professor of mathematics. The author has succeeded in combining in a happy manner the traditional methods of the department with the results of his study and originality.

The extra period of time assigned to mathematics before March, due to dropping mechanics from the third class course, was devoted to an extension of the course in differential equations. Murray's Differential Equations, authorized by the War Department for this purpose, was adopted as the text on the subject.

Examinations were held in December and March. Three cadets were pronounced deficient in March in a class of 112. They were conditioned by the Academic Board and, when reexamined in May, passed satisfactorily.

The conferences of instructors held by the professor and his associate enabled the department to handle successfully the extraordinarily large Fourth Class. This class began the term with a membership of 264. This is fifty per cent. larger than any class ever before admitted to the Academy. In September, 1900, the Fourth Class started with 176. An intimate acquaintance with all members of the two classes under instruction threatens to become no longer possible. This fact with its attendant disadvantages should be well considered in recommending any future increase in the Corps of Cadets.

The undersigned does not concur in the views of the professor of mathematics in the last two sentences of the above report. If a suitable number of instructors be detailed and the number of cadets in the sections is not materially increased it is believed that proper results will obtain and there should be no objection on this score to increasing the Corps of Cadets.

Department of Chemistry, Mineralogy and Geology.

The course in chemistry, mineralogy and geology was satisfactorily carried on during the year by the Second and Third classes.

The former head of the department, Colonel Samuel E. Tillman, relinquished control of the department by retirement from active service on October 2, 1911, and was succeeded by Professor Wirt Robinson, on October 3, 1911.

Hereafter instead of the course covering parts of two academic years with the Second and Third classes it will cover one full academic year with the Second Class only.

The following is an extract from the report of the professor of chemistry:

Course.—The course as given in the past academic year is essentially the same as that given in previous years and comprised 172 recitations, 20 lectures and 34 2-hour laboratory periods. From September 1, 1911, to February 29, 1912, it was given to the Second Class of 99 members; from March 1 to June 4, 1912, to the Third Class of 112 members.

With the coming year, the new schedule will go into effect, as a result of which instruction in chemistry, etc., will hereafter be confined to the Second Class. Among the advantages of the new schedule are:

(a) Unbroken instruction through entire course without loss of four to six days made necessary heretofore by review required upon return of class from furlough.

(b) Instruction in electricity following instruction in mechanics and cadets therefore having become accustomed to conceptions of force, energy, mass and work and to dealing with simple mechanical problems.

(c) Instructors in the department of chemistry reporting for duty with instructors in other departments in August instead of in February when quarters were not available and when the weather is at its worst.

A text-book, the *Elements of Electricity*, has been prepared by the undersigned and will be used during the coming academic year. The book which this is to supplant has been in use for some thirty years and, while excellent, has not been kept up to date with modern advances in the science.

The east academy building should be ready for occupancy in another year. Installation of apparatus in new dynamo and laboratory rooms, purchase of switchboards, switches, laboratory tables and sinks, making necessary electrical connections, plumbing, etc., will involve an expenditure of about \$12,000, which should be included in the estimate for the fiscal year ending June 30, 1914. Memorandum covering these items has been furnished the quartermaster.

Department of Drawing.

The course in drawing remained unchanged during the year. Major Edwin R. Stuart, Corps of Engineers, practically assumed his duties as professor of drawing at the beginning of the academic year, September 1, 1911, and continued under his appointment as professor of drawing from October 4, 1911.

The following is an extract from the report of the professor of drawing:

The work of the department has been practically unchanged from that previously carried on in the department. Being my first year in charge of the department I have spent the year observing the work in order that future changes to be made in the department may be based upon full knowledge of the work as it was.

The number of cadets under instruction has been 112 in the Third Class and 99 in the Second Class. Of these Cadet Prude of the Second Class did not finish the year due to sickness. All other cadets finished the year satisfactorily and were pronounced proficient. Cadet Herr, Third Class, deficient and conditioned at the January examinations, removed his condition by satisfactory extra work.

Department of Modern Languages.

The course in modern languages was carried on satisfactorily during the year.

The recommendation that instructors be sent abroad during the suspension of academic duties for the purpose of studying French and Spanish in France and Spain, respectively, was approved by the War Department, and it is believed that this will add to their efficiency as instructors and linguists.

It is sincerely hoped that the department may approve the further recommendation that instructors in this department be selected practically a year in advance and ordered to France and Spain on or about January 1 of the year in which they enter upon their duties here.

This will give such officers the benefit of study from January 1 to about September 1—eight months—improving them as instructors and linguists and enabling the Academy to obtain the benefit of their labors during the full period of their detail. When this recommendation is carried out it is believed the services of the civilian instructors in French and Spanish can be dispensed with.

The following is an extract from the report of the professor of modern languages:

French.—Two text-books were added to the course: Dyke's Reader of Scientific French, and Moliere's L'Avare; one was dropped, Le Petit Parisien.

As before, stress has been laid on the subject of conversation, and although no cadet of the Third Class previously unacquainted with the French language may be said to have learned, in the full sense of the word, to speak this language, yet it is believed that nearly all the members of the upper two-thirds of the class have had enough training, both of tongue and of ear, rapidly to learn to speak if ever called upon to do it by a French environment. Of the lowest third of the class, so much cannot be said; they have made but little response to the efforts of the department. The trouble seems to be a general inability to coordinate the facts of the language, to apply the simplest principles. However, the fifteen members of the class turned out for examination, acquitted themselves creditably. Omitting these cases from consideration, it may be asserted that the main part of the class has acquired a fair working knowledge of the

French language; it may be added that this is all there is any reason to expect. To learn really to speak French, outside of a French-speaking country, is in the general case almost impossible. It is practically impossible for us in our limited time.

Nor should it be overlooked that a third classman even if he has really got a grip on the language passes two years more at the Academy without a single opportunity either to speak, read, or write it. The subject, as such, passes out of his mind, as it must, for his time and attention are now fully taken up by other things.

Spanish.—The course in this language has been entirely remodeled, all the former text-books, except one, having been discontinued and others substituted. A list is appended. It is too early, as yet, to report the full effect of the changes made, but the results so far observed are gratifying. It is particularly to be remarked that the cadets of the Second and First classes have shown a real interest in the subject, and there is reason to believe that their interest will grow with the passage of time. It is believed that cadets realizing the professional importance of the Spanish language, are making a genuine effort to get hold of it, and there is no doubt that they are measurably succeeding. This result is due, in part, to the fact that ordinary Spanish is not difficult, as compared with French for example, and that the lowest men in the class soon learn that their efforts are rewarded by the acquisition of positive results. The marks so far attained in the lowest sections of the present Second Class are far in excess of what past experience shows to be usual.

The class of 1912 finished the (old) course February 29, 1912; twelve of these were turned out for examination and passed satisfactorily. Special attention, it need hardly be said, has been paid to conversation, and to composition, with good results from the top to the bottom of the class. Better results yet are expected from the extension of the course to 176 lessons, and from the fact that it continues practically two years. The graduate who enters upon his service in or near a Spanish-speaking country will thus have this subject as fresh in his mind as our circumstances will permit. In this respect Spanish occupies and properly, a situation far superior to that held by French.

It is a matter of gratification to the department that the weights of both French and Spanish have been increased from 150 and 130, respectively, to 175 and 150.

Instructors Going Abroad.—In the opinion of the department, a great step forward has been taken by the War Department in ordering instructors abroad during suspension of academic duties, for the study of French and Spanish, respectively. The primary purpose of the course is to secure greater efficiency on the part of the instructors called upon to teach a living tongue. But it is pertinent to note the benefit permanently accruing to the service by its possession of officers who shall have qualified by actual residence and study abroad. Great, however, as are the advantages to be expected from the wisdom shown by the War Department, still greater ones may be confidently awaited from an extension of the policy so happily begun.

The department recommends that instructors of modern languages be selected in November of each year, and directed to take station in France and Spain, respectively, by the 1st of January of the next year, there to study and learn to

speaking until August 15. While on such duty officers should receive commutation of quarters, mileage for land, and expenses for sea travel. If such a policy should be approved and carried out by the War Department, not only would the study of languages in the Academy receive a great impetus, and the service at large have at command a number of officers absolutely competent in French and Spanish, but the Academy would become independent of foreigners now attached to the department as civilian instructors. It is desirable for many reasons to secure this independence. The department will, in due time, submit formal recommendations under this head, based in part on the results determined by the study abroad this summer of six of its instructors.

In the meantime, assuming six officers to report annually for duty in languages the department begs leave to point out that an economy would result from the course recommended above, to wit:

Travel:

Six (6) officers to Europe and back at \$300..... \$1800

Commutation of quarters:

Five (5) lieutenants at \$36 for 7 months..... 1260

One (1) captain at \$48 for 7 months..... 336

Total..... \$3396

Pay of four civilian instructors at \$2,000..... 8000

Saving..... \$4604

One civilian instructor, absent without leave, was called upon to resign.

Department of Law.

The course in the department of law remained unchanged and was satisfactorily carried out.

The following is an extract from the report of the professor of law:

The course of study pursued was the same as for a number of previous years and included elementary law, constitutional law, international law and military law.

The officers of this department have felt for some years that the cadets should have some systematic instruction and practice in law library work. The rigid requirements of the course together with the limited time made it impracticable to adopt any satisfactory methods for the accomplishment of this purpose. By reason of a change in the program of instruction the regular course in law was completed this year about ten days before the end of the recitation period. For the remaining time the sections reported each day for two hours instruction and practice in the use of legal authorities. From the interest shown and the results accomplished I am convinced that the practical benefit of this work was so great as to justify such reduction in the number of recitations in law hereafter as may be necessary to make this instruction a regular part of the year's work.

The results of the examinations were very satisfactory and confirmed the opinion expressed in the report of last year that the methods of instruction inaugurated a couple of years ago, viz., short explanatory lectures by the head of the department, explanation of difficult points in the section rooms by the instructors and a quiz in lieu of recitations at the board, are the best that can be obtained with the limited time allowed for the course. All cadets were examined whose oral and written recitations indicated doubtful proficiency and their average examination marks were about 2.5. There was but one failure on examination during the year resulting in a condition which was removed by a subsequent examination.

Department of Practical Military Engineering, Military Signaling and Telegraphy.

The course in the department of practical military engineering, military signaling and telegraphy was satisfactorily carried out.

The following is an extract from the report of the instructor of practical military engineering:

The annual appropriation of \$2,000 for the use of the department was expended in the purchase of tools and materials for instruction purposes, in the pay of skilled mechanics as authorized by law and in the repair of instruments.

It was endeavored to put in condition for use all equipment on hand and used in the instruction of cadets in reconnoissance and surveying. For this purpose all instruments worthy of repair were shipped to instrument makers and placed in serviceable condition. The additional appropriation of \$1,000 for the purchase of instruments was expended in the acquisition of three plane tables with telescopic alidades, three traverse table outfits, two transits, four level rods and a number of stadia slide rules and protractors.

In this connection, attention is again invited to the lack of suitable storage room for this class of equipment. The engineer barracks contains but one small storeroom, which, being in the basement, is dark, damp, and wholly unsuited to the storage of surveying instruments. Furthermore, it is crowded with ordnance, quartermaster and subsistence stores required by the detachment of engineers. Two temporary frame structures located immediately in front of the barracks are used for the storage of surveying and reconnoissance equipment and for the signal apparatus and supplies. Under these circumstances the equipment is more or less subject to change of weather and to possible destruction by fire.

For similar reasons the ponton equipment is rapidly deteriorating. No ponton shed has ever been provided for this equipage and it is exposed to the elements all the year round. It is to be remarked that this bridge material pertains to the mobile army and in the event of hostilities may be ordered to the front. It is located at the Military Academy in order that it may be used for instruction purposes, but, if any reliance is to be placed on its readiness for actual service, shelter should be provided for it. As a mere matter of bookkeeping it is possible that the cost of a ponton shed should be charged against the appropriation for the Army as distinguished from that for the Military Academy, but

there can be no question that equipment valued at \$15,000 should be placed under cover.

Two rowing barges and three row-boats were condemned by an inspector as unseaworthy and ordered sold, leaving on hand two small boats of the original equipment. Four sponson canoes were provided from cadet funds and have proved very useful. These canoes are practically no heavier to paddle than are canoes without sponsons but are much safer and better suited to the Hudson River at this point.

The Academy bill now pending carries \$400 for the purchase of boats which are much needed.

Cadet Instruction.

Since August 22, 1911, when 1st Lieutenant H. G. Powell, Corps of Engineers, reported for duty pursuant to S. O. 177, Headquarters, U. S. M. A., three officers have been permanently assigned to this department. During the months of July and August, 1911, five additional officers were engaged in the instruction of the Third Class in practical surveying and the same number were detailed as instructors in the fourth class course during the months of March, April, and May, 1912.

First Class.—The program for this class conformed to the customary three periods of practical instruction, summer, fall, and spring.

During the summer, one-half of the class attended daily. The usual instruction in military field engineering was given comprising pile, trestle and floating bridges, pile drivers, ferries and improvised boats and rafts. A part of the period was devoted to a short course in reconnoissance and sketching.

