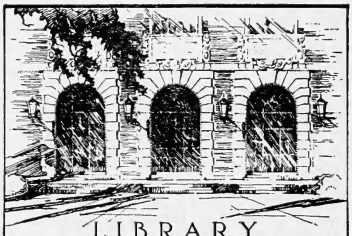
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THE M. A. C. BULLETIN

Vol. I. No. 1. For March, 1909.

Published Six Times a Year by the College.
Jan., Feb., Mar., May, Sept., Oct.

APPLICATION FOR ENTRY AS SECOND-CLASS MATTER.

This volume is bound without _____

1912

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BOSTON:
WRIGHT & POTTER PRINTING CO., STATE PRINTERS,
18 Post Office Square.
1909.

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OF THE

MASSACHUSETTS AGRICULTURAL COLLEGE.

PART I.

REPORT OF THE PRESIDENT AND OTHER OFFICERS

FOR FISCAL YEAR ENDED NOV. 30, 1908.

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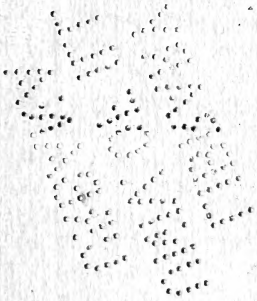

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Approved by
The State Board of Publication.

The Commonwealth of Massachusetts.

Massachusetts Agricultural College,
Amherst, Dec. 1, 1908.

To His Excellency Eben S. Draper.

Sir: — I have the honor to transmit herewith, to Your Excellency and the Honorable Council, the forty-sixth annual report of the trustees of the Massachusetts Agricultural College, for the fiscal year ended Nov. 30, 1908.

I am, very respectfully, your obedient servant,

KENYON L. BUTTERFIELD,
President.

REPORT OF THE PRESIDENT OF THE COLLEGE.

Gentlemen of the Corporation.

I herewith submit my third annual report as president of the college.

Attendance.

The attendance for the last college year exceeded that of the previous year by 25, and aggregated 246 four-years men and seven graduate students, with 245 in various short courses, or a total attendance of 498. The entering class in the autumn numbered 114, the largest previous freshman class being 88 in number. The total number of four-years men in present attendance is 263, and of graduate students 12. (See Table I.)

Appropriations.

The total amount of appropriations asked of the Legislature of 1908 was about $111,390; the total amount granted was $91,617 for the fiscal year, with a further increase of $7,000 for 1909 and subsequent years. (See Table II.)

New Glass Houses and Attached Teaching Building.

For several years the college has felt keenly the need of a range of modern glass houses adapted to instruction in commercial floriculture and market gardening. The need of a building suitable for teaching these branches has also been evident. The Legislature of 1908 made an appropriation of $34,000 for this purpose, the apportionment being approximately $15,000 for the instruction building, $17,000 for glass houses and $2,000 for the equipment of both. Plans for the range of greenhouses were drawn by Prof. E. A. White, with suggestions by the late W. W. Rawson of the Board of Trustees, and the contract for the construction was awarded to the Lord & Burnham Company, New York. The range is comprised as follows: —

Leading from the work room is a small house, 10 by 12 feet, which will be used for ferns. Next is a palm house 42 by 25 feet, to be used for the propagation and growth of the various varieties of palms. A narrow house for orchids, 10 by 12 feet, connects the palm house with the students' house, which is 50 by 26 feet. From the east end of the students' house an alley 12 by 112 feet serves to connect the other houses of the range: these are a violet house, a carnation house, a rose house, a tomato house and a cucumber house, each being 26 by 50 feet. The fern, palm, orchid, violet and students' houses, and the alley, are even span and of the iron type of construction; the other houses of the range are three-fourth span and of the half-iron type of construction. All are on concrete foundations, making a durable range. These houses will be heated by steam from the central heating plant.

The instruction building is a substantial two-story brick structure, with basement, designed by James H. Ritchie of Boston, and built by Allen Brothers of Amherst.

The basement contains a soil room, a cool room for bulbs, and storage rooms. The first floor contains a large laboratory with seating capacity for 50 students, a class room, coat room and office. The general work room for the glass houses joins the laboratory by double doors. On the second floor is a large class room with seating capacity for 100 students, a smaller class room, a room for the exhibition of greenhouse material and a janitor's room. The committee on buildings and grounds recommends that the building be known as "Henry F. French Hall," in honor of the first president of Massachusetts Agricultural College, and that the glass houses be called the "New Durfee Range of Glass Houses."

Important Repairs to College Buildings.

On account of the numerous repair projects at the opening of the building season, it was thought necessary to secure a foreman to take charge of the work, and Mr. Clarence A. Jewett was made superintendent of buildings. Large additions were made to the power house. The roof was taken off and another floor added, bringing the top floor to a level with the embankment. This additional floor has been enlarged, and contains

a room for the use of the fire apparatus, and a large room that has been fitted up with a lathe, saw and woodworking tools, and will be used exclusively for the carpenters. The next room below, the old shop, will be used principally for the steam fitting and plumbing work. The work of remodelling this building was finished in the early summer, at a cost of $2,104.17. This included a new pump and planer, which were much needed.

North dormitory was renovated from cellar to garret. It was found necessary to take off all the old lath and plaster, and metal ceilings were installed throughout, the side walls being relathed and plastered with pulp plaster. The building was rewired, and two new side fixtures and one center light were placed in each study room. All windows were fitted with large new sash and glass. Maple floors were laid throughout the building. The dormitory rooms on the fourth floor were arranged for the use of the Q. T. V. Fraternity, which had formerly used rooms on the first floor. The rooms on the first floor were remodelled, and include one large room for the use of the Social Union, and two rooms for student organizations. The basement of the west end has been fitted for the use of the college store and barber shop, the remaining space being given to the toilets and baths, except the extreme east end, which is unfinished.

The east experiment station has been thoroughly repaired. A large, new, fireproof vault, size 11 feet 2 inches by 12 feet 3 inches, with three floors, made of brick and concrete, has been placed in the building. New maple floors in all rooms and Puritan floors in both main hallways, concrete floors in basement and two new toilet rooms complete, together with the painting of all woodwork and walls, put the building in fairly good condition. Some necessary repairs have been made at the west station, including repairs to skylight, cement floors in basement, eave troughs around entire building, with conductors connected with a new tile drain, besides sundry small jobs.

Repairs to the library are still in progress. New cases have been added, increasing the shelf capacity nearly one-third.

Numerous other repairs have been made during the summer and fall, the principal ones of which are: slate roof and paint-

ing, two coats, to outside of farmhouse; slate roof on farm cottage; shingle roof to quarantine barn; a new set of shower baths and hand bowls, with a cement floor, for south dormitory; two hundred feet of tar walk; and a cement-testing room for the mathematical department.

Commencement.

Commencement was held June 17, and the college conferred the degree of Bachelor of Science upon 58 persons, 2 of them being women; the degree of Master of Science upon 1 man; and the degree of Doctor of Philosophy upon 1. The class of 1908 is by far the largest class ever graduated in the history of the college, the nearest approach to it in size being the class of 1904, with 34 members, and the class of 1882, with 33 members. Alumni Day was made a special feature of the commencement exercises. A vigorous and scholarly Commencement address was given on the subject of "True and False Appeals in Agriculture," by Dr. Whitman H. Jordan, director of the New York Experiment Station at Geneva.

The Summer School.

The summer school of 1908 presented several departures from the plan of 1907, these being mostly in the way of broadening the scope of the work: —

(1) A considerably larger number of courses was given. In 1907 the regular lecture courses numbered 4; in 1908 they numbered 19.

(2) The length of the school was extended from four weeks to six weeks.

(3) A separate and special effort was made to interest country clergymen in rural affairs. Four courses of lectures were offered for their especial benefit. This is probably the first attempt made in this country to offer a course of study on the rural problem to rural clergymen.

(4) The program included, further, a number of practical or technical courses designed more with reference to teaching practical matters than presenting subjects for direct use in school-rooms.

(5) This multiplication of courses rendered it necessary to

make all the work elective, and an effort was made to limit the amount of work taken by each pupil.

(6) The price of board and rooms furnished by the college was increased from $3 to $5 per week.

The increased cost of the course, assisted perhaps by other factors, reduced the attendance from 212 in 1907 to 168 in 1908.

A strong faculty was organized for the administration of these courses, including such eminent teachers as Prof. W. D. Hurd of the University of Maine, Prof. W. H. Dudley of the Wisconsin Normal School, Plattville, Wis., and Dr. T. N. Carver of Harvard. Several members of the faculty of Massachusetts Agricultural College also gave instruction.

There was a course of evening lectures and entertainments provided which proved interesting and valuable. Field exercises and excursions added much to the interest and value of the work.

Prof. F. A. Waugh, dean of the summer school, says: —

Our experience in two years clearly suggests a few conclusions, which I may state as follows: —

(1) There is a widespread and well-settled demand for the kind of work which we have to offer. This demand comes chiefly from teachers in the public schools.

(2) This demand is strongest for technical courses, rather than for those dealing with theoretical or pedagogical subjects.

(3) The most serious administrative problem connected with the summer school project is that of housing the pupils.

(4) Some permanent form of organization should be established. One special object to be accomplished by such an organization is to offer a program of studies extending over three or four years, in order that pupils may return in successive years for the pursuit of a progressive course. Some further arrangement should be made also for co-operation between our summer school and the State normal schools.

Changes in the Faculty and Other Officers.

By vote of the trustees, Dr. Charles A. Goessmann was made honorary professor of chemistry, as well as honorary director of the experiment station.

Prof. C. H. Fernald entered upon his duties as director of the graduate school in September. Professor Fernald, per-

haps more than any other man on the faculty, has endeavored to develop interest in graduate work at this college, and it is peculiarly appropriate that he should become the first director of the new graduate school.

By vote of the trustees, the division of agriculture has been organized, and Prof. James A. Foord, who had served during the previous college year as assistant professor of agronomy, was made acting head of the division of agriculture and professor of farm administration.

Prof. Wm. P. Brooks, who had served as professor of agriculture since 1889, will now give practically all his time to his work as director of the experiment station, but retains a college lectureship in soil fertility. Professor Brooks has been in charge of the college agriculture during a period when agriculture as a subject has been developing in an unprecedented way. His wide knowledge of the working field of agriculture has been at the disposal of the people of the State, and has been incorporated into widely read books. He still retains his connection with the teaching work in a field which has been his specialty.

On January 7 Dr. A. Armagnac, instructor in French, died suddenly in his class room. Dr. Armagnac had been appointed only the autumn previous, but had won the thorough respect of faculty and students, and the suddenness of his death was a shock to the whole college population. His work was carried for the balance of the semester by Dr. Henry C. Lancaster of Amherst College, and on February 10 Mr. John A. Munson assumed the duties of instructor in French and served for the balance of the college year.

The instructorship in French made vacant by the resignation of Mr. Munson, in June, was filled by the appointment of Mr. Anderson Mackimmie. Mr. Mackimmie is a graduate of Princeton University, where his scholarship attracted special attention. He taught for five years in the public schools of Nova Scotia and for two years in Colchester Academy, Truro, N. S. He has also had an experience of three years of constant travel in Europe.

In July Miss Ella Frances Hall resigned as librarian. Miss Hall had been connected with the library since August, 1899,

assisting President Goodell for several years, and since President Goodell's death had had charge of the library. She always maintained a thorough interest in her work, and had kept in touch with library methods. The place thus made vacant was filled by the appointment of Mr. Charles R. Green. Mr. Green is a graduate of the Connecticut Agricultural College, was employed for four years on the Hartford "Courant," and since 1901 had been connected with the Connecticut State Library at Hartford. Mr. Green has entered upon his duties with energy, has already changed the library shelving to accommodate a larger number of books, and has plans for substantial enlargement of the library facilities.

Mr. Haskell returned in September from his leave of absence, which was largely spent abroad.

The changes in the staff of the experiment station during the year have been as follows: —

Mr. Walter E. Dickinson resigned Dec. 5, 1907, to accept a position in a sugar factory in Cuba, and the vacancy was filled by the appointment, on January 1, of Mr. J. C. Reed, a graduate of the University of Vermont.

Mr. E. T. Ladd resigned as assistant in plant and animal chemistry Dec. 20, 1907, to accept another position. His place was taken January 1 by Mr. L. S. Walker, an employee of the station, and Mr. Walker's place was filled Jan. 1, 1908, by Mr. P. V. Goldsmith, a graduate of the Michigan Agricultural College.

Oct. 1, 1908, Mr. Carl S. Pomeroy, who had been for a year and a half assistant in horticulture, resigned to accept a fine position with the United States Department of Agriculture, and the vacancy was filled October 1 by the appointment of Mr. J. K. Shaw. Mr. Shaw has the degree of Bachelor of Science in Agriculture from the University of Vermont, and of Master of Science from the Massachusetts Agricultural College. He had previously served as instructor in horticulture at the New Hampshire College, as acting assistant professor of horticulture at the University of Missouri, and as assistant in plant breeding at the New Jersey Experiment Station.

In the summer Miss Grace M. Knowles, secretary to the president of the college, resigned after two years of efficient ser-

vice, and Mr. Ralph J. Watts, a graduate of the college in the class of 1907, was appointed to the position.

In August Miss Clara L. Stuart of Boston entered upon the duties of correspondence clerk in the president's office, serving also the dean and the registrar in the same capacity.

In June Mr. E. G. Bartlett resigned as assistant in botany, to accept a position in Hawaii, and Mr. H. M. Jennison of the class of 1908 was appointed to the place.

Mr. W. M. Thornton, assistant in chemistry, resigned in June, and his place was filled by the appointment of Mr. L. I. Shaw, a graduate from Alfred University, with the degree of Master of Science from Syracuse University. Mr. Shaw had also served as assistant in chemistry both at Alfred and at Syracuse.

In October Mr. A. D. Holmes, assistant in chemistry, resigned to assume graduate work in the Johns-Hopkins University. The vacancy has not yet been filled.

Appointments to New Positions in the Faculty.

The assistant professorship of physical education and hygiene was filled by the appointment of Dr. Percy L. Reynolds, a graduate from the physical director's course in the Springfield Training School. Dr. Reynolds has also received the degree of Doctor of Medicine from the University of Georgia, has had a seven years' experience as physical director in Young Men's Christian Association work, and for two years filled acceptably the directorship of physical training at the University of Maine.

In October Mr. Wm. P. B. Lockwood was elected assistant professor of dairying. Professor Lockwood graduated from the agricultural course of the Pennsylvania State College, has had two years' experience in handling high-class sanitary and modified milk with the Walker-Gordon Company, has spent three years in different branches of the condensed milk business, has taught in the short dairy and agricultural courses of the Pennsylvania State College, and has operated a condensed milk factory and creamery.

The position of instructor in agricultural education was filled by the appointment of Mr. Floyd B. Jenks, a graduate

from the agricultural course at Purdue University. Mr. Jenks has had eight years' experience in teaching in elementary and secondary schools in both rural and city communities, as well as considerable experience in the management of farms.

The position of instructor in German was filled by the appointment of Mr. Edgar L. Ashley, who has the degree of both Bachelor of Arts and Master of Arts from Brown University. Mr. Ashley was instructor in German at Brown for three years, a student at the University of Heidelberg for one year, and instructor in German in charge of the department of German in Bates College, Maine, one year.

The position of instructor in agricultural economics has been filled by the appointment of Alexander E. Cance. Dr. Cance graduated from Macalester College in 1896, with the degree of Bachelor of Arts. He received the degree of Master of Arts from the University of Wisconsin in 1906 and the degree of Ph.D. from the University of Wisconsin in 1908. He has had considerable teaching experience, serving one year as teacher of high school Greek and history, one year as teacher of English in Gale College, Wisconsin, and one year as teacher of English and the sciences at Avalon College, Missouri. He was for three years principal of the Farm School at Asheville, N. C., and served one year as supervisor of practice at the First Pennsylvania State Normal School. Dr. Cance has specialized in economics and sociology, and is one of the few men of the country who have given particular attention to the economics of agriculture.

Graduate School.

A marked increase in the demand for thoroughly trained men has resulted in a corresponding increase in the number of graduate students at the college. That the graduate course could be improved by a more complete co-ordination and better organization has become evident, and accordingly the trustees established a graduate school at their meeting in June, and appointed Prof. C. H. Fernald director. Professor Fernald has been investigating the organization and requirements of similar schools in all parts of the country, by personal visits and correspondence, and a reorganization of the work here is now

in progress. New subjects for graduate study will be added to those already offered, and the more complete separation of the graduate from the academic courses will certainly prove beneficial.

Loss of the New Barn.

Early in the morning of August 15 fire was discovered in the storage part of the new farm barn. At the time of discovery it was under full headway, and entirely beyond control. Two students of our senior class, Mr. Wayne E. Geer and Mr. Myron F. Geer, who had been employed in the stable during the summer, and who roomed in the barn, narrowly escaped with their lives.

A brief statement of the losses caused by the fire follows: —

Original cost of storage part,	$18,600 00
Cost to remove débris (contractor's estimate),	500 00
Damage to silos,	1,200 00
Temporary shed to house feed,	300 00
Cattle,	1,033 33
Hay and other feeds and fertilizers, etc.,	4,023 40
Equipment and sundry supplies,	2,959 28
Total,	$28,616 01

The Massachusetts District Police made an investigation as to the cause of the fire, but declared it to be unknown. Various theories as to its origin have been advanced, but no satisfactory explanation has been made.

Plans for a new structure will be submitted to you for your approval. I think that there is little doubt about the wisdom of housing implements and young stock in structures not connected with the barn for the storage of hay and grain.

Insurance.

It is the understanding of the trustees that the Commonwealth does not permit a State institution such as ours to carry insurance on its buildings or property. Without attempting to enter into an argument concerning the wisdom of this arrangement, I desire to call your attention to the fact that this

law works injustice to the institution, unless there accompanies it some plan by which a sinking or insurance fund is established by the Commonwealth, out of which losses such as that caused by our fire may be adjusted under ordinary insurance rules. Occasional fires of this kind are inevitable. Under the present plan, however, when we ask an appropriation from the Legislature to make good the loss, we face two unpleasant facts: first, that we have to wait until the Legislature meets, and until they have given due deliberation to the request; second, that the appropriation requested practically takes its place as a new call upon the State treasury, instead of payment of insurance, which it really is. By reason of the first fact, we are delayed in properly restoring our equipment; because of the second fact, we are delayed in properly developing the institution. I recommend, therefore, that the trustees petition the Legislature either to remove the restriction with regard to our taking insurance, or to create a State insurance fund, which may become available, under proper regulations, for fire losses at this and other institutions.

Printing.

Under the act of the Legislature of 1908, the report of the trustees will hereafter be printed in four parts, as follows: —

Part I. Report of the president and other officers of the institution.
Part II. The catalogue of the college.
Part III. A popular report of the experiment station.
Part IV. A detailed or scientific report of the experiment station.

It is believed that this scheme of printing will not cost the State any more money than the old plan, and that it will give wider circulation to the report, as well as enable us to place these various reports in the hands of people most interested in the different parts of our work.

Campus Enterprises.

The real life of the institution centers in the student body. It is not possible in a report of this type to describe all of the activities which go to make up the world of the college campus.

I wish, however, to call attention to several features of this life that have recently been developed.

There is appended to this report a list of the speakers for the past fiscal year, who have appeared at the weekly assemblies on Wednesday (attendance of students at these assemblies being required) and at the Sunday vespers, a voluntary service held in co-operation with the Young Men's Christian Association of the college. (See Table III.)

The organization of a department of physical education, with a director in charge, opens a useful line of activity among the men of the college. I bespeak for this department your deep interest and full support. In a later report I hope to discuss at some length the problem of physical education and athletics in a college such as ours.

The library facilities continue inadequate, but some steps have been taken to give partial relief. In the reading room connected with the library there have been placed additional tables and chairs, additional electric lights, a long list of periodicals is at hand, and a special library of attractive books is available for the constant use of the students. In the library itself study tables have been provided and additional shelving has been placed in position. We cannot, however, deny the pressing need of a modern, fireproof building, fully adequate to the use of students.

The newest enterprise of the college campus which concerns the student body directly is the organization of the M. A. C. Social Union. Quarters in North College have been provided for the Union, which include a large assembly or lounging room, an office for the editors of the "College Signal," a committee room for the use of the officers of the various student organizations, and the present headquarters of the assistant professor of physical education and hygiene. The students themselves have purchased a piano and furniture; the college heats and lights the rooms and pays for janitor service. The college also assists in furnishing some of the entertainments provided by the Union. The whole purpose of the Union is to draw together the members of the student body, as well as to aid in bringing the entire population of the college into a larger fraternity.

Financial Aid for Students.

This college is still a "poor man's college." Many of the students "work their way" through without any outside aid whatever. Nevertheless, there are indications of a tendency toward a change. In the first place, the cost of living increases somewhat. Within two years we have been obliged to raise the price of board from $3.25 per week to $3.75, and at the last figure we are barely meeting the cost. We house less than 100 men on the campus, so that nearly two-thirds of the students must seek rooms in private houses. Apparently the cost of room rent is gradually going up. As the college grows and student enterprises increase, the cost to the individual student of supporting these enterprises has a tendency to advance. On the other hand, owing largely to the increase in students, there is a decreased opportunity for labor. The amount of labor about the institution available for students is of course limited. We do all we can to give work to competent men.

I do not wish to imply that conditions are as yet serious, but I fear that tendencies are at work which will make the cost to the average student more than he can afford; and it is possible also that the standard set by students not dependent on their own resources will more and more be the standard for the college. Before the situation becomes acute, I think we ought to consider the whole problem, so that we may avoid any tendency in our college life which shall make it more difficult for the student without means to complete his course here. I therefore recommend that the trustees designate a special committee, to be composed both of members of the trustees and members of the faculty, possibly to work in conjunction with representatives of the alumni and of the student body, to make a careful study of this question and to report to the trustees at some future time.

The Housing of Students.

One of the phases of the problem just referred to is the housing of students. There are rooms on the college campus for not to exceed 100 men. There are at present in the college

260 undergraduates, so that more than half of these live in private houses. Without entering at this present time into any discussion of the question of building dormitories, I wish to call your attention to the fact that circumstances make it necessary for the college to declare its policy on this subject. If the students are to be housed in private buildings, the owners of property in Amherst must in some way be encouraged to increase the number of houses available for such purpose. On the other hand, if the college is likely to adopt the policy of housing a large proportion of its students in dormitories, it is only fair to these people that they should be advised of the fact.

I recommend, therefore, that the trustees authorize the committee on buildings and grounds to make a special study of the whole problem of the housing of students, and report a definite recommendation at some future time.

Visiting Other Institutions.

Each institution must work out its own problem, in the light of its purpose, its history and its environment; nevertheless, each institution can learn from other institutions. Much of this information can be gathered from a study of catalogues and by correspondence; but especially in a college like ours, where the subjects of study are developing with great rapidity, where new methods must be constantly devised and new courses must be constantly added, it becomes extremely desirable that those most particularly charged with the administration of the institution shall be able to come into rather intimate touch with the work of similar institutions.

I desire to recommend that it become the settled policy of the trustees, therefore, to permit and encourage visitation of other colleges by members of the trustees and of the faculty, under such limitations and regulations as may seem wise.

The Development of the Grounds.

Four years ago the trustees passed a resolution organizing a commission on buildings and grounds, to be composed of the trustees' committee on new buildings and arrangement of grounds,

with the addition of two members of the faculty. This commission was organized definitely two years ago, under the chairmanship of the late Mr. Draper. During this period it has had under consideration the general problem of the future development of the grounds, the location and architecture of the buildings, a system of sewage disposal and other questions connected with the general problem.

The commission has had the expert assistance of Mr. Frank Irving Cooper and the constant and specific advice of Prof. F. A. Waugh; and finally made arrangements with Mr. Warren H. Manning, the noted landscape designer of Boston, for the study of the entire problem. Mr. Manning has reported a general plan, which has been accepted by the commission, and as soon as further details are decided it is expected that the plan will be made public and thrown open for discussion.

Athletic Field.

Some fourteen years ago there was organized an association among the alumni of the college for the specific purpose of raising funds for the purchase of an enclosed athletic field for the use of the students of the college. A sum of money has been collected, but for various reasons the project has not come to a conclusion. During the past year a careful study of the problem has been made, and it now seems altogether advisable that the college shall own and control the athletic field. The Alumni Athletic Association will then be ready to turn its energies and funds into the proper equipment of the field for the use of the undergraduates. I think this arrangement is a most happy one.

I wish to call your attention to the fact, however, that on land at present owned by the college there is no place fully adequate to the demands of an athletic field. I trust that the need for this field and the need of land on which to place it may be vigorously set before the incoming Legislature, in order that we may bring this whole matter to an early conclusion. It is extremely desirable from every point of view that this field should become a permanent feature of our department of physical education.

Further Needs of the College.

1. Building for the Departments of Zoölogy and Entomology.

A year ago I called your attention to the need for better housing for these departments. This need for room is becoming pressing, nearly twice as many men electing entomology as the laboratory will accommodate. From the standpoint of protecting valuable property, a new building is, I think, imperative. In accordance with your vote, the committee on buildings has had plans prepared for a structure that will house both departments in an adequate fashion. In the judgment of the committee, this building should be of fireproof construction throughout. I am sure, also, that it is the judgment of the committee that it should be the accepted policy of the college to plan in the future for fireproof buildings only, — except of course for certain minor structures, such as small barns, etc. I trust that the Legislature of 1909 may be persuaded to grant our full request, in order that we may build in worthy fashion for these important departments.

2. Buildings for the Division of Agriculture.

I have already referred to the desirability of housing young stock in a structure separate from the storage barn; I have the same recommendation in regard to tools and machinery. If the Legislature reimburses the college for the fire loss, the money thus available may possibly enable us to build these two structures in addition to the storage barn; but if it does not, I think we should ask for a special appropriation to complete these two structures during the coming summer.

One of the neglected fields in our agricultural work has been instruction in poultry keeping. I am informed that the State of Massachusetts consumes about $25,000,000 worth of poultry products annually, and produces only about $5,000,000 worth. It is perfectly obvious that this industry may be made one of the large factors in Massachusetts agriculture, but it needs the leadership of the college, in instruction at the institution and other extension work. I strongly recommend, therefore, asking the Legislature for a sufficient amount of money to establish

a department of poultry husbandry, including an item of perhaps $5,000 for a set of buildings adapted to instruction in poultry keeping, both to the college students and to short-course students.

I think it is also important that we should begin instruction in what we may call for the present farm mechanics, but which ought to develop finally into a department of agricultural engineering, covering all of the construction and engineering work that come up in the management of a farm or in the development of rural communities. I recommend that we endeavor to establish farm mechanics work during the next college year, and that we ask the Legislature for funds both for instruction and for a small outfit of tools and machines, in order that a beginning may be made.

The live stock interests of Massachusetts are hardly comparable with those of the great western States, in which the agricultural colleges have made a large feature of animal husbandry; nevertheless, it would be fatal to neglect securing a strong department of animal husbandry in this college. Furthermore, the dairy interest is bound to play a permanent and large part in Massachusetts agriculture. Whether we consider the matter from the dairyman's point of view, or as a phase of animal husbandry teaching, we need to give good instruction in stock judging. At present we have no place where this can be done. A small stock-judging pavilion is therefore necessary, and I recommend that an item for such a building be placed in our legislative budget.

I have before called your attention to the need of a very large development, in the immediate future, of our division of agriculture. I do not wish to be critical, but it is a simple statement of fact to say that, so far as the equipment, buildings, laboratories and apparatus for teaching modern technical agriculture are concerned, this college at present not only fails to rank with the stronger agricultural colleges, but, aside from the new stable, we can hardly make a good comparison with the smaller of our agricultural colleges. We cannot hope to impress upon our students the importance of agriculture, when we have so meager facilities for teaching it. I think the college has been quite wise in its selection of new structures during

the buildings era which began seven or eight years ago, but the time has arrived when we can no longer ignore agriculture.

I therefore recommend with great emphasis that the committee on farm and horticulture, acting of course with Professor Foord and with the committee on buildings, be requested to have plans prepared during the year for a suitable dairy building. This building should be large enough to provide for this important work for several years to come, and should be adapted to instruction both in butter dairying and in milk dairying, and adapted, also, to instruction for both college students and short-course students.

I recommend also that the committee on buildings be requested, acting also with Professor Foord, to have plans prepared for an instruction building designed to house the division of agriculture. I think the suggestion that has been made informally by Mr. Bowker, that such a building should be called "Stockbridge Hall," is entirely appropriate; and I believe that we should ask for a building worthy of the agriculture of Massachusetts and worthy the man whose name it may bear. Personally, I believe that we should plan for a building to cost not less than $150,000. It should contain offices, laboratories and class rooms sufficient for a division very much larger than at present exists. If it seems unwise to ask for so large a sum at once, I think we should still make our plans comprehensive, but of such a character that perhaps half the building could be constructed under a single appropriation, the other half to be added when the needs of the division make it imperative.

3. Miscellaneous Building and Repair Needs.

I again recommend that we ask the Legislature for a fruit storage house for the department of pomology.

I also wish to emphasize the pressing need of a new dynamo. The last Legislature refused to make an appropriation for this purpose. The old dynamo has practically given out, and we are paying in the neighborhood of $250 a month for electric lights, whereas with our own dynamo the cost per month would be trivial. It is a very short-sighted business policy that compels us to continue this plan.

The addition of Clark Hall and the new glass houses, with the new teaching building connected therewith, will tax the capacity of the heating plant. As other structures are likely to be added to the group of buildings on the east side of the campus, and particularly if we are to have the new building for entomology, the question of proper extension of the heating plant becomes of prime importance; steps should be taken to carry out such an extension.

I think that all the departments have been feeling the handicap of meager equipment, and, while it is possible that the present requests from these departments aggregate a rather large sum, I do not think that they represent an extravagant policy.

North College still needs further attention. The work done this last season has revolutionized the interior aspect of the building. The students thoroughly appreciate the opportunities offered by the new Social Union, and I think we ought to utilize the entire basement in such a way as to provide further facilities in the development of a social center.

Practically all of the frame buildings on the campus very much need repainting, and some of the brick buildings need trimming. I recommend that we ask the Legislature for a sum sufficient to do this, and that, if this sum is granted, we ask a competent architect to outline a scheme of colors for the various buildings, which shall, if possible, give a more pleasing effect than prevails at the present time.

The trustees recognize, of course, that the newly organized department of physical education has absolutely no equipment for its work. I therefore recommend that the interior of the drill hall be refitted as a gymnasium in such a way as not to interfere with its use as a drill hall, and that the department of physical education be given a reasonable equipment of gymnasium apparatus.

4. Increase of Amount of Annual Income.

I am quite aware that the last Legislature made a fairly substantial increase in the amount of funds coming to us from the Commonwealth each year. I have no thought that we are to need large annual increases perpetually, although of course

the needs of the college are bound to expand; but we must remember that for a number of years the college failed to expand in the matter of new departments, particularly at a time when the leading agricultural colleges were growing at an extremely rapid rate. I think it is perfectly clear, therefore, that we need, as it were, to "catch up," so I have no hesitation in recommending that we ask the incoming Legislature for a very substantial addition to our annual income.

In the matter of new instruction, for instance, I think we should have a professor of forestry. I suppose that I have had more letters from prospective students asking about forestry instruction here than on any other subject. Quite a large percentage of the present freshman class, in declaring their proposed vocation, named forestry. The Commonwealth is taking active steps to solve the forestry problem. We cannot afford to linger behind on the educational side.

I have already referred to the need for departments of poultry husbandry and farm mechanics; I would also suggest the desirability of securing a man to develop a department of rural sociology. I have for many years been convinced that a college of agriculture ought to emphasize the economic and social aspects of agriculture fully as much as the production and scientific aspects. My recent trip with the Commission on Country Life gave me a new emphasis upon this side of our work. I strongly urge that we try to secure such a man.

The head of the division of the humanities desires to develop much more completely than it has ever been possible to do heretofore the work of public speaking, and I endorse cordially his recommendation that he be given opportunity to employ a man who will become instructor in public speaking. Our students need this work and desire it, and it is too important to be overlooked.

With the growth of the freshman class, the large increases in our senior classes and the development of new departments, there are several assistants needed in the teaching and clerical work. I estimate that we need for the college year of 1909–10 at least $13,000 more than we are now receiving for instruction purposes.

We have organized a graduate school, and I recommend that

we ask the Legislature for not less than $5,000 a year for the purpose of carrying on this most important work.

The college budget will show that, although our apportionment to departments is considerably larger than last year, we shall be enabled to carry that increase safely for the present fiscal year. At the beginning of another fiscal year, however, unless we have a substantial increase in our maintenance item, we shall face a serious deficit. The department of general maintenance, supervised by the treasurer of the college, asks this year for $17,300 net. Our coal bill alone is nearly $9,500. The $15,000 arising from scholarships must go into equipment and maintenance of the academic departments of the college. I think, therefore, that we ought to ask the Legislature to increase the maintenance item from $7,000 to $20,000 a year.

We should begin the work of making an agricultural survey of Massachusetts. The departments of floriculture and market gardening are prepared to make a survey of the greenhouse industry. The department of pomology is ready to undertake an orchard survey of the State, and the department of farm administration desires to investigate farm management in Massachusetts. This work is just as vital to the development of adequate teaching as the research work of our experiment station, and I strongly recommend that steps be taken to secure a small fund for this purpose.

I also believe that we should gradually extend the scope of our short-course work. I wish that another autumn we might undertake, in a small and experimental way, several projects looking toward leadership of the college among the working farmers of the State. I think we ought to enlarge our short-course work at the college; and, still further, that we should heed the constant calls coming to us from farmers, from clergymen, from teachers and from students in the Young Men's Christian Association schools for correspondence courses; that we should more completely organize the work of our teachers who are asked to lecture away from the college; that we should prepare leaflets on agricultural subjects, particularly for young people who are looking to us for agricultural instruction; that we should organize a series of educational exhibits at the agri-

cultural fairs of the State; that we should renew the efforts for better-farming railway trains and for trolley car exhibits; that we should experiment with travelling schools in horticulture and poultry keeping; and that we should at once begin to organize the co-operative demonstration work in different parts of the Commonwealth.

There are other minor recommendations for improvement and equipment, but I have perhaps even now gone too fully into details. I do plead, however, most urgently for a legislative appropriation which will enable us to develop the college in the immediate future to something like its normal equipment.

Obituary.

It becomes my duty to chronicle the death of Mr. W. W. Rawson, who passed away Aug. 9, 1908. Mr. Rawson was appointed to the Board of Trustees by Governor Guild in January of this year. His term of service was thus very brief, but his success in his own business of gardening, his political acquaintance and accomplishments, his leadership among the gardeners and florists of the State, his vigor of mind and practical business instinct and his sterling integrity, would have been, had he lived, splendid assets for the college.

Respectfully submitted,

KENYON L. BUTTERFIELD.

Amherst, Mass., Nov. 30, 1908.

STATISTICS OF THE COLLEGE.

TABLE I. — *Attendance.*

	For Year ending June 30, 1908.	For Year ending Nov. 30, 1908.
Graduate students,	7	12
Senior class,	58	49
Junior class,	54	48
Sophomore class,	47	52
Freshman class,	87	114
	246	263
Short courses: —		
Winter course, 1908,	32	32
Bee course, 1908,	3[1]	3
Summer school,	210[2]	168[3]
	245	203
Total,	498	478

[1] Not in regular course. [2] 1907. [3] 1908.

TABLE II. — *Legislative Budget, 1908.*

	Asked.	Granted.
I. Deficiency Appropriations.		
1. Deficit in current funds,	$13,000 00	
2. Deficit in cost of barn,	3,690 10	
Total,	$16,690 10	$23,617 04[1]
II. Increase in Current Annual Appropriation.		
3. Increase in maintenance, to cover regular apportionment,	$2,000 00	$2,000 00
4. Increase in instruction appropriation,	13,000 00	13,000 00
5. Increase in current annual appropriation, to cover cost of short courses and correspondence courses,	8,000 00	5,000 00
Total,	$23,000 00	$20,000 00[2]
III. Special Apportionment.		
6. Target range and equipment,	$1,000 00	$1,000 00
7. Repairing and refitting experiment station buildings,	4,000 00	4,000 00
8. Addition to electric light plant,	6,000 00	—
9. Repairing and refitting North College,	6,000 00	6,000 00
10. Enlargement and improvement of library facilities,	2,500 00	1,000 00
11. Department equipment,	8,000 00	4,000 00
12. Miscellaneous repairs and minor improvements,	7,700 00	5,000 00
13. Fruit storage house,	2,500 00	—
14. Glass houses, attached teaching building and equipment for same,	34,000 00	34,000 00
Total,	$71,700 00	$55,000 00
Grand total,	111,390 10	98,617 04[3]

[1] Provided also for deficit in dining hall, $3,187.77; and in Burnham fund, $3,000.
[2] For 1908, $13,000. [3] For 1908, $91,617.04.

TABLE III. — *Speakers for the Year.*

Speakers at Assemblies for Year ending Nov. 30, 1908.

1907.

Dec. 4. — Mr. William E. Spencer, Amherst.

1908.

Feb. 12. — Rev. Calvin Stebbins, Framingham.
Feb. 19. — Mr. J. H. Hale, South Glastonbury, Conn.
Mar. 11. — Mr. E. C. Mercer, New York, N. Y.
Mar. 18. — Mr. Edwin D. Mead, Boston.
May 6. — Dr. Howard Edwards, Kingston, R. I.
May 13. — Rev. Ora Samuel Gray, Amherst.
Sept. 30. — Mr. Henry Bond, Greenfield.
Oct. 7. — Mr. Horatio Knox, Providence, R. I.
Oct. 21. — President George E. Fellows, Orono, Me.
Nov. 4. — Director Rufus W. Stimson, Northampton.
Nov. 11. — Dr. George W. Tupper, Boston.

Speakers at Vesper Services for Year ending Nov. 30, 1908.

1907.

Dec. 8. — Rev. Ozora S. Davis, New Britain, Conn.
Dec. 15. — Rev. J. Ross Stevenson, Fifth Avenue Church, New York, N. Y.

1908.

Jan. 5. — Rev. A. P. Reccord, Springfield.
Jan. 12. — Prof. H. A. Bridgeman, "Congregationalist."
Jan. 19. — Rev. Arthur A. Coar, Springfield.
Jan. 26. — Rev. Willis H. Butler, Northampton.
Mar. 1. — Rev. J. G. Nichols, South Hadley.
Mar. 8. — Rev. Samuel Eliot, Boston.
Mar. 15. — Rev. F. L. Goodspeed, Springfield.
Mar. 22. — Mr. F. L. Willis, Worcester.
Sept. 27. — Rev. Philip S. Moxom, Springfield.
Oct. 4. — Rev. Ora Samuel Gray, Amherst.
Oct. 11. — Rev. John C. Breaker, Northampton.
Oct. 18. — Mr. F. L. Willis, Worcester.
Oct. 25. — Rev. Edward F. Sanderson, Providence, R. I.
Nov. 1. — Dr. Lyman Abbott, New York, N. Y.
Nov. 8. — Dr. W. W. Fenn, Cambridge.
Nov. 15. — Dr. William E. Barton, Chicago, Ill.
Nov. 22. — Rev. C. L. White, New York, N. Y.

TABLE IV. — *Students entering College in the Autumn of 1908.*

Occupations of Fathers.

OCCUPATIONS.	Number.	Per Cent.
Agriculture and horticulture,	23	19.00
Professional,	9	8.00
Business,	27	22.50
Artisans,	17	14.16
Miscellaneous,	32	26.00
Deceased,	12	10.00

Intended Vocations.

VOCATIONS.	Number.	Per Cent.
Agriculture and horticulture (practical),	28	23.33
Agriculture (scientific),	56	46.67
Teaching,	1	.83
Engineering,	18	15.00
Miscellaneous,	2	1.67
Undecided,	15	12.50

Religious Census.

DENOMINATION.	MEMBERSHIP.		PREFERENCE.		TOTAL.	
	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.
Baptist,	2	1.67	6	5.00	8	6.67
Catholic,	21	17.50	–	–	21	17.50
Congregational,	23	19.17	21	17.50	44	36.67
Episcopal,	4	3.33	4	3.33	8	6.67
Methodist,	6	5.00	4	3.33	10	8.33
Unitarian,	3	2.50	6	5.00	9	7.50
Universalist,	3	2.50	3	2.50	6	5.00
Miscellaneous,	2	1.67	12	10.00	14	11.67
Total,	64	53.34	56	46.66	120	100.01

Miscellaneous Statistics.

Average age (freshmen only), ... 19 years.
Number applying for student labor, ... 69; 57.5 per cent.
Number boarding at Draper Hall, ... 97; 80.8 per cent.

Home Addresses.

Abington,	1	Canton,	1
Alandar,	1	Chelsea,	1
Amherst,	14	China,	1
Arlington,	1	Clifford,	1
Ashburnham,	1	Concord,	1
Attleborough,	1	Cumberland,	1
Bernardston,	1	Chester,	1
Billerica,	1	Danvers,	1
Boston,	7	Dorchester,	2
Brockton,	2	Easthampton,	1
Brooklyn, N. Y.,	1	East Wareham,	1
Buckland,	1	Elkhart, Ind.,	1
Buffalo, N. Y.,	1	Fall River,	2
Cambridge,	1	Greenwich Village,	1

TABLE IV. — *Students entering College in the Autumn of 1908* — Concluded.

Home Addresses — Concluded.

Hingham,	1	Pittsfield,	1
Holden,	1	Revere,	1
Holyoke,	2	Ringville,	1
Hopedale,	1	Roxbury,	2
Jamaica Plain,	2	Seattle, Wash.,	1
Leicester,	1	Shelburne Falls,	1
Leominster,	1	Somerville,	1
Littlefalls, N. Y.,	1	South Hadley Falls,	1
Lowell,	1	South Lincoln,	1
Lynn,	1	Stow,	1
Marlborough,	4	Sturbridge,	1
Melrose Highlands,	1	Sunderland,	1
Medfield,	1	Turners Falls,	3
Medford,	2	Taunton,	2
Natick,	2	Wakefield,	1
New Haven, Conn.,	1	Waterbury, Conn.,	1
Newton,	1	Watertown,	1
New York, N. Y.,	2	Wayland,	1
North Abington,	1	Weathersfield, Conn.,	1
North Adams,	1	Wenham,	1
North Leverett,	1	West Barnstable,	1
North Reading,	1	Westhampton,	1
North Wilmington,	1	Williamsburg,	1
Orange,	1	Winchester,	2
Osterville,	1	Worcester,	6
Otego, N. Y.,	1		

Gifts, 1908.

The most notable gift of the year was the legacy of Mrs. Louisa M. Baker, a long-time friend of the college, who left the sum of $6,000 to be held in trust by the college, the income to be used for the aid of needy students. It is needless to say that so long as a large proportion of our students are dependent to a greater or less degree upon their own resources, this gift can be used to good advantage. Other gifts are: —

Dr. George W. Rawson, Amherst: seventeen volumes of medical books and a collection of histological specimens, to the veterinary department.

American Coal Products Company, 17 Battery Place, New York, N. Y.: five hundred pounds ammonium sulfate.

The Boston Poultry Dry Feed Hopper Company, 62 Causeway Street, Boston: two dry feed hoppers.

Bowker Fertilizer Company, 43 Chatham Street, Boston: one-half ton high-grade Stockbridge fertilizer.

Mr. Edward F. Cameron, Helena, Mont.: one Lightning Dandelion Exterminator.

Cyphers Incubator Company, Buffalo, N. Y.: four thermometers for incubators; four brooder thermometers.

The Albert Dickinson Company, Chicago, Ill.: samples of grass seeds.

Earp-Thomas Farmogerm Company, 233 Washington Street, Bloomfield, N. J.: cultures for peas, beans and sweet peas; samples Farmogerm for peas, beans, sweet peas and alfalfa.

German Kali Works, 93 Nassau Street, New York, N. Y.: one ton kainit; one ton muriate of potash; two tons sulfate of potash; one ton sulfate of potash magnesia.

James J. H. Gregory & Son, Marblehead: four pounds Eldorado potatoes; four pounds Early King potatoes; four pounds Big Copper potatoes.

J. W. Guerney, Cummington: one peck Beauty of Hebron potatoes for seed.

E. L. Hahn & Co., Muscatine, Ia.: fertilizer distributer.

Peter Henderson & Co., 35 and 37 Cortlandt Street, New York, N. Y.: twenty-one samples of grass for trial grounds.

The New England Gas and Coke Company, Shawmut Bank building, Boston: one thousand pounds sulfate of ammonia.

Henry Nungesser & Co., 63 and 65 Pearl Street, New York, N. Y.: samples of grass for grass garden.

Dr. David Roberts Veterinary Company, Waukesha, Wis.: book, "Abortion in Cows."

Rockland-Rockport Lime Company, Rockland, Me.: one barrel "Pine Cone" hydrate of lime.

The Massachusetts Society for Promoting Agriculture: prizes for short courses: For best work during the course, three prizes, — $50, $30 and $20. For best butter made by students, three prizes, — $25, $15 and $10. For excellence in stock judging, four prizes, — $10, $7.50, $5 and $2.50.

The Bowker Fertilizer Company, Boston: one-half ton Stockbridge fertilizer as prize in short courses.

B. von Herff, German Kali Works, New York, N. Y.: one ton kainit as prize in short courses.

Loans, 1908.

Vermont Farm Machine Company, Bellows Falls, Vt.: one No. 4 Separator; one No. 6 Separator.

D. H. Burrell & Co., Little Falls, N. Y.: one No. 2 Simplex Separator.

De Laval Separator Company, New York, N. Y.: one Acme Turbine Separator; one Baby No. 3 Separator; one No. 12 Separator.

Sharples Separator Company, West Chester, Pa.: one No. 4 Tubular Hand Separator; one No. 10 Tubular Steam Separator.

Empire Cream Separator Company, Bloomfield, N. J.: one Empire No. 1 Separator.

Stoddard Manufacturing Company, Rutland, Vt.: one 24-bottle Wizard Turbine Tester.

Iowa Separator Company, Waterloo, Ia.: one No. 3 Separator.

International Harvester Company, Chicago, Ill.: one No. 3 Separator.

Sears, Roebuck & Co., Chicago, Ill.: one No. 6 "Economy" Separator.

Report of the Treasurer

For the Fiscal Year ending Nov. 30, 1908.

Balance Sheet.

			Dr.	Cr.
1907.				
Dec. 1.	To cash on hand,		$558 00	–
	By First National Bank (overdraft),		–	$7,858 00
1908.				
Nov. 30.	To special appropriation receipts, State Treasurer,		76,843 71	–
	By special appropriation disbursements,		–	80,794 59
	To experiment station receipts,		52,211 23	–
	From State Treasurer,	$10,500 00		
	From U. S. Treasurer,	25,000 00		
	From other sources,	16,711 23		
	By experiment station disbursements,		–	52,650 37
	To current accounts receipts,		141,641 98	–
	From U. S. Treasurer, Morrill fund,	$16,666 67		
	From U. S. Treasurer, Nelson Fund,	6,666 66		
	From State Treasurer, endowment fund,	10,613 32		
	From State Treasurer, maintenance,	11,500 00		
	From State Treasurer, scholarship,	15,000 00		
	From State Treasurer, instruction,	21,500 00		
	From State Treasurer, short courses,	3,750 00		
	From State Treasurer, Burnham emergency,	3,000 00		
	From State Treasurer, deficit,	13,739 17		
	From State Treasurer, veterinary,	1,000 00		
	From State Treasurer, heat and light,	500 00		
	From other sources,	37,706 16		
	By current accounts disbursements,		–	131,088 63
	To student trust funds receipts,		37,996 67	–
	By student trust funds disbursements,		–	38,829 42
	By cash on hand,		–	1,817 75
	To First National Bank (overdraft),		3,787 17	–
			$313,038 76	$313,038 76

	Balance Sheet, Dec. 1, 1907.		Transactions, Dec. 1, 1907, to Nov. 30, 1908.		Balance Sheet, Nov. 30, 1908.	
	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.
Cash on hand,	$558 00	–	–	$1,259 75	$1,817 75	–
Cash on deposit (overdraft),	–	$7,858 00	–	4,070 83	–	$3,787 17
Experiment station,	–	5,719 94	$52,211 23	52,650 37	–	5,280 80
Special appropriation,	15,009 42	–	76,843 71	80,794 59	18,960 30	–
Trust funds,	818 22	–	37,996 67	38,829 42	1,650 97	–
Current accounts,	–	2,807 70	141,641 98	131,088 63	–	13,361 05
Totals,	$16,385 64	$16,385 64	$308,693 59	$308,693 59	$22,429 02	$22,429 02

STATEMENT OF THE FIRST NATIONAL BANK WITH THE MASSACHUSETTS AGRICULTURAL COLLEGE.

		DR.	CR.
1907.			
Dec. 1.	Balance on hand,	$2,513 44[1]	–
1908.			
Nov. 30.	Deposits,	302,376 92	–
	Interest,	285 54	–
	Disbursements as per warrants paid,	–	$293,984 31
	Balance on hand,	–	11,191 59[1]
		$305,175 90	$305,175 90

[1] These amounts are greater Dec. 1, 1907, by $10,371.44, and Nov. 30, 1908, by $14,978.76, on account of outstanding drafts.

STATEMENT OF SPECIAL APPROPRIATION ACCOUNTS.

NAME OF APPROPRIATION.	Date.	Total Appropriation.	Amount expended to Date.	Balance unexpended Nov. 30, 1908.
Horticultural building,	1905	$39,950 00	$39,950 00	–
Clark Hall,	1906	45,000 00	45,000 00	–
Chemical appropriation,	1906	1,000 00	1,000 00	–
Clark Hall equipment,	1907	24,400 00	24,400 00	–
Dairy equipment,	1907	3,000 00	3,000 00	–
Live stock,	1907	4,000 00	4,000 00	–
Omnibus,	1907	14,000 00	14,000 00	–
New boiler,	1907	2,000 00	2,000 00	–
Barn deficit,	1908	3,690 10	3,690 10	–
Target range,	1908	1,000 00	993 53	$6 47
Experiment station,	1908	4,000 00	3,281 48	718 52
Glass houses and instruction building,	1908	34,000 00	18,184 97	15,815 03
North dormitory,	1908	6,000 00	5,999 89	11
Library,	1908	1,000 00	347 23	652 77
Teaching equipment,	1908	4,000 00	1,837 54	2,162 46
Repairs,	1908	5,000 00	3,879 20	1,120 80
Totals,		$192,040 10	$171,563 94	$20,476 16

CURRENT ACCOUNTS.

Disbursements and Receipts.

ACCOUNTS.	Disbursements from Dec. 1, 1907, to Nov. 30, 1908.	Receipts from Dec. 1, 1907, to Nov. 30, 1908.	Apportionment for Year ending Nov. 30, 1908.	Balance to Credit.
Agricultural,	$22,812 34	$15,024 07	$6,376 00	—$1,412 27
Botanical,	1,156 75	678 60	500 00	21 85
Burnham emergency income,	–	50 00	–	50 00
Chemical,	2,773 60	795 04	2,272 81	294 25
Cleaning,	677 05	–	–	—677 05
Contingent,	1,437 45	150 16	1,000 00	—287 29
Dean's office,	95 34	–	25 00	—70 34
Entomological,	806 90	180 15	579 86	—46 89
English,	98 71	–	50 00	—48 71

CURRENT ACCOUNTS — *Concluded.*

Disbursements and Receipts — Concluded.

ACCOUNTS.	Disbursements from Dec. 1, 1907, to Nov. 30, 1908.	Receipts from Dec. 1, 1907, to Nov. 30, 1908.	Apportionment for Year ending Nov. 30, 1908.	Balance to Credit.
Heat, light and water,	$16,823 31	$1,067 86	$13,000 00	—$2,755 45
Horticultural,	11,579 85	5,963 14	5,100 00	—516 71
Library,	2,411 64	634 38	1,725 00	—52 26
Meteorology,	248 05	–	350 00	101 95
Miscellaneous,	9,921 54	8,473 79	–	—1,447 75
Mathematics,	194 74	–	255 00	60 26
Military,	382 89	25 00	355 00	—2 89
Normal department,	6,061 08	773 09	3,750 00	—1,537 99
President's office,	3,294 65	28 01	7,000 00	3,733 36
Rents,	85 55	4,658 74	–	4,573 19
Registrar,	97 40	–	75 00	—22 40
Students' fees,	–	18 00	–	18 00
Salaries,	50,380 19	208 33	50,171 86	–
Treasurer's office,	611 81	44 07	600 00	32 26
Veterinary,	1,747 30	1,015 02	919 25	186 97
Zoölogical,	382 79	191 80	120 00	—70 99
Graduate school,	68 78	–	250 00	181 22
State Treasurer: —				
Endowment fund,	–	10,613 32	–	–
Instruction fund,	–	21,500 00	–	–
Maintenance fund,	–	11,500 00	–	–
Scholarship fund,	–	15,000 00	–	–
Short courses,	–	3,750 00	–	–
Normal courses,	–	3,750 00	–	–
Deficit appropriation,	–	13,739 17	–	–
United States Treasurer: —				
Morrill fund,	–	16,666 67	–	–
Nelson fund,	–	6,666 66	–	–
Totals,	$134,149 71[1]	$143,165 07[1]	$94,474 78	$304 32
Balance, beginning of fiscal year, Dec. 1, 1907,	–	2,807 70	–	–
Balance on hand, Nov. 30, 1908,	11,823 06	–	–	–
	$145,972 77	$145,972 77	–	–

[1] These amounts are greater than the figures used in the statement by $3,061.08 for the disbursements and $1,523.09 for receipts, on account of including the normal and short course funds and leaving out the Burnham emergency account which aggregate the above.

Summary.

	Disbursements.	Receipts.
By cash on hand,	–	$2,807 70
By institution receipts,	–	39,929 25
By State Treasurer receipts,	–	66,113 32
By United States Treasurer receipts,	–	21,388 86
By accounts receivable, State Treasurer,	–	4,500 00
By total disbursements,	$134,149 71	–
	$134,149 71	$134,739 13
Bills receivable Dec. 1, 1907, deducted,	–	2,142 40
Bills payable Dec. 1, 1907, deducted,	3,066 09	–
	$131,083 62	$132,596 73
Bills receivable Nov. 30, 1908,	–	5,144 80
Extraordinary expense on account of barn fire,	–	2,347 14
Bills payable Nov. 30, 1908,	3,600 35	–
Balance,	5,404 70	–
	$140,088 67	$140,088 67

Experiment Station.

Disbursements and Receipts.

Accounts.	Disbursements from Dec. 1, 1907, to Nov. 30, 1908.	Receipts from Dec. 1, 1907, to Nov. 30, 1908.	Apportionment for Year ending Nov. 30, 1908.	Balance to Credit.
Administration,	$1,738 14	$88 48	$2,150 00	$500 34
Agricultural,	5,193 83	3,235 96	2,480 00	522 13
Asparagus,	1,879 33	–	1,100 00	—779 33
Botanical,	1,433 88	54 59	1,400 00	20 71
Chemical,	7,913 34	4,844 57	3,400 00	331 23
Cranberry,	214 06	–	900 00	685 94
Entomology,	619 57	2 00	800 00	182 43
Fertilizer,	–	5,390 00	–	5,390 00
Freight,	438 71	85	250 00	—187 86
Feed law,	2,813 11	3,003 78	–	190 67
Graves orchard,	189 37	–	500 00	310 63
Horticultural,	925 12	10 00	1,500 00	584 88
Library,	159 57	–	300 00	140 43
Meteorology,	79 63	–	200 00	120 37
Publications,	2,885 45	–	3,700 00	814 55
Salaries,	25,631 32	75 00	25,745 00	188 68
Treasurer's office,	340 80	–	400 00	59 20
Veterinary,	195 14	6 00	400 00	210 86
Hatch fund,	–	15,000 00	–	–
Adams fund,	–	10,000 00	–	–
State fund,	–	10,500 00	–	–
Totals,	$52,650 37	$52,211 23	$45,225 00	$9,285 86
Balance, beginning of fiscal year, Dec. 1, 1907,	–	5,719 94	–	–
Balance on hand Nov. 30, 1908,	5,280 80	–	–	–
	$57,931 17	$57,931 17	–	–

Agricultural Division.

Disbursements and Receipts for Fiscal Year ending Nov. 30, 1908.

	Disbursements.	Receipts.
Academic.		
Maintenance,	$266 06	$0 16
Equipment,	11 80	–
Student labor,	118 29	–
Miscellaneous,	16 21	46 72
Winter school,	3,167 99	1,866 60
Totals,	$3,580 35	$1,913 48
Farm.		
Labor,	$9,010 76	$2,624 17
Dairy barn,	2,974 12	6,449 61
Field crops,	1,305 22	2,726 24
Horses,	1,396 19	606 09
Swine,	150 45	424 01
Tools and implements,	182 68	1 50
Office,	165 91	1 47
Sundry,	377 02	155 00
Student labor,	1,200 00	–
Fire,	2,469 64	122 50
Totals,	$19,231 99	$13,110 59
Division totals,	22,812 34	15,024 07

Agricultural Division — *Concluded.*

Summary.

	Dr.	Cr.
By total division receipts,	–	$15,024 07
By bills receivable,	–	1,513 25
By fire account expenses,	–	2,347 14
By apportionment,	–	6,376 00
To total disbursements,	$22,812 44	–
To bills payable,	53 15	–
To balance unexpended,	2,394 87[1]	–
	$25,260 46	$25,260 46

Inventory of Quick Assets.

	Dec. 1, 1907.	Nov. 30, 1908.
Inventory of produce,	$6,851 50	$2,381 00
Inventory of cattle,	5,000 00	5,700 49
Inventory of swine,	901 00	206 41
Inventory of horses,	6,500 00	7,005 00
	$19,252 50	$15,292 90

[1] This balance includes $2,347.14 due on account of fire.

Horticultural Division.

Disbursements and Receipts for Fiscal Year ending Nov. 30, 1908.

	Disbursements.	Receipts.
Market gardening,	$3,668 47	$1,748 74
General horticulture,	3,366 97	1,002 36
Floriculture,	2,909 44	1,987 53
Pomology,	1,507 93	1,061 21
Landscape gardening,	127 04	163 30
Totals,	$11,579 85	$5,963 14

Summary.

	Dr.	Cr.
By total division receipts,	–	$5,963 14
By bills receivable,	–	1,048 60
By apportionment,	–	5,100 00
To total division disbursements,	$11,579 85	–
To total division bills payable,	114 09	–
To balance unexpended,	417 80	–
	$12,111 74	$12,111 74

Inventory of Quick Assets.

	Dec. 1, 1907.	Nov. 30, 1908.
Inventory of produce,	$295 00	$100 00

Inventory — Real Estate.

Land (Estimated Value).

College farm,	$37,000 00	
Pelham quarry,	500 00	
Bangs place,	2,350 00	
Clark place,	4,500 00	
		$44,350 00

College Buildings (Estimated Value).

Drill hall,	$5,150 00	
Powder house,	75 00	
Gun shed,	1,500 00	
Stone chapel,	30,225 00	
South dormitory,	35,500 00	
North dormitory,	25,400 00	
Chemical laboratory,	8,200 00	
Entomological laboratory,	5,000 00	
Veterinary laboratory and stable,	23,125 00	
Farmhouse,	2,050 00	
Horse barn,	5,020 00	
Barn and silo,	21,200 00	
Graves house and barn,	1,560 00	
Dining hall,	35,450 00	
Mathematical building,	5,600 00	
Wilder Hall,	37,300 00	
Tool house,	2,000 00	
Horticultural barn,	2,525 00	
Clark Hall,	67,400 00	
Durfee plant house and fixtures,	10,000 00	
Small plant house, with vegetable cellar and cold grapery,	4,700 00	
President's house,	6,700 00	
Dwelling houses purchased with farm,	5,100 00	
Power house,	12,000 00	
		$352,780 00

College Equipment (Estimated Value).

Botanical department,	$7,349 53	
Horticultural department,	16,665 46	
Farm,	20,599 95	
Chemical laboratory,	3,441 28	
Entomological laboratory,	2,064 48	
Zoölogical museum,	6,150 00	
Zoölogical laboratory,	3,300 00	
Veterinary laboratory,	7,181 74	
Physics and mathematics,	3,377 07	
Dairy school,	1,394 10	
Agricultural department,	2,948 44	
English department,	74 00	
Amount carried forward,	$74,546 05	

Amount brought forward,	$74,546 05	
President's office,	1,007 93	
Dean's office,	74 00	
Treasurer's office,	800 00	
Text-books,	125 00	
Library,	51,067 55	
Military department,	679 80	
Fire apparatus,	259 60	
Heating and lighting,	45,247 74	
Dining hall,	2,078 96	
Normal department,	122 84	
		$176,009 47

Experiment Station Buildings (Estimated Value).

Agricultural laboratory,	$9,000 00	
Chemical laboratory (plant and animal chemistry),	20,000 00	
Entomological laboratory,	1,700 00	
		$30,700 00

Experiment Station Equipment (Estimated Value).

Director's office,	$1,911 86	
Treasurer's office,	257 50	
Agricultural laboratory,	6,522 95	
Entomological laboratory,	19,150 56	
Botanical laboratory,	3,688 88	
Chemical laboratory,	17,422 49	
Horticultural laboratory,	253 16	
		$49,207 40

Inventory Summary.

Land,	$44,350 00	
College buildings,	352,780 00	
College equipment,	176,009 47	
Experiment station buildings,	30,700 00	
Experiment station equipment,	49,207 40	
Total,		$653,046 87

STUDENTS' TRUST FUNDS ACCOUNTS.

ACCOUNTS.	Disbursements for Year ending Nov. 30, 1908.	Receipts for Year ending Nov. 30, 1908.	Balance brought forward Dec. 1, 1907.	Balance on Hand Nov. 30, 1908.
Dining hall,	$31,441 87	$28,981 38	—$2,430 31	—$4,890 80
Keys,	23 25	29 00	28 50	34 25
Students' deposits,	2,814 51	2,630 61	639 50	455 60
Trophy room tax,	304 25	399 00	80 01	174 76
Text-books,	2,709 04	2,723 15	864 08	878 19
Athletic board,	1,536 50	3,233 53	–	1,697 03
	$38,829 42	$37,996 67	—$818 22	—$1,650 97
Balance on hand Dec. 1, 1907,	—818 22	–	–	–
Balance on hand Nov. 30, 1908,	–	—1,650 97	–	–
	$39,647 64	$39,647 64	–	–

Detailed Statement of Dining Hall.

	Liabilities.	Resources.
Dec. 1, 1907, inventory,	$1,428 81	–
Nov. 30, 1908, provisions purchased,	31,441 87	–
Nov. 30, 1908, outstanding bills,	1,642 28	–
Nov. 30, 1908, total collections,	–	$28,981 38
Nov. 30, 1908, total collections outstanding,	–	4,488 42
Nov. 30, 1908, inventory,	–	1,489 95
Balance,	446 79	–
	$34,959 75	$34,959 75

Endowment Fund.[1]

	Principal.	Income.
United States grant (5 per cent.),	$219,000 00	$7,300 00
Commonwealth grant (3½ per cent.),	142,000 00	3,313 32
		$10,613 32

[1] This fund is in the hands of the State Treasurer, and the Massachusetts Agricultural College receives two-thirds of the income from the same.

Beneficiary Funds.

Burnham Emergency Fund.

	Principal.	Income
Two Lake Shore & Michigan Southern Railroad gold notes, par value,	$2,000 00	$100 00
Two bonds American Telegraph and Telephone Company 4's, par value,	2,000 00	–
One bond United Fruit, par value,	1,000 00	–
	$5,000 00	$100 00
These bonds, American Telegraph and Telephone and United Fruit, cost $2,747.38, leaving for further investment,	. . .	252 62
		$352 62
Disbursements for prizes,	. . .	110 00
Cash on hand Dec. 1, 1908,	. . .	$242 62

Library Fund.

Five bonds Lake Shore & Michigan Southern Railroad 4's, par value,	$5,000 00	$200 00
Five bonds New York Central & Hudson River Railroad 4's, par value,	5,000 00	200 00
Two shares New York Central & Hudson River Railroad stock, par value,	200 00	10 50
Amherst Savings Bank,	167 77	6 68
	$10,367 77	$417 18
Transferred to library account,	. . .	417 18

Special Funds.

Endowed Labor Fund (the Gift of a Friend of the College).

		Principal.	Income.
Two bonds American Telegraph and Telephone Company 4's, par value,		$2,000 00	$80 00
One bond New York Central Railroad debenture 4's, par value,		1,000 00	40 00
Two bonds Lake Shore & Michigan Southern Railroad 4's, par value,		2,000 00	80 00
Amherst Savings Bank,		143 39	5 72
		$5,143 39	$205 72
Unexpended balance Dec. 1, 1907,			269 23
Cash on hand Dec. 1, 1908,			$474 95

Whiting Street Scholarship Fund.

One bond New York Central Railroad debenture 4's, par value,		$1,000 00	$40 00
Amherst Savings Bank,		271 64	10 84
Unexpended balance Dec. 1, 1907,		–	58 61
		$1,271 64	$109 45
Disbursements for scholarships,			71 00
Cash on hand Dec. 1, 1908,			$38 45

Hills Fund.

Northampton Institution for Savings,		$1,180 00	$91 01
One bond American Telegraph and Telephone Company 4's, par value,		1,000 00	40 00
Three American Telephone Co's. notes, par value,		3,000 00	150 00
One bond New York Central & Lake Shore R.R. 3½'s, par value,		1,000 00	35 00
One bond New York Central & Hudson River Railroad debentures 4's, par value,		1,000 00	40 00
One bond New York Central & Hudson River Railroad gold note, 5 per cent, par value,		1,000 00	50 00
One bond Metropolitan Street Railway, Kansas City, 5 per cent., par value,		1,000 00	25 00
Boston & Albany Railroad stocks, par value,		362 00	31 68
Amherst Savings Bank,		72 75	2 88
Unexpended balance Dec. 1, 1907,		–	1,187 71
		$9,614 75	$1,653 28
Disbursements by horticultural and botanical departments,	$385 71		
Disbursements by purchase of one $1,000 bond of the Metropolitan Street Railway Company, 5 per cent.,	991 67		
			1,377 38
Cash on hand Dec. 1, 1908,			$275 90

Mary Robinson Fund.

Northampton Institution for Savings,		$820 00	$63 24
Boston & Albany Railroad stock, par value,		38 00	3 32
Unexpended balance Dec. 1, 1907,		–	32 75
		$858 00	$99 31
Disbursements for scholarships,			72 00
Cash on hand Dec. 1, 1908,			27 31

SPECIAL FUNDS — *Concluded.*

Grinnell Prize Fund.

	Principal.	Income.
Ten shares New York Central & Hudson River Railroad stock, par value,	$1,000 00	$52 50
Unexpended balance Dec. 1, 1907,	–	128 74
	$1,000 00	$181 24
Disbursements for prizes,		60 00
Cash on hand Dec. 1, 1908,		$121 24

Gassett Scholarship Fund.

One bond New York Central debentures 4's, par value,	$1,000 00	$40 00
Amherst Savings Bank,	11 64	44
Unexpended balance Dec. 1, 1907,	–	40 55
	$1,011 64	80 99
Disbursements for scholarships,		23 50
Cash on hand Dec. 1, 1908,		57 49

Massachusetts Agricultural College (Investment).

One share New York Central & Hudson River Railroad stock, par value,	$100 00	$5 25
Unexpended balance Dec. 1, 1907,		27 75
Cash on hand Dec. 1, 1908,		$33 00

Summary of Balances on Hand of the Income from Funds held in Trust by Massachusetts Agricultural College.

Burnham emergency,	$242 62	
Endowed labor fund,	474 95	
Whiting Street scholarship,	38 45	
Hills fund,	275 90	
Mary Robinson fund,	27 31	
Gassett scholarship,	57 49	
Grinnell prize,	121 24	
Massachusetts Agricultural College investment,	33 00	
Cash on hand Dec. 1, 1908,		$1,270 96

I hereby certify that I have this day examined the Massachusetts Agricultural College account, as reported by the treasurer, Fred C. Kenney, for the year ending Nov. 30, 1908. All bonds and investments are as represented in the treasurer's report. All disbursements are properly vouched for, and all cash balances are found to be correct.

CHARLES A. GLEASON,
Auditor.

AMHERST, Dec. 30, 1908.

THE M. A. C. BULLETIN

AMHERST, MASS.

Vol. II. No. 1. For January, 1910.

Published Six Times a Year by the College.
Jan., Feb., Mar., May, Sept., Oct.

ENTERED AS SECOND-CLASS MAIL MATTER AT THE POST OFFICE, AMHERST, MASS.

Public Document No. 31

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FORTY-SEVENTH ANNUAL REPORT

OF THE

MASSACHUSETTS AGRICULTURAL COLLEGE.

PART I.

REPORT OF THE PRESIDENT AND OTHER OFFICERS

FOR FISCAL YEAR ENDED NOV. 30, 1909.

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WRIGHT & POTTER PRINTING CO., STATE PRINTERS,
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Approved by

The State Board of Publication.

The Commonwealth of Massachusetts.

Massachusetts Agricultural College,
Amherst, Dec. 1, 1909.

To His Excellency Eben S. Draper.

Sir: — I have the honor to transmit herewith, to Your Excellency and the Honorable Council, Part I. of the forty-seventh annual report of the trustees of the Massachusetts Agricultural College, for the fiscal year ended Nov. 30, 1909, this being the report of the president and other officers to the corporation of the college.

I am, very respectfully, your obedient servant,

KENYON L. BUTTERFIELD,
President.

REPORT OF THE PRESIDENT OF THE COLLEGE.

Gentlemen of the Corporation.

I herewith submit my fourth annual report as president of the college.

Attendance.

The attendance of students of college rank for the last college year exceeded that of the previous year by 29, and aggregated 268 four-years men and 14 graduate students. There were 232 in various short courses, or a total attendance of 514. The entering class the present autumn numbered 131, the largest previous freshman class being 116, a year ago, and the largest one previous to that 88. The total number of four-years men in present attendance is 316, of unclassified 12, and of graduate students 19. (See Table I.)

There are some rather interesting facts connected with the census of the present freshman class. Eighty-five per cent. of them come from Massachusetts, with 7 other States and 1 foreign country, China, represented. The 111 men from Massachusetts come from 69 towns and cities, and from every county except Dukes and Nantucket. Only 10 per cent. of the freshman class come from Hampshire County, in which the college is located; 3 counties equal or exceed Hampshire in number of men, namely, Middlesex, Worcester and Suffolk.

One-fourth of the class are undecided as to their intended vocation, but 70 per cent. of the whole class, or 94 per cent. of those having made a decision, stated that they intended to follow either technical or professional agriculture or horticulture.

Table IV., which develops these facts, also shows that only a little over one-fifth of the fathers of members of the freshman class are engaged in agriculture or horticulture. A slightly larger number are artisans, and a slightly smaller number are business men.

Appropriations.

The total amount of special appropriations asked of the last Legislature, including $30,000 for reimbursement for loss of barn by fire, was $201,105. Of this amount the Legislature granted $158,500. We also asked for an increase in the annual current appropriation of $42,500; the amount granted was $22,000. (See Table II.)

New Buildings.

The new buildings and important improvements granted by the last Legislature are much-needed additions to our facilities. The building for entomology and zoölogy will be, when completed, the largest and finest laboratory on the campus, and indeed in its equipment and accommodations for the particular subject of entomology is probably not surpassed in the country.

The addition to the heating plant is a long step ahead in the development of a more complete heating system for the rapidly growing college plant.

In reconstructing the barns the trustees very wisely decided to build several buildings, instead of one, for housing the stock and implements.

Brief descriptions of all these improvements are appended.

Entomology and Zoölogy. — The new building for the departments of entomology and zoölogy has a frontage of 126 feet and a depth of 100 feet, and consists of a basement, two stories and an attic. In the basement are rooms to be used as geological and mineralogical laboratories, insecticide analysis, a rock museum, a pump room, and the lower portion of the amphitheatre. On the first floor are situated the zoölogical laboratory, the zoölogical museum, rooms for the department of entomology of the experiment station, the upper portion of the amphitheatre, several supply rooms and offices. On the second floor are the entomological laboratories, the insect collection, library, a small lecture room for advanced classes, the gallery of the zoölogical museum, the advanced zoölogy laboratory and several supply rooms and offices. In the attic are rooms for photography and janitor's quarters. Connected with the experiment station portion of the building is the greenhouse already erected.

The plans for the building, which is nearly fireproof, were prepared by C. P. Hoyt of Boston, and the constructors are the Allen Brothers of Amherst.

The New Barns. — (1) The upper storage barn is smaller than the old one, and forms a connecting link between the cow stable and the two silos, 72 feet to the north of it; these structures were built in 1907 of cement blocks. The new barn is of the same outside finish, but the walls are constructed of hollow terra-cotta blocks, — a drier, lighter and less expensive construction, that our architect believes will prove equally as good. The building is 98 by 50 feet, and furnishes sufficient storage for hay, grain, and bedding to supply the 66-cow stable adjoining.

(2) About 200 feet to the west is a complete barn for young stock and bulls. It consists of a rectangular storage barn with stables in one-story wings on the south. The storage is 87 by 37 feet; it has a gambrel roof, a truss frame, and no interior posts. The stables furnish stanchions for 18 head of cattle and 5 good-sized box stalls, also 4 box stalls with separate yards for bulls. The building is of wood, with slate roof and shingle siding. The cost of maintenance should be low.

(3) A building to house farm tools and implements is in course of construction. It is 100 by 40 feet, and is being built on an old foundation, which allows easy access on each of the two floors. It will have a slate roof and terra-cotta block walls, with pebble-dash finish on the outside.

The architect of all these structures is Mr. James H. Ritchie of Boston. Allen Brothers of Amherst erected the barn for young stock and the tool barn; George E. Bosworth of Amherst the upper storage barn.

Extension of Heating Plant. — The repairs this summer have required the presence of a large gang of workmen on the grounds during the summer vacation. The most important work has been the extension of the heating system. The old line to the chemical laboratory, 300 feet, was taken up and a new 8-inch main put in its place; from this point a new 7-inch main was run across to the east side of the campus, 1,425 feet to the manhole in front of Wilder Hall. Here the line was reduced to 6 inches and carried to Wilder Hall, connecting with the 5-inch main that supplies French Hall and the glass house range. The

2-inch line connecting with the old botanical laboratory was taken up and a 4½-inch main put in. This was done for the purpose of extending a 3½-inch main to the old Durfee plant and vegetable packing houses, 485 feet distant. From the manhole in front of Wilder Hall the old 4-inch main to Clark Hall was taken up and a new 6-inch main put in. At this point the 6-inch main was extended 350 feet southerly to a manhole, thence easterly to the new entomological laboratory, a distance of about 350 feet. In all 2,560 feet of new and 1,455 feet of replacing pipe line have been put in.

Other Improvements. — A new 100-kilowatt dynamo and Curtess turbine engine of the General Electric make have been installed, also a contract has been entered into with the Terry Turbine Company to furnish a turbine and a 50-kilowatt Westinghouse dynamo. This will take care of our present and future needs for some time. At the drill hall, which is our only place for gymnasium work, a new bath house has been built and furnished with five Speakman shower baths. The ceiling in the drill hall has been brought down on to the cross beams, thus making the room much easier to heat. The roofs of station and horticultural barns have been slated, and the foundation of the horse barn has been raised.

Commencement.

Commencement was held June 23, and the college conferred the degree of Bachelor of Science on 50 men, and the degree of Doctor of Philosophy on 1.

The commencement address was given by Hon. Gifford Pinchot, United States Forester, and was one of the most inspiring and helpful addresses which has ever been delivered from the college platform.

The attendance at the alumni dinner was 177, a number which has been exceeded only once, I am told, in the history of the Associate Alumni.

Summer School.

The summer school registration for 1909 was 176. The same general lines of work followed for the two previous years were developed the past summer. The attendance showed a rather

larger proportion of men among the teachers, and also a rather notable increase in the number of high school teachers of science.

Under Professor Hart's direction, a very satisfactory and fairly well attended Conference on Agricultural Education was held at the close of July.

The summer school for country clergymen, which drew an attendance of about 12 clergymen in 1908, registered this year 39 clergymen, and quite a number of teachers also stayed over for at least half of the time allotted to the clergymen, and took more or less of the work. This particular feature of the summer school has attracted considerable attention in this and other States, and I believe is going to prove a very important plan in forwarding the country life of the Commonwealth. It goes without saying that this college offers to these clergymen no work which in any way can be construed as sectarian, but merely presents, for the benefit of country clergymen of all denominations and faiths, some of the technical, economic and social problems of our country life.

The Graduate School.

The number registered in the graduate school for the last college year was 14; this number has been increased to 19 for this autumn. This increase in number represents a natural growth due probably to the enlarged facilities already offered through the definite organization of a graduate school. The larger part of these students are graduates of our own college. While it is desirable to encourage our best men to take graduate study here, it is also of great importance to attract graduates of other institutions to pursue those lines of graduate study at this institution for which we have special facilities.

The faculty of the graduate school are also considering the advisability of some professional courses along agricultural and horticultural lines.

I think it is very important that the graduate school should be given larger recognition by the legislature. The demand for men thoroughly trained in scientific and technical lines is far beyond the supply, and we ought to strengthen this phase of our work in every way possible.

Unclassified Students.

The trustees committee on the course of study and faculty have approved a plan adopted by the college faculty to admit as unclassified students persons not desiring to take the required four-years course. This is somewhat of a departure from the traditional practice of the college. Its purpose is to afford larger opportunities for an increasing number of people who have not the time for a full course, or who desire to specialize in some narrow line of technical agriculture or horticulture.

The rules governing the admission of such students are quite strict. Candidates must be at least twenty-one years of age; they must have had a high school course or its equivalent; they must take a certain minimum of work; they are under the direction of a special committee of the faculty; they are not allowed to stay more than two years, without special permission; they must show themselves thoroughly faithful students.

This autumn, 12 persons have taken advantage of this new arrangement.

Changes in Requirements for Admission.

The new requirements for admission, adopted by the faculty and approved by the trustees committee on the course of study and faculty, go into full effect in the autumn of 1910. In brief, they raise the standard of admission to the college from approximately eleven and one-half Carnegie units to fourteen Carnegie units (a " Carnegie unit " being the pursuit of a given study for five periods a week for forty school weeks). This definition and this standard of fourteen units have been laid down by the officers of the Carnegie Foundation for the Advancement of Teaching. Thus the college now comes, for the first time in its history, strictly to a college and university basis of admission. The entrance requirements are also notable in giving entrance credit for a large number of subjects, as well as requiring certain specified subjects, such as English, mathematics and a modern language.

It will be of interest to the trustees to know that before the faculty finally adopted these requirements an outline of them was sent to all the high school principals of the State, with the

request that they make criticisms of the plan. As a result of this canvass some changes were made, and it is believed that the new requirements not only place the college on a high plane of scholarship, but that they do not get us away from our natural constituency. Even the smaller high schools of Massachusetts can, we believe, meet these requirements.

New Courses.

In the catalogue issued for the year 1908-09, some 50 courses were added to the list already offered. Most of these were elective courses. Nine of them were added to the division of agriculture; 6 to the division of horticulture; 22 to the division of the humanities; 6 to the department of physical education; 4 to the department of rural social science; 2 to the department of general and agricultural chemistry.

These additions are in accordance with well-defined principles for the development of the institution; namely, the differentiation of subjects and the addition of new courses as rapidly as practicable, in order to cover the whole field of agricultural education, at the same time offering fair opportunities for work in the humanities.

Changes in Faculty and other Officers.

In July Dr. Robert D. MacLaurin, lecturer in organic chemistry and research chemist of the experiment station, resigned both positions. Dr. MacLaurin had been connected with the institution two years, and had shown himself a brilliant chemist and a superior instructor.

Prof. George N. Holcomb, assistant professor of political science, resigned this position, but is retained as lecturer in history. Professor Holcomb possesses a wide range of knowledge of social subjects, and is peculiarly fitted to deal with such courses in the interpretation of history and the development of human thought as it is hoped he may continue to give as lecturer.

The work in political science is cared for by the appointment of Elmer K. Eyerly as assistant professor of political science. Professor Eyerly graduated with an A.B. degree from Franklin

and Marshall College in 1888, and took the A.M. degree from the same institution in 1893. For one year after graduating from college he was a student in Yale Divinity School. He then became professor of political economy in Redfield College, South Dakota, and continued in this position until 1893, spending the year 1891-92 abroad, partly in study at the University of Berlin. From 1893 to 1899 Professor Eyerly was professor of English literature in Yankton College, South Dakota, resigning to take a similar position in the South Dakota Agricultural College. This position he retained until 1907, when he entered the University of Chicago for graduate work in economics and sociology, preparatory to specializing in rural sociology. It is hoped that Professor Eyerly may have special opportunities in this institution to develop the latter subject.

During the year the title of Prof. Edward A. White was changed from that of assistant professor of floriculture to that of professor of floriculture.

Prof. Philip B. Hasbrouck is spending the year on leave of absence, and his work in physics is being taken by Prof. Joseph O. Thompson of Amherst College, and his work in mathematics by Capt. George C. Martin of this college.

Mr. Frank M. Gracey, for two years assistant in landscape gardening, resigned to accept a position in the Massachusetts Institute of Technology, and the vacancy was filled by Mr. John Noyes, a graduate of the class of 1909, who had specialized in the department of landscape gardening.

It seemed desirable to secure another teacher of professorial rank in the department of general and agricultural chemistry. In order to make this possible, it was necessary for the present to abandon the three assistantships in that department. One was already vacant, and Mr. Leon I. Shaw and Mr. Ernest C. Fowler, both of whom had very satisfactorily filled the requirements of their positions, resigned.

Mr. Philip V. Goldsmith resigned his position as assistant chemist in the experiment station, to accept a lucrative position. His place was taken by Mr. J. F. Merrill, a graduate of the University of Maine, in the class of 1907.

Mr. Carl D. Kennedy, a graduate of the New Hampshire

College in the class of 1909, has also been employed as assistant chemist in the experiment station.

In the summer, Miss Edith C. Hubley resigned her position as clerk in the division of horticulture, and since September, Miss Helen Granger, an unclassified student in the college, has been giving a portion of her time to that work.

Officers for new Positions in the Institution.

In addition to the changes in existing positions, a number of new positions have been created during the year, and have been filled as follows: —

Wm. D. Hurd was appointed director of short courses, and took up his work with us September 1. Professor Hurd received the degree of Bachelor of Science from the Michigan Agricultural College in 1899, and the degree of Master of Agriculture from his Alma Mater in 1909. For three years after graduation from college he taught in the Lansing schools; for one year he served as professor of horticulture in the School of Practical Agriculture and Horticulture at Briarcliff Manor, N. Y. When that school disbanded, he became for a time supervisor of extension work at the Rhode Island State College. In the autumn of 1903 he was made professor of agriculture in the University of Maine, and was advanced to the deanship of agriculture in that university in 1906. He succeeded in building up in a comparatively short space of time a splendid work in the College of Agriculture, adding many new courses, organizing a number of departments under energetic men, and in every way strengthening the work. He was also very successful in reaching the farmers of the State, through various forms of extension work. He is already somewhat familiar with Massachusetts conditions, and in the summer school of 1908 was one of the prominent lecturers. He thus brings to his work wide experience as a farm boy, a graduate of an agricultural college, a worker in agricultural education both east and west, splendid organizing and administrative ability, untiring energy, and a vision of the possibilities of helpful work for the rank and file of the toilers of the farm.

The new position in the department of general and agricul-

tural chemistry, already referred to, was filled by the appointment of Dr. Joseph S. Chamberlain as associate professor of chemistry. Professor Chamberlain graduated with the degree of Bachelor of Science at the Iowa State College of Agriculture in 1890, received the degree of Master of Science from the same institution in 1892, and the degree of Doctor of Philosophy from Johns-Hopkins University in 1899. During the past year he has been a student of chemistry in the University of Berlin. His services were rendered first as laboratory assistant in chemistry in the Iowa State College, for two years following his graduation; as instructor in chemistry in the same institution for three years; as instructor in chemistry in Oberlin College for two years; after graduate work at Johns-Hopkins, as private research assistant to Professor Remsen in Johns-Hopkins University; and for eight years as assistant chemist and chief of the Cattle Food Laboratory of the Bureau of Chemistry of the United States Department of Agriculture. Thus Dr. Chamberlain has had wide and varied experience as a teacher and experimenter, thorough training in the essentials of his subject, and ample experience in the application of chemistry to agricultural problems.

The new position of instructor in English and public speaking was filled by the appointment of Mr. Fred B. McKay, a graduate from the Michigan Normal School in 1904. He received the degree of Bachelor of Arts from the University of Michigan in 1909. He has had experience as teacher in the rural schools of Michigan, as principal of a high school in an agricultural community, and as superintendent of schools in a small city. During his university course he was assistant in reading and oratory of the Michigan Normal College, and had special training both in literature and oratory. His appointment gives us a chance to give thorough training in a much needed direction.

The new work in cranberry investigation, under the auspices of the experiment station, is to be developed by Dr. H. J. Franklin, who graduated from this college in 1903 with the degree of Bachelor of Science, and who for five years thereafter pursued graduate work in our own department of graduate study, receiving in 1908 the degree of Doctor of Philosophy. While fol-

lowing this graduate work Dr. Franklin had large experience in insect investigations in the cranberry districts of Massachusetts. During the year 1908-09 he was Assistant State Entomologist in Minnesota. The cranberry growers are themselves assisting in promoting this most important work, and we are assured, through Dr. Franklin's thorough knowledge of the situation and his untiring patience as an investigator, that substantial results will come out of his work.

Mr. John N. Summers, who has been since his graduation from this college in 1907 a graduate student in entomology and assistant entomologist in the experiment station, was made teaching assistant in the college department of entomology.

Mr. Charles H. White, a graduate of the college in the class of 1909, was appointed field agent. His work during the past autumn has been to get in touch with a number of the high schools of the State. After the holidays he will assist Professor Hurd in the short course work.

The new position of purchasing agent, who has charge of all the buying of supplies, both for the dining hall and for certain college purposes, under the direction of the treasurer, was filled by the appointment of Mr. Burke Hough. Mr. Hough graduated several years ago from the Connecticut Agricultural College, and has had considerable business experience.

Mr. J. Robert Parker, a graduate of the college in 1908, and for one year teacher in agriculture and science in the Montague High School, was appointed graduate assistant in the department of entomology.

Miss Ola H. Perrin was appointed clerk to the director of short courses.

Miss Ruth G. Smith was appointed clerk to the dean and the registrar.

Mr. James Whiting, foreman for several years at the Waban Conservatories, Natick, and a superior rose grower, was appointed last July foreman in the department of floriculture.

Athletic Field.

The Legislature granted $5,500 for the purchase of land, although our request was for $15,000, and this request was accompanied by a statement that it would take at least $25,000 to

purchase all the land really necessary for college uses. This action of the Legislature was a severe blow to carefully prepared plans for the development of an adequate athletic field and recreation grounds. Options had been secured on a number of parcels of ground, most of which were to expire in the summer. It was feared that if these options were allowed to expire it would be impossible to renew them, and the land would pass into other hands, thus destroying all hopes of developing an adequate field near the college grounds.

At this juncture a number of the trustees volunteered to purchase the so-called Kellogg farm, and to hold it in trust for the college until funds can be obtained for its purchase by the institution. With the legislative grant, other parcels of land necessary for the development of the plan were brought into possession of the college.

There are still several areas of land needed in order to develop the plan. Some of these parcels are held by fraternities, which are considered as " friendly interests." We need, therefore, from the Legislature an appropriation sufficient to take the Kellogg farm off the hands of the trustees, to purchase the Louisa Baker land, to make exchanges of land with the fraternities, and for some incidental expenses connected with placing the field at the disposal of the alumni. At an informal meeting of the members of the trustees committee on buildings and grounds with representatives of the different fraternities owning land, the following resolutions were passed: —

1. That the athletic field should be located on land lying to the south of the present college property, and on or near Lincoln Avenue.

2. That, if the college assigns land permanently for the purposes of an athletic field, the alumni should endeavor to provide for the fitting of the field for athletic purposes.

3. That, under some general proposition to be made in the future by the college, the various fraternity corporations now owning land in the vicinity of the college estate should endeavor to comply with the wishes of the college with respect to location of future fraternity houses, and the exchange of property with the college on the basis of a fair appraisal of values.

These resolutions indicate the general policy which we hope to follow; namely, that of securing land in one body just south

of the present college grounds, which will be sufficient not only for an enclosed athletic field, but also for adequate recreation grounds for all of our students.

It is expected also that the alumni will furnish funds for fitting up these fields for the purposes desired.

Development of the College Campus.

During the year fresh details concerning the plan for the location of probable future buildings and the general development of the college campus, the main outlines of which have already been accepted by the trustees, were made public through an interesting presentation by Mr. Warren H. Manning, before an audience of college people and friends of the college.

In order to develop the grounds properly under this comprehensive plan of Mr. Manning's, we should have a sum of money coming to us regularly each year for the purpose of building and rebuilding roads, constructing walks and drives, making new plantings, mowing the lawns, and in general maintaining and developing the area of some 70 acres which are naturally included within the campus proper. This work should be under the general supervision of the department of landscape gardening, with a person in charge as superintendent of grounds.

New Buildings needed.

For Animal Husbandry. — Last year the Legislature struck out of our appropriation bill the item of $8,000 for a stock-judging pavilion; but it is important that we ask the Legislature once more for this building. At the present we have no facilities whatever for carrying on this very practical branch of construction. All of the larger agricultural colleges have such a building, and emphasize this type of work. The plan has been endorsed by the Connecticut Valley Live Stock Breeders' Association, and appeals to all practical men. The objection may be raised that this is not a live stock State. As to that, the college can assist in arousing interest in the live stock industry far more fully if it has practical facilities of this type to work with. Furthermore, the dairy industry is a very important branch of agriculture in Massachusetts, and the judging of dairy cattle

is an essential phase of teaching the subject of dairying. It is to be noted, also, that this stock-judging pavilion, or barn, has other uses than purely for stock judging. Our present plan provides two large class rooms which are very much needed for our short courses and for some of the larger classes in agriculture. Demonstrations along other lines than stock judging may also be given in this building. Exhibits may be placed here in farmers' week, and, in fact, the building could be used for gatherings of farmers to great advantage. It is not an expensive building, and it will be very useful.

Dairy Building. — Milk dairying must necessarily become one of the leading lines of instruction and experiment at this college. Even with our present very meager facilities, consisting of a small dairy room in the basement of south dormitory, and the milk room at the dairy barn which necessarily can be used but very little except for instruction purposes, the interest in dairy work is rapidly growing. This winter we were obliged to limit the number of men in the short course who could take dairying, and about 30 of the regular four-years students have elected the subject.

Plans have therefore been prepared for a dairy building entirely for instruction purposes, very complete and modern in its equipment, and so arranged that its capacity can be increased 50 per cent. with comparative ease.

Poultry Buildings. — Last year we asked the Legislature for the sum of $3,000 for the erection of a small poultry plant for instruction purposes. Although this appropriation was strongly supported by the practical poultry men of the State, the item was cut out of our legislative budget. It seems a little invidious that a prominent agricultural college, after forty years of work, situated in a State where poultry keeping is an important and growing industry, should have practically no facilities for instruction in this branch.

For Practical Pomology. — For two successive winters we have asked the Legislature for a small sum in order to construct a fruit storage building. This building is of increasing importance both to pomology and to the department of market gardening. The number of men electing these subjects is constantly increasing, and the present storage facilities are grossly

inadequate for practical purposes, to say nothing of the very important place occupied by practical work in teaching these subjects. It should be noted that this building is not primarily for storage, but for instruction.

Additions to Draper Hall. — I understand that the original plan for Draper Hall called for an expenditure of about $52,000, which was afterwards cut to about $37,000, and out of which the present Draper Hall was built, having a capacity in the dining room of about 325. The original plans would have given a capacity of about 500. There is now room in the dining hall for not over two or three more tables, and, in fact, more than one more table will crowd the room rather seriously. When the short course students arrive, they will all have to be served at a second table. The probabilities are that next autumn there will be 375 to 400 candidates for seats in the dining hall, and if the present rate of growth of the college is maintained, in the autumn of 1911 there will be not less than 450 candidates for permanent seats.

Plans have therefore been prepared which call for an appropriation of approximately $20,000 to make additions to the kitchen, serving room and dining room of Draper Hall, thus giving seating room for 150 more persons. It is very important that this appropriation be granted this year, because this addition can hardly be completed before Jan. 1, 1911.

Reconstruction of West Experiment Station. — For some time the department of chemistry of the experiment station has felt the pressure of inadequate room. The control work performed by the experiment station is also housed in the same building, and is a work which is also increasing in amount.

After considering very carefully the various plans for enlarging the room that may be placed at the disposal of both of these lines of work, it seemed best to the committee on buildings and grounds to secure plans for the enlargement of the present building, by adding one story to the rear portion, and by changing the plan of the lower floor of the same.

Dwellings for Officers of the Institution. — The houses now occupied by Professors Waugh and Hasbrouck on the college campus are entirely unfit for occupancy by members of the faculty, and they should be vacated and removed; they are both

old buildings, beyond repair. It is due these and other college officers, who feel that it is wise for them to live upon or near the grounds, either that the college build residences to be rented to them, or lease land at a nominal sum on which they can build their own residences. I consider it important that a general policy with respect to this question of faculty houses shall be adopted by the trustees in the immediate future.

Dormitories. — I have no recommendations at present as to the general policy of the college with respect to dormitories, but Mr. Warren H. Manning has presented to us tentative plans for an inexpensive dormitory of the bungalow type, which it seems can be built at an exceedingly low cost, and still be substantial, convenient and pleasant. I am inclined to think that the plan is worth trying, inasmuch as the initial investment is comparatively small.

A Sewerage System. — Mr. Manning, in connection with the general plan for the development of the grounds, has outlined a general sewerage system. The most important factor in developing this system, however, is the question of sewage disposal.

The committee on buildings and grounds has begun negotiations with the State Board of Health and with experts, and also with the selectmen of the town of Amherst, in regard to a comprehensive system of sewage disposal, co-operating also with the town with reference to the sewage disposal of that part of the town lying next the college grounds.

Agricultural Building. — Acting under the instructions of your Board, Professor Foord is now at work on plans for a large and modern building for agriculture. The time has arrived when we can no longer justify the woefully meager facilities of class-room, office and laboratory now vouchsafed the rapidly growing division of agriculture. It is hoped that these plans will be ready for your consideration within the coming year, and I trust they may be presented to the Legislature of 1911. We certainly need for this division a most generous provision; the work ought to be housed in one of the most complete and dignified buildings on the campus.

Library Building. — Tentative plans are also under way for a building adequately to house the library. Our present library

is not fireproof. The stack room will soon be completely exhausted. The seating facilities for accommodating students and faculty are already taxed far beyond their capacity. We ought to have in the very near future a thoroughly modern library building, planned on a scale sufficiently generous to afford ample accommodations for a growing library for many years to come.

Without question, this library should be in the form of a memorial to the late President Henry H. Goodell, whose energy and toil were so largely expended in the building up of this splendid collection of books.

Normal Department.

After two years of work, the time seems to have come for the enlargement of the normal department of the institution, or, as it is known in college circles, the department of agricultural education. The movement for introducing agriculture into the public schools is constantly gaining ground. The schools look to us for guidance, and to some degree for supervision. During the past year and a half we have been definitely co-operating with the State Normal School at North Adams, in furnishing instruction in agriculture to the normal school students and for some degree of supervision in the introduction of agriculture into the schools of northern Berkshire County.

The trustees have also authorized a thorough study to be made by this department of a system of agricultural education in the public schools of the Commonwealth. These new lines of work mean increasing responsibilities and assistance, and it is important that the present appropriation of $5,000 a year for this department shall be considerably enlarged.

Increased Appropriations for Instruction Purposes.

During the past three years quite a number of new positions have been created, both in the station and in the college work. But a mere list of the positions which ought to be developed in the near future forms sufficient argument for a considerably increased annual appropriation for instruction purposes.

A teacher is needed to develop good instruction in poultry keeping, and to give this branch of work its rightful place.

We have no facilities whatever for teaching farm mechanics, nor any place whatever for teaching agricultural engineering; and yet this whole field, utterly neglected by us, is rapidly becoming one of the most important phases of agricultural instruction.

Last year we asked the Legislature for funds for taking on an instructor in poultry keeping and an instructor in farm mechanics. Certainly it is to be hoped that the next Legislature will meet these requests.

At present one instructor is teaching all the courses in government and economics. At least two men are needed to develop these lines of work in a proper manner.

The subject of plant breeding is one that is attracting attention in all our agricultural colleges, and we must soon provide a man who can give all his time to the problems to be considered under this subject.

The importance of courses in literature and philosophy will soon bring us to the development of these lines of work much more completely than at present.

The subject of horticultural manufacture will soon call for a man.

The head of the department of farm administration will soon call for an assistant.

We are already in immediate need of another man in animal husbandry.

A department of bacteriology should be developed.

In order to properly place the college before the people of the State, we ought to be able to employ one man who shall give all his time to publicity work.

The increase in the student body calls for several new instructors at once, in order that our instruction, particularly to freshmen and sophomores in the required subjects, may be kept on a high grade, by allowing us to form small sections.

Permanent Appropriation for Repairs.

The sums asked from the Legislature for the past three winters under the item of repairs and minor improvements have ranged from $8,000 to $20,000. Our present method is to assemble the requests for these purposes from all the depart-

ments of the college, to reduce the sums asked for to the lowest possible terms, and to ask the Legislature for sufficient money to cover these items. Each year the Legislature has chosen to make a further cut in the amount of money. Thus it happens that we are not enabled to make repairs that department heads think necessary; and, furthermore, we are obliged to go to the Legislature with a long list of minor items which it seems to me ought to be left to the judgment of the trustees.

I think, therefore, that an appropriation of $15,000 a year for repairs, and for minor improvements that do not call for a contract above $2,000, should be requested of the Legislature. Our present inventory of college and station buildings will approximate, when the new building for entomology is completed, $500,000. Three per cent. a year would not seem to be an excessive amount for these two items of repairs and minor improvements. If we allow 2 per cent. for repairs, or $10,000, and $5,000 for minor improvements we shall barely meet the needs of the institution, assuming that new buildings are to be occasionally added to the college inventory.

Permanent Appropriation for Maintenance and Equipment.

Much the same arguments will apply to a request for an annual appropriation which may be used for the up-keep of live stock, implements, books and teaching apparatus. All of these things are necessary in our instruction. The college inventory of this equipment is $175,000, and will soon be $200,000. Five per cent. a year for replacing and for keeping equipment thoroughly "up to date" would not seem to be excessive. This would mean $10,000 a year. Personally, I think that 10 per cent. a year is none too much for these purposes. When a new building is constructed, it always calls for new equipment, and this should be made in every case a special legislative item in connection with the building project.

Short Courses.

The time is ripe for organizing both our winter school work and our summer school on a more permanent and larger plan. The demands for correspondence courses, for lectures and for advice and assistance are increasing by leaps and bounds. The New England fruit show of last October is the direct cause for a flood of inquiries coming into our department of pomology. The appointment by the Boston Chamber of Commerce of a permanent committee on agriculture has stimulated many lines of agricultural propaganda which we must share. It is important that we shall follow up the fruit show with a comprehensive campaign for apple growing. Other similar lines of endeavor must be developed in the near future. The State Board of Agriculture, the steam railroads, the trolley lines, the granges, and other agencies, organizations and individuals are more than ever before calling upon us for assistance. We must organize this work in a comprehensive way.

Changes in the Board of Trustees.

During the year there have been three important changes in our Board of Trustees, one by change of office and two by death.

President Carroll D. Wright, for a little over three years a member of this Board, died at his home in Worcester last February. Although Colonel Wright had had but a short term of service with us, he had endeared himself to every member of the Board, had again and again proved his interest in the college, had shown his grasp of its problems and had lent it his splendid influence.

In July Mr. J. H. Demond passed away, at the ripe age of eighty-four. He had been a member of the Board for twenty-eight years, and when he was in his prime was a vigorous and influential member of the Board. He had served on some of the most important committees. He retained his interest in the college until the very last.

Mr. George H. Martin, formerly Secretary of the State Board of Education, was *ex-officio* a member of this Board. Owing to changes in the Board of Education, his place on our Board was

taken by another. It is a delight to record the fact that Secretary Martin had shown an unusual interest in the college and its work. We could count on him for sympathy and advice, and we owe much to him for exalting our work and purposes among the school men of Massachusetts.

We rejoice that strong and able men have come to us to take the places of those who have gone. In Dr. Davis R. Dewey, Hon. Charles E. Ward and Dr. David Snedden we are to have new support and fresh suggestions.

Respectfully submitted,

KENYON L. BUTTERFIELD.

Amherst, Mass., Nov. 30, 1909.

STATISTICS OF THE COLLEGE.

TABLE I. — *Attendance.*

	For Year ending June 30, 1909.	For Year ending Nov. 30, 1909.
Graduate students,	14	19
Senior class,	50	45
Junior class,	47	50
Sophomore class,	54	90
Freshman class,	116	131
Unclassified students,	1	12
	282	347
Short courses : —		
Winter course, 1909,	66	66
Summer school,	166 [1]	176 [2]
	232	242
Total,	514	589

[1] Summer of 1908. [2] Summer of 1909.

TABLE II. — *Legislative Budget, 1909.*

ITEMS.	Asked.	Granted.
1. Reimbursement for loss of barn by fire,	$30,000 00	$30,000 00
2. Special appropriations : —		
New equipment,	13,605 00	10,000 00
Repairs and minor improvements,	40,000 00	33,000 00
Land,	15,000 00	5,500 00
Buildings: —		
Laboratory for entomology,	80,000 00	80,000 00
Farm house,	2,500 00	–
Fruit storage house,	3,000 00	–
Buildings for poultry department,	3,000 00	–
Stock-judging pavilion,	8,000 00	–
Dwelling house for head of division of horticulture,	6,000 00	–
	$201,105 00	$158,500 00
3. Increase in annual current appropriations : —		
Instruction,	$13,000 00	$7,500 00
Maintenance,	12,000 00	7,000 00
Graduate school,	5 000 00	2,500 00
Short courses,	5,000 00	2,500 00
Student labor,	2,500 00	2,500 00
Normal department,	1,000 00	–
Agricultural survey,	4,000 00	–
	$42,500 00	$22,000 00

TABLE III. — *Speakers for the Year.*

Speakers at Sunday Services for Year ending Nov. 30, 1909.

1908.

Dec. 6. — Rev. F. G. Goodwin, Providence, R. I.
Dec. 13. — Dr. W. D. MacKenzie, Hartford, Conn.

1909.

Jan. 10. — Rev. A. P. Reccord, Springfield.
Jan. 24. — Rev. Lyman P. Powell, Northampton.
Feb. 14. — President George Harris, Amherst.
Feb. 21. — Rev. E. M. Antrim, Springfield.
Feb. 28. — Mr. Carl Hamilton, Andover.
Mar. 7. — Mr. W. E. Tinker, New York, N. Y.
Mar. 14. — Rev. J. Ross Stevenson, New York, N. Y.
Mar. 21. — President W. E. Huntington, Boston.
Sept. 26. — Mr. A. F. Burgess, Holyoke.
Oct. 3. — Hon. George H. Utter, Westerly, R. I.
Oct. 10. — Mr. Owen R. Lovejoy, New York, N. Y.
Oct. 17. — Hon. A. T. Sweeney, Newark, N. J.
Oct. 24. — Mr. Robert A. Woods, Boston.
Oct. 31. — Mr. Ray Stannard Baker, East Lansing, Mich.
Nov. 7. — Mr. Charles W. Birtwell, Boston.
Nov. 14. — Mr. Harry W. Arnold, New York, N. Y.
Nov. 21. — Mr. John R. Boardman, New York, N. Y.

Speakers at Wednesday Assemblies for Year ending Nov. 30, 1909.

1909.

Jan. 20. — Prof. George B. Churchill, Amherst.
Jan. 27. — Rev. Thomas Van Ness, Boston.
Feb. 17. — Rev. Clarence F. Swift, Fall River.
Mar. 3. — Hon. F. H. Jackson, Providence, R. I.
Mar. 10. — Prof. W. T. Sedgwick, M. I. T., Boston.
Apr. 28. — Mr. A. E. Winship, Boston.
May 5. — Mr. J. Horace McFarland, Harrisburg, Pa.
May 12. — Mr. James L. Tryon, Boston.
May 19. — Mr. James H. Critchett, M. I. T., Boston.
Oct. 13. — President George C. Creelman, Guelph, Ont.
Oct. 20. — Hon. Frank A. Hosmer, Amherst.
Oct. 27. — Hon. Robert D. Luce, Boston.
Nov. 3. — Mr. C. J. Blanchard, Washington, D. C.
Nov. 17. — Mr. George W. Cable, Northampton.

TABLE IV. — *Statistics of Freshmen entering College in September, 1909.*

Home Addresses (classified by Towns).

Abington, . . . 1	Brockton, . . . 2	Concord, ... 1
Amherst, ... 4	Brooklyn, N. Y., . . 1	Dalton, ... 1
Baldwinsville, . . . 1	Bryantville, . . . 1	Deerfield, . . . 1
Belchertown, . . . 1	Campello, . . . 2	East Dover, Vt., . . 1
Beverly, ... 2	Charlestown, . . . 1	Easthampton . . 1
Bolton, ... 2	Chicopee Falls, . . 3	East Leverett, . . 1
Boston, ... 7	Clayton, Ill., . . . 1	East Pepperell, . . 1
Bournedale, . . . 1	Clifton, ... 1	Enfield, ... 1
Bridgeport, Ct., . . 2	Cochituate, . . . 1	Everett, ... 1

TABLE IV. — *Statistics of Freshmen entering College in September, 1909* — Continued.

Home Addresses (classified by Towns) — Concluded.

Fall River,	3	Monson,	1	Shanghai, China,	1
Fitchburg,	1	Mount Vernon, N. Y.,	1	Somerville,	4
Franklin,	1	Needham,	2	South Byfield,	1
Grand Isle, Vt.,	1	New Bedford,	2	South Framingham,	2
Greenwich Village,	1	Newburyport,	1	South Hadley Falls,	2
Greenwood,	1	New York, N. Y.,	1	South Lincoln,	1
Groton,	1	North Abington,	1	South Norwalk, Ct.,	1
Hanover,	1	Northampton,	1	Swanton, Vt.,	1
Harwichport,	1	North Truro,	1	Taunton,	1
Hatfield,	1	Palmer,	1	Wayland,	2
Hyde Park,	1	Peabody,	1	Wellesley,	1
Jamaica Plain,	3	Pelham, N. H.,	1	Westborough,	1
Jefferson,	1	Richmond Hill, N. Y.,	1	West Bridgewater,	2
Lawrence,	1	Roslindale,	1	West Chesterfield,	1
Leominster,	1	Roxbury,	2	Westford,	1
Lynn,	4	Rutherford, N. J.,	4	Wethersfield, Ct.,	1
Marlborough,	1	Rutland,	3	Weymouth,	1
Mattapan	1	Salem,	1	Wilbraham,	1
Meriden, Ct.,	1	Saxonville,	1	Wollaston,	3
Millbury,	1	Selbyville, Del.,	1	Worcester,	5

Home Addresses (classified by States).

	Number.	Per Cent.		Number.	Per Cent.
China,	1	.8	New Jersey,	4	3.0
Connecticut,	5	3.8	New York,	4	3.0
Delaware,	1	.8	Vermont,	3	2.3
Illinois,	1	.8			
Massachusetts,	111	84.7		131	100.0
New Hampshire,	1	.8			

Home Addresses (classified by Counties of Massachusetts).

	Number.	Per Cent.		Number.	Per Cent.
Barnstable,	3	2.3	Middlesex,	13	10.0
Berkshire,	1	.8	Nantucket,	–	–
Bristol,	6	4.6	Norfolk,	9	6.9
Dukes,	–	–	Plymouth,	10	7.7
Essex,	12	9.2	Suffolk,	20	14.4
Franklin,	2	1.5	Worcester,	16	12.2
Hampden,	6	4.6			
Hampshire,	13	10.0		111	84.2

Intended Vocation.

VOCATIONS.	Number.	Per Cent.
Agriculture and horticulture (technical),	80	61.0
Agriculture and horticulture (professional),	12	9.2
Engineering,	2	1.5
Professions,	3	2.3
Miscellaneous,	1	.8
Undecided,	33	25.2
	131	100.0

TABLE IV. — *Statistics of Freshmen entering College in September, 1909* — Concluded.

Education of Fathers.

	Number.	Per Cent.
Common school,	68	51.9
High school,	34	26.0
Business school,	7	5.3
College,	15	11.4
Deceased (no statistics),	7	5.3
	131	99.9

Occupation of Fathers.

OCCUPATIONS.	Number.	Per Cent.
Agriculture and horticulture,	28	21.4
Artisans,	29	22.1
Business,	24	18.5
Deceased,	19	14.5
Miscellaneous,	15	11.4
Professional,	12	9.2
Retired,	4	3.0
	131	100.1

Religious Census.

DENOMINATION.	MEMBERSHIP.		PREFERENCE.		TOTALS.	
	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.
Baptist,	4	3.0	5	3.8	9	6.8
Catholic,	14	10.7	–	–	14	10.7
Congregational,	26	20.0	24	18.5	50	38.5
Episcopal,	5	3.8	3	2.3	8	6.1
Methodist,	8	6.1	7	5.3	15	11.4
Miscellaneous,	5	3.8	8	6.1	13	9.9
Unitarian,	4	3.0	10	7.7	14	10.7
Presbyterian,	1	.8	2	1.5	3	2.3
Universalist,	2	1.5	3	2.3	5	3.8
Totals,	69	52.7	62	47.5	131	100.2

Miscellaneous Statistics.

Average age,	18.96 years.
Number applying for student labor,	89; 68 per cent.
Number boarding at Draper Hall,	106; 81 per cent.

Gifts and Loans, 1909.

Gifts.

Dr. John C. Cutter, an alumnus of the college, who died in August, 1909, bequeathed $1,000 to the Massachusetts Agricultural College, to be invested by the trustees, and the income to be annually used for the purchase of books on hygiene.

Division of Agriculture.

Quaker Oats Company, Chicago, Ill., 1 bag Schumacher calf meal, and feed samples for class use.

Roto Salt Company, Brooklyn, N. Y., 4 Roto salt cakes, 2 Roto feeders.

Humane Horse Collar Company, Chicago Heights, Ill., 1 Humane horse collar.

E. I. du Pont de Nemours Powder Company, Wilmington, Del., 50 pounds dynamite.

E. F. Schlichter Company, Philadelphia, Pa., model of silo door.

Creamery Package Manufacturing Company, Albany, N. Y., samples of sanitary milk piping and sanitary valves; one steam gauge.

Washburn-Crosby Company, Minneapolis, Minn., exhibit illustrating milling of flour, by-products, etc.

Corn Products Refining Company, Chicago, Ill., exhibit illustrating products obtained from corn.

German Kali Works, 93 Nassau Street, New York, N. Y., lantern slides exhibiting potash industry.

Single Service Package Corporation, 71 Broadway, New York, N. Y., 12 Single Service pint milk bottles.

J. W. Biles Company, Cincinnati, O., exhibition samples of Ubiko horse feed, Biles union grains, together with samples of each ingredient of which the two feeds are composed.

American Linseed Company, Chicago, Ill., exhibition samples of flaxseed by-products.

J. Lindsay Wells Company, Memphis, Tenn., exhibition samples of various feed products in cotton seed.

Chapin & Co., Buffalo, N. Y., feed samples for class use.

Corn Products Manufacturing Company, Chicago, Ill., feed samples for class use.

Northwest Mills Company, Winona, Minn., feed samples for class use.
Continental Cereal Company, Peoria, Ill., feed samples for class use.
American Milling Company, Chicago, Ill., feed samples for class use.

Loans.

D. H. Burrell & Co., Little Falls, N. Y., Simplex No. 1 hand separator.
International Harvester Company, Boston, Dairy Queen No. 2 hand separator.
Vermont Farm Machine Company, Bellows Falls, Vt., U. S. No. 14 power separator; U. S. No. 15 hand separator.
Sharples Separator Company, No. 4 hand separator; No. 26 tubular steam turbine separator.
National Dairy Machine Company, Goshen, Ind., hand separator.
De Laval Separator Co., New York, N. Y., No. 20 steam turbine separator; No. 15 hand separator.

Gifts and Loans to Massachusetts Agricultural Experiment Station.

Gifts.

German Kali Works, 93 Nassau Street, New York, N. Y., 200 pounds kainit; 800 pounds high grade sulfate of potash; 3,800 pounds low grade sulfate of potash; 2,700 pounds muriate of potash.
Mr. A. B. Lyman, Excelsior, Minn., 2 pounds Grimm alfalfa seed.
Sterling Chemical Company, Cambridgeport, patented poultry remedy.
Dr. Reiche Nitragin Company, Milwaukee, Wis., 1 bottle Nitragin for soy beans.
James J. H. Gregory, Marblehead, 1 packet Japan millet.
Mr. W. H. Bowker, 43 Chatham Street, Boston, 300 pounds sulfate of magnesia.
Twentieth Century Specialty Company, 37 Portland Street, Boston, 25 pounds fine granitic rock; 25 pounds superfine granitic rock.
W. Atlee Burpee, Philadelphia, Pa., novelties in vegetable and flower seeds.
Edward J. Walter Company, Baltimore, Md., 200 pounds (1 drum) nitrate of lime.
Goulds Manufacturing Company, Seneca Falls, N. Y., 1 handy knapsack sprayer and attachments.

Loans.

Chas. A. Cyphers, Buffalo, N. Y., 1 incubator.

REPORT OF THE TREASURER

FOR THE FISCAL YEAR ENDING NOV. 30, 1909.

BALANCE SHEET.

				DR.	CR.
1908.					
Dec. 1.	To cash on hand,			$1.817 75	–
	By First National Bank (overdraft),			–	$3,787 17
1909.					
Nov. 30.	To special appropriation receipts, State Treasurer,			105,664 24	–
	By special appropriation disbursements,			–	90,093 08
	To experiment station receipts,			57,327 69	–
	From State Treasurer,	$13,125 00			
	From United States Treasurer,	27,000 00			
	From other sources,	17,202 69			
	By experiment station disbursements,			–	55,925 71
	To current accounts receipts,			161,674 18	–
	From U. S. Treasurer, Morrill fund,	$16,666 67			
	From U. S. Treasurer, Nelson fund,	10,000 00			
	From State Treasurer, endowment fund,	10,613 32			
	From State Treasurer, maintenance,	15,000 00			
	From State Treasurer, scholarship,	18,750 00			
	From State Treasurer, instruction,	35,750 00			
	From State Treasurer, short courses,	6,250 00			
	From State Treasurer, normal,	6,250 00			
	From State Treasurer, veterinary,	1,250 00			
	From State Treasurer, heat and light,	625 00			
	From other sources,	40,519 19			
	By current accounts disbursements,			–	161,792 42
	To student trust funds receipts,			45,731 53	–
	By student trust funds disbursements,			–	45,696 59
	By cash on hand,			–	4,106 58
	By cash on deposit,			–	10,813 84
				$372,215 39	$372,215 39

	BALANCE SHEET, DEC. 1, 1908.		TRANSACTIONS, DEC. 1, 1908, TO NOV. 30, 1909.		BALANCE SHEET, NOV. 30, 1909.	
	Dr.	Cr.	Dr.	Cr.	Dr.	Cr.
Cash on hand,	$1,817 75	–	–	$2,288 83	$4,106 58	–
Cash on deposit,	–	$3,787 17	–	14,601 01	10,813 84	–
Experiment station,	–	5,280 80	$57,327 69	55,925 71	–	$6,682 68
Special appropriation,	18,960 30	–	105,664 24	90,093 08	1,866 12	–
Trust funds,	1,650 97	–	45,731 53	45,696 59	1,616 03	–
Current accounts,	–	13,361 05	161,674 18	161,792 42	–	11,719 89
Totals,	$22,429 02	$22,429 02	$370,397 64	$370,397 64	$18,402 57	$18,402 57

Statement of the First National Bank with the Massachusetts Agricultural College.

		Dr.	Cr.
1908.			
Dec. 1.	Balance on hand,	$11,191 59[1]	–
1909.			
Nov. 30	Deposits,	385,549 23	–
	Interest,	406 73	–
	Disbursements as per warrants paid,	–	$371,161 29
	Balance on hand,	–	25,986 26[1]
		$397,147 55	$397,147 55

[1] These amounts are greater Dec. 1, 1908, by $14,978.76, and Nov. 30, 1909, by $15,172.42, on account of outstanding drafts.

Statement of Special Appropriation Accounts.

Name of Appropriation.	Date.	Total Appropriation.	Amount expended to Date.	Balance unexpended Nov. 30, 1909.
Clark Hall equipment,	1907	$24,400 00	$24,400 00	–
Dairy equipment,	1907	3,000 00	3,000 00	–
Live stock,	1907	4,000 00	4,000 00	–
Omnibus,	1907	14,000 00	14,000 00	–
Experiment station,	1908	4,000 00	4,000 00	–
Glass houses and instruction building,	1908	34,000 00	34,000 00	–
Omnibus,	1908	16,000 00	16,000 00	–
North dormitory,	1908	6,000 00	6,000 00	–
Target range,	1908	1,000 00	1,000 00	–
Athletic field,	1909	5,500 00	4,761 10	$738 90
Replacing barn,	1909	30,000 00	22,387 48	7,612 52
Repairs and improvements,	1909	33,000 00	24,618 14	8,381 86
Teaching equipment,	1909	10,000 00	4,267 28	5,732 72
Zoölogical building,	1909	80,000 00	16,390 31	63,609 69
Totals,		$264,900 00	$178,824 31	~~$85,336 79~~ 86075 69

Current Accounts.

Disbursements and Receipts.