In order to make the course thoroughly practical and to produce useful maps the engineer drawing-board was used almost exclusively as experience early demonstrated the wisdom of adopting some one type of instrument. The prismatic compass, the box compass and the sketching cases of various types were used during the first few days, but were discontinued when it was found that the difference in the various methods of their use, while not great, were still sufficient to cause confusion in the minds of cadets and retard their progress in the actual production of sketches.

Simple and combined road sketches were made and also combined position or area sketches. These were reproduced in all cases immediately after the cadets had returned to the post and each cadet was given a copy of his work within a very few minutes after he had completed his sketch.

The class as a whole displayed a gratifying zeal and energy in the prosecution of this work and produced reconnoissance maps of a high degree of merit.

In the fall a departure was made in the assignment of time. Instead of one-fourth the class attending daily during the entire period of two months, one-half the class attended daily for one month. This resulted in the same amount of instruction for each cadet and greatly decreased the amount of work required from the engineer detachment in the preparation and handling of materials. The fall work was devoted to cordage and tackle, spar, trestle, and truss bridges and the use of explosives for demolition purposes.

The assignment of time for the spring work followed that of the fall, one-half the class reporting daily during the month of April. A portion of a field redoubt

was constructed by a progressive scheme of drills involving the laying out of the work, the construction of profiles, the excavation of trench and ditch, the construction of revetments of various kinds, head-cover and splinter proofs, and the location and construction of various forms of military obstacles.

Second Class.—This class attends in this department during the fall and spring periods only. The two seasons are devoted, respectively, to visual signaling and to electric transmission of signals including radio-communication.

In the time available only the rudimentary principles can be imparted—a situation aggravated by the multiplicity of codes, since no single code seems well adapted to all the various means of transmission.

Speaking from a limited experience in this work I should say that the adoption of one code, preferably Continental Morse, would simplify the difficulties of instruction and correspondingly increase the efficiency of the signal work in the line organizations throughout the service.

The chief signal officer of the Army, has shown a great and helpful interest in this branch of instruction at the Academy and has provided the very latest types of equipment as needed.

Third Class.—Covering the period of cadet encampment, one-third of this class reports daily for practical instruction in surveying.

During the past summer this course consisted of a series of exercises selected on account of their bearing on the character of duty assigned to the average graduate of this institution. The exercises were designed to illustrate the fundamental principles and methods applicable to military topographic surveying and although it was not deemed advantageous to undertake a complete survey of any portion of the reservation the exercises were so arranged and coordinated as to virtually constitute a topographic survey.

Certain other exercises illustrated methods of obtaining data for grading, locating roads and buildings, running watermains, sewers and similar work executed at military posts, usually under the direction of the quartermaster's department.

Fourth Class.—A course in theoretical surveying was given this class, recitations beginning on March 15 and terminating on May 9 with twenty attendances for each cadet. Every effort was made to familiarize the cadets with the various instruments and to this end an instrument of each kind was placed daily in each section-room. The cadets were required to set up, take down and to perform simple manipulations with each type. Three of the twenty attendances were devoted to practical work out-of-doors with a view of demonstrating early in the course the actual employment of the various instruments.

In conformity with the rules of the Academic Board fifty-four cadets out of two hundred and eleven were required to take the final written examination and of this number five were declared deficient by the Board and either turned back to join the next class or were discharged.

U. S. M. A. Detachment of Engineers.

During the year the authorized strength of this detachment has remained as for the past seven years. But in conformity with Special Orders 139, War Department, June 13, 1912, the strength will eventually be 10 sergeants, 10

corporals, 40 first-class privates, and 40 second-class privates, total strength 100 enlisted.

The average strength present at the post including men for duty, sick and in arrest has been 94.6, an increase of four over the figures of the preceding year.

The routine duties have not varied except to increase in amount by reason of the large number of cadets under instruction and the consequent increase in quantity of material to be provided. Nine men are permanently on extra duty in administrative or academic departments and one man on detached service as warden of the Popolopen watershed.

The fatigue and police duty has been unusually heavy and affords a strong argument for an increase of the detachment of army service men organized primarily to perform this class of work. Much of the work of the detachment consists in cutting brush and timber for cadet instruction, in placing in position the materials required for bridge-drills and in dismantling and repiling this material after it has been used by the cadets.

Very little opportunity is had for the instruction and development of the enlisted men and it is therefore difficult to maintain amongst them that feeling of interest and esprit de corps essential to efficiency. The small number of reenlistments and the large number of applications for transfer and discharge by purchase are strong indices of the disfavor with which the average enlisted man regards service in the several Military Academy detachments.

To encourage a feeling of pride and to increase the spirit of the organization special attention was devoted to target practice. This has afforded a relief from ordinary routine duty and an opportunity for increased pay as well. The results, though obtained only at the expenditure of much effort on the part of the officers and some of the higher non-commissioned officers, were very gratifying. The season of 1911 produced 9 expert riflemen, 16 sharpshooters and 5 marksmen. The failure to qualify a greater number was due in a large measure to the condition of the rifles, most of which were badly worn and extremely inaccurate.

During the winter the usual instruction schools were organized but orderly progress was rendered difficult by the large details required to cut and store ice. No instruction in riding was had on account of unfavorable conditions. It is believed that for instruction in mounted reconnoissance and for use in laying signal wire lines at least ten horses should be permanently assigned to the detachment.

Much mechanical work was done in constructing a bowling alley and in preparing a pool and billiard-room and a reading-room in the basement of the equipment shed. This work has not yet been completed.

The enlargement of the cottage occupied by the gardener was undertaken in order to provide quarters for a competent and reliable married man. Some of the material for this work was made available by the removal of stables and out-buildings in rear of the gymnasium.

The barracks have been somewhat improved by screening all openings with good wire screen and by repainting the interior, the latter being done by men from the detachment. Materials have been purchased by the quartermaster for the installation of toilet rooms in the basement of the barracks thus eliminating the separate building heretofore used.

The sleeping rooms are very small and scarcely afford sufficient floor space for the required number of iron cots. The air space per man is not up to modern requirements. The building was erected in 1858 and has not been enlarged or modified since that time except to provide it with gas, electric light and steam heat. It does not compare in any respect with modern barrack buildings and is inadequate to the needs of the organization.

The discipline of the detachment has been generally good and as to the greater number of the men it has been excellent. There was, however, one desertion and for this no especial cause can be assigned except to say that the man was by temperament and by lack of early training and discipline wholly unfitted for the restraints and exactions of military service.

Fort Putnam.

The act making appropriation for the support of the Military Academy for the past fiscal year provided \$4,000 for completion of work in connection with the restoration of Fort Putnam. No appropriation for this purpose had been made the preceding year and to effect its completion it was necessary to finish the parapet wall around the greater part of the work, to construct a magazine and guard-room, to complete a partly built casemate and to grade and clean up the entire interior.

The stone required for this work was obtained without cost and a very favorable contract for hauling was also made. In consequence unit costs were somewhat reduced as compared with those of former years.

The work is now finished in accordance with the estimates submitted for its completion, although it is now claimed that there was on the northeast corner stone look-out or sentry-box on the order of those seen at Manila, in Havana and other old Spanish works. It is also possible that the entrance was closed by iron gates but neither of these items were included in the estimates and there is room for doubt as to their actual existence.

Improvements to Roads and Grounds.

The actual and immediate superintendence of this work has been provided by the detail on extra duty of a sergeant and one or more assistants from the detachment of engineers. By this means a high grade of supervision has been obtained at almost nominal cost leaving for the pay of laborers and for purchase of tools and materials nearly the whole amount of the appropriation.

Work during the year has been confined to the main road making a circuit of the old revolutionary works of defense which route has been opened as far as Battery No. 1 at the close of the preceding fiscal year. Since then it has been carried northward and westward in rear of Redoubt No. 4 and well over toward its ultimate exit near the Eagle Valley Cross Roads.

The character of the construction has been changed somewhat to give a greater lineal progress and to open up in some manner longer stretches of road, reducing these to mere trails or narrow bridle paths. This progress has been obtained at the cost of width but the ultimate cost of this system will be the same in either case as the work is so conducted that none of it will need to be changed or done over to effect the final improvement and completion.

The restoration of Fort Putnam is now complete.

Department of Ordnance and Gunnery.

Owing to return to the four-years' course the class of 1912 having studied ordnance during their second class year that subject was not taught during the academic year just completed.

Practically all duties connected with this department and the duties of the ordnance officer of the post were performed by 1st Lieutenant Richard Donovan, Coast Artillery Corps, assistant professor of ordnance and science of gunnery, who, in addition, instructed in the department of English and history.

It was finally determined to appoint Major William H. Tschap-pat, Ordnance Department, professor of ordnance and science of gunnery, and he was so detailed on May 1, 1912, and will enter upon his duties at the beginning of the next academic year, September 1.

A number of exhibits have been loaned or presented to the ordnance museum during the year.

It is earnestly recommended that the ordnance detachment be increased by six first-class privates.

The following is an extract from the report of the head of that department:

Owing to the return to the four-years' course and to the fact that the class of 1912 studied ordnance and gunnery during their second class year, this subject was not taught this year, except in the cases of Cadets Burlingame and Mooney. These two cadets were absent on sick leave during a portion of the academic year commencing September 1, 1910, and for this reason did not complete the course during that year. They received instructions covering that part of the course which they had not taken, were examined and found proficient. They were assigned standing in the present First Class in ordnance and gunnery by the First Class committee as follows:

Cadet Burlingame to be placed next after Cadet Bodine.

Cadet Mooney to be placed next after Cadet McLean, H. C.

Ordnance Material.

The armament of the post has been kept in good repair during the year.

The 12-inch mortar battery, Battery Byrne, was completed during the fall and was available for drill during the spring.

In addition to the regular allowance for small-arms target practice for officers and enlisted men and of \$5,000.00 for such practice for cadets, suitable allowance for artillery practice during the year was made.

* * *

The allowance for small-arms target practice and for artillery target practice for the coming year is the same as it was for the year just ended.

* * *

In response to the requests of the accredited representatives of this government at the capitals of important foreign states, the following rifle and ammunition in addition to those previously reported has been received at the museum during the year in exchange for the latest U. S. magazine rifle and ammunition, viz.—

1—One Chinese rifle and five (5) dummy cartridges.

Ordnance Detachment.

The ordnance detachment has maintained its high efficiency during the past year. The work devolving upon this detachment has increased from year to year and is now greater than should properly be expected from a detachment of this size. It is considered that the strength of the detachment should be increased by six first-class privates of ordnance.

Department of Military Hygiene.

The course in the department of military hygiene was satisfactorily carried out during the year.

The following is an extract from the report of the head of that department:

Instruction in military hygiene followed the course outlined in the last annual report, and embraced the following topics: personal hygiene, examination of recruits, foods and their preparation, the water supply, the disposal of wastes, the sanitation of barracks, camps and moving troops, the prevention and management of epidemic diseases, venereal prophylaxis, the nature and effects of alcoholic drinks and of narcotics.

The text-book "Anatomy, Physiology and Hygiene" Treacy, was found to be unsuitable for instruction of cadets in the last named topic. It was therefore replaced by one prepared by the professor of military hygiene and entitled "Alcoholic Drinks and Narcotics."

The course covered the period, March 2, to April 1, 1912. Instruction was given by means of lectures and recitations. The latter were conducted by two medical officers—Captains George P. Peed and William R. Davis, Medical Corps, who were assigned to temporary duty at the Academy, for the purpose designated. Captain Davis was granted leave of absence, because of illness in his family, from March 18 and it was therefore necessary to assign one of the medical officers regularly on duty at the Academy as instructor in his stead. Captain Calvin D. Cowles, jr., was so assigned and completed the course.

Lectures were delivered, as part of the course, by Doctor Roswell Park, of Buffalo, N. Y., whose subject was "Gunshot Wounds," and by Colonel Valery Havard, U. S. Army, retired, who spoke on the topic "The Conservation of Health in Hot Climates."

The class exhibited marked interest in the subject and every member showed satisfactory progress; such being the case, no examination was held.

Since the establishment of the chair of military hygiene, in 1905, instruction has been given to the members of the Second Class. As part of a general

revision of the curriculum, it has been determined that, in future, the Third Class shall receive this instruction. For the ensuing year, this will necessitate giving the course twice, that is, to the Second and Third classes. The time for the course has also been changed and this will commence hereafter on September 1.

Department of English and History.

The course in English and history was satisfactorily carried out during the year.

The following is an extract from the report of the professor of English and history:

This department was one of those called upon to handle the unusually large entering class during its first year at the Academy. Enough new instructors were assigned to it to bring the total number up to fourteen, seven in English and seven in history. By this increase in the force of instructors the department was able to organize the class into twenty-eight sections in each subject and thus keep the sections in the lower part of the class small.

The work of the courses has been along lines similar to those described in the report for the year ending June 30, 1911. The cadets under instruction have been required to keep careful notes during the class-room work and have been encouraged to use the notes thus made for the preparation of their lessons in review. By the use of the lesson outlines mentioned in the report of last year, and by conferences with the head of the department before the teaching of each assignment, the instructors have been able to maintain uniformity in the teaching.

In one way an effort has been made to increase the effectiveness of the rhetoric part of the course. After each piece of written work submitted by the class, the cadets individually have had conferences with the instructors in which faults were carefully analyzed and the way to improvement indicated. This method is believed to be in the best interest of the individual. Criticism of the whole section is liable to make little impression upon the separate cadets therein, but these conferences with individual cadets upon composition submitted by them tend to bring home to their minds more forcibly their own weaknesses in expression.

Towards the end of the advance work in English an effort was made by the department to determine whether decided and noticeable progress had been made by the cadets under instruction in their ability in self-expression. Thirty-five examples of written work submitted by cadets early in their course were very carefully examined by an officer in the department detailed for the purpose and compared with the written work of the same cadets at the advanced stage of the course. Without exception the comparison revealed marked improvement. The officer's written report indicated the most encouraging progress in the ability of the class as a whole to express facts, information, or argument clearly and correctly.

The literature study has been very successful. It is believed that the introduction of the text-book in English literature has materially increased the value of the course for the class. The book adopted has proved well fitted for the purpose. It is believed further that the effort to coordinate the two parts of the English course, the study of rhetoric and the study of literature, has been successful. It is proposed to take another step in this direction next year by so arranging the lessons in literature that at the period when the cadets are studying the principles of composition they will be, in the literature, studying the best classic examples of English prose. Although the strict chronological sequence of the authors studied is somewhat disarranged, such disarrangement can be overcome by the study of the history of English literature in the text-book.

A determined effort has been made by the department during the past year to check carelessness in spelling. In both branches, a small reduction has been made in the mark for misspelled words, the cadets have been advised of this, and, most effectual of all, they have been required to submit at a subsequent recitation a list of their misspelled words correctly spelled. Although this savors of grammar-school methods, it seems the only satisfactory way to deal with this particular weakness.

In the history course, the chief innovation during the last year was the introduction of the new text-book in political science. The results justify the change. The average marks of the cadets under instruction were higher than in preceding years with the former text-books, an improvement due almost certainly to the ease with which they could understand the material as presented in the new book. Good text-books in this subject are rare and the one now adopted has some evident faults. It is my hope that one may soon be published which will be better for our purposes than the present.

For next year a new text-book in the history of Europe since 1815 has been adopted. This is a later publication than the text-book previously used and the material is very clearly and logically presented. With very few interpolated sheets this can, it is expected, serve the department for some years.

In accordance with the request of the head of the department, a larger sum was allotted for lectures this year than previously. We were thus able to supplement the course in English and history with talks by men of national reputation. Among the lectures of special interest were those of President Hadley of Yale, Governor Baldwin of Connecticut, Secretary H. K. Smith of the Bureau of Corporations in the Department of Commerce and Labor, Professor Beers, Professor Reed, and Professor Keller of Yale, and Professor Root of Princeton.

In conclusion, it is a pleasure to commend the assistant professor and all the instructors in both branches for their hearty and loyal cooperation in the work of the year.

Children's School.

The children's school has been ably administered by Captain William D. A. Anderson, Corps of Engineers, who reports as follows:

The organization of the school was unchanged, with the exception of the employment of a new teacher in the place of Mrs. William H. Tripp, who resigned on August 11, 1911. * *

Three children graduated in January and nine in June, 1912.

The large grades (due to the increase of the garrison ten years ago) are now as far along as the fifth grade and next year will reach the sixth grade. The attendance at the school will increase steadily due to the large number of young children coming on.

Due to the crowding in the third and fourth grades it was necessary to have only half-day sessions, the third grade attending in the morning and the fourth grade in the afternoon. This is a serious handicap to the children as they are too young to study a number of lessons at home and then to recite them consecutively at school. All day attendance (five hours) permits the grades to alternate in reciting so that one grade studies while the other grade recites. The child not only gets more study time under conditions favoring study, but also learns much from hearing the other children recite.

If an additional teacher is authorized for next session, as is now provided in the Military Academy bill, it will be possible to rearrange the assignment of grades so as to have whole time attendance in all of the grades except the kindergarten and the first grade. The children in these grades are too young to need more than half-time attendance, or two and one-half hours of training per day.

The rooms of the present school building will accommodate under sanitary conditions 30, 30, 35, and 40 children. For lack of space it has been necessary to have half-day attendance in some of the grades when the teacher could have handled both grades if the room had been large enough. Additional school rooms and larger rooms will be urgently needed for the session after next, the fiscal year 1913-1914.

The appropriation of \$3,520.00 for the maintenance of the school was expended as follows:

Pay of principal, male.....	\$1,080.00
Pay of three grade teachers.....	1,750.00
Pay of sewing teacher.....	150.00
Pay of janitor and substitute teacher.....	172.00
Purchases of books, stationery, and supplies.....	367.89
Balance.....	.11
	<hr/>
	\$3,520.00

This report indicates the necessity for a new schoolhouse for the increasing number of children at the post. The best results cannot now be obtained by reason of the crowded condition in certain grades. It also appears from the report that an additional teacher is needed.

Water Supply.

Special attention is invited to the report on the water supply and to the recommendation therein contained to build a new intake on Queensboro Brook. Nothing is of more importance than a suitable water supply and the present supply is endangered by reason of the increase in population at the Forest of Dean Mines. An item will be included in the annual estimates for the support of the Academy looking to the extension of the present pipe line into Queensboro Valley and the building of a new intake to utilize the Queensboro water to the exclusion of that in Popolopen Creek.

The following is an extract from the report of the officer in charge of the water supply:

During the twelve months covered by this report the water required for the post has been supplied exclusively from Popolopen Creek. From July 27, 1911, to August 25, 1911, the amount of water delivered through the supply main was below normal being least on August 18 when less than 300,000 gallons were registered on the recording apparatus. During this period the amount of water in Lusk Reservoir was reduced from its maximum stage of 92 million gallons to 69 million gallons. The reserve at Round Pond was not drawn upon at all during the year, and this reservoir is now full and has maintained a slight overflow for a number of months.

On July 1, 1911, a non-commissioned officer from the U. S. Military Academy Detachment of Engineers was placed on extra duty as assistant overseer of the water-works and continued on this employment during the summer and fall. His services were utilized mainly in the inspection of barracks, quarters, stables and other buildings supplied with water with a view to discovering defective plumbing fixtures and detecting and preventing waste. As a result of this house-to-house inspection the amount of water consumed per day was somewhat reduced but the average daily consumption per capita continues to be very high as compared with that reported in ordinary water-works statistics.

The lowest consumption per day was 812,000 gallons recorded on October 17, 1911, and the highest 1,385,000 gallons was recorded on July 4, 1911. The average daily amount for the year was 1,031,770 gallons with no very marked variation due to changing seasons.

Under the direction of the surgeon examinations of the raw and filtered water have been made at intervals of three to four weeks. As compared with the usual water supplies throughout the country, the bacteriological condition of the raw water has been very satisfactory at all times though the bacterial count per cubic centimeter has differed widely, being 38 on June 10, 1912, and 836 on May 16, 1912, with an average of 257 for the year.

Generally speaking, the filters have been very efficient giving a reduction in the bacterial count of 97 to 99 per cent. most of the year. A period of low efficiency occurred in the early part of December immediately after all the filters had been cleaned for the winter. The action of the filters in this instance has

not been accounted for though the records show that it has occurred before. It was possibly due to the fact that a cold snap occurred while the filters were being changed and the low temperature retarded the development on the surface of the filter sand of the micro-organic coating essential to this system of filtration.

The condition of the raw water as to mechanical impurities has not been so good. The amount of oil and sediment in suspension has been marked and has interfered seriously with the operation of the filters. In an exceedingly short time after cleaning, the filters have again clogged up by the formation of a tough and almost waterproof blanket of oily sediment over the sand surface. This has necessitated repeated draining and scraping of the filter beds keeping one or another of the four beds out of service and frequently two. Due to this cause alone the cost of cleaning the filters has been greater during the past year than for any like period since their installation. With two filters out of service simultaneously it has been exceedingly difficult at times to keep a sufficient head of filtered water in the clear water house without increasing the rate of filtration of the remaining two beds to a dangerously high figure.

The total area of the four beds is a scant seven-twelfths of an acre and the capacity of the clear-water house is also small. Therefore, in times of emergency calling for a high rate of consumption, as in case of fire or a serious break in the mains, it becomes necessary to open the control valves and introduce unfiltered water directly from the settling basin into the distribution system. This condition renders possible the presence of pathogenic germs in the distribution mains and goes far toward negating the value of the filtration plant. The necessity here mentioned has occurred no less than seven times during the past year and with the recent extensions of the mains in the post there is every reason to believe that the necessity will arise even more frequently in the future.

As is well known, the present intake is located on Popolopen Creek below the junction with Queensboro Brook and the water used at West Point is thus drawn from two sources.

When the present intake was built conditions in the watershed were of the very best. The Forest of Dean Mine, located on Popolopen Creek above the intake, had been shut down for many years and was apparently abandoned as conditions were not favorable to its operation.

Since then, however, the mine has been reopened and at present the owners are working a vein of magnetic ore, reported to be 90 feet wide, 130 feet deep and yielding 62 per cent. There is no indication that this vein will "pinch out" and the company has purchased adjoining lands and is continually increasing its working plant and forces. On this showing it is evident that the mine will continue in operation for many years to come.

Large numbers of foreign mine workers, with habits of living common to their class, are now located around the mine. Camping parties in ever-increasing numbers spend their summers on the banks of Popolopen Pond, Mine Pond, Long Pond and other waters contributory to Popolopen Creek. The drainage from this whole district for many miles around is more or less directly into the creek. The water from the mine is pumped into a swamp and immediately finds its way into the stream. An ore crusher, operated in part by water-power and in part by steam is located directly over the brook and the oil drippings from the machinery fall directly into the water.

The mine owners are disposed to do everything within reason to maintain good sanitary conditions and are complying with laws enacted for the protection of water supplies in the State of New York. But they are powerless to control the domestic and personal habits of their laborers and attendant population and, of course, have no control whatever of the population not resident on the mine properties.

The warden of the watershed makes weekly inspections of various parts of the area contributory to Popolopen and Queensboro Brooks and is observant of conditions at the mine. Under the circumstances these may be said to be better than last year and reflect credit on the management of the mining company but so long as the mine continues in operation and so long as camping parties with their usual careless habits continue to use the grounds and ponds it is clear that this source of water supply will never be entirely above suspicion.

The watershed of Queensboro Brook is, to a large extent, included within the limits of the park reserve recently established by the State of New York and is thus protected as to sanitation. The remaining area consists of scattered farms, mostly in timber, and is in excellent sanitary condition. The water of this brook is clear, pure, free from oil and mine waste and is superior in every respect to that of Popolopen Creek with which it is merged a short distance above the existing intake.

In the course of time it will doubtless be necessary to increase the storage capacity of the West Point water supply by additional reservoirs. Almost as a matter of course these will be located on Queensboro Brook necessitating an extension of the existing pipe line.

It is believed that Lusk Reservoir, with Round Pond as a reserve supply, will afford sufficient storage capacity for some years to come as sanitary conditions on Popolopen Creek will grow worse rather than better. Some steps should be taken without delay to eliminate from the supply the water drawn from that neighborhood.

The most obvious and, at the same time, the most economical action to take is to extend the present pipe line up stream and into Queensboro Valley and by means of a new intake utilize the Queensboro water to the exclusion of that in Popolopen. No survey with this object in view has ever been made but an examination of the vicinity has disclosed a suitable site for an intake on lands already owned by the United States and the cost of this improvement should be moderate. Such an intake and extension would not only solve the present difficulty but would be equally useful in the future when storage reservoirs are built farther up the valley. The inclusion of this project in the annual estimates for the support of the Academy is earnestly recommended.

During all but the very dry months Queensboro Brook furnishes ample water for the needs of this post and, as stated, the storage capacity of Lusk Reservoir and Round Pond is sufficient to carry the post over an ordinary dry season.

The existing intake would remain available in case of necessity, special attention being had to the filtration of water supplied during and after such period.

Repairs amounting to \$125.50 have been made on the roads in the watershed area, the United States being under obligation to keep these roads in repair. Further repairs are needed but the annual appropriation will not suffice to keep

these roads in repair and to maintain and operate the filters and police the roads and grounds in their vicinity.

Some very necessary repairs have been made to the warden's house at Round Pond and this property placed in charge of Mr. W. Herbert Ray, his predecessor having proved unsatisfactory and indifferent to the interests of the United States.

Board of Visitors.

It is not believed that the existing law providing for the Board of Visitors to the United States Military Academy gives satisfactory results.

The time to inspect and visit the Academy by a Board of Visitors is during the commencement period, June 1 to the date of the graduation of the First Class, and the return to the old custom which prevailed for a number of years of sending at that period a Board of Visitors consisting of Senators, Members of the House of Representatives, and distinguished civilians, is again recommended. This opinion is shared by all at the Academy.

During the present year no Senators visited the Academy.

On June 6 and 7 the following members of the Military Committee of the House of Representatives visited the Academy:

Honorable John T. Watkins,
 Honorable Dudley M. Hughes,
 Honorable Michael F. Conry,
 Honorable Daniel R. Anthony, jr.,
 Honorable Butler Ames,
 Honorable Kenneth D. McKellar.