Accounts.	Disbursements from Dec. 1, 1908, to Nov. 30, 1909.	Receipts from Dec. 1, 1908, to Nov. 30, 1909.	Apportionment for Year ending Nov. 30, 1909.	Balance to Credit.
Administration,	$5,041 39	$173 15	$5,000 00	$131 76
Agricultural,	19,697 34	14,271 77	6,790 00	1,364 43
Agricultural economics,	6 95	–	40 00	33 05
Botanical,	1,320 99	611 90	325 00	—384 09
Chemical,	3,152 00	1,775 82	2,200 00	823 82
Dean's office,	201 17	–	120 00	—81 17
Entomology,	651 31	224 87	775 00	348 56
English,	372 37	–	120 00	—252 37
Floriculture,	2,398 65	1,484 65	1,000 00	86 00
Farm fire,	–	2,469 64	–	2,469 64
General horticulture,	2,992 94	1,183 34	1,120 00	—689 60
Graduate school,	397 68	–	–	—397 68

CURRENT ACCOUNTS — *Concluded.*

Disbursements and Receipts — Concluded.

ACCOUNTS.	Disbursements from Dec. 1, 1908, to Nov. 30, 1909.	Receipts from Dec. 1, 1908, to Nov. 30, 1909.	Apportionment for Year ending Nov 30, 1909.	Balance to Credit.
Grounds,	$1,474 61	$16 30	$1,400 00	—$58 31
Library,	3,659 38	422 48	3,025 00	—211 90
Landscape gardening,	231 62	162 00	–	—69 62
General maintenance,	33,233 15	10,631 33	17,300 00	—4,676 82
Market gardening,	4,775 49	2,914 03	1,900 00	38 54
Meteorology,	65 20	–	–	—65 20
Miscellaneous,	284 89	531 42	–	246 53
Mathematics,	251 71	–	300 00	48 29
Military,	943 75	126 87	700 00	—116 88
Normal department,	5,204 17	13 90	5,000 00	1,059 73
Pomology,	2,943 64	1,472 29	1,400 00	—71 35
Physical education,	149 77	–	200 00	50 23
President's office,	832 58	63 29	700 00	—69 29
Registrar,	176 61	–	175 00	—1 61
Salaries,	63,353 96	–	65,000 00	1,646 04
Short courses,	6,206 95	1,475 27	5,000 00	1,518 32
Treasurer's office,	492 18	24 27	475 00	7 09
Veterinary,	1,042 00	148 00	186 97 [1]	542 97
Zoölogical,	237 97	322 60	50 00	134 63
State Treasurer : —				
Heat and light,	–	625 00	–	–
Endowment fund,	–	10,613 32	–	–
Instruction fund,	–	35,750 00	–	–
Maintenance fund,	–	15,000 00	–	–
Scholarship fund,	–	18,750 00	–	–
Short courses,	–	6,250 00	–	–
Normal courses,	–	6,250 00	–	–
Veterinary,	–	1,250 00	–	–
United States Treasurer : —				
Morrill fund,	–	16,666 67	–	–
Nelson fund,	–	10,000 00	–	–
Totals,	$161,792 42	$161,674 18	$120,301 97	$10,549 63
Balance, beginning fiscal year, Dec. 1, 1908,	–	11,838 13	–	—7,145 89
Balance on hand, Nov. 30, 1909,	11,719 89	–	–	–
	$173,512 31	$173,512 31	$120,301 97	$3,403 74

[1] Balance brought forward Dec. 1, 1908.

Summary.

	Disbursements.	Receipts.
By cash on hand Dec. 1, 1908,	–	$11,838 13
By institution receipts Nov. 30, 1909,	–	40,519 19
By State Treasurer receipts Nov. 30, 1909,	–	94,488 32
By United States Treasurer receipts Nov. 30, 1909,	–	26,666 67
To total disbursements Nov. 30, 1909,	$161,792 42	–
	$161,792 42	$173,512 31
Bills receivable Dec. 1, 1908, deducted,	–	5,144 80
Bills payable Dec. 1, 1908, deducted,	3,600 35	–
	$158,192 07	$168,367 51
Bills receivable Nov. 30, 1909,	–	4,558 07
Bills payable Nov. 30, 1909,	1,724 68	–
Balance,	13,008 83	–
	$172,925 58	$172,925 58

Comparative Disbursements and Receipts for 1908–09.

Accounts.	Disbursements.		Receipts.	
	1908.	1909.	1908.	1909.
Administration,	–	$5,041 39	–	$173 15
Agriculture,	$22,812 34	19,697 34	$15,024 07	14,271 77
Agricultural economics,	–	6 95	–	–
Botanical,	1,156 75	1,320 99	678 60	611 90
Chemical,	2,773 60	3,152 00	795 04	1,775 82
Dean's office,	95 34	201 17	–	–
Entomology,	806 90	651 31	180 15	224 87
English,	98 71	372 37	–	–
Floriculture,	2,909 44	2,398 65	1,987 53	1,484 65
Farm fire,	–	–	–	2,469 64
General horticulture,	3,366 97	2,992 94	1,002 36	1,183 34
Graduate school,	68 78	397 68	–	–
Grounds,	–	1,474 61	–	16 30
Library,	2,411 64	3,659 38	634 38	422 48
Landscape gardening,	127 04	231 62	163 30	162 00
General maintenance,	23,944 90	33,518 04	9,418 55	11,162 75
Market gardening,	3,668 47	4,775 49	1,748 74	2,914 03
Meteorology,	248 05	65 20	–	–
Miscellaneous,	5,000 00	–	5,000 00	–
Mathematics,	194 74	251 71	–	–
Military,	382 89	943 75	25 00	126 87
Normal department,	6,061 08	5,204 17	773 09	13 90
Pomology,	1,507 93	2,943 64	1,061 21	1,472 29
Physical education,	–	149 77	–	–
President's office,	3,294 65	832 58	28 01	63 29
Registrar,	97 40	176 61	–	–
Salaries,	50,380 19	63,353 96	208 33	–
Short courses,	–	6,206 95	–	1,475 27
Treasurer's office,	611 81	492 18	44 07	24 27
Veterinary,	1,747 30	1,042 00	1,015 02	148 00
Zoölogical,	382 79	237 97	191 80	322 60
State Treasurer : —				
Heat and light,	–	–	–	625 00
Endowment fund,	–	–	10,613 32	10,613 32
Instruction fund,	–	–	21,500 00	35,750 00
Maintenance fund,	–	–	11,500 00	15,000 00
Scholarship fund,	–	–	15,000 00	18,750 00
Short courses,	–	–	3,750 00	6,250 00
Normal courses,	–	–	3,750 00	6,250 00
Veterinary,	–	–	–	1,250 00
Deficit appropriation,	–	–	13,739 17	–
United States Treasurer : —				
Morrill fund,	–	–	16,666 67	16,666 67
Nelson fund,	–	–	6,666 66	10,000 00
	$134,149 71	$161,792 42	$143,165 07	$161,674 18
Balance at beginning of fiscal year,	–	–	2,807 70	11,838 13
Balance at close,	11,823 06	11,719 89	–	–
	$145,972 77	$173,512 31	$145,972 77	$173,512 31

Experiment Station.

Disbursements and Receipts.

Accounts.	Disbursements from Dec. 1, 1908, to Nov. 30, 1909.	Receipts from Dec. 1, 1908, to Nov. 30, 1909.	Apportionment for Year ending Nov. 30, 1909.	Balance to Credit.
Administration,	$2,065 20	$47 35	$1,845 90	—$171 95
Agricultural,	4,578 09	2,010 46	2,411 05	—156 58
Asparagus,	715 60	–	655 68	—59 92
Botanical,	1,617 96	44 13	1,061 37	—512 46
Chemical,	10,365 83	4,809 38	4,385 66	—1,170 79
Cranberry,	459 56	–	1,871 88	1,412 32
Entomology,	495 58	–	711 21	215 63
Fertilizer,	–	5,505 00	–	5,505 00
Freight,	499 91	15 29	319 08	—165 54
Graves orchard,	281 10	–	596 26	315 16
Horticultural,	1,719 44	1 15	1,432 43	—285 86
Library,	343 11	8 87	509 06	174 82
Meteorology,	308 05	–	276 76	—31 29
Publications,	2,031 81	107 98	5,561 48	3,637 65
Salaries,	29,891 64	153 08	28,119 53	—1,619 03
Treasurer's office,	319 82	–	378 40	58 58
Veterinary,	231 71	–	432 67	200 96
Hatch fund,	–	15,000 00	–	–
Adams fund,	–	12,000 00	–	–
State fund,	–	13,125 00	–	–
Feed law,	–	4,500 00	–	–
Repairs,	1 30	–	300 00	–
Totals,	$55,925 71	$57,327 69	$50,868 42	$7,346 70
Balance beginning of fiscal year Dec. 1, 1908,	–	5,280 70	–	–
Balance on hand Nov. 30, 1909,	6,682 68	–	–	–
	$62,608 39	$62,608 39	–	–

Comparative Disbursements and Receipts for 1908–09.

	Disbursements.		Receipts.	
Accounts.	1908.	1909.	1908.	1909.
Administration,	$1,738 14	$2,065 20	$88 48	$47 35
Agricultural,	5,193 83	4,578 09	3,235 96	2,010 46
Asparagus,	1,879 33	715 60	–	–
Botanical,	1,433 88	1,617 96	54 59	44 13
Chemical,	10,726 45	10,365 83	4,848 35	4,809 38
Cranberry,	214 06	459 56	–	–
Entomology,	619 57	495 58	2 00	–
Fertilizer,	–	–	5,390 00	5,505 00
Freights,	438 71	499 91	85	15 29
Graves orchard,	189 37	281 10	–	–
Horticulture,	925 12	1,719 44	10 00	1 15
Library,	159 57	343 11	–	8 87
Meteorology,	79 63	308 05	–	–
Publications,	2,885 45	2,031 81	–	107 98
Salaries,	25,631 32	29,891 64	75 00	153 08
Treasurer's office,	340 80	319 82	–	–
Veterinary,	195 14	231 71	6 00	–
Hatch fund,	–	–	15,000 00	15,000 00
Adams fund,	–	–	10,000 00	12,000 00
State fund,	–	–	10,500 00	13,125 00
Feed law,	–	–	3,000 00	4,500 00
Repairs,	–	1 30	–	–
	$52,650 37	$55,925 71	$52,211 23	$57,327 69
Balance beginning of fiscal year,	–	–	5,719 94	5,280 70
Balance on hand Nov. 30, 1909,	5,280 80	6,682 68	–	–
	$57,931 17	$62,608 39	$57,931 17	$62,608 39

Agricultural Division.

Disbursements and Receipts for Fiscal Year ending Nov. 30, 1909.

	Disbursements.	Receipts.
Academic.		
Maintenance,	$170 20	$2 14
Equipment,	233 32	2 55
Student labor,	116 26	–
Miscellaneous,	8 25	–
Department totals,	$528 03	$4 69
Office,	$288 30	$48 79
Farm.		
Dairy barn,	$4,715 71	$8,140 78
Field crops,	1,361 74	462 29
Horses,	1,716 05	1,545 09
Swine,	63 06	281 83
Tools and implements,	531 55	3 00
Repairs,	165 48	–
Miscellaneous,	161 58	25
Fire,	351 29	356 65
Improvements,	137 12	12 95
Labor,	8,306 05	3,415 45
Student labor,	1,371 38	–
Department totals,	$18,881 01	$14,218 29
Division totals,	19,697 34	14,271 77

Summary.

	Dr.	Cr.
By total division receipts,	–	$14,271 77
By bills receivable,	–	1,492 63
By apportionment,	–	6,790 00
To total disbursements,	$19,697 34	–
To bills payable,	359 53	–
To balance,	2,497 53	–
	$22,554 40	$22,554 40

Inventory of Quick Assets.

	Nov. 30, 1908.	Nov. 30, 1909.
Inventory of produce,	$2,381 00	$3,219 93
Inventory of cattle,	5,700 49	8,155 00
Inventory of swine,	206 41	182 00
Inventory of horses,	7,005 00	4,375 00
	$15,292 90	$15,931 93

Horticultural Division.

Disbursements and Receipts for Fiscal Year ending Nov. 30, 1909.

	Disbursements.	Receipts.
Market gardening,	$4,775 49[1]	$2,914 03
General horticulture,	2,992 94	1,183 34
Floriculture,	2,398 65	1,484 65
Pomology,	2,943 64	1,472 29
Landscape gardening,	231 62	162 00
Totals,	$13,342 34	$7,216 31

Summary.

	Dr.	Cr.
By total division receipts,	–	$7,216 31
By bills receivable,	–	1,142 64
By apportionment,	–	5,420 00
To total division disbursements,	$13,342 34	–
To total division bills payable,	200 23	–
To balance unexpended,	236 38	–
	$13,778 95	$13,778 95

Inventory of Quick Assets.

	Nov. 30, 1908.	Nov. 30, 1909.
Inventory of produce,	$100 00	$410 40

[1] This amount is greater by $383.37, being amount of sales belonging to Louise Baker property and pomology department.

Inventory — Real Estate.

Land (Estimated Value).

College farm,	$37,000 00	
Pelham quarry,	500 00	
Bangs place,	2,350 00	
Clark place,	4,500 00	
Westcott place,	2,250 00	
Baker place,	2,500 00	
		$49,100 00

College Buildings (Estimated Value).

Drill hall,	$6,150 00	
Powder house,	75 00	
Gun shed and bath room,	2,500 00	
Stone chapel,	30,225 00	
South dormitory,	35,500 00	
North dormitory,	25,400 00	
Chemical laboratory,	8,200 00	
Entomological laboratory,	5,000 00	
Amounts carried forward,	$113,050 00	$49,100 00

Amounts brought forward,	$113,050 00	$49,100 00
Veterinary laboratory and stable,	22,995 60	
Farmhouse,	2,050 00	
Horse barn,	5,020 00	
Hay storage barn and silo,	30,000 00	
Young stock barn,	6,500 00	
Graves house and barn,	1,560 00	
Dining hall,	35,450 00	
Mathematical building,	5,600 00	
Wilder Hall,	37,300 00	
Tool house,	2,000 00	
Horticultural barn,	2,525 00	
Clark Hall,	67,400 00	
Durfee plant house and fixtures,	10,000 00	
Small plant house, with vegetable cellar and cold grapery,	4,700 00	
President's house,	6,700 00	
Dwelling houses purchased with farm,	5,100 00	
Power house,	12,000 00	
French Hall,	17,000 00	
Glass house range,	15,000 00	
		401,950 60

College Equipment (Estimated Value).

Botanical department,	$7,606 77	
General horticulture,	8,713 22	
Pomology,	918 27	
Market gardening,	954 35	
Floriculture,	5,359 63	
Landscape gardening,	4,059 02	
Chemical laboratory,	3,946 84	
Entomological laboratory,	2,214 70	
Zoölogical museum,	6,486 73	
Zoölogical laboratory,	3,668 71	
Veterinary laboratory,	7,840 72	
Physics and mathematics,	5,628 80	
English department,	74 00	
President's office,	894 38	
Dean's office,	308 66	
Treasurer's office,	1,030 00	
Registrar's office,	182 00	
Text-books,	60 00	
Library,	54,422 25	
Military department,	778 70	
Fire apparatus,	623 20	
Heating and lighting,	58,613 04	
Water mains,	7,780 00	
Dining hall,	2,513 80	
Normal department,	728 42	
Physical education,	1,805 34	
Short courses,	541 00	
Farm,	22,117 05	
Dairy school,	1,649 49	
Agricultural department,	3,260 51	
		214,779 60
Amount carried forward,		$665,830 20

Amount brought forward,		$665,830 20

Experiment Station Buildings (Estimated Value).

Agricultural laboratory,	$9,000 00	
Chemical laboratory (plant and animal chemistry),	20,000 00	
Entomological laboratory,	1,675 00	
		30,675 00

Experiment Station Equipment (Estimated Value).

Director's office,	$2,700 25	
Treasurer's office,	377 50	
Agricultural laboratory,	9,637 75	
Entomological laboratory,	21,089 40	
Botanical laboratory,	4,212 20	
Chemical laboratory,	18,577 02	
Horticultural laboratory,	537 70	
Meteorology laboratory,	1,300 80	
		58,432 62
		$754,937 82

Inventory Summary.

Land,	$49,100 00
College buildings,	401,950 60
College equipment,	214,779 60
Experiment station buildings,	30,675 00
Experiment station equipment,	58,432 62
	$754,937 82

STUDENTS' TRUST FUNDS ACCOUNTS.

ACCOUNTS.	Disbursements for Year ending Nov. 30, 1909.	Receipts for Year ending Nov. 30, 1909.	Balance brought forward Dec. 1, 1908.	Balance on Hand Nov. 30, 1909.
Athletics,	$2,230 37	$543 34	$1,697 03	$10 00
Dining hall,	34,840 82	34,073 26	—4,890 80	—5,658 36
Louise Baker property,	–	188 14	–	188 14
Keys,	29 50	29 00	34 25	33 75
Creamery house,	60 96	85 50	–	24 54
Students' deposits,	4,165 50	4,181 28	455 60	471 38
College signal,	341 75	674 95	–	333 20
Trophy room tax,	304 01	493 50	174 76	364 25
Harlow farm,	87 51	45 00	–	—42 51
Text books,	3,542 90	3,818 93	878 19	1,154 22
Kellogg farm,	79 92	57 50	–	—22 42
Uniforms,	13 35	1,541 13	–	1,527 78
	$45,696 59	$45,731 53	—$4,890 80	—$5,723 29
			3,239 83	4,107 26
Balance on hand Dec. 1, 1908,	—1,650 97	–	–	–
Balance on hand Nov. 30, 1909,	–	—1,616 03	–	–
	$47,347 56	$47,347 56	—$1,650 97	—$1,616 03

Detailed Statement of Dining Hall.

	Liabilities.	Resources.
Dec. 1, 1908, cash overdraft,	$4,890 80	–
Nov. 30, 1909, provisions purchased,	34,840 82	–
Nov. 30, 1909, outstanding bills,	1,523 86	–
Nov. 30, 1909, total collections,	–	$34,073 26
Nov. 30, 1909, total collections outstanding,	–	3,718 03
Nov. 30, 1909, inventory,	–	1,793 74
Balance,	–	1,670 45
	$41,255 48	$41,255 48

Endowment Fund.[1]

	Principal.	Income.
United States grant (5 per cent.),	$219,000 00	$7,300 00
Commonwealth grant (3½ per cent.),	142,000 00	3,313 32
		$10,613 32

[1] This fund is in the hands of the State Treasurer, and the Massachusetts Agricultural College receives two-thirds of the income from the same.

Beneficiary Funds.

Burnham Emergency Fund.

	Market Value Dec. 1, 1909.	Par Value.	Income.
Two Lake Shore & Michigan Southern Railroad gold notes, at $1,000,	$2,000 00	$2,000 00	$100 00
Two bonds American Telegraph and Telephone Company, 4's, at $92⅜,	1,847 50	2,000 00	80 00
One bond United Fruit Company,	1,010 00	1,000 00	50 00
	$4,857 50	$5,000 00	$230 00
Unexpended balance Dec. 1, 1908,	–	–	242 62
			$472 62
Disbursements for prizes for fiscal year ending Nov. 30, 1909,			90 00
Cash on hand Dec. 1, 1909,			$382 62

Library Fund.

Five bonds Lake Shore & Michigan Southern Railroad Company 4's, at $95½,	$4,775 00	$5,000 00	$200 00
Five bonds New York Central & Hudson River Railroad Company 4's, at $95¼,	4,775 00	5,000 00	200 00
Two shares New York Central & Hudson River Railroad Company stock, at $126,	252 00	200 00	10 00
Amherst Savings Bank, deposit,	167 77	167 77	6 68
	$9,969 77	$10,367 77	$416 68
Transferred to library account,			416 68

Special Funds.

Endowed Labor Fund (the Gift of a Friend of the College).

	Market Value Dec. 1, 1909.	Par Value.	Income.
Two bonds American Telegraph and Telephone Company 4's, at $92⅜,	$1,847 50	$2,000 00	$80 00
One bond New York Central Railroad debenture 4's,	955 00	1,000 00	40 00
Two bonds Lake Shore & Michigan Southern Railroad 4's, at $95½,	1,910 00	2,000 00	80 00
Amherst Savings Bank, deposit,	143 39	143 39	5 72
	$4,855 89	$5,143 39	$205 72
Unexpended balance Dec. 1, 1908,			474 95
Cash on hand Dec. 1, 1909,			$680 67

Whiting Street Scholarship Fund.

One bond New York Central debenture 4's,	$955 00	$1,000 00	$40 00
Amherst Savings Bank, deposit,	271 64	271 64	10 84
	$1,226 64	$1,271 64	$50 84
Unexpended balance Dec. 1, 1908,			38 45
			$89 29
Disbursement for scholarships for fiscal year ending Nov. 30, 1909,			52 50
Cash on hand Dec. 1, 1909,			$36 79

Hills Fund.

Northampton Institution for Savings, deposit,	$1,180 00	$1,180 00	$44 66
One bond American Telegraph and Telephone Company 4's,	923 75	1,000 00	40 00
Three American Telephone Company notes,*	3,000 00	3,000 00	75 00
One bond New York Central & Hudson River Railroad debentures 4's,	955 00	1,000 00	40 00
One bond New York Central & Lake Shore R. R. 3½'s,	860 00	1,000 00	35 00
One bond New York Central & Hudson River Railroad gold note, 5 per cent.,	1,000 00	1,000 00	50 00
One bond Metropolitan Street Railway, Kansas City, 5 per cent.,	1,000 00	1,000 00	50 00
Three bonds Pacific Telephone and Telegraph Company 5's,	2,962 50	3,000 00	75 00
Boston & Albany Railroad stocks,	825 36	362 00	31 68
Amherst Savings Bank, deposit,	72 75	72 75	2 88
	$12,779 36	$12,614 75	$444 22
*On April 13 : —			
Three American Telephone Company notes were sold for, $3,080 42			
Three Pacific Telephone and Telegraph bonds were purchased for, 2,986 25			
	—3,000 00	—3,000 00	94 17
	$94 17		
Unexpended balance Dec. 1, 1908,	—	—	275 90
	$9,779 36	$9,614 75	$814 29
Disbursements by horticultural and botanical departments for fiscal year ending Nov. 30, 1909,			434 59
Cash on hand Dec. 1, 1909,			$379 70

SPECIAL FUNDS — *Concluded.*

Mary Robinson Fund.

	Market Value Dec. 1, 1909.	Par Value.	Income.
Northampton Institution for Savings, deposit,	$820 00	$820 00	$31 04
Boston & Albany Railroad stock,	86 64	38 00	3 32
	$906 64	$858 00	$34 36
Unexpended balance Dec. 1, 1908,			27 31
			$61 67
Disbursements for scholarships for fiscal year ending Nov. 30, 1909,			40 50
Cash on hand Dec. 1, 1909,			$21 17

Grinnell Prize Fund.

Ten shares New York Central & Hudson River Railroad stock	$1,260 00	$1,000 00	$50 00
Unexpended balance Dec. 1, 1908,			121 24
			$171 24
Disbursements for prizes,			50 00
Cash on hand Dec. 1, 1909,			$121 24

Gassett Scholarship Fund.

One bond New York Central debentures 4's,	$955 00	$1,000 00	$40 00
Amherst Savings Bank deposit,	11 64	11 64	44
	$966 64	$1,011 64	$40 44
Unexpended balance Dec. 1, 1908,			57 49
			$97 93
Disbursements for scholarships for fiscal year ending Nov. 30, 1909,			64 50
Cash on hand Dec. 1, 1909,			$33 43

Massachusetts Agricultural College (Investment).

One share New York Central & Hudson River Railroad stock,	$126 00	$100 00	$5 00
Unexpended balance Dec. 1, 1908,			33 00
Cash on hand Dec. 1, 1909,			$38 00

Danforth Keyes Bangs Fund.

Two bonds Pacific Telephone and Telegraph Company 5's,	$1,975 00	$2,000 00	$50 00
Two bonds American Telegraph and Telephone Company 4's,	1,847 50	2,000 00	40 00
Two bonds Union Electric Light and Power Company 5's,	1,980 00	2,000 00	50 00
	$5,802 50	$6,000 00	$140 00
Unexpended balance,			94 04
Cash on hand Dec. 1, 1909,			$234 04

Summary of Balances on Hand of the Income from Funds held in Trust by the Massachusetts Agricultural College.

Burnham emergency,	$382 62
Endowed labor fund,	680 67
Whiting street scholarship,	36 79
Hills fund,	379 70
Mary Robinson fund,	21 17
Grinnell prize,	121 24
Gassett scholarship fund,	33 43
Massachusetts Agricultural College investment,	38 00
Danforth Keyes Bangs fund,	234 04
	$1,927 66

I hereby certify that I have this day examined the Massachusetts Agricultural College account, as reported by the treasurer, Fred C. Kenney, for the year ending Nov. 30, 1909. All bonds and investments are as represented in the treasurer's report. All disbursements are properly vouched for, and all cash balances are found to be correct.

CHARLES A. GLEASON,
Auditor.

AMHERST, Dec. 8, 1909.

HISTORY OF SPECIAL FUNDS.

Burnham emergency fund: —

A bequest from T. O. H. P. Burnham of Boston, made without any conditions. The trustees of the college have voted that the fund be kept intact, and that the income from it be used for the college for such purposes as they believe to be for its best interest, . $5,000 00

Library fund: —

The library of the college at the present time contains about 30,000 volumes. The income from the fund raised by the alumni and others is devoted to its increase, and additions are made from time to time as the needs of the different departments require. Dec. 27, 1883, William Knowlton gave $2,000; Jan. 1, 1894, Charles L. Flint gave $1,000; in 1887 Elizur Smith of Lee, Mass., gave $1,215. These were the largest bequests, and amount now to . . . 10,000 00

Endowed labor fund: —

Gift of a friend of the college in 1901, income of which is to be used for the assistance of needy and deserving students, ... 5,000 00

Whiting Street scholarship: —

Gift of Whiting Street of Northampton, for no special purpose, but to be invested and the income used. This fund is now used exclusively for scholarship, . 1,000 00

Hills fund: —

Gift of Leonard M. and Henry F. Hills, in 1867, to establish and maintain a botanic garden, . . . 10,000 00

Mary Robinson fund: —

Gift of Miss Mary Robinson of Medfield, in 1874, for scholarship, ... $1,000 00

Grinnell prize fund: —

Gift of Hon. Wm. Claflin, to be known as the Grinnell agricultural prize, to be given to the two members of the graduating class who may pass the best oral and written examination in theory and practice of agriculture, given in honor of George B. Grinnell of New York, ... 1,000 00

Gassett scholarship fund: —

Gift of Henry Gassett of Boston, the income to be used for scholarship, ... 1,000 00

Massachusetts Agricultural College investment fund: —

Investment made by vote of trustees, in 1893; to purchase one share New York Central & Hudson River Railroad stock. The income from this fund has been allowed to accumulate, ... 100 00

Danforth Keyes Bangs fund: —

Gift on account of the Louisa Baker estate, April 14, 1909, the income thereof to be used annually in aiding poor, industrious and deserving students to obtain an education in said college, ... 6,000 00

$40,100 00

PRIZES.

Special botanical prize, the gift of Prof. A. V. Osmun, . $5 00

Special prize, for best work done in entomology by undergraduates. This prize is given by the alumni entomologists, ... 30 00

Special prize, in honor of J. W. D. French, given by the Bay State Agricultural Society, for the best essay on forestry from the senior class, ... 25 00

Special prize, given by the Western Alumni Association to that member of the sophomore class who during his first two years has shown the greatest improvement in scholarship, character and example, ... 25 00

Special prize, the gift of Emily Williston Stearns, for the advancement of the military work of the college, . . 100 00

$185 00

910

THE M. A. C. BULLETIN

AMHERST, MASS.

Vol. III. No. 1. January, 1911.

Published Six Times a Year by the College.
Jan., Feb., Mar., May, Sept., Oct.

ENTERED AS SECOND-CLASS MATTER AT THE POST OFFICE, AMHERST, MASS.

Public Document No. 31

FORTY-EIGHTH ANNUAL REPORT

OF THE

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UNIVERSITY OF ILLINOIS

PART I.

REPORT OF THE PRESIDENT AND OTHER OFFICERS

FOR FISCAL YEAR ENDING NOV. 30, 1910.

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WRIGHT & POTTER PRINTING CO., STATE PRINTERS,
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Approved by
The State Board of Publication.

The Commonwealth of Massachusetts.

Massachusetts Agricultural College,
Amherst, Dec. 1, 1910.

To His Excellency Eben S. Draper.

Sir: — I have the honor to transmit herewith, to Your Excellency and the Honorable Council, Part I. of the forty-eighth annual report of the trustees of the Massachusetts Agricultural College, for the fiscal year ended Nov. 30, 1910, this being the report of the president and other officers of the corporation of the college.

I am, very respectfully, your obedient servant,

KENYON L. BUTTERFIELD,
President.

REPORT OF THE PRESIDENT OF THE COLLEGE.

Gentlemen of the Corporation.

I herewith submit my fifth annual report as president of the college.

Attendance.

The attendance of students of college rank for the last college year exceeded that of the previous year by 68, and aggregated 320 four-years men, 12 unclassified students of college grade and 18 graduate students; there were 260 in various short courses, making a total attendance of 610. The entering class the present autumn numbered 158, the largest previous freshman class being 131, a year ago. The total number of four-years men in present attendance is 402; of unclassified students, 17; of graduate students, 15. (See Table I.)

Eighty-five per cent. of the present freshman class come from Massachusetts, with 9 other States and 1 foreign country, China, represented.

About one-fifth of the class are undecided as to their intended vocation; about one-third of the whole class state that they intend to follow some phase of professional agriculture or horticulture; and considerably more than one-third of the whole class state that they intend to follow some phase of practical agriculture or horticulture. Ninety-one per cent. of those having made a decision intend to follow an agricultural vocation. Less than one-fourth of the fathers of the members of the freshman class are engaged in agriculture or horticulture, and a trifle over one-fourth of the members of the freshman class were brought up on farms, although more than one-half of those not brought up on a farm have had some farm experience. The average age of the entering class is approximately nineteen years. (See Table IV., J.)

Appropriations.

The total amount of special appropriations asked of the last Legislature was $277,500; the total amount granted was $115,625. An increase in the current annual appropriation was

asked, amounting to $110,000; the amount granted was $37,500. (See Table II.)

The legislative appropriation of $15,000 has enabled us to equip in a complete manner the new building for entomology and zoölogy. Some delay was experienced in the completion of the building and the installation of the equipment; but the building is now fully used, and was dedicated with appropriate ceremonies November 11. The legislative appropriation of $17,500 for the purchase of land has enabled the college to acquire the larger proportion of the land on which options were held.

The legislative appropriations for land made during the past three years aggregate $23,500. This money has been expended in acquiring the following parcels: —

Appropriations for Land.

1908,	$500 00
1909,	5,500 00
1910,	17,500 00
	$23,500 00

Expenditures for Land.

Louisa Baker property,	$5,636 91
Old creamery property,	1,726 25
Westcott property,	2,250 00
Harlow property,	3,284 00
Kellogg property,	5,868 45
E. Baker property,	2,500 00
George Allen property,	500 00
Charmbury property,	450 00
Loomis property,	415 00
Hawley and Brown property,	675 00
	$23,305 61
Attorney's fees,	128 41
Balance,	65 98
	$23,500 00

Appropriations for two new buildings were granted by the Legislature: $12,000 for a laboratory for pomology and market gardening, and $10,000 for a building for animal husbandry.

The former building, while essentially an instruction building, will afford admirable facilities for both experiment and teaching in the subject of cold storage of fruits and vegetables, for packing and for other forms of laboratory work in pomology.

The animal husbandry building fills a serious gap in the college equipment, enabling the courses in stock judging to be put on a thoroughly modern basis, affording also ample room for the large classes entering during the short winter courses, serving as an auditorium for gatherings of farmers to witness demonstrations of various sorts, and, in general, as an arena for demonstration instruction. A brief description of both these buildings follows.

Building for Pomology and Market Gardening. — The new laboratory and storage building for pomology and market gardening is 74 by 42 feet, and consists of basement, one story and attic. In the basement are three large storage rooms, — one for vegetables and two for fruits, — where the bulk of the larger fruits and vegetables will be stored. On the ground floor is a large laboratory room for pomology, 18 by 56 feet, where such practicums as packing, testing spray apparatus, and other operations which require plenty of room, will be carried on. Adjoining this are three fruit rooms, — a large frost-proof room and two refrigerated rooms, one large and one small, each with its separate cooling apparatus, so that the rooms may be kept at different temperatures. In the attic are large storage rooms for fruit packages, ladders, spray pumps and the like. An elevator connects the various floors.

The vegetable gardening rooms on the main floor consist of a workroom; squash room, for storage; and four refrigerated compartments, each with its separate cooling system, to allow each being kept at a separate temperature. These rooms are designed especially for experimental work, and will be used also for the work of advanced students in vegetable gardening.

The Animal Husbandry Building. — This building, now nearing completion, is located directly south of the horse barn. It is 80 feet long and 50 feet wide, outside measurements, the longest dimension running north and south. The arena, which occupies the center of the building, is 27 by 78 feet, with tanbark floor and large doors at each end. On the west side of this

there are five rows of seats, each row being fifteen inches above the one in front of it, so that every seat gives an unobstructed view of the arena. These seats will accommodate 180 persons without crowding. Under these there is a detention stable for stock brought from other farms; this will obviate the need of putting such stock in the college stables, and will also serve as a quarantine if needed. On the east side of the arena is a cement walk 6 feet wide, with a visitors' gallery above that will easily seat 63 people. In case of necessity chairs could be placed in one-half of the arena, giving seating capacity for 500 persons. A rolling partition across the center of the building makes it possible to use it either as one large or two smaller class rooms for judging, lectures or recitations.

The building is of brick, with slate roof, heated by steam and lighted by electricity. The cost of maintenance should be low.

Commencement.

Commencement occurred June 22, and the college conferred the degree of Bachelor of Science on 43 men, and the degree of Master of Science on 1. The commencement address was given by Mr. Lucius Tuttle, then president of the Boston & Maine Railroad Company. President Tuttle's address was a strong discussion of the vocational trend of modern education. It was followed by remarks by Governor Eben S. Draper. The attendance at the alumni dinner was 178.

Summer School.

The summer school registration for 1910 was 229. A few new courses were added, but in general the plans for our previous summer schools were duplicated.

In connection with the summer school there was held a gathering that we believe to be unique in the history of agricultural progress. Under the auspices of the summer school there was held a "Conference of Rural Social Workers" for the four days August 9 to 12 inclusive. The forenoon meetings consisted of sections, or departments, the program for each of which had been prepared by some organization representing a special interest, and included meetings for country clergymen, teachers of agriculture, rural teachers, local officers and paid workers in

the rural department of the Young Men's Christian Association, lecturers of subordinate granges, officers of village improvement societies, and rural librarians. Each afternoon all delegates were brought together for a common program on some important phase of country life. Each evening there were formal addresses. The total registration of different individuals for the four days was 335, inclusive of perhaps 40 grange lecturers, who were present only for one day.

The fundamental idea of the conference was that of bringing together for consultation about concrete methods the local leaders in the rural communities of Massachusetts. The attendance, interest and even enthusiasm of those present fully justified the meeting.

The Winter School.

The attendance at the winter courses was 64, this being about the same number as enrolled in 1909. A special addition was made by the giving of a two-weeks poultry course. The school itself was concluded by a farmers' week, which furnished a most admirable program, and brought together at least 559 different people.

Extension Work.

The extension work, begun so auspiciously a year ago under the leadership of Professor William D. Hurd, has more than met expectations. In fact, so pressing have been the calls for lectures, for demonstration orchards, for correspondence courses and for other phases of work, that our faculty has been wholly unable to cope with this demand. One of the most progressive features of the last season's work was the running of a better-farming trolley train in co-operation with the State Board of Agriculture, the State forest service and the Springfield Board of Trade. The New England Securities Company, managers of some 600 miles of inter-urban trolley lines in Massachusetts, furnished the train, and made most admirable plans for the carrying out of the project. I speak of this enterprise particularly because, so far as we know, it is the first time that the inter-urban trolley has been used for agricultural educational purposes. I cannot, however, neglect to call attention to the great success of the better-farming train, run under the most

efficient management of the Boston & Albany Railroad, in which we co-operated with the State Board of Agriculture, the State grange and the State forest service.

I present here a few facts concerning the details of the work of the extension service during the past year: —

Statistics of the Extension Department.

Enrolment in conference of rural social workers,	335
Grange lecturers in above,	40
Enrolment in farmers' week,	559
Lectures given by faculty,	159
Lectures refused,	197
Total number in correspondence courses,	252
Demonstration orchards,	6
Better-farming trains: —	
Boston & Albany,	4 days
Trolley,	3 days
Attendance at lectures given from above,	9,000
Exhibits at fairs (5 or 6 lectures and demonstrations given each day at each fair),	5

Other Work of the Extension Department.

Ten-weeks course, enrolment,	64
Poultry course, enrolment,	51
Beekeepers' course, enrolment,	20
Summer school, enrolment,	229

Conference on rural progress at West Newbury.
Advisory work with Faunce Demonstration Farm at Sandwich.
Co-operative work with Smith School of Agriculture at Northampton.
Numerous visits to farms to give advice.
Hundreds of letters answered.
Co-operation with tent camp meetings.

Changes in Faculty and Other Officers.

Last June, Professor Charles H. Fernald resigned as director of the graduate school, professor of zoölogy and entomologist of the experiment station. He was granted a pension from the Carnegie Foundation, and was retained by the college as honorary director of the graduate school.

Professor Fernald had served the college for twenty-four years, and not only had he built up a strong department of zoölogy, but he created the department of entomology, and built

it into one of the strongest departments of its kind in the United States. It was under his leadership that the graduate work of the college had its special development, and a large number of his former pupils are occupying most important teaching positions in the field of economic entomology. The new building for entomology and zoölogy is a splendid monument to his labors, and indicates objectively something of the professional skill, teaching ability and conspicuous success of this long period of service which Professor Fernald has rendered to the Massachusetts Agricultural College.

I regret to record that soon after the beginning of this last fiscal year Dean George F. Mills was taken suddenly and seriously ill. For many weeks his condition was alarming, and it was only after a prolonged convalescence that in the late summer he was enabled to leave the house. At the opening of the college year it was quite out of the question for him to resume his duties as dean, and he was therefore granted a leave of absence for the present college year. Students and faculty alike hope that his full strength may come to him again, and that he may be long with us in the most important and delicate position which he occupies as dean.

In January, 1910, Professor Fred W. Morse accepted a temporary appointment at the experiment station as assistant research chemist; in June the trustees made this position permanent for Professor Morse. Professor Morse received his training at Worcester Polytechnic Institute, graduating from that institution in 1887, and receiving his degree of M.Sc. in 1900. From 1888 to 1909 he was employed by the New Hampshire College of Agriculture and Experiment Station; from 1896 he was vice-director of the experiment station, and from 1889 he was professor of chemistry in the college there.

During the year the trustees created the department of zoology and geology, and placed Assistant Professor Gordon in charge; previously these two subjects have been separated.

Professor Waugh was granted a leave of absence for six months, beginning February 1; he spent the period in Europe, and at the opening of the present college year was back to take up his work here. During the entire college year Professor F. C. Sears served with signal ability and marked success in Pro-

fessor Waugh's stead as acting head of the division of horticulture.

Mr. John R. Parker, graduate assistant in entomology and pomology, resigned to accept a position at the Montana College of Agriculture.

The course in rural law has been discontinued, and with it the services of Judge Robert W. Lyman of Northampton.

In February, 1910, Mr. Harold F. Tompson resigned as instructor in market gardening, and Mr. Charles S. Heller, a graduate of the Michigan Agricultural College, was elected to fill the vacancy.

Mr. Harry M. Jennison resigned his position as assistant in botany to take up work of like character in Wabash College.

Mr. Burke Hough resigned as purchasing agent, and Mr. William Chesley was appointed steward of the dining hall in his place.

During the summer Mr. Carl D. Kennedy resigned as assistant in the experiment station, and Mr. Clement L. Perkins, a graduate of the New Hampshire Agricultural College of the class of 1910, was appointed to fill the vacancy.

In June Mr. Roy F. Gaskill resigned as assistant in animal nutrition for the experiment station, and Mr. James R. Alcock is now filling that position.

Mr. Arthur I. Bourne, a graduate of Dartmouth College and formerly a graduate student at this institution, was made assistant entomologist for the experiment station in place of Mr. John N. Summers, resigned.

During the summer Miss Ola H. Perrin resigned as clerk to the director of short courses, and Miss Mabel R. Case, a graduate of Boston University, was appointed to that position.

The following minor changes in titles, etc., are also to be noted: —

In January, 1910, Dr. Joseph B. Lindsey was made vice-director of the experiment station; the title of Professor William D. Hurd was changed to that of director of extension work; Professor James A. Foord was made permanent head of the division of agriculture; Dr. James B. Paige has been acting dean since Jan. 1, 1910, in the absence of Professor Mills; Mr. Anderson A. Mackimmie was elected assistant to

the dean; Professor Henry T. Fernald, on the resignation of Professor Charles H. Fernald, was chosen entomologist for the experiment station and acting director of the graduate school; Professor Philip B. Hasbrouck resumed his duties in September, after a year's leave of absence; Assistant Professor William P. B. Lockwood was made associate professor of dairying; Assistant Professor Robert W. Neal was made associate professor of English; Mr. Sidney B. Haskell was made assistant professor of agronomy; Mr. Floyd B. Jenks was made assistant professor of agricultural education; Dr. Alexander E. Cance was made assistant professor of agricultural economics; Mr. Frederick B. McKay was made assistant professor of public speaking and English; the title of Mr. John Summers was changed to that of graduate assistant.

Officers for New Positions.

In 1909 the department of forestry was created; not until August, 1910, was there secured a suitable man to take charge of this work. Frank F. Moon, A.B., M.Fr., was elected as associate professor of forestry, and began his duties September 1. Professor Moon graduated from Amherst College in 1901, and from Yale Forest School in 1909; he has had experience in the United States Forest Service, and with the Fish and Game Commission of New York State.

Dr. Burton N. Gates was chosen assistant professor of beekeeping. Dr. Gates graduated from Clark College in 1905 with the degree of A.B., and in 1906 received the degree of A.M. from the same institution; he attended Cornell University and took his Ph.D. degree there in 1909. He has been serving in the United States Bureau of Entomology since 1906 as expert in apiculture, and later as assistant in apiculture. Dr. Gate's employment began July 1; he will serve as expert in beekeeping for the experiment station and as inspector of apiaries for the State Board of Agriculture, as well as assistant professor of beekeeping in the college.

Mr. Alvah J. Norman was elected as instructor in pomology, his services beginning Sept. 14, 1910. Mr. Norman graduated from the Iowa State College in 1906, and received the degree of M.Sc. from the Maryland Agricultural College in 1910; he

will devote most of his time to work in the extension and short course department.

Mr. Charles J. Robinson has recently been made instructor in dairying and animal husbandry. Mr. Robinson is a graduate of the University of Illinois of the class of 1909, and has had wide experience in practical dairy work. He will assist in the extension and short course work of the college as well as in the regular courses.

Mr. Sumner C. Brooks fills the position as assistant botanist for the experiment station created by the trustees in January, 1910. Mr. Brooks is a graduate of the Massachusetts Agricultural College of the class of 1910.

Mr. W. A. Turner is serving as assistant in chemistry. Mr. Turner graduated from the Sheffield Scientific School in 1910, with the degree of Ph.B.

The trustees authorized an assistant in the department of English, and elected Miss Helena Goessmann of Amherst to the position; Miss Goessmann's active services are to begin Jan. 1, 1911.

Mr. E. M. J. Evans is serving temporarily as laboratory assistant in bacteriology.

Miss Dorothy Mudge of Boston was appointed to the position of clerk in the office of the treasurer, created by the trustees in June, 1910.

Death of Dr. Goessmann.

On September 1, Dr. Charles A. Goessmann passed away. His connection with the college began in January, 1869, and continued uninterruptedly until 1907, when he was relieved of his active duties and made honorary director of the experiment station, and in June, 1908, honorary professor of chemistry.

I cannot here record the services nor eulogize the work of Dr. Goessmann. Appropriate memorial exercises were held in the college chapel October 12, and some steps will be taken to preserve in permanent form a record of his work. But I cannot refrain from calling your attention to the fact that it is the work and the character of men like Dr. Goessmann that, after all, make an educational institution great and strong. We need land, we need buildings, we need teaching equipment

and apparatus; but we must have superior men. A strong, virile man with inferior equipment is worth any number of inferior men with the most modern equipment. One lesson of Dr. Goessmann's life as it affects the management of our college is that of careful selection of strong investigators and teachers, and reasonable and justifiable rewards for their work.

Legislative Budget.

The legislative budget, as voted by the board of trustees at its meeting in Boston, November 4, may be summarized as follows: —

Requested Increases in Current Funds, Available for Fiscal Year, Dec. 1, 1911, to Nov. 30, 1912.

Items.	Increase.	Total.
Administration,	$4,250	$25,000
Maintenance and equipment,	43,250	88,000
Investigations,	5,000	15,500
Instruction,	22,500	70,500
Short courses and extension teaching,	15,000	30,000
Inspection service,	–	3,000
	$90,000	$232,000

Requests for Appropriations for Special Purposes, 1911.

Improvements, west experiment station building,	$7,500
Enlargement of Draper Hall,	25,000
Dormitory,	20,000
Dairy building and equipment,	75,000
Department equipment,	15,000
Repairs,	20,000
General improvements,	25,000
	$187,500

A brief statement or explanation of the need of these various amounts may well be made a part of this report.

Reclassification of Current Funds. — The trustees voted to ask the Legislature for an increase in current annual income, totaling $90,000 a year, divided into six different heads, representing the main types of work followed by the institution, namely: administration, maintenance and equipment, investiga-

tion, instruction, short courses and extension teaching, inspection service.

An explanation of the increases asked for will be clearer if I retain the old classification at this point. The following are the items: —

Instruction. — Increase, $15,000. This amount would bring the total for instruction purposes to $70,500, $5,000 more than was asked of the Legislature last year. This increase is necessary in part because of the increase in attendance of students. During the past four years many of the subjects required of all students, such as chemistry, mathematics and English, have doubled in attendance. The instruction force in these subjects, however, has very slightly increased. The consequence is that the teaching sections are inordinately large, — so large, in fact, that it is out of the question to get the best results of the teaching. These fundamental subjects, given to the students in the early years of their college course, should be given under the very best auspices, and one of the prime requisites is an ample teaching force, so that small sections may be the rule and so that no teacher shall be overworked. The close personal attention of first-class instructors in these subjects and at this time of the college course is vital to strong work on the part of the students. At least seven additional instructors are needed at once for work in chemistry, entomology, English, French and German, physics and mathematics.

The scope of our agricultural colleges is constantly broadening. Not many years have passed since a professor of agriculture and one or two assistants sufficed for instruction in agriculture; now there are numerous departments under the general name of agriculture, and we rarely find a professor of agriculture. In our own college during the past few years the professorship of horticulture has been broken up into professorships of landscape gardening, pomology, floriculture, market gardening and forestry. While we wish to avoid undue multiplication of departments, we must recognize new fields of work. At present the college gives no attention whatever to some very important branches of agricultural instruction. A State college of agriculture also has an obligation to turn out good citizens and well-rounded men. It is important, therefore, that we have

well-developed departments of economics, political science, etc. We ought to be able to establish next autumn departments of farm mechanics, bacteriology, poultry husbandry, economics and sociology, in addition to the instructorships already named. These important departures I realize cannot all be made even with an increase of $15,000 a year additional for instruction; but they demonstrate the need of at least that much increase as a minimum.

Maintenance. — Increase, $15,000. This increase would bring the item of maintenance and equipment to a total of $88,000. While the treasurer's report shows a comfortable financial balance for the fiscal year, this balance was purchased at the sacrifice of several new departments which in justice to the students should have been established this last autumn. Not only have we new instructors and departments to provide for, but the large entomological building must be heated and lighted and cared for; the new buildings for animal husbandry and pomology will require similar support, and the increase in the number of students necessarily calls for some increased cost of maintenance. In order to provide for this natural growth it is necessary that the maintenance item shall be considered an essential appropriation.

Graduate School. — Increase, $2,500. This increase was recommended last year. The graduate school is very important, but cannot be developed without more funds, and the amount asked for is exceedingly small for the purpose.

Normal Department. — Increase, $5,000 a year. This department needs clerical help and additional instruction. The department had over 7,000 boys and girls in corn and potato clubs this past season, and this valuable work can be greatly — almost indefinitely — increased with the proper office help and supervision. The amount is the same as that asked last year.

Short Course and Extension Work. — Increase, $15,000. The short course and extension work has grown very rapidly during the past year. Not less than 9,000 people were reached by the better-farming trains. Over 250 people are taking correspondence work in agriculture. Scores of lectures are given by our college teachers, and many more declined for lack of men to send. Demonstration orchards have been started in various

parts of the State, and many others are demanded. It is exceedingly important that we should be able to push a strong educational campaign in Massachusetts on behalf of dairy farms. We also want to take advantage of the new interest in corn growing. In some respects this extension work is the most important work of the college, because it reaches the great body of farmers directly with practical instruction and help regarding modern methods of agriculture and horticulture.

Student Labor. — Increase, $2,500 a year. This is needed because of the large increase in the number of students.

Agricultural Survey. — $5,000 a year. The United States Department of Agriculture proposes to make a soil survey of the State, but insists upon our co-operation. In order to carry on in adequate fashion a comprehensive campaign of agricultural education in Massachusetts, it is necessary that we shall make an inventory of the agricultural resources of the State. We need a soil survey. We need to map the orchard lands and corn areas, to study farm management, to investigate the conditions that govern the sale of the farmers' products, and even to study the community life and institutions. In this way alone can we know thoroughly the real problems of Massachusetts agriculture and country life, and be prepared to give the very best advice. Some phases of this work are being done in many other States, and we should not lag behind. The willingness of the United States Department of Agriculture to co-operate places an obligation upon the State of Massachusetts.

Grounds. — $5,000. This amount is needed annually for the development of roads, walks, drives, plantings and the general care of the same. The amount at present expended is in the neighborhood of $2,000 a year, and is simply an up-keep, and, indeed, is not sufficient for that, and does not permit of any improvements whatever.

Repairs. — $15,000 a year. I recommended in my last report that we should ask the Legislature for not less than $15,000 a year for the purpose of the contingent repairs. This amount is about 3 per cent. of our inventoried valuation of buildings, and is by no means excessive. At present we are obliged to ask each Legislature for a special appropriation for this pur-

pose. We could manage the matter in a much more business-like fashion, and relieve the Legislature of the necessity of going over small details, if we had this amount coming to us annually.

Equipment. — $10,000 a year. The same arguments advanced for the permanent repair item apply to the permanent item of teaching equipment and apparatus for the various departments of the institution. It is expected that whenever a new building is erected a special appropriation shall be asked for to equip that building thoroughly. This item is intended to maintain the inventory of existing departments with respect to teaching equipment, apparatus, farm tools, live stock, etc., and is designed to take the place of the special legislative item for these purposes which goes to the Legislature each year.

Administration. — This item in the new classification represents the salaries and office expenses of the officers of the institution whose duties are largely or wholly administrative. It is also intended to include a small amount, perhaps $5,000, which shall serve for emergencies of various types. The new classification will make it possible to present a more complete picture of the work of the institution and the expenditures of money, and I trust may be adopted by the Legislature.

Requests for Appropriations for Special Purposes.

Improvements, West Experiment Station Building. — $7,500. This building has been quite outgrown by the development of experimental work in chemistry and by increase of inspection service devoted to fertilizers and feed stuffs. The experimental work particularly is seriously handicapped by this lack of room. Last year the Legislature was asked to appropriate $28,000 for the enlargement of this building. It was thought at the time that the best plan would be to enlarge the building sufficiently to serve both the instruction work and the research work in chemistry. The appropriation was refused by the last Legislature, and the plans during the past summer were redrawn. Estimates obtained on the revised plans indicated that the amount of $28,000 would not be enough to make the changes, and the trustees decided that under these circum-

stances the best policy was to spend a comparatively small amount of money in some minor changes in the present building, and then plan for an entirely new building, to be asked for in the early future, for the purpose of housing the experiment station work in chemistry. It is thought that $7,500 will make it possible to continue the inspection service in this building for many years to come, and will temporarily give relief to the research work in chemistry.

Enlargement of Draper Hall. — $25,000. This improvement was asked for last year. The present dining hall barely accommodates the present number of students, and next autumn will undoubtedly be entirely too small for the probable number in attendance. When the building was erected less than 75 students took their meals at the dining hall. At the opening of this fall term nearly 350 students were taking their meals there, although the number has decreased somewhat since then; but during the ten weeks' winter school there will be a demand from 75 or 100 more men for boarding facilities. It is easily seen, therefore, that this is an improvement that is well-nigh imperative.

Dormitory. — $20,000. At the present time the college is housing on the college campus about 75 out of its 400 students. It is difficult for students to find rooms in the village, and often the price that they are obliged to pay is beyond the ability of students who are working their way through college. A study has been made of the problem of securing a modern dormitory at a minimum cost. The plans as presented call for a well-built structure of pleasing architecture, with modern conveniences, the specifications showing that it can be built for an expenditure not exceeding $400 per occupant. On this basis the trustees believe that it will be possible, at a rental to the students not to exceed $1.25 per week, to heat the building, furnish janitor service, provide for future repairs, and still secure a return on the investment of at least 4 per cent.

Dairy Building and Equipment. — This appropriation was asked of the Legislature last year, the same amount and practically the same plan, $75,000. The dairy industry is the largest single agricultural industry in the State of Massachusetts. It deserves special recognition by the Commonwealth, and particu-

larly on the educational side. This building will enable us to develop a thoroughly modern plant. The dairy work at the college is very popular, both with the regular and special students. The present facilities are wholly inadequate.

Department Equipment. — $15,000. This item comprises miscellaneous teaching apparatus and office equipment for the various departments.

Repairs. — $20,000. To be used for general repairs about the institution, — repairs of buildings, offices, heating and lighting plant, water system, sewer system, etc.

General Improvements. — $25,000. This covers miscellaneous items as presented by the treasurer of the college and other various departments, such as small buildings for beekeeping, sheep sheds, storage building for plumbing and carpenter equipment, intercommunicating telephone system, improvements in the electric light plant, new sewers, etc.

Respectfully submitted,

KENYON L. BUTTERFIELD,
President.

Amherst, Nov. 30, 1910.

STATISTICS OF THE COLLEGE.

TABLE I. — *Attendance.*

	For Year ending June 30, 1910.	For Year ending Nov. 30, 1910.
Graduate students,	18	15
Senior class,	45	47
Junior class,	50	87
Sophomore class,	91	110
Freshman class,	134	158
Unclassified students,	12	17
	— 350	— 434
Short courses: —		
Winter course, 1910,	64	64
Summer school,	176[1]	229[2]
Bee course, 1910,	20	20
	— 260	— 313
Total,	610	747

[1] Summer of 1909.

[2] Summer of 1910.

TABLE II. — *Legislative Budget, 1910.*

ITEMS.	Amount asked.	Amount granted.
1. Special appropriations: —		
Maintenance expense,	$18,000 00	$18,000 00
Instruction,	5,000 00	2,500 00
Normal department,	1,250 00	–
Short courses,	4,375 00	625 00
Graduate school,	625 00	–
Grounds,	1,250 00	–
Equipment, entomological laboratory,	15,000 00	15,000 00
Repairs and improvements,	35,000 00	25,000 00
Teaching and office equipment,	15,000 00	10,000 00
Dairy building,	75,000 00	–
Enlargement of west experiment station building,	28,000 00	–
Building for animal husbandry,	10,000 00	10,000 00
Laboratory for pomology and market gardening,	16,000 00	12,000 00
Buildings for poultry husbandry,	5,000 00	5,000 00
Enlargement of Draper Hall,	23,000 00	–
Land,	25,000 00	17,500 00
	$277,500 00	$115,625 00
2. Increase in current annual appropriations: —		
Instruction,	$20,000 00	$10,000 00
Maintenance,	35,000 00	20,000 00
Graduate school,	2,500 00	–
Normal department,	5,000 00	–
Short courses,	17,500 00	7,500 00
Repairs,	15,000 00	–
Equipment,	10,000 00	–
Grounds,	5,000 00	–
	$110,000 00	$37,500 00

TABLE III. — *Speakers for the Year.*

Speakers at Sunday Services for Year ending Nov. 30, 1910.

1909.

Dec. 5. — Dr. Samuel A. Eliot, Boston.
Dec. 12. — Rev. A. P. Record, Springfield.

1910.

Jan. 9. — Bishop Alexander H. Vinton, Springfield.
Jan. 16. — Rev. Philip S. Moxom, Springfield.
Jan. 23. — Rev. Herbert J. White, Hartford, Conn.
Feb. 13. — Rev. Charles F. Carter, Lexington.
Feb. 20. — Rev. Charles S. Macfarland, South Norwalk, Conn.
Feb. 27. — Rev. Albert P. Fitch, Cambridge.
Mar. 6. — President Kenyon L. Butterfield.
Mar. 13. — Dr. F. E. Emrich, Boston.
Mar. 20. — Rev. James DeNormandie, Roxbury.
Sept. 18. — President Kenyon L. Butterfield.
Sept. 25. — Mr. John Y. Beattie, Springfield.
Oct. 2. — Mr. Robert L. O'Brien, Boston.
Oct. 9. — Dr. Warren H. Wilson, New York.
Oct. 16. — Mr. Albert E. Roberts, New York.
Oct. 23. — Mr. Charles H. White, Amherst.
Oct. 30. — Dr. R. DeWitt Mallary, Springfield.
Nov. 6. — Rev. F. E. Tower, Albany, N. Y.
Nov. 13. — Hon. Frank A. Hosmer, Amherst.
Nov. 20. — Hon. Henry Bond, Greenfield.

Speakers at Wednesday Assemblies for Year ending Nov. 30, 1910.

1909.

Dec. 8. — Dean Eugene Davenport, Urbana, Ill.

1910.

Jan. 26. — Dr. W. I. Chamberlain, Hudson, O.
Feb. 9. — Dr. Benjamin A. Trueblood, Boston.
Feb. 16. — Prof. John S. Bassett, Northampton.
Feb. 23. — Mrs. Mabel Loomis Todd, Amherst.
Mar. 16. — Dr. Winfield Ayres, New York.
April 6. — Mr. M. V. Richards, Washington, D. C.
April 27. — Dr. David Snedden, Boston.
May 4. — Mr. Edward Porritt, Hartford, Conn.
May 18. — Mr. Henry Wallace, Des Moines, Ia.
May 25. — Mr. Frederick P. Fish, Boston.
Oct. 5. — Mr. C. T. Wang, New Haven, Conn.
Oct. 19. — Dr. John Graham Brooks, Cambridge.
Oct. 26. — Dr. Joel E. Goldthwait, Boston.
Nov. 9. — Prof. Frank A. Waugh, Amherst.
Nov. 30. — Capt. George C. Martin, Amherst.

TABLE IV. — *Statistics of Freshmen entering College in September, 1910.*

(*A*) *Home Addresses (classified by Towns and Cities).*

Agawam,	1	Lawrence,	2	Quincy,	1
Amherst,	3	Lee,	1	Raynham,	1
Arlington,	2	Leominster,	1	Rutherford, N. J.,	1
Bangor, Me.,	1	Lincoln,	1	Salem,	3
Belchertown,	1	Littleton,	2	Sandwich,	1
Blackstone,	1	Lowell,	3	Shanghai, China,	1
Boston,	17	Lynn,	1	Sheffield,	1
Brimfield,	1	Malden,	4	Sherborn,	1
Brockton,	4	Marshalltown, Ia.,	1	Somerville,	1
Brookline,	1	Marshfield,	1	Southbridge,	1
Brown Station, N. Y.,	1	Mattapoisett,	1	Southbury, Conn.,	1
Cambridge,	1	Medford,	1	South Framingham,	3
Cataumet,	1	Medway,	1	South Hadley Falls,	2
Concord,	2	Melrose,	2	South Hanson,	1
Dedham,	1	Mendon,	2	Springfield,	3
Duxbury,	1	Methuen,	1	Stafford Springs, Conn.,	1
Easton,	1	Monson,	1	Sunderland,	2
Everett,	1	Morristown, Pa.,	1	Taunton,	1
Fall River,	2	Mount Kisco, N. Y.,	1	Templeton,	1
Gilbertville,	1	Mount Vernon, N. Y.,	1	Tolland,	1
Glen Cove, L. I.,	1	New Bedford,	1	Townsend,	1
Granby,	1	New Braintree,	1	Truro,	1
Greenfield,	1	New Haven, Conn.,	1	Wakefield,	1
Groton,	1	New London, Conn.,	1	Walpole,	1
Hadley,	1	Newton,	1	Waltham,	1
Hanson,	1	New York, N. Y.,	3	Ware,	1
Haverhill,	1	North Adams,	2	Wareham,	1
Hingham,	1	Northampton,	3	Watertown,	1
Holliston,	1	North Weymouth,	1	Wellesley,	1
Holyoke,	1	Oxford,	1	West Burke, Vt.,	1
Huntington, L. I.,	1	Palmer,	1	West Somerville,	2
Hyannis,	1	Peabody,	2	West Springfield,	2
Hyde Park,	1	Philadelphia, Pa.,	1	Wethersfield, Conn.,	1
Irvington-on-Hudson, N.Y.,	1	Plymouth,	1	Winthrop,	2
Kingston, R. I.,	1	Poquonock, Conn.,	1	Worcester,	2
Lancaster,	1	Portsmouth, N. H.,	1		

(*B*) *Home Addresses (classified by Countries and States).*

	Number.	Per Cent.		Number.	Per Cent.
China,	1	.63	New Jersey,	1	.63
Connecticut,	6	3.80	New York,	9	5.70
Iowa,	1	.63	Pennsylvania,	2	1.26
Maine,	1	.63	Rhode Island,	1	.63
Massachusetts,	134	84.81	Vermont,	1	.63
New Hampshire,	1	.63		158	99.98

(*C*) *Home Addresses (classified by Counties of Massachusetts).*

	Number.	Per Cent.		Number.	Per Cent.
Barnstable,	5	3.72	Hampshire,	12	8.95
Berkshire,	3	2.24	Middlesex,	32	23.13
Bristol,	6	4.48	Nantucket,	–	–
Dukes,	–	–	Norfolk,	8	5.96
Essex,	10	7.43	Plymouth,	11	8.19
Franklin,	3	2.24	Suffolk,	19	14.15
Hampden,	13	9.67	Worcester,	12	8.95
				134	99.11

(*D*) *Nativity of Parents.*

	Number.	Per Cent.
Neither parent foreign born,	117	74.05
Both parents foreign born,	25	15.82
Mother foreign born,	14	8.86
Father foreign born,	2	1.26
	158	99.99

(*E*) *Education of Father.*

	Number.	Per Cent.
Common school,	79	50
High school,	46	29.11
Business school,	8	5.06
College,	21	13.29
Deceased and no statistics,	4	2.53
	158	99.99

(*F*) *Religious Census.*

Denomination.	Membership.		Preference.		Totals.	
	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.
Baptist,	9	5.70	4	2.53	13	8.23
Catholic,	15	9.49	–	–	15	9.49
Congregational,	37	23.42	22	13.92	59	37.34
Episcopal,	13	8.23	4	2.53	17	10.76
Methodist,	9	5.70	5	3.16	14	8.86
Miscellaneous,	5	3.16	8	5.06	13	8.23
Presbyterian,	4	2.53	–	–	4	2.53
Unitarian,	6	3.80	8	5.06	14	8.86
Universalist,	3	1.90	6	3.80	9	5.70
	101	63.93	57	36.06	158	100.00

(*G*) *Occupation of Fathers.*

	Number.	Per Cent.
Agriculture and horticulture,	37	23.42
Artisans,	30	18.98
Business,	48	30.37
Deceased,	11	6.97
Miscellaneous,	18	11.40
Professional,	11	6.97
Retired,	3	1.90
	158	100.01

(*H*) *Intended Vocations of Students.*

	Number.	Per Cent.
Agriculture and horticulture (practical),	60	37.96
Agriculture and horticulture (professional),	52	32.91
Engineering,	9	5.70
Professions,	2	1.26
Undecided,	35	21.16
	158	99.99

(*I*) *Farm Experience.*

	Number.	Per Cent.
Brought up on a farm,	43	27.22
Not brought up on a farm,	115	72.79
Not brought up on a farm but having had some farm experience,	59	37.34

(*J*) *Miscellaneous Statistics.*

Average age,	19.07 years.
Number applying for student labor,	92, 58.22 per cent.
Number boarding at Draper Hall,	142, 89.87 per cent.

TABLE V. — *Loans and Gifts.*

Massachusetts Experiment Station. — List of Gifts for the Year ending Nov. 1, 1910.

Park & Pellard Co., 46 Canal Street, Boston,	2 lullaby brooders.
J. A. Jocoy, 701 Second Street, Towanda, Pa.,	1 Jocoy's poultry food hopper.
Bolgiano & Son, Baltimore, Md.,	1 packet seed "My Maryland" tomato.
German Kali Works, Baltimore, Md.,	1 ton muriate of potash. 1 ton high-grade sulfate of potash. 1 ton sulfate of potash-magnesia. 200 pounds kainit.
American Coal Products Co., 17 Battery Place, New York,	300 pounds sulfate of ammonia.
Rogers & Hubbard, Middletown, Conn.,	100 pounds Hubbard's raw knuckle bone flour. 100 pounds Hubbard's dissolved bone black.
20th Century Co., Boston, Mass.,	3 pounds superfine ground granitic rock.

Library. — List of Gifts for Two-Year Period, ending Nov. 30, 1910.

Allen, Dr. E. W., Washington, D. C.,	Complete set of "Experiment Station Record."
Brooks, Dr. William P., Amherst,	Agricultural periodicals and magazines.
Carruth, Herbert S., Boston,	Fifteen volumes relating to flora and fauna of New Zealand.
Chapman, George H., Amherst,	Experiment station bulletins.
Clark, Mrs. Milford H., Sunderland,	Magazines and books.
Crane, Hon. W. Murray, Dalton,	History of the United States capitol, 2 volumes.
Fernald, Prof. Charles H., Amherst,	Scientific contributions and college publications.
Fowler, F. H., Boston,	Agricultural bulletins and reports.
Gage, Mrs. A. E., Woburn,	"American Review of Reviews," 16 volumes.
Henry, Mrs. George, Amherst,	Magazines and books.
Hosmer, Hon. Frank A., Amherst,	Public documents.
Howard, Prof. S. Francis, Amherst,	Magazines and newspaper clippings.
Lodge, Hon. Henry Cabot, Nahant,	Congressional documents.
Mills, Prof. George F., Amherst,	Magazines.
Mills, James K., Amherst,	Books, photographs and magazines.
Osmun, Prof. A. V., Amherst,	Agricultural bulletins and magazines.
Raymond, Prof. George L., Princeton, N. J.,	Ten volumes on "Comparative Æsthetics."
Stone, Dr. George E., Amherst,	Magazines.
Superintendent of Documents, Washington, D. C.,	American Historical Association reports, document catalogues, and United States public documents.
United States Department of Agriculture, Washington, D. C.,	Complete set of Farmers' bulletins, and numerous other publications.
Walker, Dr. C. S., Amherst,	Newspaper clippings and pamphlets.
Waugh, Prof. F. A., Amherst,	Magazines and books.
Williams, Mrs. Mary E., Amherst,	Books.

Special mention is gladly made concerning the large number of botanical and horticultural books recently given to the library by Mr. George C. Woolson, 1871, of Yonkers, N. Y. The larger part of the collection belonged originally to Mr. Woolson's brother-in-law, the late Dr. George Thurber, a botanist of wide reputation, and whom Dr. Sargent of Harvard described as the most accomplished horticultural writer in the country.

In presenting these books to the library Mr. Woolson gives them as a memorial to the class of 1871, and this idea is to be conveyed by the special bookplate which is to be made for this collection. A detailed description of this splendid gift of about 1,200 volumes cannot be made at this time, but it is intended to publish something of that nature in one of the college publications at an early date.

REPORT OF TREASURER

FOR THE FISCAL YEAR ENDING NOV. 30, 1910.

BALANCE SHEET.

			DR.	CR.
1909.				
Dec. 1.	To cash on hand,		$4,106 58	
	To cash on deposit,		10,813 84	
1910.				
Nov. 30.	To special appropriation receipts, State Treasurer,		121,152 88	
	By special appropriation disbursements,			$121,933 47
	To experiment station receipts,		60,791 90	
	From State Treasurer,	$13,500 00		
	From United States Treasurer	29,000 00		
	From other sources,	18,291 90		
	By experiment station disbursements,			61,674 64
	To current accounts receipts,		193,029 03	
	From United States Treasurer, Morrill fund,	$16,666 67		
	From United States Treasurer, Nelson fund,	13,333 33		
	From State Treasurer, endowed fund,	10,613 32		
	From State Treasurer, maintenance,	33,000 00		
	From State Treasurer, scholarship,	15,000 00		
	From State Treasurer, instruction,	40,000 00		
	From State Treasurer, Extension department,	8,125 00		
	From State Treasurer, agricultural education,	5,000 00		
	From State Treasurer, veterinary,	1,000 00		
	From State Treasurer, student labor,	7,500 00		
	From other sources,	42,790 71		
	By current account disbursements,			182,693 14
	To student trust funds receipts,		57,571 79	
	By student trust funds disbursements,			55,777 37
	To experiment station trust funds receipts,		728 87	
	By experiment station trust funds disbursements,			471 47
	By cash on hand,			5,664 38
	By cash on deposit,			19,980 42
			$448,194 89	$448,194 89

Statement of the First National Bank of Amherst with the Massachusetts Agricultural College.

		Dr.	Cr.
1909.			
Dec. 1.	Balance on hand,	$25,986 26[1]	
1910.			
Nov. 30.	Deposits,	474,029 15	
	Interest,	264 29	
	Disbursements as per warrants paid,		$460,111 23
	Balance on hand,		40,168 47[1]
		$500,279 70	$500,279 70

[1] These amounts are greater Dec. 1, 1909, by $15,172.42, and Nov. 30, 1910, by $20,155.11, on account of outstanding checks.

Special Appropriations.

Name of Appropriation.	Date made.	Amount of Appropriation.	Amount previously expended.	Amount expended during Fiscal Year.	Amount expended to Date.	Amount received from State Treasurer.	Balance on Hand with State Treasurer.	
Athletic field,	1909	$5,500 00	$4,761 10	$738 90	$5,500 00	$5,500 00	–	–
Replacing barn,	1909	30,000 00	19,187 48	13,689 04	32,876 52	30,000 00	–	$2,876 52 [1]
Repairs and improvements,	1909	33,000 00	24,620 84	8,633 93	33,254 77	33,254 77	–	–
Teaching equipment,	1909	10,000 00	4,267 28	5,738 72	10,337 40	10,337 40	–	–
Zoölogical building,	1909	80,000 00	16,390 31	50,380 72	66,771 03	66,771 03	$13,246 32	–
Animal husbandry building,	1910	10,000 00	–	4,166 35	4,166 35	3,975 21	6,024 79	–
Investigation as to cranberry growing,	1910	15,000 00	–	63 06	63 06	63 06	14,936 94 [2]	–
Laboratory for pomology,	1910	12,000 00	–	1,223 38	1,223 38	1,223 38	10,776 62	–
Land,	1910	17,500 00	–	11,797 11	11,797 11	11,797 11	65 98 [3]	–
Repairs and improvements,	1910	25,000 00	–	16,640 06	16,640 06	15,118 95	9,881 05	–
Teaching and office equipment,	1910	10,000 00	–	2,984 13	2,984 13	2,494 51	7,505 49	–
Equipment for laboratory, entomology and zoölogy,	1910	15,000 00	–	5,872 19	5,872 19	5,066 67	9,933 33	–
		$263,000 00	$69,227 01	$121,927 59	$191,486 00	$185,602 09	$72,370 52	–

[1] There is a credit of $3,200 under farm buildings to take care of this amount. [2] From this amount should be taken $12,736.25 paid direct by State Treasurer.
[3] This amount was lessened by $5,636.91 being paid direct by State Treasurer.

Current Accounts.

Disbursements and Receipts.

Accounts.	Disbursements from Dec. 1, 1909, to Nov. 30, 1910.	Receipts from Dec. 1, 1909, to Nov. 30, 1910.	Apportionment for Year ending Nov. 30, 1910.	Balance to Credit.
Architects' fees,	$3,155 44[1]	–	–	—$3,155 44
Administration,	4,729 04	$30 07	$5,010 00	310 96
Agricultural,	22,028 79	16,339 90	5,825 00	136 11
Agricultural economics,	112 60	–	50 00	—62 60
Agricultural education,	5,047 21	15 91	5,000 00	—31 30
Botanical,	994 05	259 34	700 00	—34 71
Chemical,	2,137 73	2,075 14	1,000 00	937 41
Dean's office,	232 36	36	200 00	—32 00
Entomology,	515 29	251 61	725 00	461 32
English,	539 69	1 00	855 00	316 31
Extension department,	12,336 03	1,745 63	8,125 00	—2,465 40
Floriculture,	2,987 80	2,495 93	1,250 00	758 13
General horticulture,	2,436 18	805 51	1,800 00	169 33
General maintenance,	32,405 40	10,739 37	30,700 00	9,033 97
Graduate school,	1,413 19	–	2,500 00	1,086 81
Grounds,	1,444 30	54 10	1,200 00	—190 20
Library,	5,083 89	567 51	4,575 00	58 62
Landscape gardening,	258 21	123 90	100 00	—34 31
Market gardening,	4,970 60	2,604 94	2,100 00	—265 66
Mathematics and physics,	251 74	1 12	400 00	149 38
Military,	1,657 52	53 25	1,500 00	—104 27
Options on land,	125 00	115 00	–	—10 00
Physical education,	566 41	137 85	530 00	101 44
Political science,	7 05	–	10 00	2 95
Pomology,	3,237 78	1,398 70	1,850 00	10 92
President's office,	721 91	15 25	800 00	93 34
Registrar,	249 12	–	300 00	50 88
Salaries,	71,124 91	143 32	70,950 00	—31 59
Treasurer's office,	753 75	34 69	675 00	—44 06
Veterinary,	777 42	5 90	1,542 97[2]	771 45
Zoölogical,	392 73	275 41	20 00	—97 32
State Treasurer: —				
Endowment fund,	–	10,613 32	–	–
Instruction fund,	–	40,000 00	–	–
Maintenance fund,	–	33,000 00	–	–
Student labor fund,	–	7,500 00	–	–
Scholarship fund,	–	15,000 00	–	–
Extension department,	–	8,125 00	–	–
Agricultural education,	–	5,000 00	–	–
Veterinary,	–	1,000 00	–	–
Graduate school,	–	2,500 00	–	–
United States Treasurer: —				
Morrill fund,	–	16,666 67	–	–
Nelson fund,	–	13,333 33	–	–
	$182,693 14	$193,029 03	$150,292 97	$14,449 33
Balance beginning fiscal year, Dec. 1, 1909,	–	11,719 89	–	—6,558 86
Balance on hand Nov. 30, 1910,	22,055 78	–	–	–
	$204,748 92	$204,748 92	$150,292 97	$7,890 47

[1] Architects' fees are on account of the cost of the preparation of plans and specifications for use of Legislature, but on account of no appropriation being made this expense was paid from the current funds.

[2] Includes balance brought forward Dec. 1, 1909, $542.97.

Summary.

	Disbursements.	Receipts.
By cash on hand Dec. 1, 1909,	–	$11,719 89
By institution receipts Nov. 30, 1910,	–	40,290 71
By State Treasurer receipts Nov. 30, 1910,	–	122,738 32
By United States Treasurer receipts Nov. 30, 1910,	–	30,000 00
To total disbursements Nov. 30, 1910,	$182,693 14	–
	$182,693 14	$204,748 92
Bills receivable Dec. 1, 1909, deducted,	–	4,558 07
Bills payable Dec. 1, 1909, deducted,	1,724 68	–
	$180,968 46	$200,190 85
Bills receivable Nov. 30, 1910,	–	2,187 72
Bills payable Nov. 30, 1910,	1,668 77	–
Balance,	19,741 34	–
	$202,378 57	$202,378 57

Comparative Disbursements and Receipts for 1909–10.

Accounts.	Disbursements.		Receipts.	
	1909.	1910.	1909.	1910.
Architects' fees,	–	$3,155 44	–	–
Administration,	$5,041 39	4,729 04	$173 15	$30 07
Agriculture,	19,697 34	22,028 79	14,271 77	16,339 90
Agricultural economics,	6 95	112 60	–	–
Agricultural education,	5,204 17	5,047 21	13 90	15 91
Botanical,	1,320 99	994 05	611 90	259 34
Chemical,	3,152 00	2,137 73	1,775 82	2,075 14
Dean's office,	201 17	232 36	–	36
Entomology,	651 31	515 29	224 87	251 61
English,	372 37	539 69	–	1 00
Extension work,	6,206 95	12,336 03	1,475 27	1,745 63
Floriculture,	2,398 65	2,987 80	1,484 65	2,495 93
Farm fire,	–	–	2,469 64	–
General horticulture,	2,992 94	2,436 18	1,183 34	805 51
General maintenance,	33,518 04	32,405 40	11,162 75	10,739 37
Graduate school,	397 68	1,413 19	–	–
Grounds,	1,474 61	1,444 30	16 30	54 10
Library,	3,659 38	5,083 89	422 48	567 51
Landscape gardening,	231 62	258 21	162 00	123 90
Market gardening,	4,775 49	4,970 60	2,914 03	2,604 94
Mathematics and physics,	251 71	251 74	–	1 12
Meteorology,	65 20	–	–	–
Military,	943 75	1,657 52	126 87	53 25
Options on land,	–	125 00	–	115 00
Physical education,	149 77	566 41	–	137 85
Political science,	–	7 05	–	–
Pomology,	2,943 64	3,237 78	1,472 29	1,398 70
President's office,	832 58	721 91	63 29	15 25
Registrar,	176 61	249 12	–	–
Salaries,	63,353 96	71,124 91	–	143 32
Treasurer's office,	492 18	753 75	24 27	34 69
Veterinary,	1,042 00	777 42	148 00	5 90
Zoölogical,	237 97	392 73	322 60	275 41
State Treasurer: —				
Agricultural education,	–	–	6,250 00	5,000 00
Endowment fund,	–	–	10,613 32	10,613 32
Graduate school,	–	–	–	2,500 00
Heat and light,	–	–	625 00	–
Instruction,	–	–	35,750 00	40,000 00
Maintenance,	–	–	15,000 00	33,000 00
Extension department,	–	–	6,250 00	8,125 00
Scholarship fund,	–	–	18,750 00	15,000 00
Student labor,	–	–	–	7,500 00
Veterinary,	–	–	1,250 00	1,000 00
United States Treasurer: —				
Morrill fund,	–	–	16,666 67	16,666 67
Nelson fund,	–	–	10,000 00	13,333 33
	$161,792 42	$182,693 14	$161,674 18	$193,029 03
Balance beginning fiscal year,	–	–	11,838 13	11,719 89
Balance at close,	11,719 89	22,055 78	–	–
	$173,512 31	$204,748 92	$173,512 31	$204,748 92

Experiment Station.

Disbursements and Receipts.

Accounts.	Disbursements from Dec. 1, 1909, to Nov. 30, 1910.	Receipts from Dec. 1, 1909, to Nov. 30, 1910.	Apportionment for Year ending Nov. 30, 1910.	Balance to Credit.
Administration,	$1,722 57	$32 80	$2,000 00	$310 23
Agricultural,	5,286 14	2,963 67	2,500 00	177 53
Asparagus,	736 59	–	700 00	—36 59
Botanical,	1,283 19	28 70	1,600 00	345 51
Chemical,	9,228 18	6,660 08	2,800 00	231 90
Cranberry,	1,504 29	1,958 54	1,000 00	1,454 25
Entomological,	562 81	1 20	800 00	238 39
Fertilizer,	–	5,880 00	–	5,880 00
Freight,	445 03	85	500 00	55 82
Graves orchard,	350 81	119 00	300 00	68 19
Horticultural,	1,530 18	2 37	1,450 00	—77 81
Library,	289 62	–	300 00	10 38
Meteorology,	299 03	–	300 00	97
Publications,	1,953 86	–	3,200 00	1,246 14
Salaries,	31,438 00	15 52	31,825 36	402 88
Treasurer's office,	370 74	–	400 00	29 26
Veterinary,	218 64	–	250 00	31 36
Hatch fund,	–	15,000 00	–	–
Adams fund,	–	14,000 00	–	–
State fund,	–	10,500 00	–	–
Feed law,	3,580 61	3,000 00	5,148 50	1,567 89
Cranberry association,[1]	544 17	544 17	–	–
Expert services,	12 40	85 00	–	72 60
Tobacco investigations,	317 78	–	400 00	82 22
	$61,674 64	$60,791 90	$55,473 86	$12,205 52
Balance beginning fiscal year, Dec. 1, 1909,	–	6,682 68	–	—114 40
Balance on hand Nov. 30, 1910,	5,799 94	–	–	–
	$67,474 58	$67,474 58	$55,473 86	$12,091 12

[1] Transferred to cranberry growers' contribution account.

Experiment Station Trust Fund.

Account.	Disbursements for Year ending Nov. 30, 1910.	Receipts for Year ending Nov. 30, 1910.	Balance on Hand.
Cranberry growers' contribution,	$471 47	$728 87	$257 40

Comparative Disbursements and Receipts for 1909–10.

Accounts.	Disbursements.		Receipts.	
	1909.	1910.	1909.	1910.
Administration,	$2,065 20	$1,722 57	$47 35	$32 80
Agricultural,	4,578 09	5,286 14	2,010 46	2,963 67
Asparagus,	715 60	736 59	–	–
Botanical,	1,617 96	1,283 19	44 13	28 70
Chemical,	9,403 73	9,228 18	4,809 38	6,660 08
Cranberry,	459 56	1,504 29	–	1,958 54
Entomological,	495 58	562 81	–	1 20
Fertilizer,	–	–	5,505 00	5,880 00
Freight,	499 91	445 03	15 29	85
Graves orchard,	281 10	350 81	–	119 00
Horticultural,	1,719 44	1,530 18	1 15	2 37

Comparative Disbursements and Receipts for 1909–10 — Concluded.

Accounts.	Disbursements.		Receipts.	
	1909.	1910.	1909.	1910.
Library,	$343 11	$289 62	$8 87	–
Meteorology,	308 05	299 03	–	–
Publications,	2,031 81	1,953 86	107 98	–
Salaries,	27,842 23	31,438 00	153 08	$15 52
Treasurer's Office,	319 82	370 74	–	–
Veterinary,	231 71	218 64	–	–
Hatch fund,	–	–	15,000 00	15,000 00
Adams fund,	–	–	12,000 00	14,000 00
State fund,	–	–	13,125 00	10,500 00
Feed law,	3,011 51	3,580 61	4,500 00	3,000 00
Repairs,	1 30	–	–	–
Cranberry Association,[1]	–	544 17	–	544 17
Expert services,	–	12 40	–	85 00
Tobacco investigations,	–	317 78	–	–
	$55,925 71	$61,674 64	$57,327 69	$60,791 90
Balance beginning fiscal year,	–	–	5,280 70	6,682 68
Balance on hand Nov. 30, 1910,	6,682 68	5,799 94	–	–
	$62,608 39	$67,474 58	$62,608 39	$67,474 58

[1] Transferred to cranberry growers' contribution account.

Agricultural Division.

Disbursements and Receipts for Fiscal Year ending Nov. 30, 1910.

	Disbursements.	Receipts.
Academic.		
Maintenance,	$99 74	$0 64
Equipment,	114 99	7 76
Student labor,	133 11	45
Miscellaneous,	140 76	1 50
Department totals,	$488 60	$10 35
Office,	$215 55	$22 79
Farm.		
Labor,	$9,378 12	$3,139 52
Dairy,	1,568 73	3,839 85
Teams,	1,353 26	27 00
Cattle,	4,559 02	7,352 65
Horses,	494 92	57 50
Swine,	213 25	377 47
Field Crops,	1,180 45	1,444 97
Repairs,	268 11	–
Improvements,	178 62	46 80
Student labor,	1,719 83	11 25
Sundry,	142 29	9 75
Tools,	268 04	–
Department totals,	$21,324 64	$16,306 76
Division totals,	$22,028 79	$16,339 90

AGRICULTURAL DIVISION — *Concluded.*

Summary.

	Dr.	Cr.
By total division receipts,		$16,339 90
By bills receivable,		1,136 49
By net apportionment,		5,825 00
To total disbursements,	$22,028 79	
To bills payable,	499 74	
To balance,	772 86	
	$23,301 39	$23,301 39

Inventory of Quick Assets.

	Nov. 30, 1909.	Nov. 30, 1910.
Inventory of produce,	$3,219 93	$4,999 13
Inventory of cattle,	8,155 00	10,042 00
Inventory of swine,	182 00	340 00
Inventory of horses,	4,375 00	4,400 00
	$15,931 93	$19,781 13

HORTICULTURAL DIVISION.

Disbursements and Receipts for Fiscal Year ending Nov. 30, 1910.

	Disbursements.	Receipts.
Market gardening,	$4,970 60	$2,604 94
General horticulture,	2,436 18	805 51
Floriculture,	2,987 80	2,495 93
Pomology,	3,237 78	1,398 70
Landscape gardening,	258 21	123 90
Totals,	$13,890 57	$7,428 98

Summary.

	Dr.	Cr.
By total division receipts,		$7,428 98
By bills receivable,		883 70
By apportionment,		7,100 00
To total division disbursements,	$13,890 57	
To total division bills payable,	122 93	
To balance unexpended,	1,399 18	
	$15,412 68	$15,412 68

Inventory of Quick Assets.

	Nov. 30, 1909.	Nov. 30, 1910.
Inventory of produce,	$410 40	$496 00

INVENTORY — REAL ESTATE.

Land (Estimated Value).

Baker place,	$2,500 00	
Bangs place,	2,350 00	
Clark place,	4,500 00	
College farm,	37,000 00	
Harlow farm,	3,284 63	
Kellogg farm,	5,868 45	
Louisa Baker place,	5,636 91	
Old creamery place,	1,726 25	
Pelham quarry,	500 00	
Westcott place,	2,250 00	
Allen place,	500 00	
Charmbury place,	450 00	
Loomis place,	415 00	
Hawley & Brown place,	675 00	$67,656 24

College Buildings (Estimated Value).

Chemical laboratory,	$8,200 00	
Clark hall,	67,400 00	
Dining hall,	35,450 00	
Drill hall,	7,000 00	
Durfee plant house and fixtures,	10,000 00	
Dwelling houses purchased with farm,	5,100 00	
Entomology building,	80,000 00	
Farmhouse,	2,050 00	
French hall,	17,000 00	
Glass house range,	15,000 00	
Graves house and barn,	1,560 00	
Gun shed and bath room,	2,500 00	
Hay storage barn and silo,	30,000 00	
Horse barn,	5,020 00	
Horticultural barn,	2,525 00	
Insectary,	5,800 00	
Mathematical building,	5,600 00	
North dormitory,	25,400 00	
Power house,	13,000 00	
Powder house,	75 00	
President's house,	12,000 00	
Small plant house, with vegetable cellar and cold grapery,	4,700 00	
South dormitory,	35,500 00	
Stone chapel,	30,225 00	
Tool house,	2,000 00	
Veterinary laboratory and stable,	22,995 60	
Wilder Hall,	37,300 00	
Young stock barn,	6,500 00	
		489,900 60
Amount carried forward,		$557,556 84

College Equipment (Estimated Value).

Amount brought forward,		$557,556 84
Agricultural division: —		
Academic,	$3,742 14	
Dairy school,	1,735 14	
Farm,	27,053 84	
Agricultural education,	607 21	
Botanical department,	7,468 47	
Chemical laboratory,	4,634 50	
College supplies,	146 05	
Dean's office,	277 80	
Dining hall,	3,029 63	
Entomological laboratory,	4,158 15	
Extension department,	952 05	
Fire apparatus,	623 20	
Floriculture,	5,690 73	
General horticulture,	8,603 55	
General maintenance,	64,369 57	
Landscape gardening,	4,286 65	
Language and literature,	189 01	
Library,	54,679 55	
Market gardening,	699 00	
Military,	1,153 80	
Pomology,	1,335 43	
Physical education,	2,136 04	
Physics and mathematics,	5,679 50	
President's office,	938 83	
Registrar's office,	292 20	
Treasurer's office,	926 00	
Trophy room,	1,273 85	
Veterinary laboratory,	7,879 97	
Water mains,	7,810 00	
Zoölogical laboratory,	8,647 79	
Zoölogical museum,	5,689 73	
		236,709 38

Experiment Station Buildings (Estimated Value).

Agricultural laboratory,	$9,000 00	
Chemical laboratory (plant and animal chemistry),	20,000 00	
Entomological laboratory,	850 00	
		29,850 00

Experiment Station Equipment (Estimated Value).

Agricultural laboratory,	$7,303 65	
Botanical laboratory,	4,193 44	
Chemical laboratory,	19,661 18	
Director's office,	3,200 50	
Entomological laboratory,	21,904 15	
Horticultural laboratory,	1,058 20	
Meteorology laboratory,	1,304 80	
Treasurer's office,	480 50	
		59,106 42
		$883,222 64

Inventory Summary.

Land,	$67,656 24	
College buildings,	489,900 60	
College equipment,	236,709 38	
Experiment station buildings,	29,850 00	
Experiment station equipment,	59,106 42	
		$883,222 64

STUDENTS' TRUST FUNDS ACCOUNTS.

ACCOUNTS.	Disbursements for Year ending Nov. 30, 1910.	Receipts for Year ending Nov. 30, 1910.	Balance brought forward Dec. 1, 1909.	Balance on Hand Nov. 30, 1910.
Athletics,	$2,116 88	$4,676 79	$10 00	$2,569 91
Dining hall,	41,698 17	40,910 28	—5,658 36	—6,446 25
College signal,	1,549 98	1,629 86	333 20	413 08
Keys,	48 25	43 50	33 75	29 00
Creamery house,	167 76	184 43	24 54	41 21
Student deposits,	3,539 42	3,266 15	447 63	174 36
Harlow farm,	287 78	302 77	—42 51	—27 52
Trophy room tax,	790 99	702 97	364 25	276 23
Kellogg farm,	327 21	417 75	—22 42	68 12
Text-books,	3,627 19	3,577 56	1,154 22	1,104 59
Uniforms,	1,551 28	1,755 20	1,527 78	1,731 70
Musical association,	72 46	79 53	23 75	30 82
Louisa Baker farm,	–	25 00	188 14	213 14
	$55,777 37	$57,571 79	—$5,723 29	$6,652 16
Balance on hand Dec. 1, 1909,	1,616 03	–	4,107 26	—6 473 77
Balance on hand Nov. 30, 1910,	–	178 39	–	–
	$57,393 40	$57,393 40	—$1,616 03	$178 39

DETAILED STATEMENT OF DINING HALL.

	Liabilities.	Resources.
Dec. 1, 1909, cash overdraft,	$5,658 36	–
Nov. 30, 1910, provisions purchased,	41,698 17	–
Nov. 30, 1910, outstanding bills,	1,224 11	–
Nov. 30, 1910, total collections,	–	$40,910 28
Nov. 30, 1910, total collections outstanding,	–	2,856 26
Nov. 30, 1910, inventory,	–	2,922 89
Balance,	–	1,891 21
	$48,580 64	$48,580 64

ENDOWMENT FUND.[1]

	Principal.	Income.
United States grant (5 per cent.),	$219,000 00	$7,300 00
Commonwealth grant (3½ per cent.),	142,000 00	3,313 32
		$10,613 32

[1] This fund is in the hands of the State Treasurer, and the Massachusetts Agricultural College receives two-thirds of the income from the same.

Beneficiary Funds.

Burnham Emergency Fund.

		Market Value Dec. 1, 1910.	Par Value.	Income.
Two Lake Shore & Michigan Southern Railroad gold notes, at $1,000,*		–	$2,000 00	$50 00
Two bonds American Telephone and Telegraph Company 4s, at $910,		$1,820 00	2,000 00	80 00
Two bonds Western Electric Company 5s, at $1,000,		2,000 00	2,000 00	50 00
One bond United Fruit Company 5s,		1,010 00	1,000 00	50 00
		$4,830 00	$7,000 00	$230 00
*On Feb. 1, 1910: —				
Two Lake Shore & Michigan Southern Railroad bonds were sold for	$2,000 00	–	—2,000 00	–
Two Western Electric Company bonds were purchased for	1,996 67	–	–	3 33
Unexpended balance Dec., 1909,		–	–	382 62
		$4,830 00	$5,000 00	$615 95
Disbursements for fiscal year ending Nov. 30, 1910,		–	–	215 05
Cash on hand Dec. 1, 1910,		–	–	$400 90

Library Fund.

	Market Value Dec. 1, 1910.	Par Value.	Income.
Five bonds Lake Shore & Michigan Southern Railroad Company 4s, at $93½,	$4,675 00	$5,000 00	$200 00
Five bonds New York Central & Hudson River Railroad Company 4s, at $93½,	4,675 00	5,000 00	200 00
Two shares New York Central & Hudson River Railroad Company stock, at $112,	224 00	200 00	11 50
Sale of rights of New York Central & Hudson River Railroad Company stock,	–	–	12 90
Amherst Savings Bank, deposit,	167 77	167 77	6 68
	$9,741 77	$10,367 77	$431 08
Transferred to college library account,	–	–	431 08

Special Funds.

Endowed Labor Fund (the Gift of a Friend of the College).

	Market Value Dec. 1, 1910.	Par Value.	Income.
Two bonds American Telephone and Telegraph Company 4s, at $93½,	$1,870 00	$2,000 00	$80 00
Two bonds Lake Shore & Michigan Southern Railroad Company 4s, at $93½,	1,870 00	2,000 00	80 00
One bond New York Central Railroad debenture 4s,	935 00	1,000 00	40 00
Amherst Savings Bank, deposit,	143 39	143 39	5 72
	$4,818 39	$5,143 39	$205 72
Gift of a friend, Hon. Lucius Tuttle,	–	–	100 00
Unexpended balance Dec. 1, 1909,	–	–	680 67
Cash on hand Dec. 1, 1910,	–	–	$986 39

SPECIAL FUNDS — *Continued.*

Whiting Street Scholarship Fund.

	Market Value Dec. 1, 1910.	Par Value.	Income.
One bond New York Central debenture 4s,	$935 00	$1,000 00	$40 00
Amherst Savings Bank, deposit,	271 64	271 64	10 84
	$1,206 64	$1,271 64	$50 84
Unexpended balance Dec. 1, 1909,	–	–	36 79
			$87 63
Disbursements for scholarships for fiscal year ending Nov. 30, 1910,	–	–	30 00
Cash on hand Dec. 1, 1910,	–	–	$57 63

Hills Fund.

Northampton Institution for Savings, deposit,		$1,180 00	$1,180 00	$44 66
One bond American Telephone and Telegraph Company 4s,		910 00	1,000 00	40 00
One bond New York Central & Hudson River Railroad debenture 4s,		935 00	1,000 00	40 00
One bond New York Central & Hudson River Railroad Company 3½s,		840 00	1,000 00	35 00
One bond New York Central & Hudson River Railroad gold note, 5 per cent.,*		–	1,000 00	25 00
One bond Western Electric Company 5s,		1,000 00	1,000 00	25 00
One bond Metropolitan Street Railway, Kansas City, 5 per cent.,		980 00	1,000 00	50 00
Three bonds Pacific Telephone and Telegraph Company 5s, at $98,		2,940 00	3,000 00	150 00
Exchange on Metropolitan Street Railway bond,		–	–	20 00
Boston & Albany Railroad stocks, at $224,		812 00	362 00	31 68
Amherst Savings Bank, deposit,		72 75	72 75	2 88
		$9,669 75	$10,614 75	$464 22
*On Feb. 1, 1910: —				
One New York Central & Hudson River gold note was sold for	$1,000 00	–	—1,000 00	–
One bond Western Electric Company 5s was purchased for	998 33	–	–	1 67
Unexpended balance Dec. 1, 1909,		–	–	379 70
		$9,669 75	$9,614 75	$845 59
Disbursements by horticultural and botanical departments for fiscal year ending Nov. 30, 1910,		–	–	227 13
Cash on hand Dec. 1, 1910,		–	–	$618 46

Mary Robinson Fund.

Northampton Institution for Savings, deposit,	$820 00	$820 00	$31 04
Boston & Albany Railroad stock, at $224,	84 00	38 00	3 32
	$904 00	$858 00	$34 36
Unexpended balance Dec. 1, 1909,	–	–	21 17
Cash on hand Dec. 1, 1910,	–	–	$55 53

Special Funds — *Concluded.*

Grinnell Prize Fund.

	Market Value Dec. 1, 1910.	Par Value.	Income.
Ten shares New York Central & Hudson River Railroad stock,	$1,120 00	$1,000 00	$57 50
Sale of rights of New York Central & Hudson River Railroad Company's stock,	–	–	64 50
			$122 00
Unexpended balance Dec. 1, 1909,	–	–	121 24
			$243 24
Disbursements for prizes,	–	–	50 00
Cash on hand Dec. 1, 1910,	–	–	$193 24

Gassett Scholarship Fund.

One bond New York Central debenture 4s, at $93¼,	$935 00	$1,000 00	$40 00
Amherst Savings Bank, deposit,	11 64	11 64	44
	$946 64	$1,011 64	$40 44
Unexpended balance Dec. 1, 1909,	–	–	33 43
			$73 87
Disbursements for scholarships for fiscal year ending Nov. 30, 1910,	–	–	37 50
Cash on hand Dec. 1, 1910,	–	–	$36 37

Massachusetts Agricultural College (Investment).

One share New York Central & Hudson River Railroad stock,	$112 00	$100 00	$5 75
Sale of rights of New York Central & Hudson River Railroad Company's stock,	–	–	6 45
			$12 20
Unexpended balance Dec. 1, 1909,	–	–	38 00
Cash on hand Dec. 1, 1910,	–	–	$50 20

Danforth Keyes Bangs Fund.

Two bonds Pacific Telephone and Telegraph Company 5s, at $98,	$1,960 00	$2,000 00	$100 00
Two bonds American Telephone and Telegraph Company 4s, at $91,	1,820 00	2,000 00	80 00
Two bonds Union Electric Light and Power Company 5s, at $99,	1,980 00	2,000 00	100 00
Interest received from loan,	–	–	1 25
	$5,760 00	$6,000 00	$281 25
Unexpended balance Dec. 1, 1909,	–	–	234 04
	–	–	$515 29
Loan to students outstanding,	–	–	170 00
Cash on hand Dec. 1, 1910,	–	–	$345 29

John C. Cutter Fund.

		Market Value Dec. 1. 1910.	Par Value.	Income.
One bond Pacific Telephone and Telegraph Company 5s, at $98,*		$980 00	$1,000 00	$25 00
*Amount of John C. Cutter fund,	$1,000 00	–	–	–
One Pacific Telephone and Telegraph bond,	996 67	–	–	3 33
Cash on hand Dec. 1, 1910,		–	–	$28 33

Summary of Balances on Hand of the Income from Funds Held in Trust by the Massachusetts Agricultural College.

Burnham emergency fund,	$400 90
Endowed labor fund,	986 39
Whiting Street scholarship fund,	57 63
Hills fund,	618 46
Mary Robinson fund,	55 53
Grinnell prize fund,	193 24
Gassett scholarship fund,	36 37
Massachusetts Agricultural College investment,	50 20
Danforth Keyes Bangs fund,	345 29
John C. Cutter fund,	28 33
	$2,772 34

I hereby certify that I have this day examined the Massachusetts Agricultural College account, as reported by the treasurer, Fred C. Kenney, for the year ending Nov. 30, 1910. All bonds and investments are as represented in the treasurer's report. All disbursements are properly vouched for, and all cash balances are found to be correct.

CHARLES A. GLEASON,
Auditor.

Amherst, Dec. 12, 1910.

History of Special Funds.

Burnham emergency fund: —

A bequest from T. O. H. P. Burnham of Boston, made without any conditions. The trustees of the college have voted that the fund be kept intact, and that the income from it be used for the college for such purposes as they believe to be for its best interest, $5,000 00

Library fund: —

The library of the college at the present time contains about 30,000 volumes. The income from the fund raised by the alumni and others is devoted to its increase, and additions are made from time to time as the needs of the different departments require. Dec. 27, 1883, William Knowlton gave $2,000; Jan. 1, 1894, Charles L. Flint gave $1,000; in 1887 Elizur Smith of Lee, Mass., gave $1,215. These were the largest bequests, and amount now to . . 10,000 00

Endowed labor fund: —	
Gift of a friend of the college in 1901, income of which is to be used for the assistance of needy and deserving students, ...	$5,000 00
Whiting Street scholarship: —	
Gift of Whiting Street of Northampton, for no special purpose, but to be invested and the income used. This fund is now used exclusively for scholarship, .	1,000 00
Hills fund: —	
Gift of Leonard M. and Henry F. Hills, in 1867, to establish and maintain a botanic garden, . . .	10,000 00
Mary Robinson fund: —	
Gift of Miss Mary Robinson of Medfield, in 1874, for scholarship, ...	1,000 00
Grinnell prize fund: —	
Gift of Hon. Wm. Claflin, to be known as the Grinnell agricultural prize, to be given to the two members of the graduating class who may pass the best oral and written examination in theory and practice of agriculture, given in honor of George B. Grinnell of New York, ...	1,000 00
Gassett scholarship fund: —	
Gift of Henry Gassett of Boston, the income to be used for scholarship, ...	1,000 00
Massachusetts Agricultural College investment fund: —	
Investment made by vote of trustees, in 1893; to purchase one share New York Central & Hudson River Railroad stock. The income from this fund has been allowed to accumulate, ...	100 00
Danforth Keyes Bangs fund: —	
Gift on account of the Louisa Baker estate, April 14, 1909, the income thereof to be used annually in aiding poor, industrious and deserving students to obtain an education in said college, ...	6,000 00
John C. Cutter fund: —	
Gift of Dr. John C. Cutter, an alumnus of the college, who died in August, 1909, to be invested by the trustees, and the income to be annually used for the purchase of books on hygiene, ...	1,000 00
	$41,100 00

PRIZES.

Special prize, for best work done in entomology by undergraduates. This prize is given by the alumni entomologists, ...	$30 00
Special prize, in honor of J. W. D. French, given by the Bay State Agricultural Society, for the best essay on forestry from the senior class, ...	25 00
Special prize, given by the Western Alumni Association to that member of the sophomore class who during his first two years has shown the greatest improvement in scholarship, character and example, ...	25 00
	$80 00

FRED C. KENNEY,

Treasurer.

THE M. A. C. BULLETIN

AMHERST, MASS.

Vol. IV. No. 1. February, 1912.

Published Six Times a Year by the College.

Jan., Feb., Mar., May, Sept., Oct.

ENTERED AS SECOND-CLASS MATTER AT THE POST OFFICE, AMHERST, MASS.

Public Document No. 31

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FORTY-NINTH ANNUAL REPORT

OF THE

MASSACHUSETTS AGRICULTURAL COLLEGE.

PART I.

REPORT OF THE PRESIDENT AND OTHER OFFICERS

FOR FISCAL YEAR ENDED NOV. 30, 1911.

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WRIGHT & POTTER PRINTING CO., STATE PRINTERS,
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Approved by
The State Board of Publication.

The Commonwealth of Massachusetts.

Massachusetts Agricultural College,
Amherst, Dec. 1, 1911.

To His Excellency Eugene N. Foss.

Sir: — On behalf of the trustees of the Massachusetts Agricultural College I have the honor to transmit herewith, to Your Excellency and the Honorable Council, Part I. of the forty-ninth annual report of the trustees, for the fiscal year ended Nov. 30, 1911, this being the report to the corporation of the president and other officers of the college.

I am, very respectfully, your obedient servant,

KENYON L. BUTTERFIELD,
President.

REPORT OF THE PRESIDENT OF THE COLLEGE.

Gentlemen of the Corporation.

I herewith submit my annual report as president of the Massachusetts Agricultural College.

Acting in accordance with a plan approved by the administrative officers of the college and by the trustees, the scope of the report has been considerably broadened. Each administrative officer has been asked to present a résumé of the year's work coming under his jurisdiction, a statement of immediate needs, and the suggestion of some fundamental problems. This material has been freely utilized, without particular credit, in the preparation of this report.

The report divides into three fairly distinct portions: —

1. A discussion of some fundamental problem of the college.
2. A review of the year.
3. A statement of immediate needs.

The report is followed by the usual data concerning students, gifts, etc., and by the annual report of the treasurer of the institution.

It is a part of the plan hereafter to discuss at some length in each annual report one or more of the fundamental problems which the college has to face. This year it seemed best to consider the general function, or mission, of the college.

THE FUNCTION OF THE MASSACHUSETTS AGRICULTURAL COLLEGE.

After nearly forty-five years of active service by the college it may seem invidious, at first thought, to incorporate in a report of the president of the institution a discussion of its main purpose. So long a period of work must surely have revealed both the task of the college and the attitude of our people toward its service. But as "new occasions teach new duties" to individuals, so new

conditions create new demands upon institutions, often call for new methods, and may even develop entirely new functions. There is no merit in change for its own sake; but change is pretty sure to be a concomitant of growth. Hence, from time to time the function of an educational institution needs restating if not reshaping. The excuse for introducing this subject in this report lies, therefore, in the belief that the time has come to plan large policies for the future in the light of a clear-cut modern statement of the fundamental purpose and task of the college.

An institution of education supported by the government gains its main purpose from four sources: first, from legislation; second, from the historic policy of the college itself; third, from the realization of some fundamental need of society, that may be met by the college; fourth, from the changing aspects of this fundamental need, as expressed in new demands for service, which in turn call for new methods and even new types of work.

The legislation which calls a college into existence is considered by some a sufficient statement of its purpose. The State laws incorporating the college utilized the Morrill act of 1862 for the purpose of stating the main work of the college. The Morrill act is, then, virtually the legal charter of the college. So we are repeatedly asked to read the Morrill act of 1862 for the statement of the work of this institution. From the legal point of view, the Morrill act is, and forever must be, the starting point from which the work of the college proceeds and spreads. Nevertheless, it cannot be considered a sufficient statement of the service demanded of this college by the present age. This is not to deny the value of the Morrill act; it is not to impugn its worth; it is not to repudiate its statements; it is simply to assert that with the lapse of time, the rise of new ideas, the need of adaptation to modern conditions, the Morrill act does not in itself, alone, give us the cue to the complete function of the college. Indeed, I question whether it was ever meant to do so.

It is sometimes stated that the Morrill act, in its definition of the work of the land-grant colleges, is clear and specific. I cannot agree with that statement. The law has actually been interpreted in such a way that the institutions based on the law have developed widely varied policies. They are all one in the emphasis on including preparation for the industrial vocations, but they are

widely divided as to the scope of other work performed. It will not do to impugn the motives or the intelligence of those who have managed these institutions in such diverse ways. We have here simply an illustration of the possibilities of differing interpretations of the Morrill act. I think one of the finest compliments that can be paid to the act is to say that it was so broadly drawn that the States could adapt the work of their colleges to varied needs and ideals. But this fact again enforces the former statement that the unsupported language of the Morrill act itself is not to-day a sufficient guide for the total work of our own agricultural college.

Furthermore, we must remember that legislation itself is only an expression, and almost without exception an incomplete expression, of some need of society. Hence, a law like the Morrill act must be interpreted in terms of both the fundamental and the changing needs of those political units that furnish the funds for the support of the college thus called into existence. In other words, the needs of Massachusetts for to-day and to-morrow must help interpret the laws of yesterday, with respect to the work of this college.

It is almost impossible to conceive that a college can labor for forty-five years, with reasonable success, and yet be on the wrong track. Time itself, as well as experience, justifies policies. Hence precedents count for something, and we have no right to break with the past abruptly. Historic policies should never become swathes that bind us irrevocably to the past; they are rather foundations for our building which we may not safely disregard.

But, after all, the real test of the work of our college is neither a law nor an historic policy, but this: Is the college meeting the *need* of the people of the State? In other words, what is the social purpose of the college, its real excuse for existence? Why is the State still willing to pay the cost of its support? Why may we confidently argue for the continued investment, in equipment and maintenance, of such large amounts of the public funds?

And, finally, we must seek constantly to meet new issues as they arise and thus keep the college abreast the times.

The limits of this report forbid an exhaustive development of the four propositions just laid down as to the source of an authoritative policy. We may, however, give attention to a few

preliminary considerations growing directly out of these propositions: —

1. The Massachusetts Agricultural College is a *college*. It is not a school. Governor Andrew, in his message to the Legislature of 1865, said, "I should deeply regret to see an institution which bears the name of Massachusetts, and will be held to be representative of the Commonwealth, especially of the highest aspirations of her yeomanry, allowed, for want of generous support, to degenerate into a mere industrial school." In spite of this statesmanlike utterance of nearly a half-century ago, we occasionally hear suggestions that the college is getting too far away from its constituency, and that in order to meet this constituency its standards of admission should be kept low. One cannot help sympathizing with the democratic notion that lies back of these sincere suggestions, but they are based upon the fallacy that a high grade of work will separate the college from its real task. As Governor Andrew so well said, this college represents the highest aspirations of the rural people of Massachusetts, and we can never admit that the highest aspirations of the rural people may be expressed in inferior scholarship. Without question, there is need of institutions of lower grade for the teaching of agriculture, but these should be provided, as Massachusetts has now so wisely ordered, through agricultural high schools and agricultural departments of public schools. But the agricultural college is the educational leader for the building of a highly developed rural civilization within the State.

Now the college is our most characteristic expression of such leadership. Emphasis upon the fact that this institution is a college calls, therefore, for college standards of admission and graduation, — college standards with respect to quality, though not necessarily with respect to subject matter. Within recent years the college has placed itself squarely in line with this policy, and now requires practically the same standards of admission as regards quality of work as are demanded by the typical New England college. We believe, also, as regards requirements for graduation, that, on the whole, the four years of work at the Massachusetts Agricultural College represent as good quality as will be found in the average college. Maintenance of college standards, therefore, of the college atmosphere, and of the college point of view must be our policy.

2. On the other hand, the Massachusetts Agricultural College is not, at present, a State university and, in my judgment, it ought not to be made a State university. It may seem idle to discuss this question. Nevertheless, nearly half of the institutions established under the Morrill act of 1862 are State universities. In Massachusetts we hear more or less said about the need of a State-supported university, and occasionally the suggestion is advanced that our college is the natural nucleus for such an institution. I do not purpose to discuss the question as to the need of a State university in Massachusetts, but I feel very strongly that it would be a great mistake to attempt to make a State university out of the Massachusetts Agricultural College. Its location is not favorable for such an institution. Its history and traditions are not in harmony with this form of development.

3. The Massachusetts Agricultural College is an *agricultural* college. This statement raises a question subsidiary but related to the idea of a State university. Practically all of the land-grant colleges which are not State universities have developed departments of mechanic arts, and many of them other branches of study. Our own college, all through its history, has given more or less attention to civil engineering. The general policy of the college at this point was, however, settled before the college opened for students, through a legislative arrangement by which the Massachusetts Institute of Technology secured a portion of the federal grant on the theory that the mechanic arts work should be given at the institute and agriculture at Amherst. The result of this legislation is that probably the Massachusetts Agricultural College is the only one of the land-grant colleges which may be called strictly an agricultural college. From time to time in its history suggestions have been made relative to broadening its scope beyond agriculture, emphasizing general science, etc. But I feel very keenly that we ought to emphasize now and forevermore the proposition that our college is an agricultural college and nothing but an agricultural college. I am aware that there are difficulties in carrying out this policy. The first thought that comes to mind when one speaks of an agricultural college is that its chief function is especially to train farmers. But we are located in an urban State. Many vocations which the college naturally fits for, like landscape gardening for instance, are followed in the city and not in the country, though even in landscape gardening

the work is so intimately bound up with the subject matter of agriculture that we are compelled to broaden our definition of agricultural education to include training of this sort. That statement leads us really to the heart of this whole matter: Gradually there is forming a new definition of agricultural education. The agricultural college should fit men for farming, but it is a question whether that is its chief mission. There is such an insistent call for trained men in various other forms of leadership in agriculture and country life that we cannot expect that all, or perhaps even a majority, of our graduates shall go directly to the farm. Apparently an increasing proportion of our graduates are going directly to the farm simply because they are beginning to find that they can be just as successful there as anywhere else, and because they like the independence of the farmer's life.

To put the matter in a nutshell, agriculture is broadening so rapidly, the need for trained men is developing so many new vocations, that if our college, in its research, in its teaching, in its extension work is to cover *adequately* the whole field of modern agriculture, it has a work to do which will tax to the utmost the skill of its faculty and the willingness of the Legislature to make appropriations. From the standpoint of public finance and policy, then, as well as from the standpoint of interior purpose and fundamental function, we must insist that the *Massachusetts* Agricultural College shall always be the Massachusetts *Agricultural* College.

4. Our people must also understand, and this is particularly true of the Legislature, that the Massachusetts Agricultural College is "a college of the Commonwealth." Its property is owned by the Commonwealth; its support has always come solely from the Commonwealth or the nation; its trustees are appointed by the Governor of the Commonwealth; it is answerable for its finances and its policies directly to the representatives of the Commonwealth; indeed, for all practical purposes its trustees are the agents of the Commonwealth. It is not a private institution. It has a public function. It grows only as public support for it grows. It is absolutely dependent upon the pleasure of the Commonwealth, or, if you please, upon the Legislature. We stand or we fall in accordance with the will of the people of the State.

I am sometimes asked why private individuals do not make endowments or gifts for the college. I suppose it is because of the

fact just mentioned, that we are a college of the Commonwealth. I hope the time may come, however, when people of means will appreciate the tremendously significant problem which the college is set to solve, and the great difficulty of even a wealthy State like Massachusetts providing all the needs that arise in the development of an institution of growing numbers and importance. We have not only the problem of maintenance, but the problem of adequate buildings. At present we are dependent entirely upon the village of Amherst for the housing of the students. It is a serious question how far we may call upon the State to provide dormitories, not because it is not a legitimate call, but because we need other things. I wish it might be possible for dormitories to be built as the result of private gifts. There are many other uses to which private gifts could be put, and I hope that people who are interested in the development of the agricultural industry and rural life in Massachusetts can come to see that State support for the college may well be supplemented by private gifts for many good causes that are likely to be overlooked by the Legislature.

Statement of Purpose of the College.

In the light of these observations, can we state in one sentence the real purpose and function of the college? May we not put it this way? The *Massachusetts Agricultural College is designed primarily to benefit the agriculture and rural life of Massachusetts, and incidentally that of the nation.* It is often said that Massachusetts is not an agricultural State, and it is perfectly true. But agriculture is, nevertheless, an important and significant industry, and the cities are coming to realize that its development means something for them as well as for the farmers. The farmers themselves are beginning to see that the more intensive forms of agriculture are the ones that pay the best, and it does not take much of a prophet to suggest that the characteristic feature of Massachusetts agriculture of the future is that it is to be an intensive agriculture. Now an intensive agriculture always means education. While the industry in Massachusetts may be relatively small, it is also relatively important, and calls for the very best type of agricultural education that American genius can evolve. Moreover, an effort to help Massachusetts agriculture must be designed to result not only in better farming, but in a more efficient dis-

tribution of soil products to consumers, as well as in better conditions of living, and in better rural communities. Now whatever an educational institution of college grade can do for such objects as these comprises the task of our college. Probably in practice it is a varying task, — one thing to-day, another thing to-morrow. But the one main purpose is expressed in the thought that the college is the organ, or servant, of the Commonwealth on behalf of Massachusetts agriculture and country life. "I serve" should be its motto; and this thought of service to the rural interests of Massachusetts and the nation should govern the policies of the college and pervade its atmosphere.

How the Mission of the College may be achieved.

It will be necessary to leave for discussion in subsequent reports the details of methods by which this general function of the college may be realized. Space must be given here, however, to an outline of these methods, for they illustrate and enforce the main thesis or contention of this study.

There are three main types of service which the college may render: —

1. Investigation.
2. Instruction.
3. Extension service.

Investigation may be called the search for truth about agriculture and rural affairs; instruction, the incarnation of this truth in trained leadership; extension service, the dissemination or democratization of this truth, — its distribution among all the people interested.

Thus the college has a threefold task; not three tasks, but one task, to be fulfilled in these three fairly distinct methods or types of work. Let us discuss each one of these with as much brevity as possible.

Of course the characteristic work of this college, as of any college, is to teach the students who resort to it. But it is peculiarly true of an agricultural college that it cannot teach until it has something to teach. Hence, logically, the first business of the college is to investigate. It seems best, therefore, to place research first in the order of present discussion.

Investigation.

There are laws governing the operations of soil and the growth of plants and animals. Experience and observation enable men to follow these laws to a degree, — but only to a degree. Few farmers have time for prolonged or systematic study or the training or facilities for it. Men must be set apart for this work, — men specially trained, with time and apparatus. Thus the agricultural experiment station came into being. This work of investigation divides itself into several types as follows: —

1. *Research.* — This is a study of the fundamental laws that underlie the operations of the soil and the growth of plants and animals. The aim of research in agriculture is to gain exact knowledge of general principles that may be applied to the business of growing food and other supplies coming from the soil.

2. *Experimentation.* — Once the general principles or laws are discovered, the method of their application to actual operations must be worked out. Expert farmers will accomplish a good deal of this experimentation, but not all of it. Hence, the college, through its experiment station, must continuously carry on these experiments.

3. *An Agricultural Survey.* — We now recognize the need of knowing not only the general laws of nature and their applications to methods of culture, but that each farmer needs to know how to make the application under his peculiar conditions of soil, climate, topography, market and transportation facilities, etc. It may be argued that it is not the business of the State to tell each farmer how to run his farm. That is true. But so long as there are unsolved problems lying before our farmers, which can be solved only in the light of the knowledge which the average farmer cannot gain for himself, then the college must help. We must remember that we are rapidly coming to a time when each acre of Massachusetts soil must be put to its best possible use, and the only satisfactory way of determining this best possible use is by experience based on scientific study of the conditions of that acre. Now, for want of a better term, we call the search for truth about these exterior and local conditions that surround the farmer at his work an "agricultural survey."