The members of the Military Committees of the House and Senate should be familiar with the Academy and its needs and should visit and inspect it before considering the Military Academy appropriation bill.

Superintendent of the United States Military Academy.

The increased number of cadets and the enlargement of the Academy emphasize the necessity for the Superintendent being a general officer and having in himself actual rank superior to that of any officer under his command.

In this connection it is to be remarked that from 1864 to 1889 all of the eight superintendents held the rank of general officer, and generally speaking, exercised the command of that rank

during the Civil War and though demoted by reason of the reorganization of the Army after the Civil War, nevertheless, brought to the superintendent's chair the prestige that went with that rank and command, and which enabled them the better to hold out for the standards that have characterized this institution for all time, and to resist encroachments upon said standards.

Students from Foreign Countries.

In the resolutions that have been recently enacted by Congress authorizing foreigners to receive instruction at the Academy it is properly provided that they pass the mental and physical examinations prescribed for candidates from the United States, and that they shall be immediately withdrawn if deficient in studies or conduct and so recommended by the Academic Board.

Adjutant of the United States Military Academy.

The work of the adjutant's office has been very efficiently performed by Captain Robert C. Davis, 17th Infantry. It is sincerely regretted that under War Department orders he must sever his connection with the Academy before the completion of the usual four years' tour.

Captain Davis has improved everything that he has administered since he entered upon his duties here and has been an able and tactful intermediary between the Superintendent and all at the Academy by reason of which he is entitled to all credit for the harmonious cooperation and coordination existing between all branches, academic and otherwise.

The following is the report of the adjutant:

The changes in the organization of the adjutant's office outlined in the last annual report have been satisfactorily carried out, and while it is recognized that additional improvements can be effected and the present system perfected, still, the efficiency of the different divisions has increased and the work therein has been more promptly and accurately performed.

During the past year the more recent records of the Academy have been moved from the record and storeroom in the basement to a room on the third floor of the administration building where they are more accessible to the office force and can be more promptly obtained. The various records in both rooms have been carefully indexed and may be readily referred to when occasion requires.

An index to all orders, circulars, etc., of these headquarters for the years 1905, 1906, 1907, 1908 and 1909 is under preparation and the more important documents prior to 1902 in the filing division are being indexed to correspond with the system of indexing now in vogue

In each division there are a lot of old or back records that require indexing, or filing, or arranging so that they may be accessible and referred to. Each division has been allotted a certain amount of this work and any time that can be spared from the routine work is devoted to this.

The office is divided into the following divisions: Record and mailing, disciplinary, military, academic, and printing and binding.

The office force proper consists of nine civilian clerks and six enlisted men. In the printing office and bindery there are seven civilians and four enlisted men.

The record and mailing division during the year has received 4,000 documents, entered them in full, mailed or filed and indexed them, and all orders and circulars received, and in addition kept a record and account of all supplies purchased or expended including those for the printing and binding offices.

The disciplinary division has entered 25,050 reports since September 1, 1911, and is preparing a new alphabetical list of cadets admitted to the United States Military Academy since its foundation. This book was last published in 1902. An additional list of all cadets admitted to the Academy is being prepared, alphabetically, according to States, Territories, etc.

The military division prepared the morning report, guard report, details, all orders and circulars, etc., the post return, requisitions, rosters, diplomas, etc., and kept all changes posted in regulations, service manuals, as well as all order files.

The academic division in addition to its routine work in connection with the academic records of cadets, has charge of all work connected with the examination of candidates, the preparation of the Cadet Register, and the keeping of the permanent cadet records in which latter work it is assisted by the clerks of the disciplinary division when necessary. The clerical force in this division is inadequate in itself to properly handle the great amount of work it is called on to do and nothing but the efficient, continuous and out-of-hours work by its members has permitted it to keep up with its routine.

The work performed by the printing office and bindery has been varied, and well done. The nature of the work is printing and binding the Superintendent's and other reports, Cadet Registers, index to all orders and circulars, examination papers for candidates and the pamphlets and text-books for cadet instruction. This in addition to the routine work of printing orders, notices, etc., and blank forms used in this office as well as in the offices of the commandant of cadets, commissary, treasurer, laundry, quartermaster, cadet hospital and the various detachments.

A proof-press has been installed in the printing office during the fiscal year just closed and is of inestimable value.

The records of the bindery show that 12,901 books and pamphlets have been bound and 93 maps mounted in addition to special work. In the bindery but one man and two young women are employed, and as this number is insufficient to do the work necessary and as much of the time of the binder is taken in doing work that an unskilled man could do, it is hoped that provision will be made for the extra duty pay of an enlisted assistant.

Effort has been made to give the different divisions an appearance of uniformity by obtaining the same kind of furniture for all.

Practically all the correspondence of this large office is handled by Miss Ella M. Hager, whose ability, capacity for work, and willingness to do so are most exceptional, and render unnecessary at present the establishment of a correspondence division.

The undersigned is relieved from duty as adjutant of the Academy to date July 1, and has occupied the position since January 1, 1911; during this time the amount of work in the office has steadily increased and has been unusually large and each member of the office force has done his share loyally and efficiently without regard to hours and with only one end in view — the expeditious and accurate accomplishment of the work, and I desire to here express my sincere appreciation of their work.

I renew the recommendation of last year that Mr. I. A. Boyle, the chief clerk, receive an increase in his pay to \$1800 making his salary commensurate with the important position he so efficiently and loyally fills.

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

The band and field music have continued on the same lines as heretofore, and Mr. Egner, the teacher of music, has kept the band up to its usual high standard. Sergeant Guttormson has worked hard with the field music and now has a drum and fife corps to be proud of.

It is hoped that Congress will give the increase of eleven men to the field music, as the additional men are much needed due to the increase in the Corps of Cadets and in the number of officers stationed here.

A board of officers was convened to consider and to make their recommendation in respect of a distinctive uniform for the U. S. Military Academy Band and Field Music; following the report of the board there was obtained for both the band and field music a full dress hat similar in shape to that of the hats of the cadets, with a white pompon and white cords on it, and the band's device in front instead of the academy shield. The hat adds greatly to the appearance of the band and field music and the men are justly proud of it.

Strength of officers, civilian instructors, cadets, United States Military Academy, and enlisted men at West Point, N. Y., August 1, 1911:

Commissioned, Army	99
Civilian instructors	7
Cadets, U. S. Military Academy	573
Foreign cadets	4
Enlisted, Army	160
Enlisted, Military Academy	475
Total	1318

Strength of officers, civilian instructors, cadets, United States Military Academy, and enlisted men at West Point, N. Y., June 22, 1912:

Commissioned, Army (including chaplain and teacher of music)..	113
Civilian instructors	6
Cadets, U. S. Military Academy	541
Foreign cadets	2
Enlisted, Army	168
Enlisted, Military Academy	484
Total	1314

Quartermaster and Disbursing Officer.

The duties of quartermaster, disbursing officer and officer in charge of construction have been satisfactorily performed by Major Bertram T. Clayton.

The following is an extract from the report of the quartermaster:

Transportation.

In addition to daily demands made upon this office for draft purposes and the policing of the post, including more than 20 miles of roads and paths, transportation has been furnished for hauling freight and materials amounting in weight, during the year, to about 30,000 tons.

Motor trucks meet the demands for transportation at this post much better and more economically than horses or mules, wherever hauling can be done on main roads. A supply of at least four more of the three-ton trucks would greatly aid in hauling forage, subsistence and miscellaneous supplies from railroad station and public wharves. The truck now on hand has proven highly satisfactory.

The housing of transportation at this post has not been properly provided for. At the beginning of the fiscal year 1912 half of the animals of the quartermaster's department were stabled in an old paper-covered shack down on the flats. This dilapidated, old, temporary building has since been condemned and torn down, and the animals formerly stabled there are now in the old artillery stable, building No. 70, now known as quartermaster stable No. 2. Before transferring the animals it was necessary to clean out this building and thoroughly disinfect it and do considerable repairing, as when last occupied glanders had broken out in it. This was all done by post labor.

During the year a small galvanized iron shed, affording shelter for 24 wagons, has been constructed on the north side of quartermaster stable No. 2, by post labor, the necessary material being purchased from the appropriation "Repairs and Improvements," the requisition submitted for quartermaster funds having been disapproved on the ground that no funds were available. There are still 48 wagons standing out in the open, because there is no shed for them and no funds available for the construction of a shed. Requisition was again submitted March 10, 1912, for funds for a wagon shed, but up to the present time no allotment has been made.

Post Cemetery.

This cemetery has been in use since 1816, at which period three reinterments were made. The total number of interments up to June 30 is 1481. Twenty-nine interments were made during the fiscal year. The cemetery contains about 16 acres.

Its care and maintenance is provided for in the annual appropriations for support of the U. S. Military Academy.

Owing to its gradual increase in the number of interments, the necessity for filling in and resodding old interments, and the annual increase of space occupied require increase in work to keep up the appearance of the grounds. An increase of \$500 should be granted to maintain the cemetery in a suitable manner. In

previous years \$2,000 per year has been allowed for hire of necessary labor, purchase of flowers, shrubs and other material required. This spot is the resting place of many distinguished men. The authorities here are held responsible for its condition, and they should be supplied with adequate funds to maintain it in a manner demanded by its importance and location.

Detachment of Army Service Men.

This detachment has an authorized strength of 200, and furnished men required for extra services as clerks, janitors, mechanics, printers, teamsters, engineers, foremen, messengers, laborers and police duty. The members of this detachment have performed the numerous demands made upon them in a very satisfactory manner.

With the growth of the Academy and increase of buildings, the demands for maintenance, repairs and improvements have multiplied. An increase in number is needed to meet the demands made on this office for repairs, etc., otherwise civilian labor will have to be employed at a cost much greater than labor by enlisted men.

Miscellaneous.

The storage capacity for coal at the main shed is only about thirty-five hundred tons. About nine thousand tons are issued and sold annually. For purpose of avoiding receiving coal during the winter, the shed should be enlarged to store a year's supply, or, at least, for a supply to last from November 15 to March 15, the season for bad hauling and costly handling.

\$4,217.35 was expended for repairs to quartermaster's buildings.

The receipts and disbursements during the fiscal year are enumerated in statement attached, marked No. 3.

Quartermaster's Department, U. S. Military Academy.

The duties under this head are defined in Par. 7, Regulations United States Military Academy, 1911.

Contracts entered into during the year and prior thereto, remaining in force in part for the whole of the fiscal year, are enumerated in statement attached, marked No. 2.

Receipts and disbursements are shown in statement attached, marked No. 4.

Necessary repairs were made to all public buildings, so far as the appropriation for the purpose would admit.

Steam-heating apparatus was kept in proper working order during the year.

Power Plant.

The plant has been in use for the past four years. It provides light for the illumination of the post and all public buildings that have electric fixtures installed therein, it also provides heat for the following public buildings:

Riding hall, post headquarters, academic building, cadet hospital, north and south cadet barracks, cadet guardhouses, cadet gymnasium, cadet chapel, cadet store, pipe shop, and the library.

During the fiscal year 8,725 tons of coal were purchased to provide light and heat from the plant at a cost of \$29,254.25. 1,038,680 K. W. electricity was supplied for the requirements of the post.

Owing to increased demands upon this plant, due to increase in buildings and greater space to be heated and lighted, it is apparent that the appropriation for purchase of coal should be increased and the necessity of submitting deficiency estimates obviated.

The storage capacity of the power plant is only 4,000 tons, necessitating frequent deliveries during the winter season. Storage should be provided for at least 8,000 tons, so as to avoid the necessity of receiving coal during extreme weather when ice and snow interfere with the operation of the conveyors.

Public Works.

The work of erection of the riding hall under contract with J. E. & A. L. Pennock, approximately 78% complete on July 1, was advanced to completion by December 14, 1911, with the exception of the marble and slate work and setting plumbing fixtures in connection therewith, which was delayed on account of a general strike in the marble setters trade of several months' duration.

The building was accepted from the general contractor and all expenditures under his contract terminated December 14, 1911, a deduction being made from the amount of the general contract, of \$1,400 to cover marble and slate work and plumbing, all of which has since been completed within the amount of the deduction.

Contract with Messrs. Fox Bros. & Co., during the preceding year to supply twenty-four long burning, flaming arc lamps for lighting the arena of the riding hall, at a price of \$63 each, was not fulfilled at time of expiration of the contract and as it was impracticable to supply lamps of the manufacture specified several months later when needed for installation at time of occupancy of the building, the offer of the contractor was accepted to supply twenty-four long burning, flaming arc lamps of a later improved type of other manufacture than specified at reduced price of \$35 each. The lamps accepted are satisfactory.

Following the award of contract for the erection of the *East Academic Building* to James Stewart & Company, mentioned in my last annual report, a formal contract, dated July 10, 1911, for this building was entered into with this firm to the amount of \$373,000 or a total cost, including the contractor's commission, of 6 1-4% of \$396,631.25, omitting the chemical laboratory and map-room.

Work upon the walls of the first story and a portion of the walls of the second story are now well advanced and the main portion of the east academic building is approximately 26% completed on June 30, 1912. Supplemental contract, dated September 28, 1911, was made with Messrs. James Stewart & Company for the substitution of reinforced concrete spread footings for concrete piles and masonry foundations extending to ledge rock. This modification was made as it was found impracticable to drive piles through the compact gravel and boulder formation encountered and in order to avoid the expense of extending portions of the foundations to bed rock found to be at greater depth than shown by the plans.

At time of award of the contract first referred to for construction of the main portion of the east academic building, payments were being made from the appropriation for improvements to the Military Academy upon the contract

for erection of the riding hall. After making reduction from the balance remaining of this appropriation of the cost of the completion of the riding hall together with the approaches thereto, branch conduit, steam piping, etc., and the cost of quarrying stone for ashlar facing for the riding hall and east academic building, an amount of \$36,000 appeared to remain available to cover contingent expenses occurring upon the contract for the latter.

The cost of completion of the riding hall, however, was greater than anticipated and the expenditure for the erection of the east academic building will also exceed the price under contract with Messrs. James Stewart & Company. Although every effort has been made to minimize the cost of erection of these buildings and a saving in the expense of quarrying stone will occur, the small remaining balance of the appropriation for improvements will be insufficient to complete the erection of the main portion of the east academic building. The award of subcontracts for the elevators, the rolling shutters, for the marble and slate work and tile flooring, and for carving exterior limestone, have, in consequence, been withheld in order to avoid exceeding the appropriation.

The advertisement for the construction of this building was based upon plans and specifications approved by the Secretary of War, the general drawings, consisting of thirty-three sheets, prepared by the architects, with one plan of location of the building.

Seventy-eight drawings of details of construction of the east academic building have also been furnished by the architects.

In connection with the supervision of the work by this office, twenty-one additional supplementary working details have been supplied; thirty-five subcontracts have been made through the general contractor, and one hundred twenty-six drawings of subcontractors verified and approved for use in construction.

The removal of the old post headquarters building, standing upon the site of the east academic building, was undertaken under contract with Joseph Kaufmann & Co., in the amount of \$2,100, the stone and brick saved and with other suitable material, being used as far as possible in the new construction.

A contract was also made with this firm in the amount of \$664.11 for wrecking quarters No. 21, standing directly in front of the new gymnasium, and intended to be removed in connection with other improvements. The contractor supplied 84,050 old brick from this building for use in the east academic building.

The contract with Messrs. Olmsted Brothers, landscape architects, in force since May 26, 1904, to furnish plans, designs and a written report descriptive of landscape improvements at this place has been fulfilled and settlement has been made with them.

A general plan of landscape improvements of the reservation has been developed by this firm in cooperation with a board of officers appointed for the purpose, also a general plan of the post section compiled from a number of detailed plans of location and grading of the various buildings and surroundings; and the roads, walks, terraces, retaining walls and other features of the improvements in progress at this place. These detailed plans of location, sixty-seven in number, have assisted materially in the execution of the work undertaken.

From funds authorized by the Quartermaster General, a contract was made March 28, 1912, for extensions of the *water distributing system* at this place. Work under this contract is now in progress, consisting of the installation of approximately 4,300 feet of cast-iron water mains and accessories, 550 feet of service branches, and 8 fire hydrants for additional fire protection.

The *north bachelor quarters*, first occupied in the fall of 1909, contained thirty-two sets of quarters for unmarried officers and was sufficient for the accommodation of all unmarried officers then on duty at this post.

In order to provide quarters for the present increased number of officers, eight sets of unfinished quarters in the third and fourth floors of the north wing of this building have been completed during the past year.

This work has been done by day labor at an expenditure of \$6,800 and includes the purchase and installation of interior doors and trim, the completion of fireplaces, plumbing, heating and lighting fixtures with piping and wiring connections.

Payment upon the contract for erection of the *post headquarters building* was made to Messrs. J. W. Bishop Company at time of completion of the building with the exception of \$750 the value of models to be furnished and carving in limestone of nine statuettes for the mantel in the academic board room. This work has been completed and payment allowed during the past year.

Payment has also been made of the amount of \$3,353.46 in final settlement of all claims of the contractors for extra work upon the post headquarters building.

Various Improvements.

A large amount of cleaning up work has been done. Small stables in rear of officers' quarters, chicken-houses and other unsightly temporary shacks have been removed and the places cleaned up.

There still remains a large amount of grading and sidewalk and road construction to be done around some of the new buildings. It is estimated that if done by contract it would cost about \$18,000 to grade around the mortuary chapel and construct the entrance to the cemetery in accordance with the approved plan. There is a large amount of grading to be done north of the gymnasium and roads and sidewalks should be constructed to the riding hall. Plans have been prepared and approved for the improvements required at these places so that such work as may be found practicable with available labor, can be done in accordance with the approved lay out. The roads and walks leading to the chapel are in an unfinished and unsightly condition, but it is not practicable to complete these until the new cadet headquarters and store building has been constructed and the tunnel towards the chapel has been completed. This work cannot be undertaken until additional funds have been appropriated by Congress. A retaining wall is badly needed back of quarters Nos. 60 to 75, at the north end of the post.

The depression in the main parade ground, known as "Execution Hollow" has been filled up with earth from the excavation for the new east academic building. A part of this fill has been graded and seeded with grass, and new sidewalks constructed north of Battery Byrne and to the hotel.

Road Work.

New macadam road with brick gutters has been constructed from quarters "F" to quarters No. 8, and macadam road at south end of post has been continued to south gate. A large amount of repair work has been done on the roads, special attention being given to drainage. The main road from quarters 8 to the south gate was retarred and the surface coated with grit. All the remaining principal roads of the post should be similarly coated during the coming fiscal year. Many of the roads are in need of extensive repairs. The road from the railroad station to the library should be reconstructed of tar-macadam.

The retaining and breast high wall has been completed on the lower side of the road east of post headquarters building, though a part of the retaining wall west of the riding hall will require additional foundation when the grading around the building is completed.

Repairs and Improvements to Buildings.

The repair of buildings on the post has been carefully looked after during the year and work done to the extent of the appropriations available. Owing to the increase in the Corps of Cadets and the additional officers coming here, it was necessary to make available for assignment to married officers, eight sets of old quarters which were not occupied by officers during the previous year. Two of these sets, Nos. 77 and 79, were occupied by civilian clerks of the treasurer, U. S. M. A. Considerable work was required on these quarters and the expense had to be met from the current appropriations carried in the Military Academy act.

The interior of the quarters now occupied by Professors Gordon, Willcox, and Stuart, were papered and painted throughout. In the quarters occupied by Professor Echols, one small bedroom on the second story, front, was converted into a bathroom, plumbing installed and the water and drainage pipes extended to this part of the building. All quarters, except those occupied by the permanent professors, are overhauled when first assigned to officers reporting here for duty.

At the beginning of this fiscal year, circular of instructions of the Quartermaster General's Office, April 10, 1911, which prescribes the tinting and color scheme for the interior of officers' quarters, was adopted for all quarters at this post maintained from the Military Academy appropriations, except those of the Superintendent, commandant, and the permanent professors.

There was more or less trouble throughout the year on account of leaks in the roof of the headquarters building, north cadet barracks, bachelor officers' quarters and the gymnasium. Waterproofing material and new flashings have been used on all these buildings, and it is hoped that the trouble from this source has been removed.

The Superintendent's stable, construction of a galvanized iron wagon shed, and the restoring of building No. 70, as a stable, have already been spoken of in the early part of this report.

On account of the increased number of cadets it was found necessary to provide additional recitation rooms. This was done by changing the sixteen rooms in the first division, south cadet barracks, into office and recitation rooms, which were assigned to the department of modern languages.

Gas Plant.

As director of the gas plant, I am charged with providing illuminating gas for the requirements of the post. The revenue derived from the sale of gas, coke, and tar, is covered into the special contingent fund and applied to the payment of employees at gas works, purchase of gas coal if the appropriation is not sufficient, and for miscellaneous expenses not otherwise provided for.

Gas is charged for at the rate of 75 cents per 1000 cubic feet; coke, \$1.25 per 18 bushels, and tar is sold at 3-1/2 cents per gallon, this being the highest price that could be obtained after public notice inviting proposals.

During the fiscal year 16,263,200 cubic feet of gas were manufactured; 3,904,700 pounds of coal being used for this purpose.

The plant has been in use since 1893, at which period it was remodeled at a cost of \$41,993.00.

It has greatly deteriorated due to ordinary wear and tear, and should be overhauled or rebuilt in the near future.

The amount of gas manufactured during the past two years, in months, is recorded in appendix marked No. 5.

Receipts and expenditures pertaining to the gas-works are included in statement enclosed, marked No. 6.

Special Contingent Fund.

This fund is derived from rentals and the sale of gas, electricity, coke, tar, wood and other miscellaneous sources. Expenditures from this fund are made under direction of the Superintendent, by authority of Chapter 212, Revised Statutes, Act of Congress, approved May 1, 1889.

The fixed rentals at present for one calendar year under leases and agreements, amount to \$1,610.00.

During the fiscal year, 992-1/2 cords of wood were sold—464-2/3 cords at \$4.00 and 526-1/2 cords at \$4.25; amounting to \$4,100.62. Owing to its quality, there is very little sale of this wood except to the brickyards.

Hotel.

The former lessee of this building vacated the premises on expiration of his lease, September 30, 1911.

Several offers for lease of the hotel were received under proposals invited by this office, none of which was favorably entertained.

After correspondence and consultation, a lease for five years, was made with Mrs. Emilie Logan, at an annual rental of one hundred dollars. This was the best arrangement that could be made owing to the condition of the old building and the fact that no guarantee could be given as to length of time the old hotel would be permitted to remain standing and occupied. Under the law, leases of government property are revocable at will by proper authority, and as it was understood that this old building would not be permitted to stand more than one or two years longer, or until appropriation was available for a new hotel, hotel proprietors did not care to go to the expense of fitting it up.

A new modern hotel of sufficient size to accommodate the friends and relatives of cadets is an urgent necessity. The present building is old, inadequate and

lacking in all modern conveniences and should be replaced as soon as funds can be made available for the purpose.

A large amount of repair work had to be done on the old building before it could be reoccupied. This work was paid for from the special contingent fund, into which the rent of the hotel and other buildings is deposited.

On June 14 a fire broke out in the top of the main portion of the hotel and considerable damage was done to the roof by the fire and to the ceilings and walls of the main portion of the building by water, before the fire could be extinguished.

Statement of receipts and expenditures are included in enclosure, marked No. 6.

The Forestry Department.

This department is maintained from the special contingent fund, into which all sales from wood are deposited. There are regularly employed one woodsforeman and four woodsmen, the other labor is employed from time to time as found necessary. During the past year there have been cut 700 cords of wood and 30,000 feet of logs. A large percentage of the wood cut has been chestnut which had to be cut out on account of the prevalence of blight in the growth of chestnut in the forest. The wood is of a poor quality and not fit for domestic use.

The woodsforeman operated the saw mill during the past year and has sawed out about 25,000 feet of lumber of different kinds. This lumber has been used wherever it was considered suitable. It is not of high grade, but is found good for stable floors, small bridges about the reservation, for hand rails where roads and paths go near steep places not provided with breast-high walls, and various other similar purposes.

Thirty thousand four-year old pines from the forestry nursery have been transplanted to the woods. About 20,000 young pines two-years old, have been transplanted from the nursery beds to the garden area. Twenty pounds of white pine seed were planted this spring. Eighty young shade trees have been transplanted from the nursery and the forest to various places about the post, and an equal number of old dead and dying trees have been removed.

In the summer of 1911 a great deal of damage was done to the elm shade trees by the "beetle." Hand pumps were used continuously during the season of their activity in spraying the trees, but notwithstanding the efforts of the forester in this direction, the beetles made considerable headway in eating up the leaves. In order to provide against that this summer, a gasoline power spraying machine has been purchased and is now being used very effectively in spraying all the shade trees about the post with arsenate of lead in the proportion of six pounds to 100 gallons of water, this being the solution recommended by the New York Agricultural Experimental Station for this purpose. This has been effective thus far and it is not believed that the insects will damage the shade trees this summer.

During the fall and winter, until the forest became covered with snow, a mounted trooper patrolled the roads and paths of the forest for the purpose of discovering and reporting any fires that might break out. During the year, only one small forest fire occurred, and that was put out before any serious damage was done.

Personnel.

Captain James S. Parker, Quartermaster, U. S. Army, my senior assistant has been on duty in this office throughout the fiscal year. He has commanded the army service detachment since the relief of Captain Beacham, December 4, 1911.

Captain Joseph Beacham, 29th Infantry, U. S. Army, was on duty in this office as one of my assistants, and also in command of the army service detachment, until relieved and ordered to join his regiment December 4, 1911.

First Lieutenant Jay L. Benedict, 14th Infantry, U. S. Army, was assigned to duty in the department July 1, 1911.

These officers have been willing and efficient in the performance of the various duties assigned them.

The civilian employees of the department have been faithful and diligent in the execution of the work required of them.

(APPENDIX 1.)

Contracts pertaining to the Quartermaster's Department entered into during the Fiscal Year 1912.