4. *The Economic Phase.* — Another need enters at this point

that calls for an enlargement of the scope of agricultural investigation. Production of crops and animals is only a hemisphere of the agricultural industry. These products are to be sold at a profit, if possible. At any rate, they are to be transported with economy and distributed where they are wanted, and the consumer must have them fresh and wholesome and at a price not prohibitive. Many factors enter into this problem of distributing the products once grown: the nearness to market, transportation, the character of the market, competition for the market, the function and rewards of the middlemen, the development of agricultural credit, business co-operation among farmers, etc. These economic considerations, just because they are vital to the success of agriculture, are a subject for thorough investigation by the agricultural college.

5. *The Social Phase.* — But, after all, there is an even larger issue. Our greatest concern is with the quality of people developed by the rural mode of living. Hence, the conditions of rural life — moral, religious, recreational, sociable — are of significance. So with the institutions of the rural community, — schools, churches, organizations, means of communication, — how do they do their work, how can they be improved? Just because these things, too, are vital to the welfare of the Commonwealth, they must be studied.

Instruction.

We may now consider the methods by which the instruction of the college shall minister to its chief purpose. There are three main outcomes to be cherished in the course of study, and I state them in inverse order with respect to human destinies, but in direct order with respect to immediate purposes and policies. They are, first, preparation for the agricultural vocations; second, preparation for citizenship, particularly rural citizenship; third, the all-round development of the man.

Preparation for the Agricultural Vocations. — This is the immediate business of the college on the teaching side. The courses of study, the methods of teaching, the atmosphere of the institution, should all make for this end. The term "agricultural vocations" is, perhaps, somewhat misleading, but must answer until we find a better one. It is not the same as farming. The term does not imply that all of these vocations are pursued in the open country, but it includes those vocations the adequate preparation for which

must embrace a thorough study of the soil, or of plants, or of animals, for the purpose of using that knowledge for economic ends; and also the vocations of a professional character which have to do directly with the life of the rural people. The men called for in these agricultural vocations may be grouped roughly as follows: —

(*a*) Independent farmers.

(*b*) Farming experts or managers.

(*c*) Specialists in agricultural practice or science, such as teachers and investigators and extension workers, employed in agricultural colleges, experiment stations, the United States Department of Agriculture, etc.

(*d*) Professional experts, such as landscape gardeners, foresters, and arboriculturists, who deal so intimately with agricultural materials that, although their vocations are not essentially rural vocations, the best training is found in connection with the agricultural teaching.

(*e*) Business experts in lines related to agriculture, such as the fertilizer business.

(*f*) Rural social engineering, that is, professions in which social service to the rural people is the keynote, such as teachers in agricultural high schools, country clergymen, rural Y. M. C. A. secretaries, etc.

It must be understood that this is only a rough grouping and, indeed, a tentative list. New vocations are developing constantly. Institutions other than agricultural colleges are taking on some of these lines of work. But in general this division indicates our goal; namely, that of the definite preparation of men for these fields of work.

Training for Citizenship. — The most efficient service to society which can be rendered by most men is the honorable pursuit of a useful vocation, and it becomes the fundamental task of the agricultural college to inspire its graduates with the thought that they are to follow their chosen vocation, not primarily as a means of making money, but primarily as a means of service to society. This may sound theoretical and academic, but it is sound sociology, sound pedagogy, sound ethics, sound religion.

Nevertheless, each individual has obligations to the community that lie outside his vocation. No matter how isolated his life may be, nor how busily he may be engaged in the exacting duties of

his vocation, he is obliged by many considerations, not the least of which is his education at State expense, to give an intelligent and honest account of himself as a member of society, as a political citizen. It hardly needs arguing that the man who in college gives some attention to the problems of citizenship is thereby the better fitted to fulfil his obligations as a citizen. This is particularly true of those problems that have to do with local community life, — things that many college men regard as beneath them and of small consequence, and yet which are absolutely vital to the permanence of society. It is especially incumbent upon the man who follows his vocation in a rural environment that he shall understand the peculiar needs of the rural community as well as those larger general needs which incorporate themselves in State and national policies. The agricultural college, therefore, must try to make sure that every graduate has secured some grip both upon the problems of the rural community and upon the general problems of the day, — problems social, economic, governmental, ethical.

The Man himself. — Without question, the man must be greater than his work and perhaps even greater than his citizenship. But I think we have not yet sufficiently realized the possibilities of vocation in the making of a man, and hence we have not realized the culture-value of the training for vocation. As a matter of fact, those qualities of mind and character that we like to think of as belonging to the superior man, such as sound physical health, intellectual vigor, ripe culture, high ideals and noble thinking are cultivated, in no small degree, by the right sort of pursuit of the day's work and by the right sort of service to one's family, neighborhood, town, State and nation. I believe, therefore, that whenever we have organized our agricultural vocational courses in the proper way, whenever the materials of study in those courses have been adequately elaborated, and assuming that all the subjects are properly taught, we will find that the man thus trained, granted that he has within him the seeds of culture, will become a cultivated, well-rounded man.

More than knowledge of problems, greater than an interest in politics, is the *spirit* of community service, the willingness to sacrifice something of one's financial gains, of one's time and energy and leisure and comfort for the sake of leading one's community on to higher levels; for the sake of solving its problems.

An agricultural college cannot give its chief attention to the training of men for the utilization of their leisure. Leisure is important, even vital, to the ripening of a man's powers, but leisure is not the characteristic attitude of a leader, and that is what colleges are for primarily, — to train leaders. An agricultural college must train for efficient work and public service and not for leisure. Yet there is no reason why the men who follow the agricultural vocations may not have leisure. They must have it. Leisure feeds the highest impulses of the soul. Leisure is essential to the enlargement of the spirit. An agricultural college should have teachers and offer courses, and require men to take those courses, that will tend to give the individual student, no matter what his vocation, some grasp of the eternal verities, some hold on the essential things of life, some knowledge of the sources of personal power, great inspiration, a grip on the problems of human duty and human destiny. This may be secured through literature, or through philosophy, or through history; but we cannot afford to give the baccalaureate degree to any man who has not at least opened the door and peered into that high-vaulted chamber which contains the choicest treasures of human thought and aspiration.

The Extension Service.

We come now to the third phase of the task of the college, — the dissemination of truth to all the people of the State. This task, perhaps, raises issues. There are those who deny that it is a primary function of an agricultural college. Some are willing to admit that the experiment station should send out bulletins describing its work and results, and that occasionally a professor should give a public lecture, but deny the task which is represented by the apt phrase of one of our own trustees, "the State is our class room." With respect to agriculture and rural matters the State of Massachusetts *is* our class room. I hold that the function of extension service on the part of the agricultural college is coordinate with its function of investigation and of teaching resident students, and the reason lies less in any logical formula than it does in a practical need and a practical means of meeting that need. What I mean is this: the ultimate purpose of the agricultural college is the benefit of the agriculture of the State. One means of benefit is investigation; another is by training leaders; but another, and, in some respects, the most important, is by reaching

with information and inspiration every worker in the land. It is the logical outcome of the social, or State, function of the institution.

There are those who will say, "Very well, we admit the significance of the task but let the work be done by some other agency than the agricultural college." I reply, why *should* it be done by some other agency than the agricultural college? It is the one institution that investigates and discovers principles and facts about agriculture. It is the one institution that is training leaders and experts. It is the one institution to which the people of the State look for educational leadership in agriculture.

But there is a positive and very practical reason why the agricultural college should develop extension teaching. If that teaching is developed by any other agency in the State, it necessarily means duplication of agencies, because the kinds of teaching needed by the great masses of the people of the State are the kinds of teaching that are given in the college, and it would be unbusinesslike, uneconomic, and would lead to friction if a second institution should be developed with a large corps of workers specifically for the purpose of popular education in agriculture, but apart from the research, the teaching, the atmosphere and the inspiration of the agricultural college.

There are other minor reasons why the extension service should become organic in the agricultural college. It reacts on the research and teaching, bringing them into more intimate touch with the realities and the fundamental needs of agriculture and country life. It gives the institution that State-wide and social leadership which makes it the center of light and leading in agricultural affairs. The people themselves expect that the college shall distribute what it knows for the benefit of the people who cannot come to the college. The college has always done this sort of work to a degree, and its validity has never been questioned. Indeed, if the college were to deny its duty to perform this service, I venture the prediction that it would not be long before the people of the Commonwealth would refuse to support it. It is because they cherish the belief that the college exists to serve them directly and immediately, as well as through the training of a comparatively few individual leaders, that they are willing to pour out money in its behalf.

Obviously this extension service should be so organized that it shall not interfere with the work of research or of teaching. Temporarily, because of lack of men, it may have this bad effect, but this is only a passing phase and can be remedied as soon as we have adequate appropriations and can develop what shall practically be an extension service faculty.

The Relationships of the College.

This discussion of the fundamental task of the Massachusetts Agricultural College leads to some observations concerning its relationship to other institutions of the Commonwealth which have tasks of a somewhat similar character.

The Public School System.

If this were a State university of long standing it would without doubt be considered the crown of the public-school system. It is not a university, but a college for a specific purpose. Nevertheless, in so far as that purpose is germane to the general educational interests of the Commonwealth, to that extent the college finds its place in the system. For practical purposes this may not mean a great deal. The fact, however, ought to be generally recognized, particularly by the school authorities of the Commonwealth. On the part of the college this fact requires that our entrance requirements shall be of such a character that they fit as closely as possible the actual high school conditions that prevail in the major portion of the high schools. It may be remarked in this connection that there is no sound reason why, as is sometimes suggested, this college should fit itself to the smaller or to the less efficient high schools. Its obligation, rather, is to the great body of high school pupils. We have tried to carry out this principle, and the present entrance requirements were not adopted until they had been submitted to all the high school principals of the State, and a number of suggestions made by these principals were incorporated.

Relation to the Teaching of Agriculture in the Public High Schools.

The Commonwealth has embarked upon a plan of developing, in systematic fashion, the teaching of agriculture in agricultural departments of public high schools, or in separate agricultural high

schools or in both. It is evident that the task of administering the new plan lies wholly with the State Board of Education. On the other hand, the work of preparing teachers of agriculture must lie chiefly with the agricultural college, with, possibly, some co-operation from the normal schools of the State. This division of responsibility seems to be so clear that there is little need for enlarging on the principles thus laid down. There are, however, two phases of the situation that call for remark. There is a great deal that can be done in the way of agricultural education with young people still of school age and with the teachers, particularly the grade teachers, who are endeavoring to develop school garden work or some other form of elementary agricultural teaching. This is one feature of agricultural college extension teaching. In some States this work has been done by the State department of education, but it seems to me so clearly an extension-teaching function that I believe it ought to be developed by the State college of agriculture. For illustration, under the direction of Professor Hart some 19,000 boys and girls, during the season of 1911, grew corn and potatoes under the direction of the college. We do not claim that this work is as yet thoroughly organized; indeed, only a beginning has been made, but it ought to be encouraged and developed by the college, of course with the approval of the State educational authorities.

The other matter has to do with the general scheme for agricultural education in the public schools. The State Board of Education must take the responsibility for this plan because it is to administer it, but the ultimate plan itself ought to be the product of a very closely knit co-operative study, especially as it is pioneer work and there are so few American precedents to guide us.

Relationship to the Normal Schools.

The extent to which the agricultural college and the normal schools may co-operate seems to be uncertain. The normal school stands essentially for training in principles of education and methods of teaching. The agricultural college stands primarily for the organization of the materials of agricultural education. Teachers of agriculture in high schools and special schools are clearly to be sought in the agricultural college. There would seem to be a call, also, for men trained in normal schools, who take a

year or two at the agricultural college for positions in agricultural teaching of high school grade. It is doubtful whether many grade teachers who are endeavoring to give some agricultural work will take regular courses at the agricultural college. The attendance at our summer school of agriculture, however, seems to show that these teachers desire to supplement their normal school training with the more technical studies that are offered by the agricultural college.

Relationship to the State Board of Agriculture.

During the past five years there has existed some slight misunderstanding as to certain relationships between the Board of Agriculture and the college. I think that this relationship is working itself out, and that a clearer understanding is already evident. I should like, in some future report or in some other public way, to discuss this matter more at length, but at this time merely suggest a valid general principle, which, if applied, would solve all our difficulties with respect to possible duplication of work. To put the matter in a word, I believe that the chief function of the agricultural college is educational and that the chief function of the Board of Agriculture is administrative. It is true that in the earlier days the Board of Agriculture had educational functions, but that was before the day of the agricultural college, or at least before facilities for widespread popular education by the college were developed. New conditions bring new work. Can we not, therefore, make this general principle our starting point for the enlargement, without any conflict or overlapping, of the work of both the Board of Agriculture and the college; namely, that administrative work, police work and control work belong primarily to the Board of Agriculture, and educational work belongs primarily to the agricultural college?

It may be thought that all this means the limitation of the work of the Board of Agriculture. I do not think so. All indications point to the fact that the government is going to play an increasingly larger share in our agricultural progress. The State government, therefore, through a board or department of agriculture, is sure to develop increasingly important and diverse functions. The administration of laws for the protection of the farmer, the offering of prizes and other means of stimulating agriculture and leadership, assistance by the State in solving such

problems as the farm labor question, in developing schemes for business co-operation, and in other enterprises in which the government of the State is willing to play a part, belong not to the educational but to the administrative agency. On the other hand, wherever teaching is to be done, information to be given or educational forces to be invoked on behalf of the farmers, it would seem clear that the agricultural college is the natural center for such dissemination.

Of course, there are chances for some overlapping, even under the application of this principle. For example, the dairy bureau in enforcing laws finds that one of the most powerful aids to enforcement is simply teaching the people what is the right way to do. Therefore, as an incident of law enforcement, some educational propaganda is legitimate and even necessary. On the other hand, the extension men of the college frequently find opportunity for the definite work of organizing new enterprises in country communities as the natural outgrowth of the extension teaching. But if the general principle is adhered to, I see no real difficulty with respect to these apparent exceptions.

There are at least two pieces of work, which have been in operation for a long time, that clearly contravene this principle as at present administered. The Massachusetts experiment station is charged with the duty of enforcing the laws concerning fertilizers and feedstuffs. On the other hand, the State Board of Agriculture is charged with the management of farmers' institutes. In the one case, the college, through its experiment station, takes on police duties; on the other hand, the Board of Agriculture carries on a definite educational work. It seems to me, however, that there is no need for any misunderstanding here. Both of these means of work have been established so long and have become so thoroughly rooted in the respective fields in which they were planted that good judgment would dictate they should not be disturbed, at least for the present.

This frank discussion has been introduced not so much because there is danger of serious misunderstanding, but because the agricultural movement is going ahead so fast that the more closely we can tie the work together, and the more clearly defined the task of each agency, the better results we will get for Massachusetts agriculture. The principle of division of labor seems so simple

and so clear that I venture to suggest it at this time in the hope that it may work out into a generally accepted plan of co-operative endeavor.

In so far as the State, through any other agency such, for instance, as the State Board of Health, enters the field of agriculture or country life, the same principle would hold; namely, that the State Board should assume the administrative function and the college should exercise the educational function. I speak of this particularly because I believe that the time will come when the whole question of rural sanitation ought to be made a very important feature of our agricultural propaganda, and I should like to see the agricultural college play a definite part in this very important matter.

The Relationship of the College to Voluntary Associations.

The relationship of the college to voluntary associations designed to benefit agriculture and country life is, perhaps, of less interest as a matter of discussion, although it is of a great deal of importance practically. Take, for instance, the grange. The grange is very thoroughly a friend of the college, and we have made every effort to reciprocate by assisting the grange in its educational work whenever possible. The fundamental reason, however, for assisting the grange, or the village improvement society or any other local body is, that it is always sound policy for the college in its educational work to develop as little machinery as possible, and to seek to reach the people who need its help, whenever it can be done, through agencies already in operation. It is quite possible, for example, to work out a plan by which the grange and the college could co-operate in a very effective system of agricultural teaching, which would materially increase the efficiency of the college in reaching the people at their homes, and which would also manifold the educational work of the grange, this work being, of course, the dominant purpose of the grange.

In this connection I wish to call your attention to two remarkable actions recently taken by the Massachusetts State Grange. The grange has offered two scholarships in our winter school to successful contestants in the writing of essays on some agricultural topic. They are also taking steps to organize a large loan fund, from which loans may be made to young men and women belonging

to the grange who have to pay their own way through college. While the benefits of this fund are not to be confined to students of the agricultural college, undoubtedly quite a proportion of these students will come to this college.

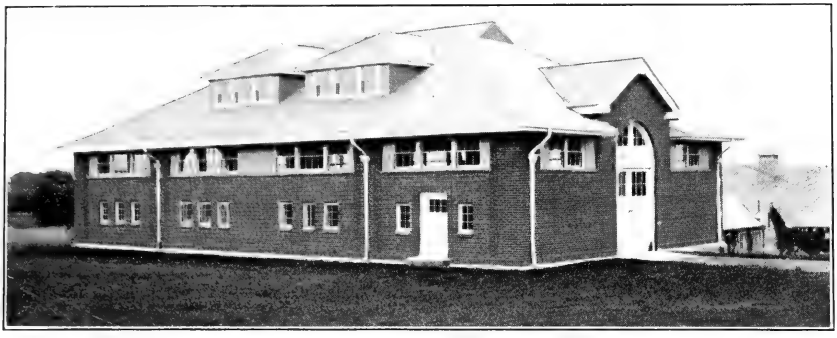
A REVIEW OF THE YEAR.

Attendance.

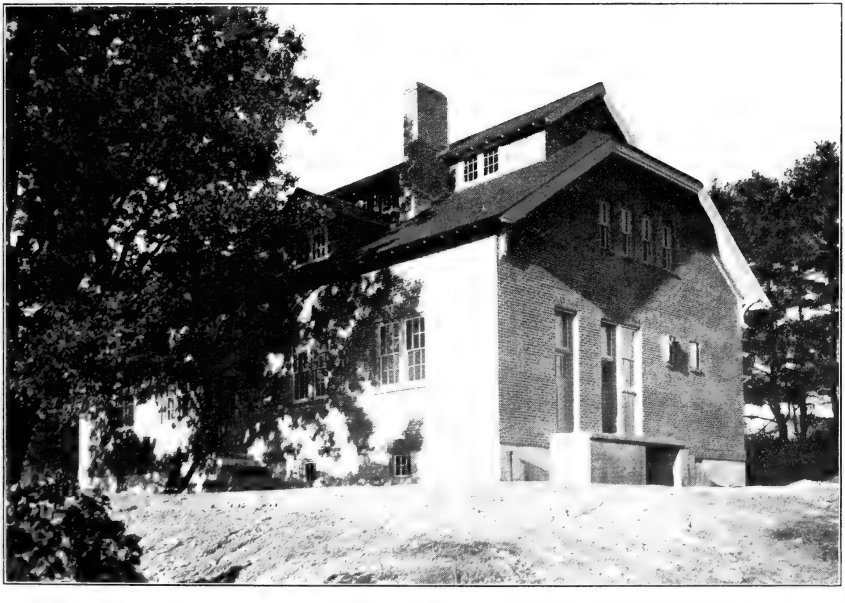
The attendance of students enrolled in the four-years course at this date is 477, an increase of 75 over the enrolment of a year ago. In addition to this enrolment of four-year men, there are 15 members of the graduate school and 29 students doing work of college grade, who are registered as unclassified students. Therefore, the total number of students doing work of college grade is 521 for the present year, a gain of 87 for the year. The entering class this fall numbered 168, an increase of 10 over the number entering last year. (See Table I.)

Nearly 87 per cent. of those entering this year come from Massachusetts; 5 other States send students and also 2 foreign nations. Every county in Massachusetts, with the exception of Nantucket, is represented in the present freshman class, Middlesex County sending the largest number, which is 36 or nearly 25 per cent. of the total number entering. (See Table V.)

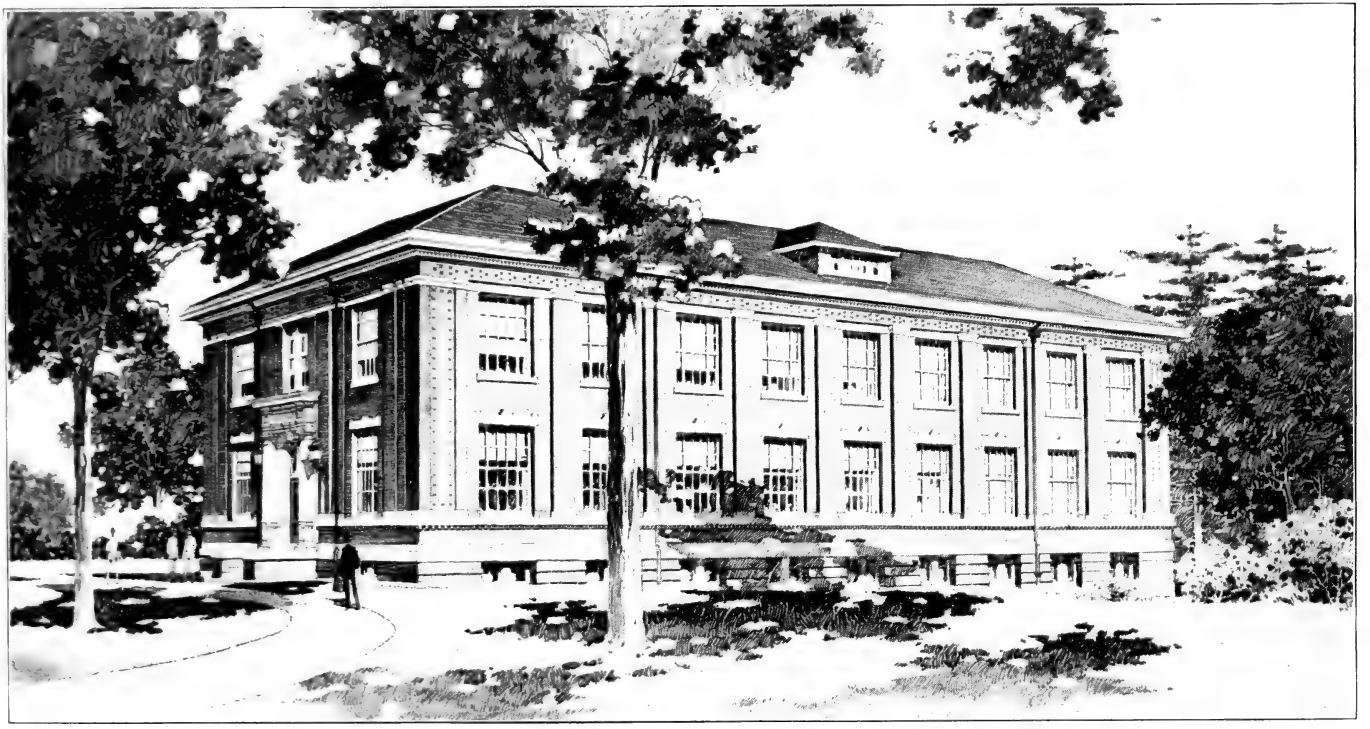
Over one-fifth of the class are undecided as to their intended vocation; approximately one-third of the entire class express their intention of following some line of professional agriculture or horticulture as their life work; and about two-fifths more signify their intention of entering some vocation in practical agriculture or horticulture. Nearly 94 per cent. of those having made a decision, therefore, intend to follow an agricultural vocation. Less than one-fourth of the fathers of the members of the freshman class are engaged in agriculture or horticulture, and a little over one-fourth are business men. Approximately one-fourth of the class come from farms, and nearly two-fifths have had no farm experience whatever. The average age of the entering class is 19.17 years. (See Table V.)



Stock Judging Pavilion, Grinnell Arena, erected in 1910–11.



Fruit Storage Building and Laboratory, erected in 1910–11.



THE FLINT LABORATORY, M. A. C. — Dairy Building.

Appropriations.

The trustees presented to the Legislature in 1911 requests for special appropriations amounting to $192,500; of this amount, $122,500 was granted. An increase of $90,000 in current annual appropriations was asked, and had this been granted the total income from the State for this purpose would have been $232,000; the increase granted, however, was $34,500, making the total for the present year $176,500. (See Table II.)

The most important item granted in the special appropriations was that of $75,000 for a dairy instruction building and laboratory. Following is a brief description of the building: —

The New Dairy Building.

The dairy building now under construction is to be known as the "Flint Laboratory," named in honor of the Hon. Charles L. Flint, fourth president of the Massachusetts Agricultural College. This building is the first of the proposed "agricultural group." The plan for this group makes a large agricultural building the central figure of the group, flanked by the dairy building on the west and a proposed farm mechanics' building on the east.

The dairy building will be 120 feet long, 62 feet wide, with a basement and two stories. The construction is "fireproof," being of reinforced concrete and brick with a slate and gravel roof. The partitions will be made of 4-inch terra-cotta blocks, with a hard cement plaster on each side. The finish will be smooth and sanitary. An 8-foot corridor will run the full length of the building on each floor. Large glass windows will be placed in the corridor walls so that the work being done in the different rooms can be seen to advantage from the corridor, without the visitors interfering in any way with the students.

The basement will contain a laundry, a locker room that will accommodate lockers for 150 men, a shower bath, a cheese manufacturing and a cheese curing room, storage rooms, and a dairy mechanics room, as well as a room with an artificial refrigerating plant. The refrigerating plant is designed to furnish refrigeration for the cold box or refrigerator, as well as to make artificial ice if desired.

The first floor will have two offices in the front, with the milk-handling laboratories back of them. A space 104 feet long by 24 feet wide on the north side of this floor will be given exclusively to the separating of milk, ripening of cream and making of dairy butter. On the south side will be found a complete market milk equipment, including a 16 by 16 foot refrigerator and a 27 by 24 foot ice cream manufacturing room. The refrigerator will be equipped in such a way that either artificial refrigeration or natural ice can be used.

The second floor will have an office and a department reading room. On this floor there will also be a dairy bacteriological laboratory that will accommodate 20 men at one time; a Babcock laboratory, 62 by 24 feet, that will accommodate 30 men; and a special feature in a dairy equipment museum, 57 by 24 feet, for which it is hoped a permanent exhibit of dairy apparatus may be obtained, as well as loans of "up-to-date" dairy appliances for exhibition during the time that the short-course students and farmers' week visitors are here. If this can be done the four-years men will have advantages along this line far above those ordinarily afforded.

This building is designed for instruction to meet Massachusetts dairy conditions, — market milk and farm dairy work. The laboratories will accommodate 100 men at one time if desired. This equipment, together with our certified milk equipment, which we will use even more in the future as a laboratory, will give the college, perhaps, the best college market milk equipment in the country.

Commencement.

The last annual commencement occurred June 21. At that time the college conferred the degree of B.Sc. on 43 men, the degree of M.Sc. on 2, and the degree of Ph.D. on 2. Eugene Davenport, dean of the College of Agriculture of the University of Illinois, gave the commencement address, taking for his subject, "The Agricultural College as a Public Service Institution." The attendance at the alumni dinner was 206, this being the largest number present on such an occasion in the history of the institution.

Summer School.

The registration in the summer school of 1911 was 153, a number considerably smaller than the registration of the preceding year. The comparatively small attendance was undoubtedly due to the fact that last summer the registration fee was raised from $1 to $5. Those attending the summer school, however, seemed to have come with serious and definite purposes, and, on the whole, the school was perhaps more satisfactory than those held in former years. Owing to lack of funds for enterprises of this sort, it has been decided to omit the summer school for 1912.

In connection with the last summer school there was held another conference of rural social workers. There were present at this conference about 250, representing the grange, the Y. M. C. A., the rural school, etc. In this connection there was also held an exhibit of rural social work, which was probably the first time that the exhibit idea had been applied to the sociological side of rural affairs on so large a scale. The usual course for rural clergymen was also included in the summer school.

The Winter School.

The attendance at the winter school of 1911 was 113. Previous to that the largest attendance had been 66. The poultry course, which was given during the last two weeks of the winter school, had a registration of 74. The winter school itself was concluded by a "farmers' week," which furnished a most admirable program and brought to the college 830 people, who came for a part or all of this four days' special instruction.

Tuition Fee.

The trustees have voted to require a tuition fee of nonresidents of the State registering for work of college grade. Beginning next September, therefore, such students will be charged a fee of $40 a year.

The Year in the Departments of Instruction.

In General. — During the year no radical changes have taken place in the method or scope of instruction. Perhaps the most significant improvement has come through the addition of a num-

ber of instructors in the required subjects of the freshman and sophomore years, made possible by the increased appropriations of one year ago. This has allowed the scheduling of relatively small sections. It is needless to say that, other things being equal, the teaching efficiency must be increased by this arrangement. A table is presented showing the numbers in the various sections of the required work of the freshman and sophomore years one year ago and the present semester.

	1910.	1911.
Sophomore class: —		
Enrolment,	110.0	127
Number of sections,	4.0	6
Average number in section,	27.5	21
Freshman class: —		
Enrolment,	158.0	168
Number of sections,	5.0	8
Average number in section,	31.6	21

In the Division of Agriculture. — The work in the division of agriculture has been strengthened materially during the year by the addition of the new men mentioned in another place in this report, and by the development of a number of new courses.

The new poultry department has been put on a sound footing; buildings have been erected and stock and equipment have been purchased. The demand for instruction in poultry husbandry, both by regular students of the institution and throughout the State, is very gratifying.

The work in animal husbandry has been considerably enlarged, and a new instructor taken on.

In the department of dairying much time has been devoted to the completion and perfection of plans for the new dairy instruction building.

The college farm has again shown an increase in sales without a corresponding increase in expenditure. It is the ambition of the division to make the farm entirely self-sustaining.

In the Division of Horticulture. — No important changes in the courses of study or teaching policy have been made during the year. Some changes in personnel are recorded in the statement regarding new appointments. Important plans are under way for additional experimental work, and interesting developments have been found in the plant breeding work. The greatest improvement

in the physical equipment of the division has been the erection of the new cold-storage plant for use in the departments of pomology and market gardening.

In the Division of Science. — The various departments in the new division of science have been carried on without notable change, except with respect to the formal organization into a division.

The department of chemistry has been reorganized, and the research and teaching sides of chemistry are now under one head. The announced object of the department is (1) to give all students in the college a reasonable understanding of the general principles of chemistry in its application to agriculture; (2) to co-operate with other departments of the college so that students may have an understanding of chemistry in its particular relation to the other arts and sciences, such as agriculture, horticulture, botany, biology, entomology, etc.; and (3) to train students for positions as chemists in experiment stations, the United States Department of Agriculture, fertilizer and feed factories, in dairy work, sugar work and the like.

The department of entomology has completed one year of work in the new building, and finds the building excellently adapted to departmental needs. A new course in forest insects has proved popular, and additions to the teaching force have made possible a greater attention to graduate teaching.

The teaching force in the department of mathematics is now adequate to permit comparatively small sections and, in the judgment of the department, the efficiency of the freshman work has been thereby materially increased. The class in senior engineering is the largest ever taking that elective course since it was introduced.

The subject of physics has been given full departmental standing during the year, and justifies its place not only because of the importance of physics as a science in itself, but also because special emphasis is laid on the correlation of the principles studied with the sciences of agriculture, botany, chemistry, and zoölogy, thus furnishing an extra tool by which the student's work in all these subjects may be made more effective.

The department of veterinary science has been enabled to develop the accessory work in bacteriology to a considerable de-

gree on account of the addition of Dr. Gage to the teaching force.

In the Divisions of the Humanities and Rural Social Science. — The work in economics and sociology has been given prominence by the organization of a department, as is the case with rural sociology. Other than the addition of numerous courses in these two departments no radical changes have been made during the year.

The Graduate School.

During the parts of the two college years covered by this report, 24 persons registered as graduate students. Of these, 19 were candidates for advanced degrees, the others taking such subjects as they desired, whether graduate or undergraduate in grade. Two were given the Ph.D. degree, and 2 the M.Sc. degree, at the last commencement. Seven persons presented themselves for the first time for graduate work this fall, making, with former students still at work, a total of 18 graduate students this fall. Of these, 3 are not candidates for advanced degrees.

No new policies have been initiated, the temporary organization of the school being such as to render these inadvisable. Despite this, one change should be made. The school was originally organized when no divisions of the college were in existence, and some of the present divisions were only departments. New departments in those divisions have not been recognized by the trustees in connection with graduate work, and the professors in charge of those departments feel that, in consequence, they are not on the same plane with other departments, and are not inclined to take graduate students so long as this inequality obtains. This seriously hampers the success of the graduate school, and I, therefore, recommend for the consideration of the trustees the following action taken by the faculty committee on graduate school: —

> Any department of the college, properly equipped and prepared to do so, may present to the committee on graduate school a full statement of the lines of work it is prepared to offer for graduate work, and on approval by the committee and endorsement by the trustees, such departments may be added to the list of those giving graduate courses, the rating of these courses as majors or minors for the degrees of M.Sc. or Ph.D. to be determined by the committee on graduate school.

The school is suffering at the present time from a lack of policies and advertising. A close, thorough organization of the work should be brought about; the scope of majors and minors determined more minutely; the latitude of choice of minors fixed; and the whole school pushed ahead more vigorously. I strongly recommend that steps be taken to give the school ample authority to develop in these and other directions.

The Experiment Station.

A number of minor changes in the station staff have taken place during the year, which are recorded in another part of this report. There has been one important building change; namely, the repairs and improvements at the station laboratory. The entire building has been renovated, the plumbing much improved, and heat from the central plant introduced; two new laboratory rooms have been provided for research work, and a large room set aside for library and reading purposes. These improvements furnish temporary relief from the overcrowded and inconvenient conditions hitherto prevailing. A substantial building has been erected on the college cranberry bog near Wareham, with sufficient capacity to handle the entire crop, and to furnish laboratory and living rooms, at a cost of about $2,100.

The following publications have been made during the year: —

Twenty-third annual report, 451 pages.

Bulletins: Inspection of commercial fertilizers, 76 pages. Inspection of commercial feedstuffs, 56 pages (No. 136). Inspection of commercial feedstuffs, 32 pages (No. 139). Rational use of lime, 20 pages. Tomato diseases, 32 pages. Meteorological bulletins, twelve, 4 pages each.

Circulars: Rules relative to testing dairy cows, 6 pages. The chemical analysis of soils, 4 pages. Balanced rations for dairy stock, 7 pages. Lime and sulphur solutions, 4 pages.

Additional publications: six papers printed in Part I. of the annual report, and one from Part II., have been published as separates.

The mailing list has been thoroughly revised in co-operation with every postmaster in the State. Many names dropped on account of death, removal, etc. Total number dropped, 1,110. New names added, 1,291. Lists at present: —

Residents of Massachusetts,	12,903
Residents of other States,	2,567
Residents of foreign countries,	242
Newspapers,	519
Libraries,	317
Exchanges,	142
Cranberry growers,	1,400
Beekeepers,	2,880
Meteorological,	583
Total,	21,553

A digest of the main lines of work for the year will be of general interest: —

No very fundamental changes have been made in lines of work in progress, but in many instances inquiries have been considerably broadened in scope. This is especially true of the cranberry investigations, in connection with which arrangements have been completed for meteorological observations in connection with the United States Weather Bureau. Color vision of the honey bee is a new subject taken up during the year.

Control Work. — The passage of a new fertilizer law has been secured. This becomes operative December 1. Fertilizer samples collected during the year, 1,061.

Feed Law. — A new feed law has been prepared which will be introduced in the Legislature this winter. Samples collected and examined during the year, 731.

Dairy Law. — A new dairy law prepared last year failed of enactment. It will be reintroduced.

The work of testing pure-bred cows continues to increase. It employs the entire time of two men, while from three to five men are needed during about five months every year.

Seed Work. — Purity tests, 62; germination tests, 355; samples separated, 138.

Results of the Lines of Work in the Experiment Station.

Although the report of the director of the station, printed as a separate document, should be referred to for all matters concerning details of the station work, it may not be out of place to recite some results which, in the opinion of the director, have

been attained by the year's work and are of general public interest.

Alfalfa. — Both home and co-operative experiments in general, satisfactory. In interpreting significance of results it seems important to remember that the much better success than was obtained in earlier years may, perhaps, be connected with the comparatively small rainfall. Still, the outlook is regarded as hopeful.

Asparagus. — The substation work at Concord has made excellent progress in the direction of producing a rust-resistant variety.

In the fertilizer work it has been made very apparent that the tendency to rust has been reduced by such use of fertilizers (especially nitrate of soda) as is calculated to promote uniform steady growth.

Cranberry. — Crop of the year excellent and will sell for a total sum of about $4,800. This will leave in the neighborhood of $3,500 net proceeds above the cost of harvesting, packing, etc., which becomes available to help meet costs of experimental work.

Numerous important lines of experiment have been introduced. Among the more important are overhead sprinkling system in its relation to frosts, crop production, etc., fertilizer experiments; general investigation as to insects and relation of the honey bee to pollination.

Among the significant results of the year has been the demonstration of the great importance of the honey bee in insuring pollination.

General Results in the Department of Agriculture deserving Special Mention. — Demonstration that sulfate of potash is far superior to muriate as a source of potash for the raspberry and for alfalfa.

Demonstration that for the onion crop no combination of fertilizer employed in addition to stable manure at the rate of 30 tons per acre is beneficial.

Demonstration that for alfalfa and oats as a nurse crop the various forms of fine-ground bone and basic slag meal are superior to fine-ground rock phosphates as sources of phosphoric acid.

Remarkable improvement in the character of pasture sod, and great increase in production of feed as result of top-dressing with moderate amounts of slag meal and double sulfate of potash magnesia.

Results in the Chemical Department. — Experimental and research work considerably hindered by repairs in progress, and none of the subjects which engaged special attention has been brought to a conclusion.

Results in the Horticultural Department. — Careful study as to the climatic adaptations of apple varieties has been completed. This work shows the great importance of exact climatic adaptation and the meteorological principles upon which this depends. It will have an important practical application in fruit growing.

Results in the Veterinary Department. — Experiments in feeding milk from tuberculous cows to calves and young stock have been completed. None of the animals contracted tuberculosis.

The Extension Service.

The extension service has had two full years of operation. It is needless to say that I regard this phase of our college activities as of the utmost consequence, directly to the Commonwealth and indirectly and incidentally to the college itself. I hope in a future report to discuss at some length the problem of an adequate extension service on behalf of Massachusetts agriculture and rural life. I now recommend that you authorize the publication of a fairly full report of the work of the past two years as a separate document. In the hope that this may be done, I will here simply call attention to a table of statistics of the extension activities printed as Table III. in another part of this report, and to a brief statement of results that I believe it is fair to credit to the work thus far accomplished.

What the Extension Service has accomplished.

1. It has systematized the scattered work heretofore done by the several members of the faculty.

2. Through the various short courses thorough instruction has been given to several hundred people who could come to the college for but a short time.

3. Through the lectures, demonstrations, demonstration or-

chards, dairy improvement associations, traveling libraries, and personal visits to farms, trains, fair exhibits, extension schools and other similar activities, reliable information has been carried to thousands who could not come to the college for it.

4. Through the correspondence courses men and women have been able to pursue systematic study and still attend to business or professional duties.

5. By means of the summer school and the conference for rural social workers, teachers, clergymen and others concerned in building up the educational and social life of rural regions have obtained a new conception of the function of the various organizations in the community, and the part they may play in community betterment. Many communities have taken on new life due chiefly to the inspiration received by some person at the summer conference. This influence has by no means been confined to Amherst or to Massachusetts.

6. Agriculture, in the broader sense, in this State, has received much stimulation at the hands of the faculty, through the several extension activities.

7. Through the extension service the equipment of the college and the knowledge possessed by the experts on the faculty are made more useful to the citizens of the State who support the college.

8. Through the extension service the college becomes more nearly a "public service institution." It gives men and women who come to it a useful and practical education, which will fit them for the several pursuits and professions of life. It carries on experiments and research work to determine facts which later can be used for the education of students and in the upbuilding of the agriculture of the State. But more than this, the college is prepared, through its extension service, to carry the teachings of the college and the results of the work of the experiment station, by means of men especially trained for the task, to every community that asks for these helps.

New Appointments.

The following appointments took effect during the winter of 1911: —

John Allan McLean was elected associate professor of animal

husbandry to fill the position made vacant by the resignation of Mr. Ray L. Gribben, as instructor in the same subject. Professor McLean is a graduate of McMaster University, Toronto, Can., in 1902, and from the Iowa State College in 1905. The five years subsequent to his graduation from Iowa State College he devoted to teaching, occupying positions at the agricultural colleges of Colorado, Iowa and Mississippi.

John C. Graham was elected associate professor of poultry husbandry. For fourteen years Professor Graham was principal of the high school in Oshkosh, Wis.; in the winter of 1911 he received the degree of B.S.Agr. from the University of Wisconsin.

Guy C. Crampton was appointed associate professor of entomology. Dr. Crampton is a graduate of Princeton University in 1904, received the degree of A.M. at Cornell University, and the degree of Ph.D. after two years' study in Germany. He has taught several years with marked success.

The following appointments took effect September 1: —

Robert J. Sprague was appointed head of the division of the humanities and professor of economics and sociology. Dr. Sprague graduated from Boston University in 1897. He subsequently pursued graduate work at that institution, receiving the degree of A.M. in 1899 and Ph.D. in 1901; he also received the degree of A.M. from Harvard University in 1900. He has had a wide experience in teaching, and has studied, worked or traveled in Germany, Italy, Canada and the British Islands. For five years prior to his appointment here he was professor of economics and sociology at the University of Maine.

Edward M. Lewis was appointed assistant professor of English and assistant dean. Professor Lewis graduated from Williams College in 1896. Subsequently he studied at Harvard University. He received the degree of A.M. from his alma mater in 1899. Two years later he received a diploma from the Boston School of Expression. He taught elocution at Columbia University for two years, and for the past eight years has taught public speaking and oratory at Williams College. For some years, also, he has taught public speaking at Yale Divinity School.

Curry S. Hicks was appointed assistant professor of physical

education and hygiene to fill the vacancy caused by the resignation of Dr. Percy L. Reynolds. Professor Hicks graduated from the Michigan State Normal College in 1908. Later he studied physical education at Amherst College, and last year was employed at the Michigan State Normal College as director of athletics and physical examiner.

Charles A. Peters, a graduate of Massachusetts Agricultural College in the class of 1897, was elected assistant professor of inorganic and soil chemistry. Dr. Peters has studied chemistry in Germany, also at Yale University, having earned the degree of Ph.D. in that subject; he has had a wide and successful experience in teaching, having been employed for several years at the University of Idaho.

Frederick L. Yeaw, a graduate of Massachusetts Agricultural College, in the class of 1905, was elected assistant professor of market gardening to take the place of Mr. Charles S. Heller who resigned in the summer. Professor Yeaw has been for five years employed as plant pathologist for the experiment station of the University of California, having had charge of the sub-station located at Davis.

George E. Gage was appointed assistant professor of animal pathology. Unique and full training in bacteriology and physiology fits Dr. Gage for this work. He had been engaged for some time by the experiment station of Maryland.

Dean George F. Mills returned to his college duties in September, after a leave of absence of one year.

Professor S. Francis Howard is on a leave of absence this year, and is spending the time in graduate study in chemistry at Johns Hopkins University.

In August Professor Frederick B. McKay resigned as assistant professor of English and public speaking. This position is being filled by Mr. Howard deF. Widger, a graduate of Yale University in 1910. Mr. Widger spent last year at Columbia University Law School.

An assistant director of extension work was appointed in June, Earnest D. Waid being elected to that position. Mr. Waid graduated from the Ohio State College in 1906, and since that time has been engaged in extension work in Maine and Ohio.

Albert R. Jenks, a graduate of Massachusetts Agricultural College in 1911, has been elected supervisor of correspondence courses in the extension service.

In the early spring Charles J. Robinson, extension instructor in dairying and animal husbandry, resigned. His position has been filled by the appointment of George F. E. Story, a graduate of Ohio State University in 1910.

Charles H. White, formerly connected with the extension service as field agent, was made district field agent for Worcester County, with headquarters at North Uxbridge.

New Instructors and Assistants.

The following instructors also became connected with the teaching force September 1: —

Position.	Name.	Institution from which graduated, and Degrees.	Year.
Instructor in physics,	Charles A. Butman,	Massachusetts Institute of Technology; three years' graduate work at Clark and Yale Universities.	1908
Instructor in English,	Willard A. Wattles,	University of Kansas, M.A.,	1911
Instructor in French,	William L. Harmount,	Yale University,	1903
Instructor in German,	Arthur N. Julian,	Northwestern University,	1907
Instructor in animal husbandry.	Elvin L. Quaife,	Iowa State College, B.Sc. Agr.	1911
Instructor in mathematics,	William L. Machmer,	Franklin and Marshall, M.A.,	1911
Instructor in landscape gardening.	Arthur K. Harrison,	Associated with Mr. Manning.	
Assistant in mathematics and in military science.	Samuel R. Parsons,	Massachusetts Agricultural College, B.Sc.	1911
Assistant in botany,	Frederick A. McLaughlin,	Massachusetts Agricultural College, B.Sc.	1911
Assistant in agronomy and secretary to director of experiment station.	Herbert J. Baker,	Massachusetts Agricultural College, B.Sc.	1911
Assistant in chemistry,	Harold S. Adams,	Williams College, A.B.,	1911

Rudolf W. Ruprecht, a graduate of the Rhode Island State College in 1911, is filling the additional position of assistant chemist in the experiment station, made necessary by the increased amount of work to be done in connection with the collection and analysis of fertilizers.

Sumner C. Brooks resigned as assistant in botany in the experiment station, and this position is being filled by Edward

A. Larrabee, who graduated from Massachusetts Agricultural College in 1911.

Just prior to Nov. 30, 1911, Joseph F. Merrill and Clement L. Perkins, assistants in the department of plant and animal chemistry of the experiment station, resigned to accept more lucrative positions elsewhere. Their successors have not yet been appointed.

Changes in Title of Officers of the Institution.

Name.	Former Title.	Present Title.
Edgar L. Ashley,	Instructor in German,	Assistant professor of German.
Joseph S. Chamberlain,	Associate professor of chemistry,	Associate professor of organic and agricultural chemistry.
Elmer K. Eyerly,	Assistant professor of political science and lecturer in rural sociology.	Associate professor of rural sociology.
Philip B. Hasbrouck,	Registrar of the college, associate professor of mathematics, and adjunct professor of physics.	Professor of physics and registrar of the college.
Joseph B. Lindsey,	– – –	Goessmann professor of agricultural chemistry.
Anderson A. Mackimmie,	Instructor in French,	Assistant professor of French.
George F. Mills,	Dean of the college, head of the division of the humanities, and professor of languages and literature.	Dean of the college, professor of languages and literature.
Charles Wellington,	Professor of general and agricultural chemistry.	Professor of chemistry.

New Administrative Organization.

By vote of the trustees at the June meeting the various departments of the college already organized, together with several others organized by the same action, were grouped into divisions. Each division has a head who acts as general administrative officer with more or less control over general policies, the extent of this control depending very largely upon the extent of the business transactions of the division. The head of the division of science is denominated the chairman of the division, and is appointed for two years on nomination by the heads of the departments in the division. The general departments of library, military science, and physical education are responsible directly to the president of the college, who for the present also retains the headship of the division of rural social science.

The original argument for developing this form of adminis-

trative organization lay in the fact that it was necessary to differentiate the departments of agriculture and horticulture into numerous departments. The question immediately arose, shall these departments be absolutely unrelated, or shall they be closely correlated? Obviously, groups of departments which in one case — horticulture — represent annual sales of $7,000, and in another case — agriculture — annual sales approaching $25,000, can best be handled by one administrative officer. The division idea, therefore, suggested itself as the solution of this problem. There are other forms of correlation, however, that are important, especially with respect to instruction. As the college grows it is evident that it will become more and more difficult for many problems to be discussed in general faculty meetings, particularly where those problems are of a character to interest special groups of men. The logical thing, therefore, seemed to be to organize the entire institution on the division basis. So far as possible, administrative details will be handled by the respective heads of divisions, in order that the instructors may give the larger share of their time and energy to the teaching work.

An important use of this new form of administrative organization has developed through the occasional convening of the various administrative officers, in an informal and unofficial way, as a sort of "cabinet" to the president for the discussion of general administrative questions.

It is intended that each department shall retain departmental integrity, and if the division system after a term of years is found not to meet the needs of the situation it can easily be abandoned.

Organization of Types of Work.

In the discussion of the mission of the college, I referred to the threefold division of our work as to types, — research, instruction and extension service. In this institution the instruction may be divided into two main groups, — the undergraduate instruction and the graduate school. These four types of work also find their appropriate administrative organization under the administrative leadership of "directors," as follows: —

The dean of the college is the director of the undergraduate work or instruction so far as it applies to the relation of students

to the work of the institution. At present the general questions of courses of study and methods of instruction are handled through a faculty committee.

The director of the experiment station is the director of all the research work of the institution, although for present purposes the agricultural survey is placed under the general charge of the extension service.

The director of the graduate school has general charge of the graduate teaching.

The director of the extension service is charged with the duty of developing the exterior activities of the institution.

The development of this general plan, and particularly the enlargement of the extension service, brings up a very important detail in the problem of administrative organization. Shall the extension service be organized as a separate faculty, or shall it be closely knit with the departmental organization of the institution? The plan which I strongly advocate is that of making each college-teaching department an administrative unit for all types of work. Theoretically, then, each department of the institution will have, or at least may have, four outlets for its energies: first, teaching of undergraduate students; second, teaching of graduate students; third, research and survey work; fourth, exterior teaching, or extension service. If the department is officered by only one or two men, manifestly either some types of work will be neglected or each man will be required to perform two or more types. As soon as a department, however, attains sufficient size to require the services of a large number of men, it is highly important that each man be employed for the specific purpose of giving the larger share of his time to some one type of work. What might be called a model department would have at least one man giving the bulk of his time to research, another to instruction of undergraduate students, another to the extension service. Of course, the number of men will depend upon the kind of work in the department, the resources of the college, and the demands of students and farmers generally for this special sort of work. I regard it as desirable that each man in the department should give a little time to some other work than that which represents his chief interest; for instance, that the

research man in every department should give at least one teaching course, preferably to advanced undergraduates or graduate students. If he can lecture occasionally to bodies of farmers, so much the better; but his time and energy should not be too much divided among many interests. So I think that every instructor ought to be given time and opportunity for at least minor pieces of research, and if his subject reaches the popular need, should be called upon occasionally for extension service. It is, perhaps, rather difficult for the extension man to find opportunities for research or for regular instruction in the college, although he may assist in the short-course work. Under this scheme the head of a given department may unify all the types of work that belong to the subject matter of his department. There is the objection, of course, that this is a rather complex organization, but it seems to be the only logical outcome of the desire to organize an institution like ours on a businesslike administrative basis.

The Administrative Officers.

The following is the schedule of the present administrative organization of the institution: —

The president.
The dean of the college.
The director of the experiment station.
The director of the graduate school.
The director of the extension service.
The registrar.
The treasurer.
The head of the division of agriculture.
The head of the division of horticulture.
The chairman of the division of science.
The head of the division of the humanities.
The head of the division of rural social science.
The assistant dean.

The following is the schedule of —

Organization for Teaching Purposes.

Classification.	Incumbent.	Academic Rank.
I. Division of Agriculture,	James A. Foord,	Head of division.
1. Agronomy,	Sidney B. Haskell,	Assistant professor.
	William P. Brooks,	Lecturer.
	Herbert J. Baker,	Assistant.
2. Animal husbandry,	John A. McLean,	Associate professor.
	Elvin L. Quaife,	Instructor.
3. Dairying,	W. P. B. Lockwood,	Associate professor.
	G. F. E. Story,	Extension instructor.
4. Farm administration,	James A. Foord,	Professor.
5. Poultry husbandry,	John C. Graham,	Associate professor.
II. Division of Horticulture,	Frank A. Waugh,	Head of division.
1. Floriculture,	Edward A. White,	Professor.
2. Forestry,	Frank F. Moon,	Associate professor.
	Frank W. Rane,	Lecturer.
3. Landscape gardening,	Frank A. Waugh,	Professor.
	Arthur K. Harrison,	Instructor.
4. Market gardening,	Frederick L. Yeaw,	Assistant professor.
5. Pomology,	Fred C. Sears,	Professor.
	Alvah J. Norman,	Extension instructor.
III. Division of Science,	James B. Paige,	Chairman of division.
1. Botany,	George E. Stone,	Professor.
	A. Vincent Osmun,	Assistant professor.
	F. A. McLaughlin,	Assistant.
	M. T. Smulyan,	Graduate assistant.
	R. G. Smith,	Graduate assistant.
2. Chemistry,	Joseph B. Lindsey,	Professor.
	Charles Wellington,	Professor.
	J. S. Chamberlain,	Associate professor.
	S. F. Howard,	Assistant professor.
	Charles A. Peters,	Assistant professor.
	William A. Turner,	Assistant.
	Harold S. Adams,	Assistant.
3. Entomology,	Henry T. Fernald,	Professor.
	Guy C. Crampton,	Associate professor.
	Burton N. Gates,	Assistant professor.[1]
	William S. Regan,	Graduate assistant.
4. Mathematics,	John E. Ostrander,	Professor.
	C. Robert Duncan,	Instructor.
	William L. Machmer,	Instructor.
	Samuel R. Parsons,	Assistant.
5. Physics,	Philip B. Hasbrouck,	Professor.
	Chester A. Butman,	Instructor.
6. Veterinary science,	James B. Paige,	Professor.
	George E. Gage,	Assistant professor.
7. Zoölogy and geology,	Clarence E. Gordon,	Assistant professor.
	Leonard S. McLaine,	Graduate assistant.
IV. Division of the Humanities,	Robert J. Sprague,	Head of division.
1. Economics and sociology,	Robert J. Sprague,	Professor.
2. History and government,	Elmer K. Eyerly,	In charge.
	George N. Holcomb,	Lecturer.
3. Languages and literature,	George F. Mills,	Professor.
English,	Robert W. Neal,	Associate professor.
	Edward M. Lewis,	Assistant professor.
	Willard A. Wattles,	Instructor.
	Helena Goessmann,	Assistant.
Public speaking,	H. deF. Widger,	Instructor.
German,	Edgar L. Ashley,	Assistant professor.
	Arthur N. Julian,	Instructor.
French,	A. A. Mackimmie,	Assistant professor.
	William L. Harmount,	Instructor.
V. Division of Rural Social Science,	Kenyon L. Butterfield,	Head of division.
1. Agricultural economics,	Alexander E. Cance,	Assistant professor.
2. Agricultural education,	William R. Hart,	Professor.
	Floyd B. Jenks,	Assistant professor.
3. Rural sociology,	Elmer K. Eyerly,	Associate professor.
VI. General Departments: —		
1. Military science,	George C. Martin,	Professor and captain.
	Samuel R. Parsons,	Assistant.
2. Physical education,	Curry S. Hicks,	Assistant professor.
3. Library,	Charles R. Green,	Librarian.

[1] Beekeeping.

Visits by Important Bodies.

To an increasing degree the college is becoming the objective for visits by important organizations or groups. The following is a list, doubtless incomplete, of such visits during the past year: —

	Date.
Connecticut Valley Breeders' Association,	Jan. 24.
Massachusetts Dairymen's Association,	Mar. 15.
Home and School Garden Club,	Aug. 4.
Potato Culture Club,	Oct. 7.
Massachusetts Fruit Growers' Association,	Oct. 9.
Massachusetts Press Association,	Oct. 9.
Executive Committee of State Y. M. C. A.,	Oct. 11.
Massachusetts State Poultry Association,	Oct. 11, 12.
Hampshire, Hampden, and Franklin Bee Keepers' Association,	Oct. 14.
Committee representing the Boston Gardeners' and Florists' Association,	Oct. 31.
Committee representing the Massachusetts Horticultural Society,	Oct. 31.
Officers of State Board of Education,	Nov. 21.

Construction and Repairs.

That part of the treasurer's work which consists in the oversight of college service, such as heating, lighting, etc., and the construction and repairs of buildings, has grown enormously during the past few years, and the demands on "general maintenance" have raised some rather important problems in administration. It has been very difficult to secure adequate help, and almost impossible to carry out promptly all of the projects assigned.

Two important buildings have been completed during the year: namely, the animal husbandry building and the cold storage building. The new dairy building has been begun, the building contract being given to H. Wales Lines Company of Meriden, Conn.; the heating and ventilating to Nichols & Drown Company of Lynn, Mass.; and the plumbing to William H. Mitchell & Sons of Boston. It is expected that the building will be completed by early summer.

The largest improvement project was in connection with the west experiment station building. Other improvements and

many repairs, however, have been made or are still in process. For example, in the chemical laboratory the room formerly used for mathematics has been refitted for work in chemistry. In the social union room at North College a new fireplace has been built, the east and north entrances of the room closed, and an arch put in between the lounging room and the trophy room. A marked improvement has thus been accomplished. In the department of poultry husbandry there were erected and partially equipped a feed house, a brooder house, and a laying house. The task of repainting all of the college buildings has been begun, and this much-delayed improvement we hope may be completed before commencement.

New granolithic walks have been put in as follows: from the main walk east of the chapel to the ravine, and from South College past North College, across the ravine, to the dining hall. Walks have also been made connecting the president's house with the campus. A "stepping-stone" walk has been put in front of the new entomological building; these stepping stones are 20 inches square, laid 6 inches apart. Work has just started on the new apiary, located on the site of the " old creamery " building.

The new waiting station has been placed on the botanic walk, adjacent to the trolley line of the Amherst & Sunderland Railroad Company. This is "a long-felt want," and will be appreciated by the great number of people using it. The design was made by students in the department of landscape gardening.

Percy C. Schroyer, a graduate of the Michigan Agricultural College, in the class of 1908, has been engaged as assistant engineer.

IMMEDIATE NEEDS OF THE COLLEGE.

The most effective way of stating the present needs of the college is to outline the reasons which underlie the action of the trustees in formulating the legislative budget for the ensuing year. However, numerous suggestions have come to me from the officers of the college, and while not all of the needs thus expressed have found a place in the legislative budget, it will be of interest to quote some of them here, as showing how difficult it is for the college to keep pace with the requirements

made by its rapid expansion. The following are among "the immediate pressing needs," suggested by various administrative officers of the institution: —

"Greatly increased library facilities."

"Additional recitation and lecture rooms, particularly for the departments in the division of the humanities."

"Additional instructors, so that certain sections in required work may be made smaller."

"Increased scholarship requirements."

"The limiting of the number of subjects that may be taken by the student, and avoiding such multiplicity of subjects that a student may get a hazy idea of many subjects instead of a clear, well-defined idea of a few things."

"A new chemical laboratory."

"Provision for new lines of investigation in the experiment station, the most important of which are in the following subjects: poultry farming, horticulture, animal diseases, market gardening."

"Additional land for use in experimental work, especially in the agricultural department, the department of pomology and the department of entomology; the latter department needs a small area to be under its exclusive control."

"Various minor improvements at the experiment station which have been submitted in the form of projects."

"The employment of an additional assistant in animal nutrition to work in connection with Dr. Lindsey."

"Employment of an assistant for seed work with a view to studying the seed situation in its possible bearing upon the necessity of a seed law."

The Legislative Budget of 1912.

The budget to be presented to the Legislature of 1912, as approved by the board of trustees at its meeting in Boston, November 3, may be summarized as follows: —

Requested Increases in Current Funds, Available for Fiscal Year, Dec. 1, 1912, to Nov. 30, 1913.

Items.	Present Appropriations.	Increase asked.	Total asked.
Administration,	$25,000	$5,000	$30,000
Maintenance and equipment,	58,000	37,000	95,000
Investigations,	10,500	14,000	24,500
Instruction,	60,000	23,000	83,000
Short courses and extension teaching,	20,000	30,000	50,000
Inspection service,	3,000	-	3,000
	$176,500	$109,000	$285,500

Requests for Appropriations for Special Purposes, 1912.

Agricultural building and equipment,	$200,000
Student dormitory,	25,000
Addition to French Hall,	25,000
Addition to Draper Hall,	25,000
Dwelling house for registrar,	8,000
Tenement house for farm help,	6,000
Sewers,	10,000
New equipment,	31,525
Repairs and minor improvements,	20,760
General improvements,	35,135
Total,	$386,420

Statement of Reasons for Requested Increases in Current Funds.

Administration. — Under the new legislative classification the appropriation for general administrative purposes is $25,000 a year. This includes the salaries of the general administrative officers of the college, the maintenance expense of their respective offices, and general charges that belong to the institution as a whole, such as, for illustration, publicity, commencement, etc. The current apportionment for the next fiscal year will show that the amount of $25,000 is not enough to carry the present charges. The charges will increase steadily year by year, and our request for an increase of this item to $30,000 a year is clearly justified by the situation.

Maintenance and Equipment. — The present appropriation under this item is $58,000 a year. The trustees have voted to ask the Legislature for an increase of $37,000, or a total of $95,-

000. Attention should be called to the fact that $30,000 of this increase is intended to cover permanent current appropriations of $15,000 each for repairs (and minor improvements), and for teaching equipment. It seems obvious enough that we should have at our disposal a reasonable sum each year for this purpose. The needs are sure to recur. They are not *special* needs. They are *current* needs. The Legislature cannot possibly judge wisely respecting the details of these expenditures. For two years prior to this we have asked the Legislature for these additions to our current income; so far without success. However, it is only businesslike that these additions should be made.

Instruction. — During the past few years the instruction force of the college has expanded quite rapidly, due to two main causes, the first of which is the increase in students. The attendance of students of college grade has increased more than 135 per cent. in the last five years. Necessarily this has called for more teachers, the addition of needed courses of study, and has also enlarged the work of existing departments. Furthermore, in order to keep pace with the rapidly developing field of agricultural instruction, a number of entirely new departments have been added. It will not be necessary in the future to add instructors at as rapid a rate as we have done during the past four years, but because of all the reasons just given for the recent expansion, there are still some important places to be filled. The estimates of the various departments call for additional instructors whose probable salaries would aggregate about $30,000 a year. The trustees have voted for an increase of $23,000. This is none too much. Instruction is the heart of the college. If we are inadequately equipped at this point we cannot possibly do the best work.

Investigation. — The income of the institution from the national treasury for experiment station work is fixed by law and can be changed only by congressional action. Under these conditions, as new needs arise they must be met, if at all, by appropriations from the State treasury. The trustees, therefore, acting on requests of various departments of the experiment station, are asking that the present State appropriation of $10,500 a year for investigation be increased to $24,500 a year. These investigations include an agricultural survey, experiments in floriculture,

market gardening, veterinary science, and particularly important experiments in the department of poultry husbandry. These projects for new types of investigation are heartily supported by committees representing various producers' organizations of the Commonwealth.

Short Courses and Extension Teaching. — The present appropriation of $20,000 a year for extension service is entirely inadequate to meet the demands. The trustees have voted to ask the Legislature for $50,000 a year to carry on this important work. While it is not possible at this time to indicate the precise outlines of the plan for the best use of this added appropriation, I take pleasure in including at this point a statement from the director of extension service, giving his judgment as to the most important lines of work which should be developed in the near future: —

Administration of the Work. — Salaries, additional office equipment, traveling expenses, clerical help.

The Development of the Correspondence Courses. — Salary of supervisor, office equipment, clerical help, so that at least 1,000 may register in these courses.

Itinerant Instruction. — The extension schools, fair exhibits, educational trains, lectures, demonstrations, etc., require money for apparatus, and to defray the expenses of carrying on these, which are, perhaps, among the most important of our projects.

Demonstration Orchards. — To continue to plant these orchards and to provide help to supervise the growing of them.

Traveling Instructor. — To pay salary and expenses of a man provided with an automobile or covered "van," equipped with all kinds of demonstrating apparatus, to travel from town to town, giving demonstrations to small groups of farmers.

Demonstration Plots. — To provide funds so that demonstration plots showing results of the use of fertilizers, seed selection, rotation of crops, etc., can be placed all over the State and properly supervised by a representative from the college.

Supervisor of Co-operative Work with Other State Institutions. — Funds to pay salary and traveling expenses of a man, with the best of practical training, to take up this co-operative work that has been asked for by the other State institutions.

Support for the Massachusetts Agricultural College Agricultural Improvement Association. — Funds to provide selected seeds,

printed instructions, and other material to be used as a basis for improving the agricultural industry of the State.

Extension Instructor in Rural Engineering and Sanitation. — To provide salary and traveling expenses of a man, trained in the problems of farm buildings, power on the farm, heat, lights and rural sanitation.

Extension Instructor in Town Improvement and Civic Betterment. — Funds to pay the salary of a man to work with village improvement officers, town officers and others on such subjects as beautifying the town, public roads, drives, parks, school grounds, cemeteries, streets, trees, etc., and to organize and federate all the forces of the community to work for one common end.

Extension Instructor in Agricultural Education. — To pay the salary and traveling expenses of a man to help school boards in the organization of agricultural work in high schools, and to take up and develop further the boys' and girls' club work which has already started so finely.

Extension Instructor in Home Economics. — To provide salary and expenses of a woman trained in this subject, especially from the rural standpoint, to give instruction in the short courses, to teach in the extension schools, to give lectures and demonstrations on foods and their value, cooking, canning, preserving, sanitation, labor-saving conveniences, household equipment, and to help in the introduction of these subjects into the smaller towns.

District Field Agents. — To pay salaries of several men to be located in good agricultural centers, to act as district field agents, devoting their entire time to the building up of the agriculture of the section in which they work.

Extension Instructor in Poultry Management. — To provide salary and expenses for a trained poultry man to give his time to helping the poultry interests of the State. At present, we cannot accept one-tenth of the calls made upon us.

Extension Instructor in Dairying. — Funds to pay salary and traveling expenses of a man to help teach this subject in the extension schools, and to give lectures and demonstrations and advice relating to dairying, both to producer and consumer.

Extension Instructor in Farm Management. — To pay salary

and expenses of a man who shall help the farmers all over the State, in soil improvement, use of fertilizers, growing of field crops and in the general equipment and management of the farm.

Extension Instructor in Animal Husbandry. — Funds to pay salary and expenses of a man to organize breeders' and dairy improvement associations, advise as to feeding, and to give lectures and demonstrations on the care, management, selection, etc., of live stock.

Short Courses. — To provide funds for the further development of the several winter courses, and the continuation of the summer school and the conference for rural leaders.

Appropriations for Special Purposes.

1. For erecting and equipping an Agricultural Teaching and Laboratory Building, $200,000. — Although the college has been open to students nearly forty-five years, it has never had a building devoted specifically to agricultural teaching.

Practically every agricultural college in the country finds it necessary and desirable to make such a building one of the most important on the campus.

The rapid increase in our agricultural students has crowded the agricultural departments out of their old quarters. It is almost impossible to do efficient teaching under present conditions.

The winter short-course students are also inadequately provided for.

The proposed building will have three stories and a basement, and contain offices, class rooms, laboratories for the departments of farm administration, agronomy, animal husbandry, poultry husbandry and agricultural engineering. It is proposed to erect a fireproof building and to equip it in harmony with the recent developments in these lines of work.

2. For erecting a Student Dormitory, $25,000. — This item was in our legislative budget one year ago. The need for it has grown, even with the year, as we have over 80 more men of college grade registered this autumn than a year ago. Students find it difficult to get rooms at any price, and room rents in private houses

are such as to make it a serious problem for many students who are working their way through college.

3. For erecting and equipping an Addition to French Hall, $25,000. — French Hall is a teaching building attached to the modern range of greenhouses, and was built about three years ago. It was so planned that only half of the building, as it should eventually stand, was erected, and it is now proposed to complete the building. Our division of horticulture has expanded, both in number of departments and in number of students taking the work, to such a degree that both teachers and students are seriously inconvenienced by the present crowded condition.

Furthermore, until we get a satisfactory building for the divisions of the humanities and rural social science, instructors in those divisions have to find class rooms wherever most available. Probably for several years this addition to French Hall will have to be used considerably by departments not connected with the division of horticulture.

4. For erecting an Addition to Draper Hall, $25,000. — This item has been asked for twice before. The present dining hall will not hold the student body. Moreover, the serving-room accommodations are entirely inadequate even for the present seating capacity of the dining hall. Hence the service is relatively costly and slow.

5. For erecting a Dwelling to be occupied by the Registrar of the College, $8,000. — The trustees are not ready to adopt the general policy of erecting residences upon the grounds for members of the teaching staff. They feel that it is extremely desirable for the president to live upon the grounds, as is now the case. There are a few other administrative officers, also, whose presence on or near the grounds seems to be a distinct advantage. One of these is the registrar of the college, who has to be consulted frequently by students. The registrar now occupies a cottage at the entrance of the grounds, which is scarcely habitable. It will not pay to repair it, and it is not right to ask an officer of the institution to reside there under such conditions. The business-like thing, therefore, seems to be to erect a dwelling on college property, to be occupied by the registrar of the institution, on terms that will represent a reasonable interest to the college on the investment.

6. For erecting and equipping a Tenement House for Farm Help, $6,000. — With the development of the live-stock interests, and particularly of the dairy herd, it has become imperative that quite a number of men should be housed near the college barns. Quarters formerly used for this purpose have been moved by the exigencies for new buildings, and other quarters must be provided.

7. For providing Sewers for the College Estate, $10,000. — The college does not have an adequate system of sewage disposal. The minor sewers have become too small for present use. The recently erected buildings have been provided with cesspools, but it is clearly evident that a thoroughly modern and complete sewerage system should be installed. It is both necessary and desirable that this system should be worked out in harmony with the plan of the town of Amherst for disposing of sewage in that part of the village which adjoins the college estate. Plans are being matured for this co-operation, and it is desired to begin work on the sewers at the earliest possible moment.

8. New Equipment for Farm, Dairy Building, Dining Hall, College Service, and for Miscellaneous Teaching Equipment for Various Departments, $31,525. — The college ought to have an annual income of not less than $20,000 for keeping up the teaching equipment. In lieu of this regular income we are obliged to ask the Legislature each year for a list of items needed to keep the equipment of college service — farm, horticulture and laboratories — up to par.

9. For Repairs and Minor Improvements, $20,760. — The same observations apply with respect to general repairs. The inventory of college buildings Dec. 1, 1911, exceeded $500,000. Twenty thousand dollars a year for general repairs is, therefore, 4 per cent. of the inventory value of the college buildings.

10. For General Improvements, $35,135. — This includes an addition to the poultry plant, an addition to the young stock barn, portable hog houses, a piggery, the development of the campus and miscellaneous improvements.

All of which is respectfully submitted,

KENYON L. BUTTERFIELD,
President.

AMHERST, Dec. 1, 1911.

Statistics of the College.

Table I. — *Attendance.*

	Registration Nov. 30, 1910.	Registration Nov. 30, 1911.
Senior class,	47	85
Junior class,	87	97
Sophomore class,	110	127
Freshman class,	158	168
	402	477
Graduate students,	15	15
Unclassified students,	17	29
Total doing work of college grade,	434	521
Short courses: —		
Winter school,	64	113
Poultry course,	51	74
Summer school,	229	153
Beekeepers' course,	20	16
	364	356
Total,	798	877

Table II. — *Legislative Budget, 1911.*

Items.	Amount asked.	Amount granted.
1. Special appropriations: —		
Improvements, west experiment station,	$7,500 00	$7,500 00
Enlargement of Draper Hall,	25,000 00	–
Dormitory,	25,000 00	–
Dairy building and equipment,	75,000 00	75,000 00
Department equipment,	15,000 00	10,000 00
Repairs,	20,000 00	15,000 00
General improvements,	25,000 00	15,000 00
	$192,500 00	$122,500 00
2. Increase in current annual appropriations: —		
Administration,	$4,250 00	$4,250 00
Maintenance and equipment,	43,250 00	13,250 00
Investigation,	5,000 00	–
Instruction,	22,500 00	12,000 00
Short courses and extension,	15,000 00	5,000 00
Inspection service,	–	–
	$90,000 00	$34,500 00
Previous appropriation,	142,000 00	142,000 00
Total,	$232,000 00	$176,500 00

TABLE III. — *Statistics of the Extension Service, 1910–11.*

	Enrollment.		
	1910.	1911.	Total.
Ten weeks' winter course,	65	113	–
Special poultry course,	51	74	–
Farmers' week course,	559	830	–
Beekeepers',	19	16	–
Summer school,	228	153	–
Conference rural social workers,	325	247	–
Correspondence courses,	106	370	–
Totals,	1,363	1,803	–
Total number enrolled in short courses at the college (two years),	–	–	3,166

Several organizations have held meetings two days in length at the college; no accounting is made of the attendance at these.

Statistics of Extension Work done away from the College.

	1910.	1911.	Total.
Lectures and demonstrations: —			
Requested,	123	600	723
Impossible to give,	69	222	291
Lectures and demonstrations given,	54	378	432
Attendance (no actual account, but fully),	–	–	20,000
Education trains: —			
Boston & Albany: —			
Days on road,	4	None.	–
Stops made,	18	None.	–
Springfield trolley: —			
Days on road,	3	None.	–
Stops made,	13	None.	–
Lectures and demonstrations given on both trains,	250	None.	–
Total attendance at lectures (hundreds of others visited the train),	–	–	9,000
Exhibits at fairs, expositions, etc.: —			
Exhibits at fairs,	6	10	16
Lectures and demonstrations given,	32	69	101
Attendance both years,	–	–	3,000
Demonstration orchards: —			
Requests for orchards on file,	31	99	130
New orchards planted,	4	4	8
Renovation plots,	2	2	4
Massachusetts Agricultural College Agricultural Improvement Association: —			
Membership,	–	110	110
Boys' and girls' corn and potato clubs: —			
Number of clubs,	125	350	–
Number enrolled,	8,300	16,900	–
Total number enrolled in two years,	–	–	25,200
Conferences for community betterment: —			
Number held,	2	4	6
Total number attending,	–	–	1,000
Dairy improvement association: —			
Number organized,	–	2	2
Requests for others,	–	3	3
Number of members,	–	52	52

Statistics of Extension Work done away from the College — Con.

	1909-10.	1910-11.	Total.
Massachusetts Poultry Association, meetings at college: —			
Attendance,	75	75	150
Beekeepers' convention: —			
Attendance,	-	75	75
Polish farmers' day: —			
Attendance,	-	95	95
Total number known to have been actually reached through the extension work during the two years,	-	-	61,848

TABLE IV. — *Public Speakers for the Year.*

A. Speakers at Sunday Services for Year ending Nov. 30, 1911.

1910.

Dec. 4. — Dr. Samuel A. Eliot, Boston.
Dec. 11. — Rev. Thomas Van Ness, Boston.

1911.

Jan. 8. — Rev. Herbert A. Jump, New Britain, Conn.
Jan. 15. — Rev. Philip S. Moxom, Springfield.
Jan. 22. — Rev. Clarence F. Swift, Fall River.
Feb. 12. — Rev. Albert P. Fitch, Cambridge.
Feb. 19. — Rev. John W. Ballantine, Stafford Springs, Conn.
Feb. 26. — Rev. Jason N. Pierce, Oberlin, O.
Mar. 5. — Princ. H. S. Cowell, Ashburnham.
Mar. 12. — Rev. Herbert J. White, Hartford, Conn.
Mar. 19. — Rev. O. P. Gifford, Brookline.
Sept. 17. — Pres. Kenyon L. Butterfield, Massachusetts Agricultural College.
Nov. 5. — Dr. L. Clark Seelye, Northampton.
Nov. 12. — Pres. M. L. Burton, Northampton.
Nov. 19. — Hon. George H. Utter, Westerly, R. I.
Nov. 26. — Mr. Frank P. Speare, Boston.

B. Speakers at Wednesday Assemblies for Year ending Nov. 30, 1911.

1910.

Dec. 7. — Mr. Harry Kimball, Boston.

1911.

Feb. 15. — Mr. J. B. Lewis, Boston.
Mar. 1. — Prof. Frank A. Updyke, Hanover, N. H.
Mar. 15. — Prof. Henry B. Wright, New Haven, Conn.
April 5. — Mr. George H. Cooper, Pittsfield.
April 12. — Prof. E. A. Ross, Madison, Wis.
May 10. — Prof. Edward M. Lewis, Williamstown.

1911.

May 17. — Dr. Charles W. Eliot, Cambridge.
May 31. — Hon. George H. Utter, Westerly, R. I.
Sept. 20. — Dean George F. Mills, Massachusetts Agricultural College.
Sept. 27. — Mr. Evan F. Richardson, Millis.
Oct. 4. — Pres. Kenyon L. Butterfield, Massachusetts Agricultural College.
Oct. 11. — Mr. Albert E. Roberts, New York, N. Y.
Oct. 18. — Dean George D. Olds, Amherst.
Oct. 25. — Prof. George M. Harper, Princeton, N. J.
Nov. 1. — Pres. Kenyon L. Butterfield, Massachusetts Agricultural College.
Nov. 8. — Prof. Edward M. Lewis, Massachusetts Agricultural College.
Nov. 15. — Hon. Frank A. Hosmer, Amherst.
Nov. 22. — Prof. J. W. Crook, Amherst.

TABLE V. — *Statistics of Freshmen entering Massachusetts Agricultural College in September, 1911.*

A. Home Addresses (classified by Towns and Cities).

Amherst, 4	Granby, Conn., 1	Peabody, 2
Arlington, 2	Hanson, 1	Peterboro, N. H., 1
Ballston Spa, N. Y., 1	Hanson (South), 2	Pittsfield, 1
Barranquilla, Colombia, S.A., 1	Hingham, 2	Plymouth, 1
Barnstable (West), 1	Kingston, 2	Revere, 2
Barre, 1	Lancaster, 1	Rock, 1
Becket, 1	Lancaster (South), 1	Rockport, 1
Beverly, 1	Lanesville, 1	Rutherford, N. J., 1
Boston, 13	Lee, 1	Sandwich, 1
Bridgeport, Conn., 1	Leominster, 1	Sheffield, 1
Brockton, 2	Lincoln (South), 1	Shelburne, 1
Brookfield (North), 1	Littleton, 1	Sherborn, 2
Brookline, 1	Ludlow, 1	Somerville, 3
Brooklyn, N. Y., 2	Lynn, 1	South Hadley Falls, 1
Buckland, 1	Malden, 1	Southington, Conn., 1
Buffalo, N. Y., 1	Marshfield, 1	Springfield, 3
Burlington, 1	Mattapan, 1	Springfield (West), 1
Campello, 2	Melrose, 9	Sudbury (South), 1
Canton, China, 1	Melrose Highlands, 2	Sunderland, 2
Catasauqua, Pa., 1	Mendon, 2	Swampscott, 1
Chelsea, 3	Middletown, Conn., 1	Taunton, 1
Chesterfield, 1	Milford, 1	Topsfield, 1
Chicopee Falls, 1	Montague, 2	Wakefield, 2
Dana (North), 1	Natick, 1	Waltham, 5
Darien, Conn., 1	Newburyport, 4	Ware, 1
Dartmouth (North), 2	New Haven, Conn., 2	Warren, 1
Deerfield, 1	Newton, 1	Wellesley, 1
Dover, 2	Newton (West), 1	Westford, 1
Doylestown, Pa., 1	Newtonville, 1	Weymouth (East), 1
Dracut, 1	New York, N. Y., 2	Winchendon, 1
Duxbury (South), 1	Northampton, 2	Winthrop, 3
Enfield, 1	Norwood, 1	Worcester, 7
Evans Mills, N. Y., 2	Oak Bluffs, 1	
Georgetown, 1	Orange, 1	
Glens Falls, N. Y., 1	Oxford, 1	

B. Home Addresses (classified by Countries and States).

	Number.	Per Cent.		Number.	Per Cent.
China,	1	.60	New York,	9	5.39
Connecticut,	7	4.19	Pennsylvania,	2	1.20
Massachusetts,	145	86.82	South America,	1	.60
New Hampshire,	1	.60		167	100.00
New Jersey,	1	.60			

C. Home Addresses (classified by Counties of Massachusetts).

	Number.	Per Cent.		Number.	Per Cent.
Barnstable,	2	1.38	Middlesex,	36	24.83
Berkshire,	6	4.14	Nantucket,	–	–
Bristol,	1	.69	Norfolk,	6	4.14
Dukes,	1	.69	Plymouth,	13	8.97
Essex,	13	8.97	Suffolk,	22	15.17
Franklin,	8	5.52	Worcester,	21	14.48
Hampden,	6	4.14		145	100.01
Hampshire,	10	6.89			

D. Nativity of Parents.

	Number.	Per Cent.
Neither parent foreign born,	132	79.04
Both parents foreign born,	22	13.17
Father (only) foreign born,	8	4.79
Mother (only) foreign born,	5	3.00
	167	100.00

E. Education of Father.

	Number.	Per Cent.
Common school,	82	49.10
High school,	44	26.35
Business school,	13	7.79
College or university,	21	12.57
No statistics,	7	4.19
	167	100.00

F. Religious Census.

	Membership.		Preference.		Totals.	
	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.
Baptist,	15	8.98	1	.60	16	9.58
Catholic,	11	6.59	3	1.80	14	8.38
Congregational,	46	27.54	17	10.18	63	37.72
Episcopal,	13	7.79	2	1.20	15	8.98
Hebrew,	5	3.00	–	–	5	3.00
Methodist,	13	7.79	7	4.19	20	11.97
Miscellaneous,	3	1.80	6	3.59	9	5.39
Presbyterian,	4	2.40	–	–	4	2.40
Unitarian,	4	2.40	10	5.98	14	8.38
Universalist,	3	1.80	4	2.40	7	4.19
	117	71.09	50	29.94	167	99.99

G. Occupation of Fathers.

	Number.	Per Cent.
Agriculture and horticulture (practical),	37	22.16
Artisans,	33	19.76
Business,	50	29.94
Deceased or no statistics,	15	8.98
Miscellaneous,	14	8.38
Professional,	16	9.58
Retired,	2	1.20
	167	100.00

H. Intended Vocations of Students.

	Number.	Per Cent.
Agriculture or horticulture (practical),	69	41.31
Agriculture or horticulture (professional),	52	31.14
Professions,	5	3.00
Undecided or no statistics,	38	22.76
Engineering,	3	1.80
	167	100.01

I. Farm Experience.

	Number.	Per Cent.
Brought up on a farm,	43	25.75
Not brought up on a farm and having had practically no farm experience,	64	38.32
Not brought up on a farm, but having had some farm experience,	60	35.93
	167	100.00

J. Miscellaneous Statistics.

Average age,	19.17 years.
Number applying for student labor,	99 (59.28 per cent).
Number boarding at Draper Hall,	129 (77.24 per cent).

TABLE VI. — *Statistics of Freshman Class.*

Number of applications,		281
Admitted,	188	
Matriculated,	168	
Failed to report,	20	
Total,	188	
Rejected,	93	
Total,		281
Admitted on certificate,		110
Admitted on examination,		29
Admitted on certificate and examination,		29
		168
Admitted without condition,		115
Admitted with condition,		53
		168

TABLE VII. — *Gifts.*

Massachusetts Agricultural Experiment Station. — List of Gifts for the Year ending Nov. 30, 1911.

German Kali Works, New York City,	200 pounds kainit. 1 ton high-grade sulfate of potash. 1,200 pounds carbonate of potash.
The Jarecki Chemical Company, Cincinnati, O.,	200 pounds calcined phosphate.
Vermont Marl Company, Brattleborough, Vt.,	11 tons shell marl.
Wilcox Fertilizer Company, Mystic, Conn.,	300 pounds dry-ground fish. 125 pounds dry-ground acid fish.
Rogers & Hubbard Company, Middletown, Conn.,	200 pounds dissolved bone.
Werner Extract Company, Mechanicsville, Ill.,	200 pounds Werner's phosphate.
Alphano Humus Company, New York City,	150 pounds Alphano humus.
J. Bolgiana & Son, Baltimore, Md.,	1 packet seed of "My Maryland" tomato.
S. D. Woodruff & Sons, Orange, Conn.,	3 pounds sample "Woodruff" potatoes.
W. Atlee Burpee & Co., Philadelphia, Pa.,	Novelties in vegetable and flower seeds.
Joseph Dixon Crucible Company, Boston, Mass.,	1 gallon Dixon's sillica-graphite paint.
Detroit White Lead Works, Detroit, Mich.,	2 gallons Jap. asphalt paint.
L. W. Ferdinand & Co., Boston, Mass.,	1 quart can glue cement.
Frederick Feeder Company, Perkasie, Pa.,	2 automatic feeders.
Poultry Dust Bath Company, Whiting, Ind.,	100 pounds Dustyne.
National Safety Soap Company, Wilmington, O.,	1 "Kling" hame fastener.
Sterling Chemical Company, Cambridge, Mass.,	5 gallons Sterlingworth San José scale killer. 5 gallons Sterlingworth lime and sulfur wash.
Boston Dry Food Hopper Company, Boston, Mass.,	5 feed hoppers.
Robert Essex Incubator Company, Buffalo, N.Y.,	1 Essex model incubator. 2 Essex model brooders.

Library. — List of Principal Gifts for the Year ending Nov. 30, 1911.

American Guernsey Cattle Club, Wm. H. Caldwell, M. A. C., 1887, Secretary,	Guernsey herd registers.
American Jersey Cattle Club, New York City,	Jersey herd register, 1902–10, 10 volumes.
American Shorthorn Breeders' Association,	Herd books.
Amherst Club, Amherst, Mass.,	Wallace's Year Book of Trotting and Pacing, 2 volumes.
Bowker, William H., Boston, Mass., M. A. C., 1871.	Government documents and miscellaneous books.
Depew, Hon. Chauncey M.,	Complete set of his writings, 8 volumes.
Chamberlain, Dr. J. S., Amherst, Mass.,	Experiment station bulletins.
City Library Association, Springfield, Mass.,	Proceedings of the American Association for the Advancement of Science.
Filer, H. B., M. A. C., 1906,	Buffalo park reports, 4 volumes.
Holstein-Friesian Association of America,	Herd books.
Indiana Academy of Science,	Proceedings, 16 volumes.
Iowa Academy of Science,	Proceedings, 16 volumes.

Library. — List of Principal Gifts for the Year ending Nov. 30, 1911 — Con.

Jones, Hon. J. W., Columbia, Tenn.,	American jack stock studbook, volumes 1–8.
Kansas Academy of Science,	Transactions, 15 volumes.
Lodge, Hon. Henry Cabot,	United States government publications.
Massachusetts State Board of Agriculture,	11 cases of early American agricultural periodicals, etc.
Massachusetts State Library,	Massachusetts public documents.
Michigan Academy of Science,	Proceedings, 12 volumes.
New York State Library,	New York public documents.
Percheron Society of America,	Percheron studbooks.
Queensland Department of Agriculture,	Queensland Agricultural Journal, 16 volumes.
Reliable Poultry Journal Publishing Company, Quincy, Ill.,	16 volumes.
Root, A. J. & Co., Medina, O.,	Bee books.
Smithsonian Institution, Washington, D. C.,	Harriman Alaska Expedition, 11 volumes.
Stoeckel, Hon. Carl, Norfolk, Conn.,	Litchfield County University Club publications, volumes 1–4.
Stone, Dr. George E., Amherst, Mass.,	Magazines and bulletins.
United States Department of Agriculture, Washington, D. C.,	Foreign and domestic agricultural publications.
United States Monetary Commission, Washington, D. C.,	Complete set of publications.
University of Wisconsin, Madison, Wis.,	Transactions of the Wisconsin Academy of Arts and Sciences, and publications of the University of Wisconsin.
Waugh, Mrs. F. A., Amherst, Mass.,	Magazines and books.
Williams, Mrs. Mary E., Amherst, Mass.,	Books.

Academic Departments. — List of Gifts for the Year ending Nov. 30, 1911.

Col. John E. Thayer, Lancaster, Mass.,	Valuable collection of 234 bird skins.
New York Zoölogical Society,	Skeletons of an American deer and a South American tapir.
James A. Hyslop, M. A. C., 1908,	Collection of skins of 17 small mammals and 14 birds from Washington State.
Rev. J. M. Lewis, North Westport, Mass.,	A new variety of the common mouse.
William R. Bent, M. A. C., 1912,	Duck skin.
R. R. Parker, M. A. C., 1912,	Marine worms and fishes.
G. A. Post, M. A. C., 1913,	Ostrich egg from east coast of Africa; also small collection of miscellaneous birds' eggs.
Dr. H. T. Fernald, Amherst, Mass.,	Albino shrew.
G. N. Willis, M. A. C., 1905,	Miscellaneous birds' eggs.
D. N. West, M. A. C., 1902,	Natural asbestos rock and samples in processes of manufacture from Black Lake, Quebec, Can.
A. F. McDougall, M. A. C., 1913,	Quartz crystals and small collection of invertebrate fossils.
M. S. Hazen, M. A. C., 1910,	Samples of crushed Florida phosphate rock dust, and acid phosphate; shark's teeth from phosphate rock; specimens of coal, minerals, etc., from coal mines near Moosic, Pa.
J. A. Harlow, M. A. C., 1912,	Quartz crystals.
Ozone Pure Airifier Company, Chicago, Ill.,	Ozone Pure Airifier.
Field Force Pump Company, Elmira, N. Y.,	Nozzles.
Goulds Manufacturing Company, Seneca Falls, N. Y.,	Nozzles.
Perth-Amboy Chemical Company, New York, N. Y.,	Formaldehyde.
Root Company, Medina, O.,	Collection of smokers and sundry tools; feeders; collection of standard beehives enameled for exhibition purposes; mounted specimens of their products, such as sections, etc.; transportation cages for live bees; queen mailing boxes and complete queen rearing outfit. Total value about $50.
W. T. Falconer Manufacturing Company, Jamestown, N. Y.,	Collection of hives, sections, wax foundation, and beekeepers' implements.
E. M. Nichols, Lyonsville, Mass.,	Samples of hives; collection of bottom boards and covers; feeders, etc.
The American Paper Products Company, St. Louis, Mo.,	Samples of "Appco Shipsafe," honey transportation cases.
J. E. Crane, Middlebury, Vt.,	One Crane honey shipping case.
E. H. Dewey, Great Barrington, Mass.,	Two Dewey foundation fasteners.

Academic Departments. — List of Gifts for the Year ending Nov. 30, 1911 — Con.

D. S. Hall, South Cabot, Vt.,	Models of Hall's frames.
J. L. Byard, Southborough, Mass.,	One colony of superior Italian bees.
A. A. Byard, West Chesterfield, N. H.,	Newly invented Byard foundation fastener.
American Sugar Refining Company, Granite Street, Boston, Mass.,	Exhibit of 12 samples of sugar products.
Arthur C. Miller, Providence, R. I.,	Miller's newly invented foundation fastener and hive tool.
American Can Company, Chicago, Ill.,	Large collection of types of cans for shipping honey.
O. M. Smith, Florence, Mass.,	Smith's hive tool.
H. H. Jepson, Boston, Mass.,	Various minor implements.
New York State Association of Beekeepers' Societies (through courtesy of W. F. Marks, Clifton Springs, N. Y.),	1 writing tablet as a sample of propaganda used in increasing interest in bees and honey among school children.
Dr. James B. Paige, M. A. C., 1882,	1 swarm catcher.
O. F. Fuller, Blackstone, Mass.,	1 complete outfit for commercial queen rearing.
L. A. Aspinwall, Jackson, Mich.,	1 Aspinwall hive.
Jesse Carpenter, Jr., M. A. C., 1912,	Washington insects.
W. E. Dickinson, M. A. C., 1907, Hakalau, Hawaii,	Hawaiian mantid.
H. T. Cowles, M. A. C., 1910, San Tusco, P. R.,	Porto Rican insects.
W. V. Tower, M. A. C., 1903, San Juan, P. R.,	Porto Rican lepidoptera. West Indian scale insects.
Dr. G. C. Crampton, Amherst, Mass.,	Cuban lepidoptera.
P. P. Cardin, M. A. C., 1909, Santiago de las Vegas, Cuba,	Cuban insects.
C. W. Hooker, Mayaguez, P. R.,	Coleoptera, etc., from Wisconsin.
C. C. Gowdey, M. A. C., 1908, Entebbe, Uganda,	African insects.
Dr. H. T. Fernald, Amherst, Mass.,	Nantucket insects.
R. H. Van Zwaluwenburg, M. A. C., 1913, U. J.,	Mexican insects.
C. A. Frost, M. A. C., South Framingham, Mass.,	Ichneumonidæ.
C. C. Gowdey, M. A. C., 1908, Entebbe, Uganda.,	Indian scale insects.
J. N. Summers, M. A. C., 1907, Melrose Highlands, Mass.,	European and American coleoptera.
United States Bureau of Entomology (through H. P. Wood, M. A. C., 1907),	Collection of ticks.
W. S. Regan, M. A. C., 1908, Amherst, Mass.,	Work of the carpenter worm.
United States Bureau of Entomology, Melrose Highlands, Mass.,	Imported parasites of the gypsy and brown-tail moths.
Dr. F. H. Chittenden, Bureau of Entomology, Washington, D. C.,	Southern truck crop insects.
Dr. G. C. Crampton, Amherst, Mass.,	Hemiptera from Syria.
H. A. Ballou, M. A. C., 1895, Barbados, W. I.,	Insects from Barbados.
Dr. G. C. Crampton, Amherst, Mass.,	Hymenoptera from the Riviera.
Q. S. Lowry, M. A. C., 1913,	Mantispa and eupsalis.
T. H. Jones, M. A. C., 1908, Washington, D. C.,	Entomological books.
C. W. Hooker, Mayaguez, P. R.,	Entomological pamphlets and photographs.
Field Force Pump Company, Elmira, N. Y.,	"Empire King" pump and accessories.
Deming Company, Salem, O.,	Barrel pump and nozzle frame.
Turner Brass Works, Sycamore, Ill.,	Two types of gasoline torch.
California Spray Chemical Company, Watsonville, Cal.,	Sample of zinc arsenite.
Frank N. Hale, Woonsocket, R. I.,	Sample of entomoid.
Merrimac Chemical Company, Boston, Mass.,	Samples of Swift's arsenate of lead.
Sherwin-Williams Company, Cleveland, O.,	Sample of soil fungicide and insecticide.
Carbolineum Wood Preserving Company, New York, N. Y.,	Sample of "Avenarius Carbolineum."
Manhattan Oil Company, New York, N. Y.,	Sample of "Spray on."
Hon. E. B. White, Leesburg, Va.,	Pure-bred two-year-old Percheron stallion (loan).
Bureau of Animal Industry, United States Department of Agriculture, Washington, D. C.,	Pure-bred Morgan stallion, Red Oak (loan).
L. A. Nichols, M. A. C., 1871, Chicago, Ill.,	3 100-foot steel tapes. 4 jointed range poles. 4 sets marking pins.
C. B. Travis, Brighton, Mass.,	20 eggs for hatching. 2 white Leghorn males. File of "Farm Poultry."
Rockandotte Farm, Southborough, Mass.,	50 eggs for hatching.
Henry D. Smith, Rockland, Mass.,	Discount on heating apparatus, brooder house, amounting to about $70.
DeLaval Separator Company,	2 separators (1 hand, 1 power) (loan). 1 cutaway separator (for demonstration) (loan).
Sharpless Separator Company,	2 separators (1 hand, 1 power) (loan).
Vermont Farm Machine Company,	1 hand separator with belt attached (loan).
International Harvester Company,	1 hand separator (loan).
Creamery Packing Manufacturing Company,	Several sanitary pipe fittings (loan).
P. R. Zeigler & Co.,	1 sterilac milk pail.

Report of the Treasurer

For the Fiscal Year ending Nov. 30, 1911.

Balance Sheet.

			Dr.	Cr.
1910.				
Dec. 1.	To cash on hand,		$5,664 38	
	To cash on deposit,		19,980 42	
1911.				
Nov. 30.	To special appropriation receipts, State Treasurer,		90,065 88	
	By special appropriation disbursements,			$94,745 20
	To experiment station receipts,		63,277 10	
	From State Treasurer,	$13,500 00		
	From United States Treasurer,	30,000 00		
	From other sources,	19,777 10		
	By experiment station disbursements,			64,986 68
	To current accounts receipts,		216,555 22	
	From United States Treasurer, Morrill fund,	$16,666 66		
	From United States Treasurer, Nelson fund,	16,666 67		
	From State Treasurer, endowment fund,	10,613 32		
	From State Treasurer, maintenance,	35,000 00		
	From State Treasurer, scholarship,	15,000 00		
	From State Treasurer, instruction,	47,500 00		
	From State Treasurer, Extension department,	15,000 00		
	From State Treasurer, agricultural education department,	5,000 00		
	From State Treasurer, veterinary department,	1,000 00		
	From State Treasurer, student labor,	7,500 00		
	From State Treasurer, graduate school,	2,500 00		
	From other sources,	44,108 57		
	By current account disbursements,			215,941 81
	To student trust funds receipts,		66,308 10	
	By student trust funds disbursements,			62,251 38
	By experiment station trust funds disbursements,			257 40
	By cash on hand,			8,229 09
	By cash on deposit,			15,439 54
			$461,851 10	$461,851 10

STATEMENT OF THE FIRST NATIONAL BANK OF AMHERST WITH THE MASSACHUSETTS AGRICULTURAL COLLEGE.

		DR.	CR.
1910.			
Dec. 1.	Balance on hand,	$40,168 47[1]	
1911.			
Nov. 30.	Deposits,	468,207 93	
	Interest,	497 79	
	Disbursements as per warrants,		$468,897 79
	Balance on hand,		39,976 40[1]
		$508,874 19	$508,874 19

[1] These amounts are greater Dec. 1, 1910, by $20,188.05, and Nov. 30, 1911, $24,536.86, on account of outstanding checks.

Special Appropriations.

Name of Appropriation.	Date made.	Amount of Appropriation.	Amount previously expended.	Amount expended during Fiscal Year.	Amount expended to Date.	Amount received from State Treasurer.	Balance on Hand with State Treasurer.
Zoölogy building,	1909	$80,000 00	$66,771 03	$13,246 32	$80,017 35	$80,017 35 [1]	–
Animal husbandry building,	1910	10,000 00	4,166 35	5,833 65	10,000 00	10,000 00	–
Investigation as to cranberry growing,	1910	15,000 00	12,799 31	2,200 69	15,000 00	15,000 00 [2]	–
Laboratory for pomology,	1910	12,000 00	1,223 38	10,776 62	12,000 00	12,000 00	–
Land,	1910	17,500 00	11,797 11	–	11,797 11	11,797 11	$65 98
Poultry husbandry,	1910	5,000 00	–	5,001 00	5,001 00	5,001 00 [1]	–
Repairs and improvements,	1910	25,000 00	16,640 06	8,359 94	25,000 00	25,000 00	–
Teaching and office equipment,	1910	10,000 00	2,984 13	7,015 87	10,000 00	10,000 00	–
Equipment for laboratory for entomology and zoölogy,	1910	15,000 00	5,872 19	9,127 81	15,000 00	15,000 00	–
Dairy building,	1911	75,000 00	1,804 87	11,014 99	12,819 86	7,948 24	67,051 76
Equipment,	1911	10,000 00	–	3,355 23	3,355 23	2,804 29	7,195 71
Repairs,	1911	15,000 00	–	4,579 31	4,579 31	3,839 63	11,160 37
Small buildings,	1911	15,000 00	–	7,792 32	7,792 32	6,484 28	8,515 72
West experiment station,	1911	7,500 00	200 00	5,105 18	5,305 18	4,420 15	3,079 85
Architects' fees,	–	–	1,150 57	1,197 79	2,348 36	–	–
Farm buildings,	–	–	–	138 48	138 48	–	–
		$312,000 00	$125,409 00	$94,745 20	$220,154 20	$209,312 05	$97,069 39

[1] From State Treasurer and other sources.

[2] $12,736.25 was paid by State Treasurer direct.

Current Accounts.

Disbursements and Receipts.

Accounts.	Disbursements from Dec. 1, 1910, to Nov. 30, 1911.	Receipts from Dec. 1, 1910, to Nov. 30, 1911.	Apportionment for Year ending Nov. 30, 1911.	Balance to Credit.
Administration,	$6,233 96	$2 36	$10,000 00	$3,768 40
Agricultural division,	22,788 40	19,052 37	4,000 00	263 97
Agricultural economics,	91 28	–	100 00	8 72
Agricultural education,	5,705 78	17 67	4,968 70	—719 41
Botanical,	1,442 56	769 55	700 00	26 99
Chemical,	3,520 50	2,328 43	800 00	—392 07
Dean's office,	202 45	–	200 00	—2 45
Entomological,	1,084 82	275 79	850 00	40 97
Extension work,	20,811 41	2,864 87	12,534 60	—5,411 94
Floriculture,	3,499 93	2,761 82	1,100 00	361 89
Forestry,	392 77	50	500 00	107 73
General horticulture,	2,585 00	659 80	2,000 00	74 80
General maintenance,	39,136 73	10,573 42	35,000 00	6,436 69
Graduate school,	1,339 18	120 00	3,586 81	2,367 63
Grounds,	1,900 61	1 70	2,200 00	301 09
Library,	5,542 46	436 91	5,000 00	—105 55
Landscape gardening,	433 72	256 93	250 00	73 21
Language and literature,	598 99	–	900 00	301 01
Market gardening,	4,413 12	2,293 74	2,400 00	280 62
Mathematics and physics,	361 75	10	500 00	138 35
Military,	1,939 42	24 79	1,900 00	—14 63
Physical education,	497 60	119 00	400 00	21 40
Political science,	85 07	–	25 00	—60 07
Pomology,	3,425 41	1,156 58	1,800 00	—468 83
President's office,	873 68	28 44	900 00	54 76
Registrar,	302 13	–	300 00	—2 13
Salaries,	84,132 15	–	85,034 00	901 85
Treasurer's office,	764 18	–	800 00	35 82
Veterinary,	1,343 35	17 50	1,771 45	445 60
Zoölogy,	493 40	346 30	100 00	—47 10
State Treasurer: —				
Endowment fund,	–	10,613 32	–	–
Maintenance,	–	35,000 00	–	–
Scholarship,	–	15,000 00	–	–
Instruction,	–	47,500 00	–	–
Extension department,	–	15,000 00	–	–
Agricultural education,	–	5,000 00	–	–
Veterinary,	–	1,000 00	–	–
Student labor fund,	–	7,500 00	–	–
Graduate school,	–	2,500 00	–	–
United States Treasurer: —				
Morrill fund,	–	16,666 66	–	–
Nelson fund,	–	16,666 67	–	–
	$215,941 81	$216,555 22	$180,620 56	$16,011 50
Balance beginning fiscal year, Dec. 1, 1910,	–	25,211 22[1]	–	—7,224 18
Balance on hand Nov. 30, 1911,	25,824 63	–	–	–
	$241,766 44	$241,766 44	$180,620 56	$8,787 32

[1] This amount is greater by $3,155.78 on account of architects' fees, which amount has been transferred to the accounts under special appropriations.

Summary.

	Disbursements.	Receipts.
By cash on hand Dec. 1, 1910,	–	$25,211 22
By institution receipts Nov. 30, 1911,	–	44,108 57
By State Treasurer's receipts Nov. 30, 1911,	–	139,113 32
By United States Treasurer's receipts Nov. 30, 1911,	–	33,333 33
To total disbursements,	$215,941 81	–
	$215,941 81	$241,766 44
Bills receivable Dec. 1, 1910, deducted,	–	2,187 72
Bills payable Dec. 1, 1910, deducted,	1,668 77	–
	$214,273 04	$239,578 72
Bills receivable Nov. 30, 1911,	–	2,265 82
Bills payable Nov. 30, 1911,	3,059 45	–
Balance,	24,512 05	–
	$241,844 54	$241,844 54

Comparative Disbursements and Receipts for 1910-11.

Accounts.	Disbursements.		Receipts.	
	1910.	1911.	1910.	1911.
Administration,	$4,729 04	$6,233 96	$30 07	$2 36
Agricultural division,	22,028 79	22,788 40	16,339 90	19,052 37
Agricultural economics,	112 60	91 28	–	–
Agricultural education,	5,047 21	5,705 78	15 91	17 67
Botanical,	994 05	1,442 56	259 34	769 55
Chemical,	2,137 73	3,520 50	2,075 14	2,328 43
Dean's office,	232 36	202 45	36	–
Entomology,	515 29	1,084 82	251 61	275 79
Extension work,	12,336 03	20,811 41	1,745 63	2,864 87
Floriculture,	2,987 80	3,499 93	2,495 93	2,761 82
Forestry,	–	392 77	–	50
General horticulture,	2,436 18	2,585 00	805 51	659 80
General maintenance,	32,405 40	39,136 73	10,739 37	10,573 42
Graduate school,	1,413 19	1,339 18	–	120 00
Grounds,	1,444 30	1,900 61	54 10	1 70
Library,	5,083 89	5,542 46	567 51	436 91
Landscape gardening,	258 21	433 72	123 90	256 93
Language and literature,	539 69	598 99	1 00	–
Market gardening,	4,970 60	4,413 12	2,604 94	2,293 74
Mathematics and physics,	251 74	361 75	1 12	10
Military,	1,657 52	1,939 42	53 25	24 79
Physical education,	566 41	497 60	137 85	119 00
Political science,	7 05	85 07	–	–
Pomology,	3,237 78	3,425 41	1,398 70	1,156 58
President's office,	721 91	873 68	15 25	28 44
Options on land,	125 00	–	115 00	–
Registrar,	249 12	302 13	–	–
Salaries,	71,124 91	84,132 15	143 32	–
Treasurer's office,	753 75	764 18	34 69	–
Veterinary,	777 42	1,343 35	5 90	17 50
Zoölogy,	392 73	493 40	275 41	346 30
State Treasurer: —				
Endowment fund,	–	–	10,613 32	10,613 32
Maintenance,	–	–	33,000 00	35,000 00
Scholarship,	–	–	15,000 00	15,000 00
Instruction,	–	–	40,000 00	47,500 00
Extension department,	–	–	8,125 00	15,000 00
Agricultural education,	–	–	5,000 00	5,000 00
Veterinary,	–	–	1,000 00	1,000 00
Student labor fund,	–	–	7,500 00	7,500 00
Graduate school,	–	–	2,500 00	2,500 00
United States Treasurer: —				
Morrill fund,	–	–	16,666 67	16,666 66
Nelson fund,	–	–	13,333 33	16,666 67
	$179,537 70	$215,941 81	$193,029 03	$216,555 22
Balance beginning of fiscal year,	–	–	11,719 89	25,211 22
Balance at close of fiscal year,	25,211 22[1]	25,824 63	–	–
	$204,748 92	$241,766 44	$204,748 92	$241,766 44

[1] This amount is greater by $3,155.78 on account of architect's fees, which amount has been transferred to the accounts under special appropriations.

Experiment Station.

Disbursements and Receipts.

Accounts.	Disbursements from Dec. 1. 1910, to Nov. 30, 1911.	Receipts from Dec. 1, 1910, to Nov. 30, 1911.	Apportionment for Year ending Nov. 30, 1911.	Balance to Credit.
Administration,	$1,669 79	$123 79	$2,085 00	$539 00
Agriculture,	4,864 07	2,128 14	2,300 00	—435 93
Asparagus,	748 63	–	500 00	—248 63
Botanical,	1,577 35	20 82	1,500 00	—56 53
Chemical,	9,809 16	7,165 66	2,400 00	—243 50
Cranberry,	4,038 98	4,232 00	1,000 00	1,193 02
Entomological,	588 10	2 50	700 00	114 40
Fertilizer,	–	6,094 83	–	6,094 83
Freight,	294 49	–	450 00	155 51
Feed law,	2,891 44	3,000 00	–	1,676 45
Graves orchard,	194 79	–	300 00	105 21
Horticulture,	1,439 97	4 36	1,350 00	—85 61
Library,	161 56	–	300 00	138 44
Meteorology,	322 16	–	400 00	77 84
Publications,	1,726 40	–	3,000 00	1,273 60
Salaries,	33,899 31	–	36,136 19	2,236 88
Treasurer's office,	182 12	–	350 00	167 88
Veterinary,	238 16	5 00	250 00	16 84
Hatch fund,	–	15,000 00	–	–
Adams fund,	–	15,000 00	–	–
State fund,	–	10,500 00	–	–
Tobacco experiments,	340 20	–	200 00	—140 20
	$64,986 68	$63,277 10	$53,221 19	$13,789 90
Balance beginning of fiscal year,	–	5,799 94	–	—1,210 40
Balance on hand Nov. 30, 1911,	4,090 36	–	–	–
	$69,077 04	$69,077 04	$53,221 19	$12,579 50

Experiment Station Trust Fund.

Account.	Disbursements for Year ending Nov. 30, 1911.	Balance brought forward Dec. 1, 1910.
Cranberry growers' contribution account,	$257 40	$257 40

Comparative Disbursements and Receipts, 1910-11.

Accounts.	Disbursements.		Receipts.	
	1910.	1911.	1910.	1911.
Administration,	$1,722 57	$1,669 79	$32 80	$123 79
Agriculture,	5,286 14	4,864 07	2,963 67	2,128 14
Asparagus,	736 59	748 63	–	–
Botanical,	1,283 19	1,577 35	28 70	20 82
Chemical,	9,228 18	9,809 16	6,660 08	7,165 66
Cranberry,	1,504 29	4,038 98	1,958 54	4,232 00
Entomology,	562 81	588 10	1 20	2 50
Fertilizer,	–	–	5,880 00	6,094 83
Freight,	445 03	294 49	85	–
Feed law,	3,580 61	2,891 44	3,000 00	3,000 00
Graves orchard,	350 81	194 79	119 00	–

Comparative Disbursements and Receipts, 1910-11 — Con.

Accounts.	Disbursements.		Receipts.	
	1910.	1911.	1910.	1911.
Horticulture,	$1,530 18	$1,439 97	$2 37	$4 36
Library,	289 62	161 56	–	–
Meteorology,	299 03	322 16	–	–
Publications,	1,953 86	1,726 40	–	–
Salaries,	31,438 00	33,899 31	15 52	–
Treasurer's office,	370 74	182 12	–	–
Veterinary,	218 64	238 16	–	5 00
Hatch fund,	–	–	15,000 00	15,000 00
Adams fund,	–	–	14,000 00	15,000 00
State fund,	–	–	10,500 00	10,500 00
Tobacco experiments,	317 78	340 20	–	–
Cranberry association,	544 17 [1]	–	544 17	–
Expert services,	12 40	–	85 00	–
	$61,674 64	$64,986 68	$60,791 90	$63,277 10
Balance beginning of fiscal year,	–	–	6,682 68	5,799 94
Balance on hand Nov. 30, 1911,	5,799 94	4,090 36	–	–
	$67,474 58	$69,077 04	$67,474 58	$69,077 04

[1] Transferred to cranberry growers' contribution account.

Agricultural Division.

Disbursements and Receipts for Fiscal Year ending Nov. 30, 1911.

	Disbursements.	Receipts.
Office,	$370 30	$27 54
Academic: —		
Maintenance,	$120 25	$10 10
Equipment,	103 95	1 50
Miscellaneous,	164 60	–
Student labor,	219 22	–
	$608 02	$11 60
Farm: —		
Labor,	$10,393 69	$3,098 73
Dairy,	1,769 76	12,194 08
Teams,	527 12	125 00
Horses,	501 33	908 72
Cattle,	4,627 06	710 08
Swine,	199 29	151 15
Field crops,	1,037 92	1,518 33
Repairs,	538 67	–
Improvements,	282 19	20
Student labor,	1,164 00	9 84
Contingent,	119 34	16 91
Tools,	271 17	50
Freight and express,	96 06	–
Poultry,	282 48	279 69
	$21,810 08	$19,013 23
Division totals,	$22.788 40	$19,052 37

Summary.

	Dr.	Cr.
By total division receipts,		$19,052 37
By bills receivable,		1,167 78
By net apportionment,		4,000 00
To total disbursements,	$22,788 40	
To bills payable,	153 13	
To balance,	1,278 62	
	$24,220 15	$24,220 15

Inventory of Quick Assets.

	Nov. 30, 1910.	Nov. 30, 1911.
Inventory of produce,	$4,999 13	$4,728 73
Inventory of cattle,	10,042 00	10,823 00
Inventory of swine,	340 00	485 00
Inventory of horses,	4,400 00	4,080 00
Inventory of poultry,		614 25
	$19,781 13	$20,730 98

Horticultural Division.

Disbursements and Receipts for Fiscal Year ending Nov. 30, 1911.

	Disbursements.	Receipts.
Floriculture,	$3,499 93	$2,761 82
Forestry,	392 77	50
General horticulture,	2,585 00	659 80
Grounds,	1,900 61	1 70
Landscape gardening,	433 72	256 93
Market gardening,	4,413 12	2,293 74
Pomology,	3,425 41	1,156 58
	$16,150 56	$7,131 07

Summary.

	Dr.	Cr.
By total division receipts,		$7,131 07
By bills receivable,		861 39
By apportionment,		10,250 00
To total division disbursements,	$16,650 56	
To bills payable,	101 83	
To balance,	1,490 07	
	$18,242 46	$18,242 46

Inventory of Quick Assets.

	Nov. 30, 1910.	Nov. 30, 1911.
Inventory of supplies,	$496 00	$1,064 00

Inventory — Real Estate.

Land (Estimated Value).

Baker place,	$2,500 00
Bangs place,	2,350 00
Clark place,	4,500 00
College farm,	37,000 00
Harlow farm,	3,284 63
Kellogg farm,	5,868 45
Louisa Baker place,	5,636 91
Old creamery place,	1,000 00
Pelham quarry,	500 00
Westcott place,	2,250 00
Allen place,	500 00
Charmbury place,	450 00
Loomis place,	415 00
Hawley & Brown place,	675 00
Newell farm,	2,800 00
	$69,729 99

College Buildings (Estimated Value).

Animal husbandry building,	$10,000 00
Chemical laboratory,	8,000 00
Clark hall,	67,500 00
Cold-storage laboratory,	12,000 00
Dairy barn and storage,	30,000 00
Dining hall,	35,000 00
Drill hall and gun shed,	10,000 00
Durfee range and glass houses, old,	10,000 00
Durfee range and glass houses, new,	15,000 00
Entomology building,	80,000 00
Farmhouse,	2,500 00
French hall,	17,000 00
Horse barn,	5,000 00
Horticultural barn,	2,500 00
Horticultural tool shed,	2,000 00
Machinery barn,	4,000 00
Mathematical building,	6,000 00
North dormitory,	25,000 00
Physics laboratory,	5,500 00
Poultry feed house,	1,400 00
Poultry brooder house,	1,000 00
Poultry laying houses,	1,300 00
Poultry colony houses,	470 00
Power plant,	13,000 00
President's house,	12,000 00
Quarantine barn,	200 00
Small plant house, with vegetable cellar and cold grapery,	4,700 00
South dormitory,	35,000 00
Stone chapel,	30,000 00
Three houses on Stockbridge Road,	5,000 00
Veterinary laboratory and stable,	23,500 00
Waiting station,	500 00
Wilder hall,	37,500 00
Young stock barn,	6,500 00
	$519,070 00

College Equipment (Estimated Value).

Agricultural division: —	
Academic,	$3,901 80
Dairy school,	1,723 82
Farm,	26,687 05
Agricultural education,	711 95
Botanical department,	7,816 52
Chemical laboratory,	7,100 00
College supplies,	205 40
Dean's office,	108 50
Dining hall,	3,341 57
Entomological laboratory,	6,495 32
Extension department,	1,775 05
Fire apparatus,	950 10
Floriculture,	6,336 25
Forestry,	306 35
General horticulture,	9,448 65
General maintenance,	65,663 16
Landscape gardening,	4,462 61
Language and literature,	189 01
Library,	63,227 85
Market gardening,	893 59
Military,	1,207 22
Pomology,	2,130 28
Physical education,	2,142 33
Physics and mathematics,	5,443 94
President's office,	1,013 20
Registrar's office,	261 51
Textbooks,	307 45
Treasurer's office,	901 50
Trophy room,	1,273 85
Veterinary laboratory,	7,685 40
Water mains,	7,850 00
Zoölogical laboratory,	8,915 28
Zoölogical museum,	6,179 93
	$256,656 44

Experiment Station Buildings (Estimated Value).

Agricultural laboratory and glass houses,	$15,000 00
Agricultural barns,	5,000 00
Agricultural glass house,	500 00
Agricultural farmhouse,	1,500 00
Plant and animal chemistry laboratory,	30,000 00
Plant and animal chemistry barns,	2,500 00
Plant and animal chemistry dairy,	2,000 00
Six poultry houses,	600 00
Entomological laboratory and glass house,	850 00
	$57,950 00

Experiment Station Equipment (Estimated Value).

Agricultural laboratory,	$6,033 05
Botanical laboratory,	4,722 55
Chemical laboratory,	17,707 85
Director's office,	3,716 50
Entomological laboratory,	22,799 98
Horticultural laboratory,	1,120 00
Meteorology laboratory,	1,304 80
Poultry department,	409 85
Treasurer's office,	433 50
Veterinary laboratory,	80 00
	$58,328 08

Inventory Summary.

Land,	$69,729 99
College buildings,	519,070 00
College equipment,	256,656 44
Experiment station buildings,	57,950 00
Experiment station equipment,	58,328 08
	$961,734 51

STUDENTS' TRUST FUND ACCOUNTS.

	Disbursements for Year ending Nov. 30, 1911.	Receipts for Year ending Nov. 30, 1911.	Balance on Hand Nov. 30, 1911.	Balance brought forward Dec. 1, 1910.
Athletics,	$5,697 71	$6,664 45	$3,536 65	$2,569 91
Dining hall,	37,436 23	42,191 68	—1,690 80	—6,446 25
Louisa Baker estate,	213 14	–	–	213 14
Keys,	23 00	24 50	30 50	29 00
College signal,	1,917 03	2,054 11	550 16	413 08
Student deposits,	4,481 93	4,897 98	554 55	138 50
Creamery house,	240 90	235 50	35 81	41 20
Trophy room,	506 66	839 00	608 57	276 23
Harlow farm,	262 11	125 00	—164 63	—27 52
Text books,	5,931 25	5,208 70	382 04	1,104 59
Kellogg farm,	169 93	137 50	35 69	68 12
Y. M. C. A.,	12 35	–	–	12 35
Musical association,	70 82	40 00	–	30 82
1912 index,	1,274 57	1,274 83	23 77	23 51
Public speaking council,	9 96	9 96	–	–
Dramatic association,	200 00	200 00	–	–
Uniforms,	3,652 23	2,160 15	239 62	1,731 10
1913 index,	151 56	2,447 74	93 18	–
	$62,251 38	$66,308 10	$6,090 54	$6,651 56
Balance on hand Dec. 1, 1910,	–	178 39	—1,855 43	—6,473 77
Balance on hand Nov. 30, 1911,	4,235 11	–	–	–
	$66,486 49	$66,486 49	$4,235 11	$178 39

Detailed Statement of Dining Hall.

	Liabilities.	Resources.
Dec. 1, 1910, overdraft,	$6,446 25	–
Nov. 30, 1911, provisions purchased,	37,436 23	–
Nov. 30, 1911, outstanding bills,	1,643 66	–
Nov. 30, 1911, total collections,	–	$42,191 68
Nov. 30, 1911, total collections outstanding,	–	1,962 31
Nov. 30, 1911, inventory,	–	1,600 50
Balance,	228 35	–
	$45,754 49	$45,754 49

The average cost of board per week for the fiscal year was $3.86.

Endowment Fund.[1]

	Principal.	Income.
United States grant (5 per cent.),	$219,000 00	$7,300 00
Commonwealth grant (3½ per cent.),	142,000 00	3,313 32
		$10,613 32

[1] This fund is in the hands of the State Treasurer, and the Massachusetts Agricultural College receives two-thirds of the income from the same.

Beneficiary Funds.

Burnham Emergency Fund.

		Market Value Dec. 1, 1911.	Par Value.	Income.
Two bonds American Telephone and Telegraph Company 4s, at $910,		$1,820 00	$2,000 00	$80 00
Two bonds Western Electric Company 5s, at $1,020,		2,040 00	2,000 00	100 00
One bond United Fruit Company 5s,		–	–	50 00
On June 1, 1911: —				
The United Fruit Company's bond matured: we received,	$1,000 00			
On Aug. 2, 1911: —				
We purchased the Newell land for pasture and made a partial payment of,	800 00			200 00
The balance was paid by the State.				
Unexpended balance Dec. 1, 1910,		–	–	400 90
		$3,860 00	$4,000 00	$830 90
Disbursements for fiscal year ending Nov. 30, 1911,		–	–	230 35
Cash on hand Dec. 1, 1911,		–	–	$600 55

Library Fund.

	Market Value Dec. 1, 1911.	Par Value.	Income.
Five bonds New York Central & Hudson River Railroad Company 4s, at $940,	$4,700 00	$5,000 00	$200 00
Five bonds Lake Shore & Michigan Southern Railroad Company 4s, at $940,	4,700 00	5,000 00	200 00
Two shares New York Central & Hudson River Railroad Company stock, at $106,	212 00	200 00	10 50
Amherst Savings Bank, deposit,	167 77	167 77	6 68
	$9,779 77	$10,367 77	$417 18
Transferred to College library account,	–	–	417 18

Special Funds.

Endowed Labor Fund (the Gift of a Friend of the College).

		Market Value Dec. 1, 1911.	Par Value.	Income.
Two bonds American Telephone and Telegraph Company 4s, at $910,		$1,820 00	$2,000 00	$80 00
Two bonds Lake Shore & Michigan Southern Railroad Company 4s, at $940,		1,880 00	2,000 00	80 00
One bond New York Central Railroad debenture 4s,		940 00	1,000 00	40 00
Amherst Savings Bank, deposit,		143 39	143 39	5 72
One bond Metropolitan Street Railway, Kansas City Company 5s, at,		980 00	1,000 00	50 00
		$5,763 39	$6,143 39	$255 72
Unexpended balance Dec. 1, 1910,		–	–	986 39
		–	–	$1,242 11
One Kansas City Metropolitan Street Railway Bond, purchased Jan. 10, 1911,		–	–	994 72
Cash on hand Dec. 1, 1911,		–	–	$247 39

Whiting Street Scholarship Fund.

One bond New York Central debenture 4s,		$940 00	$1,000 00	$40 00
Amherst Savings Bank, deposit,		271 64	271 64	10 84
		$1,211 64	$1,271 64	$50 84
Unexpended balance Dec. 1, 1910,		–	–	57 63
		–	–	$108 47
Disbursements for scholarships for fiscal year ending Nov. 30, 1911,		–	–	90 00
Cash on hand Dec. 1, 1911,		–	–	$18 47

Hills Fund.

Northampton Institution for Savings, deposit,		$1,180 00	$1,180 00	$44 66
One bond American Telephone and Telegraph Company 4s,		910 00	1,000 00	40 00
One bond New York Central & Hudson River Railroad debenture 4s,		940 00	1,000 00	40 00
One bond New York Central & Hudson River Railroad debenture 3½s,		820 00	1,000 00	35 00
Two bonds Metropolitan Street Railway of Kansas City 5s, at $980,		1,960 00	2,000 00	100 00
Three bonds Pacific Telephone and Telegraph Company 5s, at $995,		2,985 00	3,000 00	150 00
One bond Western Electric Company 5s,		1,020 00	1,000 00	50 00
Boston & Albany Railroad stocks, at $221,		801 12	362 00	31 68
Amherst Savings Bank, deposit,		72 75	72 75	2 88
		$10,688 87	$10,614 75	$494 22
Unexpended balance Dec. 1, 1910,		–	–	618 46
		–	–	$1,112 68
On Jan. 10, 1911: —				
One bond of the Metropolitan Street Railway of Kansas City was purchased for	$994 72			
Disbursements by floriculture and botanical departments for fiscal year ending Nov. 30, 1911,	288 51			1,283 23
Overdraft Dec. 1, 1911,		–	–	$170 55

Mary Robinson Fund.

	Market Value Dec. 1, 1911.	Par Value.	Income.
Northampton Institution for Savings, deposit,	$820 00	$820 00	$31 04
Boston & Albany Railroad stock, at $221,	82 88	38 00	3 32
	$902 88	$858 00	$34 36
Unexpended balance Dec. 1, 1910,	–	–	55 53
Cash on hand Dec. 1, 1911,	–	–	$89 89

Grinnell Prize Fund.

Ten shares New York Central & Hudson River Railroad stock,	$1,060 00	$1,000 00	$52 50
Unexpended balance Dec. 1, 1910,	–	–	193 24
	–	–	$245 74
Disbursement for prizes,	–	–	50 00
Cash on hand Dec. 1, 1911,	–	–	$195 74

Gassett Scholarship Fund.

One bond New York Central & Hudson River Railroad debenture 4s,	$940 00	$1,000 00	$40 00
Amherst Savings Bank, deposit,	11 64	11 64	44
	$951 64	$1,011 64	$40 44
Unexpended balance Dec. 1, 1910,	–	–	36 37
	–	–	$76 81
Disbursements for scholarships for fiscal year ending Nov. 30, 1911,	–	–	66 30
Cash on hand Dec. 1, 1911,	–	–	$10 51

Massachusetts Agricultural College (Investment).

One share New York Central & Hudson River Railroad stock,	$106 00	$100 00	$5 25
Unexpended balance Dec. 1, 1910,	–	–	50 20
Cash on hand Dec. 1, 1911,	–	–	$55 45

Danforth Keyes Bangs Fund.

Two bonds Pacific Telephone and Telegraph Company 5s, at $995,	$1,990 00	$2,000 00	$100 00
Two bonds Union Electric Light and Power Company 5s, at $990,	1,980 00	2,000 00	100 00
Two bonds American Telephone and Telegraph Company 4s, at $910,	1,820 00	2,000 00	80 00
Interest from student loans,	–	–	6 28
	$5,790 00	$6,000 00	$286 28
Unexpended balance Dec. 1, 1910,	–	–	345 29
Cash on hand Dec. 1, 1911,	–	–	$631 57

John C. Cutter Fund.

	Market Value Dec. 1, 1911.	Par Value.	Income.
One bond Pacific Telephone and Telegraph Company 5s,	$995 00	$1,000 00	$50 00
Unexpended balance Dec. 1, 1910,	–	–	28 33
Cash on hand Dec. 1, 1911,	–	–	$78 33

SUMMARY OF BALANCES ON HAND OF THE INCOME FROM FUNDS HELD IN TRUST BY THE MASSACHUSETTS AGRICULTURAL COLLEGE.

Burnham emergency fund,	$600 55
Endowed labor fund,	247 39
Whiting Street scholarship fund,	18 47
Mary Robinson fund,	89 89
Grinnell prize fund,	195 74
Gassett scholarship fund,	10 51
Massachusetts Agricultural College investment,	55 45
Danforth Keyes Bangs fund,	531 57
John C. Cutter fund,	78 33
	$1,827 90
Hills fund overdraft,	170 55
	$1,657 35

I hereby certify that I have this day examined the Massachusetts Agricultural College account, as reported by the treasurer, Fred C. Kenney, for the year ending Nov. 30, 1911. All bonds and investments are as represented in the treasurer's report. All disbursements are properly vouched for, and all cash balances are found to be correct.

CHARLES A. GLEASON,
Auditor.

AMHERST, Dec. 12, 1911.

HISTORY OF SPECIAL FUNDS.

Burnham emergency fund: —

A bequest from T. O. H. P. Burnham of Boston, made without any conditions. The trustees of the college have voted that the fund be kept intact, and that the income from it be used for the college for such purposes as they believe to be for its best interest, $5,000 00

Library fund: —

The library of the college at the present time contains about 30,000 volumes. The income from the fund raised by the alumni and others is devoted to its increase, and additions are made from time to time as the needs of the different departments require. Dec. 27, 1883, William Knowlton gave $2,000; Jan. 1, 1894, Charles L. Flint gave $1,000; in 1887 Elizur Smith of Lee, Mass., gave $1,215. These were the largest bequests, and amount now to . . 10,000 00

Endowed labor fund: —

Gift of a friend of the college in 1901, income of which is to be used for the assistance of needy and deserving students, ... $5,000 00

Whiting Street scholarship: —

Gift of Whiting Street of Northampton, for no special purpose, but to be invested and the income used. This fund is now used exclusively for scholarship, . 1,000 00

Hills fund: —

Gift of Leonard M. and Henry F. Hills of Amherst, Mass., in 1867, to establish and maintain a botanic garden, ... 10,000 00

Mary Robinson fund: —

Gift of Miss Mary Robinson of Medfield, in 1874 for scholarship, ... 1,000 00

Grinnell prize fund: —

Gift of Hon. Wm. Claflin, to be known as the Grinnell agricultural prize, to be given to the two members of the graduating class who may pass the best oral and written examination in theory and practice of agriculture, given in honor of George B. Grinnell of New York, ... 1,000 00

Gassett scholarship fund: —

Gift of Henry Gassett of Boston, the income to be used for scholarship, ... 1,000 00

Massachusetts Agricultural College investment fund: —

Investment made by vote of trustees, in 1893; to purchase one share New York Central & Hudson River Railroad stock. The income from this fund has been allowed to accumulate, ... 100 00

Danforth Keyes Bangs fund: —

Gift of Louisa A. Baker of Amherst, Mass., April 14, 1909, the income thereof to be used annually in aiding poor, industrious and deserving students to obtain an education in said college, ... 6,000 00

John C. Cutter fund: —

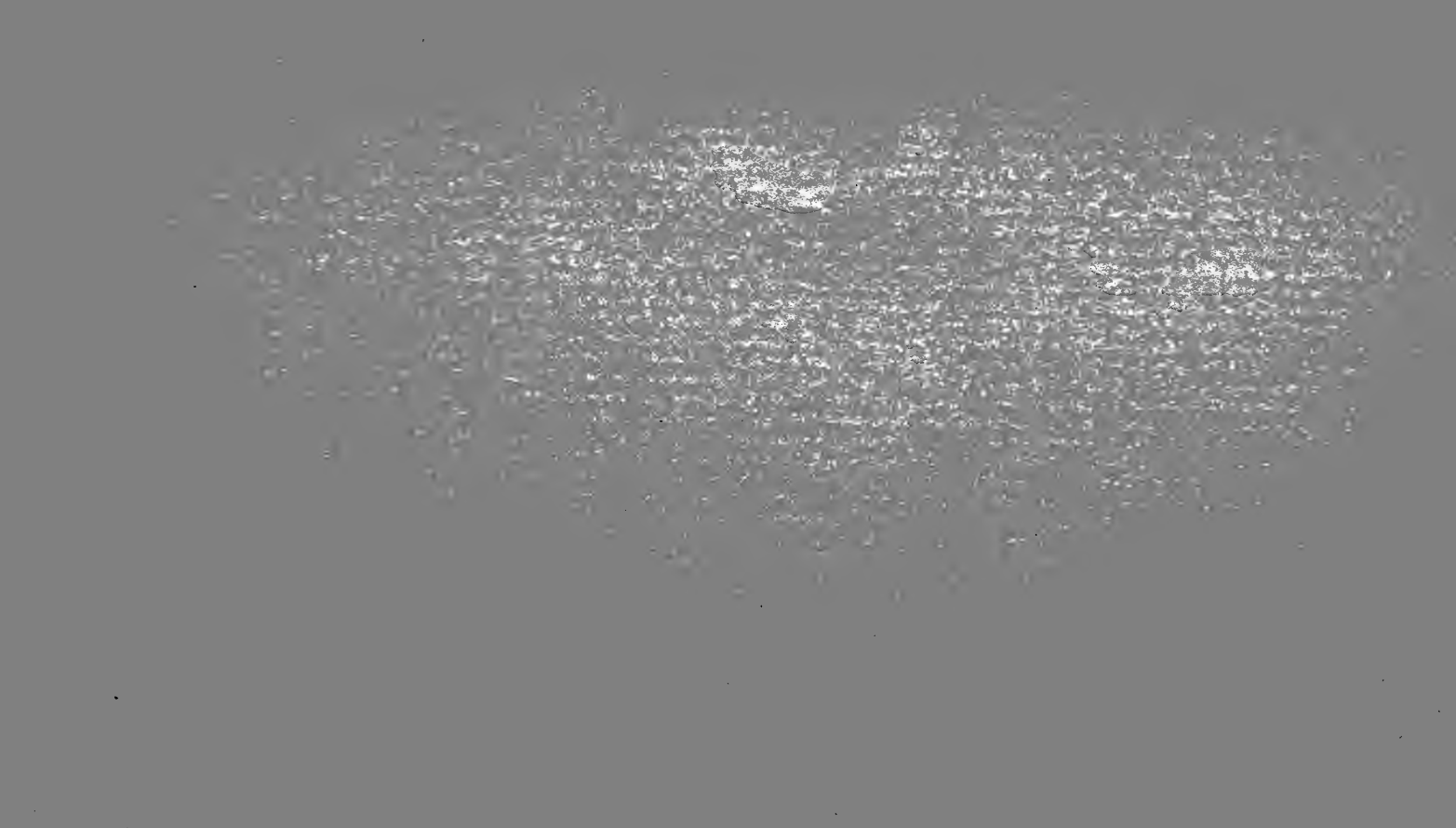
Gift of Dr. John C. Cutter of Worcester, Mass., an alumnus of the college, who died in August, 1909, to be invested by the trustees, and the income to be annually used for the purchase of books on hygiene, 1,000 00

$41,100 00

PRIZES.

Sophomore prize in botany, given by Prof. A. V. Osmun of the department of botany, to that member of the sophomore class who presents the best herbarium in the regular course (this prize was first offered in 1908 with the hope that it might stimulate a greater interest on the part of the students in this line of work), —	$5 00
Special prize, given by the Western Alumni Association to that member of the sophomore class who during his first two years has shown the greatest improvement in scholarship, character and example, ...	25 00
	$30 00

FRED C. KENNEY,
Treasurer.



THE M. A. C. BULLETIN

AMHERST, MASS.

Vol. VI. No. 2 **February, 1914.**

Published Six Times a Year by the College.
Jan., Feb., Mar., May, Sept., Oct.

ENTERED AS SECOND-CLASS MATTER AT THE POST OFFICE, AMHERST, MASS.

Public Document **No. 31**

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FIFTY-FIRST ANNUAL REPORT

OF THE

MASSACHUSETTS AGRICULTURAL COLLEGE.

PART I.

REPORT OF THE PRESIDENT AND OTHER OFFICERS

FOR FISCAL YEAR ENDED NOV. 29, 1913.

UNIVERSITY OF ILLINOIS
FEB 5 1914
PRESIDENT'S OFFICE

BOSTON:
WRIGHT & POTTER PRINTING CO., STATE PRINTERS,
32 DERNE STREET.
1914.

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1914.

Approved by
The State Board of Publication.

The Commonwealth of Massachusetts.

Massachusetts Agricultural College,
Amherst, Dec. 2, 1913.

To His Excellency Eugene N. Foss.

Sir: — On behalf of the trustees of the Massachusetts Agricultural College I have the honor to transmit herewith, to Your Excellency and the Honorable Council, Part I. of the fifty-first annual report of the trustees, for the fiscal year ended Nov. 29, 1913, this being the report of the president and other officers of the college to the corporation.

I am, very respectfully, your obedient servant,

EDWARD M. LEWIS,
Acting President.

REPORT OF THE PRESIDENT OF THE COLLEGE.

Gentlemen of the Corporation.

Owing to the absence of President Butterfield, and to the honor conferred upon me by your honorable body, it becomes my duty to present to you the annual report of the Massachusetts Agricultural College for the year ended Nov. 29, 1913. This I herewith submit.

A REVIEW OF THE YEAR.

Attendance.

The number of students enrolled in the four-year course this year is 542. In addition there are 24 registered as unclassified students and 39 as members of the graduate school. The increase over last year in attendance of regular four-year students is 40, or 8 per cent.; the total enrollment of students doing work of college grade is 605, an increase of 50 over the total enrollment of last year. The entering class numbers 201, this number being larger by 17 than the entering class of 1912. (See Table I.[1])

Eighty-two per cent. of the freshman class come from Massachusetts; 10 other States are represented. In spite of the fact that in 1912 a tuition fee was charged to students entering from States other than Massachusetts, the number of non-residents has in both years slightly increased. All counties in Massachusetts, with the exception of Dukes and Nantucket, are represented in the class; Middlesex County again this year sends the largest number, its proportion being slightly over one-fourth, Worcester County is second, and Essex County third. (See Table V.)

While one-sixth of the class are undecided as to their in-

[1] The following statistics and tables are found at the end of this report: attendance, legislative budget, statistics of the extension service, public speakers for the year, statistics of freshmen, entrance statistics of the freshman class, and changes in personnel of officers of the institution.

tended vocation, I am glad to say that over 80 per cent. of the entire class signify their intention of following some form of agriculture or horticulture. Over 94 per cent. of those who have stated their choice of a vocation intend to follow some branch of agriculture. Twenty per cent. of the fathers of the members of the freshman class are engaged in agriculture or horticulture; 23 per cent. are artisans; 31 per cent. are engaged in business; and 10 per cent. are professional men. Approximately one-fourth of the class come from farms; nearly two-fifths have had no farm experience whatever; the balance, while not having been brought up on a farm, still have had limited experience in farm work. The average age of the class is 18.94 years. (See Table V.)

The Commission on Economy and Efficiency and Legislative Appropriations.

The trustees presented to the Legislature of 1913 requests for special appropriations amounting to $250,000. Of this amount $210,000 represented a request for an agricultural building, and $40,000 for general improvements and repairs. The total asked for current appropriations was $300,000, the increase of $50,000 to be distributed between investigations and instruction, with an additional item for annual repairs.

In December, 1912, the Commission on Economy and Efficiency, which was established by the Legislature of 1912, sent an expert to the institution to make a thorough investigation as to the needs of the institution, business methods employed, and general matters of administration. After an exhaustive study had been made and several hearings held before the full commission it was agreed that the college should have a continuing appropriation for current expenses to cover a period of five years. The bill embodying a schedule of such appropriations was passed by the Legislature. A summary of the provisions of this bill will be found in Table II.

On recommendation of the Commission on Economy and Efficiency the Legislature appropriated about $80,000 for additions and improvements at the college. The principal items were those for an addition to French Hall, $35,000, an infirmary, $15,000, improvements, $26,000. (See Table II.)

Commencement.

At the annual commencement in June, 90 seniors received the degree of Bachelor of Science, a number slightly in excess of that of 1912. The college also conferred the degree of Master of Science on one candidate. Hon. Seth Low of New York City delivered the commencement address, taking as his subject, "Agricultural Colleges." The attendance at the alumni dinner was 232.

The Major System.

The major system has been given a full year's trial, and, on the whole, has proved to be highly successful as a method of securing for the individual a more adequate training in the subject selected. After a year's trial there seems to be but few modifications desirable. The new department of microbiology now has a major, but the major in general horticulture has been discontinued. The subjects which are offered as major courses, and the number of juniors and seniors this year enrolled in each, are indicated in the table below. It should be noted that agriculture, pomology, and animal husbandry, three strictly practical agricultural subjects, have large enrollments. This table clearly shows, it seems to me, that the college is largely and definitely educating its students toward practical agricultural vocations.

Subject.	Seniors.	Juniors.
Agriculture,	8	16
Agronomy,	2	1
Animal husbandry,	12	9
Dairying,	2	3
Poultry husbandry,	2	2
Horticulture,	2	–
Forestry,	1	5
Floriculture,	3	4
Landscape gardening,	18	16
Pomology,	26	16
Chemistry,	10	8
Entomology,	8	9
Botany,	1	6
Agricultural education,	3	4
Microbiology,	–	4
Total,	98	103

New Appointments.[1]

The more important appointments of the year are those of F. H. H. Van Suchtelen, Ph.D., assistant professor of microbiology; Harold E. Robbins, M.A., assistant professor of physics, as successor to Mr. Chester A. Butman; Hubert D. Goodale, Ph.D., as research biologist in poultry husbandry and Miss Laura Comstock, extension professor of home economics.

Assistant Professor Van Suchtelen received his university education in Germany, receiving the degree of Doctor of Philosophy from the University of Göttingen. Subsequently, he came to America and served at the Michigan Agricultural College as teacher and investigator. Dr. Van Suchtelen is a student and investigator of high rank, and his addition to our faculty is a valuable one.

Assistant Professor Robbins is a graduate of Trinity College (Hartford), and has pursued postgraduate study at Yale University. He has had a successful experience as a teacher, both in high school and in college work.

Dr. Goodale graduated from Trinity College (Hartford) in 1904, and then pursued graduate study at Columbia University, earning the degree of Doctor of Philosophy at that institution. He has had several years' experience in practical work and as an investigator in experimental evolution.

Miss Comstock is a graduate of Buffalo, N. Y., Normal School and of Pratt Institute. She has had several years' experience as a teacher, and since 1906 has been professor of home economics at the University of Maine. Her engagement at this institution as extension professor of home economics, meets a long-felt want, and will supply instruction for which there is great need and general demand.

Resignations.[1]

During the year Prof. Edward A. White, head of the department of floriculture, was elected to a similar chair at Cornell University. The opportunity was an attractive one, and Professor White decided to accept the position. Professor White's resignation represents a distinct loss to the Massachusetts

[1] A complete list of the resignations and of new appointments during the year will be found in Table VII.

Agricultural College, and it will be difficult to secure a successor who will develop the department and carry on the work as satisfactory as did he. Professor White came to the institution in 1907, and at once undertook the organization of a department of floriculture. At the time of his resignation it is one of the strongest and best equipped departments in the institution; indeed, it is doubtful if any college in the country has a stronger department of floriculture.

Changes in Board of Trustees.

I regret to have to report the retirement of Mr. M. F. Dickinson from our Board of Trustees. His resignation was submitted early in 1913, and was due to continued ill health. Mr. Dickinson became a member of the Board of Trustees in 1905, and was reappointed by Governor Foss in 1912. During his service on the Board of Trustees, Mr. Dickinson took an exceptionally active interest in all questions which came before the Board for consideration. His advice was frequently sought, and his opinions always had much weight with the other members of the Board. It is with deep sense of the loss sustained by the college that we report this resignation. Mr. Dickinson's successor is Mr. George P. O'Donnell of Northampton.

The new classification of stenographers and clerks, which your honorable body established last June, has worked thus far, I am glad to say, with little or no friction, and I see no reason to believe that it will not continue to work smoothly and satisfactorily.

Last April President Butterfield left the college to serve as a member of the United States commission to investigate and study in European countries co-operative farm financing. He returned to the campus in August and remained till the middle of October, when again he left on the leave of absence which extends till next May. It is needless for me to try to say how much the faculty miss his guidance and inspiration, and how much they hope that his well-deserved furlough may be fully enjoyed. We shall all be glad to welcome him back again.

It is a great pleasure for me to report that ever since the president's departure for Europe last April, the multiplicity of details that infest the president's office has been most effici-

ently handled by Mr. Ralph J. Watts, the president's secretary. And it is equally as great a pleasure for me to report that the burdens of the president's office have in a large part been willingly and cheerfully shared by my loyal colleagues on the faculty. The whole-hearted support and the generous co-operation of my fellow workers has made my task in many ways much easier than I anticipated.

Scarlet Fever.

Last January, just before the midyear examinations, the scarlet-fever epidemic, which brought suffering and gloom into many homes in the Connecticut valley, broke out within our college walls. It came upon us without warning, and in a moment brought the utmost dismay and sorrow into our college home. Twenty-five of our students were afflicted, and of those four failed to survive. Our dead friends and brothers were Edward Woodman, Jr., Portland, Me., class of 1915; Rutherford S. Treat, Seymour, Conn., class of 1916; Warner H. Burt, Longmeadow, Mass., class of 1916; T. Vincent Cannon, Newton, Mass., short course.

They were all splendid fellows, and their precious memories still abide to bless and to inspire us. Our earnest sympathy will never fail to go out to their sorrowing parents and relatives.

The suddenness of the attack and the comparatively large number of students affected, found the college almost entirely unprepared to cope with the situation. But the lack of preparation and inadequate equipment were in a great measure met by the energy, the prompt action, the willing self-sacrifice, and the whole-hearted co-operation of the entire community. Every one turned in and helped. The State authorities were here as soon as possible, the Amherst College infirmary was immediately and generously at our disposal, the Kappa Gamma Phi House was converted into a hospital and the Kappa Sigma House into a detention home; the nurses and physicians of the community responded with alacrity to the great need. The expedition with which the college and its friends met the situation mitigated greatly the results of the disease, and our indebtedness to friends within and without is in no measure suggested by the depth of our gratitude.

The epidemic was the most serious in the history of the college. The State Board of Health, in conjunction with the college, made a most careful investigation, but without avail. No one could point to a clear and definite cause, and it will probably never be known. Though a lesser item in the sad story, it will not be out of place to mention that the expense incurred was approximately $4,500. This was borne completely by the college.

Lectureship on World Politics.

On October 1 the trustees authorized an annual lectureship on "World Politics," — the first lectureship of its kind established in this country. At the same meeting Mr. R. L. Bridgman of Boston was invited to deliver the first series. The choice was a most happy one, for few scholars, if any, have studied certain phases of this great subject with more thoroughness and enthusiasm than has Mr. Bridgman. At this writing, two of these lectures have been delivered and they have been heard by large and appreciative audiences.

Improvements and Repairs.

Numerous improvements and repairs were made during the summer. The addition to French Hall, for which an appropriation of $35,000 was granted by the last Legislature, was started about the middle of July. The contractors were unable to secure the terra cotta trimmings, and accordingly not much progress was made until the latter part of October. Since then the work has gone forward rapidly, and the building will be completed during the coming year.

The principal improvements made during the summer were the macadam road extending from the entrance to the college grounds on the county road to the chapel, a 6-foot granolithic walk from the entrance to the grounds on the Stockbridge road to the old Durfee range of greenhouses, and a 6-foot walk adjoining the present granolithic walk east of the chapel and continuing to the stone bridge. Small strips of walk were constructed at Draper Hall and at Flint Laboratory. In addition, numerous cinder paths were made and some of the old tar walks were resurfaced. The dormitory rooms in South

College were thoroughly renovated and put in first-class condition. The rooms in North College were all repainted. The greenhouse at the experiment station was repaired.

The Year in the Departments of Instruction.[1]

In the Division of Agriculture. — Owing to an increase in the number of students, the work in the different departments of the division of agriculture has increased during the year. This makes the need for suitable classrooms and laboratories most urgent. All five of the departments of the division, as well as the department of microbiology, are now crowded into Flint Laboratory, which was designed for the work in dairying only. This greatly hampers the work of all the departments and decreases the efficiency of the instruction given; laboratory work in some departments has to be omitted altogether. It seems incredible that the people of Massachusetts will longer delay furnishing adequate facilities for departments whose work touches so closely and so vitally the interests of the practical farmer. In addition to the work of instruction, the demands made upon these departments for extension work are constantly increasing. There are also many problems of the practical farmer calling for solution that need the attention and investigation of every department of the division.

The work of the department of agronomy has increased rapidly, and a graduate assistant, giving half his time to the department, has been secured. The most important needs of the department are laboratory facilities for work in soils, fertilizers, and field crops.

During the past year the department of animal husbandry has assumed the responsibility for the selection, care, and management of the live stock on the college farm. A good three-year-old Percheron stallion and two young bulls of excellent breeding have been purchased.

After using Flint Laboratory for about a year, the department of dairying pronounces it most satisfactory for the purpose of instruction. The department is now clarifying and pasteurizing all milk used at the college dining hall, thus making the supply an excellent one.

[1] The directors and heads of divisions were asked to submit a résumé of the work which had been conducted under their direction during the year, and these statements have been freely utilized in the present report.

A research biologist has been added to the staff of the department of poultry husbandry. The work of this trained investigator cannot fail to be of great service to the poultrymen of Massachusetts. Other buildings of the department have been finished, including two small buildings for storage and a colony breeding house. More land for experimental purposes is needed.

In the department of farm administration an extension to the young stock barn and a bungalow for farm help, built during the latter part of the year, should be mentioned. Plans for a piggery to be built in the spring are also being prepared. Modern tools of the different types for demonstration purposes are urgently needed.

In the Division of Horticulture. — The work in this division has developed in a normal fashion along lines previously adopted. The division has suffered during the year by the resignation of Prof. Edward A. White, as head of the department of floriculture. The much-needed addition to French Hall is now being constructed; when completed this building will be one of the most attractive structures on the campus, and will provide several additional classrooms and laboratories for the departments there housed.

The head of the division of horticulture makes the following statement: —

> The most serious and fundamental problem which we face is that of the college curriculum. The feeling is unanimous among the members of the horticultural staff that the work should be greatly intensified and substantially improved in all its technical aspects. We believe that it should be given more attention in the curriculum, and that it is very desirable to have some work, very carefully organized, advanced to an earlier position in the four-year course. We believe, also, that provision should be made at once, by a somewhat radical readjustment, for technical instruction throughout the summer. It hardly seems reasonable that we should longer continue to close our work to our four-year students during that portion of the year when subjects of technical importance are most accessible.

In the Division of Science. — During the collegiate year the work of this division has progressed along the usual lines. A certain amount of revision and rearrangement of the courses previously offered has been made, but nothing affecting general

policies; the changes have been for the purpose of securing greater efficiency. An examination of the statements supplied by the different departments indicates that in some cases more room is needed for class and laboratory work. The department of chemistry is in pressing need of a new building. The most important problems in this division at the present time seem to be (1) the necessity for a closer co-ordination of the work in the different departments of the division, and (2) a determination of the relation of the work when formulated to that demanded by other divisions.

In the Division of the Humanities. — The head of this division reports progress in the further organization of the departments under his direction. The efficiency of the work which can be done under the present conditions is greatly impaired because the various departments are scattered about the campus; in some cases a department has no headquarters. The need of a properly equipped library is felt very keenly by all members of this division. Inasmuch as certain proposed changes are being advocated in the course of study, it is felt that the teachers in this division are not yet able to do their best work.

In the Division of Rural Social Science. — The instructors in this division continue to hold the opinion that a major in rural social science should be offered for the benefit of those students desiring to specialize in this work. The most pressing need of the division is for adequate and convenient housing facilities. At present the various departments are scattered about the campus in buildings provided for and occupied by other departments. The most efficient work cannot be carried on under these conditions.

In the department of agricultural economics the work has developed along lines already established. From April to July the head of this department accompanied the federal commission to investigate rural credit and co-operation in Europe. An investigation has been conducted relative to the facilities for farm credit in Massachusetts.

In the department of agricultural education the promotion of boys' and girls' agricultural clubs has become a prominent feature. (Statistics relative to the enrollment in this work are found in Table III.) The department is also endeavoring to develop closer relations with the public schools in the matter

of preparing teachers of agriculture and related sciences. There is at this time under consideration a plan whereby the students preparing for that work may, under expert supervision, obtain practice in teaching. The demand for agricultural teaching in secondary schools has become much greater than the supply of qualified persons.

In the department of rural sociology a prominent aim is the promotion of interest in rural-life problems. Surveys of social conditions in near-by towns form a part of the instructional work. One such survey was completed during the past year; this survey work is done in part by graduate students. There is an increasing number of men coming into the department with the specific purpose of fitting themselves for some form of social service.

In the Library. — There were 2,969 volumes added during the year, making a total of 41,069 volumes on hand. Of this number, 10,860, or more than 25 per cent. of the entire library, have been added during the past five years. The new card catalogue in process of making contains cards for the 17,278 volumes re-catalogued, and the 7,593 new volumes catalogued since April 1, 1910. One of the most important and gratifying events of the year was the decision of the Carnegie Institution of Washington to place the college library upon its "omnia list," to receive all of its publications without charge. This is a recognition of the work the library is doing and the place it fills in this community. The Academy of Natural Sciences of Philadelphia has recently taken similar action. The regular library extension work continues and was supplemented this year by the publication of five library leaflets listing the best books for fruit growers, poultrymen, dairymen, vegetable gardeners, and farm women.

The very urgent need of this department, and, in fact, the need of the institution, is for a new library building. The climbing of stepladders in search of books, the eager hunt for unoccupied chairs, and the crowded aisles are grave hindrances to real, serious study. Office and workroom accommodations are discouraging; faculty and graduate school workers are crowded in among the students, and the reading room is grossly inadequate. As long as the library continues in such straightened circumstances, just so much will our students lose in the

way of proper working accommodations in what ought to be the finest and best working laboratory on the campus. More than this, we feel that a new library building would do much to stimulate real spirit for study and to create a better academic atmosphere.

In the Department of Physical Education and Hygiene. — The work of the department during the past year has been conducted along the following lines: —

1. The physical examination of each freshman, to ascertain the condition of health and physical development, and to detect defects which may exist, especially in sight, hearing, heart, and lungs. Each person thus examined is advised as to the form of exercise best suited to his individual condition.

2. The freshman class receives instruction in physiology and personal hygiene in a course of lectures given by the physical director.

3. During the winter months the department requires three hours of physical exercise per week of each member of the three lower classes. Those men who have been found by examination to be physically normal are permitted to elect one of the several athletic activities; those who have been found to be below normal physically are given individual instruction. Walking trips may be substituted for physical exercise in the gymnasium; during the past year from 75 to 100 students elected this form of exercise.

The work of the indoor classes of from 30 to 40 men consists of gymnastic exercises and such games as basket ball and indoor baseball. The physical director is general manager of athletics, supervising the arrangements for contests with other colleges, buying the supplies for the teams, assisting in the coaching and having final control of the conduct of players and games. During the past year the trustees have created a body for the control of athletics, and for the first time are giving definite recognition to these activities. The past year has seen a great increase in interest in athletic recreation, and the records show that over 40 per cent. of the students participated in one or more sports regularly and under official supervision.

In the Department of Military Science. — Owing to the increased number of students more companies have been formed,

so that we now have two battalions of four companies each and a band. The organization is that of the regular infantry of the United States army, and the work is along the lines of work done by infantry.

Great interest is still maintained in the intercollegiate rifle contests. This year the indoor team won the eastern league championship, but the University of West Virginia, winner of the western league championship, defeated our team for the college championship. On the outdoor range we won the college championship for the United States by the score of 825, 6 men shooting 10 rounds each at 200, 300, and 500 yard ranges. Harvard was second with 791, our previous record score. In the last four years this college has won the indoor championship three times and second place once, and has made a like record on the outdoor range.

Four hundred and fifty men have drilled during the year, 16 of them being of the senior class, with whom drill is elective. Fourteen of the last graduating class were reported to the Adjutant General of the army and the Adjutant General of the Commonwealth of Massachusetts as being proficient in drill, and recommended for commissions in the militia of the volunteer army.

This fall there has been started a signal corps detachment; this will be a great help in the field work of the regiment. The band is in excellent condition and deserves to be continued and better equipped with instruments. The uniform has been increased and changed; it now consists of olive-drab cap, blouse, trousers, leggings, shirt, and campaign hat. This is an improvement over the old blue uniform. This uniform is of the very finest quality and costs $17.85. At the annual inspection, May 21, 1913, made by the officer sent by the War Department, we were given a most excellent report on the work done.

The Graduate School.

The total number enrolled by registration during the year 1912–13 was 28; the total number registered in the fall of 1913 thus far is 39. At the beginning of this college year a tentative organization of the school was accepted by the Board of Trustees. It is felt that the growth is as rapid as is com-

patible with the best interests of the department. Furthermore, it seems advisable that we should keep the numbers within certain limits. The ambition of the director is to cluster about every capable teacher on the campus one, two, or three graduate students. To go beyond this number would mean more than many of the departments can effectively care for. The needs of the graduate school are largely departmental, and are of such a nature that only time can supply. The important problem is to turn out well-equipped and effective men. By this is meant men who are sympathetically and broadly trained in fundamental education, and intensely trained in some special field for some particular pursuit.

The Year in the Experiment Station.

It is with pleasure that we welcome back to active service Dr. William P. Brooks as director of the experiment station. His prolonged leave of absence restored him to normal health and strength. During his absence the work of the experiment station was very efficiently conducted by Mr. Fred W. Morse.

Agricultural Department. — The leading lines of experimentation have followed very closely the plans mapped out in former years, and have had to do chiefly with the specific effects of various fertilizer materials and combinations and methods of using manure. Investigations along these lines have been carried through to a successful conclusion. Owing to a low temperature when the trees were in bloom, the Graves orchard produced no fruit this year. The experiment station orchard, on the other hand, yielded its heaviest crop. The fertilizer work with asparagus in Concord has been continued with satisfactory results. The cranberry bog of the substation at Wareham has given a very large crop, yielding about 1,250 barrels; the sale of the crop will undoubtedly bring the station an income of at least $6,000. The experiment results have been clear and decisive in certain important points, chiefly throwing light upon methods of repelling the attacks of injurious insects. The weather observations of the substation, in cooperation with the United States Weather Bureau, promise to prove of much value in enabling Dr. Franklin to forecast probability of frosts.

Department of Plant and Animal Chemistry. — Inspection

Work: The work of this department has been conducted the past year without any interruptions. The inspection work of the department shows a gradual increase. Approximately 1,300 samples of fertilizers and 902 samples of cattle feeds have been collected and examined. During 1912, 6,056 pieces of glassware were tested, the machines in 180 creameries and milk depots were inspected, and 33 men were examined for proficiency in operating the test; 27 of these were given certificates. About the usual number of samples of water, milk, soils, manurial residues, and other materials of an agricultural nature have been analyzed during the year.

Cow-testing Work: Three men have been employed continuously in making yearly tests of Guernsey, Jersey and Ayrshire cows, and during the year 13 men have been employed at different times on Holstein-Friesian tests.

Miscellaneous Work: During the year this department has published three bulletins, — one on the inspection of commercial fertilizers, another on the inspection of commercial feedstuffs, and a third on the cost of milk production.

New Work undertaken: Studies have been undertaken of the relative value of phosphatic slag as a source of phosphoric acid, also the relative value of Stonemeal and New Mineral Fertilizer as compared with standard mixed fertilizers.

The various lines of work in progress require the constant services of ten chemists, one laboratory helper, one inspector, two clerks, one assistant in animal nutrition, besides numerous men in connection with the cow-testing work.

Substantial progress has been made in methods for the determination of the composition of butter fat and of the effect of food groups in modifying the butter-fat molecule. Progress has also been satisfactory in a study of the effect of fertilizers upon asparagus and cranberries. Work has been more particularly confined to the composition of asparagus tops and to cranberry bog water.

Department of Vegetable Pathology and Physiology. — The amount of work coming to this department continues to increase so that at present the need for another assistant is keenly felt. During the past year much time has been spent by experts in the department traveling about the State investigating the various outbreaks of plant diseases. Much work

has also been done in testing seeds for farmers in the vicinity of the college.

The head of the department feels that a great deal more work should be done on soil sterilization and the cause of its effects on plant growth, together with the discovery of improved methods. New methods of treating plant diseases should be worked out with the idea of eliminating spraying. The chestnut blight should be studied from the remedial point of view. The subject of electricity as related to the stimulation of plant growth is by no means understood, and in the future a great deal of a practical nature will be learned. There has recently been found in the laboratory a 70 per cent. increase in nitrogen fixation by the stimulation of atmospheric electricity, and outside of the necessary apparatus this can be gathered without expense.

Horticultural Department. — The year's work in the division of horticulture has gone on without special incident so far as the experimental problems are concerned. Dr. Shaw has put under way very important experiments in the mutual influence of stock and scion, and the Tuxbury land is being developed for the special purpose of this experiment. The most immediate and pressing needs are for additional funds to take up the work in plant breeding and to develop lines of experimental work in floriculture and market gardening.

Department of Poultry Husbandry. — The year has been marked by the establishment of experimental work as a separate division of this department, with a man devoting all his time to investigational work. The investigations thus far have been directed toward an analysis of the flock of standard-bred Rhode Island Reds, in respect to individual differences in fecundity, fertility and hatchability of eggs, and vigor of offspring. The head of this department feels very keenly the need of additional land, additional facilities for housing poultry, and additional labor.

Veterinary Department. — The work of the department has gone forward in accordance with the plan which has prevailed for the last few years. The members of this department are very desirous to undertake investigational work in pathology.

Department of Entomology. — The following notes indicate the work conducted in this department during the year: —

(*a*) Causes of burning by Arsenicals: Over 4,000 different experiments have now been made, and the results give much of interest and value.

(*b*) Importance of Wasps as Parasites: During the summer an investigation of everything known on this subject in Europe, so far as concerns our American wasps, has been completed, and has given a firm basis for further research on this problem.

(*c*) Dates of hatching of our common scale insects.

(*d*) Control of the Onion Maggot: Last year it was demonstrated that methods recommended hitherto are either worthless or are inapplicable because of cost. This year entirely new methods have been tried, some of which have given very promising results.

Additional expert assistance is needed in this department to meet additional demands made upon it for expert work.

Department of Meteorology. — The work of the year has necessarily followed the routine of previous years; co-operation with the Weather Bureau has been continued as usual, and the regular monthly issue of the weather bulletin has been continued.

The Year in the Extension Service.

The organizing of the extension service during the past year has gone forward on the plans previously adopted. After considerable investigation of the methods in vogue in other Land Grant colleges, it is found that the type of organization which we have been trying to establish in this college is in accord with that of other leading institutions. More effort has been placed on correlating the work of the extension service with the several departments and divisions of the college, and establishing proper co-operative relationships with other agencies in the State interested in rural development, than in trying to establish new forms of work, no matter how badly these were needed.

The appropriation from the State, available for the current year, has been $50,000. With this increased money it has been possible to add new members to the extension service staff, and to take up certain lines of work recommended in former reports. A complete list of new employees is found in Table VII.

Ten Weeks' Courses. — There were 22 given in the winter school of 1913. The constantly increasing attendance, and the often-expressed satisfaction at the quality and kind of work offered, is the best indication of the value of these courses to the people of the Commonwealth. The enrollment was 153.

Summer School of Agriculture and Country Life. — This was resumed in 1913. New courses in recreation, pageantry, handicrafts, home flower growing, insects and diseases were offered in addition to those which have been given in the past. The attendance was 133.

Conference for Rural Community Leaders. — This conference was again held as a closing feature of the summer school. The same organizations co-operated with the college to make the conference a success as in the past. Many communities in this and other States are using the information, inspiration and enthusiasm received at these conferences for a more intelligent handling of their problems.

Boys' Agricultural Camp. — For the first time in its history the college conducted a boys' agricultural camp. These boys, selected from rural communities, were taught agriculture, clean sportsmanship, hygiene, photography, and recreation. The attendance was 33. In order that more boys may be reached, a succession of these camps is being planned in connection with the summer school of 1914.

Poultry Convention. — This year the time of holding the poultry convention was changed from March to July, with the result that the largest number of poultry men ever gathered together at one time in this country was present.

School for Tree Wardens. — This was offered for the first time in 1913. Its purpose was to acquaint those in charge of trees with the best methods of care, use of spraying materials, and of apparatus. The attendance was 44.

Fair Exhibits. — For a long time there has been a demand for a somewhat extensive educational exhibit to be used at agricultural fairs throughout the State. During the past year the extension service has assembled such an exhibit. A large tent was purchased and exhibits were made at seven of the more important fairs. From eight to fifteen demonstrations were given at each fair by officers of the college.

One of the best features of the educational work done by the college this year was the continuation of the boys' stock judging contests at the fairs. Fifteen such contests were held, 126 boys taking part. This form of work has certainly proved to be a liberal education to the boys participating.

College men acted in the capacity of judge 77 times during the year, most of this work being done at the fairs during the fall season. At some places there was only a limited amount of work done; in other places the entire amount of judging at the fair was done by the men in question.

Extension Schools. — The extension schools have been continued in 1913. Eight schools were held in various parts of the State; these schools are becoming more popular each year, and the extension service is unable to conduct nearly all that are requested.

Automobile Demonstration Work. — During the past few months an automobile demonstration truck has been sent about the State in charge of a trained agriculturist. This man spends several days in a community, visiting farms, giving demonstrations, and answering questions on agricultural topics.

Statistics of extension service activities will be found in Tables I and III.

THE IMMEDIATE NEEDS OF THE COLLEGE.

In previous reports to the corporation President Butterfield has set forth in his usual thorough and comprehensive manner the general and special needs of the institution. I can do no better, therefore, than to quote him quite freely on this topic. In last year's report (page 23) he writes: —

> Fundamentally, the need of increased appropriations, both for maintenance and for buildings, is due in part to the growth of the college in number of students, but also in part to the increased activities of the college made necessary by the rapidly enlarging field of agricultural research, instruction and dissemination. Our understanding of the rural problem in Massachusetts is constantly broadening, and as our conception of the problem broadens, the necessity of broadening the work of the college in order to help solve the problem also develops.

Heretofore the larger part of this section of the annual report has had to do with the need of increased appropriations for

maintenance and current expenses. Hereafter, however, the president will be relieved not only of this task but also of the great labor and anxiety incident to the passage through the Legislature of this part of the appropriation bill. The Legislature of 1913, as I have said before (page 6), provided an annual sum for the next five years, graduated in character, which will probably meet the situation during that time in a fairly satisfactory manner. The annual sums granted by the Resolve of the Legislature are: —

1914,	$280,000
1915,	303,000
1916,	325,000
1917,	341,000
1918,	362,000

While this wise and fairly generous action disposed of one phase of our needs in a manner such as not to vex us soon, and such as makes it unnecessary to refer to them now, the need for buildings and additions, let me emphasize, is to-day greater than ever. The college has grown tremendously in the past three years. We have over 600 students doing regular work on the campus this fall, and the building equipment is entirely inadequate to meet their needs in an effective way. In order to do this, and to be equally as well equipped as other institutions of a similar size, we should have without delay the following buildings: an agricultural building, a new auditorium, a new library, a new chemical building, a good-sized recitation building, a gymnasium and drill hall, and three or four dormitories. These, I say, should be on the grounds now, but under the present financial condition of the State I realize that it is a sheer impossibility to get them, and worse than futile to try.

The trustees, fully realizing both the need and the difficulty, decided at the meeting of October 21 to present a request to the Legislature for only such buildings as were most necessary to relieve the present slim and inadequate equipment, and for such an appropriation as could reasonably be expected the Legislature would approve. The budget for special appropriations to be presented to the Legislature of 1914 is as follows: —

Agricultural building, including equipment, . .		$210,000	
To be available in 1914, . . .	$87,500		$87,500
To be available in 1915, . . .	122,500		
Student dormitory, ...			35,000
Minor additions, ...			10,000
			$132,500

APPROPRIATIONS FOR SPECIAL PURPOSES.

An Agricultural Building. — This building has been asked for twice before, and in the report of last year the president says: —

The main item which the trustees desire to press before the Legislature this winter as a special appropriation is one of $210,000 for an agricultural building. I cannot do better than to quote from my report of a year ago concerning the need of this building: —

Although the college has been open to students nearly forty-five years, it has never had a building devoted specifically to agricultural teaching.

Practically every agricultural college in the country finds it necessary and desirable to make such a building one of the most important on the campus.

The rapid increase in our agricultural students has crowded the agricultural departments out of their old quarters. It is almost impossible to do efficient teaching under present conditions.

The winter short-course students are also inadequately provided for.

The proposed building will have three stories and a basement, and contain offices, classrooms and laboratories for the departments of farm administration, agronomy, animal husbandry and agricultural engineering. It is proposed to erect a fireproof building and to equip it in harmony with the recent developments in these lines of work.

To this statement should be added and emphasized the fact that the building as at present planned will also include an auditorium. This is a very important consideration, for we have no room or building on the campus that will seat all of our students at one time. On this account the unclassified and the graduate students have not been permitted to attend any general college exercises.

Dormitory, $35,000. — This building has been asked for for some years. If it was ever needed it is needed now; the present dormitories provide for only one-tenth of our students. The number of rooms in private houses within a reasonable distance of the college is very limited; a large part of our students are

living at least a good mile from their classrooms. Moreover, these rooms can be secured only at high rents, — rents in many instances prohibitive to poor students earning their way through college. As I said before, we really should have at least three dormitories without delay, in order to meet properly the present situation. The dormitory the trustees are asking for will accommodate 50 men, and will be managed in such a way that students can secure good living accommodations at a comparatively reasonable cost. It is also expected to bring a fair return on the investment.

Additions, $10,000. — One-half of this sum, or $5,000, is desired for the extension of granolithic walks and of macadam roads; the other half, or $5,000, is desired in order to provide adequate toilet arrangements, suitable storage for coal and vegetables, and larger refrigerating facilities in the basement of the dining hall. Both needs are imperative.

Respectfully submitted,

EDWARD M. LEWIS,
Acting President.

Statistics of the College.

Table I. — *Attendance.*

	Registration Nov. 30, 1912.	Registration Nov. 29, 1913.
Senior class,	91	98
Junior class,	102	103
Sophomore class,	125	140
Freshman class,	184	201
	502	542
Graduate students,	22	39
Unclassified students,	31	24
Total doing work of college grade,	555	605
Short courses: —		
Winter school,	131	153
Poultry course,	80	–
Apple-packing school,	40	25
Beekeepers' course,	10	6
Summer school,	–	133
School for tree wardens,	–	44
	261	361
Total,	816	966

Table II. — *Legislative Budget, 1913.*

Items.	Amount asked.	Amount granted.
1. Special appropriations: —		
Agricultural building, including equipment,	$210,000 00	–
General repairs and improvements,	40,000 00	$26,000 00
Addition to French Hall,	–	35,000 00
Infirmary,	–	15,000 00
Architect's fees,	–	4,202 11
	$250,000 00	$80,202 11
	Increase asked.	Total asked.
2. Current Appropriations: —		
Administration,	–	$30,000 00
Maintenance and equipment,	–	80,000 00
Investigation,	$15,000 00	30,000 00
Instruction,	20,000 00	95,000 00
Short courses and extension,	–	50,000 00
Repairs,	15,000 00	15,000 00
	$50,000 00	$300,000 00

Amount granted by the Legislature (Five-year Period).

	1914.	1915.	1916.	1917.	1918.
Administration,	$30,000	$31,000	$32,000	$33,000	$34,000
Maintenance and equipment,	85,000	90,000	95,000	100,000	105,000
Improvements,	8,000	10,000	10,000	10,000	10,000
Investigations,	20,000	25,000	30,000	35,000	40,000
Instruction,	85,000	90,000	100,000	105,000	115,000
Short course and extension work,	50,000	50,000	50,000	50,000	50,000
Graduate school,	2,000	2,000	3,000	3,000	3,000
Additional land,	-	5,000	5,000	5,000	5,000
	$280,000	$303,000	$325,000	$341,000	$362,000

TABLE III. — *Statistics of the Extension Service for 1913.*

Extension Service conducted at the College.

Farmers' week,	950
Beekeepers' convention,	115
Boys' agricultural camp,	33
Conference on rural community planning,	247
Poultry convention,	362
Correspondence courses: —	
Present enrollment,	582
Courses completed or work dropped during year,	327
Total,	2,616

Extension Service conducted away from the College.

Lectures: —	
Lectures at fairs: number given, 175; attendance, 3,479; Extension schools, number given, 480; attendance, 1,000; Lecture courses (4), number given, 21; attendance, 525; miscellaneous lectures, number given, 483; attendance, 39,063; approximate attendance, 44,067.	
Extension schools: —	
Requests for schools,	23
Number held,	8
Enrollment,	792
Approximate attendance,	1,000
Sessions for men, 240; for women, 160,	400
Demonstration orchards: —	
Demonstration orchards: to 1913, 10; 1913, 3,	13
Renovation orchards: to 1913, 4; 1913, none,	4
Fairs: —	
Number of exhibits made,	7
Number of lectures given at exhibits,	75
Attendance at lectures,	3,479
Number of stock-judging contests held,	15
Number of contestants,	126
Number of times men acted as judges,	77
Farm visits: —	
Visits requested,	173
Visits made by demonstration auto truck,	175
Visits made by other men,	72
Boys' and girls' clubs: —	
Home and school garden: number of clubs, 212; towns represented, 212; members, 19,366.	
Agricultural clubs: number of clubs, 102; towns represented, 102; members, 447.	
Local exhibits,	11
Exhibits at fairs,	19
Traveling libraries: —	
Libraries receiving books,	37
Volumes sent out,	439
Bulletins, etc., sent out,	201

TABLE IV. — *Speakers for the Year.*

A. Speakers at Wednesday Assemblies for Year ending Nov. 29, 1913.

1912.

Dec. 11. — Prof. George B. Churchill, Amherst College, "Honor."
Dec. 18. — Mr. Arthur D. Call, Washington, D. C., "A Phase of the High Cost of Living."

1913.

Jan. 15. — Mr. George T. Powell, New York City, "Agricultural Opportunities."
Feb. 12. — Pres. F. S. Luther, Trinity College (Hartford, Conn.), "The Education of Hardship."
Feb. 19. — Rev. G. Glenn Atkins, Providence, R. I., "The Apportionment of Life."
Feb. 26. — Mr. Timothy E. Byrnes, Boston, "Character the Best Help to Efficiency."
Mar. 5. — Prof. Curry S. Hicks, Massachusetts Agricultural College, "Physical Education in Western Institutions."
Mar. 12. — Mr. Lyman Beecher Stowe, New York City, "Junior Republics."
Mar. 19. — Mr. H. B. Fullerton, Medford, L. I., "Do your Level Best."
Mar. 26. — Rev. W. H. Stebbins, Charlestown, Mass., "Fundamental Causes of Crime."
Apr. 16. — His Excellency the Argentina Minister, Dr. Romula S. Naon, "Argentina: Industrial, Commercial, Agricultural."
Apr. 23. — Mr. James P. Munroe, Boston, "What Business expects of Young Men."
Apr. 30. — Dr. Joseph L. Hills, University of Vermont, Charter Day Address.
May 14. — Mr. George D. Leavens, New York City, "Business and the College."
May 21. — Mr. Jens Jensen, Chicago, "Local Color."
June 4. — "Lessons of the Year."
Sept. 17. — Pres. Kenyon L. Butterfield, Massachusetts Agricultural College, "Lessons from Europe."
Sept. 24. — Hon. Charles E. Ward, Buckland, Mass., "Legislative Methods."
Oct. 1. — Anniversary Day Program.
Oct. 15. — Pres. Alexander Meiklejohn, Amherst College, "Scholarship."
Oct. 22. — Pres. C. H. Spooner, Norwich University, "The Book of Job."
Oct. 29. — Mr. Harry W. Laidler, New York City, "Socialism."
Nov. 12. — Pres. L. L. Doggett, Y. M. C. A. College, Springfield, Mass., "The Modern Man's Religion."
Nov. 19. — Dr. R. J. Floody, Worcester, Mass., "The Boy Problem."

B. Speakers at Sunday Chapel for Year ending Nov. 29, 1913.

1912.

Dec. 8. — Rev. Henry W. Foote, Boston, "The Aims of Higher Education."

Dec. 15. — Rev. Allen A. Stockdale, Boston, "The True Definition of Eternal Life."

1913.

Jan. 12. — Rev. Daniel C. Evans, Cambridge, Mass., "The Voice of Man and the Echo of the World."

Feb. 16. — Rev. Edward S. Ninde, Providence, R. I., "Obedience to the Heavenly Vision."

Feb. 23. — Rev. R. H. Potter, Hartford, Conn., "Prepare Ye the Way of the Lord."

Mar. 2. — Rev. F. S. Child, Griswold, Conn., "Child Welfare."

Mar. 9. — Rev. E. F. Sanderson, Brooklyn, N. Y., "The Love of God revealed through Man."

Mar. 16. — Rev. Frank W. Padelford, Boston, "The Mind of Christ."

Mar. 23. — Rev. William E. Strong, Boston, "Now and Then."

Apr. 13. — Rev. John C. Adams, Hartford, Conn., "Three Worlds in One."

Apr. 20. — Rev. Charles Stelzle, New York City, "Some Phases of the Social Problem."

Apr. 27. — Dr. L. Clarke Seelye, Northampton, Mass., "God's Building."

Nov. 9. — Rev. J. Herman Randall, New York City, "The Religion of the Modern Man."

Nov. 16. — Rabbi Stephen S. Wise, New York City, "Ideals and Idealists."

Nov. 23. — Rev. Robert Goldsmith, Chatham, N. Y., "The Temptation of every Man."

TABLE V. — *Statistics of Freshmen entering Massachusetts Agricultural College, September, 1913.*

A. Home Addresses of Students (classified by Towns and Cities).

Adams,	1	Cataumet,	1	Grafton,	1
Amherst,	10	Chartley,	1	Granby,	1
Ansonia, Conn.,	1	Chelsea,	1	Greenfield,	1
Arlington,	2	Chicopee,	1	Hadley,	1
Arlington Heights,	1	Cincinnati, O.,	1	Hartford, Conn.,	2
Athol,	1	Clinton,	1	Hatfield,	1
Auburndale,	1	Dorchester,	8	Haverhill,	1
Barre,	1	East Weymouth,	1	Hingham,	2
Belchertown,	1	Elizabeth, N. J.,	1	Holden,	1
Bennington, Vt.,	1	Everett,	4	Hopedale,	1
Boston,	5	Fall River,	3	Houlton, Me.,	1
Brockton,	1	Falmouth,	1	Kansas City, Mo.,	1
Brooklyn, N. Y.,	3	Faneuil,	1	Lawrence,	2
Cambridge,	1	Framingham,	2	Leominster,	1
Cape Neddick, Me.,	1	Georgetown,	1	Long Branch, N. J.,	1

A. Home Addresses of Students (classified by Towns and Cities) — Continued.

Lowell,	1	North East, Pa.,	1	Taunton,	3
Lynn,	10	Northfield, Vt.,	1	Tewksbury,	1
Malden,	4	North Reading,	1	Townsend,	2
Mansfield,	1	Norwich Town, Conn.,	1	Turners Falls,	3
Mattapoisett,	1	Nyack, N. Y.,	1	Waban,	1
Medford,	1	Orange, N. J.,	1	Wakefield,	1
Melrose,	3	Pepperell,	1	Walpole,	2
Merrimac,	2	Pittsfield,	1	Waltham,	1
Middletown, N. Y.,	1	Plymouth,	1	Ware,	1
Milford,	1	Poughkeepsie, N. Y.,	1	Watertown,	1
Milford, N. H.,	1	Ridgefield Park, N. J.,	1	Wellesley Farms,	1
Millbury,	1	Roslindale,	1	West Acton,	1
Millis,	1	Rutherford, N. J.,	1	West Bridgewater,	1
Mittineague,	1	Sandwich,	1	Westford,	1
Montague,	2	San Juan, P. R.,	1	West Hartford, Conn.,	1
Monticello, Ky.,	1	Scituate,	1	West Medway,	1
Nantasket Beach,	1	Sharon,	1	West Newton,	1
Natick,	1	Sherborn,	1	Westport, Conn.,	1
New Britain, Conn.,	2	Shrewsbury,	1	Wethersfield, Conn.,	1
Newburyport,	2	Smiths,	1	Whitinsville,	1
Newton Center,	1	Somerville,	4	Winchester,	1
Newtonville,	1	Southborough,	1	Winthrop,	1
New York City,	1	Southbridge,	1	Wilkes-Barre, Pa.,	1
Norfolk,	1	South Carver,	1	Woburn,	1
North Adams,	1	South Framingham,	1	Woods Hole,	1
North Bennington, Vt.,	2	South Hadley Falls,	1	Worcester,	7
North Beverly,	1	Springfield,	6	Yalesville, Conn.,	1
North Brookfield,	1	Sunderland,	2	Yonkers, N. Y.,	1

B. Home Addresses (classified by States).

	Number.	Per Cent.		Number.	Per Cent.
Connecticut,	10	4.97	New York,	8	3.98
Kentucky,	1	.50	Ohio,	1	.50
Maine,	2	1.00	Pennsylvania,	2	1.00
Massachusetts,	165	82.08	Porto Rico,	1	.50
Missouri,	1	.50	Vermont,	4	1.99
New Hampshire,	1	.50		201	100.00
New Jersey,	5	2.48			

C. Home Addresses (classified by Counties of Massachusetts).

	Number.	Per Cent.		Number.	Per Cent.
Barnstable,	4	2.42	Middlesex,	44	26.67
Berkshire,	3	1.82	Nantucket,	–	–
Bristol,	8	4.85	Norfolk,	8	4.85
Dukes,	–	–	Plymouth,	9	5.45
Essex,	19	11.51	Suffolk,	16	9.70
Franklin,	8	4.85	Worcester,	21	12.73
Hampden,	8	4.85		165	100.00
Hampshire,	17	10.30			

D. Nativity of Parents.

	Number.	Per Cent.
Neither parent foreign born,	150	75.00
Both parents foreign born,	31	15.50
Father (only) foreign born,	10	5.00
Mother (only) foreign born,	6	3.00
No statistics,	4	2.00
	201	100.50

E. Education of Father.

	Number.	Per Cent.
Common school,	94	47.00
High school,	56	28.00
Business school,	13	6.50
College or university,	30	15.00
No statistics,	8	4.00
	201	100.50

F. Religious Census.

	Membership.		Preference.		Totals.	
	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.
Baptist,	22	11.00	4	2.00	26	13.00
Catholic,	21	10.50	–	–	21	10.50
Congregationalist,	36	18.00	28	14.00	64	32.00
Episcopal,	26	13.00	1	.50	27	13.50
Hebrew,	5	2.50	1	.50	6	3.00
Methodist,	12	6.00	7	3.50	19	9.50
Presbyterian,	8	4.00	2	1.00	10	5.00
Unitarian,	10	5.00	7	3.50	17	8.50
Universalist,	3	1.50	3	1.50	6	3.00
Miscellaneous,	1	.50	4	2.00	5	2.50
	144	72.00	57	28.50	201	100.50

G. Occupation of Fathers.

	Number.	Per Cent.
Agriculture and horticulture,	40	20.00
Artisans,	46	23.00
Business,	62	31.00
Deceased or no statistics,	23	11.50
Miscellaneous,	6	3.00
Professional,	21	10.50
Retired,	3	1.50
	201	100.50

H. Intended Vocations of Students.

	Number.	Per Cent.
Agriculture or horticulture (practical),	126	63.00
Agriculture or horticulture (professional),	35	17.50
Miscellaneous,	3	1.50
Professions,	6	3.00
Undecided or no statistics,	31	15.50
	201	100.50

I. Farm Experience.

	Number.	Per Cent.
Brought up on a farm,	48	24.00
Not brought up on a farm and having had no, or practically no, farm experience,	76	38.00
Not brought up on a farm, but having had some farm experience,	74	37.00
No statistics,	3	1.50
	201	100.50

J. Miscellaneous Statistics.

Average age,	18.94 years.
Number applying for student labor,	110 (55 per cent.)
Number boarding at college dining hall,	165 (82.5 per cent.)

TABLE VI. — *Entrance Statistics of Freshman Class.*

Number of applications,		332
Admitted,	228	
Matriculated,	201	
Failed to report,	27	
Total,	228	
Rejected,	104	
Total,		332
Admitted on certificate,		86
Admitted on examination,		17
Admitted on certificate and examination,		98
		201
Admitted without condition,		122
Admitted with condition,		79
		201

TABLE VII. — *New Appointments.*

In the Academic Departments.

Position.	Name.	Institution from which graduated and Degrees.
Graduate assistant in agricultural economics,	Charles G. Baird,	University of Kansas, A.B., 1911; University of Wyoming, A.M., 1913.
Instructor in zoölogy and geology,	Frank N. Blanchard,	Tufts College, A.B., 1913.
Graduate assistant in chemistry,	Henry L. Brown,	Massachusetts College of Pharmacy, Pharm.D., 1911; University of Maine, B.Sc., 1913.
Graduate assistant in microbiology,	Ernest L. Davies,	Toronto University, B.S.A., 1913.
Instructor in market gardening,	Bert C. Georgia,	Cornell University, B.Sc., 1913.
Assistant in physical education,	Harold M. Gore,	Massachusetts Agricultural College, B.Sc., 1913.
Assistant in mathematics,	Burt A. Hazeltine,	Tufts College, B.Sc., 1913.
Graduate assistant in landscape gardening,	Walter H. Hillary,	Pennsylvania State College, B.Sc., 1913.
Graduate assistant in microbiology,	Arao Itano,	Michigan Agricultural College, B.Sc., 1911.
Graduate assistant in agronomy,	Russell F. Lund,	St. Lawrence University, B.A., 1909.
Assistant professor of physics,	Harold E. Robbins,	Trinity College, B.Sc., 1908; Yale University, M.A., 1911.
Graduate assistant in chemistry,	Harold A. Robinson,	New Hampshire College, B.Sc., 1913.
Graduate assistant in chemistry,	Paul Serex, Jr.,	Massachusetts Agricultural College, B.Sc., 1913.
Graduate assistant in rural sociology,	Carl J. Strand,	Augustana College, A.B., 1907; University of Illinois, A.M., 1908.
Graduate assistant in floriculture,	Clark L. Thayer,	Massachusetts Agricultural College, B.Sc., 1913.
Assistant professor of microbiology,	Frans Herman Hesselink Van Suchtelen.	University of Göttingen, Ph.D., 1910.

In the Experiment Station.

Position.	Name.	Institution from which graduated and Degrees.
Assistant chemist,	James P. Buckeley, Jr.	Massachusetts Institute of Technology.[1]
Assistant chemist,	Walter S. Frost,	Tufts College, B.Sc., 1912.
Research biologist,	Hubert D. Goodale,	Trinity College, A.B., 1903; Trinity College, A.M., 1904; Columbia University, Ph.D.,1907.
Graduate assistant in horticulture,	John B. Norton,	University of Vermont, B.Sc., 1913.

In the Extension Service.

Extension professor of home economics,	Miss Laura Comstock,	Buffalo State Normal 1895; Pratt Institute, 1909.
Instructor in civic improvement,	Philip H. Elwood, Jr.,	Michigan Agricultural College, B.Sc., 1905; Cornell University, B.S.A., 1910.
Supervisor of correspondence courses,	Erwin H. Forbush,	Connecticut Agricultural College, 1910.
Demonstrator in charge of automobile truck.	Allister F. McDougall,	Massachusetts Agricultural College, B.Sc., 1913.

[1] Did not graduate.

In the Clerical Force.

Position.	Name.
Clerk in the library,	Miss Clarissa C. Babcock.
Clerk in the library,	Miss Ada M. Chandler.
Library assistant,	Miss Lena Chapman.
Assistant to the dean,	Miss Bertha E. Christiansen.
Stenographer, extension service,	Miss Marion S. Donaldson.
Clerk in the division of humanities and in the experiment station,	Miss Rebecca L. Mellor.
Stenographer, extension service,	Miss Cora B. Grover.
Stenographer, department of entomology,	Miss Marion Guertin.
Clerk to the director of the graduate school and in the division of agriculture.	Miss Esther L. Houghton.
Clerk, department of poultry husbandry,	Miss Fay L. Milton.
Stenographer, division of rural social science,	Miss Nell C. Milton.
Stenographer, extension service,	Miss Ina M. Paige.
Clerk, department of floriculture,	Miss Dorothy Smith.
Clerk, registrar's office,	Miss Olive M. Turner.

Miscellaneous.

Position.	Name.
Farm superintendent,	John J. Barber.
Foreman of apiary,	John L. Byard.
Foreman of grounds,	Lawrence S. Dickinson.

Resignations.

Instructor in physics,	Chester A. Butman.
Supervisor of correspondence courses,	Arthur T. Dailey.
Farm superintendent,	Edwin H. Forristall.
Clerk, department of floriculture,	Miss Helen V. Gaskill.
Stenographer, department of rural social science,	Miss Ruth M. Hager.
Lecturer in history,	George N. Holcomb.
Clerk, registrar's office,	Miss Georgia A. King.
Clerk, department of poultry husbandry,	Miss Mary R. Kingsbury.
Clerk, dean's office,	Miss Virginia Noble.
Assistant in mathematics and military science,	Samuel R. Parsons.
Assistant chemist, experiment station,	George R. Pierce.
Assistant chemist, experiment station,	James C. Reed.
Correspondence clerk, president's office,	Miss Stella H. Webb.
Professor of floriculture,	Edward A. White.
Assistant professor of market gardening,	Frederick L. Yeaw.

Change in Title of Officers of the Institution.

Name.	Former Title.	Present Title.
Joseph S. Chamberlain,	Associate professor of organic and agricultural chemistry.	Professor of organic and agricultural chemistry.
Walter W. Chenoweth,	Instructor in pomology,	Assistant professor of pomology.
George E. Gage,	Assistant professor of veterinary science.	Associate professor of veterinary science.
John C. Graham,	Associate professor of poultry husbandry.	Professor of poultry husbandry.
Arthur K. Harrison,	Instructor in landscape gardening.	Assistant professor of landscape gardening.
William P. B. Lockwood,	Associate professor of dairying,	Professor of dairying.
Elmer M. McDonald,	Instructor in agronomy,	Assistant professor of agronomy.
Jacob K. Shaw,	Assistant horticulturist, experiment station.	Research pomologist of the experiment station.

Report of the Treasurer.

For the Fiscal Year ending Nov. 30, 1913.

Balance Sheet.

		Dr.	Cr.
1912. Dec. 1.	To balance on hand,	$23,270 91	
1913. Nov. 30.	To receipts for fiscal year (see Schedule A),	557,930 17	
	Expenditures for fiscal year (see Schedule B),		$540,217 78
	Balance on hand,		40,983 30
		$581,201 08	$581,201 08

Statement of the First National Bank of Amherst with the Massachusetts Agricultural College.

		Dr.	Cr.
1912. Dec. 1.	Balance on hand,	$45,209 67[1]	
1913. Nov. 30.	Deposits for year,	559,479 51	
	Interest,	1,748 91	
	Disbursements as per warrants,		$545,433 72
	Balance on hand,		61,004 37[1]
		$606,438 09	$606,438 09

[1] These amounts are greater Dec. 1, 1912, by $28,791.20, and Nov. 30, 1913, $29,841.81, on account of outstanding checks.

Schedule A. — Income.

	Items.	Totals.
Income from students and others,		$104,090 89
Tuition fees,	$1,940 00	
Laboratory fees,	4,966 00	
Rents,	4,885 43	
Dining hall,	51,866 36	
Department sales,	34,556 42	
Department transfers,	2,829 92	
Miscellaneous,	3,046 76	

SCHEDULE A. — INCOME — *Concluded.*

		Items.	Totals.
Income from grants by nation and State: —			
State aid,			$315,216 58
Income from endowment,		$3,313 32	
Appropriation for current expenses,		185,000 00	
Administration,	$30,000 00		
Maintenance,	80,000 00		
Instruction,	75,000 00		
Appropriation for extension service,		$50,000 00	
Appropriation for experiment station,		21,000 00	
Maintenance,	$15,000 00		
Feed law,	6,000 00		
Receipts from special appropriations,		55,903 26	
Federal aid,			70,633 33
Income from land grant of 1862,		$7,300 00	
Income from Hatch fund of 1887,		15,000 00	
Income from Adams fund of 1906,		15,000 00	
Income from Nelson fund of 1907,		16,666 36	
Income from Morrill fund of 1890,		16,666 67	
Income from other sources: —			
Income from experiment station,			28,825 16
Fertilizer receipts,		$10,580 00	
Agricultural receipts,		2,746 36	
Cranberry receipts,		5,884 50	
Chemical receipts,		9,128 76	
Miscellaneous,		485 54	
Income from extension service,			5,971 21
Winter school receipts,		$3,489 15	
Summer school receipts,		902 99	
Correspondence courses receipts,		693 70	
Itinerant instruction receipts,		530 91	
Miscellaneous,		354 46	
Received on account of student trust funds,			33,193 00
			$557,930 17

Classification of Income from Students and Others.

	Laboratory Fees.	Department Sales.	Transfers.	Rents.	Income.	Miscellaneous.	Dining Hall.	Tuition.	Total.
Agricultural education,	–	$22 74	$228 25	–	–	–	–	–	$250 99
Agronomy,	$100 25	8 83	–	–	–	–	–	–	109 08
Animal husbandry,	–	–	30	–	–	–	–	–	30
Botany,	712 45	22 45	–	–	–	–	–	–	734 90
Chemistry,	2,732 75	19 52	32 48	–	–	–	–	–	2,784 75
North dormitory,	–	–	–	$2,308 34	–	–	–	–	2,308 34
South dormitory,	–	–	–	2,127 67	–	–	–	–	2,127 67
Chapel,	–	–	2 13	–	–	–	–	–	2 13
College residences,	–	–	–	449 42	–	–	–	–	449 42
Dairying,	–	3,994 16	555 24	–	–	–	–	–	4,549 40
Entomology,	176 50	15 47	–	–	–	–	–	–	191 97
Farm,	–	19,861 99	996 82	–	–	–	–	–	20,858 81
Farm administration,	–	33 85	–	–	–	–	–	–	33 85
Floriculture,	–	3,295 64	25 00	–	–	–	–	–	3,320 64
General horticulture,	–	1,123 93	301 74	–	–	–	–	–	1,425 67
Grounds,	–	85	2 23	–	–	–	–	–	3 08
Landscape gardening,	487 50	–	1 60	–	–	–	–	–	489 10
Library,	–	139 07	5 50	–	$416 68	–	–	–	561 25
Market gardening,	–	2,103 69	27 43	–	–	–	–	–	2,131 12
Microbiology,	210 00	–	–	–	–	–	–	–	210 00
Military,	–	5 50	–	–	–	–	–	–	5 50
Physical education,	140 00	2 50	–	–	–	–	–	–	142 50
Physics,	–	–	2 30	–	–	–	–	–	2 30
Pomology,	67 55	1,780 77	7 50	–	–	–	–	–	1,855 82
Poultry,	15 00	2,070 04	74 14	–	–	–	–	–	2,159 18
Veterinary,	–	5 00	16 65	–	–	–	–	–	21 65
Zoölogy,	324 00	8 45	65	–	–	–	–	–	333 10
Operating and maintenance,	–	–	299 96	–	–	$2,630 08	–	$1,940 00	4,870 04
Treasurer's office,	–	11 27	–	–	–	–	–	–	11 27
President's office,	–	4 20	–	–	–	–	–	–	4 20
Salaries,	–	–	250 00	–	–	–	–	–	250 00
Hospital,	–	26 50	–	–	–	–	–	–	26 50
Dining hall,	–	–	–	–	–	–	$51,866 36	–	51,866 36
	$4,966 00	$34,556 42	$2,829 92	$4,885 43	$416 68	$2,630 08	$51,866 36	$1,940 00	$104,090 89

SCHEDULE B. — EXPENDITURES FOR FISCAL YEAR.

	Items.	Totals.
College expense,		$284,080 75
Administration,	$29,404 08	
Maintenance,	140,815 22	
Instruction,	109,482 25	
Hospital expense,	4,379 20	
Experiment station,		75,757 55
Administration,	$1,234 06	
Feed inspection,	6,184 05	
Fertilizer law,	10,560 77	
Salaries,	32,679 14	
Departments,	25,099 53	
Extension service,		46,297 65
Special appropriations,		51,548 35
Student trust funds,		31,633 42
Dining hall,		50,900 06
		$540,217 78

Analysis of College Expenditures.

Administration.	Office Expense.	Salaries and Labor.	Travel.	Minor Equipment.	Building Supplies.	Publicity and Lectures.	Student Activity.	Commencement.	Miscellaneous.	Total.
Dean's office,	$199 49	$229 51	$1 14	$61 70	–	–	–	–	–	$491 84
Executive order,	–	–	1,811 62	–	–	$1,471 40	$1,059 07	$444 61	$1,511 12	6,297 82
President's office,	724 71	106 81	100 37	–	$3 10	–	–	–	–	934 99
Registrar's office,	315 23	47 87	30 05	7 54	46	–	–	–	–	401 15
Treasurer's office,	486 29	353 23	155 09	20 70	40 72	–	–	–	62 50	1,118 53
Administration (salaries),	–	20,159 75	–	–	–	–	–	–	–	20,159 75
Totals,	$1,725 72	$20,897 17	$2,098 27	$89 94	$44 28	$1,471 40	$1,059 07	$444 61	$1,573 62	$29,404 08

Maintenance.	Office Expense.	Labor.	Laboratory Supplies.	Refunds.	Minor Equipment.	Building Supplies.	Travel.	General Expense.	Salaries.	Totals.
Academic maintenance: —										
Agricultural economics,	$50 91	$94 33	$4 78	–	$22 75	–	$10 05	–	–	$182 82
Agricultural education,	250 04	33 51	104 18	$228 25	8 25	–	54 71	–	–	678 94
Agronomy,	55 56	143 52	151 61	3 00	6 69	$1 98	43 50	–	–	405 86
Animal husbandry,	59 42	102 55	54 68	–	24 44	5 39	68 62	–	–	315 10
Botany,	172 30	828 82	417 73	53 00	83 32	69 20	19 62	–	–	1,643 99
Chemistry,	132 49	750 52	2,639 68	654 27	93 19	130 05	20 70	–	–	4,420 90
Dairying,	127 48	513 24	5,623 61	–	181 07	104 54	61 41	–	–	6,611 35
Economics and sociology,	10 21	27 25	29 10	–	3 12	9 68	–	–	–	79 36
Entomology,	104 19	900 49	272 04	6 00	139 83	123 91	26 63	–	–	1,573 09
Farm administration,	153 11	49 76	53 39	–	67 38	–	42 65	–	–	366 29
Floriculture,	83 51	2,784 29	865 58	27 43	128 64	97 51	60 04	–	–	4,047 00
Forestry,	56 55	2 80	21 00	–	77 89	–	63 57	–	–	221 81
History and government,	21 99	10 63	1 92	–	–	–	3 00	–	–	37 54
Landscape gardening,	16 65	29 34	311 58	10 50	7 96	1 95	9 05	–	–	387 03
Language and literature,	51 22	58 24	97 43	–	91 96	1 84	–	–	–	300 69

Market gardening,	17 28	2,642 53	843 07	–	22 46	24 10	83 79	–	–	3,633 23
Mathematics,	30 47	82 00	32 38	–	2 28	14 35	–	–	–	161 48
Microbiology,	122 12	80 54	173 90	35 00	20 20	17 55	–	–	–	449 31
Military,	451 72	852 73	23 75	–	258 79	54 20	6 00	–	–	1,647 19
Physical education,	87 58	175 52	116 31	–	58 39	59 73	257 35	–	–	754 88
Physics,	13 04	200 53	138 70	–	33 90	17 26	–	–	–	403 43
Pomology,	90 82	2,278 52	1,115 24	–	85 74	24 34	44 30	–	–	3,638 96
Poultry husbandry,	203 49	1,153 68	2,552 02	1 50	106 10	40 94	46 49	–	–	4,104 22
Rural sociology,	9 13	–	10 03	–	–	–	8 70	–	–	27 86
Veterinary science,	41 89	357 01	766 97	–	610 33	125 96	15 34	–	–	1,917 50
Zoölogy and geology,	17 63	236 49	200 85	8 00	107 57	4 80	5 75	–	–	581 09
General maintenance: —										
Equipment,	–	–	–	–	–	–	–	$15,421 90	–	15,421 90
Farm,	–	–	–	–	–	–	–	24,830 70	–	24,830 70
General horticulture,	–	–	–	–	–	–	–	3,735 20	–	3,735 20
Graduate school,	–	–	–	–	–	–	–	33 25	–	33 25
Grounds,	–	–	–	–	–	–	–	2,937 01	–	2,937 01
Library,	–	–	–	–	–	–	–	6,523 60	–	6,523 60
Operating and maintenance,	–	–	–	–	–	–	–	48,742 64	–	48,742 64
	$2,430 80	$14,388 84	$16,621 53	$1,026 95	$2,242 25	$929 28	$951 27	$102,224 30	–	$140,815 22
Instruction: —										
Salaries,	–	–	–	–	–	–	–	–	$109,482 25	109,482 25
	–	–	–	–	–	–	–	–	$109,482 25	$250,297 47
Hospital: —										
Emergency expense,	–	–	–	–	–	–	–	$4,379 20	–	4,379 20
Grand total,	–	–	–	–	–	–	–	–	–	$284,080 75

Current Accounts.

Disbursements and Receipts.

Accounts.	Disbursements from Dec. 1, 1912, to Nov. 30, 1913.	Receipts from Dec. 1, 1912, to Nov. 30, 1913.	Apportionment for Year ending Nov. 30, 1913.	Balance to Credit.
Administration: —				
Dean's office,	$491 84	–	$400 00	—$91 84
Executive order,	6,297 82	–	6,200 00	—97 82
President's office,	934 99	$4 20	1,000 00	69 21
Registrar's office,	401 15	–	400 00	—1 15
Salaries,	20,159 75	–	20,900 00	740 25
Treasurer's office,	1,118 53	11 27	1,100 00	—7 26
State Treasurer,	–	30,000 00	–	–
Maintenance: —				
Agricultural economics,	182 82	–	150 00	—32 82
Agricultural education,	678 94	250 99	300 00	—127 95
Agronomy,	405 86	109 08	200 00	—96 78
Animal husbandry,	315 10	30	275 00	—39 80
Botany,	1,643 99	734 90	500 00	—409 09
Chemistry,	4,420 90	2,784 75	1,800 00	163 85
Dairying,	6,611 35	4,549 40	2,300 00	238 05
Economics and sociology,	79 36	–	50 00	—29 36
Entomology,	1,573 09	191 97	1,225 00	—156 12
Farm administration,	366 29	33 85	300 00	—32 44
Floriculture,	4,047 00	3,320 64	1,200 00	473 64
Forestry,	221 81	–	300 00	78 19
History and government,	37 54	–	50 00	12 46
Landscape gardening,	387 03	489 10	100 00	202 07
Language and literature,	300 69	–	650 00	349 31
Market gardening,	3,633 23	2,131 12	2,400 00	897 89
Mathematics,	161 48	–	225 00	63 52
Microbiology,	449 31	210 00	400 00	160 69
Military science,	1,647 19	5 50	1,500 00	—141 69
Physical education,	754 88	142 50	550 00	—62 58
Physics,	403 43	2 30	350 00	—51 13
Pomology,	3,638 96	1,855 82	1,900 00	116 86
Poultry husbandry,	4,104 22	2,159 18	1,800 00	—145 04
Rural sociology,	27 86	–	50 00	22 14
Veterinary science,	1,917 50	21 65	750 00	—1,145 85
Zoölogy and geology,	581 09	333 10	250 00	01
Hospital account,	4,379 20	26 50	–	—4,352 70
Maintenance, general: —				
Equipment,	15,421 90	–	15,000 00	—421 90
Farm,	24,830 70	20,858 81	5,500 00	1,528 11
General horticulture,	3,735 20	1,425 67	2,300 00	—9 53
Graduate school,	33 25	–	100 00	66 75
Grounds,	2,937 01	3 08	3,250 00	316 07
Library,	6,523 60	561 25	5,800 00	—162 35
Operating and maintenance,	48,742 64	9,757 60	44,000 00	—4,742 64
State Treasurer, maintenance,	–	80,000 00	–	–
Endowment fund,	–	10,613 32	–	–
Instruction: —				
Salaries,	109,482 25	250 00	–	–
United States Treasurer: —				
Morrill fund,	–	16,666 66	–	–
Nelson fund,	–	16,666 67	–	–
State Treasurer: —				
Instruction,	–	75,000 00	–	–
	$284,080 75	$281,171 18	–	–
Balance beginning fiscal year Dec. 1, 1912,	–	19,288 62	–	–
Balance on hand Nov. 30, 1913,	16,379 05	–	–	–
	$300,459 80	$300,459 80	–	–

College Accounts.

Comparative Disbursements and Receipts for 1912-13.

Accounts.	Disbursements.		Receipts.	
	1912.	1913.	1912.	1913.
Administration,	$6,177 60	–	$24 72	–
Agricultural economics,	102 11	$182 82	–	–
Agricultural education,	1,266 84	678 94	122 62	$250 99
Agronomy,	206 40	405 86	5 20	109 08
Agricultural division,	26,207 33	–	19,919 02	–
Animal husbandry,	264 01	315 10	3 89	30
Botany,	1,558 75	1,643 99	970 63	734 90
Chemistry,	3,958 87	4,420 90	2,648 23	2,784 75
Dairying,	205 80	6,611 35	20	4,549 40
Dean's office,	353 02	491 84	11 00	–
Economics and sociology,	48 35	79 36	–	–
Entomology,	1,359 83	1,573 09	263 99	191 97
Equipment,	–	15,421 90	–	–
Executive order,	–	6,297 82	–	–
Farm administration,	212 66	366 29	11 38	33 85
Farm,	–	24,830 70	–	20,858 81
Floriculture,	3,887 99	4,047 00	2,869 75	3,320 64
Forestry,	184 57	221 81	–	–
General agriculture,	537 28	–	51 63	–
General horticulture,	2,791 01	3,735 20	599 54	1,425 67
General maintenance,	63,093 90	–	22,094 07	–
Graduate school,	1 50	33 25	–	–
Grounds,	3,114 11	2,937 01	85	3 08
History and government,	19 93	37 54	–	–
Hospital,	–	4,379 20	–	26 56
Landscape gardening,	444 55	387 03	473 03	489 10
Language and literature,	544 37	300 69	–	–
Library,	6,591 12	6,523 60	590 40	561 25
Market gardening,	4,452 21	3,633 23	1,851 94	2,131 12
Mathematics,	209 81	161 48	–	–
Military,	1,547 43	1,647 19	–	5 50
Microbiology,	–	449 31	–	210 00
Physical education,	570 99	754 88	121 50	142 50
Physics,	227 94	403 43	–	2 30
Pomology,	3,502 47	3,638 96	1,233 52	1,855 82
Poultry husbandry,	3,214 79	4,104 22	1,235 41	2,159 18
President's office,	659 08	934 99	2 18	4 20
Registrar's office,	383 00	401 15	60	–
Rural sociology,	39 69	27 86	–	–
Salaries,	113,525 51	129,642 00	–	250 00
Treasurer's office,	891 20	1,118 53	6 88	11 27
Veterinary,	1,464 03	1,917 50	19 35	21 65
Zoölogy and geology,	571 58	581 09	329 69	333 10
Operating and maintenance,	–	48,742 64	–	9,757 60
State treasurer:—				
Endowment fund,	–	–	10,613 32	10,613 32
Maintenance,	–	–	58,000 00	80,000 00
Scholarship,	–	–	25,000 00	–
Instruction,	–	–	60,000 00	75,000 00
Administration,	–	–	–	30,000 00
United States Treasurer:—				
Morrill fund,	–	–	16,666 66	16,666 66
Nelson fund,	–	–	16,666 67	16,666 67
	$254,391 63	$284,080 75	$242,407 87	$281,171 18
Balance beginning fiscal year,	–	–	31,272 38	19,288 62
Balance on hand at close of fiscal year,	19,288 62	16,379 05	–	–
	$273,680 25	$300,459 80	$273,680 25	$300,459 80

Summary.

	Disbursements.	Receipts.
Cash on hand Dec. 1, 1912,	–	$19,288 62
Institution receipts Nov. 30, 1913,	–	52,224 53
State Treasurer's receipts Nov. 30, 1913,	–	195,613 32
United States Treasurer's receipts Nov. 30, 1913,	–	33,333 33
Total disbursements,	$284,080 75	–
	$284,080 75	$300,459 80
Bills receivable Dec. 1, 1912, deducted,	–	4,068 51
Bills payable Dec. 1, 1912, deducted,	2,964 94	–
	$281,115 81	$296,401 29
Bills receivable Nov. 30, 1913,	–	3,827 63
Bills payable Nov. 30, 1913,	2,496 39	–
Balance,	16,616 72	–
	$300,228 92	$300,228 92

College Equipment, 1913.

	Disbursements Fiscal Year.		Disbursements Fiscal Year.
Forestry,	$118 10	Agronomy,	$95 38
Farm,	479 27	Farm administration,	94 34
Dairy,	4,332 92	Floriculture,	186 36
Draper hall,	1,151 41	Landscape gardening,	145 02
Animal husbandry,	2,642 97	Pomology,	99 19
Poultry,	451 88	Botany,	29 70
Mathematics,	277 20	Chemistry,	200 00
Physical education,	168 67	Apiary,	57 30
Rural social science,	38 75	Physics,	144 56
Veterinary,	125 50	Zoölogy,	100 00
Entomology,	410 76	Microbiology,	3,216 42
Operating and maintenance,	189 92	Agricultural education,	26 00
Registrar's office,	482 25		
Dean's office,	158 03		$15,421 90

Farm Disbursements.

	Labor.	Equipment.	Feed.	Fertilizers.	Seeds.	Miscellaneous.	Supplies.	Improvements.	Totals.
Dairy,	$1,066 43	$197 39	–	–	–	–	$1,538 07	–	$2,801 89
Cattle,	3,592 87	–	$4,859 85	–	–	$1,667 11	–	–	10,119 83
Horses,	1,434 42	–	721 51	–	–	–	478 48	–	2,634 41
Swine,	395 68	–	431 53	–	–	252 06	–	–	1,079 27
Sheep,	113 63	–	4 60	–	–	–	10 67	–	128 90
Field crops,	2,208 48	–	–	$1,139 12	$263 16	101 33	–	–	3,712 09
Tools and machinery,	–	–	–	–	–	633 48	–	–	633 48
Miscellaneous,	2,909 34	–	–	–	–	36 79	–	$774 70	3,720 83
	$11,720 85	$197 39	$6,017 49	$1,139 12	$263 16	$2,690 77	$2,027 22	$774 70	$24,830 70

Farm Credits.

	Milk.	Stock.	Sundry.	Corn.	Hay.	Potatoes.	Roots.	Wool.	Labor.	Totals.
Dairy,	$4,854 50	–	$11 20	–	–	–	–	–	–	$4,865 70
Swine,	–	$873 01	1 00	–	–	–	–	–	–	874 01
Cattle,	10,219 20	1,748 76	451 48	–	–	–	–	–	–	12,419 44
Horses,	–	306 50	727 05	–	–	–	–	–	–	1,033 55
Field crops,	–	–	–	$3 00	$114 48	$546 71	$50 63	–	–	714 82
Miscellaneous,	–	–	136 18	–	–	–	–	–	$798 01	934 19
Sheep,	–	–	–	–	–	–	–	$17 10	–	17 10
	$15,073 70	$2,928 27	$1,326 91	$3 00	$114 48	$546 71	$50 63	$17 10	$798 01	$20,858 81

Agricultural Division.

Disbursements and Receipts.

	Disbursements.	Receipts.
Agronomy,	$405 86	$109 08
Animal husbandry,	315 10	30
Dairying,	6,611 35	4,549 40
Farm,	24,830 70	20,858 81
Farm administration,	366 29	33 85
Poultry husbandry,	4,104 22	2,159 18
Division totals,	$36,633 52	$27,710 62

Summary.

	Dr.	Cr.
By total division receipts,		$27,710 62
By bills receivable,		3,136 52
By net apportionment,		10,375 00
To total disbursements,	$36,633 52	
To bills payable,	183 10	
To balance,	4,405 52	
	$41,222 14	$41,222 14

Inventory of Quick Assets.

	Nov. 30, 1912.	Nov. 30, 1913.
Inventory of produce,	$7,010 93	$6,431 98
Inventory of cattle,	11,148 00	11,935 00
Inventory of swine,	731 00	286 00
Inventory of horses,	4,090 00	5,150 00
Inventory of poultry,	1,524 15	1,598 70
Inventory of sheep,	200 00	443 00
	$24,704 08	$25,844 68

Horticultural Division.

Disbursements and Receipts.

	Disbursements.	Receipts.
Floriculture,	$4,047 00	$3,320 64
Forestry,	221 81	-
General horticulture,	3,735 20	1,425 67
Grounds,	2,937 01	3 08
Landscape gardening,	387 03	489 10
Market gardening,	3,633 23	2,131 12
Pomology,	3,638 96	1,855 82
	$18,600 24	$9,225 43

Summary.

	Dr.	Cr.
By total division receipts,		$9,225 43
By bills receivable,		381 17
By apportionment,		11,450 00
To total division disbursements,	$18,600 24	
To bills payable,	20 30	
To balance,	2,436 06	
	$21,056 60	$21,056 60

Inventory of Quick Assets.

	Nov. 30, 1912.	Nov. 30, 1913.
Inventory of supplies,	$621 25	$713 25

Expense Operating and Maintenance.

	Salaries.	Labor.	Fuel and Water.	Repairs.	Supplies.	Tools.	Architect.	Engineer.	Miscellaneous.	Total.
General:—										
General superintendent,	$2,497 12	–	–	–	–	–	–	–	–	$2,497 12
Office,	–	$936 13	–	–	–	–	–	–	–	936 13
General expenses,	–	–	–	–	$1,885 14	–	–	–	–	1,885 14
Power plant:—										
Heating,	–	4,063 70	$19,739 76	$773 94	102 56	–	–	–	–	24,679 96
Lighting,	–	131 08	–	446 91	34 09	–	–	–	$32 55	644 63
Tools,	–	–	–	–	–	$474 49	–	–	–	474 49
Expert services,	–	–	–	–	–	–	$1,709 85	$57 61	–	1,767 46
Emergency maintenance,	–	–	–	–	–	–	–	–	1,501 69	1,501 69
Fire department,	903 00	75 20	–	–	42 77	–	–	–	–	1,020 97
Roads,	–	304 82	–	–	–	–	–	–	–	304 82
Night watch,	–	1,224 48	–	–	–	–	–	–	–	1,224 48
Mail service,	–	277 73	–	–	–	–	–	–	–	277 73
Waiting station janitor,	–	13 46	–	–	–	–	–	–	–	13 46
Water mains,	–	91 94	–	–	–	–	–	–	–	91 94
Steam mains,	–	327 88	–	–	–	–	–	–	–	327 88
Electric light circuit,	–	322 28	–	–	–	–	–	–	–	322 28
Sewers and cesspools,	–	20 04	–	–	–	–	–	–	–	20 04
Sundry,	–	–	–	–	–	–	–	–	1,801 87	1,801 87
Amherst Water Company,	–	–	2,061 77	–	–	–	–	–	–	2,061 77
Totals,	$3,400 12	$7,788 74	$21,801 53	$1,220 85	$2,064 56	$474 49	$1,709 85	$57 61	$3,336 11	$41,853 86

Operating and Maintenance Expense — Continued.

College Buildings.	Electric Repairs.	Plumbing Repairs.	Heat Repairs.	C. and M. Repairs.	Janitors.	Bell Ringing.	Sundry.	Totals.
Animal husbandry,	–	$0 63	$0 28	$7 47	–	–	–	$8 38
Horse barn,	–	6 97	34 93	16	–	–	–	42 06
Dairy barn,	$2 00	38 96	244 06	19 69	–	–	–	304 71
Young stock barn,	–	25 38	50	3 06	–	–	–	28 94
Power building,	12 53	29 76	5 87	632 95	$90 86	–	–	771 97
Chemical building,	25 15	26 59	16 38	10 63	–	–	–	78 75
Poultry buildings,	6 07	3 14	2 32	4 98	–	–	–	16 51
Dairy building,	1 69	75 66	134 84	81 20	–	–	–	293 39
Drill hall,	8 40	9 96	53 78	9 81	–	–	–	81 95
Veterinary,	2 51	10 23	–	96 89	–	–	–	109 63
Apiary,	75	5 16	9 88	35 14	–	–	–	50 93
Mathematical building,	1 56	6 50	3 00	99 37	–	–	–	110 43
Entomology building,	13 04	53 23	19 39	77 85	–	–	–	163 51
Clark Hall,	17 15	36 63	–	1 78	–	–	–	55 56
French Hall,	34 93	1 08	10 43	15 94	–	–	–	62 38
Wilder Hall,	5 14	11 41	3 47	33 96	–	–	–	53 98
Upper plant house,	–	–	3 98	–	–	–	–	3 98
Old Durfee range,	1 25	25	1 82	–	–	–	–	3 32
Horticultural barns,	–	–	18	44 79	–	–	–	44 97
Physics building,	–	10 68	4 05	75 02	–	–	–	89 75
East experiment station,	–	4 71	32 27	11 14	–	–	–	48 12
West experiment station,	6 47	4 16	32 69	4 29	–	–	–	47 61
Experiment station barn,	–	34	99	64 46	–	–	–	65 79
P. and A. Chem. barn,	1 61	12 18	8 42	5 50	–	–	–	27 71
Pomology building,	46	–	–	1 62	–	–	–	2 08
Kellogg barn,	–	–	–	270 98	–	–	–	270 98
North College,	83 04	10 30	6 90	126 38	405 96	–	$58 00	690 58
South College,	99 04	220 57	57 36	1,407 16	410 55	–	15 00	2,209 68
Chapel,	17 79	27 20	3 83	52 96	225 46	$110 00	–	437 24
	$340 58	$631 68	$691 62	$3,195 18	$1,132 83	$110 00	$73 00	$6,174 89

Operating and Maintenance Expense — Concluded.

College Buildings.	Electric Repairs.	Plumbing Repairs.	Heat Repairs.	C. and M. Repairs.	Janitors.	Bell Ringing.	Sundry.	Totals.
College residences: —								
President's house,	$10 33	$24 75	$12 55	$31 53	–	–	$50 45	$129 61
Registrar's house,	–	58	1 31	–	–	–	–	1 89
House for head of horticultural division,	46	–	3 19	77 38	–	–	–	81 03
Farm superintendent's house,	6 52	47 65	21 86	15 59	–	–	–	91 62
Farm help's house,	–	–	–	26 52	–	–	–	26 52
Stockbridge house,	–	25	–	67	–	–	–	92
Experiment station superintendent's house,	–	–	–	1 65	–	–	–	1 65
Harlow house,	–	–	–	128 20	–	–	–	128 20
Kellogg House,	–	–	–	252 45	–	–	–	252 45
	$17 31	$73 23	$38 91	$533 99	–	–	$50 45	$713 89

Summary.

General,	$41,853 86
College buildings,	6,174 89
College residences,	713 89
	$48,742 64

Experiment Station.

Disbursements and Receipts.

Accounts.	Disbursements from Dec. 1, 1912, to Nov. 30, 1913.	Receipts from Dec. 1, 1912, to Nov. 30, 1913.	Apportionment for Year ending Nov. 30, 1913.	Balance to Credit.
Administration,	$860 79	$4 54	$1,600 00	$743 75
Agricultural,	4,841 79	2,746 36	2,000 00	—95 43
Asparagus,	483 27	–	700 00	216 73
Botanical,	1,672 90	–	1,350 00	—322 90
Chemical,	9,362 54	9,128 76	400 00	166 22
Cranberry,	3,135 53	5,884 50	2,000 00	4,748 97
Entomological,	425 96	3 20	650 00	227 24
Fertilizer,	10,560 77	10,580 00	10,000 00	1,486 62
Freight,	248 24	56	300 00	52 32
Feed law,	6,184 05	6,000 00	*6,000 00	897 40
Graves orchard,	466 93	399 04	400 00	332 11
Horticultural,	1,492 20	78 20	1,300 00	—114 00
Library,	64 00	–	75 00	11 00
Meteorology,	299 27	–	375 00	75 73
Poultry,	910 51	–	908 00	—2 51
Publications,	978 37	–	1,150 00	171 63
Salaries,	32,679 14	–	33,090 00	410 86
Treasurer's office,	373 27	–	300 00	—73 27
Veterinary,	718 02	–	725 00	6 98
Hatch fund,	–	15,000 00	–	–
Adams fund,	–	15,000 00	–	–
State fund,	–	15,000 00	–	–
	$75,757 55	$79,825 16	$63,323 00	$9,547 56
				—608 11
Balance on hand beginning fiscal year Dec. 1, 1912,	–	3,084 29	–	–
Balance on hand Nov. 30, 1913,	7,151 90	–	–	–
	$82,909 45	$82,909 45	$63,323 00	$8,939 45

Comparative Disbursements and Receipts 1912-13.

Accounts.	Disbursements.		Receipts.	
	1912.	1913.	1912.	1913.
Administration,	$1,690 19	$860 79	$2 94	$4 54
Agriculture,	4,469 62	4,841 79	1,920 80	2,746 36
Asparagus,	733 84	483 27	–	–
Botanical,	1,127 23	1,672 90	6 17	–
Chemical,	9,397 06	9,362 54	8,980 25	9,128 76
Cranberry,	3,228 96	3,135 53	2,337 89	5,884 50
Entomology,	466 03	425 96	–	3 20
Fertilizer,	8,533 60	10,560 77	10,000 99	10,580 00
Freight,	275 76	248 24	80	56
Feed law,	4,345 00	6,184 05	3,750 00	6,000 00
Graves orchard,	676 33	466 93	30 00	399 04
Horticulture,	1,539 15	1,492 20	50	78 20
Library,	89 48	64 00	–	–
Meteorology,	397 05	299 27	–	–
Poultry,	247 55	910 51	–	–
Publications,	1,263 53	978 37	–	–
Salaries,	29,640 69	32,679 14	–	–
Treasurer's office,	253 18	373 27	–	–
Veterinary,	275 16	718 02	113 00	–
Hatch fund,	–	–	15,000 00	15,000 00
Adams fund,	–	–	15,000 00	15,000 00
State fund,	–	–	10,500 00	15,000 00
	$68,649 41	$75,757 55	$67,643 34	$79,825 16
Balance beginning fiscal year,	–	–	4,090 36	3,084 29
Balance on hand at close of fiscal year,	3,084 29	7,151 90	–	–
	$71,733 70	$82,909 45	$71,733 70	$82,909 45

Inventory of Quick Assets, Agricultural Department of Experiment Station.

Produce on hand Nov. 30, 1913, ... $813 20

Analysis of Experiment Station Accounts.

	Adams Fund.	Feed Law.	Fertilizer Law.	Hatch Fund.	State Fund.	Totals.
Salaries,	$11,853 34	$4,133 69	$6,595 32	$10,437 44	$10,221 70	$43,241 49
Labor,	865 61	380 32	840 32	1,537 74	10,442 73	14,066 72
Publications,	–	–	842 25	798 78	182 00	1,823 03
Postage and stationery,	10 50	182 22	184 36	32 19	958 98	1,368 25
Freight and express,	13 01	–	52 90	75	283 93	350 59
Heat, light, water, power,	56 38	49 50	127 88	10 75	222 51	467 02
Chemical and laboratory supplies,	447 70	520 42	472 60	75 96	343 12	1,859 80
Seeds, plants and sundries,	144 65	26 58	41 41	239 84	1,089 61	1,542 09
Fertilizer,	74 02	–	39 40	657 02	296 41	1,066 85
Feeding stuffs,	–	–	–	87 30	1,919 48	2,006 78
Library,	14 08	11 43	39 66	48 05	219 01	332 23
Tools, machinery and appliances,	4 08	166 79	12 21	109 01	522 00	814 09
Furniture and fixtures,	29 04	14 00	133 66	14 25	736 93	927 88
Scientific apparatus and specimens,	152 36	145 22	208 13	79 52	316 96	902 19
Live stock,	–	–	–	7 40	253 60	261 00
Traveling expense,	89 65	415 97	738 60	–	1,550 19	2,794 41
Contingent expenses,	–	105 90	100 00	–	555 00	760 90
Buildings and land,	223 45	32 01	132 07	54 42	730 28	1,172 23
	$13,977 87	$6,184 05	$10,560 77	$14,190 42	$30,844 44	$75,757 55

Summary.

	Disbursements.	Receipts.
Cash on hand Dec. 1, 1912,	–	$3,084 29
Receipts from State Treasurer,	–	21,000 00
Receipts from United States Treasurer,	–	30,000 00
Receipts from other sources,	–	28,825 16
Total disbursements,	$75,757 55	–
	$75,757 55	$82,909 45
Bills receivable Nov. 30, 1913,	–	785 49
Bills payable Nov. 30, 1913,	20 52	–
Balance,	7,916 87	–
	$83,694 94	$83,694 94

Extension Service.

Disbursements and Receipts.

	Disbursements.	Receipts.	Apportionment.	Balance.
Administration,	$2,142 56	$93 56	$2,500 00	$451 00
Agricultural education,	2,012 00	14 25	2,300 00	302 25
Auto. Dem. outfit,	1,545 27	–	1,700 00	154 73
Civic improvement,	171 23	–	500 00	328 77
Community field agent,	626 67	–	700 00	73 33
Conference rural social work,	488 84	3 00	700 00	214 16
Correspondence courses,	1,084 77	693 70	500 00	108 93
Dairy improvement,	714 92	27 75	700 00	12 83
Demonstration orchards,	1,180 63	19 38	1,200 00	38 75
Director's office,	2,728 68	70 55	2,100 00	—558 13
District field agent,	108 78	–	200 00	91 22
Farm management,	923 28	11 70	920 00	8 42
Home economics,	113 62	–	450 00	336 38
Itinerant instruction,	2,462 83	530 91	2,000 00	68 08
Library,	203 59	–	200 00	—3 59
M. A. C. Improvement Association,	245 65	109 22	200 00	63 57
Summer school,	3,120 77	902 99	3,000 00	782 22

Disbursements and Receipts — Concluded.

	Disbursements.	Receipts.	Apportionment.	Balance.
Poultry husbandry,	$140 48	$5 05	$300 00	$164 57
Reserve and emergency,	–	–	6,865 00	6,865 00
Salaries,	20,389 05	–	20,165 00	—224 05
Winter school,	5,894 03	3,489 15	2,800 00	395 12
From State Treasurer,	–	50,000 00	–	–
	$46,297 65	$55,971 21	$50,000 00	$10,459 33
Balance Dec. 1, 1912, overdrawn,	–	—2,896 35	–	—785 77
Balance Nov. 30, 1913,	6,777 21	–	–	–
	$53,074 86	$53,074 86	$50,000 00	$9,673 56

Summary.

	Disbursements.	Receipts.
Overdraft Dec. 1, 1912,	$2,896 35	–
Receipts Nov. 30, 1913,	–	$5,971 21
Received from State Treasurer,	–	50,000 00
Disbursements Nov. 30, 1913,	46,297 65	–
	$49,194 00	$55,971 21
Bills receivable Dec. 1, 1912, deducted,	–	101 37
Bills payable Dec. 1, 1912, deducted,	916 95	–
	$48,277 05	$55,869 84
Bills receivable Nov. 30, 1913,	–	133 29
Bills payable Nov. 30, 1913,	505 96	–
Balance,	7,220 12	–
	$56,003 13	$56,003 13

Analysis of Extension Service Disbursements.

	Travel.	Equipment.	Laboratory Expense.	Printing.	Office Supplies.	Instruction and Lectures.	Salaries.	Miscellaneous.	Totals.
Administration,	$848 21	$253 29	–	$663 55	–	–	$20,389 05	$377 51	$22,531 61
Director's office,	7 63	1,217 93	–	–	$1,326 13	–	–	176 99	2,728 68
Demonstration orchards,	543 07	637 56	–	–	–	–	–	–	1,180 63
Correspondence courses,	34 29	–	–	–	1,047 48	–	–	3 00	1,084 77
Itinerant instruction,	15 38	–	–	–	–	$2,447 45	–	–	2,462 83
Dairy improvement,	526 49	188 43	–	–	–	–	–	–	714 92
Agricultural education,	569 89	1,256 85	–	–	93 04	–	–	92 22	2,012 00
Farm management,	681 45	241 83	–	–	–	–	–	–	923 28
Poultry husbandry,	117 73	22 75	–	–	–	–	–	–	140 48
Civic improvement,	43 02	128 21	–	–	–	–	–	–	171 23
M. A. C. Improvement Association,	–	–	–	–	245 65	–	–	–	245 65
Community field agent,	556 11	70 56	–	–	–	–	–	–	626 67
Winter course,	–	–	$3,736 77	26 75	–	624 56	–	–	4,388 08
Boys' and Girls' clubs,	–	–	–	–	–	–	–	2 50	2 50
Farmers' week,	–	–	–	–	–	944 26	–	–	944 26
Poultry,	–	–	–	–	–	–	–	128 06	128 06
Beekeepers' course,	–	–	–	–	–	233 17	–	–	233 17
Packing school,	–	–	–	–	–	–	–	135 00	135 00
Tree Warden's School,	–	–	–	–	–	62 96	–	–	62 96
Summer school,	–	–	438 05	273 95	–	2,352 41	–	56 36	3,120 77
Conference rural community leaders,	–	–	–	–	–	488 84	–	–	488 84
Library extension,	–	203 59	–	–	–	–	–	–	203 59
District field agent, Barnstable County,	–	108 78	–	–	–	–	–	–	108 78
Auto. Dem. outfit,	167 43	1,305 56	–	–	–	–	–	72 28	1,545 27
Home economics,	63 99	49 63	–	–	–	–	–	–	113 62
	$4,174 69	$5,684 97	$4,174 82	$964 25	$2,712 30	$7,153 65	$20,389 05	$1,043 92	$46,297 65

Special Appropriations.

Name of Appropriation.	Date made.	Amount of Appropriation.	Amount previously expended.	Amount expended during Fiscal Year.	Amount expended to Date.	Amount received from State Treasurer.	Balance on Hand with State Treasurer.
Addition to Draper Hall,	1912	$25,000 00	$18,314 53	$6,685 47	$25,000 00	$25,000 00	–
Architect's fees,	–	–	4,577 11	803 97	5,381 08	4,202 11	–
Dairy building,	1911	75,000 00	74,035 11	964 89	75,000 00	75,000 00	–
Farm buildings,	–	–	–	222 20	–	–	–
Special, 1912, miscellaneous,	1912	20,000 00	14,779 95	5,220 05	20,000 00	20,000 00	–
Special, 1912, repairs,	1912	15,000 00	8,128 84	6,871 16	15,000 00	15,000 00	–
Special, 1911, small buildings,	1911	15,000 00	14,774 35	225 65	15,000 00	15,000 00	–
Special, 1912, sewers,	1912	10,000 00	–	9,250 55	9,250 55	9,250 55	$749 45
Special, 1913, improvements and repairs,	1913	26,000 00	–	16,550 55	16,550 55	16,550 55	9,449 45
Special, 1913, addition to French Hall,	1913	35,000 00	–	4,753 86	4,753 86	4,753 86	30,246 14
		$221,000 00	$134,609 89	$51,548 35	$185,936 04	$184,757 07	$40,445 04

Inventory — Real Estate.

Land (Estimated Value).

Baker place,	$2,500 00
Bangs place,	2,350 00
Clark place,	4,500 00
College farm,	37,000 00
Cranberry land,	11,063 00
Harlow farm,	3,284 63
Kellogg farm,	5,686 45
Louisa Baker place,	5,636 91
Old creamery place,	1,000 00
Pelham quarry,	500 00
Westcott place,	2,250 00
Allen place,	500 00
Charmbury place,	450 00
Loomis place,	415 00
Hawley & Brown place,	675 00
Newell farm,	2,800 00
	$80,792 99

College Buildings (Estimated Value).

Apiary,	$3,000 00
Animal husbandry building,	10,000 00
Chemical laboratory,	8,000 00
Clark hall,	67,500 00
Cold-storage laboratory,	12,000 00
Dairy building,	75,000 00
Dairy barn and storage,	30,000 00
Dining hall,	60,000 00
Drill hall and gun shed,	10,000 00
Durfee range and glass houses, old,	10,000 00
Durfee range and glass houses, new,	15,000 00
Entomology building,	80,000 00
Farmhouse,	25,000 00
French hall,	17,000 00
Horse barn,	5,000 00
Horticultural barn,	2,500 00
Horticultural tool shed,	2,000 00
Machinery barn,	4,000 00
Mathematical building,	6,000 00
North dormitory,	25,000 00
Physics laboratory,	5,500 00
Poultry breeding house,	600 00
Poultry brooder house,	1,000 00
Poultry incubator cellar and demonstration building,	1,400 00
Poultry laboratory,	1,300 00
Poultry laying house,	1,800 00
Poultry mechanics and storage building,	1,900 00
Power plant and storage building,	18,500 00
President's house,	12,000 00
Quarantine barn,	200 00
Sheep shed,	1,400 00
Small plant house, with vegetable cellar and cold grapery,	4,700 00
South dormitory,	35,000 00

Stone chapel,	$30,000 00
Three houses on Stockbridge Road,	5,000 00
Veterinary laboratory and stable,	23,500 00
Waiting station,	500 00
Wilder hall,	37,500 00
Young stock barn,	6,500 00
	$632,800 00

College Equipment (Estimated Value).

Administrative division: —		
Dean's office,		$347 53
President's office,		876 70
Registrar's office,		877 10
Treasurer's office,		1,963 41
Agricultural division: —		
Agronomy,		1,541 23
Animal husbandry,		834 97
Dairy,		12,067 19
Farm administration,		1,271 05
Farm department,		30,081 37
Poultry,		4,221 80
Dining hall,		5,311 30
Extension department,		4,432 68
General science: —		
Apiary,		1,544 55
Botanical,		8,544 82
Chemical,		10,802 30
Entomology,		6,183 11
Microbiology,		5,107 71
Mathematics,		2,740 50
Physics,		3,536 94
Veterinary,		9,252 30
Zoölogical laboratory,		9,201 87
Zoölogical museum,		6,511 05
History and political science,		20 75
Graduate school,		30 05
Horticultural division: —		
Floriculture,		6,881 34
Forestry,		1,187 12
General horticulture,		9,549 05
Grounds,		514 35
Landscape gardening,		4,812 23
Market gardening,		1,209 57
Pomology,		4,081 26
Humanities, division of: —		
Economics and sociology,		97 87
Language and literature,		279 85
Library,		72,608 85
Military,		1,492 42
Operating and maintenance: —		
College supply,		290 85
Fire apparatus,		1,490 50
General maintenance,		74,063 63
Equipment,	$66,828 06	

Operating and maintenance — *Con.*		
Carpentry and masonry supplies,	$2,003 62	
Electrical supplies,	1,580 28	
Heating and plumbing supplies,	2,956 50	
Painting supplies,	695 17	
Janitors' supplies,		278 67
Sewer line,		8,000 00
Water mains,		8,282 00
Physical education,		2,426 19
Rural social science: —		
Agricultural economics,		353 00
Agricultural education,		834 91
Rural social service,		101 75
Textbooks,		546 89
Trophy room,		1,617 10
		$328,301 68

Experiment Station Buildings (Estimated Value).

Agricultural laboratory,	$15,000 00
Agricultural barns,	5,000 00
Agricultural farmhouse,	1,500 00
Agricultural glass house,	500 00
Cranberry buildings,	2,800 00
Plant and animal chemistry laboratory,	30,000 00
Plant and animal chemistry barns,	4,000 00
Plant and animal chemistry dairy,	2,000 00
Six poultry houses,	600 00
Entomological laboratory and glass house,	850 00
	$62,250 00

Experiment Station Equipment (Estimated Value).

Agricultural laboratory,	$6,443 79
Botanical laboratory,	5,469 26
Chemical laboratory,	18,297 17
Cranberry station,	2,867 70
Director's office,	3,676 61
Entomological laboratory,	23,457 05
Horticultural laboratory,	1,788 00
Meteorology laboratory,	1,102 00
Poultry department,	1,429 25
Treasurer's office,	724 00
Veterinary laboratory,	65 00
	$65,319 83

Inventory Summary.

Land,	$80,792 99
College buildings,	632,800 00
College equipment,	328,301 68
Experiment station buildings,	62,250 00
Experiment station equipment,	65,319 83
	$1,169,464 50

Students' Trust Fund Accounts.

	Disbursements for Year ending Nov. 30, 1913.	Receipts for Year ending Nov. 30, 1913.	Balance on Hand Nov. 30, 1913.	Balance brought forward Dec. 1, 1912.
Athletics,	$8,804 19	$8,360 53	$2,305 69	$2,749 35
"College Signal,"	1,961 63	1,768 75	415 95	608 83
Harlow Farm,	107 12	248 20	–	—141 08
Kellogg Farm,	376 98	352 41	–	24 57
Draper hall,	50,900 06	51,866 36	223 51	—742 79
Keys,	36 50	74 00	69 25	31 75
Student deposits,	9,092 16	9,688 07	2,477 65	1,881 74
Textbooks,	5,376 43	5,415 72	466 22	426 93
Uniforms,	2,854 21	4,355 96	4,135 40	2,633 65
1913 index,	302 50	281 50	7 42	28 42
1914 index,	1,553 01	1,533 40	5 36	24 97
1915 index,	67 58	104 50	36 92	–
Social Union,	773 06	681 91	531 77	622 92
Track suits,	328 05	328 05	–	–
	$82,533 48	$85,059 36	$10,675 14	$9,033 13
Balance on hand Dec. 1, 1912,	–	8,149 26	–	—883 87
Balance on hand Nov. 30, 1913,	10,675 14	–	–	–
	$93,208 62	$93,208 62	$10,675 14	$8,149 26

Detailed Statement of the Dining Hall.