Name	Date	Purpose
North River Coal Co.	April 15, 1911	Anthracite Coal.
Texas Company.	April 15, 1911	Motor gasoline and mineral oil.
Clark & Wilkins.	April 15, 1911	Soft wood.
Chas. H. Pavek.	April 15, 1911	Hard wood.
Gasteiger & Schaefer.	May 15, 1911	Oats and straw.
American Hay Co.	May 15, 1911	Hay.
Hoge & McDowell Co.	May 15, 1911	Bran.
Wm. Gleichman.	May 15, 1911	Middlings.
E. F. Kitson.	March 28, 1912	Extensions to water system.
Garrett & Graham.	June 17, 1912	Grading on Target Range.
Wells & Newton Co.	June 17, 1912	Installing plumbing in enlisted men's barracks.

(APPENDIX 2.)

Contracts in force during the period June 1, 1911, to June 30, 1912.

Name	Date	Purpose
Cram, Goodhue & Ferguson.	Aug. 12, 1903	Developing competitive design for improvements, U. S. Military Academy.
Henry C. Meyer, Jr.	Oct. 2, 1903	For designing and supervising the construction and installation of heating and lighting plant.
Olmsted Brothers.	May 26, 1904	Plans and designs for landscape improvements, U. S. Military Academy.
J. E. & A. L. Pennock.	April 13, 1909	Construction of Riding Hall.
Fox Brothers & Co.	Nov. 9, 1910	Flaming arc lamps.
Wm. F. Ross & Co.	Nov. 16, 1910	Organ cases, new Chapel.
M. P. Moller.	Dec. 3, 1910	Pipe organ.
Steeles & Condict, Inc.	April 7, 1911	Condenser and weak liquor cooler.
Alex. D. Scott.	April 21, 1911	Constructing house for caretaker of watershed.
J. H. Gautier & Co.	May 4, 1911	Floor benches, gas house.
Western Electric Co.	May 12, 1911	Central energy telephone system.
Frank L. Davis.	May 29, 1911	Tile work, Cadet Hospital.
North River Coal Co.	June 2, 1911	Anthracite Coal.
The Long Island Charcoal Co.	June 2, 1911	Charcoal.
Berwind-White Coal Mining Co.	June 2, 1911	Gas coal.
James Stewart & Co.	July 10, 1911	Construction of East Academic Building.
Joseph Kaufmann & Co.	Aug. 2, 1911	Wrecking old Headquarters Building.
Hildreth & Co.	Sept. 27, 1911	Inspecting steel work, East Academic Building.
John W. Danforth Co.	Oct. 7, 1911	Extending steam distributing system to new Riding Hall.
Joseph Kaufmann & Co.	Nov. 24, 1911	Wrecking old Quarters No. 21.
Black & Boyd Mfg. Co.	Dec. 18, 1911	Lighting fixtures for Riding Hall.
Field Force Pump Co.	March 21, 1912	Tree Spraying Machine.
Merritt & Company.	March 25, 1912	Steel wall lockers.
Frank L. Davis.	April 19, 1912	Marble and slate work in new Riding Hall.

(APPENDIX 3.)

Statement of funds pertaining to the Quartermaster's Department at West Point, N. Y., received, disbursed and deposited during the Fiscal Year ending June 30, 1912.

	On hand July 1, 1911	Received since	Total to be accounted for	Disbursed and de- posited	On hand June 30 1912	Total dis- bursed, de- posited, and on hand
Regular supplies	45.07	\$106,624.81	\$106,669.88	\$104,380.20	\$2,289.68	\$106,669.88
Incidental expenses	15.19	7,381.06	7,396.25	7,394.43	1.82	7,396.25
Barracks & quarters13	4,295.00	4,295.13	3,604.17	690.96	4,295.13
Military post ex- change		209.00	209.00	209.00		209.00
Army transportation	308.17	29,184.81	29,492.98	29,456.57	36.41	29,492.98
Water and sewers Mil. Post		34,445.49	34,445.49	26,615.72	7,829.77	34,445.49
Clothing & equipage		3,322.59	3,322.59	3,322.59		3,322.59
Bringing home re- mains of officers, soldiers and civil- ian employees		134.95	134.95	134.95		134.95
Shooting gallery and ranges	76.11	4,199.93	4,276.04	1,538.07	2,737.97	4,276.04
Miscellaneous receipts		2,323.60	2,323.60	2,323.60		2,323.60
Totals	\$444.67	\$192,121.24	\$192,565.91	178,979.30	\$13,586.61	\$192,565.91

(APPENDIX 4.)

Statement of funds received and disbursed from appropriations for the United States Military Academy at West Point, N. Y., during the fiscal year ending June 30, 1912.

	Current and ordinary expenses	Misc. items and inciden- tal expenses	Buildings and grounds	Buildings and grounds No year Enlg. M. A.	Total
DR.					
July 1, 1911.					
Balances on hand, fiscal year:					
1910-11	\$814.32		\$10,003.76		\$10,818.08
1911	9,171.04	\$3,656.55	7,076.93		19,904.52
1911-12	107.66	2,042.26			2,149.92
No year, Enlarging M. A.				\$60,827.73	60,827.73
Received since, fiscal year:					
1911	4.70				4.70
1912	127,875.65	53,553.64	38,979.50		220,408.79
Miscellaneous receipts, sales at auction					63.85
No year, Enlarging M. A.				351,516.21	351,516.21
Total	\$137,973.37	\$59,252.45	\$56,060.19	\$412,343.94	\$665,693.80
CR.					
June 30, 1912.					
Deposited, fiscal year:					
1910-11	\$814.32		\$27.01		\$841.33
1911	3,392.57	\$794.72	1,681.24		5,868.53
1912	59.83	.74	30.00		90.57
Miscellaneous receipts, sales at auction					63.85
Disbursed, fiscal year:					
1910-11			9,976.75		9,976.75
1911	5,783.17	2,861.83	5,395.69		14,040.69
1911-12		2,038.67			2,038.67
1912	114,644.79	46,779.10	33,433.31		194,857.20
No year, Enlarging M. A.				\$352,363.32	352,363.32
Balances on hand, fiscal year:					
1911-12	107.66	3.59			111.25
1912	13,171.03	6,773.80	5,516.19		25,461.02
No year, Enlarging M. A.				59,480.02	59,480.02
Total	\$137,973.37	\$59,252.45	\$56,060.19	\$412,343.34	\$665,693.80

(APPENDIX 5.)

Amount of gas made and sent out with the amount of material used in its manufacture for the fiscal year ending June 30, 1911, and the fiscal year ending June 30, 1912.

Month	Gas made	Gas sent out	Coal used
1910			
July	1,074,700 ft.	1,080,500 ft.	282,800 lbs.
August	1,108,600 ft.	1,105,000 ft.	296,700 lbs.
September	1,249,700 ft.	1,241,200 ft.	312,600 lbs.
October	1,352,700 ft.	1,362,100 ft.	335,600 lbs.
November	1,438,800 ft.	1,434,000 ft.	351,900 lbs.
December	1,562,700 ft.	1,560,300 ft.	376,800 lbs.
1911			
January	1,596,400 ft.	1,598,200 ft.	379,700 lbs.
February	1,524,200 ft.	1,517,100 ft.	362,400 lbs.
March	1,566,600 ft.	1,576,400 ft.	370,700 lbs.
April	1,402,600 ft.	1,410,600 ft.	340,200 lbs.
May	1,247,000 ft.	1,249,600 ft.	297,100 lbs.
June	1,236,400 ft.	1,234,400 ft.	295,700 lbs.
F. Y. 1912	16,860,400 ft.	16,363,400 ft.	4,000,200 lbs.
	16,253,200 ft.	16,245,200 ft.	3,904,700 lbs.
Decrease	107,200 ft.	118,200 ft.	95,500 lbs.
1911			
July	1,199,000 ft.	1,181,500 ft.	290,200 lbs.
August	1,215,100 ft.	1,223,800 ft.	299,400 lbs.
September	1,264,900 ft.	1,263,900 ft.	312,600 lbs.
October	1,316,600 ft.	1,315,300 ft.	320,300 lbs.
November	1,367,600 ft.	1,368,200 ft.	327,300 lbs.
December	1,521,400 ft.	1,521,300 ft.	361,000 lbs.
1912			
January	1,690,700 ft.	1,695,200 ft.	402,400 lbs.
February	1,443,100 ft.	1,447,500 ft.	343,400 lbs.
March	1,493,600 ft.	1,491,400 ft.	354,700 lbs.
April	1,334,200 ft.	1,356,800 ft.	316,300 lbs.
May	1,240,600 ft.	1,218,600 ft.	298,000 lbs.
June	1,166,400 ft.	1,153,700 ft.	279,100 lbs.
	16,253,200 ft.	16,245,200 ft.	3,904,700 lbs.

Coal used: 3,904,700 lbs. at cost of \$6,395.89.

(APPENDIX 6.)

Statement of receipts and expenditures pertaining to the Special Contingent Fund, United States Military Academy, from July 1, 1911, to June 30, 1912.

June 30, 1911.	Balance on hand		\$6,609.24
Receipts:	Hotel, rent	\$400.00	
	Post-office department, rent	250.00	
	Stable	525.00	
	Electric plant	1,225.00	
	Store and restaurant	162.50	
	Western Union Telegraph Co.	90.00	
Sale of:	Wood (Forestry)	5,038.26	
	Miscellaneous electric supplies	12.12	
	Light	11,287.64	
	Coke	591.25	
	Tar	351.36	\$19,933.13
June 30, 1912.	Total to account for		\$26,542.37
June 30, 1912.	Total expended		\$17,017.23
June 30, 1912.	Balance		\$9,525.14

Satisfactory progress has been made in the upbuilding of the Academy to the extent of the funds available. Renewed effort was made to obtain appropriations from Congress for the amount estimated as necessary to complete the enlargement and upbuilding as originally planned, but without success, excepting as to the item of \$95,117 for the completion of the east academic building.

The riding hall was completed and accepted on December 14, 1911, and has been in operation as a whole since.

Work is progressing satisfactorily on the east academic building which should be ready for occupancy with the academic year beginning September 1, 1913.

Until additional funds are appropriated work cannot be begun on the following very necessary buildings and improvements contemplated in the original scheme:

- Cadet headquarters and cadet store,
- Hotel,
- Guard-house and fire engine-house,
- Post exchange,
- Laundry,
- Children's schoolhouse,
- Additional officers' quarters,
- Completion of officers' mess and quarters,
- Alterations to west academic building,
- South battalion guard-house,
- Quartermaster and commissary storehouse and shops,
- Quartermaster stable and wagonshed,
- Enlarging band barracks, and remodeling old artillery barracks, and post exchange for field musicians' barracks and band-practice room,
- Freight shed and dock and freight conveyor at north end of post,
- South gate guard-house,
- Quarters for married enlisted men at south end of post,
- Non-commissioned officers' quarters,
- Army service barracks,
- Remodeling engineer barracks,
- New south dock,
- Public stables,
- Roads, retaining walls, grading, sidewalks, extension of sewer system, water and gas mains to new buildings and extension to electric system, &c., &c.

The estimated cost of these additional buildings and improvements is \$3,000,000 full report of which has been submitted to Washington.

Of the above improvements the
 Hotel,
 Cadet laundry,
 Children's schoolhouse, and
 Additional officers' quarters,
 are of paramount necessity.

In building additional officers' quarters it is believed that the interests of economy will be best subserved and a great many more sets of quarters built with the funds allotted if the plans of the Quartermaster General's Office are adhered to.

The filling in of "Execution Hollow" adds several acres to the parade ground which was very much needed by reason of the increased size of the Battalion. The hollow was used only as a site for tennis courts.

When appropriations are available for the building of a retaining wall for the north end of the fill of "Execution Hollow" a much needed improvement will have been completed.

The urgent necessity for proper storage facilities for valuable property, material, transportation, &c., appears in the reports of the quartermaster and the commanding officer of the U. S. M. A. Detachment of Engineers.

Every increase in the Corps of Cadets demands additional instructors and it is difficult now to find quarters for all and more difficulty will be experienced in the future unless additional officers' quarters are constructed.

Treasurer, U. S. Military Academy and Quartermaster and Commissary for the Battalion of Cadets.

The duties of treasurer of the Academy, and quartermaster and commissary for the Battalion of Cadets, have been ably performed by Captain Thomas W. Darrah, 27th Infantry, whose administration of the cadet mess, laundry, and store has been marked with improvement in all.

The following is an extract from his report:

In addition to the monthly audit by the board of officers required by Par. 203, Regulations, U. S. Military Academy, the accounts of the treasurer were audited for the months of October, November, and December by Gunn, Richards & Co., expert accountants, whose report has already been submitted for the consideration of the Superintendent.

The assets and liabilities on June 30, 1912, were as follows:

<i>Assets.</i>		<i>Liabilities.</i>	
Accounts receivable.....	\$2,739.33	Accounts payable.....	\$23,594.40
Cadet mess stock.....	7,796.95	Equipment fund.....	139,595.85
Cadet store stock.....	33,314.30	Dialectic society.....	197.83
Cadet laundry stock....	1,001.65	Glee Club.....	78.82
Treasurer's cash.....	138,315.00	Miscellaneous fund....	94.77
Pay and rations due from paymaster and pur- chasing commissary..	29,166.97	Y. M. C. A.....	139.37
		Canoe fund.....	10.50
		Surplus.....	48,622.66
	\$212,334.20		\$212,334.20

Cadet Store.