	Liabilities.	Resources.
Dec. 1, 1912, overdraft,	—$742 79	–
Nov. 30, 1913, total disbursements,	50,900 06	–
Nov. 30, 1913, outstanding bills,	1,983 05	–
Nov. 30, 1913, total collections,	–	$51,866 36
Nov. 30, 1913, accounts outstanding,	–	387 88
Nov. 30, 1913, inventory,	–	2,364 43
Nov. 30, 1913, balance,	992 77	–
	$54,618 67	$54,618 67

Endowment Fund.[1]

	Principal.	Income.
United States grant (5 per cent.),	$219,000 00	$7,300 00
Commonwealth grant (3½ per cent.),	142,000 00	3,313 32
		$10,613 32

[1] This fund is in the hands of the State Treasurer, and the Massachusetts Agricultural College receives two-thirds of the income from the same.

Beneficiary Funds.

Burnham Emergency Fund.

	Market Value Dec. 1, 1913.	Par Value.	Income.
Two bonds American Telephone and Telegraph Company 4s, at $850,	$1,700 00	$2,000 00	$80 00
Two bonds Western Electric Company 5s, at $1,000,	2,000 00	2,000 00	100 00
	$3,700 00	$4,000 00	$180 00
Overdraft Dec. 1, 1912,	–	–	—219 45
Overdraft Nov. 30, 1913,			—$39 45

Library Fund.

Five bonds New York Central & Hudson River Railroad Company 4s, at $880,	$4,400 00	$5,000 00	$200 00
Five bonds Lake Shore & Michigan Southern Railroad Company 4s, at $900,	4,500 00	5,000 00	200 00
Two shares New York Central & Hudson River Railroad Company stock, at $96,	192 00	200 00	10 50
Amherst Savings Bank, deposit,	167 77	167 77	6 18
	$9,259 77	$10,367 77	$416 68
Transferred to college library account,	–	–	416 68

Special Funds.

Endowed Labor Fund (the Gift of a Friend of the College).

Two bonds American Telephone and Telegraph Company 4s, at $850,	$1,700 00	$2,000 00	$80 00
Two bonds, Lake Shore & Michigan Southern Railroad Company 4s, at $900,	1,800 00	2,000 00	80 00
One bond New York Central Railroad debenture 4s,	880 00	1,000 00	40 00
Amherst Savings Bank, deposit,	143 39	143 39	5 72
One bond Metropolitan Street Railway, Kansas City, Company 5s, at,	940 00	1,000 00	50 00
	$5,463 39	$6,143 39	$255 72
Unexpended balance Dec. 1, 1912,	–	–	503 11
Cash on hand Dec. 1, 1913,	–	–	$758 83

Whiting Street Scholarship Fund.

One bond New York Central debenture 4s,	$880 00	$1,000 00	$40 00
Amherst Savings Bank, deposit,	271 64	271 64	10 84
	$1,051 64	$1,271 64	$50 84
Unexpended balance Dec. 1, 1912,	–	–	46 31
	–	–	$97 15
Disbursements for scholarships for fiscal year ending Nov. 30, 1913,	–	–	12 50
Cash on hand Dec. 1, 1913,	–	–	$84 65

Hills Fund.

	Market Value Dec. 1, 1913.	Par Value.	Income.
One bond American Telephone and Telegraph Company 4s, at	$850 00	$1,000 00	$40 00
One bond New York Central & Hudson River Railroad debenture 4s, at	880 00	1,000 00	40 00
One bond New York Central & Hudson River Railroad debenture 3½s, at	780 00	1,000 00	35 00
Two bonds Metropolitan Street Railway of Kansas City 5s, at $940,	1,880 00	2,000 00	100 00
Three bonds Pacific Telephone and Telegraph Company 5s, at $960,	2,880 00	3,000 00	150 00
One bond Western Electric Company 5s, at	1,000 00	1,000 00	50 00
Boston & Albany Railroad stocks, 3⅝ shares, at $200,	725 00	362 50	31 68
Amherst Savings Bank, deposit,	72 75	72 75	2 88
Electric Securities Company bonds, 1⅘₀, at $1,000,	1,180 00	1,180 00	59 00
Electric Securities Company bonds exchanged for series No. 12,	–	–	35 40
	$10,247 75	$10,615 25	$543 96
Unexpended balance Dec. 1, 1912,	–	–	112 58
	–	–	$656 54
Disbursements by floriculture and botanical departments for fiscal year ending Nov. 30, 1913,	–	–	112 20
Cash on hand Dec. 1, 1913,	–	–	$544 34

Mary Robinson Fund.

Boston & Albany Railroad stock, ⅜ share at $200,	$75 00	$38 00	$3 32
Electric Securities Company bonds, 4⅕₀ share at $1,000,	820 00	820 00	41 00
Electric Securities Company bonds, exchanged for series No. 12,	–	–	24 60
	$895 00	$858 00	$68 92
Unexpended balance Dec. 1, 1912,	–	–	99 40
	–	–	$168 32
Disbursements for fiscal year ending Nov. 30, 1913,	–	–	43 00
Cash on hand Dec. 1, 1913,	–	–	$125 32

Grinnell Prize Fund.

Ten shares New York Central & Hudson River Railroad stock, at $96,	$960 00	$1,000 00	$50 00
Unexpended balance Dec. 1, 1912,	–	–	195 74
	–	–	$245 74
Disbursements for prizes,	–	–	50 00
Cash on hand Dec. 1, 1913,	–	–	$195 74

Massachusetts Agricultural College (Investment).

One share New York Central & Hudson River Railroad stock,	$96 00	$100 00	$5 00
Unexpended balance Dec. 1, 1912,	–	–	60 45
Cash on hand Dec. 1, 1913,	–	–	$65 45

Gassett Scholarship Fund.

	Market Value Dec. 1, 1913.	Par Value.	Income.
One bond New York Central & Hudson River Railroad debenture 4s,	$880 00	$1,000 00	$40 00
Amherst Savings Bank, deposit,	11 64	11 64	44
	$891 64	$1,011 64	$40 44
Unexpended balance Dec. 1, 1912,	–	–	30 95
Cash on hand Dec. 1, 1913,	–	–	$71 39

Danforth Keyes Bangs Fund.

		Market Value Dec. 1, 1913.	Par Value.	Income.
Two bonds Pacific Telephone and Telegraph Company 5s, at $960,		$1,920 00	$2,000 00	$100 00
Two bonds Union Electric Light and Power Company 5s, at $950,		1,900 00	2,000 00	100 00
Two bonds American Telephone and Telegraph Company 4s, at $850,		1,700 00	2,000 00	80 00
Interest from student loans,		–	–	16 83
		$5,520 00	$6,000 00	$296 83
Unexpended balance Dec. 1, 1912,		–	–	402 02
		–	–	$698 85
Total loans made to students during fiscal year,	$1,084 75			
Cash received on account of student loans,	766 25			
Excess of loans made, over accounts paid by students,				318 50
Cash on hand Dec. 1, 1913,				$380 35

John C. Cutter Fund.

	Market Value Dec. 1, 1913.	Par Value.	Income.
One bond Pacific Telephone and Telegraph Company 5s,	$960 00	$1,000 00	$50 00
Unexpended balance Dec. 1, 1912,	–	–	74 72
	–	–	$124 72
Disbursements for fiscal year to date,	–	–	111 60
Cash on hand Dec. 1, 1913,	–	–	$13 12

SUMMARY OF BALANCES ON HAND OF THE INCOME FROM FUNDS HELD IN TRUST BY THE MASSACHUSETTS AGRICULTURAL COLLEGE.

Endowed labor fund,	$758 83
Whiting Street scholarship fund,	84 65
Hills fund,	544 34
Mary Robinson fund,	125 32
Grinnell Prize fund,	195 74
Gassett scholarship fund,	71 39
Massachusetts Agricultural College investment fund,	65 45
Danforth Keyes Bangs fund,	380 35
John C. Cutter fund,	13 12
	$2,239 19
Burnham emergency fund overdraft,	39 45
	$2,199 74

I hereby certify that I have this day examined the Massachusetts Agricultural College account, as reported by the treasurer, Fred C. Kenney, for the year ending Nov. 30, 1913. All bonds and investments are as represented in the treasurer's report. All disbursements are properly vouched for, and all cash balances are found to be correct.

CHARLES A. GLEASON,
Auditor.

AMHERST, Dec. 15, 1913.

HISTORY OF SPECIAL FUNDS.

Burnham emergency fund: —

A bequest of $5,000 from T. O. H. P. Burnham of Boston, made without any conditions. The trustees of the college directed that $1,000 of this fund should be used in the purchase of the Newell land and Goessmann library. The fund now shows an investment of $4,000 00

Library fund: —

The library of the college at the present time contains about 41,000 volumes. The income from the fund raised by the alumni and others is devoted to its increase, and additions are made from time to time as the needs of the different departments require. Dec. 27, 1883, William Knowlton gave $2,000; Jan. 1, 1894, Charles L. Flint gave $1,000; in 1887 Elizur Smith of Lee, Mass., gave $1,215. These were the largest bequests, and now amount to 10,000 00

Endowed labor fund: —

Gift of a friend of the college in 1901, income of which is to be used for the assistance of needy and deserving students, 5,000 00

Whiting Street scholarship: —

Gift of Whiting Street of Northampton, for no special purpose, but to be invested and the income used. This fund is now used exclusively for scholarship, . $1,000 00

Hills fund: —

Gift of Leonard M. and Henry F. Hills of Amherst, Mass., in 1867, to establish and maintain a botanic garden, 10,000 00

Mary Robinson fund: —

Gift of Miss Mary Robinson of Medfield, in 1874, for scholarship, ... 1,000 00

Grinnell prize fund: —

Gift of Hon. Wm. Claflin, to be known as the Grinnell agricultural prize, to be given to the two members of the graduating class who may pass the best oral and written examination in theory and practice of agriculture, given in honor of George B. Grinnell of New York, ... 1,000 00

Gassett scholarship fund: —

Gift of Henry Gassett of Boston, the income to be used for scholarship, ... 1,000 00

Massachusetts Agricultural College investment fund: —

Investment made by vote of trustees in 1893; to purchase one share of New York Central & Hudson River Railroad stock. The income from this fund has been allowed to accumulate, ... 100 00

Danforth Keyes Bangs fund: —

Gift of Louisa A. Baker of Amherst, Mass., April 14, 1909, the income thereof to be used annually in aiding poor, industrious and deserving students to obtain an education in said college, ... 6,000 00

John C. Cutter fund: —

Gift of Dr. John C. Cutter of Worcester, Mass., an alumnus of the college, who died in August, 1909, to be invested by the trustees, and the income to be annually used for the purchase of books on hygiene, ... 1,000 00

$41,100 00

PRIZES.

Sophomore prize in botany, given by Prof. A. V. Osmun of the department of botany to that member of the sophomore class who presents the best herbarium in the regular course (this prize was first offered in 1908 with the hope that it might stimulate a greater interest on the part of the students in this line of work), ... $5 00

Special prize, given by the Western Alumni Association to that member of the sophomore class who during his first two years has shown the greatest improvement in scholarship, character and example, ... $25 00

Animal husbandry. The F. Lothrup Ames prize, given by F. Lothrup Ames, Langwater Farms, North Easton, Mass., consisting of $150 a year, offered for a period of five years, to be given to the three students standing highest in the work of advanced live stock judging, and to be used in defraying their expenses incurred by participation in the students' judging contest at the National Dairy Show, Chicago. Given in May, 1912, available first in autumn of 1912, and for the four succeeding years, ... 150 00

$180 00

FRED C. KENNEY,
Treasurer.

UNIVERSITY OF ILLINOIS
3 APR 1915

THE M. A. C. BULLETIN

AMHERST, MASS.

Vol. VII. No. 2 **February, 1915.**

Published Six Times a Year by the College.
Jan., Feb., Mar., May, Sept., Oct.

ENTERED AS SECOND-CLASS MATTER AT THE POST OFFICE, AMHERST, MASS.

Public Document **No. 31**

FIFTY-SECOND ANNUAL REPORT

OF THE

MASSACHUSETTS AGRICULTURAL COLLEGE.

PART I.

REPORT OF THE PRESIDENT AND OTHER OFFICERS OF ADMINISTRATION

FOR FISCAL YEAR ENDED NOV. 30, 1914.

BOSTON:
WRIGHT & POTTER PRINTING CO., STATE PRINTERS,
32 DERNE STREET.
1915.

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Approved by
The State Board of Publication.

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The Commonwealth of Massachusetts.

Massachusetts Agricultural College,
Amherst, Dec. 1, 1914.

To His Excellency David I. Walsh.

Sir: — On behalf of the trustees of the Massachusetts Agricultural College I have the honor to transmit herewith, to Your Excellency and the Honorable Council, Part I. of the fifty-second annual report of the trustees, for the fiscal year ended Nov. 30, 1914, this being the report of the president of the college and other officers of administration to the corporation.

I am, very respectfully, your obedient servant,

KENYON L. BUTTERFIELD,
President.

REPORT OF THE PRESIDENT OF THE COLLEGE.

Gentlemen of the Corporation.

I herewith submit my annual report as president of the Massachusetts Agricultural College.

First of all, I wish to convey my hearty personal thanks to you as trustees for your generous action in allowing me a year's leave of absence which ended last May. For considerably over one-half of the period my services were given to the United States and American Commissions on Agricultural Credits, traveling with the commissions in Europe and assisting in the preparation of reports. The entire year was a fruitful one in the widening of observation, the enlarging of acquaintance, and the opportunity for study in fields fundamental to the development of large rural policies.

During my absence Prof. Edward M. Lewis served as acting president, not only with energy and efficiency, but with great acceptability to students, faculty and, I am quite sure, to your Board of Trustees. The position of acting president is never a sinecure, but Dean Lewis met every requirement with sympathy, skill, and thoroughgoing loyalty to the policies of the institution.

GENERAL REVIEW OF THE YEAR.

Dean Mills.

The death of Prof. George Franklin Mills on Oct. 27, 1914, has taken from us an able member of our staff and a man whose long service, high character, and genuine friendliness had endeared him to all with whom he came in contact. Dean Mills had served the college for nearly twenty-five years, having joined the faculty early in January, 1890. For a large part of his career he was a teacher of English; for many years he was the faithful and hard-working treasurer of the institution; for seven years he was dean of the college. Last June he was made dean emeritus.

Perhaps the best tribute that can be offered, in this report, to the work and life of Dean Mills is to quote the resolutions passed by your Board of Trustees on Nov. 6, 1914: —

Whereas, The Board of Trustees of the Massachusetts Agricultural College is saddened by the death of its late dean, Prof. George F. Mills, and desires to give enduring expression to its appreciation of his high character and faithful services as an officer and instructor in the college;

Resolved, That by his death the college loses an invaluable officer who for twenty-four consecutive years has, with rare intelligence, fidelity, and unfailing courtesy, facilitated the success of the college, and the community loses a true gentleman and an exemplary citizen;

Resolved, That the trustees of the college commend the example presented by his long and honorable career to all who aspire to render unselfish and devoted service in educational work;

Resolved, That a copy of these resolutions be transmitted to the family of the late dean, to whom this Board extends its profound sympathy in their bereavement, and that a copy be placed on the records of the Board.

May I also add a personal word. I came to know Dean Mills quite intimately and felt his influence constantly, — indeed it is a perpetual possession. His loyalty to what he believed to be right, his conscientious performance of duty, his genuine interest in men, his chivalric attitude in all human relationships, his fortitude in illness and suffering were both a lesson and an inspiration. There is no greater tribute than to apply to him the old-fashioned phrase, "a Christian gentleman."

Mr. Georgia.

On May 24, 1914, Mr. Bert C. Georgia, the instructor in market gardening, died suddenly. Mr. Georgia had been with us only the year, coming from recent graduation at Cornell. His work was efficient, and his character and personality had already made a place for him in our ranks. His sad death at the threshold of what promised to be a fine career was a distinct shock and sorrow.

Major Anderson.

In the death of Maj. John Anderson, which occurred Aug. 27, 1914, at his home in Belchertown, Mass., this college lost a true and loyal friend. Major Anderson served as professor of mili-

tary science and tactics at this institution from January, 1900, until September, 1905, and thoroughly won the love and respect of the students who during that period were privileged to know him. He was born in Monson, Mass., enlisted in the army in 1863, and was in active service during the rest of the civil war. At the close of the war he joined the regular army as second lieutenant, and worked his way up through the grades to the rank of major.

Changes in Trustees.

Owing to an appointment on another board, Hon. Charles E. Ward of your Board of Trustees resigned in August, 1914. Mr. Ward had rendered unusually efficient and intelligent service during his membership on the Board; his broad spirit, keen mind, and wide experience gave his service distinction. His successor, Mr. Edmund Mortimer, is a man of large affairs, great energy, and genuine interest in the work for which we stand.

Resignation of Professor Eyerly.

Prof. E. K. Eyerly, on September 1, resigned as head of the Department of Rural Sociology, to accept an important administrative and teaching position in the University of South Dakota. Professor Eyerly was released for this service, and his work is being carried on by other members of the department. Professor Eyerly was probably the first man in this country to organize and develop a district department of rural sociology. During his incumbency the interest and enrollment in the subject materially increased, and the type of work for which the department stands has found its place in the institution and among the students.

New Professorial Appointments.

Early in the year the vacancy caused by the resignation, in July, 1913, of Prof. E. A. White as head of the Department of Floriculture was filled by the appointment of Prof. A. H. Nehrling, who came to us from the University of Illinois. Professor Nehrling was educated in Washington University and the Shaw School of Botany, St. Louis, has served as an instructor in school gardening in South Chicago public schools

for three years, and for two years as an instructor in floriculture at the University of Illinois. At the time of leaving Illinois he was associate in floriculture in both the University and experiment station. Professor Nehrling has taken hold of this important department with energy and skill.

Prof. R. H. Ferguson was appointed to the position of extension professor of agricultural economics. Professor Ferguson was educated in the Christ Church Normal School, Belfast, Ire., and in Canterbury College, New Zealand. He is also a graduate of the Ontario Agricultural College and has taught in the State of New York. He has been assistant director of agricultural education in the Province of Ontario, and was county agent in the State of Virginia just before coming to Amherst. Professor Ferguson's work is to assist in the problem of the marketing and exchange of agricultural products and supplies. He is at the disposal of groups of farmers desiring a presentation of the principles of business co-operation, and, in general, of the exchange side of agriculture.

Prof. C. I. Gunness in July accepted the associate professorship of rural engineering. Professor Gunness graduated from the mechanical engineering department of the North Dakota Agricultural College in 1907, served for two years as instructor in mechanical engineering in that institution, and for three years as assistant professor. For the two years prior to his engagement here he was superintendent of the Indiana School of Tractioneering. He is a member of the American Society of Agricultural Engineers.

Attendance.

The total attendance of students registered in work of college grade is only slightly in excess of the enrollment of a year ago. The registration in the four undergraduate classes has decreased by 16, while the number of graduate students has increased by 13, and the number of unclassified students by 8. The total enrollment this year is 610 as compared with 605 last year. There was a noticeable decrease in the number of students entering the freshman class; for the past five or six years we have had an annual increase of from 15 to 20 in our entering class, or of approximately 8 per cent. over the preceding year;

this autumn, however, the entering class numbered 168, a decrease of 33, or 16 per cent. over the class entering in 1913. Thirty-two men were admitted to the freshman class who did not report. An investigation has been made among these men to ascertain their reason for not entering, and while there is no uniformity with respect to the nature of the replies, it is evident that a large number were prevented from entering on account of financial difficulties. (See Table V. for analysis of the enrollment.)

Short Courses.

The usual winter and summer schools have been conducted during the past year with marked success. The registration in the ten weeks' winter course has in recent years increased constantly, so that in 1914 182 members were enrolled. The Farmers' Week was largely attended, the enrollment being between 1,500 and 1,700. The Summer School of Agriculture and Country Life was held in July, and had an attendance of 146. The Conference on Rural Community Planning, immediately following, enrolled 329. The boys' camps were this year even more successful than last. Although the weather was unfavorable at the time of the poultry convention in July, there was an attendance of over 600.

Commencement.

The annual Commencement Day exercises were held Wednesday, June 17. The number receiving the degree of Bachelor of Science was 98, this class being slightly larger than that of 1913. The degree of Master of Science was conferred on 8, and the degree of Doctor of Philosophy on 3. The latter two facts are indicative of the increased attendance at this institution of men desiring advanced training in agriculture, horticulture, and the sciences relating thereto. The alumni dinner was attended by 189 alumni and officers of the college. Prof. Bliss Perry of Harvard University delivered the Commencement address, his subject being "The College and the Commonwealth."

Change in Course of Study.

After an extended discussion of the curriculum of the first two years, the faculty in the spring of 1914 adopted and presented to the trustees a revision of the course of study for this period. The changes made involve a reduction in required work in a modern language from three to two semesters, a study of agriculture and horticulture throughout the freshman and sophomore years, and a more even distribution of difficult subjects now required in the sophomore year. The plan also contemplates offering several electives in both semesters of the sophomore year, whereas at present only a comparatively few electives are available, and these only in the second semester.

The trustees at a recent meeting passed a resolution that "the faculty be requested to make a study, and to prepare a report thereon, of the entire curriculum with reference to its full adaptability to the training of students for the various agricultural vocations, and also in citizenship and in general culture." This resolution opens the way for a thoroughgoing study of the entire college curriculum from the standpoint of the main purpose of the college.

Lectures on "World Politics."

In the fall of 1913 the trustees established a permanent lectureship in world politics. At the close of the last fiscal year the first series of lectures on this subject was being delivered by Mr. R. L. Bridgman of Boston. The lectures were well attended, and excellent interest was shown by students and faculty in the specific lectures given, as well as in the general subject involved. This autumn (Oct. 21, 1914) Dr. Edwin D. Mead of the World Peace Foundation visited the college and delivered two lectures. The topic of the first was, "The United States and the United World," and of the second, "War and Peace in 1914." Dr. Mead had just returned from Europe and the seat of war, and made a particularly strong appeal to his audiences here.

Visit of Dr. Sato.

In March Dr. Shosuke Sato, the exchange lecturer from Japan to the United States, delivered at the college three lectures on the industrial, economic, and educational conditions in Japan. Dr. Sato's visit to this institution was of particular interest because of the fact that he is president of the University of Sapporo, Japan, which was founded by Dr. William S. Clark, for twelve years president of the Massachusetts Agricultural College. Dr. Sato was a student under both Dr. Brooks and Mr. William Wheeler of the trustees. The students and faculty gave Dr. Sato a cordial welcome, and his lectures were well attended and highly appreciated.

Chinese Students' Conference.

The eastern section of the Chinese Students' Alliance of America held its tenth annual convention at this institution Aug. 28 to Sept. 4, 1914. This meeting was significant, in part, because in the summer of 1905 there was held at this institution the first formal gathering of the Chinese students of America. At that time about 30 Chinese students met here for several days and organized the "Chinese Students' Alliance." The growth in numbers and influence of this organization has been phenomenal, and to-day approximately 1,000 Chinese students in various parts of the United States are members of the organization. Conferences are held annually in the western, central, and eastern sections of the country. Over 100 were in regular attendance at the Amherst conference this year. A well-organized program was arranged for each day, embodying talks on vocations, literary programs, athletics and other forms of amusements, business meetings, and public entertainments. The officers of the alliance were very appreciative of the courtesies extended by the college, and at the close of the conference the following resolution was adopted and presented to the president: —

In recognition of the kindness and hospitality on the part of President Butterfield and the authorities of the Massachusetts Agricultural College, be it resolved that a vote of thanks be tendered to the same authorities.

Social Service Commission.

For three or four years there has been discussed among the students and faculty the desirability of securing a paid leader who should devote his time in developing, among the students, various lines of social service at the college, in Amherst, and in the surrounding towns. As a result of these discussions several men met in the spring of 1913 and organized what is known as the "Social Service Commission of the Massachusetts Agricultural College." The constitution adopted by this body follows: —

Article I.

Name. — The name of this commission shall be the Social Service Commission of the Massachusetts Agricultural College.

Article II.

Object. — The object of this commission shall be to use and train the students in social service, especially in rural social service in near-by communities, expecting —

First, the development in the students of leadership and Christian character.

Second, the use and co-operation of the various student and community organizations.

Article III.

Membership. — The commission shall consist of nine members, the president of the college, and eight annually appointed by him from faculty, students, alumni, and the community at large; not more than three shall be appointed from the community at large.

Article IV.

Officers. — The officers of this commission shall be a chairman and a clerk, both of whom shall be elected by ballot immediately after the appointment of the commission, and a treasurer, who shall be the treasurer of the college.

Article V.

Meetings and Duties. — This commission shall meet at least twice each year. It shall have full charge and responsibility for raising and disbursing money, the employment of a social service secretary, and the directing of his work. At its meeting in September it shall outline its program of work for the ensuing college year.

ARTICLE VI.

Amendments. — This constitution may be amended by two-thirds' vote of the commission, serving in any one year.

A canvass was made of the alumni for the purpose of securing financial support for this work, and as a result about $1,000 a year for three years was pledged. A friend of the college interested in work of this kind pledged $500 a year for three years.

In the summer of 1913 Mr. Elgin Sherk, a graduate of Syracuse University, and for some time secretary of the Syracuse University Y. M. C. A., was employed from funds thus secured by voluntary contribution. For over a year Mr. Sherk has been working among the college men organizing enterprises for social service, and in many other ways stimulating among the students a desire to become of service to their fellow men. Under his direction several classes of foreigners have been taught by our students in Three Rivers, Bondsville, and Thorndike. Several students also have charge of boys' clubs, and something has been done by the men in the way of conducting Bible classes in surrounding towns. Mr. Sherk has co-operated with the county work department of the State Y. M. C. A. in organizing religious work in some of the hill towns of western Massachusetts. Taken as a whole, Mr. Sherk and the work which he is undertaking has made a profound impression upon the students and upon the communities. It is hoped that in some way adequate financial provision may be made so that this work may be continued indefinitely.

THE ATHLETIC FIELD.

In June, 1913, the trustees set aside approximately 7 acres of land belonging to the college for the purpose of athletics and delegated to the joint committee on athletics the right to control the same and develop it as an alumni field. At that time there were practically no funds available with which to improve the land; accordingly, in December, 1913, the athletic committee began an active campaign for funds with which to put the land in proper condition for athletic purposes. The total contributed

to date is approximately $7,000, of which the alumni classes have paid about $3,000, the undergraduate students $2,000, the balance having come from friends of the institution and from profits of the college paper.

Work on the field was commenced in April, 1914, when the drainage system was put in. This work was practically all done by students free of cost; the students dug about 5,000 feet of ditch and laid the tile, thus underdraining all the lower portions of the field; the students also opened the brook on the east side of the area to insure an adequate outlet for the drainage system. It is estimated that the value of the work thus done by the students was at least $1,000.

In May, bids were asked for the contract for grading the field, the specifications calling for the moving of 25,000 cubic yards of soil. The grading of the field was completed in September, and the whole area fertilized and seeded before the winter closed in. The total expenditures, including the contract for grading, the cost of tile, seed, engineering, etc., made a total of something over $8,000. Several hundred dollars have been pledged, but not yet paid, and it is probable that within a few months the entire balance will be raised.

Thus the immediate need of the situation is met in a fairly satisfactory manner. However, it is still necessary to build a fence to enclose the field, and construct the running track and permanent stands for the seating of spectators. It is probable that the accomplishment of these projects will take some time, but the machinery is in operation which will doubtless bring the desired results within a reasonable period.

The Fraternity House Situation.

For thirty years prior to 1908 there were four fraternities at the college. Since 1908, when the more rapid expansion of the college began, additional fraternal organizations have come into existence so that now there are nine fraternities and an organization of nonfraternity men, known as the "Commons Club." Of the nine fraternities, six are branches of national Greek letter organizations. Simultaneously with the growth in the number of fraternities and with the enlarged enrollment of the college, there has developed a tendency on the part of the fraternities to

obtain control of houses which may be used for rooming purposes. In 1908 one fraternity had a house; at present seven of the fraternities and the Commons Club either own or rent a house in the vicinity of the college campus. The Phi Sigma Kappa fraternity is just completing the first house designed and built primarily for the use of a fraternity, and on plans approved by the trustees of the college. This house is located on Pleasant Street at the south entrance to the college grounds, and is an attractive and serviceable addition to the campus.

Co-operation with Springfield Y. M. C. A. College.

One of the marked developments in recent agricultural education is the training of men for special fields of service in the rural community. The Young Men's Christian Association has done particularly notable work in organizing its service for country and village boys and young men. This work is placed on the county basis, and the need for training these county secretaries has become pressing. To meet this need the Springfield Young Men's Christian Association Training College has inaugurated a course for rural work secretaries, and has sought the co-operation of our college, desiring that a part of the course shall be given here consisting largely of technical agriculture, agricultural economics, and rural sociology. Plans are under way for meeting this request and for eventually securing reciprocal exchanges of students of the two institutions.

Legislative Appropriations.

Inasmuch as the Legislature of 1913 established our income for current expenses covering a period of five years, no bill was presented to the Legislature of 1914 embodying requests for increased appropriations for these purposes. It is still necessary however, for the college to make annual requests for appropriations for new buildings and other special objects, and in 1914 three items were included in the budget: (*a*) agricultural building, including equipment, $210,000; (*b*) student dormitory, $35,000; (*c*) minor additions, $10,000. The Legislature granted the appropriation of $210,000 requested for the agricultural building. The contract for the construction of this building was let in midsummer, and the work is now well under way.

Exchange of Land.

The Legislature of 1913 passed an act authorizing the exchange of a portion of the college land acquired in 1910, and known as the "Louisa Baker Tract," and comprising about 12 acres, for 25 acres generally known as the "Owen land." The trustees, on November 6, voted to consummate the exchange, and the Governor and Council, on November 25, authorized the exchange. Steps are under way to carry out these instructions. The college will thus acquire an area admirably fitted for the development of the horticultural division, bounded on three sides by the college estate, and completing a compact area of horticultural land. The college parts with land well adapted to the construction of residences near the college grounds.

Improvements, Repairs, and Construction.

Improvements and repairs this year have not been quite so extensive as in the immediate past.

The new piggery has been completed at a cost of $3,000, and another building, costing $1,000, has been added to the equipment of the poultry department. Some new cinder walks have been constructed, but the need for further extension of both cinder and cement walks is very pressing. An extension to the president's house of the 6-inch water main has been completed, thus giving adequate fire protection and further water supply to the cold-storage building, as well as to the president's house.

Steam has been carried from the pit south of Clark Hall to the Phi Sigma Kappa fraternity house, an arrangement having been made with the fraternity corporation whereby the college will furnish steam and electricity for this building.

There have been made the usual repairs and minor improvements necessary to the proper upkeep of the college buildings.

French Hall. — During the year work on French Hall has been completed. This provides somewhat more than double the classroom capacity formerly available in this building. French Hall is now one of the most attractive buildings architecturally, and one of the most serviceable, on the campus.

Infirmary. — The Legislature of 1913 appropriated $15,000 for the erection of an infirmary. For various reasons it was impossible to begin work on this building until the present fall. The plan finally decided upon includes one large building, with wards for patients and rooms for the matron and nurses, and a second building, designated as an "isolation ward." These buildings are heated and lighted from the central power plant. The plans embody the most modern ideas in hospital construction, arrangement, and convenience.

Agricultural Building. — The largest construction project undertaken during the year is that of the agricultural building and auditorium. When completed this will be the largest and most costly building on the grounds. The plans provide for a main building of three stories and basement, which will be devoted to offices, classrooms, and laboratories for practically all the departments in the Division of Agriculture, except that of dairying. It will be possible, also, to provide in this building for several other departments which at present are inadequately housed, both with respect to classroom facilities and office accommodations. In connection with this building there will be erected an auditorium, the seating capacity of which will be approximately 900; the auditorium will be used for general college exercises instead of the chapel, which has for several years been entirely inadequate for the demands made upon it. Shops for the Department of Rural Engineering are in process of construction.

Beginning on page 72 of this report will be found the following tables and statistics: —

Table I. — New Appointments.
Table II. — Resignations.
Table III. — Change in Title of Officers of the Institution.
Table IV. — Speakers for the Year.
Table V. — Attendance.
Table VI. — Legislative Budget.
Table VII. — Statistics of the Freshman Class.
Table VIII. — Entrance Statistics of the Freshman Class.
Table IX. — Official Visits by Outside Organizations.

IMMEDIATE NEEDS OF THE COLLEGE.

The Legislative Budget for 1915.

Your Board has already voted the following budget of special appropriations for presentation to the incoming Legislature: —

Addition to the power plant,	$30,000
Miscellaneous additions,	10,000
Student dormitory,	40,000
Laboratory for microbiology,	67,500

Following is a statement of the reasons for these applications for legislative appropriations: —

Addition to the Power Plant.

The college power plant has reached its maximum capacity. At present it can furnish steam for about 55,000 feet of radiation. The new agricultural building, in which the radiation foots up to approximately 15,000 feet, will add nearly 25 per cent. to the demand upon the heating plant. The present plant consists of four boilers of 150 horse power each, with a storage capacity for 600 tons of coal. It will take another boiler to furnish steam for the new building, but this addition leaves no reserve in case of emergency, and it seems advisable to install two new boilers, each of 200 horse power, with space for two more boilers eventually. To make these additions there must be a new storage pocket, a coal trestle, and a new chimney. Thoroughgoing estimates made by the Stone & Webster Company call for $33,200. We believe, however, that the changes can be made, by utilizing a good deal of our own labor, at a cost of $30,000.

The absolute necessity of this enlargement of our central plant is obvious. The new agricultural building which will be ready for occupancy in September cannot be utilized unless we secure additional heating power.

Miscellaneous Additions.

The college has recently established a Department of Rural Engineering, intended to cover the field of farm mechanics, farm machinery, farm power, cement work, roads, farm build-

ings, public rural engineering, etc. This is a line of work that has long been needed, and of course requires shop facilities. We are able this year to make a start by constructing one-half of one unit of the proposed shops; next year we should complete this unit. It will take about $2,500 for this purpose, and the final cost of the entire building will be about $15,000. Appropriations for this, however, can come later. The appropriation is indispensable in the development of this new and important department. The balance of the sum of $10,000 is needed for walks, refitting rooms in South College, and for installing a cold-storage plant in the dining hall.

Student Dormitory.

At present the college has dormitory facilities for about 70 students. The enrollment of students doing work of college grade exceeds 600. The demand for rooms in private houses has caused rentals at rates which in some cases are almost prohibitive to students, and particularly so to those students who are obliged to earn a part or all of their college expenses. The number of rooms within reasonable distance of the college, which may be secured at any price, is limited. It is uneconomical, from the standpoint of time, for a large number of students to live a mile or a mile and a half away from their college work. Furthermore, it is unsatisfactory from the standpoint of college discipline to have so large a percentage of students scattered over such a territory, as is necessary under existing circumstances.

The proposed dormitory, for which an appropriation has been asked for five successive years, will accommodate 50 men, and will be managed in such a way that students can secure good living accommodations at a comparatively reasonable cost. At the same time, the dormitory will yield to the college a fair financial return on the investment.

Laboratory for Microbiology.

Following are the essential reasons why a laboratory for the Department of Microbiology is a pressing need: —

1. At present there are no suitable facilities for giving instruction in this department to graduate and undergraduate students.

For a time the college has rented rooms over a mile from the college, and located in the center of the town, in order to make even inadequate provision for certain work of this department.

This is a comparatively new department, but represents one of the most important lines of agricultural science, and the enrollment in the courses is bound to grow rapidly.

2. Owing to the lack of proper accommodations it is impossible to carry on certain lines of laboratory and research work, such as, for example, investigations in milk, soil, and food microbiology.

3. A further handicap to satisfactory work is found in the fact that at present a room for the work is assigned in the dairy instruction building. Under these conditions it is impossible to work with any degree of freedom, because of the presence in the microbiological laboratory of obnoxious odors and the danger of introducing disease organisms into the dairy building.

4. The small amount of room now assigned to the Department of Microbiology is needed for the Department of Dairying, for which the building was originally designed and the demands of which are constantly increasing.

It seems unwise to build many small buildings, consequently the trustees have prepared plans for a building large enough to house not only the Department of Microbiology, but also the Department of Physics. This building when finally completed, it is estimated, will cost about $160,000. The north end is to be used for microbiology, and for this we are asking $67,500; this will enable us to house this department in good order. The building is to be fireproof, with two stories and a basement, and the appropriation includes proper equipment for teaching and research purposes.

The Graves Forest.

The Legislature of 1914 referred to the next General Court our request for an appropriation of $30,000 for the purchase of a tract of land on Mt. Toby, owned by Mr. John L. Graves of Boston. The committee on agriculture, after visiting the land, expressed a cordial appreciation of the desirability of the tract for college purposes. I cannot urge too strongly the early granting of an appropriation for this purchase. This area of over 700 acres of beautiful forest, with trees of all ages and in wonderful

variety, including the summit as well as one of the slopes of perhaps the most interesting elevation in our valley, forms the ideal laboratory for our Department of Forestry. The tract should be scientifically treated as a forest, and thus would serve for generations not only as a demonstration in a business of increasing importance, but also as a perpetual public reservation.

Continuing Appropriations for Improvements.

Two years ago the Legislature passed an act providing an annual income for the operation of the institution, increasing somewhat each year for a period of five years. This plan was developed under the initiative of the Commission on Economy and Efficiency, and at the outset it was believed that a similar arrangement could be made with regard to improvements. Certain matters, however, stood in the way at that time, and we are therefore still dependent upon special appropriations for the development of buildings and larger items for improvements and additions.

I wish to present for your consideration a plan for a fixed appropriation for improvements, including new buildings, sundry additions to the plant, new equipment, and land. Technical objections to this plan have, it is believed, been met in a bill drafted in consultation with the Attorney-General and the State Auditor.

The need for an enlarged income for additions to the physical plant at the college seems to us clearly obvious. Following is a provisional list of buildings and other improvements needed during the next decade, with conservative estimates of cost. Of course, we are assuming that the college is to grow during the next ten years, though perhaps not so rapidly as during the last ten years; but it seems wise to plan for at least a thousand students in the near future, and the equipment indicated is based on that figure: —

A Six-year Plan.

Complete rural engineering shop,	$15,000
Complete infirmary,	15,000
Laboratory, physics and microbiology,	160,000
Service building for pomology,	28,000

Remodeling Stockbridge house and cottage,	$14,000
Student dormitory,	40,000
Greenhouses,	15,000
Library,	250,000
Chemistry building,	235,000
Armory and gymnasium,	210,000
General improvements,	90,000
New equipment,	60,000
Land,	30,000
Other buildings suggested by faculty to meet early needs: —	
Minor farm buildings,	8,000
Instruction building for rural engineering,	80,000
Building for poultry husbandry,	80,000
Central building for administration, auditorium, and academic departments,	300,000
New dining hall,	200,000
Agricultural normal school,	30,000
Dormitories for 1,000 students,	800,000

There are many advantages accruing from a regular stated income for improvements. We can plan much more wisely than we can under the uncertainty arising from annual legislative action. Sometimes we are obliged to ask for buildings three or four years in succession, although the immediate need seems to us imperative. It is possible that when two buildings are requested we may be granted the building of lesser consequence. No doubt considerable economy can be effected by reducing winter work on buildings to a minimum. It is seldom possible to make contracts after the Legislature has adjourned, especially for large buildings, in time to permit contractors to house in the building before winter comes. Oftentimes departments are seriously handicapped because buildings are not completed at the opening of the college year, simply because we have not been able to start them in time. The State will be the gainer through this plan. Besides, if we are to maintain a first-class agricultural college we need a modern equipment and plant, well planned and consistently developed.

OUR PRESENT TASK.

During the past fifteen years the college has expanded steadily and rather rapidly. Many new departments have been organized; new subjects of study have been placed in the curriculum; the attendance of students has increased sixfold since 1898, and has nearly trebled in eight years; we are rarely without building operations in progress; the extension work has grown from very small beginnings to large proportions; a business and administrative organization has been built up; there has been a notable increase of income. All of these developments have constituted an era of expansion.

It seems quite probable that the college will continue to grow, and that new needs in material ways will continue to arise, but it is not likely that the next few years will demand expansion in scope and equipment in the same ratio as in the past. Our main problem now seems to be to enter deliberately upon an era of consolidation; to study our purposes; to improve our methods; to adjust parts to one another and to the whole; to secure a larger measure of co-operation among all the factors; in fine, to perfect our organization.

If this policy be the correct one, it seems worth while to outline in this report some of those subproblems that are involved in the attempt to secure this more compact organization of the institution, in order that all of us may have at least a framework for our thinking and our planning.

I shall attempt nothing more at this time than to name the main problems as I conceive them, and as briefly as possible mark out or define each one. I may say that in nearly all instances there is under way a more or less well-developed plan for the consideration of these matters.

Problems of Undergraduate Teaching.

I. Instruction.

The good teacher is the bulwark of every college. There has been an evident check in the tendency of educational institutions, in judging the qualifications of teachers, to place the chief emphasis upon research ability. The true teacher must keep growing; and to keep growing he must investigate, as well as

profit by the results of the investigations of others. But the primary task of the teacher is to teach, and ability in research is not necessarily a test of ability in teaching. Consequently, teachers who can teach, who can inspire, who realize that they are teaching men rather than subjects, who have personality and character, enthusiasm and ideals, constitute the fundamental college need. Such men are sufficiently rare so that the economic law of supply and demand has a very definite meaning to the institutions seeking high-grade men. We must pay better salaries if we wish to keep our better men. Nor can we in Massachusetts avoid the reflection that our real competitors for the best men, at least in the technical subjects, are the strong agricultural colleges of the great agricultural States. It is doubtless true, also, that as a faculty we should give more attention to methods of instruction. It may be denied that there exists a well-established agricultural pedagogy, but it is well for us to consider with care whether we are using the best possible teaching methods.

II. Courses of Study.

The recent vote of your Board of Trustees encourages the faculty to engage, in a most thoroughgoing way, in the task of discovering, if possible, a better curriculum than the present one, by which the purpose of the college may be carried out. The vote is as follows: —

> That the faculty be requested to make a study, and to prepare a report thereon, of the entire curriculum, with reference to its full adaptability to the training of students for the various agricultural vocations, and also in citizenship and in general culture.

This vote in a sense outlines our problem. In a college devoted to the interests of agriculture it is evidently intended that the course shall be avowedly professional. We are set to the task of training men for following those vocations connected with agriculture and country life. But it would seem, also, to be the clear duty of a State-supported institution to fit its graduates to take their places in the common civic life. And, furthermore, from the standpoint of training good workers and good citizens, can we avoid an endeavor to bring our students to see

the meaning of the personal life itself, its real import, and how it may be worked out to a successful issue?

Our present course is somewhat of a mixture of the old insistence on formal discipline and a thorough study of the sciences, of mathematics, and modern languages as foundations for professional work, and the newer insistence on technical subject-matter and training. Our course is also, perhaps, a compromise between the emphasis on the professional aspect of education and on the so-called liberal aspect of education. But, however all this may be, there are some serious questions that must be answered. For example, we cannot ignore the present dissatisfaction that exists on the part of the high schools in respect to college entrance requirements. We must answer the question, Are our own entrance requirements too rigid and formal? The development of agriculture of secondary grade raises another specific question of entrance — namely, Shall we give credit for this type of agriculture? The whole question of content of the course of study is still being raised. What proportions of our course should be given to strictly technical work, to the formal sciences, to the humanities?

These, however, are really subsidiary questions. The main problem is to discover, if possible, how we can organize a four-years course of study which will best train men and women for the various agricultural vocations, and, at the same time, give them some grasp upon the nature and scope of the problems which they must face both as citizens and as human beings desiring the largest possible development of mental and spiritual capacity.

III. Quality of Scholarship.

It is often asserted that the vocational or professional institution secures more thorough work from its students than is the case with the liberal arts colleges, on account of the interest aroused by the so-called utilitarian subjects. This is not necessarily true. I am sure that in our own institution the quality standards are not yet sufficiently high. There are many men, particularly in the upper years, who do not exert their energies to the fullest degree in classroom work; and of course the habit of doing less than one's best is absolutely fatal in developing maximum efficiency.

I wish it might be possible for us to have a closer oversight of the study-work of our students during the entire college course. We can never go back to the close supervision of the students exercised by the colleges of a century or a half century ago. But I think we have gone too far in adopting the German university method of letting the student work out his own salvation, particularly with the under classmen. The organization of a better method of supervision will undoubtedly require some money and the ability to command the services of men especially adapted to this sort of work. Our aim for quality of scholarship must not be quixotic. It must not exclude the faithful student of mediocre talent. Ideally, it will mean getting out of each student the best of which he is capable.

IV. Student Life and Activities.

This question is one of the most puzzling problems of our American college life. The so-called "student activities" have grown up, for the most part, without faculty initiative, sometimes with faculty opposition, and rarely with faculty oversight and approval. But they have worked themselves into the structure of college life. They have a distinct educational value because they encourage initiative, inventiveness, responsibility, and leadership. Our problem is how to adjust these activities to class work so that they may supplement rather than controvert the main objects of the institution, and may contribute both to the student's efficiency and character; and how to maintain freedom of student initiative and management and still such measure of faculty oversight that these activities become organic in the college scheme of training.

V. Physical Training of Students.

The American college has accepted the responsibility for the physical welfare of its students, but it has not developed the proper machinery for realizing the results of this responsibility. The fault is not wholly that of the college. The college student is boy turning into man. He still has the play instinct; but unfortunately he is often led astray by the romance of the splendid contests of highly trained representatives of his devotion to play. The ideal is that every man should himself partic-

ipate; he should constantly play the out-of-door games, and, if possible, such games as he can carry through life. Right teaching as to diet, temperance, personal purity are also part of our obligation to the student. In the last few years we have made substantial headway in this matter, but are not yet satisfied.

VI. The Housing and Feeding of Students.

In many colleges this question is entirely ignored by the college authorities. I question whether it ought to be ignored by any college. Under our present conditions we could not ignore it if we would. These conditions are unsatisfactory in many ways. The rooms occupied by the students are scattered over the village. There is no supervision. We have no assurance that the students are living under proper sanitary conditions; although it is only fair to say that the impression prevails that these conditions are satisfactory both physically and morally. But the present responsibility of the situation lies with the citizens of Amherst and with our students, rather than with the college authorities, because of the lack of any intelligent direction or supervision. The board at the dining hall seems to be satisfactory on the whole. But there are many questions that continue to arise. For example, shall we have a dormitory system? If so, how shall we get these dormitories, and how manage them? If we do not adopt a dormitory system, how may students be assured rooms, sanitary, properly conducted, at reasonable prices? It is highly desirable that the college itself should furnish board at cost, and should relate the management of the dining hall to the question of proper dietary habits on the part of the students. There is more or less self-boarding among the students who have to earn their own way. Nothing but praise should be given a man who does this, but there is a serious question whether such sacrifices are not actually deleterious in the long run.

VII. Character Building as a Special Endeavor.

It is sometimes said that the main object of schools and colleges is character building. Of course the main object of life is character building. The man who seeks the highest ends, either

consciously or unconsciously, makes all his experience minister to character building in himself and in others. But it is hardly correct to say that the objective of college work is character building in the sense of an immediate and special end.

But if character building may not be regarded as the immediate objective, it ought to play its true part; in other words, college courses and college life ought to minister at every point to the largest life of the man; so that every college that is true to its work has the task of so organizing itself that the student may not only have an opportunity to gain a broad view of the fundamental problems of life, but also have an opportunity for forming the best personal habits and for rendering some form of community service. In all this work a State institution must sedulously guard itself against infringing religious liberty or stirring religious prejudice.

Problems of Advanced and Special Study.

VIII. The Graduate School.

The college has recognized the dearth of thoroughly trained men for investigation, for teaching, and for expert service in agriculture and country life fields, by establishing a graduate school which now has an enrollment of over 50. But we still have many questions to face, such, for example, as the extent to which the graduate work shall be developed, the degrees to be offered, the relationship to undergraduate work, our ability to finance probable developments, the provision of teachers, and the correlation of research with graduate study. The report of the director (page 50) furnishes an admirable outline of the present organization and of some of our problems.

IX. School for Rural Social Service.

Future leadership in agriculture and country life lies not only with men and women who are experts, or investigators, or teachers in the field of technical agriculture and the sciences underlying it, but equally with those men and women who design to become leaders or experts — in local community, in the State, in the nation — in the realms of rural education, rural politics, or rural organization. The agricultural colleges

are already contributing, and are destined to contribute even more completely, to the training of teachers in secondary agricultural schools, of country clergymen, of rural Y. M. C. A. secretaries, of rural librarians, of grange workers, and of other leaders in the country-life movement. It is worth our while to ask if this field is not extensive enough to warrant the organization on our campus of what is practically a School of Rural Social Service. It is quite possible that such an enterprise can come to its fullness only with private endowment supplementing the efforts that we find practicable as a State institution.

X. The Training of Women for Agriculture and Rural Home Life.

There is a new demand upon the part of young women for participating with men in the training for the agricultural vocations. So far we have not met this call in any adequate way. We can hardly neglect for long this increasingly important and reasonable demand. But this is not the only phase of the relationship of the college to the needs of women. Heretofore the movement for better agricultural education has not given sufficient attention to the rural home. Successful departments of domestic science have been instituted in many of the land-grant colleges, and these departments are doing notable work. In popular agricultural education, that is, through farmers' institutes and extension service, a great deal has been done on behalf of the country home. But we have yet to meet the problem in its full need. In the last analysis woman's status on the farm and the quality of the home life in the country, are the determining factors of a permanent rural civilization. It would seem, therefore, that such attention should be given to the problems of the rural home as is given to the problems of the farm itself. I hope, therefore, that we may consider the organization on our campus of courses that shall form virtually a Woman's College of Agriculture and Rural Home Life. I do not wish to raise the issue of coeducation, and it is not necessary, for the device of an affiliated woman's college has proved workable in other New England colleges.

Problems involved in Agricultural Investigation.

XI. Development of Research Work.

The need of continued and thorough investigation of the main elements of the agricultural problem requires no elaboration. Research is fundamental to fresh teaching. Indeed, it is fundamental to the complete development of the college as the servant of the agricultural interests of the Commonwealth. The field of research broadens as we appreciate more completely the scope of the rural problem, and the possibilities lying before an educational institution in helping to solve that problem. The vital element in planning this task of investigation, which includes both thoroughgoing scientific research and practical tests and experiments, is to determine the problems of agriculture and country life that most need attention. The eyes of every investigator should be on this issue. Investigation, no matter how interesting for the individual investigator, should square with the most significant needs of the people who till the soil.

Up to the present time, research and experiment in our agricultural colleges, as developed through the work of the experiment station, has been largely in connection with the study of the soil, and the plant, and the animal — their characteristics, the laws that operate in their utilization, and their interrelationships. Soil fertility, the relation of crops and soil to climate, improvement of soils, improvement of crops and animals, and better feeding and care; protection from diseases and pests; and greater facility in the use of natural powers — these have been the field of research. There is still illimitable opportunity and need for sound work here. We have found, however, that our rural problem is not only a question of improving the farm, but also of improving the business and even the life of the community. If we are to fulfill our mission, therefore, we must also undertake thoroughgoing studies of farm management, and of those conditions in the economic and business world that affect the farmers' welfare, such as the securing of sufficient capital, more effective methods of purchase, more satisfactory methods of sale, and, in general, the attainment of a clearer understanding of the economic affairs with which the farmer must deal. But there are also social forces which affect very

materially both his business and his welfare. Therefore the conditions under which he works and lives, his home life, his community life, his education — all need the study of the trained mind.

We face, therefore, the problem of a rather wide extension of the field of agricultural research, simply because we have come to realize that the physical and biological forces with which the farmer deals constitute after all only a part of his problem. The economic and social forces are equally compelling in the development of his business.

XII. An Agricultural Survey.

The extension of the field of agricultural research just referred to suggests a specialized phase of investigation which is now seen to be of the utmost importance. For want of a better name we call it "an agricultural survey." In general research and experimentation we have to do with fundamental forces and principles. An agricultural survey takes into account actual conditions which the working farmer has to meet on his own farm. This distinction between the two types of investigation is not quite so sharp as might appear at first; but, in general, it will serve as a definition. A closer study of soils and climate and other physical factors, with reference to their adaptability to certain types of farming; the study of transportation and markets; the facts in regard to cost of production and cost of distribution are illustrative of this phase of investigation. We already have under way a considerable amount of work in this field, especially in the subject of farm management in co-operation with the United States Department of Agriculture. But we cannot expect Massachusetts agriculture to develop as rapidly as it may until we can furnish farmers with exact facts concerning the conditions under which they actually have to operate their business.

Problems of the Extension Service.

XIII. Extension Teaching.

It is unnecessary to dwell upon the importance of extension teaching in agriculture. Not only has our own policy become thoroughly established, but we have developed an organization

and a method that I think will bear comparison with that of any agricultural college in the country. More than that, the whole movement for extension teaching has been given a new impetus by the passage of the Smith-Lever act of 1914. This act as certainly the most stupendous and, I believe, the most significant and statesmanlike piece of legislation of its kind ever enacted. It means the nationalization of popular agricultural education. If all the States comply with its requirements the income from both State and national treasuries will eventually be the equivalent of 4 per cent. interest on an endowment of $200,000,000. Massachusetts does not get its full share of this fund because of our small "rural population." Our own problems, however, are sufficiently difficult and important. We should study our administrative organization, our types of work, our methods of teaching, etc. Extension work is confessedly young. In a sense, we have been experimenting. These subjects should receive as much attention during the next few years as any other phase of institutional work. I should like to call attention to the recommendations of the Director of the Extension Service in another part of this report (page 61), and especially to urge careful consideration of our relation to the so-called "county-agent" work.

It is clear that all this work will require larger funds than the State is at present appropriating. We must be cautious, of course, not to advocate extravagant expenditures for this line of work; but, on the other hand, we must not fail to make it clear that if wisely used the cost of an efficient extension service is not a tax but an investment.

XIV. The Place of the College in Rural Organization.

During the last few years we have made great strides in our conception of the rural problem and how to meet it. We have discovered, for example, that this problem is both broad and complicated. As Sir Horace Plunkett, the great Irish leader, so happily expresses it, we need "better farming, better business, better living." And not only have we learned to look upon the rural question as a unit, but we have learned that we must attack it in its entirety. We must correlate the work of institutions, we must prevent overlapping, waste of effort due to duplication,

and friction that sometimes arise in the conflicts of institutional interests. In other words, we should have a rural policy for community, for State, and even for the nation as a whole. This policy involves a study of the larger phases of the rural problem, a division of labor among institutions and organizations, a correlation of effort on the part of all agencies interested, and consequently a complete rural organization.

Our own college is participating in a movement of this sort which is still in a formative stage, and which yet bears the marks of a comprehensive attempt at securing a rural policy. We are assisting communities to make plans for community development; we are participating in the Massachusetts Federation for Rural Progress, which aims to correlate all rural activities; we are assisting in the establishment of county improvement bureaus. All these efforts involve us inextricably in the problem of general rural organization. We must establish our proper relationships with other institutions and agencies. We have made progress in this direction in recent years, but the whole matter still constitutes an important problem.

Problems of General Administration.

XV. The Administrative Organization of the Institution.

In this day of demand for efficiency, and in this country of administrative skill in business, it is easy for an educational institution to overorganize itself, or to attempt unwisely to transfer administrative schemes successful in business to the college campus where they may have no place. On the other hand, in avoiding "red tape" there is a temptation to neglect proper administrative organization, especially in the smaller institutions, thereby losing headway and energy.

The principles of good administrative organization for a college would seem to include, among other things, a clear definition of the function of the various administrative elements, such as trustees, faculty, administrative officers; the formulation of adequate codes of by-laws for the trustees and the faculty; the centralizing of administrative responsibility in a few hands; well-recognized committee responsibility both in trustees and faculty; democratic methods of establishing policies; the develop-

ment of standard efficiency tests; a simple but thorough system of reports; the reduction of rules and formulas to the lowest possible terms.

XVI. Business Organization and Efficiency.

There can be no question about the responsibility that rests upon every member of the staff of this institution to utilize the really liberal funds which the Commonwealth has granted for our use in a way to make every dollar count to the fullest. Here, also, there is a need for some standard tests of efficiency, but these tests are difficult to make. The business man can test the use of his money by money results; but the last thing that accrues from the use of money in an educational institution is more money. The business question that we confront is not greater profit, but simply the wisest possible use — wise not in terms of money results, but in terms of effective teaching, of useful investigation, of helpful extension service. It is not easy to formulate the ideal plan of business organization. The terms of employment, the supervision of the purely business aspects of the institution, the best methods of apportioning funds, complete but simple reports of the use of funds, the increasingly important question of clerical help, the relation of the institution to members of its staff with respect to professional improvements, attendance at important meetings, etc., are all pressing questions.

We have developed a very complete system of bookkeeping at the college, but it is a question whether any educational institution has yet developed an adequate system of accounting. Most of the attempts that have been made to establish a satisfactory scheme for cost accounting when applied to an educational institution merely emphasize the difficulties involved. It would hardly seem that the problem is an insoluble one. At any rate, it is our duty to seek a solution.

XVII. Securing and Maintaining an Adequate Physical Plant.

A college does not consist of brick and mortar. But it is a mere platitude to say that if a college is to do its best work it must be properly housed. We must develop an adequate physi-

cal plant to house our various departments, so arranged that it conforms to accepted principles of landscape gardening and architecture, and secures a maximum of convenience and permanence. The problem of the character of buildings is also involved. The best methods of planning them and erecting them, the question of types of buildings — whether fireproof or not — the matter of care, repairs, janitor service, fire protection, are all important. It is impossible to lay out a building program for any appreciable term of years. A great deal depends upon the growth of the college in students. Much depends, also, upon the adjustment from time to time of departmental work, the institution of new departments, etc. I have outlined elsewhere in this report the early needs of our plant on the physical side, so far as I can foresee them. Tentative plans have already been prepared for some of these buildings.

XVIII. Publicity.

The time for advertising a college like ours has gone by; that is, advertising in the commercial sense of the word. There is no dearth of students, and the best advertising is the work we do and the men we graduate. But in my opinion it is our duty to develop a system of publicity for the institution that gives, through the newspapers, through public lectures, and through special publications, an adequate idea of the service which the institution is rendering, and can render, to the people of the Commonwealth. The motive of merely advertising ourselves may be honestly disavowed, for a State-supported college should help the people of the State to understand and utilize the opportunities which the college offers to those who need its help. It is a strange fact that to-day, with such publicity as has already been given to the college, there are thousands of people in Massachusetts who do not know to what extent the college can help them, nor how to obtain the information they want.

XIX. Adequate Financial Support.

The question of financial support for this institution may be put in an interrogative sentence: Is the Commonwealth of Massachusetts willing to make appropriations sufficient to sup-

port a *first-class* agricultural college? Without question the people are willing to support a *good* agricultural college. The Legislature during recent years has increased our appropriations generously. Assuming that we are administering wisely the funds intrusted to our care, the question still arises, To what degree can we count upon further support? The question involved is not merely that of the willingness of the people to make larger appropriations; it is also a question of the ability of the State to sustain all of its public institutions in proper fashion, and at the same time adequately to support a first-class agricultural college.

I take the liberty of quoting from my inaugural address, made eight years ago, a few sentences covering this question: —

> To carry out the forward movement in agricultural education much larger appropriations of money than are now available must be granted by the State. Indeed, this is, on the practical side, the prime question that confronts agricultural education. Thoroughly trained investigators are not common, but they can be had; there will be no lack of attendance at agricultural colleges; there is no inherent difficulty in interesting farmers in extension work. In fact, the forward movement in agricultural education in most States of the Union now waits very largely upon one consideration — adequate appropriations. The difficulty of the problem before the Massachusetts Agricultural College is measured, I take it, very largely by the degree to which the public sentiment of this Commonwealth, as expressed through the Legislature, will stand sponsor for a program that attempts to forward in the most thorough way the vital rural interests of the State.

I still maintain this position. And in this connection I ought to say that I do not believe that the Massachusetts Agricultural College should attempt to emphasize all the lines of work that are developed in western agricultural colleges. There are two things essential to the maintenance of an agricultural college of the first rank in this State. The first essential is to cover those subjects of study and investigation that are most intimately related to the fundamental agricultural and country-life problems of the Commonwealth. The second is to maintain high grade quality of research and teaching in those lines that we do attempt. Now the agricultural field, even in Massachusetts, is broadening very rapidly. Efficiency costs, in college teaching and

research as well as in business, and the people of the Commonwealth ought to know that if we are to continue to have an agricultural college of the first rank, it will take a great deal more money each year than is now being appropriated for our use.

I am inclined to the view that we must look for private endowment to supplement appropriations of public money. For example, take the matter of dormitories. College students cannot be housed in good dormitories at a cost much less than $800 per capita. This is lower than most eastern colleges allow. Suppose we take the lower figure: assuming an attendance of 1,200 students at this institution by the end of another decade, it would cost nearly $1,000,000 to house them in dormitories. If we had no other demands, possibly the State would be willing to spend money for this purpose. Doubtless the State is willing to do something, but I believe that private funds must come to our aid if we are to develop a complete dormitory system. There are other needs. In the west there has been a marked tendency in recent years for individuals to give large gifts or to leave large legacies to State institutions; it is not so customary in the east. Yet with the new interest of business men in agriculture and their realization of the importance of training a fine body of rural leaders, I venture to hope that we may expect substantial aid from private sources.

XX. Esprit de Corps.

In one sense this is our crowning problem. How shall we secure such a spirit in a large body of men employed at an institution of education that they shall work together intimately and sympathetically, co-operate for the best interests of the institution as a whole, subordinate departmental pride and personal ambitions? Great results are possible even though the administrative and business organization be defective. But on the other hand, no matter how fully the machinery for administration and organization be elaborated, unless there is the spirit of the whole body — the spirit of co-operation, the spirit of fraternity — no administrative scheme will work to advantage. We have here, in common with other institutions, the problem of the development of an *esprit de corps* among the faculty

and students, in their relations one to the other and in their relations to the trustees, the alumni and the public, that shall make the institution notable for the co-operative spirit.

In Conclusion.

I have stated a number of our problems without attempting to offer much in the way of an indication of their solution. I have merely tried to place before you an outline of our present task as I see it.

If during the next few years we can succeed in studying with some degree of thoroughness each one of these twenty problems; if we can in each case define the central aim and purpose, gain a clear-cut idea of present deficiencies, agree on principles of reconstruction, and put into operation a few practical methods, we shall have accomplished a great and enduring work. If I might be permitted a bit of sentiment and the announcement of a slogan, it would be to suggest "Massachusetts Agricultural College, 1920," with the hope that by that year we may have made reasonable progress toward the solution of these significant college problems.

KENYON L. BUTTERFIELD,
President.

REPORTS OF OTHER ADMINISTRATIVE OFFICERS.

IN THE DEPARTMENTS OF INSTRUCTION.

The Dean.

On account of my duties as acting president the bulk of the work in the dean's office this year fell upon Dean Mills and Miss Christiansen, most of it necessarily upon the latter. I gave a few days now and then to disentangling some of the more difficult questions. Dean Mills was not strong; consequently, he limited himself in the main to applications for absences from the regular college exercises. The work of handling students deficient in scholarship was in part carried by the chairmen of the freshmen and sophomore teachers' meetings. During the last two months, on account of my absence from college, Professor Mackimmie shared with Miss Christiansen the duties of the office.

EDWARD M. LEWIS,
Dean.

Division of Agriculture.

During the year there has been an increasing demand for the work of the members of the division, both from students and the people of the State. The appropriation made by the last Legislature for an agricultural building is an indication of this demand, as well as of the desire properly to house and equip the departments that deal so directly with technical agriculture. This spirit is further shown by gifts of valuable young pure-bred animals from several Guernsey, Jersey, and Berkshire breeders. These are valuable additions to our teaching equipment in animal husbandry, and are much appreciated.

The Department of Rural Engineering has been established during the year and fills a long-felt want. An additional instructor in dairying and a graduate assistant in animal hus-

bandry have been added to the staff. A veterinarian from the Bureau of Animal Industry, United States Department of Agriculture, has also been detailed for work in hog cholera prevention in the State, and will make his headquarters with the Animal Husbandry Department. On the college farm a small but well-equipped piggery and a silo at the young stock barn have been built.

Among the important and pressing needs of the division is a small appropriation for the completion of the rural engineering shops; also land fairly accessible to the college for the experimental work in poultry husbandry, and within driving distance for pasturage for young stock. Modern tools for demonstration on the college farm are also urgently needed; the college should lead and not follow in this respect.

Among the problems needing solution, the question of farm practice for our students should be mentioned. The last annual report of the college shows that while agriculture or horticulture is the intended vocation of over 80 per cent. of the entering class (1916), only 24 per cent. of the class were brought up on a farm, and only 61 per cent. had had any farm experience. This is a condition that needs careful attention if all our graduates are to gain and hold the confidence of their associates in the communities to which they go.

Another matter needing attention very soon is the proper correlation of the teaching and research work. Every department of the division should be devoting some attention to research work, and be prepared to investigate the many new problems that are being continually presented to us and which are still awaiting solution.

J. A. Foord,
Head of the Division.

Division of Horticulture.

No changes of special importance have been made in the organization or policies of the Division of Horticulture. The work has grown in volume and has been strengthened at various points. The sudden death of Mr. Georgia left the work in market gardening disorganized, and has made necessary the temporary suspension of one of the courses in market gardening. The

completion of French Hall has added greatly to our facilities, especially in providing room for market gardening and forestry.

There are many pressing needs in the Division of Horticulture, and it is hard to make a list of those which should be particularly emphasized. At the present moment the following seem to me the most important: (1) a small laboratory for the Department of Pomology, to house the work in manufacturing and to provide a laboratory for rough work in spraying; (2) an additional high-grade instructor to take the courses in general horticulture; (3) an adequate tract of forest land for the Department of Forestry; (4) the reorganization of the market-gardening work in a large way; (5) additional greenhouses.

The most serious problem which we have to meet is that of adjusting our instruction in technical subjects to the awkward college calendar. This matter has been mentioned under this same heading in previous reports. It would seem now that the college is in a position to make a change in its calendar, whereby instruction can be given throughout the year. If this change is reasonably well managed it will result in great good to the instruction in several technical lines. The instruction in technical or professional lines needs constant and thoroughgoing improvement. This is a matter which has received quite insufficient study in the past.

F. A. Waugh,
Head of the Division.

Division of Science.

Reports from the eight departments which comprise this division indicate that in nearly all of these larger classes are being taught than last year. Some changes and revisions of courses have been made to advantage, and the routine work has progressed, as a whole, in a satisfactory way.

As a result of the increase in size of the classes it has become more difficult to give them proper attention, particularly in laboratory work; and this condition, if continued, must result in more assistance, and, in some cases, an increase in the amount of funds available to supply the added equipment and material.

The fundamental problem in chemistry appears to be how to obtain the larger accommodations necessary for the best work.

In botany a better co-ordination of the courses is desirable. In entomology the problem of new courses is being studied, in order that undergraduate students may receive instruction comparable with that offered elsewhere in amount and range. At present several more subjects should be offered by the department if it is to compare with other places to advantage. In microbiology the need for adequate and properly equipped accommodations is the most pressing problem. A "laboratory where the simplest microbiological matters to the most complex can be taught and demonstrated" is much needed.

The real problem confronting all departments, not only of this division but throughout the college, is that of improving the attitude of the student to his work. The average student seemingly entirely fails to realize that any work on his part will be needed in order to support himself after graduation, and therefore he also fails to realize that here is the place to equip himself so that he will be most efficient later. When a student can be taught to realize the severity of the struggle for existence and that the man most adequately prepared is the one who will win, he will begin to take a college course more seriously and equip himself better for the struggle to follow.

H. T. Fernald,
Chairman of the Division.

Division of the Humanities.

Progress. — 1. There has been some increase in the number of students electing the strong courses in the division, due apparently to the improvement of the work.

2. The concentration of more instructors and classes of the division in French Hall, where the head of the division can keep in closer touch with the work, is a decided benefit.

3. The rearrangements in the department of English which were put into effect this year are all beneficial to that work, bringing about greater satisfaction to instructors, better team work for the department, and closer adherence to the schedule.

Now that Dean Lewis has been made permanent head of the department we can make more progress away from the confu-

sion of the past. His genius as an instructor in literature should be used in the department to the fullest extent of his time.

4. Professor Smith got good results from his work with the debating teams last spring, and he is now working on broader lines for the development of more debating material. The general problem of debating in the Massachusetts Agricultural College has not yet been solved, and we should watch Professor Smith's efforts with interest, and be ready to give assistance or make reforms on the basis of his experience.

5. Miss Jefferson's course in the history of New England seems to have aroused the enthusiasm of the instructor and the interest of the student. She will evidently "make good" in this, and is already advocating an extension of the work over two semesters. I think that one semester is sufficient for it at present.

Immediate Needs. — 1. Concentration of the instructors of the division within one building or one part of the campus as soon as possible, and the permanent location of each department in order that material may be collected and construction carried out for more efficient teaching.

2. New courses recommended: (*a*) Constitutional Government; (*b*) Local Government; (*c*) Philosophical and Religious Ideals; (*d*) Business Law and Administration.

The past experience of the division with the courses in history and government show that only first-class men should try to teach these courses, which most of the students ought to take, but which must compete in election with the vocational lines of work.

General Problems. — 1. To develop "better quality" of work rather than to extend the quantity and number of courses.

2. To build up an atmosphere of scholarship and academic interest within the division and college.

Robert J. Sprague,
Head of the Division.

Division of Rural Social Science.

There have been no radical changes in the work of this division. Professor Eyerly's resignation has somewhat broken up the work of the Department of Rural Sociology, but three grad-

uate students, Mr. Russell F. Lund, Mr. Carl J. Strand, and Mr. Charles G. Baird, have carried on certain courses with enthusiasm and skill.

The extension service for boys and girls in the Department of Agricultural Education has grown to enormous proportions under the immediate supervision of Professor Morton, as will be shown by the report of the director of the extension service.

Prof. E. L. Morgan, in his work in stimulating and directing the rural community-building movement, is doing what I regard as perhaps the most significant constructive rural work that is being undertaken in this or in any other country. The rural community must eventually be the unit of rural development. I regard it as a great privilege that our institution should be foremost in recognizing and developing this fundamental principle.

KENYON L. BUTTERFIELD,
Head of the Division.

General Departments reporting to the President.

MILITARY DEPARTMENT.

Capt. George C. Martin reports as follows: —

At the present time and during the past year the regiment has been divided into two battalions of four companies each and band. The companies average about 50 men. During the year all members of the three lower classes have drilled, and 15 members of the senior class, a total of 429.

The general instructions from the War Department have been fully complied with. Three hours of practical work per week during the drill period is required of all students in the department. In addition to this, work in theory is required of the sophomore and freshmen classes for one hour each week during the scholastic year.

Also during the year the professor of military science and tactics has given lectures on such subjects as — Military Instruction in Colleges, Infantry Training, Military Courtesy, the Flag, Patriotism, and Military Policy of the United States.

Great interest is taken in rifle practice. The indoor rifle team won second place in this year's match. This was the greatest year for indoor shooting since the starting of the inter-

collegiate matches. Intercollegiate records were broken several times during the season both by Michigan, the winner, and by this college. That we lost the championship, due to the splendid shooting done by Michigan, does not decrease the interest in indoor shooting. This was shown by the students when they requested the Athletic Board to make indoor shooting part of the class sports for the sophomore and freshman classes, and the winning class will be granted their class numerals.

On the outdoor range this college won the championship from the strong Naval Academy team, both teams beating the intercollegiate record.

An encampment of a week or ten days is one of the greatest needs of the department. A new armory is badly needed; the present one is inadequate in every way for the number of students under instruction. There is a dangerous crush on the dismissal from drill, when the students are in a hurry to put up their arms.

Fifteen men were reported to the adjutant-general of the army and to the Adjutant-General of the Commonwealth of Massachusetts for special aptitude in the military service. The best 7 were recommended for commissions in the United States army.

The equipment of the department is of the best and in fine condition. The spirit of the young men is of the best, and many take great interest in the work of the department. The discipline of the regiment is excellent.

An additional short outdoor range is greatly needed. This should be near the college. As it is now, Saturday is the only day when students can get a chance to practice on the outdoor range, on account of the distance from the college, — about $2\frac{1}{2}$ miles. If there were a 200-yard range near the college it would materially increase the interest in outdoor shooting, and consequently the number of men to qualify as expert riflemen, sharpshooters, and marksmen would be greatly increased.

The indoor range is inadequate for the number of men who wish to participate in the indoor shooting. It will only accommodate 4 men at a time. At any time in the afternoon during the last month there have been from 2 to 10 men waiting their turn in the gallery.

Department of Physical Education and Hygiene.

Professor Hicks reports as follows: —

The work of the department has been conducted during the past year along the following lines: —

1. The entering class of men were each given a physical examination during the first month of the college year, thus reducing the possibility of any injury arising from ignorance of their own condition. In the examination especial care is taken to detect any defects of the vital organs, sight, and hearing. Each person is given a short talk, following his examination, concerning his condition, the kind of exercise he should have, and the proper care of his body.

2. The freshman class is given a course of lectures and written quizzes on personal hygiene during the first semester.

3. The department during the past three years has been gradually increasing its service to students suffering from minor injuries or illness, advising calling of a physician when necessary, and seeing that ill or injured students are properly cared for. This work has developed until nearly every case of illness in the college is handled through the office of the physical director; we have estimated that during the past year more than 500 cases have received first-aid treatment in the department, and over 100 calls have been made on ill or injured students at their rooms, to see that they are properly cared for and given such assistance as is necessary. We believe that by reaching these men in this way many cases, which have been previously neglected until serious, are now taken care of without any, or at most very little loss of time to the student. The possibility of any contagious disease becoming widespread before detection is also greatly reduced. In this work the department has been constantly in touch with the department of microbiology, through the health committee of the college.

4. During the winter months the department requires three hours of physical exercise per week of each member of the three lower classes. Those men who have been found by examination to be physically normal are permitted to elect one of the several athletic activities; those who have been found to be below normal physically are given individual instruction. Walking trips may be substituted for physical exercise in the gymnasium

and during the past year about 150 students elected this form of exercise. The work of the indoor classes of from 30 to 40 men each consists of gymnastic exercises and such games as basketball and indoor baseball.

The physical director is general manager of athletics, supervising the arrangements for contests with other colleges, buying the supplies for the teams, assisting in the coaching, and having final control of the players and games.

The interest in intercollegiate and intramural athletic activities has been steadily growing. An accurate estimate of the participation in all sports during the year shows that in track 55 men participated; cross country, 25; hockey, 75; baseball (including interfraternity), 175; tennis, 25; football, 90; and basketball (other than required gymnasium), 40. After counting out duplications we find that approximately 45 per cent. of the student body voluntarily took part in some form of supervised athletic sport during the year.

The limited quarters in which the regular gymnasium work is to be carried on during the winter season make it impossible to do indoor gymnastics which compare in anywise favorably with that of other colleges. From December 1 to the coming of spring the drill hall floor is in use until 9 o'clock every night. The need of a larger gymnasium with proper bathing facilities is great.

Library.

Mr. Green reports as follows: —

The very pressing need for a new library building overshadows every library activity, and influences, without question, the work of a good many of the departments in the institution. The lack of adequate accommodations for library workers is so evident that teachers and students alike are discouraged from making good use of our equipment. Lack of room for the proper accommodation of book material debars us from obtaining and making easily available good material which we ought to have on hand. Worse than our poor working accommodations or the impoverished book collection, is the serious absence of a fine library atmosphere — that intangible something so earnestly desired, and which would mean so much to those of our people desiring to use the college library.

There have been 3,337 volumes added during the year, making a total of 44,406 in the college library, 14,197, or nearly 33 per cent. of the books in the library, having been added during the past six years. The work of recataloguing the library continues as rapidly as possible, and is indicated by the new card catalogue in the process of making, which contains 61,413 cards for the 21,587 volumes recatalogued, and the 10,824 new volumes catalogued since this work began in April, 1910.

The regular library extension work in lending books on agriculture and related subjects to the small public libraries in the State continues, and has been supplemented by the publication of eight library leaflets on beekeeping, live stock, forestry, civic improvement, flower gardening, co-operative associations, marketing farm products, and farm and garden papers. Our records show that 760 books and 241 bulletins were loaned out during the past year to 42 borrowing libraries in the State.

Director of the Graduate School.

ORGANIZATION OF THE GRADUATE SCHOOL.

General.

The organization is based upon —

1. The recognition of the department as the unit.

2. The qualified individual instructor or instructors within the department as the directive agents.

3. The apprenticeship system of instruction; that is, the clustering of one, two or three graduate students about every qualified instructor in the department and in the college for intimate study and experience.

Organization.

4. A committee, consisting of the instructor having the major subject of the graduate student as chairman, and such a number, as may be determined by the director, of the instructors having the minor or minors or supporting courses of the graduate student as associates shall be appointed to advise the student, supervise and control his work, subject to the approval of the "graduate staff."

5. The assignment of a graduate student to an instructor shall be left with the director and head of the department in which he elects his major courses.

6. Should a graduate student be admitted as a candidate for no degree and fail to designate a major course, the director shall appoint a committee to act in the same capacity and to have the same power as if a major and minor had been chosen.

7. The "staff of the graduate school," or the "graduate staff," shall consist of the president of the college, the director of the graduate school, and the instructors who are chairmen of graduate students' committees, or who are in immediate charge of major subjects or courses, and the chairmen of those committees supervising graduate students' work, not candidates for a degree, subject to the approval of the director and president.

8. The staff of the graduate school shall be directly responsible to the president and Board of Trustees, except in those matters which the president may deem desirable to treat conjointly with other staffs and faculties, as general policies, before submitting them to the Board of Trustees.

Some Essential Details and Policies.

9. Because of the possible value of the work of graduate students to the State, it is urged that no tuition be charged, whether acting as graduate assistants or not. Further, that unless laboratory fees are such as arise in connection with undergraduate subjects, which are outside of major and minor subjects, they also will be remitted.

10. The number of graduate assistants shall be increased to that point where the educational work of the college or the investigations of the station will not be injured.

11. It is urged that the departmental courses of study for graduate work be left with the staff, subject to the approval of the Board of Trustees as formerly.

12. Major and minor courses leading to the degrees of Master of Agriculture and Doctor of Agriculture, or such specific degrees as may hereinafter be determined, shall be formulated in the practical departments of the college. In these courses basic systematic work in the sciences and practices, along with actual technical experience, shall be the distinctive purpose. Proficiency in practice shall be the highest ideal. The formulation of such courses shall emanate from the various technical departments, shall possess uniform requirements and standards, and

shall be submitted to the graduate staff for action, which in turn will transmit them to the Board of Trustees for approval.

13. Since exchange with other institutions is highly beneficial to graduate students, it shall be the duty of the director and staff to foster it in those cases where it is pertinent and valuable so far as is compatible with the interests of our own institution. In case a graduate student cannot secure at this institution what is essential to his work and training, it shall be the duty of the director and staff to arrange for such elsewhere.

14. Every graduate student must satisfy the graduate staff with a certain amount of practical agricultural knowledge and training, the amount, kind and quality to be determined by the staff.

Immediate Needs.

The most pressing needs of the graduate school are, in general, better facilities and equipment in conducting work of the highest grade. In some instances this lack of equipment is in the direction of the number of highly trained men to give the desired instruction. In other cases the lack is in proper laboratory equipment. Some of the departments are already adequately equipped to carry on work of the proper standard, and an excellent start has been made by them in placing this institution in the forefront with respect to scientific training along certain lines. The number of men that we try to train, however, should not exceed our ability to do our best work in securing the desired results.

Fundamental Problems.

Some of the fundamental problems which are at present most noticeable are: (*a*) A clarifying of the atmosphere as to what is agricultural research, graduate and undergraduate instruction, agricultural extension. (*b*) A development of a real, basis spirit of agricultural research, instruction, and extension as distinct from and in connection with the popular exhortation; in other words, we should not lose sight of the structure from which we unfurl our flag. (*c*) A possible confluent policy by which graduate theses may be strengthened by experiment station support with graduate requirements.

CHARLES E. MARSHALL,
Director of the Graduate School.

Supervisor of Short Courses.

All of the short courses given in previous years, except bee-keeping, with some additions, have been held during 1914, increased popularity and enrollment being shown. In fact, the registration in short courses has reached the point where the facilities of the college and satisfactory living accommodations in the village are overtaxed, and careful, immediate consideration must be given to the problems arising from the continually increasing attendance at these courses.

We have had the hearty co-operation of several State and national organizations in arranging programs. Among them are: —

Massachusetts Board of Education.
Massachusetts Civic League.
Massachusetts State Grange.
State Board of Health.
Massachusetts Free Public Library Commission.
Massachusetts Federation of Churches.
State Forester.
Massachusetts Forestry Commission.
State Board of Agriculture.
Massachusetts Dairymen's Association.

In the near future it is planned to arrange short courses of three or four days in length at the college for such groups as feed dealers, fertilizer agents, milk inspectors, seed dealers, town officers, boards of health, and others whom the college may serve. Programs have been prepared and dates have been set for meetings for feed dealers and property assessors during the coming winter.

Following are some of the problems concerning short courses which I desire to present to you and the trustees for early consideration: —

1. Inasmuch as the college is receiving an increased appropriation each year, and since the short courses are to be considered as a part of the teaching of the college, the cost of maintaining them should be borne by the college. With a stationary appropriation for the next four years it will not be possible to take care of increased enrollment from extension funds. The need of larger appropriations for the summer school and Farmers' Week is especially imperative.

2. We must consider at once the necessity of limiting registration, especially in the ten weeks' courses, or else providing additional instructors in several departments in order to give satisfactory instruction. Since there are large numbers of mature people in the State who want this kind of work, and through the short courses the college has the opportunity to render a distinct service to them, it would be rather unfortunate to deprive these persons of the chance to enroll.

3. The time has come when we should consider the question of enlarging and extending the short courses to cover a period of two and possibly three winters. Those who enter these courses are of various ages, training, and experience. Many are graduates of the best universities of the country; others have had scarcely a grammar school training. It is extremely hard to teach such a cosmopolitan group. This plan would involve considerable addition to the teaching force and laboratory equipment, but would be well worth considering.

4. The directors of county schools of agriculture and the teachers of agriculture in vocational schools have made the request that the college take the students from the last year in these schools into our short courses for special training in dairying, fruit growing, and other subjects. This seems a very natural and proper thing to do, and furnishes the desired articulation between these schools and the college. In four or five years such students will be coming to us in large numbers. If a sufficient teaching force and laboratory equipment are not furnished here at the college, each county school and many towns will be forced to spend large sums of money to equip dairy plants and other branches. It seems to the supervisor that for many reasons every effort should be made to take care of these students.

5. A faculty committee on appointments, to take care of applications for farm superintendents and others, would be most helpful in placing short-course students in desirable positions.

The short courses, reaching as they do more than 3,000 earnest people each year, are well worthy of more careful study, planning and more financial support than we have been giving them during recent years.

WILLIAM D. HURD,
Supervisor of Short Courses.

DIRECTOR OF THE EXPERIMENT STATION.

Staff.

The experiment station has been fortunate in experiencing but very few changes in staff during the year, and those affecting only one or two minor positions. The staff has been distinctly strengthened by the appointment of Mr. Orton L. Clark to a position in the Department of Plant Physiology and Pathology.

Publication.

The law affecting publication of the reports and results of station work has been amended during the past year. The amended law brings the method of publication into conformity with that recommended by the Association of American Agricultural Colleges and Experiment Stations, and at the same time the new method secures a number of other important advantages: —

1. Results are published promptly in bulletin form instead of being held until the end of the year.

2. As each bulletin is bound by itself it can be circulated with greater economy, being sent only to those especially interested in the subject-matter.

3. The new method avoids sending reports and bulletins in duplicate to individuals whose names are included in the mailing lists both of the station and the State Board of Agriculture, as must frequently have been done under the old law.

4. Under the new law the cost of publication of bulletins is borne by the State instead of being provided for from the general funds of the station.

5. While securing all these advantages and relieving station funds, as indicated under paragraph 4, the cost to the State is materially lessened under the new plan of publication. The saving during the past year has amounted to about $1,000.

Bulletins.

Eight bulletins have been issued during the year, as follows: —

No. 148. Diagnosis of Infection with *Bacterium Pullorum* (white diarrhœa) in the Domestic Fowl.

No. 149. A Study of Variation in Apples.

No. 150. Reports on Experimental Work in Connection with Cranberries.

No. 151. The Determination of Acetyl Number (Fat Analysis).
No. 152. The Digestibility of Cattle Foods.
No. 153. A Summary of Meteorological Records.
No. 154. Alfalfa.
No. 155. New Fertilizer Materials and By-products.

The meteorological summary covers twenty-five years of our own observations, and in addition includes observations on temperature and rainfall from 1836 to 1888 (when observations at this station began), which were begun by the late Professor Snell of Amherst College and continued by his daughters. The records thus brought together cover so long a period of time as to make them of very great value for purposes of reference and comparison.

The bulletin on diagnosis of white diarrhœa describes a method whereby fowls which will produce eggs that will hatch into chickens which will become subject to the disease can be detected by a simple test and removed from the flock. The practical test of the method shows it to be, practically speaking, infallible, and in one flock in which it has been tried upon an extensive scale, where losses previous to the introduction of the test included about 2,000 chickens, the loss was reduced to practically nothing.

The bulletin on alfalfa presents a concise account of our long-continued experiments with this crop, and based upon the discussion of these results, conclusions and advice of much practical importance are presented.

The annual bulletin on cranberry work is eagerly looked forward to by practically all growers, who show the keenest interest in the conclusions of Dr. Franklin, and recognize the great value of advice based upon the results of his investigations.

Station Plots.

During the past year a considerable number of station plots have been taken as sites for buildings, thus greatly reducing our possibilities in a number of important lines of investigation. Closely connected with this should be mentioned the increasing difficulty of avoiding trespass on other plots, due to the tendency of students to take direct lines in passing from building to building.

Extension Work.

The station is still doing a large amount of work which really belongs to the extension service. Every department calls attention to the large number of letters of advice required. In addition, a large amount of time is consumed in diagnosing the causes of injury to crops and the diseases of animals. Work of this kind is highly appreciated and should be continued, but attention is called to the fact that much of it is not investigational in character.

Seed Separation and Examination.

The demands for work of this character have increased materially, and it requires a large amount of time. It is useful work, but is more or less routine in its character, and, except in so far as may be necessary for the purpose of inventing or perfecting methods, is foreign to the work of an experiment station. Seedsmen in increasing numbers are sending large amounts of seeds to the station to be freed from impurities and separated into different grades. This work is clearly outside the province of the experiment station and a change in policy is imperative.

Pressing Needs.

The most immediate pressing need of the experiment station is more land. I believe that on this point all departments, even those not depending very directly upon the use of land, are in full agreement. The reasons why more land is essential are in part indicated by my statement of what has happened to a number of station plots during the past year. I have made so full a statement of the reasons why more land is needed in the experiment station in my last annual report that I beg leave to refer to my discussion of the land question in that report, which begins on page 11*a*.

Other special considerations affecting the question of the need of more land are connected with the continuance and development of the work of the Poultry Department. A considerable area to provide for the permanent accommodation of the poultry plant should be secured in the near future, but Professor Graham urges the necessity for the immediate provision of some

three or four acres. He regards this as absolutely essential on account of the fact that the land now occupied is infected with serious diseases which cannot be entirely held in check under existing conditions.

The Poultry Department strongly urges the provision at as early a day as possible of a poultry house in which the environmental conditions can be controlled, this house to be used in the principal line of investigation now in progress. Dr. Goodale points out that the variation in the character of the weather of different years is so great that rigid scientific deductions are impossible when laying fowls are kept in houses of ordinary construction. He points out that satisfactory comparisons between parents and their offspring in successive years are impossible unless conditions be controlled. Since additional room to accommodate the experimental work is an immediate necessity, it would seem to be the part of wisdom to ask for an appropriation sufficiently large to build a house of the character indicated.

In the Department of Meteorology there are two needs which should be met as soon as practicable: —

1. The provision of an automatic rain gauge to insure greater accuracy in the records of precipitation, especially in winter.

2. A safe to contain the records of the department.

Additional Assistants.

Both the Poultry and the Veterinary departments urge the desirability of an additional assistant. Professor Graham believes he should have a man capable of diagnosing and studying poultry diseases, and if he has such a man he must have also a laboratory and laboratory equipment for pathological work. A considerable share of the time of such a man would be used in examining diseased specimens and answering letters of inquiry pertaining to diseases and their treatment sent to the department.

Dr. Paige of the Veterinary Department strongly urges the desirability of a man qualified to do similar work on live-stock diseases in general. He mentions particularly that there is a demand for the complement fixation test for the diagnosis of contagious abortion in cattle — a demand which cannot be met under present conditions. There can be no doubt that great

service could be rendered to the dairy men of the State if this diagnostic work could be carried out here, as it would constitute a most effective preliminary to the eradication of contagious abortion, now the occasion of enormous annual loss, from our dairy herds. Dr. Paige believes that such an assistant would be able, also, to continue such work as Dr. Gage has carried out on the premises of one of our largest poultry keepers for the diagnosis and consequent prevention of white diarrhœa of fowls — also the occasion of immense annual loss. Dr. Paige believes that such a man would be able to do the work needed in the Poultry Department, and in this belief I concur. I would urge the employment as soon as possible of a single qualified man for the lines of work just mentioned, and such others related to them as his time will allow. It seems to me clear that all work connected with animal pathology should be done in one department, and that the department best fitted to handle it is the Veterinary Department. The employment of a single man rather than two is in line with the policy of maintaining departmental integrity. It is also the course dictated by considerations of business efficiency and economy. The necessary laboratory and equipment for pathological work are found in the Veterinary Department. No considerable additional investment will be required for the additional work in that department, whereas if a pathologist for work in the Poultry Department is to be employed there must be a large expenditure for laboratory and equipment. Dr. Paige suggests that a graduate student might be able to do the class of work under consideration, and I would urge the employment of such a man as soon as a suitable person can be found.

I would, however, in this connection point out that the services to be rendered by such a man are in very considerable measure of the nature of extension rather than experiment, and it would seem to me that the salary of such an assistant should be divided between the extension service and the experiment station.

Plant Pathologist.

Dr. Stone and Professor Osmun concur in thinking that an assistant should be employed, especially for diagnostic work in the Department of Plant Physiology and Pathology. There

is a large number of specimens annually sent in to the department. The examination of these, and the diagnosis of the cause of the trouble complained of, require a large expenditure of time, and in many cases a satisfactory explanation of the cause of the trouble, and advice relative to its prevention or cure, cannot be given until an examination on the spot has been made. It is not practicable for either of the assistants now employed to make the necessary trips and spend the amount of time desirable for this line of work, and the best way of providing for it would seem to be the employment of a careful and reliable observer, who should make the necessary trips, investigate conditions, and collect and send material for examination to the department. There is a somewhat insistent demand on the part especially of market gardeners, and those employed in the production of hothouse specialties, that a substation to work in their interests should be established. The establishment of such a station and its maintenance would require the expenditure of relatively large sums of money. The equipment essential for diagnostic work now exists in the department. To duplicate it at another station seems quite unnecessary, as diseased material can readily be sent to the home station. It seems, therefore, that a man, who should spend a considerable share of his time during the growing season of our great truck and hothouse specialties among the growers, going wherever trouble was being experienced to investigate conditions and collect and forward material, would be by far the most economical and at the same time effective means of meeting the needs of the important classes of agricultural specialists referred to. I would, therefore, urge that a man qualified for this kind of work be employed as early as possible.

Salaries.

Another pressing need is that the salaries of the experiment station staff shall be carefully correlated with those of members of the college staff in other divisions and departments. The salaries in the station are at present in many cases below the institutional standard. It is felt that this condition, which is of course highly unsatisfactory, should be corrected before the scope of the station investigations should be greatly extended.

It further seems highly important that the basis for division of salaries between the station and other departments of the institution should be readjusted to more nearly conform to that of time spent on the part of individuals working in more than one department.

William P. Brooks,
Director.

DIRECTOR OF THE EXTENSION SERVICE.

In attempting to render an adequate report of the work of the extension service one faces a discouraging task. A written report may cover bare facts and give statistics, but the spirit which permeates all true extension teaching cannot be represented in a report of this kind. In this connection I desire to commend especially all members of the extension service staff, and many members of the teaching and experimental staffs of the college and station, for their loyalty to and enthusiasm for the work, and for the genuine interest which they have shown in attempting to make themselves and their work helpful to the rural interests of the Commonwealth.

A. General Administration.

1. *Principal Lines of Endeavor for the Year.*

The administration of the extension work of the college during the past year has been directed along the following lines: (*a*) an attempt to perfect the organization of an extension service within the college itself, which would be efficient and work harmoniously in the already established plan of organization; (*b*) the further organization of work already under way rather than the starting of new lines of work; (*c*) the consummation of the plan proposed about three years ago for co-operative work between the State Board of Education, through county schools of agriculture and departments of agriculture in high schools, the United States Department of Agriculture, and the college; (*d*) an effort to get farm bureaus and the work of county agents organized in this State on the same plan as has been adopted in other States; (*e*) working out plans for satisfactory relationships between the United States Department of

Agriculture and the college in the expenditure of co-operative demonstration funds; (*f*) the working out of plans for the administration of the Lever bill funds, so that they would be of greatest benefit to the State and would meet with the approval of the authorities at Washington.

2. *Changes in Staff and Additions.*

Fortunately for the work there have been no resignations or changes in the staff during the past year.

3. *Printing and Publications.*

During the year bulletins and circulars of each of the short-course activities have been published. Thirteen numbers of "Facts for Farmers" have been issued. Several have gone into reprints for wider distribution by different organizations. Twenty thousand extra copies of "Redirection of the Rural School" were printed for the United States Bureau of Education. The North Packing Company printed 20,000 of our bulletins on "Swine Feeding" for distribution. For use in the boys' and girls' club work a general bulletin and five primers have been issued. Besides the above there have been large numbers of record blanks, library leaflets, announcement cards, etc. News letters have been sent to the press weekly.

4. *Correspondence Courses.*

The correspondence courses have been reorganized during the year. There has been a total registration of 1,059. New courses in home economics and rural sociology have been offered. The courses in soils, fertilizers, dairying, feeding, and fruit growing have been rewritten. Better "follow-up" and instructional methods are being practiced.

5. *Itinerant Instruction.*

(*a*) *Extension Schools.* — The extension schools continue to be the best things offered away from the college. Ten agricultural extension schools, two in community development, and one special school in fruit growing have been held during the year.

(*b*) *Lectures.* — More than the usual number of lectures have been given by the college faculty this year. Four towns adopted the plan of having courses. At the present time a course of forty-five lectures is being given under the auspices of the Boston Chamber of Commerce, with an enrollment of more than 900. A course in gardening and club work is being given for the Boston Board of Education to 75 picked leaders from the different districts of that city. The college, the Federation of Women's Clubs, and the grange have co-operated in offering a free course of five lectures on home economics during the coming winter to all small communities that desire it.

(*c*) *Exhibits.* — Educational exhibits, supplemented by lectures and demonstrations, have been made at ten fairs. Two special exhibits were provided for other organizations.

6. *The Massachusetts Agricultural College Agricultural Improvement Association.*

The work of this association has continued along the lines of corn, potato, and pasture improvement. One session during Farmers' Week was under the auspices of this organization. The membership now numbers over 250.

7. *Demonstration Auto Truck.*

The demonstration auto truck, with Mr. McDougall as the very efficient demonstrator in charge, continues to be perhaps our best means of getting into intimate touch with farmers. During the year he has given 77 demonstrations, has made 418 farm visits, and spent from two days to a week in each of 68 towns. Mr. McDougall spent three months during the winter assisting in pomology and farm management work.

8. *Home Economics.*

As might have been expected when this work for women was started, those in charge have been in much demand by various organizations in the State. A large number of lectures and demonstrations have been given. Work for women of the same extent as for men has been given in all extension schools. One separate extension school on homemaking has been held in

Woods Hole. Girls' home economics clubs and a correspondence course have been started. The co-operation of the Federation of Women's Clubs and the grange has been enlisted in an effort to give a course of five lectures in a large number of small towns under our management during the coming year.

9. *Farm Bureaus and County Agents.*

(*a*) *Hampden County.* — The extension service has continued its active relationships in the management of the work of the Hampden County Improvement League during the year. Much progress has been made, under the instruction of advisers of the league, in better cropping systems, dairy and orchard management, buying (coöperatively) lime, fertilizers, feeds and apple barrels, selling fruit, and in the development of work for young people within the county.

(*b*) *Worcester County.* — A farm bureau was organized in this county in March, 1914, but was inactive until November 10, when Charles H. White (Massachusetts Agricultural College, 1909) was engaged as its agent. He is just entering on his duties, and is depending on the college largely for direction of the work.

(*c*) *Other Counties.* — Franklin and Hampshire counties have already organized farm bureaus, but have not as yet engaged county agents. Plymouth is in process of organization, and others have the matter under consideration.

10. *Demonstration Farms.*

(*a*) *Barnstable County.* — The Faunce Demonstration Farm at Sandwich continues to be a matter of inspiration, and serves as the center for the dissemination of agricultural information for the people of that region. A plot of ground of less than 8 acres has yielded more than $1,600 worth of poultry, small fruits, and vegetables during the year. Mr. L. B. Boston, the superintendent, spends a goodly portion of his time as adviser to farmers and district agent for the college.

(*b*) *The Paige Farm.* — The Paige Demonstration Farm at Hardwick is now under the advisory direction of the college. Mr. Robert D. Lull (Massachusetts Agricultural College, 1911), the superintendent, is proving a very efficient leader in the com-

munity, and besides managing the farm and the farmers' exchange, is also active in the program of work for community development started in the town two years ago.

11. *Co-operative Work.*

(*a*) *The United States Department of Agriculture.* — The college now has with the United States Department of Agriculture a general memorandum of understanding under which all the work of the department within the State is to be done. Under this memorandum the director of the extension service becomes the State leader for the United States Department of Agriculture, and arranges and directs the work. At the present time the United States Department of Agriculture is co-operating in helping to pay the salaries and expenses of Prof. O. A. Morton and Miss Nash in boys' and girls' club work, Professor Ferguson for milk distribution work, Mr. Baker and Mr. Ellis for farm management studies, an appropriation of $1,200 for county work in each of two counties, all of the salary and expenses of Dr. D. I. Skidmore in hog cholera demonstrations, also co-operating in some pasture demonstration work, and giving some money for supervision and "follow-up" work in tabulating farm records, and boys' and girls' club work.

(*b*) *State Board of Education.* — The plans considered for the past three years of having teachers of agriculture in vocational schools and county schools of agriculture work under the direction of the college in so far as they deal with adult farmers has been consummated during the year. Co-operative agreements now exist between the Board of Education, the United States Department of Agriculture, and the college. Thirteen teachers in vocational schools, and representatives in the two county schools of agriculture and the Smith's Agricultural School, now act as extension representatives. This plan insures the same types of extension teachings and demonstrations being carried on all over the State, and looks toward economy, efficiency, and harmony in our administration. A special school of instruction for these men, lasting one week, was held at the college last February, and they also attended the summer conference.

(*c*) *Other Organizations within the State.* — The extension service has continued its policy of attempting to utilize existing

organizations within the State for its work rather than the creation of new machinery. Organized pieces of work have been carried out with the State Board of Agriculture, the Grange, the State Board of Health, the Massachusetts Civic League, the State Forester, the Federation of Women's Clubs, the Board of Education, the New England Home Economics Association, the Massachusetts Forestry Association, the fairs of the State, the Federation of Churches, city and county Y. M. C. A.'s, boards of trade, and many local and town organizations.

12. *The Smith-Lever Bill.*

In May, 1914, Congress passed the Smith-Lever bill, giving an initial appropriation of $10,000 to the State for demonstration work in agriculture and home economics. Plans were at once made to receive the benefits of the appropriation. Projects were submitted to Washington and were approved. At the present time these funds are being applied toward the support of demonstration work already started in fruit growing, animal husbandry, boys' and girls' clubs, dairying, demonstration auto truck, home economics, farm management, and the printing of practical bulletins and leaflets.

B. Extension Work through Departments and Extension Specialists.

1. *Pomology.*

At the present time we have nineteen demonstration orchards in different sections of the State. One extension school in fruit growing was held during the year. A large number of single lectures, demonstrations, and farm visits were given and assistance was rendered at fruit shows, fairs, etc.

2. *Animal Husbandry.*

During the year Mr. George F. Story was transferred from the Dairy to the Animal Husbandry Department. The organization of Dairy Improvement and Breeding Associations has been encouraged. The Fall River milk campaign, started three years ago, has been continued. Fourteen stock-judging contests for boys have been held in which 234 participated. The usual number of lectures and demonstrations have been given.

3. *Boys' and Girls' Club Work.*

Of all lines of work this is no doubt the most far-reaching and significant. More than 42,000 boys and girls have been enrolled during the year. Clubs have been organized in over 250 towns. The work now covers corn, potatoes, gardening, home economics, poultry, and canning. Six boys and one girl made the trip to Washington. Seven of the winners in potato contests took the trip to Aroostook County, Me. Three spent a week at our Boys' Camp. The sum of $2,000 in extra prize money is now given through the State Board of Agriculture for this work. The club work connects the school and the home in a better manner than I have ever known before. In this work we have the active co-operation of a large majority of school superintendents, teachers, and fair managers of the State. Requests have been made for us to organize fruit, pig, and calf clubs. We do not deem it wise to enlarge the work until more supervision can be given. Fully 100,000 boys and girls in the State would enroll if we could furnish the necessary supervision and follow up the work.

4. *Farm Management.*

The work of farm management field studies and demonstrations, in order to determine what are profitable systems for farmers to follow, has been continued during the year. Partial surveys of from 10 to 60 farms have been made in a large number of towns. About 100 demonstration plots, covering fertilizers, grass products, and alfalfa, have been carried on. Plans are under way to carry on complete surveys and annual follow-up work on about 60 farms in each of 8 communities during the coming year. This work is reaching down to fundamental problems with which farmers have to deal, and in time will prove one of our most valuable lines of work.

5. *Poultry Extension Work.*

Professor Graham has given a large number of lectures and demonstrations along poultry lines, and has assisted in the organization of several poultry associations during the year. Blue-print plans of poultry houses and appliances have been

freely loaned. Boys' poultry club work and a correspondence course have been started. The poultry convention brought 700 or 800 people to the college. There is an urgent need of adding several extension instructors and demonstrators for work all over the State in combating diseases, planning poultry houses, and on problems of incubation, brooding, mating, feeding, and general care.

6. *Civic Improvement.*

In this line of extension work studies have been made in 20 towns. Plans in many cases have been drawn for improving the commons, the church, school, cemetery, or home grounds. Complete plans have been furnished Sterling for a comprehensive scheme of town development, including parks, recreational centers, etc. A special exhibit of this kind of work was held in the Amherst town hall last April, and a plan for the laying out of a town has been sent to the Chicago exhibition and competition.

7. *Community Service.*

Calls have continued to come in for help along community development lines. Definite long-term projects have been laid out and adopted in 13 towns. Two extension schools covering these subjects have been held during the year. Professor Morgan has attended a large number of conferences and meetings which will no doubt lead several other communities to take up the work later. A detailed study of what has actually been accomplished by such a program of work in the town of Hardwick shows the possibilities of well-directed effort in this direction. Professor Morgan has also rendered valuable service as secretary of the Massachusetts Federation of Rural Progress.

8. *Library Extension Work.*

The college librarian has further developed the plan of sending traveling libraries and selected lots of books to the smaller libraries of the State. About 700 volumes are now available for this work. There have been 760 books and 240 pamphlets loaned to 42 libraries during the year. Eight special library leaflets have been printed and distributed.

9. *Extension Work in Dairying.*

Lectures and demonstrations have been given on the subjects of handling and marketing milk. Three of the largest milk shows ever held in the country have been arranged during the year. Clean milk exhibits have been held in cities. In this work fine co-operation has prevailed between the college, the Massachusetts Dairy Men's Association, and the milk inspectors of the State.

10. *Co-operation and Marketing.*

During the year the work of assisting in the organization of farmers' co-operative business organizations and in marketing has been started. Co-operative organizations have been formed in 7 towns. Assistance in starting credit unions has been given to 7 towns, and 16 other towns have been visited and conferences held regarding the work. Professor Ferguson has spent approximately one-half of his time in a study of the methods of milk distribution in typical small and medium-sized towns, and in cities for the Office of Markets at Washington. Definite data have been secured which will later be used in an effort to help solve the ever-present, and at the present time decidedly unsatisfactory, situation in which the dairy industry finds itself in this State.

11. *Extension Work in Prevention of Hog Cholera.*

Dr. D. I. Skidmore was assigned last July to the State by the United States Bureau of Animal Industry, for demonstration work in the prevention of hog cholera. A careful watch is being kept for the disease, and when found Dr. Skidmore shows proper sanitary measures necessary for its eradication. Demonstrations of the application of the serum treatment to live hogs, and talks on the subject, have been given at all of the larger fairs of the State and at special meetings. During the year Dr. Skidmore will work with the 29 State institutions that have considerable trouble with the disease, and through county agents, vocational instructors, granges, and other organizations, in an effort to institute a campaign which will practically eradicate the disease from the State.

C. Plans for the Work and Needs of the Coming Year.

1. With an appropriation already fixed for the next three years by the State, and the fact that, due to the reasons already stated, Massachusetts receives but $2,440 additional each year from Smith-Lever bill funds, no enlargement or expansion of extension activities can be expected. The most that we should try to do is to retain if possible our present excellent force of extension workers, and to perfect within the institution itself a better working organization. The idea that live virile instruction like extension work can stand still is one of the greatest fallacies ever agreed to by the trustees.

2. There is an urgent need of the trustees adopting a definite policy defining what the extension work of a State institution should be, and the relation of all employees of the college to it. The idea is all too prevalent that the extension service is simply a department of the college. The director suggests that the following definition might be used on which to base the policy: "The extension service is the whole institution (every department and individual) at work doing what it can to upbuild the rural life of the Commonwealth, and all employees are expected, in so far as extension work does not interfere with their teaching or research work, to take their part in this movement, and to make themselves and their departments as useful as is possible in the different movements to build up the agricultural industry of the State." The director further suggests that if this is to be the policy of the institution then at least the attitude toward extension work in general of all persons taken on to the staff of the college or station should be considered as well as their other qualifications.

3. While there is probably no chance of our meeting any of the immediate needs for more help, yet these should nevertheless be presented. There are organizations such as the poultry men, and those interested in boys' and girls' club work, and market gardening, who are willing to go before the Legislature and secure funds to carry on the work which they want. It seems to me that under such circumstances no objection should be raised by the college.

The most urgent needs are as follows: —

(*a*) Extension instruction in market gardening (organized on same plan as county work): —		
College's share of salary,	$2,000	
Community pay salary,	1,000	
Travel and transportation,	700	
Office expenses,	1,000	
	$4,700	$2,000[1]
(*b*) Extension work in poultry husbandry: —		
Two demonstrators' salaries,	$3,000	
Traveling expenses,	1,000	
Equipment, etc.,	500	
	$4,500	4,500
(*c*) For salaries and travel of supervisors of boys' and girls' clubs (college pays one-half and United States Department of Agriculture pays one-half),	$6,000	3,000[1]
(*d*) Extension work in agronomy: —		
Salary,	$1,500	
Travel,	500	
Equipment,	200	
	$2,200	2,200
(*e*) Adviser for work with State institutions (asked for by them; recommended by Governor): —		
Salary,	$3,000	
Travel and other expenses,	1,000	
	$4,000	4,000
(*f*) Extension work in fruit growing: —		
Salary,	$1,500	
Travel,	500	
Equipment,	200	
	$2,200	2,200
(*g*) For co-operative work with United States Department of Agriculture: (1) farm management; (2) demonstrations; (3) boys' poultry and fruit clubs (college pays one-half and United States Department of Agriculture pays one-half),	$6,000	3,000[1]
(*h*) Pay toward the salary of each extension representative in vocational schools and county agricultural schools, $100,		1,800
Total,		$22,700

[1] College share.

4. Since the college receives for instructional purposes an automatic increase in its funds, the cost of running the short courses (approximately $8,000) might be paid from these funds, thus relieving the extension budget to that extent; then some of this much-needed work could be started.

5. Every effort is being made to develop within the college an extension organization which is in line with that advocated by the leaders of the movement in the several States and in the United States Department of Agriculture. It is expected that a good deal of progress can be made during the coming year.

6. Plans have been made to have projects presented soon after December 1 by every man expending Extension Service money, in order that the work may be carefully reviewed at the beginning of the year and checked up at the end.

7. I would recommend that a complete report of the extension service covering the work of the last two years be printed as near January 1 as is possible.

WILLIAM D. HURD,
Director.

TABLES AND STATISTICS.

TABLE I. — *New Appointments.*

In the Academic Departments.

POSITION.	Name.	Institution from which graduated and Degrees.
Graduate assistant in microbiology,	Roy C. Avery,	Connecticut Agricultural College, B.Sc., 1914.
Assistant in dairying,	Harold E. Baldinger,	Cornell University, B.Sc., 1914.
Associate professor of rural engineering,	Christian I. Gunness,	North Dakota Agricultural College, B.Sc., 1907.
Graduate assistant in chemistry,	Franklin C. Gurley,	Worcester Polytechnic Institute, B.Sc., 1914.
Instructor in dairying,	Ivan McKellip,	Nebraska State University, B.Sc.Agr., 1911. Cornell University, M.Sc. Agr., 1912.
Graduate assistant in agronomy,	Frederick G. Merkle,	Massachusetts Agricultural College, B.Sc., 1914.
Graduate assistant in chemistry,	Stuart P. Miller,	Worcester Polytechnic Institute, B.Sc., 1914.
Assistant professor of floriculture,	Arno H. Nehrling,	Missouri Botanical Garden and Shaw School of Botany, F.H.S., 1909.
Graduate assistant in landscape gardening.	Carl F. Oberhelman,	Ohio State University, B.Sc., 1913.
Instructor in poultry husbandry,	Loyal F. Payne,	Oklahoma Agricultural College, B.Sc., 1912.
Instructor in English,	Frank P. Rand,	Williams College, A.B., 1912.
Assistant in entomology,	William S. Regan,	Massachusetts Agricultural College, B.Sc., 1908.
Graduate assistant in floriculture,	Arthur S. Thurston,	Massachusetts Agricultural College, B.Sc., 1914.
Graduate assistant in animal husbandry,	Warren F. Whittier,	Harvard College, A.B., 1909.

In the Experiment Station.

Position.	Name.	Institution from which graduated and Degrees.
Assistant botanist,	Orton L. Clark,	Massachusetts Agricultural College, B.Sc., 1908.

In the Extension Service.

Extension instructor in farm demonstration.	Benjamin W. Ellis,	Massachusetts Agricultural College, B.Sc., 1913.
Extension professor of agricultural economics.	Richard H. Ferguson,	Ontario Agricultural College, B.Sc.Agr., 1913.
Extension instructor in home economics.	Harriet J. Hopkins,	Teachers College, Columbia University, B.Sc., 1914.
Extension instructor in agricultural education.	Ethel H. Nash,	Hyannis State Normal School, 1907.

In the Clerical Staff.

Position.	Name.
Clerk, Department of Farm Administration,	Frances E. Boynton.
Clerk, president's office,	Mary E. Horton.
Stenographer, Department of Poultry Husbandry,	Elizabeth E. Mooney.
Stenographer, treasurer's office,	Gladys P. Moore.
Clerk, treasurer's office,	Luther R. Putney.
Stenographer, Division of Horticulture,	Helen C. Pomeroy.
Bookkeeper, treasurer's office,	Edna M. Sanders.
Stenographer, extension service,	Elsa Slattery.
Stenographer, Department of Agricultural Economics,	Harriet C. Stevenson.
Stenographer, Division of Agriculture,	Aurelia B. Wentworth.

TABLE II. — *Resignations.*

Position.	Name.
Clerk, Division of Agriculture,	Luliona M. Barker.
Instructor in poultry husbandry,	Adrian A. Brown.
Cashier,	Harold A. Crane.
Associate professor of rural sociology,	Elmer K. Eyerly.
First clerk, experiment station, Department of Chemistry,	F. Ethel Felton.
Instructor in market gardening,	Bert C. Georgia.[1]
Assistant botanist, experiment station,	Edward A. Larrabee.
Instructor in dairying,	Ivan McKellip.
Dean emeritus,	George F. Mills.[2]
Stenographer, treasurer's office,	Gladys P. Moore.
Stenographer, treasurer's office,	Dorothy Mudge.
Foreman, poultry experimental yards,	John W. Sayer.

[1] Died May 24, 1914.

[2] Died Oct. 27, 1914.

TABLE III. — *Change in Title of Officers of the Institution.*

NAME.	Former Title.	Present Title.
Ernest Anderson,	Assistant professor of chemistry,	Associate professor of chemistry.
Robert H. Bogue,	Assistant in chemistry,	Instructor in chemistry.
Mary E. Caldwell,	First clerk, treasurer's office,	Cashier.
C. Robert Duncan,	Instructor in mathematics,	Assistant professor of mathematics.
Burton N. Gates,	Assistant professor of beekeeping.	Associate professor of beekeeping.
Lillian M. Gelinas,	Stenographer, president's office,	Clerk, president's office.
Cora B. Grover,	Stenographer, extension service,	Clerk, extension service.
Helena T. Goessmann,	Assistant in English,	Instructor in English.
Curry S. Hicks,	Assistant professor of physical education and hygiene.	Associate professor of physical education and hygiene.
Alice M. Howard,	Clerk, experiment station,	First clerk, experiment station.
Edward M. Lewis,	Associate dean of the college and professor of literature.	Dean of the college and professor of languages and literature.
F. A. McLaughlin,	Assistant in botany,	Instructor in botany.
William L. Machmer,	Instructor in mathematics,	Assistant professor of mathematics.
George F. Mills,	Dean of the college,	Dean emeritus.
Arno H. Nehrling,	Assistant professor of floriculture.	Associate professor of floriculture.
A. Vincent Osmun,	Assistant professor of botany,	Associate professor of botany.
Elvin L. Quaife,	Instructor in animal husbandry,	Assistant professor of animal husbandry.
F. H. VanSuchtelen,	Assistant professor of microbiology.	Associate professor of microbiology.
Ralph J. Watts,	Secretary to the president,	Secretary of the college.
Henrietta Webster,	Bookkeeper, treasurer's office,	First clerk, treasurer's office.

TABLE IV. — *Speakers for the Year.*

A. Speakers at Wednesday Assembly for Year ending Nov. 30, 1914.

1913.

Dec. 10. — Hon. Frank H. Pope, Boston, "Persistency of Opportunity."
Dec. 17. — Dr. Charles Fleischer, Boston, "Democracy."

1914.

Jan. 21. — Dr. William Burdick, Baltimore, Md., "Loyalty and College Athletics."
Feb. 11. — Mr. William H. Lewis, Boston, "Race and Democracy."
Feb. 18. — Mr. Sydney H. Coleman, Albany, N. Y., "The American Humane Association."
Feb. 25. — Prof. Paul C. Phillips, Amherst College, "The Olympic Games at Stockholm."
Mar. 4. — Dr. Shosuke Sato, Japan, "Japan."
Mar. 11. — Mr. Albert D. Taylor, Boston, "Personal Experience in Business."
Mar. 18. — Rev. E. B. Robinson, Holyoke, Mass., "Becoming a Neighbor."
Mar. 25. — Prof. Kenneth McKenzie, Yale University.
Apr. 15. — Mr. Wilfrid Wheeler, Boston, "The Work of the State Board of Agriculture."
Apr. 22. — Mr. Ora S. Gray, Amherst, "The Animals of Ephesus."
May 13. — Pres. Kenyon L. Butterfield, "The Southwest."
May 20. — Mr. John A. Scheuerle, Springfield, Mass., "The Work of the Hampden County Improvement League."
May 27. — Mr. Henry Lasker, Springfield, Mass., "Patriotism in Times of War and of Peace."
Sept. 16. — Prof. Robert J. Sprague, M. A. C., "The Roots of the War."
Sept. 23. — Pres. E. T. Fairchild, New Hampshire State College, "Success and Failure."
Sept. 30. — Prof. Frank A. Waugh, M. A. C., "Civic Art."
Oct. 7. — Pres. Kenyon L. Butterfield, "The College as a Leader."

Oct. 14. — Prof. John M. Tyler, Amherst College, "Leadership."
Oct. 21. — Dr. Edwin D. Mead, Boston, "The United States and the United World."
Oct. 28. — Dr. Henry Wallace, Des Moines, Ia., "Leadership."
Nov. 4. — Pres. Kenyon L. Butterfield, "The College Man as a Leader."
Nov. 11. — Prof. Lewis Perry, Phillips Exeter Academy, "Education and the Drama."
Nov. 18. — Mr. W. J. Campbell, Springfield Y. M. C. A. College, "The Work of the County Secretary of the Y. M. C. A."

B. Speakers at Sunday Chapel for Year ending Nov. 30, 1914.

1913.

Dec. 7. — Rev. R. H. M. Augustine, Hanover, N. J., "Three Essential Elements in the New Rural Civilization."
Dec. 14. — Rev. Samuel A. Eliot, Boston, "The Uses of Adversity."

1914.

Jan. 11. — Mr. Albert E. Roberts, New York City, "The Cost of Leadership."
Jan. 18. — Dr. Charles R. Brown, Yale University, "The Man and Inner Man."
Feb. 8. — Dr. Albert P. Fitch, Cambridge, Mass., "Three Marks of Genius in Youth."
Feb. 15. — Rev. Theodore Sedgwick, New York City, "Who Hath Warned You?"
Mar. 1. — Rev. Herbert J. White, Hartford, Conn., "The Salvation of a Christian."
Mar. 8. — Rev. Anson P. Stokes, Yale University, "Christianity."
Mar. 15. — Prof. John E. Russell, Williams College, "How to make Life Worth Living."
Mar. 22. — Rev. Paul R. Frothingham, Boston, "The Significance of Tools."
Apr. 12. — Rev. Willard Scott, Brookline, Mass., "The Excelling Life."
Apr. 26. — Rev. Nehemiah Boynton, Brooklyn, N. Y., "Prosperity — An Affair of Spirit."
Sept. 13. — Pres. Kenyon L. Butterfield, "Character Building."
Nov. 8. — Mr. Albert E. Roberts, New York City, "The Abundant Life."
Nov. 15. — Rev. E. B. Robinson, Holyoke, Mass., "The Unsuspected Purpose of God."
Nov. 22. — Rev. Clarence F. Swift, Fall River, Mass., "The Cord of Blue."

TABLE V. — *Attendance.*

A. In Work of College Grade.

	Registration Nov. 30, 1913.	Registration Nov. 30, 1914.
Senior class,	98	103
Junior class,	103	113
Sophomore class,	140	142
Freshman class,	201	168
	542	526
Graduate students,	39	52
Unclassified students,	24	32
Total doing work of college grade,	605	610

B. Short-course Enrollment and Convention Registration.

	1913.	1914.
Winter school,	153	182
Summer school,	133	146
Apple-packing school,	25	30
School for tree wardens,	44	22
Beekeepers' school,	6	–
Farmers' Week,	950	1,563
School for rural social service,	–	22
Boys' Camps,	33	47
Polish farmers' day,	–	8(
Poultry convention,	362	5(
Conference on rural community planning,	247	(
Beekeepers' convention,	115	
Convention of county agents and agricultural instructors,	–	
Total,	2,068	

TABLE VI. — *Legislative Budget, 1914.*

ITEMS.	Amount asked.	Amount granted.
Special appropriations: —		
Agricultural building, including equipment,	$210,000	$210,000
Student dormitory,	35,000	–
Minor additions,	10,000	–
	$255,000	$210,000

TABLE VII. — *Statistics of Freshmen entering Massachusetts Agricultural College, September, 1914.*

A. Home Addresses of Students (classified by Towns and Cities).

Adams, 1	Hartford, Conn., 1	Paterson, N. J., 3
Amesbury, 1	Haverhill, 1	Peabody, 3
Amherst, 6	Hingham, 3	Pittsfield, 2
Andover, 1	Holyoke, 4	Plainfield, N. J., 1
Arlington, 1	Hopkinton, 1	Plainville, Conn., 1
Ashfield, 1	Hyde Park, 2	Plymouth, 1
Attleborough, 1	Ipswich, 1	Putnam, Conn., 1
Ayer, 1	Keene, N. H., 1	Quincy, 1
Barre, 1	Kinderhook, N. Y., 1	Revere, 2
Bedford, 1	Lawrence, 2	Rockland, 1
Belchertown, 1	Lima, N. Y., 1	Salem, 4
Berlin, 1	Lowell, 1	Scitio, Conn., 1
Beverly, 2	Lynn, 5	Sharon, 2
Blackstone, 1	Malden, 1	Sheffield, 1
Blauvelt, N. Y., 1	Marlborough, 2	Sherborn, 1
Bolton, 1	Maynard, 1	South Hadley Falls, 1
Boston, 11	Medford, 2	Somerville, 2
Brimfield, 2	Melrose, 1	Springfield, 3
Brockton, 1	Middleborough, 1	Stow, 1
Brooklyn, N. Y., 1	Milford, 2	Sudbury, 1
Byfield, 1	Montpelier, Vt., 1	Uxbridge, 1
Cambridge, 1	Nantucket, 1	Wakefield, 2
Canton, 1	Needham, 2	Waltham, 1
Chelsea, 1	New Bedford, 1	Ware, 1
Dalton, 1	New Braintree, 1	Warren, 1
Danvers, 1	Newburyport, 1	Wellesley, 1
Deerfield, 1	New Canaan, Conn., 1	Wenham, 1
Durham, Conn., 1	Newington, Conn., 1	West Tisbury, 1
Everett, 2	New Milford, Conn., 1	Wilmette, Ill., 1
Fairhaven, 2	Newport, R. I., 1	Windsor, Conn., 1
Fall River, 5	New Rochelle, N. Y., 1	Winsted, Conn., 1
Falmouth, 2	Newton, 5	Worcester, 7
Gloucester, 1	Newtown, Conn., 1	Yalesville, Conn., 1
Great Barrington, 2	Norwood, 1	
Groton, 1	Palmer, 2	

B. Home Addresses (classified by States).

	Number.	Per Cent.		Number.	Per Cent.
Connecticut,	12	7.14	New York,	5	2.97
Illinois,	1	.60	Rhode Island,	1	.60
Massachusetts,	143	85.11	Vermont,	1	.60
New Hampshire,	1	.60			
New Jersey,	4	2.38		168	100.00

C. Home Addresses (classified by Counties of Massachusetts).

	Number.	Per Cent.		Number.	Per Cent.
Barnstable,	2	1.40	Middlesex,	27	18.88
Berkshire,	7	4.90	Nantucket,	1	.70
Bristol,	9	6.29	Norfolk,	10	6.99
Dukes,	1	.70	Plymouth,	7	4.90
Essex,	27	18.88	Suffolk,	14	9.79
Franklin,	2	1.40	Worcester,	16	11.19
Hampden,	11	7.69			
Hampshire,	9	6.29		143	100.00

D. Nativity of Parents.

	Number.	Per Cent.
Neither parent foreign born,	130	77 38
Both parents foreign born,	25	14 88
Father (only) foreign born,	5	2 98
Mother (only) foreign born,	7	4 17
No statistics,	1	.60
	168	100.01

E. Education of Father.

	Number.	Per Cent.
Common school,	78	46 43
High school,	45	26 79
Business school,	15	8.93
College or university,	26	15 48
No statistics,	4	2 38
	168	100.01

F. Religious Census.

	Membership.		Preference.		Totals.	
	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.
Baptist,	10	5.95	6	3.57	16	9.52
Catholic,	10	5.95	1	.60	11	6.55
Congregationalist,	38	22.62	21	12.50	59	35.12
Episcopal,	15	8.93	3	1.79	18	10.71
Hebrew,	5	2.98	-	-	5	2.98
Lutheran,	3	1.79	1	.60	4	2.38
Methodist,	16	9.52	3	1.79	19	11.31
Presbyterian,	2	1.19	1	.60	3	1.79
Unitarian,	11	6.55	10	5.95	21	12.50
Universalist,	2	1.19	2	1.19	4	2.38
Miscellaneous,	4	2.38	4	2.38	8	4.76
	116	69.05	52	30.97	168	100.00

G. Occupation of Father.

	Number.	Per Cent.
Agriculture and horticulture,	42	25.00
Artisans,	33	19.64
Business,	46	27.38
Deceased or no statistics,	11	6.55
Miscellaneous,	14	8.33
Professional,	21	12.50
Retired,	1	.60
	168	100.00

H. Intended Vocations of Students.

	Number.	Per Cent.
Agriculture or horticulture (practical),	72	42.84
Agriculture or horticulture (professional),	61	36.31
Miscellaneous,	5	2.98
Professions,	4	2.38
Undecided or no statistics,	26	15.48
	168	99.99

I. Farm Experience.

	Number.	Per Cent.
Brought up on a farm,	53	31.55
Not brought up on a farm, and having had no, or practically no, farm experience,	60	35.71
Not brought up on a farm, but having had some farm experience,	55	32.74
	168	100.00

J. Miscellaneous Statistics.

Average age,	19.06 years.
Number signifying their intention to seek student labor,	100 (59.52 per cent.)
Number boarding at the college dining hall,	153 (91.07 per cent.)

TABLE VIII. — *Entrance Statistics of Freshmen Class.*

Number of applications,		273
Admitted,	200	
Matriculated,	168	
Failed to report,	32	
Total,	200	
Rejected,	73	
Total,		273
Admitted on certificate,		183
Admitted on examination,		3
Admitted on certificate and examination,		14
		200
Admitted without condition,		145
Admitted with condition,		55
		200

TABLE IX. — *Official Visits by Outside Organizations.*

Connecticut Valley Breeders' Association.
Garden and Club Workers.
Holyoke and Northampton Florists' and Gardeners' Club.
M. A. C. Improvement Association.
M. A. C. Short Course Association.
Massachusetts Dairymen's Association.
Massachusetts Federation for Rural Progress.
Massachusetts State Branch of the American Poultry Association.
Massachusetts State Grange.
Massachusetts State Poultry Association.
Massachusetts State Swine Breeders' Association.
New England Home Economics Association.
Western Massachusetts Library Club.
Worcester County Holstein Club.

Report of the Treasurer

For the Fiscal Year ending Nov. 30, 1914.

Balance Sheet.

		Dr.	Cr.
1913. Dec. 1.	To balance on hand,	$40,983 30	
1914. Nov. 30.	To receipts for fiscal year (see Schedule A),	625,937 16	
	Expenditures for fiscal year (see Schedule B),		$615,951 14
	Balance on hand,		50,969 32
		$666,920 46	$666,920 46

Statement of the First National Bank of Amherst with the Massachusetts Agricultural College.

		Dr.	Cr.
1913. Dec. 1.	Balance on hand,	$61,004 37[1]	
1914. Nov. 30.	Deposits for year,	616,504 87	
	Interest,	2,491 75	
	Disbursements as per warrants,		$614,618 25
	Balance on hand,		65,382 74[1]
		$680,000 99	$680,000 99

[1] These amounts are greater Dec. 1, 1913, by $29,841.81, and Nov. 30, 1914, by $37,396.40, on account of outstanding checks.

Schedule A. — Income.

	Items.	Totals.
Income from students and others,		$120,311 68
Tuition fees,	$2,267 00	
Laboratory fees,	5,188 27	
Rents,	5,152 70	
Dining hall,	57,812 19	
Department sales,	43,935 01	
Department transfers,	2,440 19	
Miscellaneous,	3,516 32	

SCHEDULE A. — INCOME — *Concluded.*

		Items.	Totals.
Income from grants by nation and State: —			
State aid,			
Income from endowment,			$356,820 86
Appropriation for current expenses,		$3,313 32	
Administration,	$30,000 00	210,000 00	
Maintenance,	85,000 00		
Instruction,	85,000 00		
Graduate school,	2,000 00		
Improvements,	8,000 00		
Appropriation for extension service,		50,000 00	
Appropriation for experiment station,		26,000 00	
Maintenance,	$20,000 00		
Feed law,	6,000 00		
Receipts from special appropriations,		67,507 54	
Federal aid,			75,633 33
Income from land grant of 1862,		$7,300 00	
Income from Hatch fund of 1887,		15,000 00	
Income from Adams fund of 1906,		15,000 00	
Income from Nelson fund of 1907,		16,666 67	
Income from Morrill fund of 1890,		16,666 66	
Income from Smith-Lever fund of 1914,		5,000 00	
Income from other sources: —			
Income from experiment station,			26,722 87
Fertilizer receipts,		$11,112 00	
Agricultural receipts,		2,494 49	
Cranberry receipts,		2,676 86	
Chemical receipts,		10,013 33	
Miscellaneous,		426 19	
Income from extension service,			5,023 27
Winter school receipts,		$1,308 85	
Summer school receipts,		738 45	
Correspondence course receipts,		832 86	
Itinerary instruction receipts,		905 25	
Miscellaneous,		1,237 86	
Received on account of student trust funds,			41,425 15
			$625,937 16

Classification of Income from Students and Others.

	Laboratory Fees.	Department Sales.	Transfers.	Rents.	Income.	Miscellaneous.	Dining Hall.	Tuition.	Total.
Agronomy,	$161 00	$16 70	–	–	–	–	–	–	$177 70
Agricultural education,	–	58 00	–	–	–	–	–	–	58 00
Animal husbandry,	173 00	3 50	–	–	–	–	–	–	176 50
Beekeeping,	–	8 15	–	–	–	–	–	–	8 15
Botany,	599 40	22 05	–	–	–	–	–	–	621 45
Chemistry,	2,598 14	19 53	$37 47	–	–	–	–	–	2,655 14
Dairy,	98 00	12,307 59	890 79	–	–	–	–	–	13,296 38
Equipment, 1914,	–	115 00	–	–	–	–	–	–	115 00
Entomology,	119 00	6 47	–	–	–	–	–	–	125 47
Farm,	–	20,083 19	1,128 17	–	–	–	–	–	21,211 36
Farm administration,	–	2 94	–	–	–	–	–	–	2 94
Floriculture,	–	2,954 81	36 43	–	–	–	–	–	2,991 24
Forestry,	–	14 40	50 70	–	–	–	–	–	65 10
General horticulture,	–	–	178 84	–	–	–	–	–	1,681 26
Grounds,	–	28 92	1 24	–	–	–	–	–	30 16
Improvements, 1914,	–	–	64 44	–	–	–	–	–	64 44
Landscape gardening,	395 90	–	1 77	–	–	–	–	–	397 67
Library,	–	124 67	28 97	–	$417 09	–	–	–	570 73
Market gardening,	–	1,601 37	3 17	–	–	–	–	–	1,604 54
Microbiology,	235 00	64 50	1 60	–	–	–	–	–	301 10
Physical education,	119 00	4 50	–	–	–	–	–	–	123 50
Pomology,	231 75	1,231 67	1 25	–	–	–	–	–	1,464 67
Poultry,	108 00	3,094 65	12 35	–	–	–	–	–	3,215 00
Veterinary,	–	11 82	3 00	–	–	–	–	–	14 82
Zoölogy,	346 00	5 17	–	–	–	–	–	–	351 17
Operating and maintenance,	–	–	12 60	–	–	$3,555 72	–	$2,267 00	5,835 32
North dormitory,	–	–	–	$2,094 17	–	–	–	–	2,094 17
South dormitory,	–	–	–	2,327 65	–	–	–	–	2,327 65
College residences,	–	–	–	678 88	–	–	–	–	678 88
Executive order,	–	2 50	–	–	–	–	–	–	2 50
President's office,	–	50	–	–	–	–	–	–	50
Treasurer's office,	–	17	–	–	–	–	–	–	17
Salaries,	–	236 81	–	–	–	–	–	–	236 81
Dining hall,	–	–	–	–	–	–	$57,812 19	–	57,812 19
Totals,	$5,184 19	$43,522 00	$2,452 79	$5,100 70	$417 09	$3,555 72	$57,812 19	$2,267 00	$120,311 68

SCHEDULE B. — EXPENDITURES FOR FISCAL YEAR.

	Items.	Totals.
College expenses,		$316,752 76
Administration,	$31,067 12	
Maintenance,	162,584 99	
Instruction,	123,100 65	
Experiment station,		81,587 92
Administration,	$1,416 13	
Feed inspection,	5,897 93	
Fertilizer law,	9,744 92	
Salaries,	36,202 83	
Departments,	28,326 11	
Extension service,		56,104 76
Salaries,	$28,614 13	
Travel,	9,361 54	
Department,	18,129 09	
Special appropriation,		58,307 54
Student trust funds,		44,797 09
Dining hall,		58,401 07
		$615,951 14

Analysis of College Expenditures.

Administration.	Office Expense.	Salaries and Labor.	Travel.	Minor Equipment.	Building Supplies.	Publicity and Lectures.	Student Activity.	Commencement.	Miscellaneous.	Total.
Dean's office,	$165 08	$296 56	–	$49 60	–	–	–	–	–	$511 24
Executive order,	–	–	$1,616 20	–	–	$1,689 47	$773 24	$502 35	$1,615 21	6,196 47
President's office,	682 92	104 24	66 85	–	$18 48	–	–	–	–	872 49
Registrar's office,	323 61	77 63	15 20	19 92	2 89	–	–	–	–	439 25
Treasurer's office,	549 92	*366 53	220 83	56 01	29 66	–	–	–	30 45	1,253 40
Administration (salaries),	–	21,794 27	–	–	–	–	–	–	–	21,794 27
Totals,	$1,721 53	$22,639 23	$1,919 08	$125 53	$51 03	$1,689 47	$773 24	$502 35	$1,645 66	$31,067 12

Maintenance.	Office Expense.	Labor.	Laboratory Supplies.	Refunds.	Minor Equipment.	Building Supplies.	Travel.	General Expense.	Miscellaneous.	Salaries.	Totals.
Academic maintenance: —											
Agricultural economics,	$62 75	$18 90	$14 88	–	$0 48	–	$6 15	–	–	–	$103 16
Agricultural education,	110 36	87 75	139 15	–	3 61	–	38 99	–	$6 79	–	386 65
Agronomy,	62 00	61 42	132 33	$15 50	81	–	22 85	–	–	–	294 91
Animal husbandry,	69 50	152 73	66 81	10 00	24 58	–	269 82	–	–	–	593 44
Beekeeping,	133 42	1,196 33	171 96	–	116 62	$56 15	1 62	–	–	–	1,676 10
Botany,	196 18	631 75	480 29	74 70	30 51	48 00	–	–	–	–	1,461 43
Chemistry,	184 83	1,023 10	2,457 03	649 45	85 27	94 81	5 30	–	–	–	4,499 79
Dairying,	127 94	1,083 72	14,909 14	13 50	290 53	80 24	44 45	–	–	–	16,549 52
Economics and sociology,	30 76	–	1 09	–	80	–	–	–	–	–	32 65
Entomology,	37 67	260 68	159 20	6 00	51 46	134 71	14 31	–	–	–	664 03
Farm administration,	174 47	55 32	39 08	–	73 68	–	34 57	–	–	–	377 12
Floriculture,	120 51	2,614 89	1,002 79	–	42 02	124 87	100 39	–	–	–	4,005 47
Forestry,	72 46	49 49	154 25	–	108 37	–	18 03	–	–	–	402 60
History and government,	5 17	–	27	–	–	–	5 17	–	–	–	10 61
Landscape gardening,	15 91	9 57	310 00	5 50	34 38	–	19 20	–	–	–	394 56
Language and literature,	50 19	64 00	143 21	–	20 28	2 91	–	–	6 00	–	286 59

Market gardening,	22 87	2,492 18	1,069 83	–	92 36	71 15	15 57	–	–	–	3,763 96
Mathematics,	51 97	79 85	18 37	–	–	19 28	3 36	–	–	–	172 83
Microbiology,	124 49	272 76	278 81	169 50	24 20	25 03	6 31	–	–	–	901 10
Military science,	171 52	796 69	49 88	7 75	67 74	20 88	–	–	212 00	–	1,326 46
Physical education,	102 49	86 34	137 92	–	35 73	8 64	344 78	–	–	–	715 90
Physics,	35 68	275 41	154 86	–	151 82	27 75	–	–	–	–	645 52
Pomology,	96 42	2,567 98	793 72	2 50	335 69	38 31	12 67	–	–	–	3,847 29
Poultry husbandry,	347 06	1,466 65	2,976 75	14 50	223 24	33 87	18 60	–	–	–	5,080 67
Rural engineering,	29 41	–	11 86	–	53 56	–	1 50	–	–	–	96 33
Rural sociology,	5 22	–	26 10	–	–	–	9 44	–	–	–	40 76
Veterinary science,	6 31	300 95	551 73	–	60 72	65 00	11 82	–	–	–	996 53
Zoölogy and geology,	53 79	207 92	347 43	11 50	120 63	38	31 05	–	–	–	772 70
General maintenance: —											
Equipment, 1914,	–	–	–	–	–	–	–	11,271 71	–	–	11,271 71
Farm,	–	–	–	–	–	–	–	28,869 16	–	–	28,869 16
General horticulture,	–	–	–	–	–	–	–	4,316 98	–	–	4,316 98
Graduate school,	–	–	–	–	–	–	–	90 99	–	–	90 99
Grounds,	–	–	–	–	–	–	–	3,026 66	–	–	3,026 66
Library,	–	–	–	–	–	–	–	6,761 82	–	–	6,761 82
Operating and maintenance,	–	–	–	–	–	–	–	49,640 03	–	–	49,640 03
Improvement, 1914,	–	–	–	–	–	–	–	8,508 96	–	–	8,508 96
	$2,501 35	$15,856 38	$26,598 74	$980 40	$2,049 09	$851 98	$1,035 95	$112,486 31	$224 79	–	$162,584 99
Instruction: —											
Salaries,	–	–	–	–	–	–	–	–	–	$123,100 65	$123,100 65
Grand total,	–	–	–	–	–	–	–	–	–	–	$316,752 76

Current Accounts.

Disbursements and Receipts.

Accounts.	Disbursements from Dec. 1, 1913, to Nov. 30, 1914.	Receipts from Dec. 1, 1913, to Nov. 30, 1914.	Apportionment for Year ending Nov. 30, 1914.	Balance to Credit.
Administration: —				
Dean's office,	$511 24	–	$500 00	—$11 24
Executive order,	6,196 47	$2 50	5,700 00	—493 97
President's office,	872 49	50	1,000 00	128 01
Registrar's office,	439 25	–	400 00	—39 25
Salaries,	21,794 27	236 81	21,000 00	—557 46
Treasurer's office,	1,253 40	17	900 00	—353 23
State Treasurer,	–	30,000 00	–	–
Maintenance: —				
Agricultural economics,	103 16	–	125 00	21 84
Agricultural education,	386 65	58 00	300 00	—28 65
Agronomy,	294 91	177 70	175 00	57 79
Animal husbandry,	593 44	176 50	200 00	—216 94
Beekeeping,	1,676 10	8 15	1,600 00	—67 95
Botany,	1,461 43	621 45	700 00	—139 98
Chemistry,	4,499 79	2,655 14	1,800 00	—44 65
Dairying,	16,549 52	13,296 38	2,300 00	—953 14
Economics and sociology,	32 65	–	50 00	17 35
Entomology,	664 03	125 47	750 00	211 44
Farm administration,	377 12	2 94	325 00	—49 18
Floriculture,	4,005 47	2,991 24	800 00	—214 23
Forestry,	402 60	65 10	450 00	112 50
History and government,	10 61	–	50 00	39 39
Landscape gardening,	394 56	397 67	440 00	443 11
Language and literature,	286 59	–	400 00	113 41
Market gardening,	3,763 96	1,604 54	1,700 00	—459 42
Mathematics,	172 83	–	200 00	27 17
Microbiology,	901 10	301 10	600 00	–
Military science,	1,326 46	–	1,350 00	23 54
Physical education,	715 90	123 70	500 00	92 40
Physics,	645 52	–	500 00	—145 52
Pomology,	3,847 29	1,464 67	1,800 00	—582 62
Poultry husbandry,	5,080 67	3,215 00	2,000 00	134 33
Rural engineering,	96 33	–	200 00	103 67
Rural sociology,	40 76	–	25 00	—15 76
Veterinary science,	996 53	14 82	750 00	—231 71
Zoölogy and geology,	772 70	351 17	250 00	—171 53
Maintenance, general: —				
Equipment, 1914,	11,271 71	115 00	12,000 00	843 29
Farm,	28,869 16	21,211 36	4,500 00	—3,157 80
General horticulture,	4,316 98	1,681 26	2,300 00	—335 72
Graduate school,	90 99	–	100 00	9 01
Grounds,	3,026 66	30 16	3,250 00	253 50
Improvement, 1914,	8,508 96	64 44	8,000 00	—444 52
Library,	6,761 82	570 73	5,550 00	—641 09
Operating and maintenance,	49,640 03	10,936 02	50,000 00	359 97
State Treasurer, maintenance,	–	93,000 10	–	–
Endowment fund,	–	10,613 32	–	–
Instruction: —				
Salaries,	123,100 65	–	–	–
United States Treasurer: —				
Morrill fund,	–	16,666 66	–	–
Nelson fund,	–	16,666 67	–	–
State Treasurer: —				
Instruction,	–	85,000 00	–	–
Graduate school,	–	2,000 00	–	–
	$316,752 76	$316,446 14	–	–
Balance beginning fiscal year, Dec. 1, 1913,	–	16,379 05	–	–
Balance on hand Nov. 30, 1914,	16,072 43	–	–	–
	$332,825 19	$332,825 19	–	–

College Accounts.

Comparative Disbursements and Receipts for 1913-14.

Accounts.	Disbursements.		Receipts.	
	1913.	1914.	1913.	1914.
Agricultural economics,	$182 82	$103 16	–	–
Agricultural education,	678 94	386 65	$250 99	$58 00
Agronomy,	405 86	294 91	109 08	177 70
Animal husbandry,	315 10	593 44	30	176 50
Beekeeping,	–	1,676 10	–	8 15
Botany,	1,643 99	1,461 43	734 19	621 45
Chemistry,	4,420 90	4,499 79	2,784 75	2,655 14
Dairying,	6,611 35	16,549 52	4,549 40	13,296 38
Dean's office,	491 84	511 24	–	–
Economics and sociology,	79 36	32 65	–	–
Entomology,	1,573 09	664 03	191 97	125 47
Equipment,	15,421 90	11,271 71	–	115 00
Executive order,	6,297 82	6,196 47	–	2 50
Farm administration,	366 29	377 12	33 85	2 94
Farm,	24,830 70	28,869 16	20,858 81	21,211 36
Floriculture,	4,047 00	4,005 47	3,320 64	2,991 24
Forestry,	221 81	402 60	–	65 10
General horticulture,	3,735 20	4,316 98	1,425 67	1,681 26
Graduate school,	33 25	90 99	–	–
Grounds,	2,937 01	3,026 66	3 08	30 16
History and government,	37 54	10 61	–	–
Hospital,	4,379 20	–	26 50	–
Improvements, 1914,	–	8,508 96	–	64 44
Landscape gardening,	387 03	394 56	489 10	397 67
Language and literature,	300 69	286 59	–	–
Library,	6,523 60	6,761 82	561 25	570 73
Market gardening,	3,633 23	3,763 96	2,131 12	1,604 54
Mathematics,	161 48	172 83	–	–
Military,	1,647 19	1,326 46	5 50	–
Microbiology,	449 31	901 10	210 00	301 10
Physical education,	754 88	715 90	142 50	123 70
Physics,	403 43	645 52	2 30	–
Pomology,	3,638 96	3,847 29	1,855 82	1,464 67
Poultry husbandry,	4,104 22	5,080 67	2,159 18	3,215 00
President's office,	934 99	872 49	4 20	50
Registrar's office,	401 15	439 25	–	–
Rural engineering,	–	96 33	–	–
Rural sociology,	27 86	40 76	–	–
Salaries,	129,642 00	144,894 92	250 00	236 81
Treasurer's office,	1,118 53	1,253 40	11 27	17
Veterinary,	1,917 50	996 53	21 65	14 82
Zoölogy and geology,	581 09	772 70	333 10	351 17
Operating and maintenance,	48,742 64	49,640 03	9,757 60	10,936 02
State Treasurer: —				
Endowment fund,	–	–	10,613 32	10,613 32
Graduate school,	–	–	–	2,000 00
Maintenance,	–	–	80,000 00	93,000 00
Instruction,	–	–	75,000 00	85,000 00
Administration,	–	–	30,000 00	30,000 00
United States Treasurer: —				
Morrill fund,	–	–	16,666 66	16,666 66
Nelson fund,	–	–	16,666 67	16,666 67
	$284,080 75	$316,752 76	$281,171 18	$316,446 14
Balance beginning fiscal year,	–	–	19,288 62	16,379 05
Balance on hand at close of fiscal year,	16,379 05	16,072 43	–	–
	$300,459 80	$332,825 19	$300,459 80	$332,825 19

College Accounts — *Concluded.*

Summary.

	Disbursements.	Credits.
Cash on hand Dec. 1, 1913,	–	$16,379 05
Institution receipts Nov. 30, 1914,	–	62,499 49
State Treasurer receipts Nov. 30, 1914,	–	220,613 32
United States Treasurer's receipts Nov. 30, 1914,	–	33,333 33
Total disbursements,	$316,752 76	–
	$316,752 76	$332,825 19
Bills receivable Dec. 1, 1913, deducted,	–	3,827 63
Bills payable Dec. 1, 1913, deducted,	2,496 39	–
	$314,256 37	$328,997 56
Bills receivable Nov. 30, 1914,	–	6,855 03
Bills payable Nov. 30, 1914,	2,893 65	–
Balance,	18,702 57	–
	$335,852 59	$335,852 59

College Equipment, 1914.

	Disbursements Fiscal Year.		Disbursements Fiscal Year.
Farm,	$678 30	Landscape gardening,	$140 00
Microbiology,	2,540 30	Mathematics,	75 00
O. and M. power plant,	885 91	Farm dairy,	388 19
Dairy,	873 30	Physical education,	265 00
President's office,	903 57	Physics,	377 63
Dean's office,	102 90	Pomology,	226 50
Treasurer's office,	480 28	Poultry husbandry,	218 93
General horticulture,	190 93	Veterinary,	36 83
Library,	125 00	Zoölogy,	76 50
Dining hall,	750 00	Beekeeping,	55 86
Agricultural education,	–	South College,	115 00
Agronomy,	151 40	Experiment station,	150 00
Animal husbandry,	750 00	Chapel,	246 81
Chemistry,	314 70	Agricultural economics,	36 50
Entomology,	102 75		
Farm administration,	13 62		$11,271 71
Forestry,	–		

Farm Disbursements.

	Labor.	Equipment.	Feed.	Fertilizer.	Seeds.	Miscellaneous.	Supplies.	Improvements.	Totals.
Dairy,	$1,610 79	$129 15	–	–	–	–	$2,030 79	–	$3,770 73
Cattle,	4,567 93	–	$5,200 43	–	–	$2,013 19	–	–	11,781 55
Horses,	1,533 53	–	1,285 16	–	–	–	451 61	–	3,270 30
Swine,	114 79	–	270 12	–	–	50 90	–	–	435 81
Sheep,	134 12	–	–	–	–	34 83	–	–	168 95
Field crops,	2,795 56	–	–	$1,168 40	$307 85	36 14	–	–	4,307 95
Tools and machinery,	–	–	–	–	–	533 46	–	–	533 46
Miscellaneous,	3,737 98	–	–	–	–	–	73 25	$789 18	4,600 41
	$14,494 70	$129 15	$6,755 71	$1,168 40	$307 85	$2,668 52	$2,555 65	$789 18	$28,869 16

Farm Credits.

	Milk.	Stock.	Sundry.	Miscellaneous.	Hogs.	Wool.	Corn.	Hay.	Roots.	Labor.	Potatoes.	Totals.
Dairy,	$5,697 81	–	$6 57	–	–	–	–	–	–	–	–	$5,704 38
Cattle,	11,958 95	–	262 74	–	–	–	–	–	–	–	–	12,221 69
Horses,	–	$50 00	922 21	–	–	–	–	–	–	–	–	972 21
Swine,	–	–	–	$1 50	$115 50	–	–	–	–	–	–	117 00
Sheep,	–	30 00	–	–	–	$24 66	–	–	–	–	–	54 66
Feed crops,	–	–	–	–	–	–	$1 75	$425 13	$241 55	–	$366 80	1,035 23
Tools and machinery,	–	–	–	–	–	–	–	–	–	$822 57	–	1,106 19
Miscellaneous,	–	–	283 62	–	–	–	–	–	–	–	–	–
	$17,656 76	$80 00	$1,475 14	$1 50	$115 50	$24 66	$1 75	$425 13	$241 55	$822 57	$366 80	$21,211 36

Agricultural Division.

Disbursements and Receipts.

	Disbursements.	Receipts.
Agronomy,	$294 91	$177 70
Animal husbandry,	593 44	176 50
Dairying,	16,549 52	13,296 38
Farm,	28,869 16	21,211 36
Farm administration,	377 12	2 94
Poultry husbandry,	5,080 67	3,215 00
Division totals,	$51,764 82	$38,079 88

Summary.

	Dr.	Cr.
By total division receipts,		$38,079 88
By bills receivable,		5,071 70
By net apportionment,		9,500 00
To total disbursements,	$51,764 82	
To bills payable,	236 11	
Balance,	650 65	
	$52,651 58	$52,651 58

Inventory of Quick Assets.

	Nov. 30, 1913.	Nov. 30, 1914.
Inventory of produce,	$6,431 98	$8,938 35
Inventory of cattle,	11,935 00	13,645 00
Inventory of swine,	286 00	375 00
Inventory of horses,	5,150 00	5,450 00
Inventory of poultry,	1,598 70	941 25
Inventory of sheep,	443 00	647 00
	$25,844 68	$29,996 60

Horticultural Division.

Disbursements and Receipts.

	Disbursements.	Receipts.
Floriculture,	$4,005 47	$2,991 24
Forestry,	402 60	65 10
General horticulture,	4,316 98	1,681 26
Grounds,	3,026 66	30 16
Landscape gardening,	394 56	397 67
Market gardening,	3,763 96	1,604 54
Pomology,	3,847 29	1,464 67
Division totals,	$19,757 52	$8,234 64

HORTICULTURAL DIVISION — *Concluded.*

Summary.

	DR.	CR.
By total division receipts,		$8,234 64
By bills receivable,		486 16
By apportionment,		10,300 00
To total division disbursements,	$19,757 52	
To bills payable,	162 81	
By balance,		899 53
	$19,920 33	$19,920 33

Inventory of Quick Assets.

	Nov. 30, 1913.	Nov. 30, 1914.
Floriculture,		$523 50
Market gardening,		107 50
Pomology,		612 50
General horticulture (live stock),	$1,935 00	1,625 00
Inventory of supplies,	713 25	
	$2,648 25	$2,868 50

Expense Operating and Maintenance.

	Salaries.	Labor.	Fuel and Water.	Repairs.	Supplies.	Tools.	Architect.	Engineer.	Miscellaneous.	Totals.
General: —										
General superintendent,	$2,281 84	–	–	–	–	–	–	–	–	$2,281 84
Office,	–	$1,112 84	–	–	–	–	–	–	–	1,112 84
General expenses,	–	–	–	–	$2,788 22	–	–	–	–	2,788 22
Power plant: —										
Heat,	–	4,001 19	$18,195 67	$673 58	148 73	–	–	–	–	23,019 17
Light,	–	655 58	101 34	455 44	66 87	–	–	–	–	1,279 23
Tools,	–	–	–	–	–	$380 86	–	–	–	380 86
Waiting station janitor,	–	23 84	–	–	–	–	–	–	–	23 84
Amherst Water Company,	–	–	1,529 62	–	–	–	–	–	–	1,529 62
Night watch,	–	1,263 82	–	–	–	–	–	–	–	1,263 82
Mail service,	–	338 53	–	–	–	–	–	–	–	338 53
Water main,	–	660 73	–	–	–	–	–	–	–	660 73
Steam main,	–	319 83	–	–	–	–	–	–	–	319 83
Sewers and cesspools,	–	6 75	–	–	–	–	–	–	–	6 75
Amherst Gas Company,	–	–	37 87	–	–	–	–	–	–	37 87
Electric light circuit,	–	434 29	–	–	–	–	–	–	–	434 29
Expert services,	–	–	–	–	–	–	$733 52	–	–	733 52
Walks,	–	234 84	–	–	–	–	–	–	–	234 84
Emergency maintenance,	–	1,594 92	–	–	–	–	–	–	–	1,594 92
Drains,	–	84 26	–	–	–	–	–	–	–	84 26
Fire department,	976 20	129 67	–	–	115 77	–	–	–	$9 98	1,231 62
Sundry,	–	–	–	–	–	–	–	–	2,002 28	2,002 28
Totals,	$3,258 04	$10,861 09	$19,864 50	$1,129 02	$3,119 59	$380 86	$733 52	–	$2,012 26	$41,358 88

Expense Operating and Maintenance — Continued.

College Buildings.	Electric Repairs.	Plumbing Repairs.	Heat Repairs.	C. and M. Repairs.	Janitor.	Bell Ringing.	Sundry.	Totals.
Animal husbandry,	–	$5 97	$44 69	$5 60	–	–	–	$56 26
Horse barn,	$0 62	24 49	–	57 62	–	–	–	82 73
Dairy barn,	62	33 32	17 26	88 69	–	–	–	139 89
Young stock barn,	36 01	30 56	–	36 88	–	–	–	103 45
Power building,	5 36	18 76	58 82	94 77	$156 35	–	–	334 06
Chemical building,	2 70	50 10	69 10	10 90	–	–	–	132 80
Poultry building,	4 59	11 94	–	62 67	–	–	–	79 20
Dairy building,	19 68	106 61	24 45	65 74	–	–	–	216 48
Dining hall,	–	–	–	20 70	–	–	–	20 70
Drill hall,	3 44	39 26	47 13	76 95	–	–	–	166 78
Veterinary,	1 06	10 06	37	8 64	–	–	–	20 13
Apiary,	20 64	20 01	88 38	55 84	–	–	–	184 87
Mathematics building,	5 27	17 24	11 74	69 62	–	–	–	103 87
Entomology,	1 65	37 47	69 80	273 37	–	–	–	382 29
Clark Hall,	1 33	25 93	104 37	113 65	–	–	–	245 28
French Hall,	3 14	2 75	19 31	9 41	–	–	–	34 61
Wilder Hall,	7 34	4 78	37	18 76	–	–	–	31 25
Old Durfee range,	67	–	5 38	35 38	–	–	–	41 43
Horticulture barns,	30	37	–	2 52	–	–	–	3 19
Physics building,	53	39 07	4 32	351 77	–	–	–	395 69
East experiment station,	92	13 78	50 81	37 37	–	–	–	102 88
West experiment station,	2 70	13 43	9 24	41 82	–	–	–	67 19
Experiment station barn,	–	6 05	–	160 08	–	–	–	166 13
P. and A. chemistry barn,	1 25	5 89	1 13	23 77	–	–	–	32 04
Microbiology,	10 50	123 99	153 68	195 66	–	–	$500 00	983 83
Farm cottage,	–	1 74	–	38 02	–	–	–	39 76
North College,	44 48	40 59	8 45	193 73	447 98	–	140 57	875 80
South College,	141 88	197 06	53 51	633 18	572 06	–	119 68	1,717 37
Chapel,	27 94	11 88	38 40	48 68	245 82	$100 00	–	472 72
Total,	$344 62	$893 10	$880 71	$2,831 79	$1,422 21	$100 00	$760 25	$7,232 68

EXPENSE OPERATING AND MAINTENANCE — Concluded.

COLLEGE BUILDINGS.	Electric Repairs.	Plumbing Repairs.	Heat Repairs.	C. and M. Repairs.	Janitor.	Bell Ringing.	Sundry.	Totals.
College residences: —								
Harlow place,	–	–	–	$9 61	–	–	–	$9 61
Kellogg place,	–	$3 89	–	28 40	–	–	–	32 29
President's house,	$56 70	31 26	$45 69	475 76	–	–	$43 14	652 55
Division of horticulture, house,	91	9 23	3 96	65 46	–	–	–	79 56
Registrar's house,	7 71	88	–	82 44	–	–	–	91 03
Farm superintendent's house,	2 46	8 78	–	34 40	–	–	–	45 64
Farm help's house,	1 84	49 49	–	2 39	–	–	–	53 72
Stockbridge house,	–	2 74	–	5 89	–	–	–	8 63
Farm cottage,	2 90	8 29	1 76	48 57	–	–	13 92	75 44
Totals,	$72 52	$114 56	$51 41	$152 92	–	–	$57 06	$1,048 47

Summary.

General,	$41,358 88
College buildings,	7,232 68
College residences,	1,048 47
	$49,640 03

Experiment Station.

Disbursements and Receipts.

Accounts.	Disbursements from Dec. 1, 1913, to Nov. 30, 1914.	Receipts from Dec. 1, 1913, to Nov. 30, 1914.	Apportionment for Year ending Nov. 30, 1914.	Balance to Credit.
Administration,	$1,416 13	$4 92	$1,800 00	$388 79
Agriculture,	5,058 48	2,494 49	2,100 00	—463 99
Asparagus,	757 60	–	700 00	—57 60
Botanical,	1,895 80	50 00	1,500 00	—345 80
Chemical,	10,252 46	10,013 33	1,100 00	860 87
Cranberry,	2,886 76	2,676 86	3,000 00	2,790 10
Entomology,	556 56	4 50	700 00	147 94
Feed inspection,	5,897 93	6,018 67	–	1,018 14
Fertilizer inspection,	9,744 92	11,112 00	–	2,853 70
Freight and express,	532 56	24 55	300 00	—208 01
Graves orchard,	789 08	129 25	800 00	140 17
Horticultural,	1,936 83	11 46	1,350 00	—575 37
Library,	248 75	–	300 00	51 25
Meteorology,	374 24	–	375 00	76
Poultry,	1,066 63	4 17	900 00	—162 46
Publications,	912 47	–	1,700 00	787 53
Salaries,	36,202 83	18 67	37,015 86	831 70
Treasurer's office,	364 44	–	350 00	—14 44
Veterinary,	597 15	–	725 00	127 85
Hatch fund,	–	15,000 00	–	–
Adams fund,	–	15,000 00	–	–
State fund,	–	20,000 00	–	–
Miscellaneous,	96 30	160 00	–	–
Totals,	$81,587 92	$82,722 87	$54,715 86	$8,171 13
Balance on hand beginning fiscal year Dec. 1, 1913,	–	7,151 90	–	–
Balance on hand Nov. 30, 1914,	8,298 67	–	–	–
	$89,874 77	$89,874 77	$54,715 86	$8,171 13

Comparative Disbursements and Receipts, 1913–14.

Accounts.	Disbursements.		Receipts.	
	1913.	1914.	1913.	1914.
Administration,	$860 79	$1,416 13	$4 54	$4 92
Agriculture,	4,841 79	5,058 48	2,746 36	2,494 49
Asparagus,	483 27	757 60	–	–
Botanical,	1,672 90	1,895 80	–	50 00
Chemical,	9,362 54	10,252 46	9,129 76	10,013 33
Cranberry,	3,135 53	2,886 76	5,884 50	2,676 86
Entomology,	425 96	556 56	3 20	4 50
Feed inspection,	6,184 05	5,897 93	6,000 00	6,018 67
Fertilizer inspection,	10,560 77	9,744 92	10,580 00	11,112 00
Freight and express,	248 24	532 56	56	24 55
Graves orchard,	466 93	789 08	399 04	129 25
Horticultural,	1,492 20	1,936 83	78 20	11 46
Library,	64 00	248 75	–	–
Meteorology,	299 27	374 24	–	–
Poultry,	910 51	1,066 63	–	4 17
Publications,	978 37	912 47	–	–
Salaries,	32,679 14	36,202 83	–	18 67
Treasurer's office,	373 27	364 44	–	–
Veterinary,	718 02	597 15	–	–
Hatch fund,	–	–	15,000 00	15,000 00
Adams fund,	–	–	15,000 00	15,000 00
State fund,	–	–	15,000 00	20,000 00
Miscellaneous,	–	96 30	–	160 00
Totals,	$75,757 55	$81,587 92	$79,825 16	$82,722 87
Balance beginning fiscal year,	–	–	3,084 29	7,151 90
Balance on hand at close of fiscal year,	7,151 90	8,298 67	–	–
	$82,909 45	$89,874 77	$82,909 45	$89,874 77

Experiment Station — *Concluded.*

Analysis of Experiment Station Accounts.

	Adams Fund.	Fertilizer Law.	Feed Law.	Hatch Fund.	State Fund.	Totals.
Salaries,	$13,905 26	$6,354 35	$3,778 30	$12,828 95	$9,468 62	$46,335 48
Labor,	564 29	762 94	128 77	930 56	14,087 37	16,473 93
Publication,	–	813 27	1,048 96	92 14	570 09	2,524 46
Postage and stationery,	12 52	120 42	28 60	2 53	1,207 15	1,371 22
Freight and express,	–	39 93	9 87	–	549 05	598 85
Heat, light, water and power,	–	191 60	38 38	8 63	202 31	440 92
Chemistry and laboratory supplies,	139 07	554 88	177 55	115 06	456 41	1,442 97
Seeds, plants and sundry supplies,	302 23	49 28	18 23	65 65	1,682 10	2,117 49
Fertilizers,	123 33	50	–	675 16	373 72	1,172 71
Feeding stuffs,	–	–	–	–	1,402 18	1,402 18
Library,	20 34	6 00	–	12 71	698 53	737 58
Tools, machinery and appliances,	–	3 00	–	29 60	546 66	579 26
Furniture and fixtures,	3 36	–	35 00	-	508 48	546 84
Scientific apparatus and specimens,	36 51	38 23	20 50	11 75	634 48	741 47
Live stock,	–	–	–	41 00	175 55	216 55
Traveling expenses,	82 06	752 01	488 18	–	2,075 24	3,397 49
Contingent expenses,	–	–	80 00	–	97 77	177 77
Buildings and land,	19 65	58 51	45 59	–	1,087 01	1,210 76
Miscellaneous,	–	–	–	–	99 99	99 99
	$15,208 62	$9,744 92	$5,897 93	$14,813 74	$35,922 71	$81,587 92

Summary.

	Disbursements.	Receipts.
Cash on hand Dec. 1, 1913,	–	$8,298 67
Receipts from State Treasurer,	–	26,000 00
Receipts from United States Treasurer,	–	30,000 00
Receipts from other sources,	–	26,722 87
Total disbursements,	$81,587 92	–
	$81,587 92	$91,021 44
Bills receivable Nov. 30, 1914,	–	945 25
Bills payable Nov. 30, 1914,	1,002 38	–
Balance,	9,376 39	–
	$91,966 69	$91,966 69

Extension Service.

Disbursements and Receipts.

Accounts.	Disbursements.	Receipts.	Apportionment.	Balance.
Administration,	$2,321 53	$34 14	$2,400 00	$112 61
Agricultural education,	3,351 27	121 55	2,500 00	—729 72
Agricultural economics,	1,029 13	139 84	800 00	—89 29
Animal husbandry,	625 05	64 80	683 33	123 08
Auto. Dem. outfit,	813 30	15 56	1,150 00	352 26
Apple packing school,	65 70	280 00	100 00	314 30
Beekeeping,	49 47	–	200 00	150 53
Boys' camp,	804 51	393 00	200 00	—211 51
Civic improvement,	734 02	132 49	600 00	—1 53

Extension Service — *Continued.*

Disbursements and Receipts — Concluded.

Accounts.	Disbursements.	Receipts.	Apportionment.	Balance.
Community service,	$672 69	$7 70	$600 00	—$64 99
Conference rural social workers,	563 48	–	500 00	—63 48
Correspondence courses,	1,264 86	832 86	400 00	—32 00
County agents,	166 83	–	200 00	33 17
Dairying,	305 57	–	283 33	—22 24
Director's office,	1,810 42	70 82	1,900 00	160 40
Farm management,	1,131 49	34 33	1,276 67	179 51
Farmers' week,	1,082 16	84 85	900 00	—97 31
Home economics,	707 28	79 85	912 50	285 07
Itinerary instruction,	2,481 01	905 25	1,600 00	24 24
Library extension,	199 43	–	200 00	57
M. A. C. Improvement Association,	132 65	71 46	100 00	38 81
Pomology,	902 73	7 30	1,083 33	187 90
Poultry convention,	328 92	12 00	200 00	—116 92
Poultry husbandry,	132 65	8 02	200 00	75 37
Physical education,	427 74	–	208 34	—219 40
Salaries,	28,614 13	45 00	28,807 21	238 08
Summer school,	3,316 78	738 45	2,500 00	—78 33
Ten weeks' school,	1,942 16	944 00	1,500 00	501 84
Tree warden's school,	127 80	–	100 00	—27 80
Publishing and printing,	–	–	208 34	208 34
Furniture and fixtures,	–	–	208 33	208 33
Contingent expenses,	–	–	98 62	98 62
From State Treasurer,	–	50,000 00	–	–
From United States Treasurer,	–	5,000 00	–	–
Smith-Lever balance,	–	–	–	833 33
Unapportioned balance,	–	–	–	8,323 88
Totals,	$56,104 76	$60,023 27	$52,620 00	$10,695 72
Balance beginning fiscal year Dec. 1, 1913,	–	6,777 21	–	–
Balance on hand Nov. 30, 1914,	10,695 72	–	–	–
	$66,800 48	$66,800 48	–	–

Summary.

	Disbursements.	Receipts.
Balance Dec. 1, 1913,	–	$6,777 21
Receipts Nov. 30, 1914,	–	5,023 27
Received from State Treasurer,	–	50,000 00
Received from U. S. Treasurer,	–	5,000 00
Disbursements to Nov. 30, 1914,	$56,104 76	–
	$56,104 76	$66,800 48
Bills receivable Dec. 1, 1913, deducted,	–	133 29
Bills payable Dec. 1, 1913, deducted,	505 96	–
	$56,610 72	$66,667 19
Bills receivable Nov. 30, 1914,	–	899 26
Bills payable Nov. 30, 1914,	468 87	–
Balance,	10,486 86	–
	$67,566 45	$67,566 45

Extension Service — *Concluded.*

Analysis of Extension Service Disbursements.

	Travel.	Equipment.	Laboratory Expense.	Printing.	Office Supplies.	Instruction and Lectures.	Salaries.	Miscellaneous.	Totals.
Administration,	$1,042 65	$101 45	–	$884 25	–	–	$28,614 13	$293 18	$30,935 66
Agricultural education,	743 99	1,337 66	–	–	$14 66	–	–	1,254 96	3,351 27
Agricultural economics,	686 70	342 43	–	–	–	–	–	–	1,029 13
Animal husbandry,	406 71	218 34	–	–	–	–	–	–	625 05
Auto. Dem. outfit,	514 10	101 51	–	–	2 00	–	–	195 69	813 30
Apple packing school,	3 44	–	–	–	–	–	–	62 26	65 70
Beekeeping,	–	27 30	–	–	–	–	–	22 17	49 47
Boys' Camp,	70 47	275 49	–	–	–	–	–	458 55	804 51
Civic improvement,	195 82	538 20	–	–	–	–	–	–	734 02
Community service,	593 20	79 49	–	–	–	–	–	–	672 69
Conference rural social workers,	300 49	262 99	–	–	–	–	–	–	563 48
Correspondence courses,	106 12	201 02	–	–	674 93	–	–	282 79	1,264 86
County agents,	166 83	–	–	–	–	–	–	–	166 83
Dairying,	158 29	147 28	–	–	–	–	–	–	305 57
Director's office,	20 00	476 63	–	–	1,094 39	–	–	219 40	1,810 42
Farm management,	716 86	414 63	–	–	–	–	–	–	1,131 49
Farmer's Week,	377 96	–	–	–	704 20	–	–	–	1,082 16
Home economics,	478 18	229 10	–	–	–	–	–	–	707 28
Itinerant instruction,	1,442 14	1,038 87	–	–	–	–	–	–	2,481 01
Library extension,	–	199 43	–	–	–	–	–	–	199 43
M. A. C. Improvement Association,	21 35	110 85	–	–	–	–	–	45	132 65
Pomology,	485 88	416 85	–	–	–	–	–	–	902 73
Poultry convention,	64 42	264 50	–	–	–	–	–	–	328 92
Poultry husbandry,	103 15	29 50	–	–	–	–	–	–	132 65
Physical education,	357 74	70 00	–	–	–	–	–	–	427 74
Summer school,	220 81	–	–	225 98	68 50	$2,259 48	–	542 01	3,316 78
Ten weeks' school,	36 17	–	$47 15	253 96	2 70	1,538 86	–	63 32	1,942 16
Tree warden's school,	148 07	–	–	–	–	–	–	79 73	127 80
	$9,361 54	$6,883 52	$47 15	$1,364 19	$2,561 38	$3,798 34	$28,614 13	$3,474 51	$56,104 76

Special Appropriations.

Name of Appropriation.	Date made.	Amount of Apportionment.	Amount previously expended.	Amount expended during Fiscal Year.	Amount expended to Date.	Amount received from State Treasurer.	Balance on Hand with State Treasurer.
Sewers,	1912	$10,000 00	$9,240 55	$749 45	$10,000 00	$10,000 00	–
Miscellaneous improvements and repairs,	1913	26,000 00	16,550 55	9,449 45	26,000 00	26,000 00	–
Addition to French Hall,	1913	35,000 00	4,753 86	29,966 37	34,720 23	34,720 23	$279 77
Sewers,	1914	9,200 00	–	–	–	9,200 00	–
Hospital,	1913	15,000 00	–	1,947 52	1,947 52	1,947 52	13,852 48
Agricultural building,	1914	210,000 00	–	16,194 75	16,194 75	16,194 75	193,805 25
		$305,200 00	$30,554 96	$58,307 54	$87,862 50	$98,062 50	$207,937 50

Inventory — Real Estate.

Land (Estimated Value).

Baker place,	$2,500 00
Bangs place,	2,350 00
Clark place,	4,500 00
College farm,	37,000 00
Cranberry land,	11,025 00
Harlow farm,	3,284 63
Kellogg farm,	5,868 45
Louisa Baker place,	5,636 91
Old creamery place,	1,000 00
Pelham quarry,	500 00
Westcott place,	2,250 00
Allen place,	500 00
Charmbury place,	450 00
Loomis place,	415 00
Hawley & Brown place,	675 00
Newell farm,	2,800 00
	$80,754 99

College Buildings (Estimated Value).

Apiary,	$3,000 00
Animal husbandry building,	10,000 00
Chemical laboratory,	8,000 00
Clark hall,	67,500 00
Cold-storage laboratory,	12,000 00
Dairy building,	75,000 00
Dairy barn and storage,	30,000 00
Dining hall,	60,000 00
Drill hall and gun shed,	10,000 00
Durfee range and glass houses, old,	10,000 00
Durfee range and glass houses, new,	15,000 00
Entomology building,	80,000 00
Farm bungalow,	2,100 00
Farmhouse,	2,500 00
French Hall,	50,000 00
Horse barn,	5,000 00
Horticultural barn,	2,500 00
Horticultural tool shed,	2,000 00
Machinery barn,	4,000 00
Mathematical building,	6,000 00
North dormitory,	25,000 00
Physics laboratory,	5,500 00
Piggery,	3,000 00
Poultry breeding houses,	1,600 00
Poultry brooder house,	1,000 00
Poultry incubator cellar and demonstration building,	1,400 00
Poultry laboratory,	1,300 00
Poultry laying house,	1,800 00
Poultry mechanics and storage building,	1,900 00
Power plant and storage building,	18,500 00
President's house,	12,000 00

Quarantine barn,	$200 00
Sheep shed,	1,400 00
Small plant house, with vegetable cellar and cold grapery,	4,700 00
South dormitory,	35,000 00
Stone chapel,	30,000 00
Three houses on Stockbridge road,	5,000 00
Veterinary laboratory and stable,	23,500 00
Waiting station,	500 00
Wilder Hall,	37,500 00
Young stock barn,	6,500 00
	$671,900 00

College Equipment (Estimated Value).

Administrative division: —	
Dean's office,	$606 55
President's office,	1,548 00
Registrar's office,	861 00
Treasurer's office,	2,458 41
Agricultural division: —	
Agronomy,	1,598 14
Animal husbandry,	913 47
Dairy,	11,904 89
Farm administration,	1,158 34
Farm department,	35,199 89
Poultry,	3,752 59
Rural engineering,	199 49
Dining hall,	6,305 48
Extension,	6,340 53
General science: —	
Apiary,	1,691 34
Botanical,	9,818 63
Chemical,	12,298 05
Entomology,	6,406 18
Microbiology,	4,585 75
Mathematics,	2,543 70
History and political science,	20 75
Physics,	3,905 77
Veterinary,	9,361 40
Zoölogical laboratory,	9,449 52
Zoölogical museum,	6,511 05
Graduate school,	78 28
Horticultural division: —	
Floriculture,	6,989 72
Forestry,	1,546 57
General horticulture,	8,830 50
Grounds,	760 47
Landscape gardening,	5,071 21
Market gardening,	1,144 33
Pomology,	4,797 62
Humanities, division of: —	
Economics and sociology,	97 87
Language and literature,	248 15
Library,	77,795 85
Military,	1,492 42

Operating and maintenance: —		
College supply,		$610 41
Fire apparatus,		1,673 80
General maintenance,		85,951 53
Equipment,	$77,857 10	
Carpentry and masonry supplies,	2,748 62	
Electrical supplies,	1,408 89	
Heating and plumbing supplies,	3,192 40	
Painting supplies,	744 52	
Janitors' supplies,		368 92
Sewer line,		10,000 00
Water mains,		10,545 39
Physical education,		2,729 98
Rural social science: —		
Agricultural economics,		350 00
Agricultural education,		856 94
Rural social service,		101 75
Textbooks,		565 31
Trophy room,		1,647 10
		$363,693 04

Experiment Station Buildings (Estimated Value).

Agricultural laboratory,	$15,000 00
Agricultural barns,	5,000 00
Agricultural farmhouse,	1,500 00
Agricultural glass house,	500 00
Cranberry buildings,	2,800 00
Plant and animal chemistry laboratory,	30,000 00
Plant and animal chemistry barns,	4,000 00
Plant and animal chemistry dairy,	2,000 00
Six poultry houses,	600 00
Entomological laboratory and glass house,	850 00
	$62,250 00

Experiment Station Equipment (Estimated Value).

Agricultural laboratory,	$6,406 70
Botanical laboratory,	5,879 40
Chemical laboratory,	17,304 08
Cranberry station,	3,075 74
Director's office,	4,313 61
Entomological laboratory,	24,881 28
Horticultural laboratory,	2,006 00
Meteorology laboratory,	1,010 00
Poultry department,	2,242 35
Treasurer's office,	766 50
Veterinary laboratory,	150 00
	$68,035 66

Inventory Summary.

Land,	$80,754 99
College buildings,	671,900 00
College equipment,	363,693 04
Experiment station buildings,	62,273 00
Experiment station equipment,	68,035 66
	$1,246,656 69

Students' Trust Fund Accounts.

	Disbursements for Year ending Nov. 30, 1914.	Receipts for Year ending Nov. 30, 1914.	Balance on Hand.	Balance brought forward Dec. 1, 1913.
Athletic,	$10,737 45	$9,221 03	$789 27	$2,305 69
College signal,	2,381 75	2,206 81	241 01	415 95
Dining hall,	58,401 07	57,812 19	—365 37	223 51
Keys,	67 75	66 75	68 25	69 25
Students' deposits,	11,952 46	11,195 69	1,720 88	2,477 65
Social Union,	900 72	864 16	495 21	531 77
Textbooks,	4,630 85	4,896 68	732 05	466 22
Athletic field,	8,137 80	8,129 31	—8 49	–
Uniforms,	4,391 41	3,281 25	3,025 24	4,135 40
1913 index,	–	–	7 42	7 42
1914 index,	16 36	11 00	–	5 36
1915 index,	1,201 89	1,173 75	8 78	36 92
1916 index,	378 65	378 72	07	–
Totals,	$103,198 16	$99,237 34	$6,714 32	$10,675 14
Balance on hand Dec. 1, 1913,	–	10,675 14	–	–
Balance on hand Nov. 30, 1914,	6,714 32	–	–	–
	$109,912 48	$109,912 48	–	–

Detailed Statement of Dining Hall.

	Liabilities.	Resources.
Dec. 1, 1913, credit balance,	–	$223 51
Nov. 30, 1914, total disbursements,	$58,401 07	–
Nov. 30, 1914, outstanding bills,	2,410 25	–
Nov. 30, 1914, total collections,	–	57,812 19
Nov. 30, 1914, accounts outstanding,	–	235 40
Nov. 30, 1914, inventory,	–	2,883 71
Nov. 30, 1914, balance,	343 49	–
	$61,154 81	$61,154 81

Endowment Fund.[1]

	Principal.	Income.
United States grant (5 per cent.),	$219,000 00	$7,300 00
Commonwealth grant (3½ per cent.),	142,000 00	3,313 33
	–	$10,613 32

[1] This fund is in the hands of the State Treasurer, and the Massachusetts Agricultural College receives two-thirds of the income from the same.

Beneficiary Funds.

Burnham Emergency Fund.

	Market Value Dec. 1, 1914.	Par Value.	Income.
Two bonds American Telephone and Telegraph Company 4s, at $875,	$1,750 00	$2,000 00	$80 00
Two bonds Western Electric Company 5s, at $1,000,	2,000 00	2,000 00	100 00
	$3,750 00	$4,000 00	$180 00
Overdraft Dec. 1, 1913,	–	–	—39 45
Cash on hand Dec. 1, 1914,	–	–	$140 55

Library Fund.

Five bonds New York Central & Hudson River Railroad Company 4s, at $880,	$4,400 00	$5,000 00	$200 00
Five bonds Lake Shore & Michigan Southern Railroad Company 4s, at $900,	4,500 00	5,000 00	200 00
Two shares New York Central & Hudson River Railroad Company stock, at $88,	176 00	200 00	10 00
Amherst Savings Bank, deposit,	167 77	167 77	7 09
	$9,243 77	$10,367 77	$417 09
Nov. 28, 1914, transferred to college library account,	–	–	417 09

Special Funds.

Endowed Labor Fund (the Gift of a Friend of the College).

Two bonds American Telephone and Telegraph Company 4s, at $875,	$1,750 00	$2,000 00	$80 00
Two bonds, Lake Shore & Michigan Southern Railroad Company 4s, at $900,	1,800 00	2,000 00	80 00
One bond New York Central Railroad debenture 4s,	880 00	1,000 00	40 00
Amherst Savings Bank, deposit,	143 39	143 39	6 07
One bond Metropolitan Street Railway, Kansas City Company 5s, at	950 00	1,000 00	60 00
	–	$6,143 39	$266 07
Unexpended balance Dec. 1, 1913,	–	–	758 83
Cash on hand Dec. 1, 1914,	–	–	$1,024 90

Whiting Street Scholarship Fund.

One bond New York Central debenture 4s,	$880 00	$1,000 00	$40 00
Amherst Savings Bank, deposit,	271 64	271 64	11 51
	–	$1,271 64	$51 51
Unexpended balance Dec. 1, 1913,	–	–	84 65
Cash on hand Dec. 1, 1914,	–	–	$136 16

SPECIAL FUNDS — *Continued.*

Hills Fund.

	Market Value Dec. 1, 1914.	Par Value.	Income.
One bond American Telephone and Telegraph Company 4s, at	$875 00	$1,000 00	$40 00
One bond New York Central & Hudson River Railroad debenture 4s, at	880 00	1,000 00	40 00
One bond New York Central & Hudson River Railroad debenture 3½s, at	800 00	1,000 00	35 00
Two bonds Metropolitan Street Railway of Kansas City 5s, at $950,	1,900 00	2,000 00	120 00
Three bonds Pacific Telephone and Telegraph Company 5s, at $950,	2,850 00	3,000 00	150 00
One bond Western Electric Company 5s, at	950 00	1,000 00	50 00
Boston & Albany Railroad stocks, 3⅜ shares, at $180,	652 50	362 50	31 68
Amherst Savings Bank, deposit,	72 75	72 75	3 06
Electric Securities Company bonds, 1⅗₀, at $1,000,	1,121 00	1,180 00	59 00
	$10,101 25	$10,615 25	$528 74
Unexpended balance Dec. 1, 1913,	–	–	544 34
Disbursements by the Botanical Department for fiscal year ending Nov. 30, 1914,	–	–	$1,073 08 47 20
Cash on hand Dec. 1, 1914,	–	–	$1,025 88

Mary Robinson Fund.

Boston & Albany Railroad stock, ⅜ share, at $180,	$67 50	$38 00	$3 32
Electric Securities Company bonds, 4⅕₀ share, at $1,000,	779 00	820 00	41 00
	$846 50	$858 00	$44 32
Unexpended balance Dec. 1, 1913,	–	–	125 32
	–	–	$169 64
Disbursements for fiscal year ending Nov. 30, 1914,	–	–	13 75
Cash on hand Dec. 1, 1914,	–	–	$155 89

Grinnell Prize Fund.

Ten shares New York Central & Hudson River Railroad stock, at $82,	$820 00	$1,000 00	$50 00
Unexpended balance Dec. 1, 1913,	–	–	195 74
	–	–	$245 74
Disbursements for prizes,	–	–	50 00
Cash on hand Dec. 1, 1914,	–	–	$195 74

Gassett Scholarship Fund.

One bond New York Central & Hudson River Railroad debenture 4s,	$880 00	$1,000 00	$40 00
Amherst Savings Bank, deposit,	–	11 64	46
	–	$1,011 64	$40 46
Unexpended balance Dec. 1, 1913,	–	–	71 39
	–	–	$111 85
Disbursements for fiscal year ending Nov. 30, 1914,	–	–	10 00
Cash on hand Dec. 1, 1914,	–	–	$101 85

SPECIAL FUNDS — *Concluded.*

Massachusetts Agricultural College (Investment).

	Market Value Dec. 1, 1914.	Par Value.	Income.
One share New York Central & Hudson River Railroad stock,	$88 00	$100 00	$5 00
Unexpended balance Dec. 1, 1913,	–	–	65 45
Cash on hand Dec. 1, 1914,	–	–	$70 45

Danforth Keyes Bangs Fund.

Two bonds Pacific Telephone and Telegraph Company 5s, at $950,		$1,900 00	$2,000 00	$100 00
Two bonds Union Electric Light and Power Company 5s, at $950,		1,900 00	2,000 00	100 00
Two bonds American Telephone and Telegraph Company 4s, at $875,		1,750 00	2,000 00	80 00
Interest from student loans,		–	–	29 86
		–	$6,000 00	$309 86
Unexpended balance Dec. 1, 1913,		–	–	380 35
		–	–	$690 21
Total loans made to students during fiscal year,	$1,688 00			
Cash received on account of student loans,	1,379 00			
Excess of loans made, over accounts paid by students,				309 00
Cash on hand Dec. 1, 1914,				$381 21

John C. Cutter Fund.

One bond Pacific Telephone and Telegraph Company 5s,	$950 00	$1,000 00	$50 00
Unexpended balance Dec. 1, 1913,	–	–	13 12
	–	–	$63 12
Disbursements for fiscal year to date,	–	–	32 87
Cash on hand Dec. 1, 1914,	–	–	$30 25

Summary of Balances on Hand of the Income from Funds held in Trust by the Massachusetts Agricultural College.

Burnham emergency,	$140 55
Endowed labor fund,	1,024 90
Whiting Street scholarship fund,	136 16
Hills fund,	1,025 88
Mary Robinson fund,	155 89
Grinnell Prize fund,	195 74
Gassett scholarship fund,	101 85
Massachusetts Agricultural College investment fund,	70 45
Danforth Keyes Bangs fund,	381 21
John C. Cutter fund,	30 25
	$3,262 88

I hereby certify that I have this day examined the Massachusetts Agricultural College account, as reported by the treasurer, Fred C. Kenney, for the year ending Nov. 30, 1914. All bonds and investments are as represented in the treasurer's report. All disbursements are properly vouched for, and all cash balances are found to be correct.

CHARLES A. GLEASON,
Auditor.

History of Special Funds.

Burnham emergency fund: —

A bequest of $5,000 from T. O. H. P. Burnham of Boston, made without any conditions. The trustees of the college directed that $1,000 of this fund should be used in the purchase of the Newell land and Goessmann library. The fund now shows an investment of $4,000 00

Library fund: —

The library of the college at the present time contains about 41,000 volumes. The income from the fund raised by the alumni and others is devoted to its increase and additions are made from time to time as the needs of the different departments require. Dec. 27, 1883, William Knowlton gave $2,000; Jan. 1, 1894, Charles L. Flint gave $1,000; in 1887 Elizur Smith of Lee, Mass., gave $1,215. These were the largest bequests and now amount to 10,000 00

Endowed labor fund: —

Gift of a friend of the college in 1901, income of which is to be used for the assistance of needy and deserving students, ... 5,000 00

Whiting Street scholarship: —

Gift of Whiting Street of Northampton, for no special purpose, but to be invested and the income used. This fund is now used exclusively for scholarship, . $1,000 00

Hills fund: —

Gift of Leonard M. and Henry F. Hills of Amherst, Mass., in 1867, to establish and maintain a botanic garden, ... 10,000 00

Mary Robinson fund: —

Gift of Miss Mary Robinson of Medfield, in 1874, for scholarship, ... 1,000 00

Grinnell prize fund: —

Gift of Hon. Wm. Claflin, to be known as the Grinnell agricultural prize, to be given to the two members of the graduating class who may pass the best oral and written examination in theory and practice of agriculture, given in honor of George B. Grinnell of New York, ... 1,000 00

Gassett scholarship fund: —

Gift of Henry Gassett of Boston, the income to be used for scholarship, ... 1,000 00

Massachusetts Agricultural College investment fund: —

Investment made by vote of trustees in 1893; to purchase one share of New York Central & Hudson River Railroad stock. The income from this fund has been allowed to accumulate, ... 100 00

Danforth Keyes Bangs fund: —

Gift of Louisa A. Baker, of Amherst, Mass., April 14, 1909, the income thereof to be used annually in aiding poor, industrious and deserving students to obtain an education in said college, ... 6,000 00

John C. Cutter fund: —

Gift of Dr. John C. Cutter, of Worcester, Mass., an alumnus of the college, who died in August, 1909, to be invested by the trustees, and the income to be annually used for the purchase of books on hygiene, ... 1,000 00

$41,000 00

PRIZES.

Special prize, given by the Western Alumni Association to that member of the sophomore class who during his first two years has shown the greatest improvement in scholarship, character and example, ... $25 00

Animal husbandry. The F. Lothrup Ames prize, given by F. Lothrup Ames, Langwater Farms, North Easton, Mass., consisting of $150 a year, offered for a period of five years, to be given to the three students standing highest in the work of advanced live stock judging, and to be used in defraying their expenses incurred by participation in the students' judging contest at the National Dairy Show, Chicago. Given in May, 1912, available first in autumn of 1912, and for the four succeeding years, .	$150 00
Entomology. Special prize in entomology, given by Prof. H. T. Fernald of the Department of Entomology to that member of the class taking Entomology 2, who presents the best collection of insects, ...	5 00
	$180 00

FRED C. KENNEY,
Treasurer.

THE M. A. C. BULLETIN

AMHERST, MASS.

Vol. VIII. No. 2 February, 1916.

Published Six Times a Year by the College.
Jan., Feb., Mar., May, Sept., Oct.

ENTERED AS SECOND-CLASS MATTER AT THE POST OFFICE, AMHERST, MASS.

Public Document No. 31

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OF THE

MASSACHUSETTS AGRICULTURAL COLLEGE.

PART I.

REPORT OF THE PRESIDENT AND OTHER OFFICERS OF ADMINISTRATION

FOR FISCAL YEAR ENDED NOV. 30, 1915.

Report 1914—15

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32 DERNE STREET.
1916.

Approved by
The State Board of Publication.

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The Commonwealth of Massachusetts.

Massachusetts Agricultural College,
Amherst, Dec. 1, 1915.

To His Excellency David I. Walsh.

Sir: — On behalf of the trustees of the Massachusetts Agricultural College I have the honor to transmit herewith, to Your Excellency and the Honorable Council, Part I. of the fifty-third annual report of the trustees, for the fiscal year ended Nov. 30, 1915, this being the report of the president of the college and other officers of administration to the corporation.

I am, very respectfully, your obedient servant,

KENYON L. BUTTERFIELD,
President.

REPORT OF THE PRESIDENT OF THE COLLEGE.

Gentlemen of the Corporation.

I herewith submit my annual report as president of the Massachusetts Agricultural College, and with it transmit reports from the other administrative officers of the institution.

GENERAL REVIEW OF THE YEAR.

Marquis F. Dickinson.

Mr. Marquis F. Dickinson died at his home at Marks Meadow, Amherst, Sept. 18, 1915. From 1905 to 1913 Mr. Dickinson was a member of our Board of Trustees; he served continuously on the important committees of buildings and grounds and of course of study and faculty; from 1907 to 1912 he was chairman of the former. The following tribute was adopted by the trustees, and spread upon their records, at a meeting held Oct. 30, 1915: —

Marquis Fayette Dickinson was a member of this Board from 1905 to 1913, succeeding to the vacancy caused by the resignation of Charles L. Flint. His appointment by Governor Bates was a surprise to many, and was criticized by a number of practical farmers, who thought at the time that a practical farmer instead of a lawyer should be appointed to the Board. The appointment proved a wise one, for we needed a man of Mr. Dickinson's training and temperament. We needed a lawyer to advise us in legal matters. Mr. Dickinson's services were invaluable in this respect.

But, aside from legal advice, Mr. Dickinson was a wise counsellor and a genial associate. His keen humor and happy suggestions often relieved a tense moment in our discussions. He possessed a charming personality, always sunny, buoyant and optimistic. He took a broad, hopeful view of life, and of the work of this institution. While Amherst College was his alma mater, yet he loved "Aggie" as much as he did Amherst, for it touched him to have been made one of its trustees.

He was a loyal friend of the college and of those who came to know him intimately. We regret that ill health compelled him to resign, but he left a delightful memory and a splendid example of faithful, cheerful, helpful service. This Board wishes to record its deep appreciation of that service, and to extend to his family its sincere sympathy.

Changes in Trustees.

About a year ago Mr. George P. O'Donnell of Northampton resigned from the Board of Trustees. Although a member less than two years he rendered able and helpful service. His successor, Mr. John F. Gannon, is assistant superintendent of schools in Worcester, and brings a knowledge and experience which have already proved of great value.

Resignation of Prof. J. Allan McLean.

The resignation of Prof. J. A. McLean was accepted to take effect September 30. Professor McLean was head of the Department of Animal Husbandry for four and one-half years, and during that time became an influential leader in stimulating interest in the live-stock industry of Massachusetts. Under his direction the animal husbandry work of the college was greatly improved. He developed a series of courses fully equipping young men to engage in the animal husbandry industry, or to become teachers, investigators or Extension Service workers in this field. He encouraged competitions in live-stock judging among the students, and the teams representing this college repeatedly won distinction in stock-judging contests in New England and at the International Dairy Show at Chicago. The live-stock equipment of the college was, under Professor McLean's direction, greatly amplified.

Retirement of Capt. George C. Martin.

In January, 1915, Capt. George C. Martin, U. S. A., retired, was relieved of his duties as commandant and professor of military science and tactics at this institution. Captain Martin was first detailed to this post in September, 1905; in 1909, when his first detail expired, he was, at the request of the president, detailed for another period of four years; when his second term expired it was impossible to secure the detail of Lieut. Henry W. Fleet, the army officer whom we had selected for the work here. It was not until this last winter that the appointment of Lieutenant Fleet was made, and accordingly Captain Martin continued to serve as commandant until that

time. The trustees' committee on course of study and faculty, at a meeting held on Feb. 5, 1915, adopted the following resolutions with respect to Captain Martin's service: —

Whereas, For nearly ten consecutive years Capt. George C. Martin, U. S. A., retired, has rendered faithful and efficient service as head of the Department of Military Science at the Massachusetts Agricultural College; and

Whereas, During this period he has elevated the work of the department to a high plane of efficiency; and

Whereas, He has ever enjoyed the respect and admiration of students and faculty associates; be it

Resolved, That the trustees do hereby formally express their appreciation of and gratitude for the service thus rendered.

I wish to add a word of deep personal appreciation of Captain Martin's services to his department and loyalty to the full range of interests of the college.

Prof. Richard H. Ferguson.

Richard Hay Ferguson, extension professor of Agricultural Economics since Jan. 1, 1914, died Dec. 1, 1915, after an illness of three months. He was a native of Belfast, Ire., but had spent most of his life in New Zealand, where he was graduated from Canterbury College at Christ Church. Coming to America in 1911 he completed the course at the Agricultural College, Guelph, Can., since which time he has been engaged in educational work. Having been in close touch with agricultural co-operation in New Zealand, he was well fitted to take up the extension work in co-operation and marketing. He was a tireless worker, and nearly twenty farmers' co-operative associations organized in Massachusetts since he came to the college testify to the success of his work. He made also a study of the methods and costs of milk distribution in Massachusetts, probably the most careful and complete that has been anywhere attempted. Mr. Ferguson was a man of wide interests, a thorough student, a loyal friend, a most valuable man. His service in making the beginnings of a business organization of Massachusetts farmers marks a new epoch in the agricultural history of the Commonwealth.

NEW PROFESSORIAL APPOINTMENTS.

On the retirement of Captain Martin the War Department detailed Lieut. Henry W. Fleet as commandant. Lieutenant Fleet was educated at the Culver Military Academy and at the University of Virginia. He has been a commissioned officer in the United States army since 1902, and just previous to his detail here served with his regiment in the southwest and in Mexico. It is evident that under Lieutenant Fleet the work in military science will be conducted on the same high plane of efficiency established by Captain Martin.

Orville A. Jamison was elected to the newly created position of assistant professor of dairying. Professor Jamison is a graduate of the Ohio State University, and has had three years of successful experience as a teacher at the Michigan Agricultural College and at the University of Maine.

Earl Jones succeeds Prof. E. M. McDonald, who resigned in February, 1915, from the position of assistant professor of agronomy. Professor Jones is a graduate of the Ohio State University, and received his degree of master of science from that institution in 1913. For two years he served as instructor in agronomy at the University of Maine.

John C. McNutt has been elected to succeed Prof. J. A. McLean as head of the Department of Animal Husbandry, and will assume his duties Jan. 1, 1916. Professor McNutt was born and reared on a farm in Ohio, and received his academic training at the Ohio State University. For two years he taught animal husbandry at the New Hampshire State College, and for the past four years has been professor of animal husbandry at the North Carolina College of Agriculture and Mechanic Arts. While in college Mr. McNutt specialized in animal husbandry, and on various occasions won distinction as a judge of live stock. While in New Hampshire he was particularly successful in training student stock-judging teams, and this has been followed by conspicuous success at North Carolina.

John Phelan was elected head of the Department of Rural Sociology to succeed Prof. E. K. Eyerly, whose resignation took effect Aug. 31, 1914. Professor Phelan was educated at the

Western State Normal School at Kalamazoo, Mich., and at the University of Michigan. He taught for several years in rural schools in the west. For two years he was director of the rural school department at the Western State Normal School, and for the past two years has held a similar position at the Stevens Point, Wis., normal school. Professor Phelan is well fitted by training and experience to develop our work in rural sociology in a satisfactory manner, and he has entered into the work with enthusiasm and skill.

Charles H. Thompson was chosen to fill the newly created position of assistant professor of horticulture. Professor Thompson was educated at the Kansas State Agricultural College, and for nearly twenty years was associated with the Missouri Botanic Gardens at St. Louis as teacher and research worker along horticultural lines. Professor Thompson will teach various courses in plant propagation and plant materials, thus relieving instructors whose primary work is along different lines.

Andrew S. Thomson takes the new position of assistant professor of market gardening. Professor Thomson is a graduate of Brown University, and has pursued graduate work at Columbia University. He has had a long and successful experience as a teacher and superintendent of schools. For three years he has been at the head of the department of agriculture at the Clarion, Pa., normal school.

Harold F. Tompson was secured to serve as head of the Department of Market Gardening. He will, however, devote most of his time to extension work among the market gardeners in the vicinity of Boston. Professor Tompson was graduated at this institution in 1905, and has had a very successful experience as a practical market gardener in the southeastern part of Massachusetts. From time to time he has also taught with marked success.

Sumner R. Parker, during the closing days of the year, was elected to a position in the Extension Service, which gives him the government title of assistant State leader. He will take the place of Mr. Benjamin W. Ellis, who has resigned to enter practical work. Mr. Parker's employment will begin Dec. 6, 1915. Mr. Parker is a graduate of this institution of the class of 1904, and was for many years manager of the Mixter Farm

at Hardwick, Mass. For nearly a year he has been agricultural adviser for the Franklin County Farm Bureau. His work will be that of organizing the farm bureau work in this State.

Attendance.

The total enrollment of students in work of college grade exceeds that of a year ago by 58, or 9½ per cent. This increase is due almost entirely to the freshman class, which this fall has a registration of 211, as compared with 168 of a year ago. This is the largest entering class which we have ever had, exceeding that of 1913 by 9. The number is probably not so great, however, as it would have been had we had a normal increase in the size of the class entering in 1914. It should be noted that the present sophomore class has now an enrollment of 162, whereas its initial enrollment as freshmen was only 168. Usually a very much larger percentage of the class fail to meet our scholarship requirements for the first year. Attention should be called to the fact that 9 young women entered with the freshman class this fall; the total number of women students in regular attendance is now 18. (See Table V. for analysis of the enrollment.)

Short Courses.

The usual winter and summer schools, together with their accompanying conferences, have been conducted this year with continued success. The enrollment in the winter school was 182, the same number as were present in 1914. On account of the prevalence in the State of the hoof and mouth disease it was deemed advisable to cancel the annual farmers' week, the school for tree wardens and the Polish farmers' day. The summer school of agriculture and country life had an enrollment of 162, this number being about 10 per cent. greater than in 1914. The school for rural social service, the school for library workers and the poultry convention were all well attended, as was also the conference on rural community planning. The demand for boys' agricultural camps has grown to such an extent that this year we were obliged to conduct three camps, the total enrollment being 92. This year, for the first time, we opened

a camp for country girls, the attendance being 13. (See Table V. for complete statistics of attendance at these schools and conferences.)

Commencement.

The annual Commencement Day exercises were held Wednesday, June 16. For the first time in the history of the college the number of graduates reached and exceeded 100. The degree of bachelor of science was conferred on 100 men and 1 woman; the degree of master of science was conferred on 5 candidates; and the degree of doctor of philosophy on 5. The alumni dinner was attended by 241 alumni and officers of the college. Hon. Carl S. Vrooman, assistant secretary of the United States Department of Agriculture, delivered the Commencement address, his subject being "The Farmer of the Future."

Celebration of the Fiftieth Anniversary of the College in 1917.

Oct. 2, 1917, will mark the fiftieth anniversary of the opening of the college to students. It is planned to have at about this time an appropriate celebration of the event. A faculty committee is already at work on plans for celebrating this anniversary, and the details of the program will be announced at a later date. It is probable that a pageant, covering the history of New England agriculture, will be a prominent feature.

Panama-Pacific Exposition.

The college prepared for the Panama-Pacific Exposition a display of horticultural appliances and methods; also an exhibit covering the work in rural social science. This exhibit was a part of the general agricultural exhibit prepared by the United States Department of Agriculture, which exhibit was awarded a gold medal.

The Four-term Plan and Summer Work.

During the past year the faculty has developed a project which has been approved by the trustees, whereby the college year will be divided into four terms or quarters, thus offering an opportunity to arrange work for college credit during the

summer months. This appears to be a distinctly progressive movement whereby the college plant, or such parts of it as can be utilized to advantage during the summer, will be used in the more adequate training of our students. It is expected, also, that by dividing the present college year into three terms instead of into two semesters better instruction can be given. It has been found that the task of readjusting our present curriculum to the new proposed plan is one of considerable magnitude. Accordingly, the new schedule will not be ready for operation until the fall of 1916.

Nonathletic Student Activities Board.

About a year ago several leaders of student activities requested that these nonathletic activities be organized in some such way as are the athletic activities. Accordingly, various conferences were held between representatives of the students and of the faculty, and as a result a Nonathletic Student Activity Board has been organized, following the plan adopted in the management of athletics. This board is composed of faculty, alumni and student representatives. Prof. H. E. Robbins has been appointed general manager of this work, and has general control and supervision over all of the student activities represented on the board; this supervision extends to all financial transactions as well as to schedules of appointments and other questions of administration and policy.

The Graduate Summer School, 1916.

For some years the Association of American Agricultural Colleges and Experiment Stations has held biennial sessions of a summer school intended to meet the requirements of persons on the agricultural staffs of the land grant colleges. The school is in session a month, the lectures being given by men prominent in their respective lines of work, both in this country and abroad. The school has convened heretofore at Ohio State University, Cornell University, the University of Illinois, Iowa State College, Michigan Agricultural College and the University of Missouri. The association, on our invitation, voted to hold the next session on our campus during the month of July,

1916; the acceptance was a compliment to the college, and the event should be of direct significance and of substantial aid in connection with our own graduate school.

County Leagues and Farm Bureaus.

Under a law passed by the Massachusetts Legislature of 1913, some nine county leagues and farm bureaus have been organized and are at work. Their organization is part of a nation-wide movement which has introduced a new and aggressive agency into the system of agricultural education.

The plan of organization of these bureaus varies in different States. In the large majority of States the "county agent" is an employee of the agricultural college and directly responsible to the college. The farm bureau is always a voluntary organization, but usually receives local public aid as well as private financial assistance. In some cases the bureau is in reality a federation of existing organizations; in others it is entirely distinct. In our own State the county agent is an employee not of the college but of the farm bureau.

The precise relation between the college and the county farm bureaus is not yet fully defined either by the law or in practice, possibly not even in theory. It is important that in the near future this relationship should be developed to a complete and satisfactory understanding. Probably under the Massachusetts law the secret of correlation is a thoroughgoing co-operative scheme which recognizes the integrity of each bureau, provides for a certain amount of both State and Federal aid, and requires approval of "projects" and of employees by the State and Federal authorities. However this may be, it is clear that the work done by the farm bureaus and leagues should be part of the State system of popular agricultural education, and in particular should fit definitely with the Extension Service of the college.

The Massachusetts Agricultural Development Committee.

In my report for 1912 (page 46) I recommended "a commission on agricultural education and organization." On vote of the trustees, supplemented by a vote of the State Board of

Agriculture, a voluntary committee was organized, consisting of the representatives of some six agencies. One meeting of this committee was held and officers chosen, but no steps were taken towards the accomplishment of results. Last winter two or three proposals were made in the Legislature for commissions on agricultural development, but none of them passed the Legislature. As a direct result, however, of the discussion of these proposals there was organized a voluntary committee, which took the name of the Massachusetts Agricultural Development Committee, and which is at present composed of the agricultural agent of the State Board of Education, the State Forester, the chairman of the executive committee of the State Grange, a representative of the County Agricultural Schools, a representative of the State Federation of Improvement Leagues and Farm Bureaus, and the president of the Massachusetts Agricultural College.

In addition to your authorization of my own service with this committee, you also granted permission to Dr. Cance and Professor Morgan to serve as agents of the committee. The committee has considered the question of providing for an adequate study of the agricultural resources of the Commonwealth, a plan, which when developed further by the committee, I hope to be able to present to your Board. The committee has also served as a clearing house for the discussion of proposed agricultural legislation. I am confident that great service has already been rendered by this committee, and expect that before long the agricultural problem in Massachusetts will have been charted, the various agencies at work will have been listed, and that we will see the beginning of fuller co-operation of all rural agencies on behalf of the maximum improvement of Massachusetts agriculture and country life.

The Massachusetts Federation for Rural Progress.

At your annual meeting in January, 1913, you authorized the college administration to take steps to call a meeting for the organization of a federation of the agricultural and country life institutions of the State. This organization was effected in the autumn of 1913, under the name of the Massachusetts Federation for Rural Progress. It was discovered that there were

some twenty-five or thirty State-wide agencies, supported either at public or at private expense, interested in one phase or another of Massachusetts agriculture and country life. The federation has brought together representatives of these agencies a number of times, has held series of conferences on rural affairs, and in various other ways has made a real contribution to the ever present and significant task of organizing Massachusetts agriculture and country life.

Legislative Appropriations.

The Legislature of 1915 was requested to grant us appropriations for: (*a*) addition to the power plant, $30,000; (*b*) miscellaneous additions, $10,000; (*c*) student dormitory, $40,000; (*d*) laboratory for microbiology, $67,500. The only appropriations granted, however, were those for the laboratory for microbiology, $67,500, and a portion of our request for the addition to the power plant, $10,000. An attempt was made last winter to secure from the Legislature a continuing appropriation for buildings and other improvements; the request was for $200,000 a year for six years. The Legislature, however, declined to grant this request.

Alumni Athletic Field.

The past year has seen several important advances toward the completion of the athletic field. In June, 1915, sufficient funds had been raised to pay what was still due for grading the field, and a balance of about $700 was on hand. Plans for fencing were considered, and it was decided to erect a permanent wire fence on the north, west and south sides, leaving the east side until certain parts of the grade could be extended. This fence was completed in September at a cost of $1,900. The grounds service of the college has done considerable work in filling and in extension of grades, including the preparation of the baseball diamond; this work has cost $500. With the opening of college in September it was evident that certain portions of the field were in condition for use in football. Therefore movable bleachers capable of seating 600 people were purchased at a cost of $500.

The above statements show that approximately $3,000 has been expended upon the field this year. Of this amount about $1,500 still remains to be raised; it is hoped that this may be done before spring, so that other necessary construction may be started. The field was open for use this autumn, and its present condition is far better at this early date than was expected. It has a fine grass turf, and the surface is very firm and level. The drainage system seems to be working perfectly. The next step in the development of the field is the construction of a cinder track and tennis courts. With student assistance the running track should cost $2,000 and the tennis courts from $250 to $300 each. When these additions have been made the athletic field will be quite adequately equipped for both intercollegiate and intramural sports.

Construction, Improvements and Repairs.

This year marked an epoch in the "brick and mortar" history of the institution on account of the amount of money expended on building construction. The infirmary buildings were started in the late fall of 1914 and were completed in May of this year. The agricultural building, Stockbridge Hall, which was begun in the summer of 1914, was completed by the middle of October of this year. This project also includes a small greenhouse for the Department of Agronomy, and one wing of the shops for the Rural Engineering Department. This building is described more fully on another page. The appropriation for these two groups of buildings aggregated $225,000. The Legislature of 1915 granted an appropriation for improvements at the power plant, $10,000, and for a laboratory for microbiology, $67,500. The latter building was started in the early part of August and is well under way; the contract calls for the completion in March, 1916. With a legislative appropriation of $10,000 for improvements at the power plant, in lieu of the $30,000 in the original, the boiler room was enlarged and one new 200 horse-power boiler installed.

A number of minor improvements have been made, such as the resetting of two of the old boilers at the power plant, extending the cinder walk from the east experiment station to the

INFIRMARY BUILDINGS, COMPLETED IN 1915.

walk leading to the college ravine, constructing an incubator cellar for the Poultry Department and a small fumigating house for hospital work. Among the repairs might be noted the painting of the entomology building and the greenhouse range, and a number of small repairs at the sheep, young stock and quarantine barns.

The Infirmary.

The Legislature of 1913 appropriated $15,000 for the construction and the equipment of a student infirmary. Some delay was experienced in perfecting plans for this infirmary, and the building was accordingly not completed until the spring of 1915, and was opened for occupancy at the beginning of the present college year. It was found that the appropriation of $15,000 was not adequate to construct a hospital of sufficient size to accommodate the students now in attendance at this institution. It was decided, therefore, to construct two cottages, which may be easily converted into isolation hospitals solely, should the general hospital be constructed later. In order to accommodate the resident nurse in the present equipment, apartments were added to one of the cottages. This plan precludes the introduction of a surgical operating room and other features in connection with a general hospital, such as laundry, emergency ward and other conveniences. The present scheme, therefore, is incomplete, inconvenient in many ways, and in some respects not wholly satisfactory. But on the other hand, it enables the institution to make a beginning in caring for its sick students, and meets in a fair way a very real need. It is hoped that funds may become available in the near future to complete the original plan for a general hospital building, and to add other isolation cottages.

A resident nurse now has charge of the hospital. A nominal charge is made to those students going to the infirmary for permanent treatment. The individual also is obliged to pay his own doctor's bills and for special nurses which may be required; also for special medicine supplies and laundry. No charge is made to students going to the infirmary for incidental treatment. The officials encourage students to go to the infirmary in case of illness or accidents, the purpose being to

improve the general health of the student body by treating illness in the incipient stage. A brief summary of the number of cases treated at the hospital since college opened in September is found in Table X.

Stockbridge Hall.

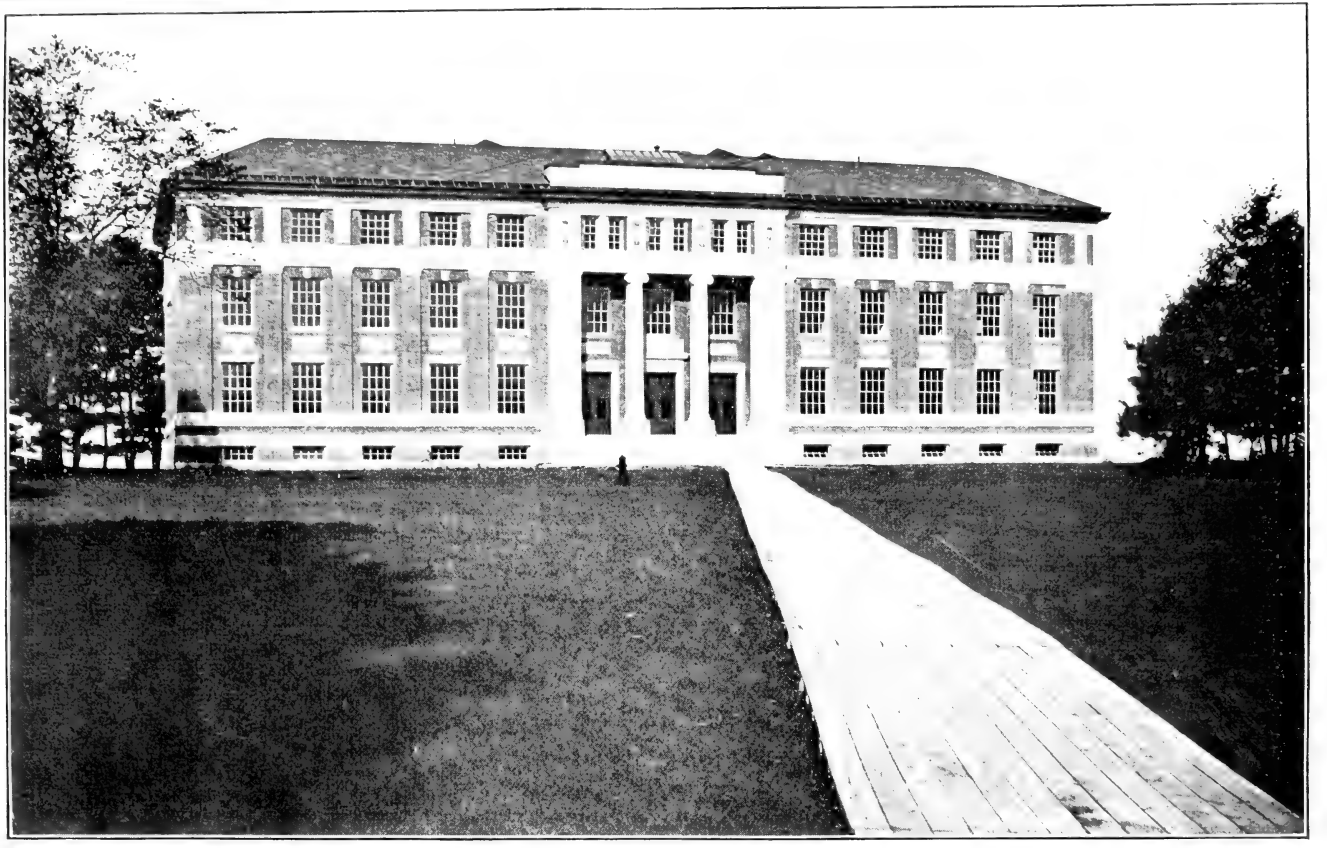
The new agricultural building, Stockbridge Hall, which was dedicated October 29, is well fitted for the purposes for which it was designed. The building is built of brick trimmed with limestone; the floors and interior supports are of reinforced concrete and steel, well protected. While this makes a permanent structure fireproof throughout, the fact that the interior walls on the three main floors are of gypsum block, allows the possibility of quite radical changes in the room arrangement without prohibitive expense, provided future needs make changes necessary. The interior finish is oak, and the lighting of the main building is semi-indirect. The building has a frontage of 166 feet and a depth of 60 feet. There are three floors and a basement available for college purposes. A private branch exchange telephone system has been installed, connecting the different offices in the building as well as the other offices in the Division of Agriculture.

The building will furnish laboratories, classrooms and offices for the Departments of Agronomy, Animal Husbandry, Farm Administration, Poultry Husbandry and Rural Engineering.

There are two large soil laboratories in the basement with stock rooms, balance rooms and a centrifuge room. A large laboratory for the use of the Department of Rural Engineering, as well as a lecture room and several storerooms, is also arranged for in the basement.

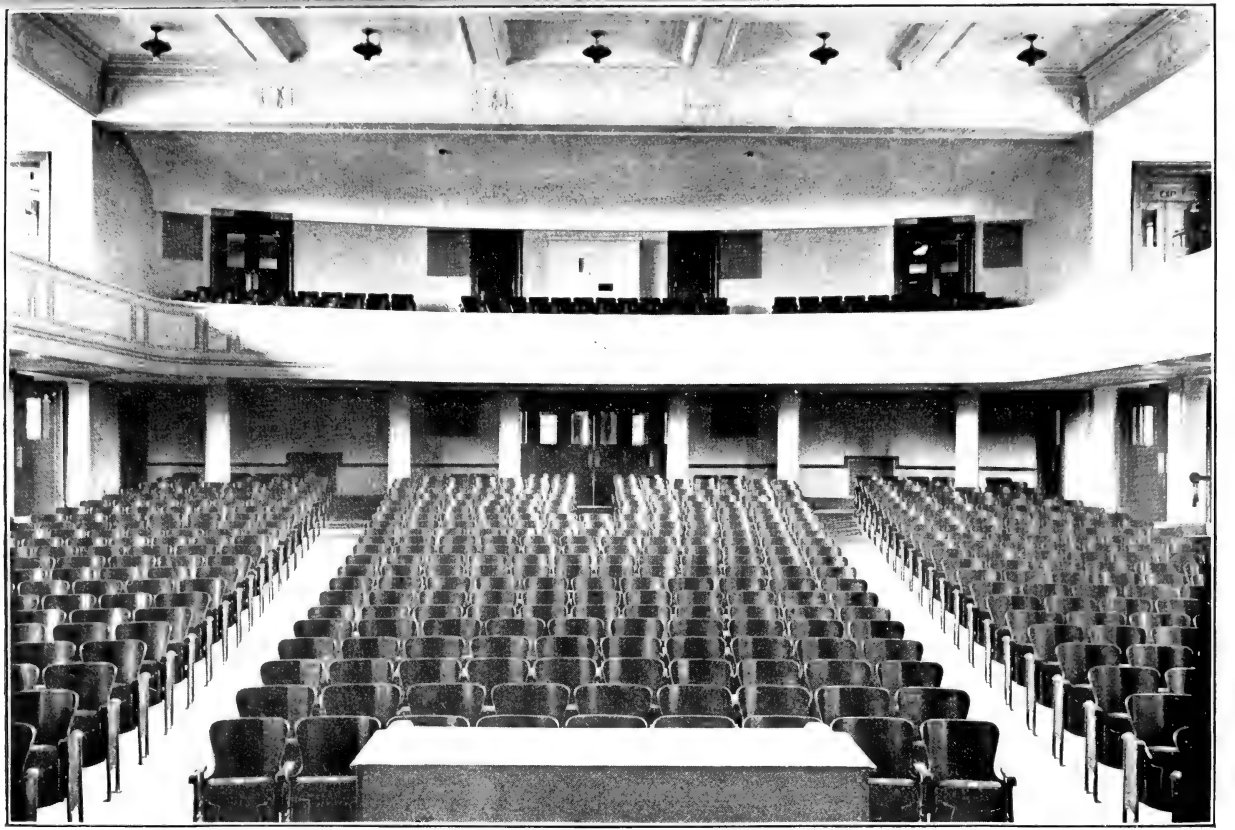
On the first floor there are five classrooms in addition to coat rooms and the offices of the Departments of Agronomy and Farm Administration.

On the second floor there are two large field crop laboratories, one at each end of the building, each laboratory having light on three sides. The second floor also contains the division library and reading room and the offices of the Departments of Animal Husbandry and Poultry Husbandry, as well as balance rooms and stock rooms.



STOCKBRIDGE HALL, COMPLETED IN 1915.

STOCKBRIDGE HALL, COMPLETED IN 1915.



AUDITORIUM, STOCKBRIDGE HALL.

On the third floor there are two large laboratories for student work in poultry husbandry, as well as suitable facilities for research work. There is also a large drafting room for the Department of Rural Engineering, a museum, and some office room that is being used temporarily by the Departments of Agricultural Education, English and Rural Journalism.

The attic contains rooms for the student janitors, and a large, well-lighted mouse-proof compartment for the storage of all kinds of grain and other plant material for class work.

An auditorium, 96 by 76 feet, is connected with the main building and seats 1,000 people. An ample stage is provided with curtain and footlights. A beautiful organ has been installed. A feature of the room is a motion-picture machine, the latter being included in the equipment, owing to its growing use in educational work.

Stockbridge Hall is our latest and best building. It represents the most modern ideas in regard to classrooms, offices and laboratories. No room is wasted. It is a substantial and beautiful building. It should be of service to the college literally for hundreds of years. It is probably the largest and most complete building of its kind in New England, and one of the best in this country.

Stockbridge Hall was formally dedicated Oct. 29, 1915. The following program was held in the afternoon, and in the evening the organ in the auditorium was dedicated by Prof. William C. Hammond of Holyoke, assisted by Miss Ada Chadwick of Mount Holyoke College. On October 2 the new auditorium was informally dedicated by the students and faculty, at which time the students gave a program of music and drama.

DEDICATION OF STOCKBRIDGE HALL, FRIDAY, OCT. 29, 1915.

Program.

"Tancred Overture," ..... Rossini.

COLLEGE ORCHESTRA.

Prayer.

EDWARD M. LEWIS, Dean of the College.

"Levi Stockbridge and Charles L. Flint."

WILLIAM H. BOWKER, M. A. C., '71, Chairman of Trustees' Committee on Buildings and Grounds.

"Agricultural Possibilities in New England."

JOSEPH L. HILLS, M. A. C., '81, Dean, College of Agriculture, University of Vermont.

"Ballet Egyptien," ..... A. Luigini.

I. Allegro non troppo.
II. Allegretto.
III. Andante sostenuto.
IV. Andante exprissive.

COLLEGE ORCHESTRA.

"The Engineer in Agriculture."

WILFRID WHEELER, Secretary of the State Board of Agriculture.

"The Stone which the Builders rejected."

Pres. KENYON L. BUTTERFIELD.

Beginning on page 9 of this report will be found the following tables and statistics: —

Table	I.	New Appointments.
Table	II.	Resignations.
Table	III.	Change in Title of Officers of the Institution.
Table	IV.	Speakers for the Year.
Table	V.	Attendance.
Table	VI.	Legislative Budget, 1915.
Table	VII.	Statistics of the Freshman Class.
Table	VIII.	Entrance Statistics of the Freshman Class.
Table	IX.	Official Visits by Outside Organizations.
Table	X.	Statistics of Patients at the Infirmary.

THE IMMEDIATE NEEDS OF THE COLLEGE.

The Legislative Budget for 1916.

Your Board has already voted the following budget for presentation to the incoming Legislature: —

Completion of power plant,	$35,000 00
Library,	230,000 00
Completion of rural engineering shops,	12,000 00
Student dormitory,	40,000 00
Miscellaneous improvements and new equipment,	60,000 00
Extra labor on account of Saturday half holiday,	5,000 00
	$382,000 00

The following is a brief statement of the need for the appropriations as listed: —

Addition to the Power Plant, $35,000.

Our request of a year ago was for an appropriation of $30,000 to enlarge and further equip the power plant. The Legislature made a grant of $10,000 for this purpose. With this money it was possible to extend the boiler room and to install one new 200 horse-power boiler. But new buildings mean new demands on both heat and light. The electrical load is a little over 400 kilowatts; the generators are rated at 150 kilowatts. It is imperative, therefore, that we increase our electrical equipment as soon as possible. To do this it will be necessary to build a building 40 by 60 feet, directly north of the boiler room, with full equipment. One new boiler should be added as a reserve. These improvements will cost $35,000, the details being as follows: —

One 40 by 50 foot brick building,	$10,000 00
One 300 kilowatt generator and turbine,	7,800 00
One switchboard,	2,000 00
Piping and labor for installing electrical equipment,	2,500 00
One 200 horse-power boiler,	4,000 00
Retaining wall and platform for coal pocket,	4,200 00
One chimney,	4,500 00
	$35,000 00

Library Building, $230,000.

In 1902 the late President H. H. Goodell, in submitting his annual report to the trustees, said: —

> Our library building is full to overflowing, and those books not in active circulation are being withdrawn and piled upon the floor or on the top of the cases. . . . It now numbers 23,681 volumes. . . . A new building properly equipped cannot be long delayed.

At the time that President Goodell wrote, the enrollment of regular students was 180; the enrollment of winter-course students 16; making a total maximum of 196 students who used the library.

Again, in 1903, President Goodell wrote: —

> The library has entirely outgrown its building. Twenty-eight hundred volumes have been withdrawn from circulation. . . . Another building, fireproof, with stackroom and all the adjuncts that add so much to the serviceableness of a modern library, is imperatively demanded.

At this time the enrollment of four-year men was 185; of winter-course students 28; making a total of 203 students who used the library.

At a time when there were less than 25,000 volumes in the library, and only 200 students, there was a strong feeling on the part of the administration that a new library building was needed. How much more is a new building needed when, after the lapse of thirteen years, we still have almost the same library facilities, but with nearly 50,000 volumes, or twice the number of books, and with 850 students, or over four times as many students.

The librarian, who has gone to the limit of his patience, suggests that the climbing of stepladders, the search for an unoccupied chair, and the squirming through crowded aisles necessarily detract greatly from serious study. It is hardly putting the case too strongly to say that we do not have respectable library accommodations. It must be remembered that the library is the vital intellectual center of college life. The library fosters every department of the college. It is a sort of

hub of a wheel which securely holds every spoke; or, to change the figure, every department has its roots firmly planted in the college library. The library is the big general laboratory of the institution. It is difficult to measure the loss from poor library facilities, for there are no standards; but it requires no argument to convince even the casual visitor to our library that we are seriously handicapped at every turn because of this deplorable lack of an adequate library building.

The present plans contemplate a modern fireproof building, with facilities that can be ultimately developed to care for 200,000 volumes and an institution of 2,000 students. It is also arranged so that the structure can be considerably enlarged when, in the course of time, demands upon the library cannot be met by the building which we desire to erect now.

Rural Engineering Shop, $12,000.

The Rural Engineering Department is at present offering courses in farm structures, farm machinery and farm motors. The drafting room in Stockbridge Hall gives good accommodations for planning buildings and drawing plans, but we have no facilities for giving practical instruction in the erection of buildings. We have no means for giving even the rudimentary training in the handling of the saw, plane or hammer. Work on farm structures will lack the practical training in carpentry until we secure additional shop space and shop equipment. Laboratory work in farm machinery and farm motors is now given in three buildings, namely, Stockbridge Hall, Flint Laboratory and the rural engineering building. This has been found necessary from the fact that not one of the rooms available is large enough or suitable to accommodate all the equipment. The class work cannot be carried on most advantageously under these conditions. The situation will be improved only when we secure the addition called for in this project.

Student Dormitory, $40,000.

For six years in succession your Board has asked the Legislature for an appropriation with which to build a dormitory. I took occasion in my report last year to present this matter as

definitely and cogently as possible. I can do no more now than to reiterate the arguments that have been made repeatedly. I still feel, as I judge your Board feels, that this is an important need. I am very sure that if the students were asked to vote on the greatest need of the institution at this time from the standpoint of physical plant, there would be a great majority in favor of a dormitory system. The matter is getting serious, and I hope the Legislature may see its way to an appropriation for this purpose.

Miscellaneous Improvements and Equipment, $60,000.

This sum is needed to make it possible for us to undertake certain projects of improvements on the campus, such, for example, as the construction of suitable walks and roads and minor changes in buildings, in order to bring the present facilities up to the growing demands made upon them. New equipment is needed to meet the increased demands made upon the institution by the larger attendance. Old equipment also is to be replaced. A list of some 50 separate projects for improvement, and of 75 projects for equipment have been approved by your committee on buildings and grounds. It must be remembered that for two successive years the Legislature has made inadequate provision for these developments; needs, therefore, have been accumulating.

Extra Labor on Account of Saturday Half Holiday, $5,000.

Chapter 288 of the General Acts of 1915 provided that the provisions of chapter 688 of the Acts of 1914 and amendments thereof, relative to making Saturday afternoon a half holiday for laborers, workmen and mechanics, shall apply to the Massachusetts Agricultural College. This act took effect May 27, 1915. The cost of labor for the year 1914 was approximately $50,000. Since that time two new groups of buildings have been added to our campus. It is safe to estimate that the additional cost of labor will be in the neighborhood of $5,000. It will be understood that this is an extra draft upon the current resources of the institution not anticipated when the five-year appropriation was adopted two years ago.

A Five-year Appropriation for Improvements.

Two years ago the Legislature passed a law granting the college a progressively increasing appropriation for maintenance for a period of five years. At that time it was expected that a similar grant would be made for improvements, including new buildings, miscellaneous improvements and purchase of land; but that was not done. Last year the trustees asked for a six-year appropriation for this purpose. The committee on agriculture cordially approved the plan, changing it to five years. The report, however, was not agreed to by the House committee on ways and means. This year your Board has voted to ask the Legislature for a five-year appropriation of $200,000 annually, to cover new buildings, improvements, new equipment, and also for the purchase of land.

Sundry Projects for Legislative Action.

Seed Law.

The director of the experiment station, by authority of the trustees, has drafted a proposed seed law which will authorize the director of the experiment station to collect samples of seed, test them for purity and germination, and publish the results of the examination. In principle the measure is similar to that authorizing the analysis of feedstuffs, and the State will bear the expense of the work.

The agricultural awakening in Massachusetts has given rise to demands for aid from the college quite beyond the ability of the institution to supply with present resources. As a result, a number of interests are desirous of presenting to the Legislature projects for appropriations to increase at once the service of the college. In each case it has been made clear to the proposers of these projects that the college will be glad to do the work if the funds are made available, but that the existing obligations upon the institution cause the trustees to feel that they are not warranted in putting these projects into the college budget. In order that there may be a record of the attitude of the trustees, I am appending a brief statement of the trustees' action in each case.

Substation for Market-gardening Research.

The market gardeners in the vicinity of Boston have requested the assistance of the college in securing the passage of a bill appropriating funds for the establishment and maintenance of a substation for market-gardening research. The trustees have approved the plan, and have endorsed the bill, which will be introduced into the forthcoming Legislature, seeking an appropriation to be expended under the direction of the trustees of the Massachusetts Agricultural College for the purchase of real estate, and for experimental and other work on problems connected with market gardening.

Work in Poultry Husbandry.

The Massachusetts Poultry Association has asked the endorsement by the college of a bill that it proposes to introduce into the forthcoming Legislature, seeking an appropriation for further work in poultry husbandry. The trustees have approved the general idea embodied in the proposed bill, but suggested to those initiating the project that the bill be so modified as to make the trustees of the college administrators of the funds appropriated.

Boys' and Girls' Clubs.

There has been presented to the trustees for approval a proposed bill, seeking further State appropriations to be used in the more adequate supervision of boys' and girls' agricultural clubs. The trustees have approved the plan, though not assuming responsibility for introducing the bill. It is also the sense of the trustees that if the bill is passed, the money appropriated by the State for local support should go directly to towns.

The Tobacco Industry.

The tobacco growers of the Connecticut valley are about to introduce a bill into the Legislature providing for a small appropriation to carry on some special work of an experimental character in connection with their industry.

A STATE SYSTEM OF AGRICULTURAL EDUCATION.

In my report to your Board for the year 1911 I referred briefly to the need of soon considering the place of the college in a State system of agricultural education. During the past four years much progress has been made in the Commonwealth toward providing more adequate facilities for school training, as well as for dissemination work, in agriculture. New agencies have arisen. There is an increasing need of unification. The college has a profound interest in the new movements and its relationship to them. I think, therefore, that we should discuss with some care the problem thus suggested — a State system of agricultural education.

A Bit of History.

The present situation, although of recent origin, has its roots in an ancient and honorable chapter of educational history, and a brief review of this history is justified at this time. Massachusetts was one of the pioneers in the development of agricultural education.

The Massachusetts Society for the Promotion of Agriculture. — In 1792 the Legislature incorporated a society which still exists. At that date few societies of agriculture had been organized in any country, there being but two in Great Britain, and in this country only two others. The Massachusetts society was the first in America to receive legislative encouragement. The names of those who organized are the names of the most famous men of the time, — Samuel Adams, Gen. Benjamin Lincoln and others of equal prominence. The work of the society met with indifference and even ridicule on the part of many, and for the first twenty-five years of its existence it accomplished little. However, its leaders believed in its cause and they refused to give up the organization. They talked of an experimental farm, and the botanical garden at Cambridge is the result. Prizes were offered for essays on agricultural subjects, as well as premiums for actual work achieved along agricultural lines. In 1801 the society inaugurated a series of agricultural fairs at Brighton, which became famous in New England, and con-

tinued until 1830. The interest which this society aroused in agricultural matters led, in 1851, to the organization of the State Board of Agriculture.

Early Agricultural Schools. — An interest in providing schools for teaching agriculture showed itself in Massachusetts as early as 1820, when Andrew Nichols, addressing the Essex County Agricultural Society, spoke of the agitation for agricultural schools which Gov. DeWitt Clinton had inaugurated in New York. Nothing was done, however, and we find that four years later the Massachusetts Society for the Promotion of Agriculture was asked by the trustees of Dummer Academy, of Byfield, to help in the conduct of an experimental farm on lands belonging to that institution. This request the society refused because they felt that such an enterprise should be under the supervision of the State. What seems to have been the first actual effort to give agricultural instruction in the State was made at the Teachers' Seminary on Andover Hill, in 1840, when a course in scientific and practical agriculture was announced. Shortly after this, however, the institution was merged with Phillips Academy, and the agricultural feature disappeared. Just previous to 1860 Powers Institute, at Bernardston, conducted a course in agriculture and asked in vain for aid from the General Court.

The State Board of Agriculture. — Owing to the investigations made by Henry Colman into the conditions of agriculture in Massachusetts there was organized in 1851 the Central Board of Agriculture, which was intended to unite the existing local agricultural societies under one head. At a meeting of this Board in the following year they asked the Legislature to authorize the organization of a department of agriculture as one of the State offices. This act was passed, and that patron of agriculture, Charles L. Flint, became the first secretary, an office which he held for more than a quarter of a century. This Board "became the organ of the farming community," and has had a long and useful career.

The Massachusetts Agricultural College. — The first legislative effort to secure an agricultural college for Massachusetts was made in 1850, when a bill was presented to the General Court providing for the establishment of such a college and for an

experimental farm. This bill passed the Senate, but was rejected by the House. At the next session of the Legislature a committee reported upon the advisability of establishing agricultural schools and colleges, but no action was taken, and the matter did not again come up until 1856. In that year several interested gentlemen secured the incorporation of the Massachusetts School of Agriculture, Marshall P. Wilder heading the list. In 1860 the charter granted to this body was transferred to a group of citizens of Springfield, who endeavored to raise $75,000 for the purpose, and would have succeeded, without doubt, if the outbreak of the civil war had not interfered with their plans. The passage of the Morrill act in 1862 made possible the establishment of the State college so long desired. In 1863 the State complied with the requirements of the grant and voted the establishment of the board of trustees for the new college, which opened its doors to students in October, 1867.

Agricultural Schools. — Agriculture as a branch of instruction in the secondary schools of the State has taken a prominent place during the last few years. The work is under the supervision of the State Board of Education. There are at present thirteen high schools of the State which give more or less extensive courses in agricultural subjects. Bristol and Essex counties have organized county agricultural schools, and Norfolk County will soon establish one. The instructors in agriculture serve their counties as agricultural advisers, some of them spending half of their time in the schoolroom and half in visiting and advising farmers. The Smith Agricultural School, in Northampton, is an endowed agricultural school, but receives public financial support.

Boys' and Girls' Agricultural Club Work. — The work among the boys and girls was begun by the Massachusetts Agricultural College in 1908, the first clubs being formed in Hampshire County, when some 500 responded to an invitation to join a potato-growing contest. So popular was the work that it was undertaken again in 1909, when the membership of the club increased to more than 1,000, although the work was still confined to Hampshire County. In the following year the invitation was extended to all boys and girls of the State, and the

growing of corn was added to that of potatoes. Since that time other lines of work have been undertaken — pig clubs, poultry clubs, canning clubs, and home economics, which teach cooking, sewing and various forms of housework. The membership of the clubs to-day has reached virtually 70,000, and of the 354 cities and towns of the State, 314 have instituted some form of club work for boys and girls.

The Extension Service. — In September, 1909, extension work in connection with the Agricultural College was begun by the present director, who worked alone for some time, with an appropriation of $7,500. The staff and appropriations for the work have grown continually from that time, until to-day there are 16 members of the Extension Service faculty giving all their time to the work, and the State appropriation for extension work amounts to $50,000.

County Leagues and Bureaus. — In the winter of 1913 a group of interested business men and farmers throughout the county organized the Hampden County Improvement League. The purpose of the organization is the improvement of agriculture and country life, and it has met with great success. There are at present employed as agents of the league an agricultural adviser, a horticultural adviser, a home-making adviser and a supervisor of boys' club work. The league publishes a weekly paper which gives timely advice on agricultural matters and keeps the public informed as to the work of the league generally.

There are farm bureaus in seven other counties of the State, doing practically the same work as is accomplished by the Hampden County Improvement League.

The Situation.

It will be observed from this review that there are already in existence parts of a system of agricultural education, but we have no system. We have many important pieces of new work, but they are not adequately co-ordinated, while some parts of the field are as yet untouched. It would appear to be a piece of real statesmanship to begin the task of planning a comprehensive system of agricultural education supported at public expense; for clearly such support is one of the great obliga-

tions of the Commonwealth. It will not be possible or desirable to provide immediately for every part of a complete system, but the needs of the State may be studied and adequate plans formulated so that new projects will fit into the system ultimately desired.

It is obvious that the Massachusetts Agricultural College should be an organic part of such a system of agricultural education. It cannot and should not try to administer the system; it should be in very intimate association with the controlling factors. The college should have definite responsibility in the organization of the materials and in the formulation of the methods used in all grades of agricultural instruction, in the preparation of teachers, and in assisting to correlate the parts of the system. We cannot disguise our interest in the problem. Not only should we have a part in the plan; we ought to make some real contribution to it, and to its continuing success.

I may say in passing that I have discussed this matter with the Commissioner of Education, and while Dr. Snedden cannot in any way be made responsible for the opinions that are here expressed, I think I violate no confidence in saying that broadly speaking our views coincide.