It was found possible to reduce the amount of stock carried on hand, as for example, on June 1, 1911, there was a total stock of \$52,102.57 and on June 1, 1912, the value of the stock was \$47,633.95. One item which caused a considerable reduction in this amount was text-books. Before purchasing text-books an agreement was made with each publisher that those books not required, due to certain cadets being found deficient or discharged, etc., could be returned instead of the store carrying them as dead stock until the following year. The services of one clerk were dispensed with.

A more accurate check system on the stores issued and sold has been instituted, based on the principle of a quartermaster's return of property. This not only gives a check on the stores issued and sold, but the money value from this same return is a check on the treasurer's books.

Cadet Laundry.

It was found necessary to install a new boiler in March, which was done at a cost of \$3,358.47. This boiler has given excellent satisfaction and supplies ample steam for every demand in the laundry. The hot water-tank had to be replaced and many minor repairs made. A ventilating system in the mangle room has been installed and works satisfactorily. Much of the machinery in the laundry is practically worn-out and it is difficult to furnish satisfactory service with the present equipment. The building of a new laundry would be economy, since every expenditure on the present one is practically a loss.

Cadet Mess.

The cost of board at the cadet mess for the year ending June 30, 1912, was 65-1/4 cents per cadet per day, a decrease of 1-5/12 cents per day over last year. This saving was made possible by buying many articles in bulk rather than in small packages, and direct from manufacturers rather than through dealers, and in no small degree to the active interest and intelligent cooperation of the steward, Post Commissary Sergeant Patrick McDonald, U. S. A.

Approved requisitions of cadets that have been received in this office to be filled have been found limited to the actual necessities. This made it possible to eliminate a great many articles carried in stock in the store which were in no way essential and has resulted in a greatly improved condition of the finances

of cadets. As a comparison, the records of the office show that the class of 1909 on the 30th of April, 1908, were on an average \$2.64 in debt; the class of 1910 on April 30, 1909, were on an average \$13.12 out of debt, and the condition of cadet accounts has steadily improved until the present First Class, on the 30th of April, 1912, were out of debt an average of \$71.33. All of the above figures are, of course, exclusive of the equipment fund. The above figures were arrived at by taking the difference between the total amount cadets were in debt and out of debt and striking an average, and it should be noted that the number of cadets in debt has steadily decreased from 51 in the class of 1909 on date specified above to 4 in the class of 1913.

Health and Sanitation.

The health of the cadets, officers and enlisted men has been excellent.

The report of the surgeon indicates a considerable diminution in the percentages of sickness as compared with the years 1910 and 1911, which is due to the improved sanitary conditions and to the watchful supervision of the surgeon and his assistants.

In my opinion two cadets owe their lives to the surgical skill and devotion of Captain William L. Keller, Medical Department.

The following is an extract from the report of the surgeon:

Corps of Cadets.—Health conditions have been very satisfactory in most respects. A marked diminution in percentages of sickness, over those of last year, has resulted from the continued application of the principle noted in the last annual report. This consisted in the requirement that cadets having trivial ailments should perform all duties, or at least those pertaining to their academic work, while undergoing treatment. It is believed that a normal sick rate has now been attained and that hereafter percentages should not vary greatly unless influenced by unusual causes.

Table "A", which follows, contrasts figures for 1910, 1911, and 1912.

Table A.

	1910	1911	1912
Admissions to hospital.....	1206	878	858
Days lost in hospital.....	5449	4222	3475
Average daily number in hospital..	14.93	11.57	9.52
Daily % of sickness in hospital....	3.6	2.66	1.74
Days lost on sick report (hospital and quarters).....	8478	5203	5066

The types of disease causing the greatest amount of disability have been, *first*, respiratory affections (22.5% of the whole); *second*, wounds and injuries (16.5%); *third*, digestive disturbances (11.3%). In this last class it is of interest to record the fact that not a single case of infectious intestinal disease—such as typhoid fever or dysentery, has occurred. With respect to typhoid fever, all

cadets not previously immunized were given three doses of the prophylactic, at ten-day intervals. Following this procedure, 33 cadets (out of a total of 421 who received the treatment) exhibited a reaction sufficiently marked to require excuse from duties and rest in hospital. All such reactions were of moderate degree and recovery therefrom was prompt and complete.

Notwithstanding the requirement as to the presentation of certificates showing successful vaccinations, by candidates reporting at the Academy, nearly half of these failed to comply. It was therefore found necessary to vaccinate 71 new cadets who, by their presumed susceptibility to smallpox, constituted a menace to the health of the command.

The only contagious diseases noted during the year were measles, conjunctivitis and dhobie itch. Measles were introduced by a waiter in the cadet mess-hall, who had a light, unrecognized case for which he did not seek treatment. Two other mess attendants contracted this affection from the first one, but in spite of a general exposure of the corps to these cases only 11 cadets were affected though nearly two months were required to stamp out the disease. The type was of moderate severity, all cases made satisfactory recoveries, without complication to sequels. Contagious conjunctivitis (pink eye) appeared in January, claimed 51 cases and did not disappear until May. Dhobie itch gave less trouble than the year before; its character was quickly recognized by affected cadets, who reported promptly for treatment. In marked contrast with the previous year, when 137 individuals were treated for this condition, not a single case of influenza occurred.

The encouraging drop in malarial infections, noted in the last annual report has been succeeded by a recrudescence of this disease. Whereas but 9 cadets exhibited attacks of malaria in 1911, 35 received treatment for this condition during 1912. The local malarial germ is a very resistant one, for although each case was systematically treated for months subsequent to the attack, twelve recurrences have already ensued this spring. Practically all malarial cases among cadets receive their infection while in camp during the summer months. This camp is situated at that part of the plain which is nearest to extensive mosquito-breeding grounds on the opposite side of the Hudson River.

A large amount of surgical work has been performed. Some of the conditions requiring operative procedure have been of serious character. Two cadets were alarmingly ill as a result of surgical conditions, but these are convalescing satisfactorily.

The cadet shoe is not yet an entirely satisfactory article. The defect mentioned in the last annual report—that is, the presence of a metal arch support—has been corrected in later issues and very much less trouble has been experienced with falling arches and flat feet. Such cases as have occurred, have been effectively treated by adhesive plaster supports, combined with special exercises designed to strengthen the muscles and ligaments of the arch. An inferior quality of leather has apparently been used in the sole, resulting in this part of the shoe molding itself to the shape of the plantar surface of the foot. Dense callosities and large warts have formed in this situation in many cases. Cadets so affected have been disabled, until relieved by surgical removal of the growths. It is hoped that the model shoe devised and recommended by an army board at

Fort Leavenworth, which shoe is now undergoing a practical test, may prove to be satisfactory and adapted to our purposes.

Progressive deterioration of eyesight has been noted in many and it has been found necessary to prescribe the wearing of glasses for 60 cadets during the year. Ninety-eight cadets (20% of the entire corps) are now wearing glasses on account of defective vision. This large percentage is believed to be due chiefly to the fact that, under the present visual requirements, candidates are accepted who have but half of normal vision. Under the severe strain of academic requirements, the eyesight of many of these individuals undergoes further deterioration, so that cadets are sometimes graduated who are nearly helpless without their glasses. I am of the opinion that the vision of new cadets, as determined by the official test types, should not fall below the normal. In this opinion I am supported by the recommendation, to the Surgeon General, of four officers, inactive members of the Medical Reserve Corps of the Army, who are numbered among the most distinguished ophthalmologists of the country.

Officers and enlisted men.—The health of the command has been maintained at a high standard. But 1.5% of the enlisted personnel has been constantly on sick report, giving a ratio of but 626 per thousand. These figures are much lower than those at the average post.

Malaria has given very little trouble among this class of the population, only 21 individuals being treated during the year. Most of these cases were recurrent.

Forty-five officers and 426 enlisted men were immunized against typhoid fever by the administration of the prophylactic, in conformity with War Department orders.

There were no epidemics of an infectious nature among these men. But two deaths occurred in the enlisted personnel, both of these being due to accidental drowning. Thus, another year has passed without a fatality incident to local health conditions.

* * *

Civilian population.—Epidemic diseases, which frequently appear among civilians at this station, have been almost entirely absent. With the exception of a single case of scarlatina, the children attending the post school have been quite free from such affections. This fortunate condition is ascribed largely to two factors, first, certain sanitary improvements in the school building, looking to better heating facilities, purer air and drinking water; second, surgical removal of diseased tonsils, adenoids, and nasal hypertrophies, from all children thus affected.

Three deaths occurred among civilians. One was incident to advanced age, a second was due to heat stroke, the third resulted from infantile marasmus.

Sanitation.—Sanitary conditions have been markedly improved during the past year. All stables and chicken-yards have been removed from the vicinity of officers' quarters. Great quantities of brush have been cleared from slopes adjacent to barracks, quarters and summer camp. The sewer system has been extended to include fifty-seven sets of quarters for enlisted men. All earth closets have been discontinued and their sheds removed. The water supply has received additional protection. Bacteriological examinations of raw and filtered waters have been made regularly, to ensure the efficiency of the filters.

A careful system of sanitary inspection, in which the post is divided into three districts with a medical officer in charge of each, has been instituted. General police has been efficiently maintained.

The propagation of mosquitoes in and near this post has been under practical control for several years, yet large numbers of these insects are occasionally observed. These are at times generally distributed over the garrison area, but are especially plentiful in camp. After two years of close observation of this subject, I have become convinced that most of these insects are brought from the swamps across the river, when the winds are favorable for their flights in this direction. This view is borne out by the fact that most of the mosquitoes caught here are of the common Jersey coast species, namely, *Culex sollicitans*, which are notoriously capable of long flights. *Anopheles* mosquitoes are very rare and I have seen no specimen of this genus in two years. That they do exist is shown by the malarial cases.

With respect to the swamps above mentioned, an appropriation has recently been asked for to drain such as are situated on the government lands of Constitution Island. The area under governmental control is not more than a fourth of the whole swamp and moreover, is so situated that it is highly probable no mosquito bred thereon ever reached West Point. It will be of no practical value to us to drain our portion of the swamp, unless the remainder of this mosquito breeding area be similarly treated at the same time. It is therefore recommended that steps be taken whereby appropriate measures may be mutually provided for between the government and private owners of the land in question. As this matter vitally affects the village of Cold Spring, which lies a few hundred yards to the north of the swamp, it should be possible to obtain the cooperation of the officials of that community in the undertaking.

The post has for many years been infested with a large number of the brown or Norway rat. These rodents have made their homes in old dwellings, out-houses, rock piles, and the river wall. They found abundant food in ill-kept stables, chicken yards and buildings under construction. A vigorous campaign was instituted against this pest and large numbers were trapped and poisoned. These measures, combined with the destruction of many places suitable for their nesting and breeding and the cutting off of the chief sources of their food supply, have resulted in diminishing their numbers very markedly.

The dairy which furnishes milk for the cadet mess has been repeatedly inspected and has been greatly improved as the result of suggestions made to this end. Numerous chemical and bacteriological examinations of the milk have been made and the efficiency of the new pasteurizer has been demonstrated.

Steps have been taken to correct the defects noted in the cadet shoe, the metal arch support has been removed and the best quality of sole leather has been procured. A comparison of the model shoe devised and recommended by the Army Board at Fort Leavenworth with the cadet shoe indicates that they are practically constructed on the same last, the only difference noted is that the inside line of the sole of the Army shoe is slightly

straighter than that of the cadet shoe, which, to a certain extent reduces the pigeon-toed appearance of the shoe.

The treasurer of the Academy has noted all points of difference between the model Army shoe and the cadet shoe with a view to improving the latter on the lines of the former if practicable.

I concur in the opinion of the surgeon in the above report that the present visual requirements of cadets be adhered to and that such official test types should not fall below the normal.

Dental Surgeons.

The work of the two dental surgeons at this station is excessive and one additional surgeon, at least, is necessary, owing to the great number of cadets and the large number of officers, enlisted men and families here stationed.

An examination of the class that entered in 1911—268 cadets in all, the largest in the history of the Academy—revealed the fact that only 28 had teeth normally good or whose teeth had been put in condition before entrance. The condition of the teeth of the other 240 cadets was from fair to bad.

The following dental requirements for entrance to the Naval Academy should be made applicable to the Military Academy:

“The following conditions will be sufficient to cause the rejection of a candidate: Loss of many teeth or teeth generally unsound. There shall be at least eight opposing molars, two on each side in each jaw,”

which means that the candidate must have all his molar teeth, except the wisdom teeth. It seems only a reasonable requirement.

The requirements now applicable to the candidates for admission to the Military Academy, the same as for enlisted men, as prescribed in Circular, No. 60, War Department, 1906, are as follows:

“Four serviceable double (bicuspid or molar) teeth, two above and two below, and so opposed as to serve the purpose of mastication.”

Those requirements are very low and insufficient for cadets.

The requirements prescribed for admission to the Naval Academy if made applicable to the Military Academy would cause candidates to have their teeth put in good condition before being admitted.

United States Military Academy Library.

The library has been ably administered by Dr. Edward S. Holden. All matters pertaining to the library have been in charge of the Library Board constituted by paragraph 1, Special Orders, No. 75, current series, these headquarters.

Besides the gifts elsewhere mentioned the library received and acknowledged presents of books, pamphlets, photographs and maps from a number of persons and institutions.

The following is an extract from the report of the librarian:

Library Board.—The Library Board was organized by Special Orders, No. 75, April 10, 1912. It consists of the professors of natural and experimental philosophy, mathematics, English and history, chemistry, mineralogy and geology, and the librarian. The secretary of the board is the professor of English and history.

Selection of books for purchase.—The librarian gratefully acknowledges the aid of professors and officers of the Academy in selecting books for purchase. The general library is now fairly representative of all subjects. The military library will demand great attention for a number of years to come.

Users of the library.—The library is available to 107 officers stationed at West Point, to 574 cadets, to all enlisted men of the post whose applications are approved by their detachment commanders, and to 79 civilians to whom its privileges have been extended by order of the Superintendent. It is open on week days from 8 a. m. to 9:30 p. m. and on Sundays and holidays from 2 to 6 p. m.

Accessions.—Twenty-one hundred and ninety-three books, pamphlets, etc., have been recorded as received since July 1, 1911. Maps, bound volumes of periodicals, and the separate numbers of the publications of various departments of the United States are not separately accessioned.

Important accessions.—During the past year the following books, etc., among others hardly less important, have been added to the library's collections:

—Van Der Burgh (Capt. Henry): Orderly book kept (at forts along the Hudson River) during the months of July and August, 1780. Ms. 1 vol., O.

—Stevens, (B. F.): Facsimiles of manuscripts in European archives relating to America 1773–1783. . . London, 1898, 25 v., folio.

—From the library of Henry Harrisse a considerable number of important works on cartography and early American history have been secured.

Special gifts.—The library has received many gifts during the year. A list of the more important is given below, and others are mentioned at the end of this report. The grateful thanks of the library are returned for these gifts, which come from many friends of the Academy.

By the kindness of the Chief of the Military Information Division, General Staff, the library receives regularly a typewritten copy of each important translation made for the Military Information Division from foreign books or journals. These translations are at once available to the officers and cadets of the Academy, who are thus provided with the very latest and most important

military intelligence in print in English form. A list of subjects carded in the Military Information Division is received weekly at this library, and has been of much value to officers stationed here.

The War College Division of the General Staff has transferred to the Library, U. S. M. A., a considerable number of volumes not wanted in the library of the college. The sincere thanks of the Library, U. S. M. A., are returned for these and other valued additions to our collections.

Mr. Ernst Wahl, of Chicago, presented to the library through Captain James A. Ryan, U. S. A., a copy of *In wehr und waffen. Ein Buch von Deutschlands Heer und Flotte*, 1 vol. F., beautifully illustrated in colors.

The Minister of War of the Republic of Argentina presented to the Military Academy in November, 1911, a volume of photographs of the military school of that country. This book has been deposited in the library and is exhibited on the tables in the main room.

On May 12, 1912, the department of drawing transferred to the library a number of books and valuable drawings, besides plaster busts and statuary transferred to the Library Board.

The library has received from the U. S. Forest Service a number of splendid photographs illustrating the work of that department, through the courtesy of Mr. F. G. Plummer, Chief Geographer.

Additions and proposed additions to the building.—The new map room spoken of in the reports of the librarian from 1906 onward will be built in connection with the construction of the new east academic building during the next fiscal year.

* * *

Instruction through the eye.—An appropriation of \$5,000 was made for the purchase of relief models, etc., during the past fiscal year, and it has nearly all been expended under the direction of the board on relief models. The duties of this board were transferred to the Library Board by Special Orders, No. 75, Headquarters, U. S. M. A., April 10, 1912.

* * *

The New York Society rents to this library 100 volumes of current fiction which are changed at intervals.

Transfers to other government libraries.—Books and maps from duplicates owned by the U. S. M. A. have been transferred to the libraries of various government schools from time to time during the fiscal year, as authorized by the Superintendent and the Secretary of War. Books which are useless to the Academy thus become available for officers at other stations.

Sergeant Moore from Fort Monroe, arrived at the library August 17 and remained until September 11, 1911, to copy from the library catalogues cross reference cards on military subjects for the library of the coast artillery school.

Utilization of the library's materials and catalogues by individuals not connected with the library.—Several officers and ex-officers, U. S. A., have pursued serious studies in the library on various subjects during the past year. Our collections of military history and of regimental histories have been especially utilized.

Lieut. A. W. Chilton, U. S. A., is at work on the iconography of Major André, an important and neglected subject.

The librarian has for some years made a collection of the titles of military novels of the last hundred years, and the number of titles now consists of about 1,650 cards. A selection of these titles has been made, by permission of the Superintendent, and will be published as a graduating thesis by Mr. D. Ashley Hooker, of the New York State Library School. Work of this class is of some importance. A military novel shows either what an army was at a given time, or at least what it was supposed to be by the writer, and some interesting sidelights can be obtained from such materials and nowhere else. It is suggested that this work should be continued and published in extenso at some future time.

Lieut. E. E. Pritchett, U. S. A., has made for the library a very complete list of maps each one exhibiting some development of the method of topographical representation of the terrain. From his list it will be easy to select a set of maps each one of which will be a type; and to arrange these chronologically in such a way as to exhibit the whole history of topography. Such an exhibition will have a high educational value here.

A similar work has been done for the library by Lieutenants G. R. Allin and W. H. Dodds, U. S. A., in respect of plates and engravings showing the evolution of artillery. A selection of such plates will present the historical development of ordnance, etc., etc.

From these two series, with a few additions, it will not be difficult to present a series of maps and plans showing the whole historical development of permanent fortifications. It happens that the early topographic methods were devised in order to show early fortifications in a hill-country.

Provision for the future storage of books.—The plans for the new academic building have provisions for supporting on the walls of certain of the hallways bookcases, the lower shelf of which is seven feet or more above the floor. Such bookcases are to be attached to iron strips imbedded in the wall and will be used, when necessary, for the storage of magazines and serials. In this way an indefinite number of magazines can be taken care of. They will always be convenient of access and will be ornamental, rather than otherwise, in the hallways of the academic building, as each magazine is ordinarily bound in a uniform binding.

Library policy.—Referring to the report of the librarian dated May 18, 1910, it is said: "When a book has become really obsolete it should be removed from the shelves of our library unless it represents an important epoch in the historical development of its topic. A great public library like that of Congress, should accumulate all books on a subject because any book may be asked for by its readers. The case is different with us where a selection of the best books is sufficient. Moreover, the books of the Library, U. S. M. A., are useful just in proportion as they can be seen and handled by cadets on the open shelves, and there is a practical limit to the number of books that can be so displayed." A thoroughgoing revision of our shelves would result in the removal of several hundreds of volumes, and so soon as we are crowded for shelf-room this work should be done according to the plan approved by the library committee and the Superintendent in April, 1906.

Exhibition of maps.—An important exhibition of facsimile maps illustrating the history of the discovery of America was made during the latter part of the fiscal year. The maps exhibited are named below:

- Juan de la Cosa.* *XVth Century.*
- Facsimile after Juan de la Cosa, the pilot of Columbus. The original is in the Royal Museum at Madrid.
- 'The Green Globe'.* 1515
- After the original in the National Library at Paris. Author unknown.
- Maggiolo.* 1519
- Facsimile of a parchment map now in Munich.
- Verrazano.* 1529
- Facsimile of part of a parchment map now in Rome.
- Vaz Dourado.* 1540
- California and the west coast of Mexico.
East coast of America.
Facsimiles of maps now in Munich.
- Henry II., of France.* 1546
- Facsimile of part of a map of the world painted by order of Henry II., by P. Desceliers.
The original is in Lord Crawford's library.
- Sebastian Cabot.* 1544
- Facsimile of part of a map of the world now in the National Library at Paris.
- Mercator.* 1569
- Facsimile of part of a map of the world now in the City Library at Breslau.
- Mercator-Hondius.* 1611
- Three facsimiles from a map of the world in two hemispheres from an original now in the castle of Wolfegg, Wurtemberg.
- Cantino.* 1502
- A colored facsimile of a map of the world now at Modena.
- Ruysh-Ptolemy.* 1508
- Four photographs of the map of the world published in 1508 in Ptolemy's Geographia.
- Apianus.* 1520
- A small reproduction of the map of Apianus. The name of America appears on this map. Its first appearance on a map was in 1507.

Conclusion.—As in previous years, it has not been possible to do all the work seen to be necessary in the library. The most important items (the selection of new books and their cataloging) are thoroughly done. Others scarcely less important (recataloging of old books, frequent examination of the shelves to discover misplaced or lost volumes, revision of our catalogues, especially of serials, periodicals, and government documents, substitution of printed for written cards, binding books and pamphlets, etc.) have been done as thoroughly as the circumstances permitted. It is only fair to record that the entire library force has done its best not only to keep the current work well in hand (it is now and has been since 1901 up to date) but to attack the arrears that were inherited in that year. * * *

Hotel.

The great need of a hotel is emphasized by the recent fire which practically demolished the main building of the present establishment.

United States Military Academy Regulations.

The revised edition of the Military Academy Regulations of 1911 has given general satisfaction.

Distinguished Graduates.

The following resolution on distinguished cadets was adopted by the Academic Board:

"That 92% be applied to the classes of 1915, 1916, 1917, and 1918, in determining distinguished cadets annually until the graduation of the class of 1915, when the percentages for distinguished members of the then graduating class (1915) and of all subsequent classes will be finally determined from the data then available."

Alumni.

The meeting of the alumni was held on June 11, 1912, and was attended by an unusually large number. Many classes held reunions.

The Chaplain—Organist and Choirmaster.

The following is the existing law governing the appointment of the chaplain:

"The duties of chaplain at the Military Academy shall hereafter be performed by a clergyman to be appointed by the President for a term of four years, and the said chaplain shall be eligible for reappointment for an additional term or terms and shall, while so serving, receive the same pay and allowances as are now allowed to a captain mounted." (Act February 18, 1896.)

It is believed that better results will obtain and the interest of economy be subserved if the chaplain be selected from the chaplains of the Army, active or retired, the chaplain thus selected, while so serving, to have the rank and pay of the next higher grade. In other words the enactment of the following legislation is recommended:

"The office of chaplain, United States Military Academy, shall hereafter be filled by detail from among the chaplains of the Army, active or retired, and the chaplain so detailed shall, while so serving, have the rank, full pay and allowances of the next higher grade in the Army."

Such provision of law would enable the President to select a suitable chaplain and if, for any reason, he should not give satisfaction the detail could at once be changed.

It is believed that a chaplain selected in this way, thoroughly interested in the Army, its traditions, history, requirements, &c., will best meet the ends in view. It will reduce the number of chaplains by one and thus be in the interest of economy.

The new organ installed in the chapel is most satisfactory. The Academy is fortunate in having as organist and choirmaster one who is not only thoroughly competent as an organist but who is unusually effective as a choirmaster and by whose efforts the cadet choir has been materially augmented and improved, which adds very much to the attractiveness of the services in the chapel.

In addition to his work as organist and choirmaster proper Mr. Mayer introduced and conducted last winter organ recitals which added to the entertainment and musical education of all concerned. These recitals were free to all and were largely attended by cadets and residents of the post and vicinity.

Detachments.

The work of the several detachments at this station is unusually heavy and becomes more so with every increase in the number of cadets and expansion of the buildings and grounds. Numerous recommendations have been made to have the detachments increased in due proportion to their legitimate work. A small increase—about half of that asked for—was given the cavalry detachment, but it is of equal, if not greater, importance that the artillery, the general army service, and the ordnance detachments should be increased. The authorized strength of the artillery detachment is 136 men. It has to do with

- one 3-inch gun battery, manned, horsed and equipped,
- one 3-inch gun battery, equipped,
- one 2.95-inch gun battery, partly manned, horsed and equipped,
- one 4.7-inch battery, equipped,

and the primary, secondary, search-light and meteorological station for large caliber batteries, and assists in caring for one 6-inch battery and one 12-inch mortar battery, seacoast artillery.

The authorized enlisted strength of one 3-inch gun battery is 136, therefore, the necessity for an increase in the artillery detachment should be apparent. The work of this detachment is so excessive that it is difficult to maintain it at its authorized strength.

Acknowledgments.

The work of the Academic Board, the commandant of cadets, the staff and all assistants—commissioned, enlisted and civilian—has been most efficient; thorough harmony and cooperation have existed among all to marked general improvement in all administrations.

The enlisted force is of excellent character and efficiency. All the detachments contain old soldiers of several years' service, many of whom are married and have brought up their families here. Many of the young men and women of such families are among the best types of our civil employees, who, by reason of their birth and rearing at the Academy, are interested in its welfare and lend themselves to safe-guarding its interests.

To all concerned acknowledgment is due and thanks are hereby extended.

THOMAS H. BARRY,
Major General, U. S. Army,
Superintendent.

The Adjutant General of the Army,
Washington, D. C.