In discussing the requirements of an adequate State system of agricultural education we may outline the problem in the following aspects: —

I. Some characteristics of a State system of agricultural education.
II. The types of work to be recognized.
III. The groups of persons to be reached.
IV. The scope of agricultural education.
V. The machinery to be invoked.
VI. Administration.
VII. A word of recommendation.

I. Some Characteristics of a State System of Agricultural Education.

1. *It should have Definiteness of Aim.* — Fundamentally, it is the province of agricultural education to help solve the rural problem. The rural problem is partly a question of securing better farm practice; partly a question of organizing better

farm business; partly a question of developing a better farm life. In a word, the rural problem consists in the improvement or progress of the rural people. Many forces may be invoked for this improvement, such as education, socialization, organization, even religion; but the problems are solved by men and women. Hence, the training of rural problem solvers is the main purpose of agricultural education.

2. *It should be Inclusive in its Human Reach.* — It will reach all ages, from the youngster in the grades to the graduate student in the college. It will provide for teaching to those out of school, both young and old. With respect to emphasis, it will serve chiefly the people who must make a living by farming; but it must also train specialists or professional experts. Nor will it neglect people of the city; many of them as well as the country folk need agriculture.

3. *It should be Broad in its Vocational Scope.* — It will deal at the bottom with the technical or productive process; but it will also concern itself with the management of the farm; lay large stress upon such economic questions as access to the land, credit, co-operation; and it will emphasize a fuller community life, through the home, health, recreation, beauty, morals.

4. *It should be Comprehensive in its Activities.* — Teaching is the backbone of any system of education; but research and experimentation are vital to good teaching, particularly in such subjects as agriculture. And then it will extend itself not only to the pupils in the schools, but to every person on the land.

5. *It should be Liberal in its Spirit.* — It will emphasize the dignity of vocation. Vocation is a means of social service as well as an opportunity to make a living. It will impress upon the student mind the idea that vocation is also both a means of intellectual development and a great factor in the building of individual character. Vocational education will recognize that the public schools must assist in fitting boys and girls for citizenship in the largest sense, as well as in giving them capacity to meet the problems of their personal life.

6. *It should be Complete in its Correlation of Parts.* — This is to some degree a question of the division of labor between institutions. It is also a question of administrative responsi-

bility clearly defined. It means co-operative planning among all the different institutions.

7. *It should be an organic part of the State educational system.*

II. Types of Work to be Recognized.

1. *Formal Teaching.* — Organized teaching in the schools is obviously the main feature in a conventional discussion of education, and it must have a large share of this discussion; but in agricultural education there are one or two other considerations that must receive much attention. Agricultural education has set itself the task of reaching the masses of working farmers. Manifestly, more informal methods than those which require steady attendance at school must be used in this gigantic task. Moreover, formal agricultural teaching that keeps fresh and effective feeds on the results of thorough scientific investigation. Before proceeding to outline a plan for agricultural teaching we must note briefly these related aspects.

2. *Informal Teaching.* — One of the most fruitful phases in agricultural education is that of informal teaching. It is the sort of teaching which is represented by the present extension work. It is stimulating largely because of close contact of the specialist with the man in need of some definite aid. Its present methods are personal visits, public lectures, correspondence courses and extension schools. Beyond doubt the most effective reliance of informal teaching is the demonstration. If people can see with their own eyes the achievement of a certain scientific principle actually applied, they are ready to try for themselves. All this informal teaching must be made very concrete and definite. It needs systematization. It requires the best pedagogical methods that we can devise.

Educational Work of Administrative Boards: There is another type of informal agricultural education that needs to be co-ordinated with the rest. It is carried on by certain State boards in order that their administrative efficiency may be developed. Oftentimes in the enforcement of a law the crucial thing is not to invoke the law, but to make the persons involved see clearly what the law is for, and to understand the results that are expected from it. Nine-tenths of law enforcement, with respect to certain public relations, consists in education

rather than in strict law enforcement. This function of the administrative boards ought to be perfectly understood by themselves as well as by the educational institutions; the two types of education should not conflict; they should be correlated in some definite fashion.

Educational Aspect of Voluntary Organizations: In discussing education we usually concern ourselves only with those agencies that are supported directly from the public treasury. But the many voluntary associations that exist serve their purposes largely because they are educational in their aims and methods. The grange is perhaps the best example. If we desire a well-rounded system of agricultural education we will endeavor to correlate the activities of both public and private agencies. The work of voluntary associations can often be organized and stimulated from the schools, though in no sense directed by the school. Study clubs in agriculture and in various phases of country life may gain in solidity and permanence of work if they can have assistance from some parts of the agricultural education system. Though informal and even unorganized, real education may result from the work of voluntary associations.

3. *Investigation and Experiment.* — These are important in all education; they are absolutely vital in a field of instruction where there are such large unexplored areas as is the case in agriculture. Agricultural science has had a rapid growth during the past quarter-century. Under the leadership of the United States Department of Agriculture and of agricultural experiment stations, a great body of knowledge has come into use concerning the soil, the cultivated plant, the domestic animal and their various relationships. But the wisest investigator knows that he has made but a beginning, and that we are still quite in ignorance of many of the most fundamental aspects of natural law as it applies to the practice of agriculture. Therefore we must go on with this study of nature's methods and laws, with better provision in men and money, and with better methods of applying the researches of the scientist to the practice of the working farmer.

Investigation cannot stop with the study of the physical and biological features of the farmer's problem. Great economic

and social forces are at work, and are either upbuilding or breaking down the structure of rural civilization, industrial and social. These forces should be studied, also, by experts, who can withdraw themselves apart for a time and go deeply into underlying causes and essential remedies.

We should inventory our agricultural resources and chart conditions. It is not enough that we study abstract laws — we must know the actual situation that the working farmer has to face, with reference to soil, climate, market conditions, labor supply, and, indeed, all those economic and social as well as physical factors with which the working farmer must deal. We have hardly made more than a beginning in this field of investigation.

III. The Groups of Persons to be reached in a State System of Education.

A careful study of our problem would classify accurately the various groups of people who should be reached by an adequate system of agricultural education. I can offer here only a rough and tentative grouping: —

1. *Pupils in the "Grades" of the Public Schools.* — The material which enters into agriculture in its simpler forms is capital material for general educational use among pupils ranging in age from eight to fourteen. They may profit thereby not because they wish to become farmers, but because they may gain a part of their education by means of agricultural school gardens, home gardens, nature study, poultry clubs and corn clubs; those various types of work with plants and animals that are the beginning of agriculture should become an organic part of our school system, and available to all pupils under fourteen years of age. It is hardly necessary to remark that manual participation is essential if the pupil is to gain real education from this source. This work may also be considered helpful "prevocational" preparation for pupils who later study agriculture as a life work.

2. *High School Pupils desiring General Agriculture.* — The opportunity for education by means of agriculture should be carried through the high school, with elective courses, finding a place alongside the other subjects in the course. The teach-

ing should be very concrete and practical, and should bring the pupils into working touch, not alone with these processes by which plants and animals and all nature's forces are subordinated to human uses, but with the processes by which the business and life of rural people are related to the business and life of the nation as a whole.

3. "*Boy Farmers.*" — We come now to those classes of pupils who are to be offered agricultural study rather definitely for the purpose of future vocational activities. The first group may theoretically comprise boys and girls under fourteen years of age. Personally, I question whether "vocational" agriculture should begin before fourteen. I have been impressed by the fact that Germany, as well as the other European countries which have patterned their educational systems after Germany, has declined to permit the serious study of vocational agriculture by boys and girls under fourteen years old. But in this country many States provide for vocational agriculture in the lower grades; we must recognize the possibility of a similar plan for Massachusetts.

4. *The Young Agriculturists.* — Numerically speaking, the most important group of pupils who should be provided with facilities for definite training in agriculture for vocational purposes are those between fourteen and seventeen or eighteen years of age. In an adequate system of agricultural education it is quite obvious that a vast majority of those persons who secure a schooling in agriculture will get that schooling in institutions that provide for them before they are eighteen or nineteen years of age. The facilities for this group will be twofold, first, agricultural departments of public high schools more or less highly differentiated, and second, a system of county, district or special schools. The "Junior Extension Service" of the agricultural college, which if fully developed will be an expansion of the present successful system of our boys' and girls' agricultural clubs, promises to be of great value also. Moreover, it has been proved that a course in agriculture or home economics given one hour a day for four years, in connection with other high school subjects, can be made to yield remarkably successful training for boys and girls preparing for agricultural practice and rural home life. But I predict that the

Massachusetts plan of agricultural departments, in which the pupil gives about half his time to agriculture, will become a very important and vital part of our State system of agricultural education — perhaps in some respects its characteristic feature — so far as pupils of high school age are concerned.

5. *Candidates for County Agricultural Schools.* — I believe in the county or district agricultural school, and that a complete system of agricultural education in any State must provide for a number of these schools. There are objections to them. They are rather expensive. If great care is not taken they may encroach upon the work of the agricultural college. It is sometimes said that if they are boarding schools they will take away the boys and girls from home at too tender an age, and if they are not boarding schools the area of their influence is limited. The county agricultural school in Essex County, while not a boarding school, reaches a very large constituency. I think, however, that it is a serious question whether a county school of agriculture ought to give a four-year course, except as an expedient during the early years of the development of a system of agricultural education. Its final place in the system of agricultural education is likely to be in advanced and specialized work for pupils of high school age who have had perhaps two years in the agricultural department of the high schools, or for those who have finished the work of such a department, but are not prepared for college. One advantage of the county agricultural school is that it may have a faculty of from six to twenty teachers, whereas in most cases the agricultural department of the public high school will have not over one teacher, or at most two or three teachers. These two types of schools should not in any way compete, but should complement one another.

6. *The College Student of Agriculture.* — There is next that group of pupils from eighteen years upward who will attend the agricultural college. Many of these will go back to farming; others will go into expert service in connection with agriculture. Sometimes the agricultural colleges are criticized because they do not send more of their graduates directly back to the farm. On theoretical grounds, and judging from the experience of agricultural colleges abroad as well as in this country, I should

say that we might consider ourselves fortunate if 40 per cent. of our graduates go back to the farm. There are perhaps another 40 per cent. who will go into agricultural vocations not connected with the farm, such as teaching, experimentation, county farm bureau work, agricultural journalism, and those business fields that have some connection with agriculture, such as farm machinery, the fertilizer business, etc. Probably there will always be a number of students graduating from an agricultural college who will never be directly connected with agriculture, for this is precisely what occurs in nearly all professional schools, including law and even medicine. But in the main the agricultural college is to be considered a professional school, or at least a semi-professional school, and it is here that there is an opportunity for the training for leadership in solving the larger problems of agriculture and country life.

7. *The Graduate Student.* — In connection with the agricultural college there is room for the development of a graduate school of agriculture. Not only room, but great need, for neither research nor teaching can be vitalized or pushed to its full measure of development unless constantly reinforced by men of the highest training.

8. *The Demand for Short Courses.* — In common with other agricultural colleges, our own has maintained for many years winter short courses, and, for a somewhat more restricted period, summer short courses in agriculture and country life. I am convinced that the time has arrived when these short courses must be developed more fully and fitted more completely into the State system of agricultural education. The men at the head of the agricultural departments of our public high schools, and especially those who are connected with the county agricultural schools, are thoroughly convinced that many of the pupils of these schools wish to attend an agricultural college for a period of from three months to an entire year, for the purpose of coming into contact with the recognized authorities in the various agricultural specialties that are emphasized in a well-regulated agricultural college. To such pupils this work would be a sort of graduate course. It would bring them into contact with the wider reaches of the subject, with the best prepared teachers, with the largest equipment,

and with the most complete resources for agricultural investigation and instruction. There are, moreover, a great many adults who would like special work in summer or winter who cannot take our regular courses. I am quite sure that we have not yet solved this problem; we have not yet given sufficient thought or attention to the working out of a system of short courses which will meet the needs of an increasing demand, and which at the same time is practical from the standpoint of college administration.

9. *The City Man and the Soil.* — In a State like Massachusetts, where the urban population constitutes nine-tenths of the people, there is rapidly coming on a demand for agricultural instruction to persons who are not immediately connected with agriculture, and perhaps who do not intend ever to be connected with agriculture as an industrial pursuit. The Homestead Commission has aroused interest in the problems of teaching agriculture to families, in the development of garden cities and in vacant-lot cultivation in the cities. It would appear that in this country, as in many of the more thickly populated countries of western Europe, there is need of a training which will give urban people a chance to work the soil, probably chiefly as an avocation, and yet to get something out of the soil which will help them in maintaining their families, and in rearing children to a healthy manhood and womanhood. There is also an increasing number of men and women, both among the wage earners and among the salaried men in the cities, who wish to become farmers, but who cannot take advantage of present institutions for agricultural education. We must assist these in some way.

10. *A Schooling for the Youth at Work on the Farm.* — In spite of all we can do through institutions, through formal schooling, there will always be a very large proportion of youths out of school who still need, and will take advantage of, some plan for continuing their agricultural education beyond school days. We need, then, extension schools in connection with our public school system, chiefly, perhaps, in connection with agricultural departments of public high schools and with the county agricultural schools, which shall during the evenings of the long winter give very definite instruction in agriculture, home eco-

nomics and country life to the boys and girls who cannot attend the regular day school. I am not sure whether we can ever adopt the plan used in some European countries, of requiring attendance at these schools; perhaps we may. At any rate, we can give the opportunity. Continuation or half-time courses in agriculture are also worth serious consideration.

11. *The Man in the Furrow.* — What has been said with reference to youths is even more true of adults. The extension service of the agricultural college has demonstrated the hunger for information that exists among the great masses of the people, and this work must be kept up, organized, systematized and better related to the other agencies. These adults will also be reached more or less by the administrative boards already referred to.

IV. The Scope of Agricultural Education.

I wish to lay added emphasis upon the fact that in developing a proper system of agricultural education we must get away from the old idea that agriculture is chiefly a matter of production. Primarily it is such. We must know the soil and other physical factors; we must know the plant and the animal; we must understand all physical and biological forces and their application to the task of producing food and clothing. But this is not all there is of agriculture, or even the chief part of agriculture; it is merely the foundation. We cannot expect individual success on the farm, nor a prosperous agricultural class, nor an adequate rural civilization unless other things than production are taken up and developed in our system of agricultural education. The distribution of agricultural products, the question of farm marketing, individual and co-operative, the question of buying supplies, the matter of credit, the investment of the surplus, protection against pests and foes, insurance — all are parts of a great problem of agricultural economics that should not be ignored, but should be worked in as a part of the system of agricultural education from the bottom to the top.

Our people who farm are still men and women. They live a common neighborhood life; they have their homes; they have their schools; they have their churches; they have their rec-

reations; they must be in good health; they must have all of those things that go to make life worth living. Now these items should be subjects of education; they should be taught to youth from beginning to end of the school period — in their simpler forms to the young, and in a more complete way to the older pupils. In our agricultural education thus far we have placed the emphasis upon production, we have minimized distribution, we have ignored community life. We have given our attention to the foundations; we have neglected the superstructure. Unless we are very careful the superstructure will be one-sided and incomplete, and we will not have those results from large expenditures of money for agricultural education that a Commonwealth has a right to expect.

It is generally conceded that agricultural education should include home economics. The work as at present developed, however, is rather narrow in its scope and restricted in the area of its operations. The phrase "rural homemaking" hints at the real need and objective. This work should be developed as rapidly as possible, and should everywhere virtually parallel the work in agriculture.

One who has been fascinated by the wonderful results achieved in the Danish folk schools, or "people's high schools," cannot resist the temptation to suggest that in organizing a system of agricultural education consideration be given to the patriotic and even the vocational results of those studies that have nothing to do with agriculture itself. Danish educational statesmanship recognized the fact that intelligent and ardent lovers of a new Denmark, dependently rural, would be the bulwark of a real rural civilization. Studies of Denmark's history, literature, aspirations have produced a group of farmers who see the national implications of a successful and permanent agriculture, and a satisfying farm community life. There is a lesson for us in this experience of the best organized agricultural country in the world.

There is one thing more. Agriculture cannot be more efficient unless it is better organized. We have heard so much in recent months about organization in connection with some of the nations at war that perhaps we are shy of it. We are all rather individualistic, and slow about tying ourselves up with

overhead organizations. It is true that we must not subordinate the individual; we must not subordinate the separate institution. We must allow for initiative and energy and all of those things that spring out of the glorious spirit of individualism. But the day has gone by when an individual or an institution can work by itself in a corner. It is so with agriculture. The task of organizing the farm, the farm home, the local rural communities, and the educational work of a State, the development of a national system of agriculture and country life, are tasks in rural organization. These things must be presented to the pupils in our agricultural educational system just as soon as they are capable of understanding. They must appreciate the spirit of co-operation; they must see the promise of organization; they must learn how to co-operate with other individuals and how to correlate other forces and institutions. This organization has to do not only with publicly supported institutions, but also with privately supported institutions like the grange. Let us give the broadest possible scope to our system of agricultural education.

V. A Suggestion concerning the Necessary Machinery for Agricultural Education.

Up to this point I have been endeavoring to formulate a few general principles. Let us pass to a brief outline of the system of institutions that seem to be needed in order to secure the full measure of agricultural education. This statement is made with hesitation, and its purpose is to make concrete the subject which we have been considering, and to offer a suggestion which may possibly form the basis for a definite program and policy: —

I. *The Public Schools.*

Presenting agricultural material as one means of education, through —

1. Boys' and girls' agricultural clubs: supervision by farm bureaus and the college.
2. School subjects: nature study; elementary agriculture (?).
3. Courses in agriculture in the high school: three to five hours per week for one to four years.

II. *The Public School.*

Teaching agriculture for vocational ends, through —

1. Agricultural departments of the high school: to reach pupils fourteen to sixteen years of age and sixteen to eighteen.

2. Continuation and extension schools: in connection with public high schools, to reach pupils no longer enrolled in the public schools, ages fourteen to eighteen.
3. Agricultural education for families, as proposed by the Homestead Commission.
4. The public schools as centers for extension work in agriculture and country life, carried on by the farm bureaus and the college.

III. *County or District Agricultural Schools.*

1. General and specialized agriculture: temporarily for boys fourteen to eighteen.
2. Specialized courses in agriculture, such as poultry husbandry, dairy husbandry, pomology, etc., as the eventual purpose for boys sixteen to eighteen; these courses correlate with the work of the agricultural departments of the high schools.
3. Extension work, in co-operation with the county farm bureaus and improvement leagues; this should be co-ordinated closely with the work of the county schools on the one hand, and with the agricultural college on the other.

IV. *The Agricultural College.*

1. Investigation.
   (*a*) Research.
   (*b*) Experimentation and testing.
   (*c*) Co-operative studies in agricultural resources.
2. Teaching.
   (*a*) The four-year course for a degree.
   (*b*) Graduate work.
   (*c*) Short courses for pupils of eighteen years and upwards.
      A. Short courses of college grade, one to two years.
         (1) For graduates of county agricultural schools.
         (2) For graduates of agricultural departments of high schools.
         (3) For graduates of high schools who have not had agriculture and are not eligible to the four-year course.
         (4) For graduates of liberal arts colleges.
         (5) For adults twenty-one years and over not eligible to four-year course.
      B. Short courses giving elementary and specialized work, if the demand requires, for those eighteen years of age and upward.
         (1) Winter course of twelve weeks for highly specialized work, such as butter making, etc.
         (2) Winter course of twenty weeks for students desiring more general work.
         (3) Summer course of six weeks, primarily for teachers of nonvocational agriculture.

3. Extension Service.
   (*a*) General extension work for adults.
      (1) Lectures and study clubs.
      (2) Extension schools.
      (3) Correspondence courses.
      (4) Demonstrations.
   (*b*) Junior extension work.
   (*c*) Extension work for urban and suburban residents.

Note. — It is understood that so far as possible work in rural homemaking will parallel agricultural work throughout the whole system.

VI. Administration.

It is important to determine the proper administrative authority for the different lines of work, and how they may be correlated. I have no ready-made scheme to propose. The following suggestions may perhaps be helpful: —

1. Local school committees, or specially organized boards, should manage the agricultural work of the public schools, including the agricultural departments. Of course there will be special boards of control for county or district agricultural schools.

2. The State Board of Education represents the Commonwealth in guidance of its system of public education. I am not prepared to suggest a precise definition of the Board's functions in relation to the supervisory details of the agricultural phase of the system.

3. The various other State-supported boards, such as the Board of Agriculture, the Department of Health, etc., should be chiefly administrative bodies, and their educational work should be directed towards the carrying out of administrative functions.

4. The county farm bureaus, each in its own jurisdiction, will manage their distinctive enterprises. But their work is so intimately connected with that of all other agencies participating in a system of agricultural education that the closest correlation is essential.

5. The voluntary associations are under no legal obligation to co-operate with publicly supported agencies. In the interests of the rural people, however, they should endeavor to

correlate their work as far as possible with the public system of agricultural education.

6. The function of the agricultural college, aside from that of its recognized work of investigation, teaching, and extension service, should consist, in general, in being the main source of material and methods with respect to the teaching of agriculture of all grades. The leadership in this line should not be forced or perfunctory, but should lie in recognized efficiency and capacity to lead.

In this connection the preparation of teachers of agriculture becomes of vital concern. Undoubtedly normal schools can do a good deal, particularly with respect to teachers in the grades; but I think the work of the agricultural college in training teachers of agriculture for all grades should be more adequately developed.

VII. A Word of Recommendation.

I have discussed this subject because of the belief that the time is ripe for action with respect to establishing an adequate system of agricultural education for the Commonwealth. The college has direct relationship to the whole matter. I have explained that this discussion is in no measure complete, much less conclusive. It is meant to be suggestive only; it is hoped that it may be fruitful. The question is so important that I recommend that your Board request its committee on course of study and faculty to take such steps as in their judgment may be desirable to assist in the formulation of plans for a State system of agricultural education, and in better fitting the work of the college to the requirements of the system as a whole.

KENYON L. BUTTERFIELD,
President.

REPORTS OF OTHER ADMINISTRATIVE OFFICERS.

IN THE DEPARTMENTS OF INSTRUCTION.

The Dean.

In any year the work of the dean's office consists mainly of the supervision of absences and of scholarship. Probably three-fifths, if not two-thirds, of its time is devoted to this work. The remaining time is taken up with cases of minor discipline, conferences and correspondence. So it was during the past year.

The scholarship problems center in the first two years of the course. If the student gets a good start and does the work of these years fairly well he seldom gets into difficulty. The really crucial period for him in many respects, however, is the first semester of the first year; the transition from the ways and atmosphere of the preparatory school to those of college is not always easy. Recognizing this fact we introduced last year, at the suggestion of President Butterfield, a system of personal supervision of the boys who were making a bad beginning, and placed them in charge of Professor Machmer. He did his work so well, I am glad to say, that comparatively few freshmen failed at the end of the first semester. Much praise is due Professor Machmer for his splendid work and its happy outcome. We shall without question follow a similar plan next year.

I had hoped to be able to place before you at this time a statistical statement regarding some phases of scholarship and of absences, but Miss Christiansen's retirement has made it impossible this year. For compiling reports concerning minutiæ and details of the dean's office we need more help. The growth of the college and the consequent accumulation of data is felt as keenly in this office as in any other administrative office on the college grounds.

The fundamental and persistent problem of our office is, and always will be, I presume, the scholarship problem. Essentially, however, that is a faculty problem, and must in the last analysis be solved by the joint action of the teaching corps.

EDWARD M. LEWIS,
Dean.

The Director of the Graduate School.

From Sept. 1, 1914, to Sept. 1, 1915, the total number of students enrolled in the graduate school was 56; of these, 16 registered for the degree of doctor of philosophy, 27 for the degree of master of science, and 5 for the degree of master of agriculture. Eight registered as candidates for no degree. The number of students who have enrolled since the opening of the present college term is 52. At the last Commencement the degree of doctor of philosophy was conferred upon 5 candidates and the degree of master of science upon 5.

During the year the Board of Trustees voted to establish the following graduate courses: master of science in agronomy, master of agriculture in agronomy, master of science in animal husbandry, master of agriculture in animal husbandry.

The general plan of organization of the graduate school, which was adopted a year and a half ago by the trustees, is proving to be adequate and satisfactory in every respect. The number of graduate students attracted to this institution is very gratifying, and it is found that men come here from the very best educational institutions in the country.

Every two years there is held, under the direction of the Association of American Agricultural Colleges and Experiment Stations, a graduate summer school of agriculture. In 1916 this summer school is to be held at the Massachusetts Agricultural College. The director of the graduate school is serving as assistant dean of the summer school of agriculture, and is engaged in formulating plans for the school next summer.

CHARLES E. MARSHALL,
Director.

The Division of Agriculture.

The completion of Stockbridge Hall, offering as it does much needed facilities and equipment for the work of the different departments, marks this as a red letter year in the growth of the Division of Agriculture. The Departments of Agronomy, Animal Husbandry, Farm Administration, Poultry Husbandry and Rural Engineering have headquarters in the building, thus allowing the use of Flint Laboratory for the Dairy Department as originally planned.

During the year there have been two resignations in the Department of Animal Husbandry; first, Mr. George E. Story, the extension instructor, resigned to accept the position of head of the Department of Animal Husbandry at the University of Vermont. His going is a distinct loss to the institution as well as to the many friends he has made in his work throughout the State. His place has been filled by the appointment of Mr. W. F. Turner, who comes to us with five years' experience since his graduation from the Kansas Agricultural College, and who will begin work about December 1. The second resignation was that of the head of the department, Associate Professor J. A. McLean, who left us to take up extension work in the public service department of the Quaker Oats Company. His work will be largely in New England with headquarters in Boston, so that we look for his continued co-operation. His place at the college has been filled by the appointment of Prof. John C. McNutt, who will begin work Jan. 1, 1916.

An assistant professor of dairying and an instructor in farm administration have been added to the staff, as noted elsewhere.

The Department of Farm Administration has continued the farm management and survey work in co-operation with the Federal government and other State agencies.

On the farm, the drainage and improvement of the Nash property has continued as time and money would allow. The enforcement of the Saturday half holiday law will increase the labor expense of the farm at least 10 per cent., without a corresponding income to offset it.

Among the most pressing needs of the division are the remodeling of the farm dairy, an addition to the rural engineering laboratory, land for the research work in poultry husbandry and for a young stock pasture, and a small appropriation for an irrigation plant and modern farm tools. Most of these were mentioned in the last annual report. There is no question of the need — each month makes it more urgent.

One of the serious problems before us is how to satisfy the increasing demands of the college and extension work, and still allow the members of the staff sufficient time for study and research in order that they may keep abreast of the times in their respective subjects. This is an essential if the institution is to hold its place among others of the same class. The question of salaries is also very important. A bad break in the work occurs whenever a change in personnel is made, and often a financial increase is necessary in order to secure the same grade of service. Salaries should certainly be equal to those paid in other institutions, especially for heads of departments.

J. A. Foord,
Head of the Division.

The Division of Horticulture.

The Department of Market Gardening has been partially reorganized, Prof. H. F. Tompson coming to the nominal position of head of the department, but with his principal duties in the field in eastern Massachusetts. Prof. A. S. Thomson has become assistant professor in market gardening, doing the resident teaching. Prof. C. H. Thompson has been put in charge of courses in Horticulture 2, 3 and 4. This constitutes a substantial addition to our teaching staff. The resignation of Mr. P. H. Elwood, Jr., on September 1 takes from us a man who had proved very valuable in civic improvement extension work. His place has not yet been filled. No important changes have been made in courses, equipment or policies during the year.

There are many pressing needs in the Division of Horticulture, and it is hard to make a list of those which should be particularly emphasized. At the present moment the following

seem to be most important: (1) The establishment of work in horticultural manufactures on a firm basis (this involves the erection of a suitable laboratory and the employment of a specialist in this field); (2) an adequate tract of forest land for the Department of Forestry; (3) further organization of the Department of Market Gardening, including the establishment of an out-station in eastern Massachusetts; (4) additional greenhouses; (5) an additional extension man in pomology.

At the present moment we are looking forward with much interest to the establishment of summer instruction in certain departments of the division. We believe that this will mark a radical change for the better. At the same time it will raise many practical questions, and will require the earnest effort of our instructors to adapt our instruction to the changed conditions.

We still believe that the problems involved in better methods of technical instruction are those to which we must give our immediate and earnest attention. The grounds service has grown so rapidly during the last three years that it now presents very serious problems, especially in the matter of adequate financial support. I have already presented a special report on this point.

F. A. Waugh,
Head of the Division.

The Division of Science.

In botany, during the absence of Dr. Stone, the department has been in charge of Professor Osmun. Some minor changes in methods of presentation of the courses have been made, with excellent results. Dr. P. J. Anderson has proved a distinct addition to the staff, and Mr. Doran has taken hold well. In chemistry the classification of the freshmen into two divisions — those who have and those who have not had chemistry before entrance — has worked well, but has produced difficulties in scheduling. The advisability of requiring chemistry for entrance is being considered. In entomology the year has been one of marked progress in the grade of work done by the students. Dr. Regan has proved a most excellent teacher and has greatly strengthened the department. In mathematics

fairly satisfactory results have been attained, though eight sections of freshman have been made necessary by the large number in the class, and this has pressed the staff very hard. Microbiology is looking forward with much anticipation to its new laboratory and greater facilities, but has done its best under present conditions. In the Veterinary Department the work has gone about as usual, about fifty men now being given instruction. In zoölogy the work has been much as heretofore. Seven subjects are being taught.

Immediate and pressing needs in the division may be listed briefly as follows: —

In botany a careful revision and co-ordination of the courses. Proposals for this are now in the hands of the faculty committee on course of study. More students are taking botany, and with the enlarging of the scope of some of the courses, additional help will be needed; in chemistry a new building is the most pressing need; in entomology more shelf room in the library is much needed, as are some binocular microscopes. It is hoped that some of these new microscopes, which have practically quadrupled possibilities of work, can be obtained in the near future. A honey bottling equipment is greatly desired for beekeeping work. In mathematics the professor in charge believes that trigonometry should be transferred from the Department of Physics to that of mathematics where it logically belongs, in the interests of greatest efficiency. Large classes in plane surveying make the need for more transits and levels imperative. The most pressing need is for a major in the applied subjects of the department, so that these may be taken in a correlated way. At present the hour schedule is based on majors, and breaks into correlated work in mathematical subjects. The building used should be heated from the power plant. In veterinary science a thorough, well-taught course in animal physiology would greatly help all the science teachers. "Under our present arrangements conditions are far worse, as regards the subject of physiology, than they were formerly."

Some of the fundamental problems of the division may be mentioned: the problem of giving all students a sufficient understanding of chemistry to serve them well in their life vocations, and the securing and training of a few bright men

for investigations in agricultural chemistry. In entomology the fundamental problem is, as always, to get the best work out of the students. I think there has been some gain in this during the past year.

The fundamental problem which applies to this entire college and to all others as well, as I see it, is, in this time when supply is rapidly approaching demand, to make students realize that it is the fittest which survive, and that ability being equal, a student who really gets the most from his course is the man who will win; also, how to insure that a technically trained man shall be generally cultured as well.

H. T. Fernald,
Chairman of the Division.

The Division of the Humanities.

The courses remain practically as they were last year. The English Department is becoming better regulated, and therefore stronger work is being done. The most pressing and most fundamental needs of the humanistic courses are permanence of location on the campus, with as much concentration of work in the same building as possible, and thorough equipment of classrooms for good instruction. The instructors in this division are the nomads of the campus, drifting from building to building and adapting themselves as well as possible to the temporary conditions over which they have little control. Such wanderings are not conducive to the best instruction, and make the best methods of class work well-nigh impossible. When the instructor does not have a recognized status in the building where his classes are held he neither feels like proposing changes to suit his needs nor would he in all cases be permitted to carry them out. I believe that as soon as these needs shall be met for the division there will develop a better quality of work and a stronger atmosphere of scholarship.

R. J. Sprague,
Head of the Division.

The Division of Rural Social Science.

The work of the Department of Agricultural Economics has been carried on along three lines during the past year — the regular classroom instruction, extension work and the investigations. The extension work of the last year has been most gratifying; it has included the organization and supervision of co-operative associations, seventeen of these societies having been organized within the State during the last two years. The marketing of farm produce has also received much attention. Two special investigations have been conducted, one of these a very complete study of the marketing of milk in Massachusetts, the other a study of the methods and costs of the distribution of onions, with especial reference to the crop of the Connecticut valley. Reports of both of these investigations are nearly ready for publication.

The work in the Department of Agricultural Education has continued along the lines already started. The head of the department states the following as representing the most pressing immediate needs of the department: (1) office facilities, (*a*) for the clerical work connected with the boys' and girls' clubs; (*b*) for private consultation with students; (2) teaching opportunities for those intending to teach; (3) enlargement of scope of the work by the introduction of a two-year training course for rural teachers; (4) building for carrying on experimental teaching and teacher-training; (5) additional help, (*a*) one person to take charge of the four-year college student in training for teaching; (*b*) one person in charge of the two-year training course for rural schools; (*c*) one person to take charge of the office management of the boys' and girls' clubs.

During the past college year the Department of Rural Sociology was virtually without a leader, owing to the resignation of Professor Eyerly, which took effect in August, 1914. The fact that the department had no administrative head was a real handicap in the development of the work as well as in the attraction of students to the department. This fall, however, Prof. John Phelan assumed the headship of this department, and is conducting the work in a most satisfactory man-

ner. The courses of study are now being revised, and outlines are being prepared for graduate work in the department.

KENYON L. BUTTERFIELD,
Head of the Division.

General Departments reporting to the President.

MILITARY DEPARTMENT.

War department orders state that instruction in all educational institutions, at which an officer of the army is detailed, must include instruction in the infantry drill regulations, field service regulations, and small arms firing regulations; it may be said that cadets will be taught to drill, to scout and to shoot. With the beginning of the present scholastic year a more systematic system of imparting these three fundamentals has been inaugurated by which the student in his freshman year is placed in companies that are given close and extended order drill; the sophomores in companies that receive training in field problems; the juniors in companies that, under careful coaching, are taught to shoot and to control and direct the firing at field targets. The training for all is made as intensive as possible. It has been very noticeable that these changes have done much to hold the interest of the students, which is very important. During the winter months the theoretical instruction will go on varied by lectures by prominent officers of the regular army and the Massachusetts militia. It is considered very important that the students should have sound and correct ideas of the aims, purpose and necessity of the army, and the necessity for proper military organization, including not only the troops with the colors, but necessary reserves.

At the present time the outdoor work is handicapped by a drill hall that was built about thirty years ago when the college had an enrollment of about 150. On one rainy Wednesday this fall I had the regiment form inside the hall, but the room was so crowded and poorly ventilated that it was necessary to dismiss four of the eight companies. The armory and storage rooms are as inadequate as the hall. The drill hall is doing

duty as a gymnasium, also, and much as we need a new hall, I feel that the student body would be more benefited by a new and modern gymnasium than any building that could be erected on the campus.

Not until this year has target practice been made a part of the regular outdoor instruction. The range is a little over two miles from college. There are five double targets. About one and one-half hours are spent in going and coming from the range. This leaves about one and one-half hours to shoot. Barely five shots per man can be fired each week. With five more targets this important instruction could be more than doubled. A handicap to efficient work is the arrangement of the course of study in the Military Department, which requires theoretical instruction for only the freshman and sophomore classes, and not the juniors and seniors. The result is that there is no opportunity to teach the cadet first sergeants and lieutenants (juniors) and the cadet captains and higher officers (seniors) their duties, except on the drill ground. The proper carrying out of orders rests on these men. A company of 150 men in an attack must be drilled in signals almost as thoroughly as a football team, and with the few hours we have a week for drill the place for this instruction is the classroom. One of the remarks of Captain Schindel on the inspection of a field exercise last spring was, "There was almost a total lack of team work."

It would seem that the real aim of the military work should be to fit the graduate for his duties of citizenship for the military service in case he should be needed. Heretofore there has been no practical way to utilize this knowledge; a future war was a vague and far-away idea that did not appeal to the undergraduate, and the main object of the Military Department being kept on the same efficient basis as other departments of a college was that any inefficiency was prejudicial to all. The proposed colonial army, many details of which are still unpublished, is evidently based on the results of college camps. War Department orders state that "the main object of military instruction given at civil institutions is to qualify students to be company officers of infantry volunteers or militia." There will be a great dearth of officers for the 133,000

men it is proposed to raise next summer. I believe that I will be able to get for the twelve cadet officers of the senior class an appointment, after examination, as second lieutenant in this proposed colonial army, should they desire it, which office would pay $155 per month while with the colors. It may be that many of the underclassmen may enlist with the idea that from their experience they will be made noncommissioned officers, which offices would pay from $30 to $60 a month. Should this legislation pass, it would be a great stimulant to the military work in all colleges and tend to standardize the work.

H. W. Fleet,
Professor of Military Science and Tactics.

Department of Physical Education and Hygiene.

The work of the department has been conducted through the year along the following lines: —

1. Each student in the entering class was given a physical examination during the first month of the college year, thus reducing the possibility of any injury arising from ignorance. In the examination especial care was taken to detect any defects of the vital organs, sight and hearing. Each person is given a short talk following his examination concerning his condition, the kind of exercise he should have, and the proper care of his body.

2. The freshman class was given a course of lectures and written quizzes on personal hygiene during the first semester.

3. For the past few years the department has been giving first aid in cases of minor injuries or illness, advising the calling of a physician when necessary, and seeing that all ill or injured students are properly cared for. Beginning with the opening of the college in September we have had the use of the new infirmary. This has increased the efficiency of our work and in every way raised the standard of service to the student. In all this work the department has been in constant touch with the Department of Microbiology through the health committee of the college.

4. During the winter months the department requires three hours of physical exercise per week for each member of the

three lower classes. Those men who have been found by physical examination to be physically normal are permitted to elect one of the several athletic activities; those who have been found to be below normal physically are given individual instruction in so far as our present equipment will permit. Walking trips may be substituted for physical exercise in the gymnasium, and during the past year from 150 to 200 students have elected this form of exercise. The work of the indoor classes of from 30 to 40 men each consists of gymnastic exercises, such games as basketball and indoor baseball.

The physical director is general manager of athletics, supervising arrangements for contests with other colleges, buying supplies for the teams, assisting in the coaching, and having final control over players and games.

The interest in intercollegiate and intramural activities has been steadily growing. An accurate estimate of the participation in all sports during the year shows that in track about 75 men participated; cross country, 50; hockey, 75; baseball, 175; tennis, 25; football, 140; and basketball (other than required gymnasium), 40. After counting out duplications we find that approximately 50 per cent. of the student body voluntarily took part in some form of supervised athletic sport during the year.

The new athletic field is so far toward completion that it was possible to use it for college games last fall. With the opening of the spring this whole field of nearly 8 acres will be thrown open to general use, and should offer a greater inducement than anything we have had before for universal participation in outdoor sports.

The limited quarters in which the regular gymnasium work is to be carried on in the winter season make it impossible to do indoor gymnastics which can compare in anywise favorably with those of other colleges. From December 1 to April 1 the drill hall floor is in almost constant use from 8 o'clock in the morning until 9 o'clock at night.

The immediate pressing need of this department is a suitable gymnasium for the physical training of students during the winter months. Every student should receive gymnastic instruction and training of such a nature as to keep his physical

education and development on a par with his mental development. Many of our students who should receive individual attention and treatment are neglected simply because the present building is too small, unsanitary and poorly equipped. A suitable gymnasium with a swimming pool is our greatest need.

The greatest problem of this department is to provide means for our students to follow out the exercises prescribed for them, and require those who are not themselves inclined to take exercise to take some form of systematic exercise at least three times a week. With the completion of the athletic field our ideal of having every student taking part in some form of active exercise may be realized for at least half the year, but during the winter months, when there is no military drill and regular exercise is a necessity, we are confronted with the problem of finding forms of exercise which are possible with our present equipment.

CURRY S. HICKS,
Physical Director.

THE LIBRARY.

In spite of our very crowded conditions and the increasing number of teachers and students making use of the library, the past year has been one of marked interest. The adoption of the fundamental library policy of making the main catalogue in the college library a complete inventory of all the book resources of the institution will always count for the best library interests. The establishment of the agricultural reference library in Stockbridge Hall will mean a great deal toward strengthening all agricultural activities, and also make the new building better equipped to meet the demands which will be made upon it.

The work of recataloguing the library has continued without serious interruption. The new card catalogue contains 69,956 cards for 24,674 old books recatalogued, and 14,141 new books added since April 1, 1910.

Including several sets of scientific periodicals which have been made complete or added to the library during the past year there have been added 4,005 volumes regularly accessioned and catalogued. This shows a total of 48,411 volumes, 20 per-

cent. having been added to the college library during the past seven years, and indicating somewhat the recent growth of the department.

Library extension work means more to us than ever before; 572 books and 106 bulletins have been loaned out to 33 borrowing libraries throughout the State, and a large number of letters have been written to library officials and others in regard to the purchase of book material. Five library leaflets on farm and garden papers, books for young gardeners, farm women and fruit growers, and country-life books for teachers have been published and distributed in various ways. The school for library workers which was held here as part of the summer school proved more successful than was anticipated. Seventeen full-time and 8 part-time registrations indicate somewhat the interest in the first school of this kind held in connection with any agricultural college. We hope to continue and enlarge upon this line of activity.

Of greater importance, however, than anything referred to above is the need for a new library building. I understand that the president will deal with this matter at some length in his report, and I will only say that just as long as we continue in our present crowded and otherwise undesirable quarters just so long shall we fail in our best service to the teachers and students who come to us for assistance.

CHARLES R. GREEN,
Librarian.

The Supervisor of Short Courses.

The short courses given at this college have continued to draw not only a large number of interested people, but also many students who have had the advantage of attendance at some of the finest colleges and universities of this and other countries. The cosmopolitan nature of the groups making up the short courses is such that more than ordinary credit should be given members of the teaching staff for their successful efforts to adapt their courses to the understanding of some who have had practically no educational advantages, to others with the finest of collegiate training, and to business men with keen

powers of discernment and years of experience, making their teachings acceptable and satisfactory to all.

Due to the prevalence of the foot and mouth disease it was deemed wise to cancel all short courses between March 1 and the end of the college year, so that farmers' week, the school for town officers (arranged for the first time), tree wardens' school, Polish farmers' day, conferences of feed dealers, seed dealers, fertilizer agents (which were contemplated), and the beekeepers' course and convention were not held. This accounts for the falling off in statistics given later for this year.

A. Winter Schools.

In the ten weeks' winter school of 1915, 24 courses were offered in agriculture, horticulture, the allied sciences and in rural social science.

The school for apple packing, held in November, 1915, was attended by 19 men and women. No doubt larger numbers will desire to take advantage of this another year, after the State apple packing law goes into effect.

It is to be hoped that the plan of inviting feed dealers, seed dealers, fertilizer agents, milk inspectors and other persons interested in the various phases of agriculture may be consummated, and that by so doing, station, college and commercial interests may meet for a free and frank discussion of problems of mutual interest, and that a better working understanding will result from such gatherings.

The registration in the winter school is so large that additional assistants should be placed in several departments having the largest registration during the short course work, but funds available at present do not permit of this.

B. Summer Schools.

Forty courses were offered during the summer school of agriculture and country life.

The regular summer school in spirit and application was probably the best that we have ever held.

For some unknown reason the attendance at the school for rural social service was not as large as usual. Every effort

during the past two years has been made to strengthen these courses and to provide work which would appeal to those interested in the broader phases of rural life.

The school for library workers, held for the first time, was a success. Twenty-five people attended and were evidently greatly helped by the work given. This was probably the first school of its kind to be held in connection with an agricultural college, and should be continued next year.

The agricultural camps, four in number, continued to be popular, and we believe that these have a lasting effect in impressing the boys and girls in these camps with a true conception of the magnitude and importance of the agricultural industry. The third boys' camp was made up of those who won third prize in the various State-wide club contests. A girls' camp, under the direction of Miss Nash, made up of the third prize winners in the home economics clubs, was held at the college for the first time this year. We ought to secure before another summer, if possible, enough 8 by 10 khaki tents to shelter those who attend these camps. The expenditure would probably be about $200. The large fair exhibit tent is not storm proof, neither does it give the best possible conditions for camp discipline.

The poultry convention continues to enlist the interest of a large number of poultry men. More than 600 attended this year.

The conference on community planning was even more successful than usual. I am told that more than ever before this took on the nature of a real conference. Several of the official as well as voluntary organizations assisted in the furnishing of speakers, bringing the conference to the attention of a large number of people, and in other ways helping to make it a success.

Plans are under way to correlate all of our summer school activities during the summer school of 1916 with those of the graduate school of agriculture, which is to be held at the college.

Recommendations.

With additional funds to carry on the work and to give needed assistants to departments which are now already overworked, there would be many things which might be recom-

mended, but which at the present time are entirely out of the question. Some of these are: —

1. The short courses of the institution arouse the interest of a large number of mature men and women throughout the State, and may serve a very useful purpose in helping them properly to organize their farming and to teach them the latest and best practices. These people also become loyal supporters of the college. The short courses ought to be enlarged, so that all those who desire to come may secure satisfactory work.

2. Special arrangements should be made for the admission of students in the senior year, or those who have finished courses at the county schools of agriculture. Unless this is done these schools will be compelled to spend large sums of money in duplicating equipment already in existence at the college.

3. The time has come when progressive short courses, covering two and even three winters, should be offered. This can be done when equipment and instructors can be provided.

4. When the four-term-a-year plan is adopted new plans for the winter and summer schools should be made so that the regular work and short course work may be correlated and duplications avoided.

5. The funds available for all of the short course activities are inadequate. Now that the short courses are considered as regular college instruction it would seem that the cost of maintaining the short courses should be cared for out of regular college funds. A few thousand dollars added to the present apportionment would place these on a sound basis. The money now apportioned from extension funds for short courses could be used to relieve the pressure for more extension work in some departments.

I wish to repeat the recommendation made in the report of last year, that a faculty committee on appointments, to take care of applications coming in for short courses as well as regular college men, be appointed.

W. D. Hurd,
Supervisor of Short Courses.

THE DIRECTOR OF THE EXPERIMENT STATION.

I. Review of the Year.

There have been comparatively few changes in major positions on the station staff during the year. Dr. Stone's leave of absence was continued until October 1, since which date he has resumed work, devoting himself particularly to the preparation for publication of the results of some of his lines of investigation. In the Veterinary Department Miss Beryl Paige began work on the test for bacillary white diarrhœa in January, while Mr. A. P. Sturtevant entered the department on the first of July to undertake a line of research, of Adams fund grade, on bee diseases.

The lines of work followed in the different departments of the experiment station have in general been the same as those which have engaged their attention during recent years, but during the year investigations have been started in two departments of the college not previously engaged in station work, viz., agricultural economics and microbiology. In the cranberry substation arrangements have been made with the Bureau of Plant Industry of the United States Department of Agriculture for co-operative experiments in the cultivation of the blueberry, and preparatory work has already begun. In the asparagus substation seeds and roots of improved rust-resistant strains of asparagus have been distributed among a large number of growers. This distribution has included 68 lots of roots and 217 packets of seeds. In the Department of Horticulture somewhat less work is being done in plant breeding, as the research work in pomology has made greater demands upon the time of members of the staff. In the Veterinary Department an entirely new line of investigation has been undertaken, viz., the study of the nature and methods of transmission of American foul brood.

Results obtained.

The heads of all departments report uninterrupted and, in general, satisfactory progress of the investigations under way. A few only of the more significant results obtained will be briefly stated.

Department of Agriculture. — 1. In the experiment for comparison of different phosphates it has been noted that the dissolved phosphates greatly stimulate the early growth of the grass — an effect likely to be of great importance on account of the fact that the moisture and other climatic conditions are usually much more favorable to the growth of grass in early spring than later.

2. In the series of experiments comparing different sources of potash difficulty was experienced in obtaining one of the materials which has been under trial. Accordingly, it was thought best to withhold the potash from all. It was noted that the yield on all plots which have been receiving potash annually for a long series of years fell off in very marked degree, in this first season without potash indicating apparently less residual effect than has generally been believed to exist.

3. In the comparison of muriate and sulfate of potash with small fruits the latter, as in recent years, gave a crop about 50 per cent. greater than the former.

4. In the field where different materials furnishing nitrogen are under comparison, both with and without lime, one of the most striking results was the substantial equality of the yields on the limed portion of plots which have received no nitrogen for thirty-one years with the yields obtained on the plots to which nitrogen has been annually applied. Another striking result was the high yield obtained on the unlimed portions of the nitrate of soda plots, indicating the beneficial effect of the residual soda in preventing soil acidity.

5. In the experiments testing the residual effect of application of manure, respectively, in the winter and in spring, a striking result was a more vigorous growth in the early spring on the plots to which the manure in earlier years was applied in spring, and the earlier ripening of the crop — soy beans.

6. Many fields of tobacco in this section failed to produce a satisfactory crop during the past season. A co-operative test with fertilizers on a small scale indicated that the apparent cause of the unsatisfactory growth was shortage of plant food in available form, particularly of nitrogen — a shortage due, no doubt, to the excessive rainfall, for fertilizers in accordance with the usual practice had been used.

Cranberry Substation. — 1. There has been discoverd an egg parasite of the fruit worm, which seems to be remarkably effective in reducing the amount of damage from that worm.

2. Knowledge of various injurious insects, their life history and habits has been extended in many directions, with the result that methods of preventing injury are better understood.

3. A preliminary trial indicates that a covering of such shade cloth as is used by tobacco growers may be a useful means of preventing frost damage.

4. Rather serious injury to the roots of the vines has been observed to follow spraying according to methods which have been recommended for preventing fungous diseases.

Asparagus Substation. — The fertilizer experiments indicate —

1. That among growers a larger amount of fertilizer than can be useful to the crop is frequently employed.

2. That nitrate of soda applied, at least in part, at the close of the cutting season gives better results than with all applied in the spring.

3. That phosphoric acid appears to be relatively unimportant, while nitrogen and potash in available forms largely increase the crop, the muriate being the best form of the latter.

Department of Horticulture. — 1. A large amount of data on plant breeding has been accumulated which, in the opinion of Professor Waugh, will serve as a basis for valuable conclusions, if the work can be continued. It has been shown that commercial seed of squashes is very seriously mixed.

2. The work upon the mutual influence of stock and scion has made fairly satisfactory progress. Enough trees have been rooted to set about three-quarters of the 10-acre orchard.

3. A large number of varieties of all our principal fruits are under comparison, and valuable data in regard to these have been obtained.

Department of Chemistry. — 1. The perfection of a new method for determining stearic acid in fats, the use of which shows that butter fat contains from 8 to 22 per cent. of this acid instead of about 2 per cent., as formerly supposed.

2. The perfection of a new method for determining the unsaponifiable matter in fat.

3. Determination of the digestibility of cabbages, carrots, pumpkins, garbage tankage and vegetable ivory meal.

4. Sulfate of ammonia used as a fertilizer removes lime and forms sulfates of iron, alumnina and manganese, which seem to act in dilute solutions as plant poisons.

5. The plant-food value of different forms of organic nitrogen in commercial fertilizers has been studied, and experiments show that it varies widely.

Department of Vegetable Physiology and Pathology. — 1. The mosaic disease investigation has been nearly completed, and Mr. Chapman will be ready to report in the near future.

2. The discovery of white pine blister rust in the four western counties has indicated the necessity for investigation of certain phases of the life history of the causal fungus with a view to working out some means of control, as the disease is a very serious one and is already quite widespread in the western part of the State.

3. On account of the abnormally wet summer numerous serious diseases were unusually abundant, and an unusual number of samples of diseased plant tissues have been examined and advice given.

Department of Entomology. — Dr. Fernald reports that one or two of the leading lines of investigation in the Department of Entomology will probably be completed with one more season's work. Satisfactory progress has been made during the past season.

Poultry Department. — 1. A study of the effect of broodiness on egg production shows that it seriously reduces returns. Dr. Goodale estimates the reduction in value of eggs produced amounts to from $0.80 to $1 per hen. Some progress has been made in the effort to produce nonbroody strains of the Rhode Island Red, a breed which is ordinarily broody.

2. Much progress has been made in working out a satisfactory method of raising chicks artificially. Dr. Goodale reports that faster growth and larger chicks were secured than ever before, and that the results were all that could be hoped for.

Veterinary Department. — 1. The principal emphasis has been laid upon methods of diagnosing fowls which harbor white

diarrhœa. The agglutination test has been brought to a higher degree of perfection.

2. An effort to eradicate white diarrhœa from the flocks of the State, through work in co-operation with the Extension Service, has been begun.

Department of Microbiology. — Dr. Marshall reports that the investigational work naturally falls into two divisions — dairy microbiology and soil microbiology. The department is also engaged in investigations under the De Laval graduate assistant fund. The department has also devoted considerable time to microbial analytical work in milk, preparation of legume cultures and dairy cultures, and the determination of organisms in human diseases (the latter for the town of Amherst). The work in soil microbiology will be somewhat impeded, through lack of suitable laboratory accommodations, until the completion of the new building. In other directions the work of the department has made satisfactory progress.

The Department of Agricultural Economics. — Investigations in this department connected with the work of the experiment station have been directed along two principal lines: —

1. Methods of onion storage and distribution.

2. Investigation of the cost of producing milk on typical Massachusetts farms.

Satisfactory progress in both lines of investigation has been made, and Dr. Cance reports that the onion investigation is being rounded into final form.

II. Immediate Pressing Needs.

The different heads of departments, in response to my invitation that they indicate any immediate pressing needs in their several departments, have called attention to a considerable number of things which are highly desirable, indeed necessary, to a thoroughly satisfactory prosecution of our work. Without expressing my own opinion as to the relative necessity for the different things named by department heads, I will quote briefly from each: —

Professor Waugh: Two important needs should be emphasized — first, the work in plant breeding now being laid off by Dr. Shaw should be taken up by a well-trained plant breeder

and carried to practical conclusions; second, experiment work in market gardening should be speedily established.

Dr. Lindsey: The department has no pressing needs. It does, however, need improved facilities for conducting feeding experiments, and is likely to need more laboratory facilities and assistants if the work continues to increase. He needs an assistant in animal nutrition.

Professor Osmun: The unexpected discovery of the white pine blister rust over a large territory presses home more strongly the need of some sort of plant disease survey work. Reorganization of the department staff, assigning to each member specific duties and field of investigation is needed.

Dr. Fernald emphasizes strongly the need for experiments in spraying a plantation of about twenty different kinds of trees, including fruit, small fruit, shade trees and forest trees, to be the property of the department and to be used for experimental purposes by this department only. He also calls attention to the need of an addition to the entomological staff for experimental work.

Professor Graham calls attention to the necessity for more land.

Dr. Paige states that the most pressing need is for additional help to carry on the white diarrhœa work.

Almost every department calls attention to the fact that more money is either necessary or can at any rate be used to great advantage. In the Agricultural Department we shall need a new vegetation house in the near future, and the work in connection with the Tillson Farm will necessitate some addition to our outdoor workers.

An analysis of the situation indicates to my mind that we must in the near future plan to enlarge our staff. In the Agricultural Department we need to do more work in connection with tobacco and onions, and we may need a tobacco specialist. Another man can be used to great advantage in entomology. We certainly need more assistance to carry on the white diarrhœa work. If the market gardeners secure an appropriation we shall need one or more men for investigation in that line of work; and if the seed law passes, we must have a seed specialist.

The recent discovery that white pine blister rust, the most serious disease affecting any of our forest trees, has gained an extensive foothold in the four western counties indicates the desirability of intensive work in the Department of Plant Physiology and Pathology on this disease. This can perhaps for the present be managed without additional assistance, but developments may be such that we shall greatly need to employ the services of a pathologist.

While the acquisition of the Tillson Farm will for the time being meet some of the more pressing needs for more land, it will not satisfy our requirements for any great length of time. Indeed, the Poultry Department now greatly needs land for extension on the experimental side, and the acquisition of land lying nearer the poultry center than the Tillson Farm is greatly to be desired in the very near future.

W. P. Brooks,
Director.

THE DIRECTOR OF THE EXTENSION SERVICE.

General Administration.

The work of the Extension Service has proceeded along much the same lines during the past year as in 1914. Little attempt has been made to organize new lines of work, the greater effort being put on the better organization of lines already under way, the systematizing of records, reports, etc., and the attempt to better correlate the extension work of the college with the teaching and research sections.

It has been gratifying to know that the type of organization which has been worked out at this college has fully met the requirements laid down by committees representing the Federal and State agencies, and has been used as a model by several States which have lately taken up the definite organization of extension work.

The first year's work under the Smith-Lever appropriation has been carried on satisfactorily to those in Washington who have supervision of the work. The accounts have been audited, and all expenditures without exception have been approved. These funds are being used at present for full or partial support of projects dealing with fruit growing, animal husbandry, boys' and girls' club work, poultry husbandry, farm management demonstrations, home economics, dairying, extension schools, county and district agricultural agents and printing. The additional amount available from these funds during the year July 1, 1915, to June 30, 1916, is $2,930.75.

During the past year all the extension work of the institution has been placed on a definite written project basis. Each project has had the approval of heads of departments, directors, the president of the college, and the Washington authorities. The co-operative relationships with the United States Department of Agriculture established in 1914 have been maintained to our own and, I believe, the general satisfaction of the States Relations Service at Washington.

Besides the co-operative work in agriculture and home economics under the Smith-Lever act, the United States Department of Agriculture is helping us to maintain, with their appropriation for demonstrations outside the cotton belt, the fol-

lowing lines: boys' and girls' clubs, farm management demonstrations, and assistant State leader and farm bureau work. Every effort has been made to maintain cordial co-operative relationships with all other official and voluntary organizations within the Commonwealth in work of mutual interest. During the year arrangements have been made for furnishing clerical help to several departments, and members of the teaching faculty in agricultural education, pomology, agricultural economics, landscape gardening, farm management and beekeeping are now being paid from extension funds for the proportion of their time which is given to extension work.

During the month of August, in answer to urgent calls from the superintendents of various State institutions for help on their agricultural problems, eight members of the faculty visited seventeen of these institutions on a tour of inspection and advice. The work of each was gone over, plans were discussed, and a written report approved by all members of the party has been submitted to each. This is the initial step in what promises to be helpful co-operative work between the college and the other institutions supported by State funds.

In January, 1915, a biennial report of the Extension Service covering 40 pages was published.

During the past year the Extension Service has suffered from the loss of several of the most efficient members of the staff. Those who have left us have all accepted positions of trust and responsibility, and it is gratifying to know that we have had as members of our staff persons who are sought by other States and colleges to become heads of some of their most important departments.

Work carried on by State Funds alone.

Correspondence Courses and Publicity. — The work in the correspondence courses has been carried on along lines similar to the past year. The courses in floriculture, pedagogy of agriculture, gardening and elementary agriculture have been dropped. Courses in human nutrition, apple growing and small-fruit culture have been added. Some other courses, due to inability of the faculty to carry them, have been temporarily discontinued.

The supervisor of these courses recommends that members of the faculty be paid for preparing lessons and correcting the questions as they are returned. Graduate students or capable seniors might be engaged for this latter work. Before the correspondence courses can be developed as they should be it will be necessary to provide more funds to be used in preparing the courses, correcting papers, in the employment of additional clerical help, and for supplies and maintenance. The group study idea is being adopted in several places, and promises to be very successful. It is hoped that some co-operative arrangements can be made with the Correspondence Course Department of the State Board of Education created by the last Legislature, in order that our work may be enlarged and organized on a more satisfactory basis.

Civic Improvement. — The work in civic improvement during the past year has been largely in service rendered to small towns, school boards and individuals. There is a distinct and growing demand for this work. Work has been carried on in connection with 33 projects in 25 towns. Fifty-two plans have been prepared. Ten reports have been rendered. Six separate pieces of work have been supervised. Twenty-nine consultations have been held and 32 lectures have been given.

The civic improvement work has been made a part of the work in extension schools, exhibits and demonstrations. The problems to be taken up during the coming year are related to school ground improvement and playgrounds (urgently needed in small towns and rural communities). The obtaining of public reservations for recreational purposes is also important.

The preparation of farmhouse plans has aroused interest, and should be followed up by further and more extensive studies of plans for other buildings and for the laying out of the farmstead. Surveys should be made to furnish a basis for rural planning work.

The position of extension instructor in civic improvement has not as yet been filled, which handicaps the development of the work.

M. A. C. Agricultural Improvement Association. — No constructive work was carried out by this association during the year. The canceling of farmers' week at the college did not

give opportunity for the regular annual meeting at that time. The demand for choice strains of corn and potatoes was so great that members had no difficulty in disposing of the supply on hand. The season of 1914 was decidedly unfavorable for the production of choice seed, which accounted for the small supply. An effort will be made to revive interest in this association, to the end that it may serve the interests of the State in the manner originally intended.

Community Planning. — During the past year the work of community planning has emerged from the experimental stage as to methods of procedure, and has settled down to the adoption of well-planned long-term policies in several communities. Extension schools of community planning were held in Littleton, Bolton, Framingham and Hubbardston. County conferences were held in Essex, Barnstable and Hampshire counties. Work in community planning has been made a part of the co-operative work carried on with the State Board of Education through the vocational instructors during this year. The instructors in New Salem, Leominster, Reading, Brimfield, Clinton, Sutton, Ashfield, Harwich, Petersham and Hadley have taken up this work.

Assistance in community organization, studying the needs of counties, etc., has been rendered to county agents in Hampshire, Franklin, Plymouth, Norfolk, Barnstable and Worcester counties. Follow-up work (in communities already entering into long-term policy planning) has been carried on in Bolton, Hubbardston, Tyringham, Wilbraham, Brimfield, Montague, Sterling, Charlton, Billerica, Shutesbury, Lanesborough, Chartley, Berlin and Littleton. New communities taking up the work for the first time are South Athol, North Dana, North Leominster, Chester, Sutton, Harwich, Westminster, Petersham and Framingham. Mr. Morgan has continued to act as secretary of the Massachusetts Federation for Rural Progress during the year, and was selected as a special agent of the Massachusetts Development Committee.

If Mr. Morgan is to continue as secretary of the Federation, and if a considerable amount of work is brought into this office as a result of his connection with the Massachusetts Development Committee, more clerical help must be provided. Office

facilities are now unsatisfactory, but this may be remedied when Room G becomes available. If this work is to be conducted with the thoroughness which it demands, and if follow-up work is to be practiced in the way that it should be, either another man must be provided or else the work as now laid out must be curtailed.

Library Extension Work. — During the year the practice of loaning traveling libraries to small towns has been developed more than in past years. Five hundred and seventy-two books and 106 bulletins have been loaned to 33 libraries. A large number of letters have been written to library officers in regard to the purchase and use of books on agriculture and related topics. Five library leaflets on agricultural books have been published and distributed. This phase of our extension work is well defined, and the librarian should receive more financial and clerical assistance in order that the work may be enlarged and extended.

Lectures and Lecture Courses. — The supervision of this work was transferred from Mr. Forbush to Professor Waid, March 1, 1915. An attempt has been made to systematize the lecture work of the institution, keeping more careful records of the lectures given by members of the regular faculty doing extension work. Monthly reports are now secured and a card index by towns is being arranged.

Many lectures and lecture courses are now arranged through county agents, and it is hoped that proper co-operative relationships with the farm bureaus will exist so that the largest possible amount of good may be rendered in different sections of the State. An attempt is being made to give fewer single lectures and to have courses or series arranged wherever possible. The giving of a course of 45 lectures, under the auspices of the Boston Chamber of Commerce, to more than 900 people was a notable feature of the work. In all, there were approximately 900 lectures given by members of the faculty during the past year to approximately 66,000 people. Moving-picture apparatus and films should be made a part of our lecture equipment, and a change in the State law should be secured so that the college can use certain types of apparatus without complying with such stringent laws.

Exhibits. — The exhibits in connection with agricultural fairs, and special exhibits, were more systematic and effective than in past years. The general exhibit is now arranged in quite complete separate units, so that these may be used at fruit, dairy, poultry shows or other exhibitions. This year the exhibits were transported from fair to fair by auto truck, thus economizing time and expense. The exhibit was in attendance at the following fairs: Barnstable, Worcester, Clinton, Williamsett, Uxbridge, Framingham, Great Barrington, Northampton and Ware. The period covered was from August 25 to October 9.

The usual number of lectures and demonstrations were carried on in connection with these exhibits. The present exhibit is a good one, but the need seems to be to incorporate more life by means of animals or mechanical contrivances.

Work carried on by State, Smith-Lever and United States Co-operative Demonstration Funds.

Fruit Growing. — The demonstration orchards which were first planted six years ago have been frequently visited, demonstrations have been given, and those who live in the vicinity, as well as the owners of these orchards, have been instructed in the best methods of caring for orchards. A growing interest in these orchards is manifested in communities where they are located.

One new orchard has been established on the farm of Henry L. Green of Paxton. The exhibit material has been enlarged, and the specialist was present for consultation at nine fairs, giving talks and demonstrations. The pomological teaching in the extension schools has been in most cases increased from a half to a full week's work. A pruning and spraying campaign was organized in Shelburne in co-operation with the Franklin County Farm Bureau. This was successful, but could not be carried to other counties on account of lack of time and sufficient force to handle the work. Work in co-operation with the State Board of Agriculture, in connection with the new apple grading and packing law, was carried on. Mr. Rees gave thirty-seven single lectures and demonstrations before

various organizations, judged at several fairs, and frequently made farm visits.

Those in charge of this work believe it to be established along right lines, but unless another man can be added to the force it is inadvisable to develop new work the coming year.

The farm bureaus make increased demands for assistance, and during a few weeks in the spring it is not possible to get to all the demonstration orchards for pruning or spraying at the proper time. It is evident that another man is badly needed to help develop work which ought to be carried on in this State.

Publications and Publicity. — Under the Smith-Lever act $500 was allowed for printing and publication. This was supplemented by an apportionment of $900 from State funds, making a total apportionment of $1,400.

Fifty publications, varying from 1 to 40 pages, in editions making a total of 204,200 copies, were printed during the year. In addition to this there were several thousand application blanks, schedules, announcements, posters, etc., issued.

The following is a list of the principal publications for the year: —

12 Facts for Farmers.
9 Primers of Instruction and 1 Account Book for Boys' and Girls' Club Work.
5 Library Leaflets.
3 Massachusetts Bulletin for Farm Women.
4 Market Gardeners' Journal.
2 Cow Record Books.
1 Report of the Extension Service.
1 Extension Bulletin.

Mr. Forbush has regularly sent news letters of approximately 1,200 words each to the daily, weekly and agricultural papers of the State. Fifteen special news letters have been prepared and sent to selected publications. The lectures of the summer school and conference have been abstracted and furnished to the press.

Reliable publications seek material concerning our extension activities. It is to be regretted that the staff is not sufficient to furnish this when it is asked for. This sort of publicity work reaches the people with timely agricultural information, and

cultural societies, agricultural fairs, exhibits and demonstrations, extension schools, conferences, the poultry convention, etc., which were started previous to this year, have been carried on in the usual way. Having taken on a man especially for demonstrational work, we have emphasized two new lines, namely, the testing of hens for bacillary white diarrhœa and the co-operation of local poultry organizations in the way of exhibits. Mr. Alfred G. Lunn took up his duties as extension instructor in poultry husbandry on July 20, 1915.

Home Economics. — The new lines of work started during this year have been the beginning and completion of a three months' project for home management demonstration in the town of Brimfield under the direction of Mrs. Horatio Dresser; the preparation, sending out and return of a questionnaire to follow up the instruction given in extension schools; organization of a correspondence course of ten lessons on foods; the issuing of three "Farm Women" bulletins; the visiting of rural schools which teach home economics or prepare noonday lunches; and the arranging of an extension program to be carried out by the American Home Economics Association. Of the work which had been previously organized, three lines have been strengthened, namely, extension schools, canning demonstrations and boys' and girls' home economics clubs.

The two most urgent needs are: —

1. That a room should be provided on the campus to be used as a kitchen laboratory and general experimental room, in order to test out apparatus, etc., which is to be used in the work.

2. A third person should be employed in order that more extension schools of homemaking may be held; that study groups may be organized in localities where extension schools have been held; that conferences may be had with correspondence study groups; that more home economics club meetings may be attended; that more of the calls for lectures and demonstrations may be met; and that more attention may be given to correspondence courses.

The work of Mrs. Dresser in Brimfield has demonstrated the fact that, provided the right sort of a woman can be secured, it is possible to secure just as good results from home manage-

ment demonstrations as it is to secure results from farm management demonstrations.

During the year Miss Harriet Hopkins resigned as assistant in the work, and Miss Marie Sayles has been elected to fill her place.

Dairying. — The extension work of the Dairy Department during the past year has consisted principally of the following: —

The organizing of two milk shows — one at Worcester (the largest to date in this country), and the one held annually at Amherst in connection with farmers' week. We co-operated with the Fitchburg milk inspector in an exhibit at the local fair, judged and scored the milk, and sent a representative to answer questions. The dairy section of the fair exhibit was enlarged. A representative of the department made the State institution trip in company with other members of the faculty, and as a result is helping with dairy barn plans at the Massachusetts General Hospital at Waverley. A representative of the department is working on plans, equipment, etc., for a co-operative creamery at Blandford. The Extension Service specialist is secretary of the Massachusetts Creamery Association and the Massachusetts Dairymen's Association. Lectures have been given, slides have been furnished for the use of milk inspectors, five dairy barns have been remodeled under our advice, correspondence courses have been conducted, and assistance has been given in securing dairy legislation. There is need of developing the work more than in the past. Lantern slides or moving-picture films should be prepared. There is call for more work than can be done at present in the fairs and expositions of the State.

Extension Schools. — Ten extension schools in agriculture were held during the year. The attendance was uniformly good and the interest was all that could be asked. It has been necessary to employ during the past year persons outside the regular staff for some work. This evidently detracts from the efficiency of the teaching.

Four extension schools of community planning were held, and it is felt that there will be fine results from these. This work was made more definite this year by the preparation be-

forehand of syllabi of all talks to be given. The teaching staff of the college co-operated finely in these schools, and it was only through their interest and work that this type of school was made possible.

We very much desire to inaugurate some effective follow-up work to be carried on in all communities where extension schools of either type have been held.

Demonstration Auto Truck. — Demonstration work, using the auto truck as a means of carrying equipment and demonstrator, was continued until Feb. 1, 1915. The growth of county agent work during the year made it unnecessary to continue the work after the resignation of Mr. A. F. MacDougall, who was in charge. The work consisted in visiting towns, calling farmers together in groups and demonstrating proper methods of pruning and spraying fruit trees, packing fruit, operation of dairy machinery, laying out fertilizer demonstration plots, and inducing farmers to keep dairy records and better farm management records.

After February 1, on approval of the Washington authorities, the money which was being spent on this project was placed on the other projects listed in this report.

Extension Work through County and Local Agents. — This includes the report of Mr. B. W. Ellis as assistant State leader.

The farm bureau and county agent work has made remarkable growth during the past year. Prior to Dec. 1, 1914, only one county (Hampden) was organized to the extent of having county agents engaged. During the year Worcester County has organized, with Charles H. White as manager with three assistants; Hampshire County, with A. F. MacDougall as agent; Plymouth County, with Bertram Tupper as agent; Norfolk County, with W. A. Munson as agent; and Franklin County, with John D. Willard as general secretary and Sumner R. Parker as agent. The activities of the Faunce Farm at Sandwich have been broadened so that L. B. Boston, superintendent, acts as county agent for Barnstable County. R. H. Gaskill has been appointed county agent for Bristol County, with headquarters at the County Agricultural School, and H. F. Tompson is acting as district agent in the market-garden district surrounding Boston. F. A. Castle has been

acting as district agent for boys' and girls' club work for a group of towns with Framingham as a center. The Hampden County Improvement League now has five paid agents besides its clerical staff.

Berkshire County is nearly ready to call for a man. Probably Essex County will engage a man to act as county agent with headquarters at the County Agricultural School. Middlesex County held one meeting, but decided not to go further with the movement. Seventy-two per cent. of the land area of the State is now under the jurisdiction of farm bureaus and county agents. Co-operative relationships under the general memorandum of understanding with all these county and district organizations have been entered into, and in the main are proving satisfactory excepting in Worcester County. The work in five counties has been placed on a written project basis, with signed projects filed in the extension office.

The State leader or assistant State leader regularly attends the monthly meetings of the county or district organizations. The sum of $1,200, State and Federal funds, is being paid to each county or district organization with which we are co-operating. This amount equals that being contributed from these sources in any other State. Co-operative relationships are also maintained with the State Board of Education through county and local agricultural high schools. This has seemed to be a most satisfactory arrangement, and these local agents have assisted much in the carrying on of farm management demonstration work and in several other lines. Two county schools, one independent school (Smith's), and thirteen teachers of agriculture have worked with us under this arrangement during the past year. The present county agent law is a poor one and should be amended at an early date.

We need to establish at the present time a fair and well-defined working basis between the Extension Service of the college and the United States Department of Agriculture on the one hand, and the county and district organizations on the other. There is a disposition on the part of individuals in some county organizations to accept financial aid, but to deny the privilege of joint supervision of work to be done and expenditure of funds, thus practically blocking any real co-operation.

We believe that the county and district agents should be local representatives of the college and the United States Department of Agriculture; that we should work with and through these agents; and that there should be joint approval by the college and local governing boards of work to be done and of the persons who are to carry on the work after this has once been decided. Only by such a working plan can harmony and efficiency be secured and the whole extension work movement organized on a State and nation wide basis.

Mr. B. W. Ellis resigns as assistant State leader, to take effect Dec. 31, 1915. Mr. Sumner R. Parker has been engaged for this position, his duties to begin Dec. 6, 1915.

Co-operation and Marketing. — This work, carried on under the direction of the Department of Agricultural Economics, has consisted mainly of six types: —

1. General lectures and conferences on markets, co-operation and rural organization.
2. Conferences for the organization of farmers' exchanges.
3. Work with the Massachusetts Development Committee, Bureau of Labor and Unemployment and other organizations.
4. Lectures to granges, farmers' clubs and other organizations.
5. Advice to co-operative exchanges as to organization, general management, etc.
6. Rural credit studies and the giving of information concerning these.

In addition to the foregoing there have been many conferences with market men, railroad officials, county agents and farm bureaus, consumers and producers.

Seven new co-operative exchanges were organized during the past year.

Up to July 1 Mr. Ferguson was employed on half time by the Office of Markets, Washington, D. C., for an investigation of the distribution of milk in Massachusetts. Studies were made in Amherst, Haverhill, Northampton, Pittsfield, Worcester and Springfield. He also rendered valuable assistance to the Boston Chamber of Commerce in the series of meetings which they held in different parts of New England, and in the preparation of the report which is now being circulated. The

organization of seventeen co-operative exchanges since the employment of an extension specialist is a significant fact. These in the beginning met with pretty strong opposition on the part of farmers themselves.

The credit plan evolved by Mr. Ferguson met with the approval of the bankers of Hampden County, farmers and the United States Department of Agriculture. There is need of doing definite research work in marketing lines especially, and some arrangements should be made during the coming year with the experiment station, so that the Extension Service specialist in this subject may spend part time in gathering information and the remainder in the organizing of buying and selling societies.

Work carried on alone by the United States Department of Agriculture Co-operative Demonstration Funds.

Hog Cholera. — Dr. D. I. Skidmore, who was assigned by the Bureau of Animal Industry, United States Department of Agriculture, for demonstration work in the prevention of hog cholera, was withdrawn from the State at the time of the outbreak of the foot and mouth disease to help in eradicating this. The unforeseen expense of this work has made it impossible for the Department to reassign him to us to continue this work, so that little has been done on the project during the year.

Temporary Projects, not in Force after July 1, 1915, carried on by State, Smith-Lever and the United States Department of Agriculture Co-operative Demonstration Funds co-operatively.

Gardner Boyd was engaged as temporary assistant in club work, Raymond Whitney for farm management demonstrations, Mrs. Horatio Dresser for home management demonstrations, F. A. Castle for club work in the district surrounding Framingham, H. F. Tompson for market-garden demonstrations, and three senior students as demonstrators to assist county agents in the crowded season of work. This work was financed from unexpended balances of Smith-Lever money and from funds

assigned by the Office of Extension Work at Washington. The projects were all discontinued July 1, 1915. Reports of the work which was carried on will be found under the proper departments in this report.

Recommendations.

There are many recommendations which might be made by the director, few of which can be carried out with no more State funds at hand than we had three years ago.

It is a discouraging proposition to have two or three times as many calls for help coming in from earnest people as can be cared for. The members of the faculty of the college are anxious to do more extension work, but funds for this cannot be provided.

The present fixed appropriation is still to run three full years. Before the end of that period the trustees must face the problem of curtailing or abolishing some lines now in force, or providing some financial relief. It is clear that the Extension Service will suffer badly if we cannot increase salaries sufficiently to keep tried and proven members of our staff with us. The advent of farm bureau work makes it necessary for us to engage a few highly trained specialists rather than a large number of inexperienced demonstrators. In this way we can give county agents the assistance in special lines which they so much need.

We must certainly hold strictly to a program of concentration rather than expansion.

I would recommend that a change of law be secured so that a report of the Extension Service may be printed at State expense, in the same way as the station report is now handled.

A full report of statistics and a financial statement will be rendered as a part of a more complete annual report as now required by the Smith-Lever law as soon after the 1st of December as these figures can be secured.

So far as the need of more persons to do extension work is concerned, I can do no better than to reiterate what was said in the biennial report published some months ago, slightly modified. This is as follows: —

1. With an appropriation already fixed for the next three years by the State, and the fact that, due to the reasons already stated, Massachusetts receives but $2,440 additional each year from Smith-Lever bill funds, no enlargement or expansion of extension activities can be expected. The most that we should try to do is to retain if possible our present excellent force of extension workers, and to perfect within the institution itself a better working organization.

2. There is an urgent need for the adoption by the trustees of a definite policy defining what the extension work of the institution should be, and the relation of all employees of the college to it. The director suggests that the following definition might be used on which to base the policy: "The Extension Service is the whole institution (every department and individual) at work doing what it can to upbuild the rural life of the Commonwealth, and all employees are expected, in so far as extension work does not interfere with their teaching or research work, to take their part in this movement, and to make themselves and their departments as useful as is possible in the different movements to build up the agricultural industry of the State."

3. While there is probably no chance of our meeting any of the immediate needs for more help, yet these should nevertheless be presented. There are organizations such as the poultrymen, those interested in boys' and girls' club work, and the market gardeners, who are willing to go before the Legislature and secure funds to carry on the work which they wish done. It would seem that under such circumstances no objection should be raised by the college.

So far as demands for help and assistance are concerned, plans might be made to expend profitably at least $50,000 in addition to what is now being appropriated. Existing conditions, however, must be considered, and only the most urgent needs are here mentioned.

(*a*) Extension instructor in market gardening: —

Salary,	$2,000 00	
Travel,	500 00	
Supplies and equipment,	200 00	
		$2,700 00

(*b*) Extension worker in poultry husbandry: —		
Salary,	$1,800 00	
Travel,	500 00	
Supplies and equipment,	200 00	
		$2,500 00
(*c*) Extension workers, boys' and girls' clubs (United States Department of Agriculture might pay one-half salary and expenses): —		
Salaries of supervisors (4),	$5,400 00	
Travel (4),	2,000 00	
Supplies and equipment,	600 00	
		8,000 00
(*d*) Extension instructor in agronomy: —		
Salary instructor,	$1,800 00	
Travel,	500 00	
Supplies and equipment,	200 00	
		2,500 00
(*e*) Extension instructor in fruit growing: —		
Salary instructor,	$1,500 00	
Travel,	500 00	
Equipment,	100 00	
		2,100 00
(*f*) Extension worker in farm management demonstrations (United States Department of Agriculture might pay one-half salary and expenses): —		
Salary,	$1,500 00	
Travel,	700 00	
Equipment,	100 00	
		2,300 00
(*g*) Extension instructor in home economics: —		
Salary,	$1,200 00	
Travel,	500 00	
Equipment,	100 00	
		1,800 00
(*h*) Adviser and demonstrator to work with State institutions: —		
Salary,	$3,000 00	
Travel,	700 00	
		3,700 00
(*i*) Extension instructor, injurious insects and plant diseases: —		
Salary,	$1,800 00	
Travel,	500 00	
Equipment,	200 00	
		2,500 00

(*j*) Extension instructor in agricultural engineering: —		
Salary,	$2,000 00	
Travel,	500 00	
Equipment,	200 00	
		$2,700 00
(*k*) Extension assistant in beekeeping (part time),		1,200 00
(*l*) Clerical assistance and office equipment required for above additional force,		6,000 00
Total,		$38,000 00

4. Since the college receives for instructional purposes an automatic increase in its funds, the cost of running the short courses (approximately $8,500) might be paid from these funds, thus relieving the extension budget to that extent. Some of this much needed work might then be started.

The director has every reason to commend in the highest terms all members of the Extension Service staff and those members of the college faculty and station staff who continue to offer such fine co-operation in the attempt to make this college a "public service institution." They render an unselfish service which cannot be fairly reckoned on a financial basis.

Wm. D. Hurd,
Director.

TABLES AND STATISTICS.

TABLE I. — *New Appointments.*

A. In the Academic Departments.

POSITION.	Name.	Institution from which graduated and Degrees.
Instructor in botany,[1]	Paul J. Anderson,	A.B., Wabash College, 1910; Ph.D., Cornell University, 1914.
Professor of military science,	Henry W. Fleet,	Culver Military Academy.
Assistant in microbiology,[1]	Arao Itano,	Michigan Agricultural College, B.Sc., 1911.
Assistant professor of dairying,[1]	Orville A. Jamison,	Ohio State University, B.Sc., 1912.
Assistant professor of agronomy,	Earl Jones,	Ohio State University, B.Sc., 1912; M.Sc., 1913.
Professor of animal husbandry,[2]	John C. McNutt,	Ohio State University, B.Sc., Agr., 1907.
Assistant in agronomy,[1]	Frederick G. Merkle,	Massachusetts Agricultural College, B.Sc., 1914.
Instructor in farm management,[1]	Walter M. Peacock,	Cornell University, B.Sc., 1913; M.Sc., 1915.
Professor of rural sociology,	John Phelan,	University of Michigan, A.B., 1910; A.M., 1912.
Assistant in agricultural economics,[1, 3]	Frederick W. Read,	Massachusetts Agricultural College, B.Sc., 1914.
Assistant in chemistry,	Paul Serex, Jr.,	Massachusetts Agricultural College, B.Sc., 1913.
Assistant to the commandant,[1]	Alexander Smart,	– – –
Assistant professor of horticulture,[1]	Charles H. Thompson,	Kansas State Agricultural College, B.Sc., 1893; M.Sc., 1898.
Assistant in physics,[1]	Harry C. Thompson,	Worcester Polytechnic Institute, B.Sc., 1915.
Assistant professor of market gardening.[1]	Andrew S. Thomson,	Brown University, Ph.B., 1898; Columbia University, A.M., 1912.
Professor of market gardening,	Harold F. Tompson,	Massachusetts Agricultural College, B.Sc., 1905.
Instructor in animal husbandry,[4]	Glenn J. Wight,	Cornell University, B.Sc., 1914.

B. In the Experiment Station.

Assistant chemist,[5]	Norman H. Borden,	Rhode Island State College, B.Sc., 1915.
Assistant,	Robert L. Coffin,	Coburn Classical Institute, 1907.
Assistant in veterinary science,[1]	Beryl H. Paige,	Mount Holyoke College, A.B., 1911.
Assistant in veterinary science,[1]	Arnold P. Sturtevant,	Clark College, A.B., 1912.

[1] New position.
[2] Services to begin Jan. 1, 1916.
[3] Services to begin Feb. 1, 1916.
[4] Temporary engagement.
[5] Temporary appointment during leave of absence of Mr. R. W. Ruprecht.

C. In the Extension Service.

Position.	Name.	Institution from which graduated and Degrees.
Extension instructor in charge of boys' and girls' pig club work.[1]	Eric N. Boland, .	Massachusetts Agricultural College, B.Sc., 1912; Iowa State College, M.Sc., 1913.
Instructor in farm management demonstrations.	Wesley H. Bronson, .	Cornell University, B.Sc., 1913.
Extension instructor in poultry husbandry.[1]	Alfred G. Lunn, .	Oregon Agricultural College, B.Sc.Agr., 1912.
Assistant State leader, . . .	Sumner R. Parker, .	Massachusetts Agricultural College, B.Sc., 1904.
Extension instructor in home economics,	Marie Sayles, . .	Kalamazoo Normal School; Columbia University, Teachers' College, B.Sc., 1914.
Extension instructor in animal husbandry.[2]	William F. Turner, .	Kansas State Agricultural College, B.Sc., Agr., 1910.

[1] New position. [2] Services to begin December, 1915.

D. In the Clerical Staff.

Position.	Name.
Clerk, treasurer's office, ...	Eleanor F. Bishop.
Cashier, treasurer's office, ...	John K. Broadfoot.
Clerk, president's office, ...	Bertha A. Brockhaus.
Assistant in library, ...	Anne Butler.
Stenographer, Department of Agricultural Education, . . .	Phyllis J. Cogswell.
Clerk, Department of Poultry Husbandry, ...	Marcella C. Curry.
Telephone operator, Stockbridge Hall,[1]	Louise G. Davidson.
Clerk, director's office, experiment station, ...	F. Ethel Felton.
Clerk, Extension Service,[1]	Lillian S. Hadfield.
Clerk, Department of Rural Sociology,[1, 2]	Mary E. Horton.
Stenographer, Extension Service, ...	Helena Keiber.
Stenographer, treasurer's office, ...	Irene A. Martin.
Clerk, dean's office, ...	Mary I. Shores.

E. Miscellaneous.

Assistant engineer, ...	Thomas F. Butterworth.
Resident nurse,[1]	Florence Levensaler.

[1] New position. [2] Transferred from president's office.

TABLE II. — *Resignations.*

POSITION.	Name.
Assistant in library,	Clarissa G. Babcock.
Extension instructor in farm management and assistant State leader,	Herbert J. Baker.
Instructor in chemistry,	Robert H. Bogue.
Assistant in library,	Anne Butler.
Cashier, treasurer's office,	Mary E. Caldwell.
Assistant to the dean,	Bertha E. Christiansen.
Stenographer, Department of Agricultural Education,	Marion S. Donaldson.
Assistant State leader,[1]	Benjamin W. Ellis.
Extension instructor in civic improvement,	Philip H. Elwood, Jr.
Assistant chemist, experiment station,	Walter S. Frost.
Extension instructor in home economics,	Harriet J. Hopkins.
Assistant professor of agronomy,	Elmer M. McDonald.
Extension instructor in charge of demonstration auto truck,	Allister F. McDougall.
Associate professor of animal husbandry,	John A. McLean.
Professor of military science and tactics,[2]	George C. Martin.
Clerk, Department of Poultry Husbandry,	Fay L. Milton.
Stenographer, Extension Service,	Ina M. Paige.
Clerk, treasurer's office,	Luther R. Putney.
Assistant engineer,	Percy C. Schroyer.
Stenographer, Department of Agricultural Economics,	Harriet C. Stevenson.
Extension instructor in animal husbandry,	George F. E. Story.
Stenographer, treasurer's office,	Dorothy Tyacke.

[1] Resignation to take effect Dec. 31, 1915.
[2] Relieved from duty by United States War Department.

TABLE III. — *Change in Title of Officers of the Institution.*

NAME.	Former Title.	Present Title.
Paul J. Anderson,	Instructor in botany,	Assistant professor of botany.
Edgar L. Ashley,	Assistant professor of German,	Associate professor of German.
Harold D. Baldinger,	Assistant in dairying,	Instructor in dairying.
Alexander E. Cance,	Associate professor of agricultural economics.	Professor of agricultural economics.
Walter W. Chenoweth,	Assistant professor of pomology,	Associate professor of pomology.
Guy C. Crampton,	Associate professor of entomology.	Professor of insect morphology.
Benjamin W. Ellis,	Extension instructor in farm demonstration.	Assistant State leader.
Lina E. Fisher,	Stenographer, Department of Chemistry.	Clerk, Department of Chemistry.

TABLE III. — *Change in Title of Officers of the Institution* — Concluded.

NAME.	Former Title.	Present Title.
Grace E. Gallond,	Stenographer, experiment station.	Clerk, Department of Dairying.
Alice M. Gilbert,	Clerk, Department of Dairying,	First clerk, Division of Agriculture.
Christian I. Gunness,	Associate professor of rural engineering.	Professor of rural engineering.
Sidney B. Haskell,	Associate professor of agronomy,	Professor of agronomy.
Lorian P. Jefferson,	Expert secretary, Division of Rural Social Science.	Research secretary, Division of Rural Social Science.
Anderson A. Mackimmie,	Assistant professor of French,	Associate professor of French.
Walter E. Prince,	Instructor in English,	Assistant professor of English.
William S. Regan,	Assistant in entomology,	Instructor in entomology.

TABLE IV. — *Speakers for the Year.*

A. Speakers at Wednesday Assembly for Year ending Nov. 30, 1915.

1914.

Dec. 2. — Pres. Kenyon L. Butterfield.
Dec. 9. — Prof. William L. Machmer, M. A. C.
Dec. 16. — Mr. Jewell B. Knight, M. A. C., 1892, Poona, India.

1915.

Jan. 6. — Memorial service in memory of Dean George F. Mills.
Jan. 13. — Mr. Albert Blair, Brooklyn, N. Y.
Jan. 20. — Mr. Warren P. Landers, Boston.
Feb. 3. — Dr. David Snedden, Boston, Massachusetts Commissioner of Education.
Feb. 10. — Prof. E. L. Morgan, M. A. C.
Feb. 17. — Prof. Frank A. Updyke, Dartmouth College.
Feb. 24. — Pres. Kenyon L. Butterfield.
Mar. 3. — Prof. Frank A. Waugh, M. A. C.
Mar. 10. — Dean Edward M. Lewis, M. A. C.
Apr. 7. — Pres. Kenyon L. Butterfield.
Apr. 14. — Mr. John D. Willard, Greenfield, Mass.
Apr. 28. — Hon. Charles M. Gardner, Westfield, Mass.
May 5. — Mr. Samuel Gompers, Washington, D. C.
May 12. — Mr. George D. Leavens, M. A. C., 1897, New York City.
May 19. — Prof. Robert J. Sprague, M. A. C.
May 26. — Pres. Kenyon L. Butterfield.
Sept. 22. — Pres. Kenyon L. Butterfield.
Sept. 29. — Dean Edward M. Lewis, M. A. C.
Oct. 6. — Pres. Kenyon L. Butterfield.
Oct. 13. — Student forum.
Oct. 20. — Prof. Walton H. Hamilton, Amherst College.
Oct. 27. — Chancellor David Starr Jordan, Leland Stanford University.
Nov. 3. — Pres. Kenyon L. Butterfield.
Nov. 10. — Rev. Lyman Abbott, D.D., New York City.

B. Speakers at Sunday Chapel for Year ending Nov. 30, 1915.

1914.

Dec. 6. — Rev. Jason N. Pierce, Dorchester, Mass.
Dec. 13. — Rev. William I. Chamberlain, New York City.

1915.

Jan. 10. — Rev. Arthur C. Baldwin, Boston.
Jan. 17. — Bishop John W. Hamilton, Boston.

1915.
Jan. 24. — Rev. Neil McPherson, Springfield.
Feb. 7. — Rev. Fleming James, Englewood, N. J.
Feb. 14. — Dr. Frederick Lynch, New York City.
Feb. 21. — Dr. Charles Fleischer, Boston.
Feb. 28. — Rev. George Hodges, D.D., Newton, Mass.
Mar. 7. — Rev. Frank M. Sheldon, Boston.
Mar. 14. — Mr. Charles D. Hurrey, New York City.
Mar. 21. — Rev. John W. Hoag, New Haven, Conn.
Apr. 11. — Rev. Carl S. Patton, Columbus, O.
Apr. 18. — Mr. Owen R. Lovejoy, New York City.
Oct. 3. — Pres. Kenyon L. Butterfield.
Nov. 7. — Hon. William H. Taft, New Haven, Conn.
Nov. 14. — Rev. Samuel A. Eliot, Boston.
Nov. 21. — Rev. Albert P. Fitch, D.D., Cambridge, Mass.

TABLE V. — *Attendance.*

A. In Work of College Grade.

	Registration Nov. 30, 1914.	Registration Nov. 30, 1915.
Senior class,	103	108
Junior class,	113	110
Sophomore class,	142	162
Freshman class,	168	211
	526	591
Graduate students,	52	52
Unclassified students,	32	25
Total doing work of college grade,	610	668

B. Short-course Enrollment and Convention Registration.

	1914.	1915.
Winter school,	182	182
Summer school,	146	162
Apple-packing school,	30	19
School for tree wardens,	22	–
Farmers' week,	1,563	–
School for rural social service,	22	14
School for library workers,	–	25
Boys' camps,	47	92
Girls' camps,	–	13
Polish farmers' day,	86	–
Poultry convention,	586	600
Conference on rural community planning,	329	261
Convention of county agents and agricultural instructors,	28	38
Total,	3,041	1,406

TABLE VI. — *Legislative Budget, 1915.*

ITEMS.	Amount asked.	Amount granted.
Special appropriations: —		
Addition to the power plant,	$30,000	$10,000
Miscellaneous additions,	10,000	–
Student dormitory,	40,000	–
Laboratory for microbiology,	67,500	67,500
	$147,500	$77,500

There was also submitted a bill requesting an appropriation of $200,000 a year for six years for buildings and other improvements; this request was not granted.

TABLE VII. — *Statistics of Freshmen entering Massachusetts Agricultural College, September, 1915.*

A. Home Addresses of Students (classified by Towns and Cities).

Acushnet, 1	Hingham, 1	PITTSFIELD, 1
Amesbury, 1	Holliston, 1	Plainville, 1
Amherst, 5	Hopedale, 1	PORTLAND, ME., 1
Arlington, 3	Hudson, 1	Proctor, Vt., 1
ATLANTA, GA., 1	Kensington, Conn., 1	PROVIDENCE, R. I., 2
Avon, 1	Lakeville, 1	Putnam, Conn., 1
Ayer, 1	Leominster, 3	QUINCY, 4
BALTIMORE, MD., 1	Leverett, 1	Randolph, 1
Barnstable, 1	Lima, N. Y., 1	Reading, 1
BEVERLY, 1	Longmeadow, 1	RICHMOND HILL, N. Y., 1
BOSTON, 19	LYNN, 8	Rockfall, Conn., 1
Bourne, 1	MALDEN, 3	Rockland, 3
Braintree, 2	Marion, 1	Schenevus, N. Y., 1
Brimfield, 1	MELROSE, 8	Sharon, 2
BROCKTON, 1	Mendon, 1	Shelburne, 1
Brookline, 2	Merrimac, 1	Sherborn, 1
CAMBRIDGE, 3	Methuen, 1	SOMERVILLE, 9
Chester, 1	Milford, 4	Southbridge, 1
Chester, Pa., 1	Milton, 1	SPRINGFIELD, 6
Chesterfield, 1	Monson, 1	Suffield, Conn., 1
Colrain, 1	Montague, 1	Sunderland, 2
Danvers, 1	Millville, N. J., 1	TAUNTON, 1
Darien, Conn., 1	Nantucket, 1	Tolland, 1
Dedham, 1	Needham, 1	Topsfield, 1
Deerfield, 2	NEW BEDFORD, 1	Townsend, 1
Durham, Conn., 1	NEWBURYPORT, 1	TROY, N. Y., 1
EAST ORANGE, N. J., 2	New Canaan, Conn., 1	Upton, 1
EVERETT, 1	New Marlborough, 1	Uxbridge, 1
FALL RIVER, 2	NEWTON, 5	WALTHAM, 2
Falmouth, 1	Newtown, Conn., 1	Warren, 2
FITCHBURG, 1	NORTHAMPTON, 4	Wenham, 1
Framingham, 3	North Attleborough, 1	Westfield, 2
Great Barrington, 2	Northbridge, 1	West Springfield, 2
Greenfield, 3	North Reading, 1	Weymouth, 3
Groton, 2	Norwich, Conn., 1	Williamstown, 1
Hammonton, N. J., 1	Orange, 1	Wilson, Conn., 1
Hanover, 1	Orleans, 1	Winchendon, 1
HAVANA, CUBA, 1	Oxford, 1	Winchester, 1
HAVERHILL, 2	PATERSON, N. J., 1	WORCESTER, 2

B. Home Addresses (classified by States).

	Number.	Per Cent.		Number.	Per Cent.
Connecticut,	11	5.21	New York,	4	1.90
Georgia,	1	.47	Pennsylvania,	1	.47
Maine,	1	.47	Rhode Island,	2	.95
Maryland,	1	.47	Vermont,	1	.47
Massachusetts,	183	86.73	Cuba,	1	.47
New Jersey,	5	2.37		211	99.98

C. Home Addresses (classified by Counties of Massachusetts).

	Number.	Per Cent.		Number.	Per Cent.
Barnstable,	3	1.64	Middlesex,	47	25.68
Berkshire,	5	2.73	Nantucket,	1	.55
Bristol,	6	3.28	Norfolk,	19	10.38
Essex,	18	9.83	Plymouth,	8	4.37
Franklin,	12	6.56	Suffolk,	19	10.38
Hampden,	15	8.20	Worcester,	20	10.93
Hampshire,	10	5.46		183	99.99

D. Nativity of Parents.

	Number.	Per Cent.
Neither parent foreign born,	158	74.88
Both parents foreign born,	32	15.17
Father (only) foreign born,	16	7.58
Mother (only) foreign born,	5	2.37
	211	100.00

E. Education of Father.

	Number.	Per Cent.
Common school,	93	44.08
High school,	61	28.91
Business school,	20	9.48
College or university,	35	16.59
No statistics,	2	.95
	211	100.01

F. Religious Census.

	Membership.		Preference.		Totals.	
	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.
Baptist,	16	7.58	7	3.32	23	10.90
Catholic,	25	11.85	2	.95	27	12.80
Congregationalist,	54	25.59	23	10.90	77	36.49
Episcopal,	14	6.63	2	.95	16	7.58
Hebrew,	4	1.89	1	.47	5	2.37
Methodist,	18	8.53	9	4.27	27	12.80
Presbyterian,	3	1.42	1	.47	4	1.89
Unitarian,	7	3.32	4	1.89	11	5.21
Universalist,	2	.95	3	1.42	5	2.37
Miscellaneous,	7	3.32	7	3.32	14	6.63
	150	71.09	59	27.96	209	99.05
No statistics,	–	–	–	–	2	.95
	150	71.09	59	27.96	211	100.00

G. Occupation of Father.

	Number.	Per Cent.
Agriculture and horticulture,	33	15.64
Artisans,	50	23.70
Business,	61	28.91
Deceased or no statistics,	19	9.00
Miscellaneous,	21	9.95
Professional,	26	12.31
Retired,	1	.47
	211	99.98

H. Intended Vocation of Student.

	Number.	Per Cent.
Agriculture or horticulture (practical),	98	46.45
Agriculture or horticulture (professional),	69	32.70
Miscellaneous,	1	.47
Professions,	5	2.37
Undecided or no statistics,	38	18.01
	211	100.00

I. Farm Experience.

	Number.	Per Cent.
Brought up on a farm,	51	24.17
Not brought up on a farm, and having had no, or practically no, farm experience.	75	35.55
Not brought up on a farm, but having had some farm experience.	85	40.28
	211	100.00

J. Miscellaneous Statistics.

Average age,	19.15 years.
Number signifying their intention to seek student labor,	130 (61.61 per cent.)
Number boarding at the college dining hall,	165 (78.20 per cent.)

TABLE VIII. — *Entrance Statistics of Freshman Class.*

Number of applications,		411
Admitted,	239	
Matriculated,	211	
Failed to report,	28	
Total,	239	
Rejected,	172	
Total,		411
Matriculated on certificate,		92
Matriculated on examination,		23
Matriculated on certificate and examination,		83
Matriculated on credentials from another college,		6
Re-entered,		7
		211
Matriculated without condition,		129
Matriculated with condition,		82
		211

TABLE IX. — *Official Visits by Outside Organizations.*

Connecticut Valley Breeders' Association.
Massachusetts State Poultry Association, Inc.
Massachusetts Poultry Society.
Massachusetts Federation for Rural Progress.
Massachusetts Agricultural Development Committee.
Massachusetts Homestead Commission.
Massachusetts Committee on Rural Resources.
Massachusetts Collegiate Country Life Club.
Rural Church Committee of the Congregational Church.
The Northampton and Holyoke Gardeners' and Florists' Club.
Vocational Agricultural Instructors.

TABLE X. — *Cases treated at the Infirmary, Sept. 15 to Nov. 30, 1915.*

September 15 to October 1: —	
House cases,	19
Out-patients,	4
October 1 to November 1: —	
House cases,	72
Out-patients,	48
November 1 to December 1: —	
House cases,	26
Out-patients,	36
Number of house cases,	117
Number of out-patients,	88
Total,	205
Number cared for in the house,	19
Number cared for as out-patients,	37
Total,	56

Report of the Treasurer

For the Fiscal Year ending Nov. 30, 1915.

Balance Sheet.

		Dr.	Cr.
1914.			
Dec. 1.	To balance on hand,	$44,255 00	
1915.			
Nov. 30.	To receipts for fiscal year,	728,188 79	
	Expenditures for fiscal year,		$719,304 72
	Balance on hand,		53,139 07
		$772,443 79	$772,443 79

Schedule A. — Income.

	Items.	Totals.
Income from students and others,		$85,998 51
Tuition fees,	$3,479 00	
Laboratory fees,	5,648 50	
Rents,	5,833 26	
Department sales,	58,716 52	
Department transfers,	6,225 98	
Miscellaneous,	6,095 25	
Income from grants by nation and State: —		
State aid,		527,093 17
Income from endowment,	$3,313 32	
Appropriation for current expenses,	228,000 00	
Administration, $31,000 00		
Maintenance, 90,000 00		
Instruction, 90,000 00		
Graduate school, 2,000 00		
Improvements, 10,000 00		
Additional land, 5,000 00		
Appropriation for extension service,	50,000 00	
Appropriation for experiment station,	31,000 00	
Maintenance, $25,000 00		
Feed law, 6,000 00		
Receipts from special appropriation,	214,779 85	
Federal aid,		82,098 70
Income from land grant of 1862,	$7,300 00	
Income from Hatch fund of 1887,	15,000 00	
Income from Adams fund of 1906,	15,000 00	
Income from Nelson fund of 1907,	16,666 67	
Income from Morrill fund of 1890,	16,666 66	
Income from Smith-Lever fund of 1914,	11,465 37	

SCHEDULE A. — INCOME — *Concluded.*

	Items.	Totals.
Income from other sources: —		
Income from experiment station,		$26,969 31
Fertilizer receipts,	$10,088 00	
Agricultural receipts,	2,365 01	
Cranberry receipts,	2,437 01	
Chemical receipts,	10,732 09	
Miscellaneous receipts,	1,347 20	
Income from extension service,		6,029 10
Winter school receipts,	$1,095 50	
Summer school receipts,	1,748 01	
Correspondence course receipts,	655 67	
Itinerary instruction receipts,	840 88	
Miscellaneous receipts,	1,689 04	
Total,		$728,188 79

Classification of Income from Students and Others.

	Laboratory Fees.	Department Sales.	Transfers.	Rent.	Income.	Miscellaneous.	Tuition.	Totals.
Agricultural economics,	–	$17 25	–	–	–	–	–	$17 25
Agricultural education,	–	96	–	–	–	–	–	96
Agronomy,	$411 00	–	–	–	–	$100 00	–	511 00
Animal husbandry,	180 00	–	–	–	–	100 00	–	280 00
Beekeeping,	–	97 09	$6 70	–	–	–	–	103 79
Botany,	632 00	42 48	–	–	–	–	–	674 48
Chemistry,	2,883 00	57 56	20 72	–	–	–	–	2,961 28
Dairy,	112 00	17,867 38	617 20	–	–	100 00	–	18,696 58
Entomology,	110 50	3 56	–	–	–	–	–	114 06
Farm administration,	–	27 88	50	–	–	–	–	28 38
Floriculture,	–	2,951 36	35 84	–	–	100 00	–	3,087 20
Farm,	–	30,313 09	1,672 32	–	–	–	–	31,985 41
Forestry,	–	9 00	58 40	–	–	100 00	–	167 40
General horticulture,	–	31 57	3,464 23	–	–	323 50	–	3,819 30
Grounds,	–	507 70	–	–	–	–	–	507 70
Hospital,	–	–	–	–	–	30 77	–	30 77
Landscape gardening,	297 00	14 92	4 12	–	–	100 00	–	416 04
Language and literature,	–	40	–	–	–	–	–	40
Library,	–	174 58	16 04	–	$417 09	–	–	607 71
Market gardening,	–	1,276 31	111 34	–	–	100 00	–	1,487 65
Mathematics,	72 00	–	18 00	–	–	–	–	90 00
Microbiology,	345 00	–	45 80	–	–	59 36	–	450 16
Military,	–	–	5 90	–	–	–	–	5 90
Physics,	–	93	–	–	–	–	–	93
Pomology,	137 50	1,540 27	27 95	–	–	100 00	–	1,805 72
Physical education,	–	1 25	–	–	–	–	–	1 25
Poultry husbandry,	90 50	3,372 24	7 23	–	–	100 93	–	3,570 90
Rural engineering,	–	–	6 56	–	–	100 00	–	106 56
Rural sociology,	–	1 40	–	–	–	–	–	1 40
Veterinary,	–	–	27 13	–	–	–	–	27 13
Zoölogy and geology,	378 00	34 00	2 75	–	–	–	–	414 75
Operating and maintenance,	–	–	7 60	–	–	4,214 75	$3,479 00	7,701 35
North dormitory,	–	–	–	$2,006 49	–	–	–	2,006 49
South dormitory,	–	–	69 10	2,435 35	–	–	–	2,504 45
College residences,	–	–	–	569 56	–	–	–	569 56
Executive order,	–	–	–	–	–	48 85	–	48 85
President's office,	–	–	55	–	–	–	–	55
Salaries,	–	–	373 34	–	–	–	–	373 34
Draper hall,	–	–	–	821 86	–	–	–	821 86
Totals,	$5,648 50	$58,343 18	$6,599 32	$5,833 26	$417 09	$5,678 16	$3,479 00	$85,998 51

SCHEDULE B. — EXPENDITURES FOR FISCAL YEAR.

	Items.	Totals.
College expenses,		$342,659 93
Administration,	$31,381 32	
Maintenance,	179,714 94	
Instruction,	131,563 67	
Experiment station,		88,178 87
Administration,	$1,011 28	
Feed inspection,	5,337 54	
Fertilizer law,	10,047 01	
Salaries,	39,199 74	
Departments,	32,583 30	
Extension service,[1]		64,486 07
Salaries,	$36,215 97	
Travel,	9,677 21	
Departments,	18,592 89	
Special appropriation,		223,636 67
Infirmary,	$13,052 48	
Agricultural building,	176,629 92	
Sewers,	9,200 00	
Addition to power plant,	10,000 00	
Microbiology building,	14,754 27	
Miscellaneous,		343 18
Total,		$719,304 72

[1] Made up from State Extension Service and Smith-Lever funds.

Analysis of College Expenditures.

Administration.	Office Expense.	Salaries and Labor.	Travel.	Minor Equipment.	Building Supplies.	Publicity and Lectures.	Student Activity.	Commencement.	Miscellaneous.	Totals.
Dean's office,	$158 19	$290 25	–	$37 60	–	–	–	–	–	$486 04
Executive order,	–	–	$1,932 48	–	–	$1,197 84	$1,102 03	$502 17	$3,180 82	7,915 34
President's office,	728 88	154 95	49 85	–	$4 31	–	–	–	–	937 99
Registrar's office,	373 27	95 35	40 49	5 17	–	–	–	–	–	514 28
Treasurer's office,	649 84	541 18	145 25	8 43	2 47	–	–	–	72 29	1,419 46
Administration (salaries),	–	20,108 21	–	–	–	–	–	–	–	20,108 21
Totals,	$1,910 18	$21,189 94	$2,168 07	$51 20	$6 78	$1,197 84	$1,102 03	$502 17	$3,253 11	$31,381 32

Maintenance.	Office Supplies.	Labor.	Laboratory Supplies.	Refunds.	Minor Equipment.	Building Supplies.	Travel.	General Expense.	Miscellaneous.	Salaries.	Totals.
Academic maintenance: —											
Agricultural economics,	$117 98	$17 48	$5 23	–	$9 21	–	$14 55	–	–	–	$164 45
Agricultural education,	156 45	160 35	95 98	–	2 50	–	92 10	–	$0 73	–	508 11
Agronomy,	76 32	99 08	201 26	$17 50	23 52	–	28 12	–	–	–	445 80
Animal husbandry,	133 28	138 46	114 33	5 00	32 83	–	119 85	–	–	–	543 75
Beekeeping,	141 13	998 55	223 77	–	134 63	$95 21	4 00	–	–	–	1,597 29
Botany,	146 11	457 00	644 43	41 00	31 75	49 62	16 15	–	–	–	1,386 06
Chemistry,	196 65	1,027 95	2,616 77	647 57	79 13	92 98	–	–	–	–	4,661 05
Dairying,	151 92	1,586 38	19,642 11	28 26	327 32	105 66	75 76	–	–	–	21,917 41
Economics and sociology,	22 66	–	13 74	–	–	–	–	–	–	–	36 40
Entomology,	30 01	300 17	199 76	6 00	45 17	117 12	34 47	–	–	–	732 70
Farm administration,	144 05	286 16	50 54	–	49 91	34 24	20 21	–	–	–	585 11
Floriculture,	120 01	3,037 63	1,202 10	–	65 32	144 97	99 05	–	–	–	4,669 08
Forestry,	80 42	81 59	75 05	–	24 57	–	66 09	–	–	–	327 72
History and government,	5 27	–	–	–	–	–	–	–	–	–	5 27
Hospital,	–	–	–	–	–	–	–	$741 11	–	–	741 11
Landscape gardening,	65 63	16 52	327 30	2 50	13 93	–	20 47	–	–	–	446 35

ANALYSIS OF COLLEGE EXPENDITURES — *Concluded.*

MAINTENANCE.	Office Supplies.	Labor.	Laboratory Supplies.	Refunds.	Minor Equipment.	Building Supplies.	Travel.	General Expense.	Miscellaneous.	Salaries.	Totals.
Language and literature,	$33 96	$84 00	$40 71	–	$11 13	–	–	–	–	–	$169 80
Market gardening,	64 00	2,864 24	594 43	–	14 83	$27 51	$79 90	–	–	–	3,644 91
Mathematics,	49 10	96 62	98 82	$9 99	–	9 13	–	–	–	–	263 66
Microbiology,	125 02	214 80	227 38	90 91	22 86	10 29	–	–	–	–	691 26
Military science,	225 20	524 29	12 00	–	212 38	25 35	–	–	$311 26	–	1,310 48
Physical education,	150 59	182 08	112 73	–	190 00	15 34	271 95	–	–	–	922 69
Physics,	88 90	253 68	182 00	–	49 07	12 73	–	–	–	–	586 38
Pomology,	104 68	2,383 35	865 41	1 50	95 13	–	22 47	–	–	–	3,472 54
Poultry husbandry,	376 51	1,399 36	4,306 39	7 50	137 39	141 63	36 50	–	–	–	6,405 28
Rural engineering,	26 81	113 64	137 01	–	176 42	–	8 10	–	–	–	461 98
Rural sociology,	54 79	–	3 82	–	29 09	–	6 30	–	–	–	94 00
Veterinary science,	34 68	326 71	688 01	–	110 42	75 84	–	–	–	–	1,235 66
Zoölogy and geology,	22 62	220 40	353 75	13 50	114 12	–	50 37	–	–	–	774 76
General maintenance: —											
Equipment, 1915,	–	–	–	–	–	–	–	$7,737 96	–	–	7,737 96
Farm,	–	–	–	–	–	–	–	31,441 99	–	–	31,441 99
General horticulture,	–	–	–	–	–	–	–	7,234 72	–	–	7,234 72
Graduate school,	–	–	–	–	–	–	–	82 26	–	–	82 26
Grounds,	–	–	–	–	–	–	–	3,616 53	–	–	3,616 53
Library,	–	–	–	–	–	–	–	6,804 27	–	–	6,804 27
Operating and maintenance,	–	–	–	–	–	–	–	56,541 14	–	–	56,541 14
Improvements, 1915,	–	–	–	–	–	–	–	7,455 01	–	–	7,455 01
Totals,	$2,944 75	$16,870 49	$33,034 83	$871 23	$2,002 63	$957 62	$1,066 41	$121,654 99	$311 99	–	$179,714 94
Instruction (salaries),	–	–	–	–	–	–	–	–	–	$131,563 67	$131,563 67
Grand total,	–	–	–	–	–	–	–	–	–	–	$342,659 93

Current Accounts.

Disbursements and Receipts.

Accounts.	Disbursements from Nov. 30, 1914, to Nov. 30, 1915.	Receipts from Nov. 30, 1914, to Nov. 30, 1915.	Apportionment for Year ending Nov. 30, 1915.	Balance to Credit.
Administration: —				
Dean's office,	$486 04	–	$500 00	$13 96
Executive order,	7,915 34	$48 85	5,800 00	—2,066 49
President's office,	937 99	55	900 00	—37 44
Registrar's office,	514 28	–	500 00	—14 28
Salaries,	20,108 21	–	20,100 00	—8 21
Treasurer's office,	1,419 46	–	1,200 00	—219 46
State Treasurer,	–	31,000 00	–	–
Maintenance, academic: —				
Agricultural economics,	164 45	17 25	175 00	27 80
Agricultural education,	508 11	96	500 00	—7 15
Agronomy,	445 80	511 00	150 00	215 20
Animal husbandry,	543 75	280 00	300 00	36 25
Beekeeping,	1,597 29	103 79	1,500 00	6 50
Botany,	1,386 06	674 48	750 00	38 42
Chemistry,	4,661 05	2,961 28	2,000 00	300 23
Dairying,	21,917 41	18,696 58	3,600 00	379 17
Economics and sociology,	36 40	–	50 00	13 60
Entomology,	732 70	114 06	775 00	156 36
Farm administration,	585 11	28 38	650 00	93 27
Floriculture,	4,669 08	3,087 20	1,100 00	—481 88
Forestry,	327 72	167 40	400 00	239 68
History and government,	5 27	–	–	—5 27
Hospital,	741 11	30 77	1,100 00	389 66
Landscape gardening,	446 35	416 04	–	—30 31
Language and literature,	169 80	40	350 00	180 60
Market gardening,	3,644 91	1,487 65	2,000 00	—157 26
Mathematics,	263 66	90 00	225 00	51 34
Microbiology,	691 26	450 16	250 00	8 90
Military science,	1,310 48	5 90	1,300 00	— 58
Physical education,	922 69	1 25	600 00	—321 44
Physics,	586 38	93	500 00	—85 45
Pomology,	3,472 54	1,805 72	1,700 00	33 18
Poultry husbandry,	6,405 28	3,570 90	2,500 00	—334 38
Rural engineering,	461 98	106 56	350 00	—5 42
Rural sociology,	94 00	1 40	50 00	—42 60
Veterinary science,	1,235 66	27 13	1,000 00	—208 53
Zoölogy and geology,	774 76	414 75	325 00	—35 01
Maintenance, general: —				
Equipment, 1915,	7,737 96	–	10,000 00	2,262 04
Farm,	31,441 99	31,985 41	–	543 42
General horticulture,	7,234 72	3,819 30	2,800 00	—615 42
Graduate school,	82 26	–	100 00	17 74
Grounds,	3,616 53	507 70	3,500 00	391 17
Improvements, 1915,	7,455 01	10,000 00	10,000 00	2,544 99
Library,	6,804 27	607 71	6,500 00	303 44
Operating and maintenance,	56,541 14	13,603 71	52,000 00	11,734 91
State Treasurer, maintenance,	–	90,000 00	–	–
Land,	–	5,000 00	–	–
Endowment fund,	–	10,613 32	–	–
Instruction: —				
Salaries,	131,563 67	373 34	–	–
United States Treasurer: —				
Morrill fund,	–	16,666 66	–	–
Nelson fund,	–	16,666 67	–	–
State Treasurer: —				
Instruction,	–	90,000 00	–	–
Graduate school,	–	2,000 00	–	–
Totals,	$342,659 93	$357,945 16	–	–
Balance beginning fiscal year Dec. 1, 1914,	–	16,072 43	–	–
Balance on hand Nov. 30, 1915,	31,357 66	–	–	–
	$374,017 59	$374,017 59	–	–

College Accounts.

Comparative Disbursements and Receipts for 1914–15.

Accounts.	Disbursements.		Receipts.	
	1914.	1915.	1914.	1915.
Agricultural economics,	$103 16	$164 45	–	$17 25
Agricultural education,	386 65	508 11	$58 00	96
Agronomy,	294 91	445 80	177 70	511 00
Animal husbandry,	593 44	543 75	176 50	280 00
Beekeeping,	1,676 10	1,597 29	8 15	103 79
Botany,	1,461 43	1,386 06	621 45	674 48
Chemistry,	4,499 79	4,661 05	2,655 14	2,961 28
Dairying,	16,549 52	21,917 41	13,296 38	18,696 58
Dean's office,	511 24	486 04	–	–
Economics and sociology,	32 65	36 40	–	–
Entomology,	664 03	732 70	125 47	114 06
Equipment,	11,271 71	7,737 96	115 00	–
Executive order,	6,196 47	7,915 34	2 50	48 85
Farm administration,	377 12	585 11	2 94	28 38
Farm,	28,869 16	31,441 99	21,211 36	31,985 41
Floriculture,	4,005 47	4,669 08	2,991 24	3,087 20
Forestry,	402 60	327 72	65 10	167 40
General horticulture,	4,316 98	7,234 72	1,681 26	3,819 30
Graduate school,	90 99	82 26	–	–
Grounds,	3,026 66	3,616 53	30 16	507 70
History and government,	10 61	5 27	–	–
Hospital,	–	741 11	–	30 77
Improvements,	8,508 96	7,455 01	64 44	–
Landscape gardening,	394 56	446 35	397 67	416 04
Language and literature,	286 59	169 80	–	40
Library,	6,761 82	6,804 27	570 73	607 71
Market gardening,	3,763 96	3,644 91	1,604 54	1,487 65
Mathematics,	172 83	263 66	–	90 00
Military,	1,326 46	1,310 48	–	5 90
Microbiology,	901 10	691 26	301 10	450 16
Physical education,	715 90	922 69	123 50	1 25
Physics,	645 52	586 38	–	93
Pomology,	3,847 29	3,472 54	1,464 67	1,805 72
Poultry husbandry,	5,080 67	6,405 28	3,215 00	3,570 90
President's office,	872 49	937 99	50	55
Registrar's office,	439 25	514 28	–	–
Rural engineering,	96 33	461 98	–	106 56
Rural sociology,	40 76	94 00	–	1 40
Salaries,	144,894 92	151,671 88	236 81	373 34
Treasurer's office,	1,253 40	1,419 46	17	–
Veterinary,	996 53	1,235 66	14 82	27 13
Zoölogy and geology,	772 70	774 76	351 17	414 75
Operating and maintenance,	49,640 03	56,541 14	10,936 02	13,603 71
State Treasurer: —				
Endowment fund,	–	–	10,613 32	10,613 32
Graduate school,	–	–	2,000 00	2,000 00
Maintenance,	–	–	93,000 00	105,000 00
Instruction,	–	–	85,000 00	90,000 00
Administration,	–	–	30,000 00	31,000 00
United States Treasurer: —				
Morrill fund,	–	–	16,666 66	16,666 66
Nelson fund,	–	–	16,666 67	16,666 67
Totals,	$316,752 76	$342,659 93	$316,446 14	$357,945 16
Balance beginning fiscal year,	–	–	16,379 05	16,072 43
Balance on hand at close of fiscal year,	16,072 43	31,357 66	–	–
	$332,825 19	$374,017 59	$332,825 19	$374,017 59

College Accounts — *Concluded.*

Summary.

	Disbursements.	Credits.
Cash on hand Dec. 1, 1914,	–	$16,072 43
Institution receipts Nov. 30, 1915,	–	85,998 51
State Treasurer receipts Nov. 30, 1915,	–	238,613 32
United States Treasurer's receipts Nov. 30, 1915,	–	33,333 33
Total disbursements,	$342,659 93	–
	$342,659 93	$374,017 59
Bills receivable Dec. 1, 1914, deducted,	–	6,855 03
Bills payable Dec. 1, 1914, deducted,	2,893 65	–
	$339,766 28	$367,162 56
Bills receivable Nov. 30, 1915,	–	5,669 36
Bills payable Nov. 30, 1915,	2,742 27	–
Balance,	30,323 37	–
	$372,831 92	$372,831 92

College Equipment, 1915.

	Disbursements Fiscal Year.		Disbursements Fiscal Year.
Dairy,	$1,767 60	Floriculture,	$190 75
Physics,	407 46	Hospital,	760 05
Horticulture,	88 00	Agricultural economics,	62 90
Market gardening,	75 75	Pomology,	368 73
Library,	155 01	Language and literature,	198 18
Microbiology,	498 30	Operating and maintenance,	75 00
Chemistry,	397 95	Mathematics,	50 00
Farm,	575 02	Registrar's office,	25 00
Zoölogy,	232 20	Agronomy,	27 35
Veterinary,	338 05	Landscape gardening,	299 40
Poultry,	829 54	Rural sociology,	97 18
Botany,	153 85		
Forestry,	49 50	Total,	$7,737 96
Beekeeping,	15 19		

Farm Disbursements.

	Labor.	Equipment.	Feed.	Fertilizer.	Seeds.	Miscellaneous.	Supplies.	Improvements.	Totals.
Cattle,	$5,759 19	–	$2,669 21	–	–	–	$726 37	–	$9,154 77
Dairy,	1,833 88	$21 09	–	–	–	–	2,248 39	–	4,103 36
Horses,	1,607 80	–	480 00	–	–	–	1,079 94	–	3,167 74
Sheep,	225 25	–	–	–	–	–	11 10	–	236 35
Swine,	401 92	–	577 51	–	–	–	64 79	–	1,044 22
Field crops,	3,864 62	–	–	$857 67	$232 97	–	58 70	–	5,013 96
Miscellaneous,	2,082 52	–	–	–	–	–	99 38	$1,344 58	3,526 48
Tools and machinery,	–	485 19	–	–	–	–	–	–	485 19
Live stock,	–	–	–	–	–	–	–	–	–
Supplies,	–	–	–	–	–	–	4,709 92	–	4,709 92
Totals,	$15,775 18	$506 28	$3,726 72	$857 67	$232 97	–	$8,998 59	$1,344 58	$31,441 99

Farm Credits.

	Milk.	Stock.	Sundry.	Hay.	Roots.	Labor.	Potatoes.	Totals.
Cattle,	$13,737 90	–	$283 97	–	–	–	–	$14,021 87
Dairy,	13,086 68	–	1 70	–	–	–	–	13,088 38
Horses,	–	$640 00	884 21	–	–	–	–	1,524 21
Sheep,	–	55 00	54 14	–	–	–	–	109 14
Swine,	–	344 63	7 50	–	–	–	–	352 13
Field crops,	–	–	50	$927 07	$33 84	–	$739 23	1,700 64
Miscellaneous,	–	–	181 14	–	–	$1,007 90	–	1,189 04
Totals,	$26,824 58	$1,039 63	$1,413 16	$927 07	$33 84	$1,007 90	$739 23	$31,985 41

Agricultural Division.

Disbursements and Receipts.

	Disbursements.	Receipts.
Agronomy,	$445 80	$511 00
Animal husbandry,	543 75	280 00
Dairying,	21,917 41	18,696 58
Farm,	31,441 99	31,985 41
Farm administration,	585 11	28 38
Poultry husbandry,	6,405 28	3,570 90
Rural engineering,	461 98	106 56
Division totals,	$61,801 32	$55,178 83

Summary.

	Dr.	Cr.
By total division receipts,		$55,178 83
By bills receivable,		3,748 14
By net apportionment,		7,200 00
To total disbursements,	$61,801 32	
To bills payable,	1,383 16	
Balance,	2,942 49	
	$66,126 97	$66,126 97

Inventory of Quick Assets.

	Nov. 30, 1914.	Nov. 30, 1915.
Inventory of produce,	$8,938 35	$11,518 42
Inventory of cattle,	13,645 00	14,945 00
Inventory of swine,	375 00	900 00
Inventory of horses,	5,450 00	5,425 00
Inventory of poultry,	941 25	1,162 25
Inventory of sheep,	647 00	591 00
	$29,996 60	$34,541 67

Horticultural Division.

Disbursements and Receipts.

	Disbursements.	Receipts.
Floriculture,	$4,669 08	$3,087 20
Forestry,	327 72	167 40
General horticulture,	7,234 72	3,819 30
Grounds,	3,616 53	507 70
Landscape gardening,	446 35	416 04
Market gardening,	3,644 91	1,487 65
Pomology,	3,472 54	1,805 72
Division totals,	$23,411 85	$11,291 01

HORTICULTURAL DIVISION — *Concluded.*

Summary.

	Dr.	Cr.
By total division receipts,		$11,291 01
By bills receivable,		1,094 09
By apportionment,		11,500 00
To total division disbursements,	$23,411 85	
To bills payable,	788 88	
By balance,		315 63
	$24,200 73	$24,200 73

Inventory of Quick Assets.

	Nov. 30, 1914.	Nov. 30, 1915.
Floriculture,	$523 50	$550 00
Market gardening,	107 50	121 50
Pomology,	612 50	375 00
General horticulture (live stock),	1,625 00	1,695 00
	$2,868 50	$2,741 50

Expense Operating and Maintenance.

	Salaries.	Labor.	Fuel and Water.	Repairs.	Supplies.	Tools.	Architect.	Engineer.	Miscellaneous.	Totals.
General: —										
General superintendent,	$2,841 83	–	–	–	–	–	–	–	–	$2,841 83
Office,	–	$887 80	–	–	–	–	–	–	–	887 80
General expenses,	–	–	–	–	$2,672 34	–	–	–	–	2,672 34
Power plant: —										
Heat,	–	4,414 38	$22,771 62	$855 40	16 50	–	–	–	–	28,057 90
Light,	–	347 01	–	893 27	105 93	–	–	–	–	1,346 21
Tools,	–	–	–	–	–	$409 89	–	–	–	409 89
Waiting station janitor,	–	5 80	–	–	–	–	–	–	–	5 80
Amherst Water Company,	–	–	2,027 10	–	–	–	–	–	–	2,027 10
Night watchman,	–	1,318 32	–	–	–	–	–	–	–	1,318 32
Mail service,	–	325 84	–	–	–	–	–	–	–	325 84
Water mains,	–	748 51	–	–	–	–	–	–	–	748 51
Steam mains,	–	155 09	–	–	–	–	–	–	–	155 09
Sewers and cesspools,	–	22 34	–	–	–	–	–	–	–	22 34
Amherst Gas Company,	–	–	81 43	–	–	–	–	–	–	81 43
Electric light circuit,	–	240 16	–	–	–	–	–	–	–	240 16
Expert service,	–	–	–	–	–	–	$1,403 63	$50 00	–	1,453 63
Walks,	–	21 98	–	–	–	–	–	–	–	21 98
Emergency maintenance,	–	1,326 37	–	–	–	–	–	–	–	1,326 37
Drains,	–	6 25	–	–	–	–	–	–	–	6 25
Fire department,	1,034 28	16 35	–	–	112 08	–	–	–	$4 36	1,167 07
Sundry,	–	–	–	–	–	–	–	–	2,594 27	2,594 27
Totals,	$3,876 11	$9,836 20	$24,880 15	$1,748 67	$2,906 85	$409 89	$1,403 63	$50 00	$2,598 63	$47,710 13

EXPENSE OPERATING AND MAINTENANCE — *Continued.*

COLLEGE BUILDINGS.	Electric Repairs.	Plumbing Repairs.	Heat Repairs.	C. and M. Repairs.	Janitor.	Bell Ringing.	Sundry.	Totals.
College buildings: —								
Animal husbandry building,	–	$13 74	$4 34	$7 42	–	–	–	$25 50
Horse barn,	$0 77	4 31	6 79	13 84	–	–	–	25 71
Dairy barn,	6 43	33 10	7 10	33 43	–	–	–	80 06
Young stock barn,	97	9 29	75	60 78	–	–	–	71 79
Power building,	–	23 35	–	214 80	$151 59	–	–	389 74
Chemical building,	53	34 83	21 56	78 98	–	–	–	135 90
Poultry building,	1 83	8 10	–	22 74	–	–	–	32 67
Dairy building,	21 29	55 22	32 09	423 42	–	–	–	532 02
Drill hall,	2 19	23 93	5 31	79 52	–	–	–	110 95
Veterinary building,	–	4 41	19 44	73 54	–	–	–	97 39
Apiary building,	5 02	1 61	1 49	93 96	–	–	–	102 08
Mathematic building,	26	7 49	7 37	36 02	–	–	–	51 14
Entomology building,	4 47	21 09	11 48	262 56	–	–	–	299 60
Clark hall,	5 86	52 77	2 78	46 58	–	–	–	107 99
French hall,	23 29	9 00	45 04	434 70	–	–	–	512 03
Wilder hall,	16 08	15 63	1 51	29 07	–	–	–	62 29
Upper plant house,	–	59 03	11 62	57 66	–	–	–	128 31
Old Durfee range,	–	8 36	6 31	33 83	–	–	–	48 50
Horticulture barn,	31	46 30	6 65	19 57	–	–	–	72 83
Physics building,	–	20 24	4 00	44 39	–	–	–	68 63
East experiment station,	1 16	56 38	47 39	357 58	–	–	–	462 51
West experiment station,	3 71	31 77	12 16	64 49	–	–	–	112 13
Experiment station barn,	–	1 71	11 90	18 66	–	–	–	32 27
P. and A. chemistry barn,	28	26 53	3 19	89 28	–	–	–	119 28
Microbiology building,	24	–	61	–	–	–	$660 00	660 85
Draper hall,	48 14	260 02	53 17	142 54	–	–	168 25	672 12
Sheep barn,	–	–	–	7 31	–	–	–	7 31
Piggery,	–	7 66	–	2 81	–	–	–	10 47
Cold-storage building,	–	11 72	–	79 37	–	–	–	91 09
Machine barn,	–	1 82	–	3 25	–	–	–	5 07
Hospital,	3 37	54	3 97	43 95	–	–	73 54	125 37
Rural engineering building,	–	41	–	–	–	–	–	41
Stockbridge hall,	–	–	1 34	42	–	–	–	1 76
North College,	59 27	32 65	17 07	195 45	577 32	–	135 40	1,017 16
South College,	57 09	67 25	22 00	403 28	559 13	–	136 85	1,245 60
Chapel,	36 01	6 37	45	56 84	240 40	$120 00	10 00	470 07

College residences: —								
Harlow place,	–	5 52	–	1 50	–	–	–	7 02
Kellogg place,	–	3 13	–	14 75	–	–	9 12	27 00
President's house,	7 17	24 06	8 02	138 56	–	–	63 40	241 21
Farm superintendent's house,	57	15 71	1 86	38 93	–	–	–	57 07
Farm helps' house,	–	20 99	4 59	49 80	–	–	–	75 38
Stockbridge house,	–	2 15	–	1 47	–	–	–	3 62
Waugh house,	13 91	223 57	5 07	174 51	–	–	–	417 06
Farm cottage,	–	3 42	4 81	1 40	–	–	–	9 63
Registrar's house,	–	–	4 42	–	–	–	–	4 42
Totals,	$320 22	$1,255 18	$397 65	$3,952 96	$1,528 44	$120 00	$1,256 56	$8,831 01

Summary.

General,	$47,710 13
College buildings,	7,988 60
College residences,	842 41
	$56,541 14

Experiment Station.

Disbursements and Receipts.

Accounts.	Disbursements from Dec. 1, 1914, to Nov. 30, 1915.	Receipts from Dec. 1, 1914, to Nov. 30, 1915.	Apportionment for Year ending Nov. 30, 1915.	Balance to Credit.
Administration,	$1,011 28	$34 72	$1,400 00	$423 44
Agriculture,	5,247 13	2,365 01	2,575 00	—307 12
Asparagus,	701 48	–	500 00	—201 48
Botanical,	1,469 01	3 00	1,500 00	33 99
Chemical,	11,015 52	10,732 09	1,000 00	716 57
Cranberry,	3,015 05	2,437 01	3,000 00	2,421 96
Entomology,	477 98	–	600 00	122 02
Feed inspection,	5,337 54	6,000 00	–	–
Fertilizer inspection,	10,047 01	10,088 00	–	–
Freight and expense,	311 55	32	400 00	88 77
Graves orchard,	737 73	1,027 19	800 00	1,089 46
Horticultural,	1,803 75	187 64	1,600 00	—16 11
Library,	855 91	–	700 00	—155 91
Meteorology,	278 49	–	375 00	96 51
Poultry,	2,034 82	4 33	1,700 00	—330 49
Publication,	818 66	–	800 00	—18 66
Salaries,	39,199 74	–	38,481 65	—718 09
Treasurer's office,	377 87	–	375 00	—2 87
Veterinary,	238 11	–	1,925 00	1,686 89
Agricultural economics,	605 94	–	1,000 00	394 06
Microbiology,	773 08	–	800 00	26 92
Equipment,	1,821 22	–	2,000 00	178 78
Miscellaneous,	–	90 00	–	–
Hatch fund,	–	15,000 00	–	–
Adams fund,	–	15,000 00	–	–
State fund,	–	25,000 00	–	–
Totals,	$88,178 87	$87,969 31	$61,531 65	$5,528 64
Balance on hand beginning fiscal year, Dec. 1, 1914,	–	8,286 85	–	–
Balance on hand Nov. 30, 1915,	8,077 29	–	–	–
	$96,256 16	$96,256 16	–	–

Experiment Station — *Continued.*

Comparative Disbursements and Receipts, 1914–15.

Accounts.	Disbursements.		Receipts.	
	1914.	1915.	1914.	1915.
Administration,	$1,416 13	$1,011 28	$4 92	$34 72
Agriculture,	5,058 48	5,247 13	2,494 49	2,365 01
Asparagus,	757 60	701 48	–	–
Botanical,	1,895 80	1,469 01	50 00	3 00
Chemical,	10,252 46	11,015 52	10,013 33	10,732 09
Cranberry,	2,886 76	3,015 05	2,676 86	2,437 01
Entomology,	556 56	477 98	4 50	–
Feed inspection,	5,897 93	5,337 54	6,018 67	6,000 00
Fertilizer inspection,	9,744 92	10,047 01	11,112 00	10,088 00
Freight and express,	532 56	311 55	24 55	32
Graves orchard,	789 08	737 73	129 25	1,027 19
Horticultural,	1,936 83	1,803 75	11 46	187 64
Library,	248 75	855 91	–	–
Meteorology,	374 24	278 49	–	–
Poultry,	1,066 63	2,034 82	4 17	4 33
Publications,	912 47	818 66	–	–
Salaries,	36,202 83	39,199 74	18 67	–
Treasurer's office,	364 44	377 87	–	–
Veterinary,	597 15	238 11	–	–
Equipment,	–	1,821 22	–	–
Agricultural economics,	–	605 94	–	–
Microbiology,	–	773 08	–	–
Miscellaneous,	96 30	–	160 00	90 00
Hatch fund,	–	–	15,000 00	15,000 00
Adams fund,	–	–	15,000 00	15,000 00
State fund,	–	–	20,000 00	25,000 00
Totals,	$81,587 92	$88,178 87	$82,722 87	$87,969 31
Balance beginning fiscal year,	–	–	7,151 90	8,286 85
Balance on hand at close of fiscal year,	8,286 85	8,077 29	–	–
	$89,874 77	$96,256 16	$89,874 77	$96,256 16

Analysis of Experiment Station Accounts.

	Adams Fund.	Fertilizer Law.	Feed Law.	Hatch Fund.	State Fund.	Totals.
Salaries,	$14,527 47	$6,617 92	$3,880 42	$12,674 25	$11,998 02	$49,698 08
Labor,	–	950 35	125 83	1,020 54	16,199 24	18,295 96
Publication,	–	706 58	520 38	–	368 55	1,595 51
Postage and stationery,	–	179 92	61 29	–	1,760 31	2,001 52
Freight and express,	–	35 91	4 05	–	391 26	431 22
Heat, light, water and power,	–	92 63	35 25	26 79	294 85	449 52
Chemistry and laboratory supplies,	–	438 16	181 23	682 52	1,488 78	2,790 69
Seeds, plants and sundry supplies,	–	44 85	20 16	392 09	2,142 64	2,599 74
Fertilizers,	–	46 71	–	46 25	323 40	416 36
Feeding stuffs,	–	–	–	7 20	900 69	907 89
Library,	–	11 50	5 00	16 92	942 57	975 99
Tools, machinery and appliances,	–	172 65	4 50	6 06	419 86	603 07
Furniture and fixtures,	–	62 10	16 86	–	469 51	548 47
Scientific apparatus and specimens,	–	79 56	9 09	16 88	935 00	1,040 53
Live stock,	–	–	–	–	77 66	77 66
Traveling expenses,	–	573 56	447 85	38 22	1,885 18	2,944 81
Contingent expenses,	–	–	5 00	–	109 50	114 50
Buildings and land,	–	34 61	20 63	–	1,454 55	1,509 79
Miscellaneous,	–	–	–	–	24 62	24 62
Equipment,	–	–	–	–	1,152 94	1,152 94
Totals,	$14,527 47	$10,047 01	$5,337 54	$14,927 72	$43,339 13	$88,178 87

Experiment Station — *Concluded.*

Summary.

	Disbursements.	Receipts.
Cash on hand Dec. 1, 1914,	–	$8,286 85
Receipts from State Treasurer,	–	31,000 00
Receipts from United States Treasurer,	–	30,000 00
Receipts from other sources,	–	26,969 31
Total disbursements,	$88,178 87	–
	$88,178 87	$96,256 16
Bills receivable Nov. 30, 1915,	–	865 22
Bills payable Nov. 30, 1915,	862 39	–
Balance,	8,080 12	–
	$97,121 38	$97,121 38

Extension Service.

Disbursements and Receipts.

Accounts.	Disbursements.	Receipts.	Apportionment.	Balance.
Administration,	$2,015 04	$62 92	$3,050 00	$1,097 88
Agricultural education,	2,132 94	3 23	2,250 00	120 29
Agricultural economics,	480 10	31 30	400 00	—48 80
Animal husbandry,	460 32	112 98	350 00	2 66
Auto demonstration outfit,	62 99	34 88	300 00	271 89
Apple packing school,	105 29	105 00	100 00	99 71
Assistant State leader,	640 62	–	760 00	119 38
Beekeeping,	80 22	–	200 00	119 78
Boys' camp,	974 77	837 45	200 00	62 68
Civic improvement,	814 12	410 45	500 00	96 33
Community service,	610 59	16 51	550 00	—44 08
Conference rural social workers,	503 43	–	500 00	—3 43
Correspondence courses,	1,035 95	655 67	200 00	—180 28
County agents,	279 95	–	200 00	—79 95
Dairying,	109 23	–	100 00	—9 23
Director's office,	1,193 18	29 05	1,300 00	135 87
Equipment,	1,413 80	–	2,100 00	686 20
Farm management,	439 13	262 03	100 00	—77 10
Farmers' week,	435 35	–	1,000 00	564 65
Home economics,	293 19	–	350 00	56 81
Hog cholera,	–	–	100 00	100 00
Itinerant instruction,	2,562 42	840 88	1,600 00	—121 54
Library extension,	44 46	1 80	200 00	157 34
M. A. C. Improvement Association,	–	–	100 00	100 00
Market gardening,	330 87	27 20	225 00	—78 67
Miscellaneous,	–	–	100 00	100 00
Pomology,	620 17	–	550 00	—70 17
Poultry convention,	310 69	–	300 00	—10 69
Poultry husbandry,	100 93	–	150 00	49 07
Salaries,	29,375 45	696 69	27,860 26	—818 50
Summer school,	4,111 05	910 56	2,500 00	—700 49
Ten weeks' school,	1,822 68	990 50	1,300 00	467 82
Tree warden school,	11 80	–	100 00	88 20
From State Treasurer,	–	50,000 00	–	–
Unapportioned balance,	–	–	–	9,456 11
Totals,	$53,370 73	$56,029 10	$49,595 26	$11,709 74
Balance beginning fiscal year Dec. 1, 1914,	–	9,051 37	–	–
Balance on hand Nov. 30, 1915,	11,709 74	–	–	–
	$65,080 47	$65,080 47	–	–

EXTENSION SERVICE — *Continued.*

Summary.

	Disbursements.	Receipts.
Balance Dec. 1, 1914,	–	$10,486 86
Receipts Nov. 30, 1915,	–	6,029 10
Received from State Treasurer,	–	50,000 00
Received from United States Treasurer,	–	11,465 37
Disbursements to Nov. 30, 1915,	$64,486 07	–
	$64,486 07	$77,981 33
Bills receivable Dec. 1, 1914, deducted,	–	899 26
Bills payable Dec. 1, 1914, deducted,	468 87	–
	$64,017 20	$77,082 07
Bills receivable Nov. 30, 1915,	–	152 00
Bills payable Nov. 30, 1915,	594 31	–
Balance,	12,622 56	–
	$77,234 07	$77,234 07

Extension Service — *Concluded.*

Analysis of Extension Service Disbursements.

	Travel.	Equipment.	Laboratory Expense.	Printing.	Supplies.	Instruction and Lectures.	Salaries.	Miscellaneous.	Totals.
Administration,	$1,209 07	$12 64	–	$562 15	$201 05	–	$29,375 45	$42 77	$31,403 13
Agricultural education,	743 12	239 82	–	–	162 35	–	–	1,227 47	2,372 76
Agricultural economics,	447 39	32 02	–	–	32 71	–	–	–	512 12
Animal husbandry,	197 05	32 97	–	–	263 27	–	–	–	493 29
Auto demonstration outfit,	61 70	35 00	–	–	–	–	–	1 29	97 99
Apple packing school,	22 50	72 79	–	–	–	–	–	10 00	105 29
Assistant State leader,	600 79	1 31	–	–	39 83	–	–	–	641 93
Beekeeping,	58 22	22 00	–	–	–	–	–	–	80 22
Boys' camp,	33 98	932 79	–	–	–	–	–	8 00	974 77
Civic improvement,	179 81	142 63	–	–	634 31	–	–	–	956 75
Community service,	554 85	30 34	–	–	55 74	–	–	–	640 93
Conference rural social workers,	234 69	–	–	–	–	–	–	268 74	503 43
Correspondence courses,	136 07	114 70	–	–	634 05	–	–	265 83	1,150 65
County agents,	279 95	5 50	–	–	–	–	–	–	285 45
Dairying,	101 73	67 63	–	–	7 50	–	–	–	176 86
Director's office,	–	243 80	–	–	1,016 23	–	–	176 95	1,436 98
Farm management,	242 78	129 19	–	–	196 35	–	–	–	568 32
Farmers' week,	17 16	–	–	–	418 19	–	–	–	435 35
Home economics,	197 19	110 55	–	–	96 00	–	–	–	403 74
Itinerant instruction,	381 12	48 92	–	–	577 55	–	–	1,603 75	2,611 34
Library extension,	–	106 32	–	–	–	–	–	44 46	150 78
Market gardening,	307 30	–	–	–	23 57	–	–	–	330 87
M. A. C. Improvement Association,	–	9 00	–	–	–	–	–	–	9 00
Pomology,	429 49	22 71	–	–	190 68	–	–	–	642 88
Poultry convention,	62 92	–	–	–	247 77	–	–	–	310 69
Poultry husbandry,	99 83	28 75	–	–	1 10	–	–	–	129 68
Summer School,	113 36	–	$146 48	–	125 58	$2,783 24	–	501 48	3,670 14
Ten weeks' school,	17 36	–	–	200 39	–	658 25	–	946 68	1,822 68
Tree warden's school,	11 80	–	–	440 91	–	–	–	–	452 71
Totals,	$6,741 23	$2,441 38	$146 48	$1,203 45	$4,923 83	$3,441 49	$29,375 45	$5,097 42	$53,370 73

Smith-Lever Fund (Federal).

	Disbursements.	Receipts.	Apportionment.	Balance.
Animal husbandry,	$355 88	–	$200 00	—$155 88
Boys' and girls' club,	1,017 51	–	1,000 00	—17 51
Contingent,	34 60	–	145 35	110 75
Dairying,	154 62	–	200 00	45 38
Demonstration auto truck,	60 27	–	350 00	289 73
Farm management,	692 74	–	760 00	67 26
Home economics,	754 10	–	687 50	—66 60
Market gardening,	114 11	–	–	—114 11
Pomology,	218 82	–	200 00	—18 82
Poultry,	244 91	–	250 00	5 09
Publication,	627 26	–	500 00	—127 26
Salaries,	6,840 52	–	5,886 63	—953 89
County agents,	–	–	750 00	750 00
Extension schools,	–	–	291 67	291 67
From State Treasurer,	–	$11,465 37	–	–
Totals,	$11,115 34	$11,465 37	$11,221 15	$105 81
Balance beginning fiscal year Dec. 1, 1914,	–	1,644 35	–	–
Balance on hand Nov. 30, 1915,	1,994 38	–	–	–
	$13,109 72	$13,109 72	–	–

Special Appropriations.

	Date made.	Amount of Apportionment.	Amount previously expended.	Amount expended during Fiscal Year.	Amount expended to Date.	Amount received from State Treasurer.	Balance on Hand with State Treasurer.
Hospital,	1913	$15,000 00	$1,947 52	$13,052 48	$15,000 00	$15,000 00	–
Sewers,[1]	1914	9,200 00	–	9,200 00	9,200 00	9,200 00	–
Agricultural building,	1914	210,000 00	16,194 75	176,629 92	192,824 67	192,824 67	$17,175 33
Addition to power plant,	1915	10,000 00	–	10,000 00	10,000 00	10,000 00	–
Microbiology building,	1915	67,500 00	–	14,754 27	14,754 27	14,754 27	52,745 73
Totals,		$311,700 00	$18,142 27	$223,636 67	$241,778 94	$241,778 94	$69,921 06

[1] In conjunction with town of Amherst for the Connecticut River outlet.

Inventory — Real Estate.

Land (Estimated Value).

Baker place,	$2,500 00
Bangs place,	2,350 00
Clark place,	4,500 00
College farm,	37,000 00
Cranberry land,	10,997 50
Harlow farm,	3,284 63
Kellogg farm,	5,868 45
Louisa Baker place,	5,000 00
Old creamery place,	1,000 00
Pelham quarry,	500 00
Westcott place,	2,250 00
Allen place,	500 00
Charmbury place,	450 00
Loomis place,	415 00
Hawley & Brown place,	675 00
Newell farm,	2,800 00
Owen farm,	5,000 00
Total,	$85,090 58

College Buildings (Estimated Value).

	Inventory at Beginning of Year.	Per Cent.	Value at Beginning of Year less Per Cent. Deterioration.	Repairs and Improvements during Year.	Total Value.
Apiary,	$3,000 00	2	$2,940 00	$102 08	$3,042 08
Animal husbandry building,	10,000 00	2	9,800 00	25 50	9,825 50
Chemical laboratory,	8,000 00	5	7,600 00	135 90	7,735 90
Clark hall,	67,500 00	2	66,150 00	309 04	66,459 04
Cold-storage laboratory,	12,000 00	2	11,760 00	91 09	11,851 09
Dairy building,	75,000 00	2	73,500 00	724 17	74,224 17
Dairy barn and storage,	30,000 00	3	29,100 00	80 06	29,180 06
Dining hall,	60,000 00	3	58,200 00	503 87	58,703 87
Drill hall and gun shed,	10,000 00	5	9,500 00	140 28	9,640 28
Durfee glass houses, old,	10,000 00	5	9,500 00	48 50	9,548 50
Durfee glass houses, new,	15,000 00	5	14,250 00	326 72	14,576 72
Entomology building,	80,000 00	2	78,400 00	373 17	78,773 17
Farm bungalow,	2,100 00	3	2,037 00	9 63	2,046 63
Farmhouse,	2,500 00	3	2,425 00	57 07	2,482 07
French hall,	50,000 00	2	49,000 00	710 76	49,710 76
Horse barn,	5,000 00	3	4,850 00	25 71	4,875 71
Horticultural barn,	2,500 00	3	2,425 00	72 83	2,497 83
Horticultural tool shed,	2,000 00	3	1,940 00	–	1,940 00
Hospital,	–	–	15,000 00	452 28	15,452 28
Machinery barn,	4,000 00	3	3,880 00	5 07	3,885 07
Mathematical building,	6,000 00	5	5,700 00	51 14	5,751 14
North dormitory,	25,000 00	2	24,500 00	304 44	24,804 44
Physics laboratory,	5,500 00	5	5,225 00	114 06	5,339 06
Piggery,	3,000 00	3	2,910 00	10 47	2,920 47
Poultry department: —					
Breeding houses,	1,600 00	2	1,568 00	–	1,568 00
Brooder house,	1,000 00	2	980 00	103 55	1,083 55
Incubator cellar and building,	1,400 00	2	1,372 00	–	1,372 00
Incubator cellar and storage building,	–	–	800 00	–	800 00
Crematory,	–	–	50 00	–	50 00

College Buildings (Estimated Value) — Concluded.

	Inventory at Beginning of Year.	Per Cent.	Value at Beginning of Year less Per Cent. Deterioration.	Repairs and Improvements during Year.	Total Value.
Poultry department — *concluded.*					
Duck house,	–	–	$100 00	–	$100 00
Laboratory,	$1,300 00	2	1,274 00	$71 51	1,345 51
Laying house,	1,800 00	2	1,764 00	–	1,764 00
Mechanics and storage building,	1,900 00	2	1,862 00	32 67	1,894 67
Power plant and storage building,	18,500 00	2	18,130 00	12,742 28	30,872 28
President's house,	12,000 00	3	11,640 00	241 21	11,881 21
Quarantine barn,	200 00	3	194 00	–	194 00
Rural engineering building,	–	–	3,550 00	–	3,550 00
Sheep barn,	1,400 00	3	1,358 00	57 66	1,415 66
South dormitory,	35,000 00	2	34,300 00	948 44	35,248 44
Stockbridge hall,	–	–	184,000 00	–	184,000 00
Agronomy greenhouse,	–	–	2,150 00	–	2,150 00
Stone chapel,	30,000 00	2	29,400 00	110 58	29,510 58
Three houses on Stockbridge road,	5,000 00	5	4,750 00	425 10	5,175 10
Vegetable plant house,	4,700 00	5	4,465 00	128 31	4,593 31
Veterinary laboratory and stable,	23,500 00	2	23,030 00	97 39	23,127 39
Waiting station,	500 00	2	490 00	5 80	495 80
Wilder hall,	37,500 00	2	36,750 00	62 29	36,812 29
Young stock barn,	6,500 00	3	6,305 00	114 50	6,419 50
Totals,	$671,900 00	–	$860,874 00	$19,815 13	$880,689 13

College Equipment (Estimated Value).

Administrative division: —	
Dean's office,	$502 11
President's office,	1,250 60
Registrar's office,	909 00
Treasurer's office,	2,458 41
Agricultural division: —	
Agronomy,	6,213 52
Animal husbandry,	857 48
Dairy,	13,612 92
Farm administration,	882 56
Farm department,	39,291 63
Poultry,	4,195 47
Rural engineering,	2,159 81
Dining hall,	6,279 37
Extension,	10,311 41
General science: —	
Apiary,	1,482 07
Botanical,	10,133 21
Chemical,	12,844 55
Entomology,	6,715 71
Microbiology,	5,805 00
Mathematics,	2,431 00
Physics,	4,463 02
Veterinary,	9,843 18
Zoölogical laboratory,	10,023 55
Zoölogical museum,	6,511 05
Graduate school,	70 76

Horticultural division: —		
Floriculture,		$8,559 12
Forestry,		2,598 63
General horticulture,		7,606 22
Grounds,		793 93
Landscape gardening,		5,113 78
Market gardening,		1,320 03
Pomology,		5,008 34
Hospital,		815 22
Humanities, division of: —		
Economics and sociology,		107 87
Language and literature,		396 73
Library,		83,700 85
Military,		1,485 42
Operating and maintenance: —		
College supply,		794 16
Fire apparatus,		1,859 15
General maintenance,		89,846 57
Equipment,	$78,326 85	
Carpentry and masonry supplies,	3,703 17	
Electrical supplies,	1,131 33	
Heating and plumbing supplies,	5,744 84	
Painting supplies,	940 38	
Janitors' supplies,		410 46
Sewer line,		12,103 00
Water mains,		10,924 81
Physical education,		2,737 98
Rural social science: —		
Agricultural economics,		385 50
Agricultural education,		835 59
Rural sociology,		240 33
Textbooks,		401 15
Trophy room,		1,647 10
Total,		$398,939 33

Experiment Station Buildings (Estimated Value).

	Inventory at Beginning of Year.	Per Cent.	Cost at Beginning of Year less Per Cent. Deterioration.	Repairs and Improvements.	Total Value.
Agricultural laboratory,	$15,000 00	2	$14,700 00	$462 51	$15,162 51
Agricultural barns,	5,000 00	3	4,850 00	32 27	4,882 27
Agricultural farmhouse,	1,500 00	3	1,455 00	–	1,455 00
Agricultural glass house,	500 00	5	475 00	–	475 00
Cranberry buildings,	2,800 00	–	2,645 00	–	2,645 00
Plant and animal chemistry laboratory,	30,000 00	2	29,400 00	112 13	29,512 13
Plant and animal chemistry barns,	4,000 00	3	3,880 00	119 28	3,999 28
Plant and animal chemistry dairy,	2,000 00	3	1,940 00	–	1,940 00
Six poultry houses,	600 00	2	588 00	–	588 00
Entomological glass houses,	825 00	5	783 75	–	783 75
Totals,	$62,225 00	–	$60,716 75	$726 19	$61,442 94

Experiment Station Equipment (Estimated Value).

Agricultural laboratory,	$6,815 61
Botanical laboratory,	6,450 65
Chemical laboratory,	17,504 59
Cranberry station,	2,863 64
Director's office,	4,584 34
Entomological laboratory,	24,134 42
Horticultural laboratory,	2,245 00
Meteorology laboratory,	928 00
Microbiology laboratory,	340 00
Poultry department,	3,807 16
Treasurer's office,	1,106 50
Veterinary laboratory,	65 00
Total,	$70,844 91

Inventory Summary.

Land,	$85,090 58
College buildings,	880,689 13
College equipment,	398,939 33
Experiment station buildings,	61,442 94
Experiment station equipment,	70,844 91
Total,	$1,497,006 89

Students' Trust Fund Account.

	Disbursements for Year ending Nov. 30, 1915.	Receipts for Year ending Nov. 30, 1915.	Balance on Hand.	Balance brought forward Dec. 1, 1914.
Athletics,	$9,357 65	$10,910 29	$2,341 91	$789 27
College signal,	1,510 48	1,278 20	8 73	241 01
Dining hall,	56,589 75	50,839 32	—6,115 80	—365 37
Keys,	79 25	56 00	45 00	68 25
Students' deposits,	12,150 88	17,571 47	7,141 47	1,720 88
Social union,	493 96	698 35	699 60	495 22
Textbooks,	4,762 73	4,967 07	936 39	732 05
Athletic field,	3,704 13	2,515 46	—1,197 16	—8 49
Uniforms,	3,352 35	3,635 80	3,308 69	3,025 24
1913 index,	14 84	7 42	–	7 42
1915 index,	438 73	429 95	–	8 78
1916 index,	1,526 93	1,532 62	5 76	07
Totals,	$93,981 68	$94,441 95	$7,174 59	$6,714 33
Balance on hand Dec. 1, 1914,	–	6,714 32	–	–
Balance on hand Nov. 30, 1915,	7,174 59	–	–	–
	$101,156 27	$101,156 27	–	–

Detailed Statement of Dining Hall.

		Liabilities.	Resources.
1914.			
Dec. 1.	Balance,	$343 49	–
1915.			
Nov. 30.	Total disbursements,	56,589 75	–
	Outstanding bills,	1,033 49	–
	Total collections,	–	$50,839 32
	Accounts outstanding,	–	1,571 54
	Inventory,	–	3,449 77
	Balance,	–	2,106 10
		$57,966 73	$57,966 73

Endowment Fund.[1]

	Principal.	Income.
United States grant (5 per cent.),	$219,000 00	$7,300 00
Commonwealth grant (3½ per cent.),	142,000 00	3,313 32
	–	$10,613 32

[1] This fund is in the hands of the State Treasurer, and the Massachusetts Agricultural College receives two-thirds of the income from the same.

Burnham Emergency Fund.

	Market Value Dec. 1, 1915.	Par Value.	Income.
Two bonds American Telephone and Telegraph Company 4s, at $910,	$1,820 00	$2,000 00	$80 00
Two bonds Western Electric Company 5s, at $1,000,	2,000 00	2,000 00	100 00
	$3,820 00	$4,000 00	$180 00
Unexpended balance, Dec. 1, 1914,	–	–	140 55
Cash on hand Nov. 30, 1915,	–	–	$320 55

Library Fund.

Five bonds New York Central & Hudson River Railroad Company 4s, at $930,	$4,650 00	$5,000 00	$200 00
Five bonds Lake Shore & Michigan Southern Railroad Company 4s, at $950,	4,750 00	5,000 00	200 00
Two shares New York Central & Hudson River Railroad Company stock, at $102,	204 00	200 00	10 00
Amherst Savings Bank, deposit,	167 77	167 77	7 09
	$9,771 77	$10,367 77	$417 09
Nov. 20, 1915, transferred to college library account,	–	–	417 09

Special Funds.

Endowed Labor Fund (the Gift of a Friend of the College).

Two bonds American Telephone and Telegraph Company 4s, at $910,	$1,820 00	$2,000 00	$80 00
Two bonds, Lake Shore & Michigan Southern Railroad Company 4s, at $950,	1,900 00	2,000 00	80 00
One bond New York Central Railroad debenture 4s,	930 00	1,000 00	40 00
Amherst Savings Bank Deposit,	143 39	143 39	6 07
One bond Metropolitan Street Railway of Kansas City 5s,	950 00	1,000 00	–
	$5,743 39	$6,143 39	$206 07
Unexpended balance Dec. 1, 1914,	–	–	1,024 90
	–	–	$1,230 97
Disbursements for fiscal year ending Nov. 30, 1915,	–	–	1,000 00
Cash on hand Nov. 30, 1915,	–	–	$230 97

Whiting Street Scholarship Fund.

One bond New York Central debenture 4s,	$930 00	$1,000 00	$40 00
Amherst Savings Bank, deposit,	271 64	271 64	11 51
	$1,201 64	$1,271 64	$51 51
Unexpended balance Dec. 1, 1914,	–	–	136 16
Cash on hand Nov. 30, 1915,	–	–	$187 67

SPECIAL FUNDS — *Continued.*

Hills Fund.

	Market Value Dec. 1, 1915.	Par Value.	Income.
One bond American Telephone and Telegraph Company 4s, at	$910 00	$1,000 00	$40 00
One bond New York Central & Hudson River Railroad debenture 4s, at	930 00	1,000 00	40 00
One bond New York Central & Hudson River Railroad debenture 3½s, at	870 00	1,000 00	35 00
Two bonds Metropolitan Street Railway of Kansas City 5s, at $950,	1,900 00	2,000 00	–
Three bonds Pacific Telephone and Telegraph Company 5s, at $990,	2,970 00	3,000 00	150 00
One bond Western Electric Company 5s, at	1,000 00	1,000 00	50 00
Boston & Albany Railroad stocks, 3⅝ shares, at $187,	677 88	362 50	31 68
Amherst Savings Bank, deposit,	72 75	72 75	3 06
Electric Securities Company bonds, 1⅗₀, at $1,000,	1,121 00	1,180 00	59 00
	$10,451 63	$10,615 25	$408 74
Unexpended balance Dec. 1, 1914,	–	–	1,025 88
	–	–	$1,434 62
Disbursements for fiscal year ending Nov. 30, 1915,	–	–	534 85
Cash on hand Nov. 30, 1915,	–	–	$899 77

Mary Robinson Fund.

Amherst Savings Bank,	$142 00	$142 00	$1 42
Boston & Albany Railroad stock, ⅜ share, at $187,	70 13	38 00	3 32
Electric Securities Company bonds, 4⅕₀ share, at $1,000,	779 00	820 00	41 00
	$991 13	$1,000 00	$45 74
Unexpended balance Dec. 1, 1914,	–	–	155 89
	–	–	$201 63
Investment of fund for fiscal year ending Nov. 30, 1915,	–	–	142 00
Cash on hand Nov. 30, 1915,	–	–	$59 63

Grinnell Prize Fund.

Ten shares New York Central & Hudson River Railroad stock, at $102,	$1,020 00	$1,000 00	$50 00
Unexpended balance Dec. 1, 1914,	–	–	195 74
	$1,020 00	$1,000 00	$245 74
Disbursements for prizes,	–	–	50 00
Cash on hand Nov. 30, 1915,	–	–	$195 74

Gassett Scholarship Fund.

One bond New York Central & Hudson River Railroad debenture 4s,	$930 00	$1,000 00	$40 00
Amherst Savings Bank, deposit,	11 64	11 64	46
	$941 64	$1,011 64	$40 46
Unexpended balance Dec. 1, 1914,	–	–	101 85
Cash on hand Nov. 30, 1915,	–	–	$142 31

SPECIAL FUNDS — *Concluded.*

Massachusetts Agricultural College (Investment).

	Market Value Dec. 1, 1915.	Par Value.	Income.
One share New York Central & Hudson River Railroad stock,	$102 00	$100 00	$5 00
Unexpended balance Dec. 1, 1914,	–	–	70 45
Cash on hand Nov. 30, 1915,	–	–	$75 45

Danforth Keyes Bangs Fund.

Two bonds Pacific Telephone and Telegraph Company 5s, at $990,		$1,980 00	$2,000 00	$100 00
Two bonds Union Electric Light and Power Company 5s, at $980,		1,960 00	2,000 00	100 00
Two bonds American Telephone and Telegraph Company 4s, at $910,		1,820 00	2,000 00	80 00
Interest from student loans,		–	–	35 41
		$5,760 00	$6,000 00	$315 41
Unexpended balance Dec. 1, 1914,		–	–	381 21
		–	–	$696 62
Total loans made to students during fiscal year,	$1,503 00			
Cash received on account of student loans,	1,478 00			
Excess of loans made, over accounts paid by students,				25 00
Cash on hand Nov. 30, 1915,				$671 62

John C. Cutter Fund.

One bond Pacific Telephone and Telegraph Company 5s,	$990 00	$1,000 00	$50 00
Unexpended balance Dec. 1, 1914,	–	–	30 25
	$990 00	$1,000 00	$80 25
Disbursements for fiscal year to date,	–	–	32 41
Cash on hand Nov. 30, 1915,	–	–	$47 84

William R. Sessions Fund.

One bond New York Central & Hudson River Railroad stock 6s,	$555 00	$500 00	$15 00
Amherst Savings Bank, deposit,	2,500 00	2,500 00	–
	$3,055 00	$3,000 00	–
Cash on hand Nov. 30, 1915,	–	–	$15 00

Alvord Dairy Scholarship Fund.

Amherst Savings Bank, deposit,	$4,000 00	$4,000 00	–
Overdraft Nov. 30, 1915,[1]	–	–	$600 00
	$4,000 00	$4,000 00	$600 00

[1] Expense incurred in securing fund.

SUMMARY OF BALANCES ON HAND OF THE INCOME FROM FUNDS HELD IN TRUST BY THE MASSACHUSETTS AGRICULTURAL COLLEGE.

Burnham emergency,	$320 55
Endowed labor fund,	230 97
Whiting Street scholarship fund,	187 67
Hills fund,	899 77
Mary Robinson fund,	59 63
Grinnell prize fund,	195 74
Gassett scholarship fund,	142 31
Massachusetts Agricultural College investment fund,	75 45
Danforth Keyes Bangs fund,	671 62
John C. Cutter fund,	47 84
Wm. R. Sessions fund,	15 00
	$2,841 55
Alvord dairy scholarship fund overdraft,	600 00
	$2,241 55

I hereby certify that I have this day examined the Massachusetts Agricultural College account, as reported by the treasurer, Fred C. Kenney, for the year ending Nov. 30, 1915. All bonds and investments are as represented in the treasurer's report. All disbursements are properly vouched for, and all cash balances are found to be correct.

CHARLES A. GLEASON,
Auditor.

DEC. 8, 1915.

HISTORY OF SPECIAL FUNDS.

Burnham emergency fund: —

A bequest of $5,000 from T. O. H. P. Burnham of Boston, made without any conditions. The trustees of the college directed that $1,000 of this fund should be used in the purchase of the Newell land and Goessmann library. The fund now shows an investment of $4,000 00

Library fund: —

The library of the college at the present time contains about 48,411 volumes. The income from the fund raised by the alumni and others is devoted to its increase, and additions are made from time to time as the needs of the different departments require. Dec. 27, 1883, William Knowlton gave $2,000; Jan. 1, 1894, Charles L. Flint gave $1,000; in 1887, Elizur Smith of Lee, Mass., gave $1,215. These were the largest bequests, and now amount to 10,000 00

Endowed labor fund: —

Gift of a friend of the college in 1901, income of which is to be used for the assistance of needy and deserving students, ... 5,000 00

Whiting Street scholarship: —

Gift of Whiting Street of Northampton, for no special purpose, but to be invested and the income used. This fund is now used exclusively for scholarship, . . . $1,000 00

Hills fund: —

Gift of Leonard M. and Henry F. Hills of Amherst, Mass., in 1867, to establish and maintain a botanic garden, 10,000 00

Mary Robinson fund: —

Gift of Miss Mary Robinson of Medfield, in 1874, for scholarship, ... 1,000 00

Grinnell prize fund: —

Gift of Hon. Wm. Claflin, to be known as the Grinnell agricultural prize, to be given to the two members of the graduating class who may pass the best oral and written examination in theory and practice of agriculture, given in honor of George B. Grinnell of New York, . . . 1,000 00

Gassett scholarship fund: —

Gift of Henry Gassett of Boston, the income to be used for scholarship, ... 1,000 00

Massachusetts Agricultural College investment fund: —

Investment made by vote of trustees in 1893 to purchase one share of New York Central & Hudson River Railroad stock. The income from this fund has been allowed to accumulate, ... 100 00

Danforth Keyes Bangs fund: —

Gift of Louisa A. Baker of Amherst, Mass., April 14, 1909, the income thereof to be used annually in aiding poor, industrious and deserving students to obtain an education in said college, ... 6,000 00

John C. Cutter fund: —

Gift of Dr. John C. Cutter of Worcester, Mass., an alumnus of the college, who died in August, 1909, to be invested by the trustees, and the income to be annually used for the purchase of books on hygiene, ... 1,000 00

Alvord dairy scholarship fund: —

Gift of Henry E. Alvord, who was the first instructor in military tactics, 1869–71, and a professor of agriculture, 1885–87, at this institution. The income of this fund is to be applied to the support of any worthy student of said college, graduate or post-graduate, who may be making a specialty of the study of dairy husbandry (broadly considered), with the intention of becoming an investigator, teacher or special practitioner in connection with the dairy industry, provided that no benefits arising from such fund shall at any time be applied to any person who then uses tobacco in any form or fermented or spirituous beverages, or is known to have done so within one year next preceding, . . 4,000 00

William R. Sessions fund: —

In accordance with the request of my deceased wife, Clara Markham Sessions, made in her last will, I bequeath to the trustees of the Massachusetts Agricultural College, Amherst, Mass., the sum of $5,000, it being the amount received by me from the estate of the said Clara Markham Sessions. The said $5,000 to be kept by the said trustees a perpetual fund, the income from which shall be for the use of the Massachusetts Agricultural College; and according to the further request of my deceased wife, made in her last will, this is to be known as the William R. Sessions fund, and is to be a memorial of William R. Sessions; and it is my special request that the said trustees shall make record of the fact that this fund came from the estate of my deceased wife, Clara Markham Sessions, in accordance with her request made in her last will, ... $5,000 00

$49,100 00

Prizes.

Animal husbandry. The F. Lothrup Ames prize, given by F. Lothrup Ames, Langwater Farms, North Easton, Mass., consisting of $150 a year, offered for a period of five years, to be given to the three students standing highest in the work of advanced live stock judging, and to be used in defraying their expenses incurred by participation in the students' judging contest at the National Dairy Show, Chicago. Given in May, 1912, available first in autumn of 1912, and for the four succeeding years, $150 00

FRED C. KENNEY,
Treasurer.

In Memoriam.

WILLIAM H. BOWKER.

Mr. William H. Bowker of the Board of Trustees died in Boston, Jan. 4, 1916. The trustees, in passing memorial resolutions, expressed the wish to have them incorporated in the report of the president and other officers for the fiscal year 1915. The memorial is as follows:—

Tribute adopted by the Trustees of Massachusetts Agricultural College, at Boston, Jan. 7, 1916.

Our associate William Henry Bowker, senior member of this Board in years of service, died at his home in Boston three days ago.

Born July 3, 1850, at Natick, and taught in the public schools of Phillipston and Templeton, he was a member of the first, the "pioneer," class of students received at the Massachusetts Agricultural College Oct. 2, 1867, and was graduated there July 19, 1871.

After about two years given to teaching and newspaper work, he founded, on new and untried lines, the business that by various stages grew into the large, successful and dominant work of his life, — the making and merchandizing of fertilizers and allied products. In the technical and commercial aspects of that business he became an acknowledged authority.

He set up for himself and his associates high standards of honor and accountability, and was a potent factor in promoting, through legislative regulation and otherwise, the policy and practice of the *open hand* in dealings between manufacturer and consumer.

Always from his student days an ardent friend of the college, and perhaps the most resourceful and effective worker and leader in its behalf among its alumni, he became in January, 1885, a member of this Board, *as the first one appointed by the Governor* of the Commonwealth, under legislation that sprung from his own early suggestion and efforts to reform the tenure of its membership and terminate its own self-elective functions.

He was conservative by family heritage and home influence, democratic, large-hearted, a lover of manly men and popular among his fellows. His mental traits, ripened through wide and intimate contact with men and affairs and by much reading and travel, were marked by breadth of view, originality of ideas and independence of thought, which, with a natural aptness of expression and power of effective statement, made him interesting in conversation and discourse and forcible in controversy.

With intimates his speech was well-nigh as frank and free as his thought; often leavened with humor, always (when in health) with good nature; and if in discussing real issues to be faced and placed he sometimes urged his view or criticised an opposing one with an apparent excess of ardor, it was due, not to lack of human kindness and sympathy in his make up, but rather to keen interest, ample courage and faith in his cause. Withal, he was equally ready to concede points scored by an opponent, and left no sting in the hearts of those with whom he differed.

He has now laid down in honor and loyalty, at the feet of his alma mater and of the Commonwealth, the burden and the harvest that go with high privilege and duty done, after the longest term of service given by any present or former member of this Board; and was himself conspicuous in making that period the richest and most fruitful in the history of the college he loved so well.

The Personal Word.

I often feel that in this institution the relation between the president and the trustees is almost ideal. Mr. Bowker, because of his forceful personality, his fertility in ideas, his quick appreciation of situations, his breadth of view, his long connection with the institution in various capacities, and his continued membership on trustee committees that dealt with important policies, was a wise, helpful and sympathetic counselor. I went to him frequently. It is difficult to express with restraint the obligation that I owe him, both officially and personally. I know that by all of us, trustees and faculty, his loss will be keenly felt, not only because of the choice personal element that entered into all our counsels, but because of the value of his contribution to our common work.

KENYON L. BUTTERFIELD.

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THE M. A. C. BULLETIN

AMHERST, MASS.

Vol. IX. No. 2 **February, 1917.**

Published Six Times a Year by the College.
Jan., Feb., Mar., May, Sept., Oct.

ENTERED AS SECOND-CLASS MATTER AT THE POST OFFICE, AMHERST, MASS.

Public Document **No. 31**

FIFTY-FOURTH ANNUAL REPORT

OF THE

MASSACHUSETTS AGRICULTURAL COLLEGE.

PART I.

REPORT OF THE PRESIDENT AND OTHER OFFICERS OF ADMINISTRATION

FOR FISCAL YEAR ENDED NOV. 30, 1916.

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Supervisor of Administration.

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The Commonwealth of Massachusetts.

Massachusetts Agricultural College,
Amherst, Dec. 1, 1916.

To His Excellency Samuel W. McCall.

Sir: — On behalf of the trustees of the Massachusetts Agricultural College I have the honor to transmit herewith, to Your Excellency and the Honorable Council, Part I. of the fifty-fourth annual report of the trustees, for the fiscal year ended Nov. 30, 1916, this being the report of the president of the college and other officers of administration to the corporation.

I am, very respectfully, your obedient servant,

KENYON L. BUTTERFIELD,
President.

REPORT OF THE PRESIDENT OF THE COLLEGE.

Gentlemen of the Corporation.

I herewith submit my annual report as president of the Massachusetts Agricultural College, and with it transmit reports from the other administrative officers of the institution.

AN ADEQUATE PLAN OF FINANCIAL SUPPORT FOR THE MASSACHUSETTS AGRICULTURAL COLLEGE.

The most serious question which the college has to face at the present time is that of sufficient and permanent financial support. Many problems of teaching, investigation, administration, courses of study, are being carefully studied by the staff of the institution; but in nearly every instance the individual or the committee which is considering any one of these problems discovers that its final solution is largely dependent upon sufficient funds.

Since 1900 the college has not only grown steadily in enrollment of students, but there has been an even more striking development in the range and scope of its varied activities. Recent legislative appropriations for current maintenance have not been niggardly. The resolve passed by the Legislature of 1913 granting a five years' appropriation for maintenance, increasing progressively each year, was gratifying not only because of the amounts involved but even more because it has enabled the college to plan with some degree of system and foresight. Nevertheless, a considerable proportion of the advantages gained by this resolve were vitiated by the fact that not only was no equivalent provision made for permanent improvements, such as buildings, but that it has been necessary to pay for certain permanent improvements out of current funds, — a plan wholly indefensible from the standpoint

of good accounting, and unfortunate in that it drew heavily on funds sorely needed for other purposes.

Although enlarged appropriations for current support are much needed, provision for permanent improvements is perhaps just now our chief financial question. The college for years was woefully lacking in adequate buildings. Indeed, the material equipment of the college for the first thirty-five years of its history was really pathetic in its meagreness. Up to 1900 the college did not possess a single building of brick or stone planned for or adapted to teaching purposes. The three wooden structures then in use for teaching are now inventoried at less than $20,000; one of these, erected in 1867, still serves as an excuse for a chemical laboratory; a fourth wooden structure, the drill hall, was built about 1883. Several departments were given extremely meagre accommodations in one of the dormitories. As late as 1904 the little frame "botanic museum" of one story and with two or three small rooms upstairs accommodated all the horticulture, all the botany, as well as the treasurer. Since 1904 several modern and well-equipped brick buildings have been added, but, even so, only one really large building has been built in the history of the college, namely, Stockbridge Hall, which houses the various departments of the Division of Agriculture. Other large buildings, such as a library, a chemical laboratory, an armory and gymnasium, should be built at once. The present housing for these features of our work is little short of disgraceful, and would not be tolerated in an endowed institution of any standing whatever. *The college is to-day at least ten years behind its proper building program.* We could amply justify an immediate expenditure of a million dollars for buildings.

An Agricultural College and Nothing Else.

The action of the Legislature in appointing a Commission on Agricultural Education apparently raised no questions concerning the fundamental purpose of the college. It seems to be assumed that the college is solely an agricultural college. But I am persuaded that many legislators and citizens do not appreciate the scope of the work of a modern agricultural college, nor the great need for trained, paid leadership in

agricultural affairs. The insistence by some that the college should graduate only working farmers shows a lack of vision of the present and future needs of agriculture. Yet it seems clear that both the people and the Legislature assume that we are an agricultural college and nothing else. At any rate, that is our assumption. We may err in our methods of getting results, but we are loyal to agricultural advancement as the main task of the college. It hardly seems necessary to reiterate this fact.

Still, there is more or less agitation for a State university in Massachusetts. Informally, and largely from individuals, suggestions are occasionally made that this college might be the nucleus for such an institution. A variation of this proposal is that our college should offer preparation for many other fields than agriculture and country life, — become both in fact and in name "The Massachusetts State College." Doubtless the Morrill Act of 1862 gives ample legal warrant for either policy. Aside from the institutions for colored students, 22 of the "land-grant" institutions are either State universities or are attached to State universities established prior to 1862, while 26 are agricultural and mechanical colleges separate from State universities. In Massachusetts, at the very outset, "mechanic arts" was taken over by the Massachusetts Institute of Technology. The Massachusetts Agricultural College stands unique among the sisterhood of public institutions of higher learning established by the Morrill Act of 1862 in that it is not connected with a State university and that it deals with agriculture alone. It is the only institution of collegiate grade in America which may be called strictly an agricultural college and nothing else.

Whatever Massachusetts may decide with reference to new State-supported educational institutions of higher grade, I trust that the Massachusetts Agricultural College may be left to develop as an agricultural college solely, with funds sufficient to place and keep it in the very front rank of agricultural colleges. There are unique advantages in a policy of exclusive devotion to the rural problem. The field is wide enough for all our energies and important enough for warranting our best efforts.

In my report for 1911 I dwelt at some length upon the purpose of the college as I interpret it, emphasized our desire to keep it strictly an agricultural college, and stated strongly our opposition to any movement that may seek to work it over into a State university. I hope that the present statement may set forever at rest any intimations or suspicions that our purpose is to make of this institution anything else than a college of agriculture.

The Argument for Support from the Standpoint of the State.

Sometimes I fear that it has become the habit of the Legislature to think of the college as in a sense a beggar, or at least a suppliant for State aid. On the other hand, it may be possible that college officers concern themselves too little about what the State can afford. There can be no doubt that the real test of the need of an educational institution is its service to the State. In our case it may be asked, first, to what extent is the institution serving the State? Secondly, in view of this service, how much can the State afford to spend upon that particular type of service?

The support of an agricultural college must be viewed largely as a matter of productive investment on the part of the State. The annual value of the agricultural production in Massachusetts will soon be in the neighborhood of a hundred million dollars. In this day of scientific study, any corporation that did a business of a hundred million dollars a year would, I am sure, think it a very modest investment if it devoted one-fifth of one per cent. of its annual product each year to investigations concerning improvements in its business. Individual farmers cannot make elaborate investigations. Practically the only place where these can be made is at the agricultural college. The State is in some sense a corporation doing its business in agriculture through individual farmers who own the land and do the work. It might be desirable if this annual value could be taxed so that a portion of it would be used for investigational work, but that is impracticable. The State must consider itself as the beneficiary of increased agricultural productivity, and should invest money in agricultural investiga-

tion. This small investment of one-fifth of one per cent. of the annual value of agricultural products in Massachusetts would yield $200,000 a year for study of agricultural problems, as against the $30,000 now appropriated by the State for this purpose.

Let us look at the matter of support from another point of view. Suppose the college eventually costs the Commonwealth a million dollars a year. This would mean, at the present assessed valuation of the State, that a citizen whose property is assessed at $5,000 would contribute $1 a year for the support of the college. If the college is in any measure efficient in its work, is there any citizen of the Commonwealth who would be imposed upon if he made a contribution on this basis?

Consider the general value of the State-wide educational work which the college carries on. No one can measure the money value of such an educational work or put it in terms of dollars and cents. We can only point out some of the returns that come to the Commonwealth. The test of our usefulness to the State is not alone our usefulness to the farmer. We serve the entire Commonwealth for such reasons and in such ways as the following: —

1. By helping urban communities to gain an adequate food supply, through larger productivity of the land and through better quality of products.

2. By assisting in securing economical means of food distribution, so that both producers and consumers will be benefited thereby.

3. By aiding, to an increasing degree, workingmen who wish to live on the land while still earning wages in some industrial occupation.

4. By assisting in the development of agricultural educational values for the children of the Commonwealth. It is doubtful if the people of the State realize the educational gains that came to the children in the schools of the State last year when nearly 50,000 boys and girls were enrolled in agricultural clubs of various sorts.

5. By assisting in securing a better farm life, as a part of the common life of the State. If the college does its work well, it will assist materially in the upbuilding of well-developed

rural communities, and thus help in maintaining a better type of people on the land.

For such reasons as these the Commonwealth, in its support of an agricultural college, makes a definite investment that gives real, even if not easily measured, returns to the State as a whole. I do not stop here to urge the fundamental value of the college to agriculture itself, to the farmers and their families. That value is here assumed. Too seldom do we urge the fact that the college is an asset of the State as a whole.

As a practical question, it should not be forgotten that for various reasons the income from Federal grants for agricultural college work is not relatively so great in Massachusetts as it is in most other States. The reasons for this do not need to be presented at this point, but the fact remains and has a bearing upon the extent to which the State, in order to do as well by its agricultural college as other States do, must make up the deficiencies in Federal appropriations.

Needs from the Institutional Point of View.

Our report of a year ago discussed rather fully our needs for permanent improvements. These may be reviewed very briefly here.

1. *Land.* — Through the acts of the last Legislature the college is now enabled to purchase, out of current funds, certain much-needed parcels of land on which it has had options for some years; but it is perfectly clear that as the years go by the college will need considerably more land. The experience of all agricultural colleges has demonstrated that an institution of this sort can hardly have too much land. More and more the land is used for laboratory or educational purposes, as well as for demonstrations, tests and experiments. We should have from five to ten thousand dollars a year for some years to come, to use for land purchases as the situation dictates and as the trustees may determine. The experiment station alone should acquire during the next five or six years not less than 125 or 150 acres of land. Even a cursory examination of its present areas demonstrates that they are ridicu-

lously inadequate. I call your attention to the very clear and emphatic statement of Director Brooks in his report (see page 60) on this point.

2. *Buildings.* — I am sure that one who carefully surveys the equipment of the college must agree that the situation amply justifies large expenditures for buildings within the next two or three years. As one prominent citizen of the State phrased it not long ago in looking over the decrepit building that at present houses our department of chemistry, "It is a disgrace to the State." He was nearly as emphatic with respect to the existing library facilities. It will prove difficult, if not entirely impossible, to take advantage of the new congressional act relative to military drill unless we have a new armory. For at least five years we have cherished the hope of soon affording adequate physical education for every student in college. It is quite out of the question even to attempt such a development without a new gymnasium. Some important departments of the college, such as English, for example, have no headquarters. The department of economics has been moved half a dozen times in as many years, and to-day has no abiding place. It is obvious that the best work cannot be done under such conditions. The housing of students becomes more unsatisfactory every year. We are asking the Legislature this year, for the seventh time, for a dormitory. The college was organized and was carried on for thirty years on a dormitory basis. Fewer students are accommodated in dormitories than was the case twenty years ago, when the college had only one-sixth the number of students it has to-day.[1]

3. *Miscellaneous Improvements.* — There is constant need for minor improvements of various kinds, for new equipment for teaching and practical purposes, and for the replacement of the more expensive equipment. These additions should not be charged against current maintenance. They add to the in-

[1] Buildings needed at once and in near future: completion of power plant, library, chemistry building, armory and gymnasium, completion of infirmary, completion of rural engineering shops, completion of laboratory for physics and microbiology, service building for pomology, remodeling Stockbridge house and cottage, greenhouses (floriculture), market-garden buildings, horticulture (miscellaneous buildings), poultry building, rural arts building for department of landscape gardening, administration building, building for humanities and rural social service, buildings for women (domestic science laboratory), dormitories for men and women.

ventory of the institution, and should be provided out of funds set aside for that purpose. Unfortunately, it has become necessary during the past two or three years to encroach upon our current income for the making of certain improvements and the purchase of equipment absolutely necessary for the work of the institution.

The sum of $200,000 a year for some years to come, certainly for not less than six, should be regarded as a minimum sum for buildings and other permanent improvements at the institution.

Maintenance.

Investigation. — Permanent agricultural improvement is based on scientific investigation. The State of Massachusetts is now contributing something like $30,000 a year for this purpose. Some States are contributing five or six times as much. The State of New Jersey spends twice as much annually for its experiment station as does Massachusetts. Massachusetts should provide its experiment station, in the not distant future, with an annual appropriation of not less than $100,000 a year for investigational work, including an adequate study of the agricultural resources, conditions and needs of the Commonwealth. Scores of important problems await study.

Extension Service. — Under the five years' appropriation for current purposes there was a "gentleman's agreement" that not to exceed $50,000 annually should be spent for the Extension Service of the college. This sum has proved entirely insufficient for growing demands. We have been obliged to postpone indefinitely a number of very important lines of work for lack of funds. A good illustration of this is in our failure to provide instructors for the non-English speaking farmers who are rapidly filling up various parts of Massachusetts. They are both farmers and potential citizens. They can be reached for the present only in their own language. We have cherished the hope for a half-dozen years that we could put at least one man into the field to help these people. The director of the Extension Service has annually called attention to new lines of work that are in demand but

that we are unable to take up. I feel very strongly that we should have, in the not distant future, a total of at least $100,000 a year for extension work in Massachusetts, and of this at least $75,000 a year should be provided from the State treasury.

General College Purposes. — We need increased funds for the following purposes: —

1. As the college grows and as we add to its building equipment, the cost of maintenance of the physical plant will, of course, increase, and this, too, entirely apart from the probabilities of increased cost of labor, coal and other supplies. Just at present this last factor is one of considerable financial importance. We estimate that the Saturday half-holiday law for laborers alone has increased the labor expense by $5,000 a year.

2. It is generally admitted that the salaries of college teachers are inexcusably low. There is a movement all over the country to raise these salaries nearer to their proper amounts. Especially do we need larger salaries for teachers as contrasted with administrators. A recent investigation by the dean of one of our great agricultural colleges shows that while Massachusetts is doing reasonably well with its instructors and assistant professors, its professors and associate professors are among the lowest paid in the country, at least in the dozen or fifteen leading agricultural colleges. We have done our best, under our financial limitations, in regard to increase of salaries at this college, but, considering the cost of living, it is doubtful if the average professor has as large a real income as he had ten or fifteen years ago.

3. New instructors must be taken on as the number of students increases. In our college increase of students does not give increase of income, because we have no tuition.

4. A few new departments should be established, as, for instance, a department of horticultural manufactures and a department, or its equivalent, in history and government. We need additions to our work in rural social science, and particularly do we desire facilities for the instruction of women students, both in agriculture and in home economics.

5. Nearly all of our departments in agriculture and horticulture need more teachers, especially in advanced work. Many of these departments are undermanned.

It is possible that some saving can be made by cutting down the number of courses in modern languages and in mathematics, and it is even possible that we are offering too many courses in some of the science departments, but economies of this sort cannot be very pronounced and would not begin to meet such needs as have just been stated. A fairly constant increase of 5 per cent. per year for maintenance purposes should be regarded as an absolute minimum, and indeed it is all too little for the development of the work that is necessary to make the institution of the largest possible service to the Commonwealth.

Methods of Finance.

For many years the financial needs of the institution were met by a small annual grant for maintenance of the institution and by special grants for permanent improvements. All through the history of the college it has been necessary to go to the Legislature for increases in maintenance funds and for new buildings. The Commission on Economy and Efficiency in 1913, under the leadership of Mr. Norman White, its chairman at that time, recommended very strongly indeed that the finances of the college be put on a permanent basis. His plan was carried out only in part. The result was a five years' appropriation for maintenance, with a progressive increase each year. This has proved very satisfactory except for the fact, already mentioned, that it has been encroached upon because for two years the Legislature failed to provide funds for improvements and equipment. Mr. White's original plan contemplated an appropriation large enough to include the erection of buildings. Two years ago and again last year bills embodying this idea were introduced into the Legislature. Both years the bill received the cordial support of the committee on agriculture. Last year the executive committee of the State Grange, the college committee of the Board of Agriculture, and a special committee of the alumni of the college

visited the institution and gave some study to its needs for buildings and equipment. Each of these groups strongly favored a substantial six years' appropriation for permanent improvements. The present Commission on Investigation has before it the arguments for this plan.

Some Principles of Finance for the College.

There are a few things that seem to be fundamental in a satisfactory financial policy for the college.

1. There should be a permanent financial policy. It is highly important that the institution may know its resources and plan accordingly. I am convinced from conferences with reputable contractors that a substantial saving, for example, could be made in building contracts if these contracts could be made in the winter instead of in midsummer, and the buildings erected during good weather rather than in the dead of winter.

2. Permanent appropriations should be progressive in amount, otherwise it is impossible for the institution to grow or even to maintain itself, as the number of students increases and the number of buildings to be maintained becomes larger.

3. The necessity of presenting the college case before the Legislature each year consumes a great deal of time that ought to go into the real work of the institution. Neither the president nor any other officer of the institution does any "lobbying." Nevertheless, the presentation of these matters before the proper committees, the preparation for these committee hearings, and even the very fact of uncertainty as to results are all factors in the consumption of time and energy. It is wholly wise that the institution should be required to give an account of its work to the Legislature, but it is highly uneconomical and unbusinesslike for the administrative officers of the institution to be compelled to use so large a proportion of their time as is now necessary in simply trying to secure necessary funds.

It is sometimes said that no Legislature should "commit future Legislatures" to expenditures for support of the college. This phrase sounds well but it does not mean much. The facts are that whenever a Legislature establishes a State insti-

tution it commits the Commonwealth for all time to come to a reasonable support of that institution. It is interesting to know that this very question with respect to the Massachusetts Agricultural College has been passed upon by the Supreme Judicial Court.[1] Referring to the acceptance by the Legislature of the provisions of the Federal Morrill Act of 1862, and of the grants thereby made to the State, the court said: —

> But the acceptance of the gift or grant for a public purpose of this nature, especially with the conditions attached to it by the act of Congress, involved the assumption by the State of certain duties and burdens which it was bound to perform and discharge. The gift was not an absolute one. It was upon certain trusts expressly set forth and declared, to the execution of which the State became solemnly pledged. No part of the funds derived from the sale of lands granted by the United States could be expended in the erection of buildings, and only a small portion thereof in the purchase of land. But expenditures of money to a large amount for these purposes were essential to the creation and establishment of the college which the Commonwealth was, by the act of Congress, bound to provide within five years from the date of the acceptance of the grant of land. This, therefore, was a public burden or duty which the Commonwealth had taken upon itself and was bound to discharge, in order that it might faithfully execute the trusts which it had assumed, and thereby enable the people of the State to enjoy the benefits which were expected to flow from the bounty of the national government.

In other words, the Commonwealth is forever "committed," indeed, "solemnly pledged," to support the college.

Furthermore, the Legislature is constantly "committing" future Legislatures in other ways. The present appropriation for highways is an example. Bond issues, in cases where the bonds are afterwards to be taken up and the debt paid, are examples of a little different type. Indeed, any bond issue commits the State irrevocably to the payment of interest on those bonds. It is further to be said that in the case of an appropriation bill for the support of the college that covers a period of years, it is perfectly competent for any Legislature to repeal that legislation. It seems to me that the argument for not committing future Legislatures has no adequate foundation, either in theory or in practice.

[1] Merrick *v.* Inhabitants of Amherst, 12 Allen, 500.

How can these Financial Principles be applied?

1. The present progressive maintenance appropriation might be continued for another five years; the resolve expires with the year 1918.

2. In addition, there might be made a five or six years' appropriation for improvements, say at the rate of $200,000 a year.

3. These two plans might be combined into one act, which would make, say, a five or six years' appropriation for all purposes.

4. The State might issue bonds for the erection of a certain number of buildings. California, for example, this last year voted a bond issue of something like two or three million dollars for its State university. This plan of bond issues might work especially well with dormitories. In my judgment dormitories could be made to pay interest on the bonds.

5. The money for the college might be raised on the basis of the so-called mill tax, which is not after all a tax but merely a method of determining the amount of income. Not less than fifteen States support wholly or in part their State educational institutions in this way. The valuation of the real and personal property subject to local taxation in Massachusetts is now approaching the amount of $5,000,000,000, and the amount of this valuation has increased in recent years somewhere in the neighborhood of $150,000,000 a year. An appropriation equal to twelve one-hundredths of a mill upon each dollar of assessed valuation would give the college nearly $600,000 a year for all purposes, and presumably an increase of something like $20,000 a year for an indefinite period. The mill tax is ideal provided it is large enough to begin with, and provided the basis of assessment remains fairly constant, so that there will never be either big decreases or big increases.

I do not care to argue here at length for any one of these plans; they are stated in the briefest way, merely to afford a basis for discussion of details.

In Conclusion.

In thus discussing the general question of financial support for the college I have been obliged to cover ground which has been gone over in former reports. May I say also that after all these years of service on the part of the college it would almost seem unnecessary to take so much time to discuss or to lay so much emphasis upon the mere question of adequate and permanent support. Surely the Commonwealth after fifty years should have made up its mind on this point. Unfortunately, however, as I intimated at the beginning of this discussion, this very question is the most important that we have before us. The most cursory examination of our needs must convince any one that we face a critical situation. It is due the college and its staff that some decision as to permanent support be reached at once.

Respectfully submitted,

KENYON L. BUTTERFIELD,
President.

THE REVIEW OF THE YEAR.

Changes in Trustees.

At the close of his administration Governor Walsh appointed Mr. James F. Bacon of Boston to succeed Mr. Arthur G. Pollard of Lowell as trustee of the college. Since the retirement of the late M. F. Dickinson the Board has felt the need of a legal adviser among its members. The selection of Mr. Bacon has proved to be a fortunate one.

Soon after the death of Mr. William H. Bowker, Governor McCall appointed Mr. Arthur G. Pollard of Lowell to fill the vacancy; thus the Board will continue to benefit by the experience gained by Mr. Pollard through his years of service on the Board.

During the year, owing to the resignation of Dr. David Snedden, Commissioner of Education of Massachusetts, Dr. Payson Smith, by virtue of his succession to Dr. Snedden, becomes a member of our Board of Trustees. We are glad to welcome him to our number.

Changes in Staff.

Dr. George E. Stone retired from active service Sept. 30, 1916. Dr. Stone was connected with the college and experiment station from 1895, having been head of the department of botany and in charge of the research work in this subject. Dr. Stone was possessed of marked natural talent and ability as an observer and investigator, and his scientific work has been characterized by originality, ingenuity and enthusiasm. He has been one of the most fruitful workers of the institution, and possessed unusual ability to arouse the interest and enlist the co-operation of advanced students, whose work along selected lines and under his guidance was made contributory to the working out of broader problems which had engaged his attention.

At the end of June, Prof. Sidney B. Haskell left the institution to take up work as soil expert with the soil improvement committee of the National Fertilizer Association. It was with deep regret that we felt obliged to accept his resignation.

Since Professor Haskell's graduation from this college in 1904 he has been connected with the institution, first as assistant in the experiment station, later as instructor in agronomy, and for five years head of the department of agronomy. Although teaching a subject in which he was obliged to establish his own standard for perfection, and in which but a limited amount of material had been assembled by others, he made a distinct reputation for himself as a teacher and organizer through his high ideals of scholarship and genuine teaching ability. He elevated the work of his department to a plane second to none in any department of the institution. We have not yet succeeded in discovering a man who we are satisfied will continue the work in agronomy on the same high plane of efficiency as that established by Professor Haskell.

During the summer Prof. Orion A. Morton accepted a position as agent for the Massachusetts Board of Education. Professor Morton came to this institution four years ago to organize the boys' and girls' agricultural clubs throughout the State. In this work he was eminently successful, so that there are boys' and girls' agricultural clubs in 315 cities and towns of Massachusetts. These clubs comprise a membership of about 50,000, probably the largest enrollment of any State in the Union. This achievement is really a stupendous one numerically and a momentous one educationally. We regret that Professor Morton found a more attractive call elsewhere.

Mr. George L. Farley succeeds Prof. O. A. Morton as supervisor of junior extension work. Mr. Farley is a graduate of Dartmouth College, from which institution he also has the degree of master of science. He has had eighteen years' experience as a teacher of grammar schools and as school supervisor, in these capacities serving in the following towns and cities: Hanover, N. H., Hyde Park, Mass., Cambridge, Mass., Brookline, Mass., New Haven, Conn., and Brockton, Mass. It was under Mr. Farley's administration as superintendent of the Brockton schools that the boys' and girls' club work in that city developed so successfully. Coming as he does with a wide experience and acquaintance with school work, and with ability as an organizer and administrator, the

continued success of this extremely important phase of our work seems to be assured.

Mr. Earnest D. Waid has resigned his position as assistant director of the Extension Service. Mr. Waid has been connected with our Extension Service since September, 1911, coming to us with several years of successful experience in similar work and in teaching at other agricultural colleges and universities. While here, Mr. Waid's special work has been that of organizing and supervising the extension schools, fair exhibits, lectures and lecture courses, and the winter ten weeks' course. Mr. Waid has been a faithful, industrious and efficient member of the Extension Service staff, and it is with regret that his resignation has been accepted. Mr. Waid will sever his connection with the institution in the early spring, and devote his full time to the development of his farm in Amherst.

Mr. E. F. Damon was in the winter of 1916 secured to fill the vacancy caused by the death of Prof. R. H. Ferguson, in extension work in agricultural economics. Mr. Damon graduated from the Massachusetts Agricultural College in 1910. Following a year's graduate work in agricultural economics at the University of Wisconsin, he spent nearly five years in the west in various agricultural co-operative enterprises. Just prior to taking up his work at Amherst he was manager of one of the largest fruit growers' exchanges in southern California.

Charles H. Patterson succeeds Henry E. Smith as assistant professor of English. Professor Smith has rendered for four years most acceptable service; cultured, highly trained, exceedingly industrious, he gave us his best. Professor Patterson is a graduate of Tufts College, and has studied at Chicago University. He has had a long and successful experience in high school teaching and in administrative work. The principal schools with which he has been connected are the Boston School of Expression, the West Virginia University, and Dean Academy as principal.

John T. Wheeler has been elected assistant professor of horticulture. With the introduction of a larger amount of agriculture and horticulture to the curriculum required of

freshmen and sophomores it became necessary to provide additional instruction in horticulture as well as in agriculture. Professor Wheeler is a graduate of the University of Wisconsin, also of the State Normal School at Mansfield, Pa. He has had several years' experience as high school principal and as supervisor of schools. At this institution he will assume large responsibility in connection with the direction of the freshman agriculture and horticulture.

Reorganization of the Department of Botany.

The department of botany has been reorganized during the year, with Prof. A. Vincent Osmun as head of the department. Professor Osmun graduated from this institution in 1903 and received his master's degree here in 1905. Since the latter date he has been continuously connected with the institution as an investigator and teacher.

Attendance.

The enrollment in the present freshman class is 170; a year ago the number was 211. The total enrollment, however, of all students in work of college grade is 680, as compared with 668 a year ago, the increase being about 1.8 per cent. The reason for the substantial falling-off in the size of the entering class has not been satisfactorily established; doubtless a number of causes contributed to this result. One cause, which apparently has considerable foundation, is, that some students, who were planning to enter this year, decided to wait until another fall because of the fact that this year they were able to obtain work at high wages, thus making it easier for them to finance their college course at a later date. The total number of young women students is constantly increasing; 6 entered in this year's freshman class, making a total enrollment of 28. (See Table V. for analysis of enrollment.)

Commencement.

The annual Commencement Day exercises were held Wednesday, June 21. The degree of bachelor of science was conferred on 100 men and 2 women; 5 candidates received the degree

of master of science and 3 the degree of doctor of philosophy. The alumni dinner was attended by 223 alumni and officers of the college. President Kenyon L. Butterfield delivered the Commencement address, his subject being "The New Rural Advance." In this address he reviewed briefly the significant achievements in agricultural education during the past ten years, and ventured certain predictions as to future development.

Fiftieth Anniversary.

Plans are maturing for the fiftieth anniversary of the opening of the college. The dates decided upon are October 7 to 10 inclusive. The following program has been voted by the executive committee in charge of the celebration and by the trustees. Work is progressing on the brief history of the college and on the bibliography. Mr. William C. Langdon has been chosen as the pageant master, and is now on the grounds developing his plans for the pageant.

Provisional Program, 1917 Celebration.

Sunday, October 7:

3.00 P.M. Outdoor Commemorative Program, Pageant Grounds.

Monday, October 8:

10.00 A.M. Dedication of the Athletic Field.
2.30 P.M. Foot Ball Game.
5.00 P.M. Alumni Dinner and Program.
8.00 P.M. Undergraduate Night.

Tuesday, October 9:

10.00 A.M. Addresses by Delegates.
12.00 M. Class Reunions.
1.00 P.M. Luncheon to Delegates.
3.00 P.M. Pageant.
8.00 P.M. Formal Reception by the Governor, the Trustees and President.
Fraternity Reunions.

Wednesday, October 10:

10.00 A.M. Meeting of Association of American Agricultural Colleges and Experiment Stations.
12.30 P.M. Outdoor Dinner.
2.00 P.M. Anniversary Speaker.
3.30 P.M. Pageant.

The Four-term Plan.

Last September the college opened on the plan, formerly developed and duly approved, of dividing the year into four terms, including a summer session. While as yet the plans for the summer course are not entirely matured, it is probable that beginning next year a start will be made in giving summer instruction.

The Graduate Summer School, 1916.

On invitation from your Board, the graduate summer school of agriculture, conducted biennially by the Association of American Agricultural Colleges and Experiment Stations, was in 1916 held at the Massachusetts Agricultural College from July 3 to 28 inclusive. Dr. Charles E. Marshall was chosen to assist Dean A. C. True in the conduct of the school, and there was developed a most helpful program. The attendance was somewhat of a disappointment, but the character of the work given was of the best, and it was felt that it was entirely worth while for this institution to entertain the school. The total enrollment was 194, composed as follows: from the Massachusetts Agricultural College, 87; from other New England States, 41; from other States, 58; and from foreign countries, 8.

Scholarship and Character Records.

This year we have organized a small group of instructors who are serving in conjunction with the dean of the college as class advisers; one or two instructors are assigned to each class, and their function is to keep in constant touch with the scholastic standing of each student under their direction. By frequent conferences on scholarship matters or other problems of the student, it is possible to help the men in realizing to a fuller extent their opportunities here. With the younger men it is possible to enlist the co-operation of parents, wherever necessary, in maintaining a satisfactory scholastic grade in all subjects. The work thus accomplished seems to be entirely worth while, and already gratifying results have been observed.

The dean has during the year organized a plan for making rather systematic personality studies and keeping character records based upon opinions and statements made by the teachers.

Committee on Student Employment.

During the year there has been formulated by the faculty committee on employment a rather comprehensive plan for the appointment to permanent positions at the college of students who need to earn a portion of their college expenses. Student labor has been classified into three groups: skilled labor positions, permanent positions and irregular unskilled positions. Applications for these various positions are made either to heads of departments or to the committee, the heads of departments making the appointment, the committee passing on the need of the student for work, his ability, his classroom work, his character, etc. In this way the student labor at the college is being very thoroughly systematized.

Committee on Publications.

Growing out of discussions in the cabinet there has been organized during the year a committee on publications. The committee consists of the director of the experiment station, the director of the Extension Service, the director of the graduate school, the supervisor of correspondence courses, — who also has charge of the editing of Extension Service publications, — and the secretary of the college. The committee has undertaken to supervise the official publications of the college for the purpose of securing proper editing, institutional opinion in technical matters, avoiding duplication, and meeting public demand for various bulletins of a technical nature. Thus far the plan has worked successfully, and has accomplished some very useful and needed work.

Co-operation with the Board of Agriculture.

The State Board of Agriculture accepted the invitation extended by your Board to go into conference on the subject of co-operation between the two agencies. As you know, the

negotiations are not at this date completed, but they have gone far enough to indicate that it will be possible to agree upon the principle that the main function of the Board of Agriculture is administration and the main function of the college is education; and, further, that overlapping of work may be eliminated through the appointment of a joint committee of co-operation and through agreement upon written projects for new lines of work taken up by the one agency, that are likely to duplicate in any way the work of the other. This co-operation is most gratifying, and is in line with the best agricultural thought of the day.

The Massachusetts Agricultural Development Committee.

During the year the president has attended practically all of the monthly meetings of this committee. Both Dr. Cance and Professor Morgan have given much time and valuable service as special agents of the committee. Its work has demonstrated its usefulness. Two important and solid achievements have been gained during the year, one an agreement upon an outline of a comprehensive study of the agricultural resources, conditions and needs of the Commonwealth, — a study that will take years to complete but which may and should be begun at once. The proper division of labor in regard to carrying out this enterprise was also agreed to. The other achievement is the outlining and stating of the whole problem of agricultural development in the Commonwealth. There is still much work before this committee. Perhaps the most important single problem before Massachusetts agriculture to-day is that of thoroughgoing and comprehensive organization.

Additions and Improvements to Property.

The Legislature of 1916 granted an appropriation of $12,000 for three additional rooms to the present wing of the rural engineering building. This addition is almost completed and is being used by the department in the much-needed shop work.

The coal pocket, for which the Legislature also granted an

appropriation, was completed in the early part of October. We now have fairly adequate storage for our coal.

The usual repairs and improvements necessary to keep the buildings in good condition have been carried on during the summer.

The Legislature also granted the institution the right to purchase land, with the consent of the Governor and Council, up to the value of $20,000. It is understood, however, that not to exceed $5,000 a year shall be expended in each of the four years which the appropriation covers. We have purchased from John F. Dickinson the Leonard-Dickinson land, which lies to the south of the athletic field and gives the necessary space for added recreational facilities. The institution also secured a small tract of one-half acre of land from Mr. W. R. Brown, situated on East Pleasant Street, and the only parcel of land needed to make our line complete along that road.

The institution is greatly indebted to the heirs of the John L. Graves estate, to Mr. John F. Dickinson and to Mr. W. R. Brown for the interest they have taken in helping the college secure the different parcels of land in which they were interested.

The most notable addition is the building for the department of microbiology. The contract for this was let in the summer of 1915, but the building could not be occupied until October of this year. The delay was due almost entirely to the difficulty of securing the necessary material and labor. A brief description of the building follows.

The Microbiological Laboratory.

This building is unique in that its design is the result of the peculiar needs for the successful study of micro-organisms. It is fireproof throughout, with the exception of the roof boards and the hard maple floors, which are laid over the reinforced cement separating the different stories. The partition walls are brick and the ceilings are the facings of the reinforced cement floors finished and painted. There is no plaster on walls or ceilings anywhere in the building. The building is thus admirably adapted for the maintenance of cleanliness.

There are four laboratory class rooms. The one on the second floor is large and is designed for the general classes in microbiology; the one on the first floor will be used for dairy and food microbiology; and the basement has two, one for soil microbiology and one for hygienic microbiology. For recitation purposes there is a small class room located on the first floor. In addition to the above class laboratories, there are eight individual laboratories or research rooms, and a large library room on the first floor for consulting literature, reading and study. There is an office on each floor for instructors. The general office and clerical office are located near the entrance door on the first floor. There are five temperature rooms and a sub-basement or cellar room for the control of temperatures. There are three hood rooms, three sterilizing rooms and three wash rooms, one on each floor. The hood rooms, sterilizing rooms and temperature rooms are constructed about a shaft running from sub-basement to roof, which serves for purposes of special ventilation by means of small flues within the shaft, and also contributes to the safety of the building should an explosion occur. On each floor are also found a balance room and an inoculating room. In the basement, besides the other rooms mentioned, are a photographic room, an animal room, a furnace room, and a room in which the power apparatus is concentrated. Electricity, gas, hot and cold water, vacuum and pressure systems are distributed as needed throughout the building.

The building as a whole, therefore, is splendidly adapted to the teaching of and research in agricultural microbiology, and is probably one of the best arranged and equipped structures of its kind in the country.

Rural Engineering Shops.

The rural engineering building is a one-story structure 126 feet long and 68 feet deep, built with brick walls and concrete floors. The single story construction admits of the use of skylights, which make the building well adapted to shop purposes. The building has three large laboratories, used for carpentry, farm machinery and general farm repairs. A lumber storage room is adjacent to the carpenter shop and a tool room is

centrally located to the three laboratories. There are two offices and a locker room in the building. The portion of the building now completed forms two-thirds of the shop building planned for rural engineering.

The Mount Toby Demonstration Forest.

This tract consists of approximately 755 acres of timbered land, of which 721 acres are in the town of Sunderland and about 34 acres in Leverett. For a mile and a quarter it lies along the Central Vermont Railroad and includes the site of the old Mount Toby station, which is about 9 miles north of Amherst station. The forest composition is unique in that it is so representative of state-wide conditions. Every important forest type and combination of types found from the Berkshire Hills to the Cape are represented, and, what is even more rare, most of these types are found in every stage of development, from early youth to mature old age.

This is to be, as the name implies, a demonstration forest, and it will be the aim of the management to show by concrete example what scientific forest management, when actually applied to our Massachusetts woodlands, will accomplish. Just as the Massachusetts Agricultural College has been instrumental in bringing about improved farm management and production through experimentation and demonstration along those lines, so we hope by similar means to be instrumental in bringing about an improved forest management and production.

The Market-garden Field Station.

The effort made in the last Legislature by the Boston Market Gardeners' Association to secure appropriations for the purchase of land, the construction of buildings and equipment for experimental work in the interests of market gardening, and for its annual support, was only in part successful. The bill submitted by the association called for $25,000 for the purchase of land and the construction of buildings and equipment and $10,000 annually for maintenance. The Legislature granted only $8,000, which was to be used in the purchase of land. After a very thorough search on the part of

the trustees, with the aid and counsel of interested members of the faculty and of the officers of the Boston Market Gardeners' Association, the Board finally chose an area of about 12 acres in North Lexington, and the purchase is about to be consummated. Great credit is due to Prof. H. F. Tompson for his energy and skill in helping to bring this matter to a successful conclusion. A bill calling for an appropriation for buildings and maintenance will go before the Legislature at this next session. It will also be necessary for your Board of Trustees to adopt a definite plan of administration for this field station.

Publicity.

During the year we have been able to organize somewhat more effectively than formerly the publicity work of the institution. For several years we have desired to effect this organization because there is a growing demand on the part of the public for further information concerning the work of the college. Mr. Charles H. Gould, a graduate of the college in 1916, has been appointed field agent of the college, working under the direction of the secretary. He is devoting his time to lectures before high schools, granges and other bodies, organizing excursions to the college, publishing pamphlets, etc.

Legislative Appropriations.

Bills were presented to the Legislature of 1916 covering the following projects: (*a*) completion of power plant, $35,000; (*b*) library, $230,000; (*c*) extension of rural engineering shops, $12,000; (*d*) student dormitory, $40,000; (*e*) miscellaneous improvements and new equipment, $60,000; (*f*) extra labor on account of Saturday half-holiday, $5,000; our request for $30,000 for the purchase of the Mount Toby tract was also renewed. An attempt was made to secure a continuing appropriation for $200,000 a year for six years for buildings and other improvements.

We were gratified with the action of the Legislature in appropriating $30,000 for the purchase of the Mount Toby tract. The only other appropriations granted, however, were $20,000 for equipment and improvements, $4,200 for a retain-

ing wall at the power plant, and $12,000 for the extension of the rural engineering shops. The Legislature declined to grant the appropriation for the library and dormitory, and also to make the six-year appropriation.

The Investigation Commission.

The Legislature of 1916 authorized a commission to investigate the work of the college and other agricultural State agencies. The complete text of the law creating this commission and the scope of its work follows: —

Resolve providing for an Investigation by a Special Commission of Agricultural Education at the Massachusetts Agricultural College and the Development of the Agricultural Resources of the Commonwealth.

Resolved, That a special commission is hereby established, to be composed of the commission on economy and efficiency, the commissioner of education, and three persons to be appointed by the governor, with the advice and consent of the council, for the purpose of investigating the subject of agricultural education as conducted at the Massachusetts agricultural college and the development of the agricultural resources of the commonwealth.

The commission shall investigate and report as to the advisability of further expenditures for new buildings, additional equipment, the purchase of land and other improvements at the Massachusetts agricultural college; as to the present policy of the college, with a view to ascertaining whether the college is meeting in the fullest degree the needs of the commonwealth as to agricultural training; as to use of state and federal appropriations and grants; as to operation of farm department, in educational and academic instruction, and in the extension work; to find to what extent teachers are engaged in activities other than college instruction; to what extent students are taught practical farming; to what extent the college, independent of other agencies, contributes toward farming and agricultural development; to what extent the present acreage and present accommodations may be economically treated and utilized; to find the relative cost per capita for the education of state and out-of-state students in the various courses of instruction with comparisons with other agricultural institutions; to distinguish educational apart from other activities; to estimate cost of future development, if any, both for initial appropriation and for maintenance; elimination of other activities, revision of courses of study either in character, weeks of schooling, etc.; to ascertain what return, if any, is made to the commonwealth by graduate state educated students in the agricultural activities of the

people of the commonwealth; to ascertain what benefits, if any, can accrue to the welfare or development of agriculture in the commonwealth by co-ordination of the Massachusetts agricultural college, the state board of agriculture, forestry department and department of animal husbandry, or any of them; to the end that the report shall make a definite statement of existing conditions, specific recommendations for correction or improvement of existing conditions, that certain obvious existing duplications and overlappings of activities be eliminated and the departments herein referred to may be better co-ordinated and systematized into an effective administrative section of the commonwealth's efforts in behalf of its citizens.

The commission shall report what existing functions of agriculture, expenses for which are met by state appropriations, can best be carried on at the college rather than under the direction of the board of agriculture, and what functions now carried on at the college can better be performed under the direction of the board of agriculture.

The commission shall further report whether for the advancement of agriculture in Massachusetts it is advisable that the college be continued as at present organized.

The commission shall give public hearings, and shall be allowed for necessary expenses such sums as may be approved by the governor and council, not exceeding seventy-five hundred dollars. The commission shall report in print on or before January tenth, nineteen hundred and seventeen, and shall include in its report drafts of any bills necessary to carry out its recommendations.

Pursuant to the requirements of this law Governor McCall appointed the following as members of the commission: Dr. L. Clark Seelye of Northampton, Mr. Warren C. Jewett of Worcester and Mr. William L. Whiting of Holyoke; the two ex-officio members were Dr. Payson Smith, Commissioner of Education, and Mr. Charles E. Burbank, Supervisor of Administration. This commission organized with Dr. Seelye as chairman and Dr. Smith as secretary, and began its work in September. It has held a series of hearings, and the chairman has spent a large amount of time at the college. The college is indeed fortunate to have such an able body of men delegated to investigate its work. We have welcomed the investigation, and endeavored at every point to co-operate to the fullest extent with the commission.

THE IMMEDIATE NEEDS OF THE COLLEGE.

Legislative Budget, 1917.

The following legislative budget for 1917 has been approved by the Board of Trustees: —

Library,	$250,000
Equipment and improvements,	75,000
Poultry building,	4,200
Student dormitory,	50,000
Dining hall improvements,	10,000
Rural engineering shops,	9,000
Power plant, turbine house and steam line tunnels,	90,000
Total,	$488,200

Following is a brief statement of the need for the appropriations as requested: —

Library, $250,000.

In my report last year I dwelt at some length on the very pressing need for adequate library facilities. I can do nothing more this year than to reiterate those arguments, and to state that the need is even more apparent to-day than a year ago. The consensus of opinion among the college staff is that a new library represents the most pressing building need of the institution.

Equipment and Improvements, $75,000.

For three successive years the Legislature has made inadequate provision for much-needed improvements and new equipment at the college. The requests for this year, therefore, represent accumulated needs. A list of some seventy projects for improvements and of one hundred and fifteen projects for equipment have been submitted by members of the staff, and it is apparent that nearly all of these represent needs which should be met immediately. They cover various improvements on the campus, such, for example, as the construction of suitable walks and roads, and minor changes in buildings,

in order to bring the present facilities up to the growing demands made upon them. It is necessary each year to purchase additional equipment and to replace old equipment.

Poultry Building, $4,200.

The equipment for the poultry department is still far from complete, due in part to the fact that this work was undertaken in a large way only six years ago. A much-needed addition, which is being requested at this time, is a poultry breed and judging laboratory, 20 by 104 feet. The building here contemplated will provide a poultry house containing twenty-four small pens and laboratory space for general demonstrations; also a large room on the second floor adequate for the accommodation of twenty-five to fifty students in work in judging poultry.

Student Dormitory, $50,000.

This is the seventh successive year in which the college has asked the Legislature to provide funds for a small dormitory. Arguments for this building have been so fully and frequently presented that I will not restate them in this connection. I still feel, however, as evidently the Board of Trustees feels, as well as the students and faculty, that this is an extremely imperative need. At a time when student expenses are increasing materially, due to the high cost of living, it would be extremely desirable, from the standpoint of the college, to check the increasing living expenses in some small degree by affording comfortable living accommodations on the campus for a larger percentage of its students. The plan as presented will provide a dormitory to house fifty students, and estimates indicate that the building will pay a fair percentage on the investment represented, as well as provide rooms at a relatively low cost.

Dining Hall Improvements, $10,000.

When the dining hall was remodeled a few years ago, funds were not available for the construction of suitable storage facilities in the basement. The need for these has become more distressing each year, but no relief has been granted by the Legislature. The project as now outlined contemplates

the construction of a separate storage for potatoes, storage for one hundred tons of coal, and a complete refrigerating plant for meat, butter, eggs, fruit, etc.

Rural Engineering Shops, $9,000.

The Legislature of 1916 appropriated $12,000 for the construction of a one-story factory type of building for laboratory work and instruction in rural engineering. Whereas this provides the initial equipment for work in rural engineering, the building is not yet adequate. Accordingly, a request has been presented for the completion of these shops, and the expenditure here contemplated is for a unit 32 by 126 feet, providing a forge shop and an additional room for field machinery. By the addition of this unit we would be able to offer a complete course of instruction in the repair of farm equipment, including forge work. It will also enable us to bring together into one laboratory all the farm machinery used for instruction purposes. The work in rural engineering is appreciated by the students, and the large number who elect the courses are making unusual demands upon the department, particularly with respect to laboratory facilities.

Power Plant, Turbine House and Steam Line Tunnels, $90,000.

Owing to the buildings which have been erected at the college since the power plant was built, some eighteen years ago, the requirements made upon the plant have been increased many fold; thus, conditions at the plant are in need of prompt attention if efficiency in heating and lighting is to be rendered. In the boiler room there is at present no emergency equipment. We should have at least one spare boiler to meet possible emergencies. If new buildings are added, we should have the following additional equipment: —

One 400 horse-power water-tube boiler.
One stoker.
One superheater.
Coal-handling apparatus.
Ash ejector.
Additional flue.
Feed pump.
CO_2 machine.
Draft gauge.
Flue gas pyrometer.
Return tank.

Minor changes in the construction of the present plant will be involved in the installation of this apparatus. The total cost of this equipment will be approximately $36,000.

It has been found that the institution can generate its own electricity at a cost which represents a material saving over the price which would be paid if purchased outside of the college. The present room used for the turbine is much too small. With the additional demands made upon the lighting system, due to new buildings, another dynamo is necessary, and it is proposed to install this in a separate turbine house, to be constructed north of the present power plant. The cost of the turbine house, dynamo, switchboard and crane, together with the cost of installing these, would be approximately $29,500.

It has been necessary to make some rather extensive improvements in certain sections of the present underground steam line, and in view of the fact that several large buildings are needed in the near future, the engineer deems it advisable to undertake these repairs and alterations, looking somewhat into the future. We are asking, therefore, for an appropriation of about $24,000 for initial improvements.

Market-garden Field Station.

For properly improving the land purchased for the market-garden field station, in accordance with the act of the Legislature, 1916, and for providing suitable equipment for the prosecution of experimental work in market gardening, an appropriation of $25,000 is requested. A sum of $10,000 is requested for labor and other maintenance costs for a two-year period ending Dec. 1, 1918.

REPORTS OF OTHER ADMINISTRATIVE OFFICERS.

IN THE DEPARTMENTS OF INSTRUCTION.

The Dean.

On account of a very large freshman class of 1915, the work of the dean's office accumulated considerably as the year came to a close. Our work has much to do with the freshmen, especially in respect to helping them pull through at the end of the academic year. The transition from the two-semester basis to the three-term basis also added a great deal to our office work, such as planning new record cards, forms, etc. Altogether it was a comparatively busy year.

During the year we introduced a "work and character record" of the students, and expect that it will prove helpful and effective as a permanent record, and fairly accurate. We asked each instructor to indicate on a record blank the intellectual, vocational and moral qualities revealed by each student in his class. We shall have an impression of the students recorded by each instructor each term on this blank. In this way we shall have at the end of four years a composite impression that may be a real aid to prospective employers, and to others who may make inquiries. It will also help us to tell the boy better than we now can what kind of work he might best take up.

With the beginning of this term we inaugurated a scheme of class advisers, — three over the freshman class, two over the sophomore class, and one each over the two upper classes. The duties of the advisers are to serve as an intermediary between the faculty and the class, to consider with the class sympathetically any questions such as the class wishes to have faculty advice upon, and to confer personally with individuals who are down in scholarship or who fail to have the proper attitude toward their work. The freshman advisers have been especially active during the term, and I think quite helpful. It is, however, too early to make a definite statement as to the results.

Our great need is for time and help to total, classify and interpret the records that we are accumulating. We cannot do this now with the present force. The increased correspondence and the three-term system have added so much to our duties that our half-time clerk cannot do any more than to carry the extra burden.

EDWARD M. LEWIS,
Dean.

The Division of Agriculture.

The work of the division has continued along lines previously determined upon and approved. The increased equipment afforded has given much needed facilities for work, and has been thoroughly appreciated by the staff and also by the student body, as shown by increased interest and registration. Among these facilities the Division Library in Stockbridge Hall, under the efficient care of the library assistant assigned to it, deserves mention.

Beginning in September, 1916, the Departments of Agronomy, Animal Husbandry and Poultry Husbandry have cooperated with the Department of Pomology in offering a required laboratory course in agriculture for freshmen.

The completion of the second unit of the rural engineering shop has enabled the department to offer courses in building construction and the repair of farm equipment. The completion of the third unit and the addition of an instructor in forge work are strongly recommended.

On the farm a small appropriation is needed for modern tools and machinery; as stated in a preceding report, a college farm should lead and not follow in the matter of its equipment. The Department of Animal Husbandry has submitted plans for a small calf barn. This building, in addition to its value as a demonstration, would add to both the ease of caring for and the profit from the college herd.

Among the important needs are: (1) Sufficient money for salaries, so that our best men may not be drawn away by other institutions. (2) A closer relation between those engaged in teaching and extension work and those engaged in research work. This has been accomplished in one of the departments

of the division, and the results justify the hope that the other departments may soon be similarly organized. Agriculture is a living, growing science, and efficient teaching demands close relations with research, probably not in the same person, but in the same department. (3) A more liberal administration of our entrance requirements. There is a grave question whether all students studying for an agricultural vocation, even if they are to become leaders in the rural communities, can afford the time now spent upon the study of French and German, or possibly even some of the higher mathematics. Not lower entrance requirements, but a broader view is needed if the agricultural vocations are to receive their greatest help from the college.

J. A. Foord,
Head of the Division.

The Division of Horticulture.

An important change in the activities of the division for this year comes with the establishment of a freshman course under the charge of Prof. John T. Wheeler. Another progressive step has been the wider development and intensification of the extension work in landscape gardening. Mr. F. A. C. Smith, who came to us about Feb. 1, 1916, has proved to be very energetic and efficient in this work. A large demand for this service has developed and some very interesting projects are under way in different parts of the State.

Probably the most important development in the division this year has been the acquisition of the Mount Toby demonstration forest tract. Of a somewhat similar nature is the acquisition of a tract of land in North Lexington, to be used as an cut-station of the Department of Market Gardening.

We greatly need to develop a Department of Horticultural Manufactures. This enterprise requires a small laboratory building and at least one good teacher. This project has been pending now for some years and grows constantly more desirable. With the acquisition of the out-station for the Department of Market Gardening it seems desirable to strengthen the organization of this department and to push with considerable vigor the work along these lines. For this purpose, and in the

interests of other branches in the division and the college, it is very desirable that a first-class teacher be employed to develop courses in plant breeding.

The Division of Horticulture is beginning to be seriously crowded for room. After much discussion it appears that the easiest and best relief would come through moving the Department of Landscape Gardening out of Wilder Hall. Various projects have been considered looking toward this end, especially the remodeling of the old Stockbridge house. At present it seems that the end could best be accomplished by the erection of a small building in the horticultural service group on the hill, this building to be of such a character that it could be converted to other uses sometime in the future. While such an enterprise would be comparatively inexpensive, it would give substantial relief to various branches in the Division of Horticulture, especially to the Departments of Pomology and Landscape Gardening.

F. A. Waugh,
Head of the Division.

The Division of Science.

In the Division of Science the year has found little in the way of changes. A few new courses have been offered, and with the division of the year into three terms, many adjustments have, of course, been necessary.

The increased number of students during the last few years has produced difficulties in the way of accommodation and equipment in some cases. The most recently established departments have been able from the start to anticipate something of the demand and provide more or less completely for it. Some of those longer in existence are housed in buildings probably amply large for the time when they were erected, but inadequate now, and their equipment also needs increasing to meet the needs of larger classes.

The general feeling of those connected with the division seems to have been that while many improvements are desired to strengthen the various departments, much can also be done with the opportunities available, and that the thing to do is to accomplish as much as possible under present facilities.

In the Department of Botany important changes in the organization have been made. The teaching has been reorganized, and a complete revision has been made of the course of study offered in this department. The year's work is starting on a new basis. The department has endeavored to secure better balance and closer co-ordination of the courses within the department and with the work of other departments. There are still some readjustments desirable. Perhaps one of the most important changes is that which gives students opportunity to pursue a full year's work in botany prior to the junior year, thus providing a much better basis for the elective courses which follow. A new elective course in systematic mycology, extending through three terms, will give a much better preparation for courses in phytopathology which follow. Division of the work of the junior course dealing with diseases of crops, giving opportunity for men majoring in technical lines to confine their study to the diseases of the particular crops which interest them, has increased the popularity and usefulness of this course. The course in plant physiology has been thoroughly revised and is proving a very valuable course, not only for the major students but for those specializing in such technical lines as greenhouse management and agronomy. Important changes in the conduct of graduate work have also been made. There is urgent need of some new equipment, especially modern microscopes to replace a considerable number of very old ones. There is also most urgent need of better accommodations for courses in plant physiology.

The Department of Chemistry has established a chemical seminar which meets once in two weeks, at which graduate students discuss their own work or review important lines of work published in the different chemical journals. The professors of the department also discuss special chemical topics, and take part in friendly criticism of the work brought forward by the graduate students. A larger number of students than usual are electing the various chemical courses. Thus in 1915, 50 students elected qualitative analysis, and in 1916, 70 students are electing the course; in 1915, 33 elected organic chemistry, and in 1916, 37; in 1915, 18 elected junior qualitative analysis, and in 1916, 25. It appears also that there is

more of a tendency than formerly for other departments to recommend students majoring with them to take chemistry as a minor. There remains the same pressing need, — a new laboratory. The department finds itself severely handicapped because of lack of small laboratories for graduate students. In connection with the new laboratory, a small glass house will be needed to conduct experiments in plant nutrition; also one or more lysimeters, for studying the action of different elements of fertility on different types of soil.

In the Department of Zoölogy a new elective course has been introduced in the sophomore year and a new required course in agricultural geology in the freshman year. The department has adjusted itself as well as possible to the four-term plan, and the work has gone forward much as in former years.

In the Department of Mathematics the most pressing need at this time is that some better provision be made for the care of the clerical work of the department.

The Department of Microbiology rejoices in having a home at last. When equipped in full, the department will be in excellent condition to meet the teaching requirements likely to be placed upon it.

The Department of Veterinary Science reports no new developments of special importance.

H. T. Fernald,
Chairman of the Division.

The Division of the Humanities.

The change to the three-term plan is likely to have some influence upon the courses elected in this division, although no good judgment can be formed of this influence until the plan has been in operation for at least two or three years. However, it is to be observed that this autumn there has been quite a notable reduction in the electives in certain courses, as in French; although in one case there has been a marked increase in the number of students taking German. It is probable that the larger elections in the Division of Rural Social Science may reduce the elections in this division.

I have emphasized in former reports the need of supporting public speaking in the college and will not renew the matter

now, except to say that we need a strong work of this kind, and every possible encouragement should be given to the man who tries to build up that branch of the humanities.

We have a number of problems. Perhaps the most serious is the instability of the location on the campus. There are many difficulties in conducting classes to advantage in buildings used by other departments for different purposes. We ought to have permanent headquarters for the division, with proper offices and classrooms, bringing together as much of the humanities' work as possible under one roof, where mutual interest may be developed and an atmosphere built up, which will, with continuous concentration, increase of equipment and the study of method, get all courses adapted to the needs and character of the student body and the goal of the college, and greatly advance the work of this division.

Another problem is, to what extent can our subjects be turned towards the agricultural vocational goal and the material used be brought in from that field? Or, shall the humanities be the one line of study which may disregard the vocational objects of the college and aim at general citizenship and culture of the broadest type? Another question that I should like to suggest is, should the language and literature be converted from the old three and two hour system to a more intensified plan of study, thus simplifying the schedule to that extent and making less conflicts with other subjects?

I would like to recommend a good general course in classics in English, and also point out the need of a system of prizes in humanistic subjects and debating.

R. J. Sprague,
Head of Division of the Humanities.

The Division of Rural Social Science.

The principal changes in the Department of Agricultural Education during the past year have been the elimination of administrative responsibility for boys' and girls' club work, the addition of two undergraduate courses, the increase of graduate students from one in the previous year to four in the current year, and a decrease in the facilities for doing the undergraduate work in the courses in methods of teaching. There has

been a pronounced increase in the demand for the State teacher's certificate. The requests for teachers continue to exceed the supply more than two to one. There has been a greatly increased demand for work in some courses that in previous years attracted no students whatever. Eleven students are now majoring in the department as against five last year. The instruction in all the courses, undergraduate and graduate, in this department and in one course in rural sociology is carried on by one person. The situation calls for relief at once.

During the past year a major has been established in the Department of Agricultural Economics, and already 19 students have registered for major work. The total enrollment in the department for the year was 317. Of these, 11 are graduate students doing either major or minor work. A new course has been given in transportation of agricultural products, dealing with the development of transportation in the United States; highways, waterways, railways and electric ways; the opening of new agricultural areas and industries. The department has prepared, in co-operation with the Federal Office of Markets, a bulletin on the cost of distributing milk in six cities and towns of the State. An abridged edition of this bulletin has been made for general circulation. The head of the department assisted in the preparation of the program of the graduate school of agriculture, which held its biennial session at the college in July. One section, giving four courses and one seminar, was devoted entirely to the discussion of problems of agricultural economics.

The courses offered by the Department of Rural Sociology have been reorganized to meet conditions arising under the three-term basis of college work, and the major in rural sociology was offered for the first time this year. The enrollment in the regular courses for the fall term was more than double that of the enrollment for the first semester of last year. The major has been elected by four men. The chief task of the department for the fall has been the selection and arrangement of material for the required course to be given sophomores in the spring; this work is now practically completed. The department is undertaking a series of studies in rural communities hav-

ing a large number of foreign-born residents. The first of these studies will have to do with conditions that affect the health of the communities and the improvement of these conditions through community co-operation and organization. There have been a number of calls from within and without the State for help along various lines. These calls have been for information for talks to boys' clubs and other organizations, etc. A course of lectures on types of rural communities and the community survey was given by the head of the department at Teachers College, Columbia University, this summer. This fall a series of evening lectures on community organization was given at the same institution. These lectures in no way interfered with the regular college work here.

KENYON L. BUTTERFIELD,
Head of the Division.

GENERAL DEPARTMENTS REPORTING TO THE PRESIDENT.

The Library.

The year just ended has been one of unusual activity. The total number of books accessioned is 4,517, the largest annual increase in the history of the library, making a total of 52,928 volumes. More students are making use of the main library and its branches in the department buildings because of increased assignments in connection with their courses of study, and also on account of our better book collections. More library extension work has also been carried on during the past year, — 39 libraries having received 679 books and 49 pamphlets through this phase of our work. During the past year we have issued library leaflets on the following subjects: books for teachers, poultrymen, high schools and farm women, and on soil fertility, garden design and garden making, and farm crops. This means that up to date we have published 23 library leaflets in editions varying from 1,000 to 3,000 copies of each, with a total printing of 32,000 copies.

Our need for a new library building should not be overlooked. Students and teachers become discouraged in the search for material when it becomes necessary to squirm through crowded aisles, climb ladders or resort to the collections stored in the

cellar. Visitors, upon looking over our equipment, express surprise at our large and valuable collections being exposed to fire and other dangers, and voice the economic loss of time and energy spent in working under our present conditions. Time flies so fast — so many men have come and gone without getting many of the best things which a good up-to-date library might have offered — that the real situation presented to our research workers, faculty, students and library staff becomes a very serious one indeed. Our earnest hope, for the benefit of the students and teachers who come to us and rightfully expect better working quarters, is that the next Legislature will offer relief in the form of a new library building, complete in all of its appointments, for the proper carrying on of all lines of library work.

CHARLES R. GREEN,
Librarian.

Military Department.

There has been a decided improvement in the various drills during the fall term over the work last year. This has been due to the following reasons: —

First. — The two additional military courses for cadet officers of the senior and junior classes has enabled me to see that the theoretical part of the outdoor work for each week was prepared and understood by the cadet officers who conducted this work.

Second. — Twenty-one students attended the United States training camps at Plattsburg, N. Y., and every captain and many first lieutenants are graduates of these camps.

Third. — The recent congressional legislation relative to the reserve officers training corps at colleges has had the effect of stimulating the interest in the military to a great extent.

At the present time the department work is handicapped by a drill hall that was built about thirty years ago, when the college had an enrollment of perhaps 150. It is entirely inadequate for the 400 students in the military department now. The armory and storage rooms are as inadequate as the hall.

H. W. FLEET,
Professor of Military Science and Tactics.

Department of Physical Education and Hygiene.

The work of the department has been conducted through the year along the following lines: —

1. Each student in the entering class was given a physical examination during the first month of the college year, thus reducing the possibility of any injury arising from ignorance. In the examination especial care was taken to detect any defects of the vital organs, sight and hearing. Each person is given a short talk following his examination concerning his condition, the kind of exercise he should have and the proper care of his body.

2. The freshman class was given a course of lectures and written quizzes on personal hygiene during the first term.

3. The physical director has immediate charge of health conditions in the college, seeing that cases of minor illness or injuries are cared for either by the resident nurse at the infirmary or by a member of the Department of Physical Education, the calling of a physician in cases where it seems necessary and sending those cases which need the attention of a nurse to the infirmary, and checking up on all illness and injury by granting the excuses required by the dean for those students who have been absent from classes because of either illness or injury. In matters of general health conditions the physical director is guided by the action of the college health committee and the advice of the Department of Microbiology.

4. During the winter months the department requires three hours of physical exercise per week for each member of the three lower classes. Those men who have been found by physical examination to be physically normal are permitted to elect one of the several athletic activities; those who have been found to be below normal physically are given individual instruction in so far as our present equipment will permit. Walking trips may be substituted for physical exercise in the gymnasium, and during the past year from 150 to 200 students have elected this form of exercise. The work of the indoor classes of from 30 to 40 men each consists of gymnastic exercises, — such games as basketball and indoor baseball.

The physical director is general manager of athletics, supervising arrangements for contests with other colleges, buying

supplies for the teams, assisting in the coaching, and having final control over players and games.

The interest in intercollegiate and intramural activities has been steadily growing. An accurate estimate of the participation in all sports during the year shows that in track about 75 men participated; cross country, 50; hockey, 75; baseball, 175; tennis, 25; football, 140; and basketball (other than required gymnasium), 40. After counting out duplications we find that approximately 50 per cent. of the student body voluntarily took part in some form of supervised athletic sport during the year.

The new athletic field is so far toward completion that the entire surface has been open to use this year. This has meant that many more opportunities for out-of-door recreation have been offered than it was ever possible to offer before. The fact that the running track is not completed is the greatest handicap now existing in the development of the general use of the total space. With the completion of the track I think it is very safe to say that the number of men participating in track athletics will be trebled.

The limited quarters in which the regular gymnasium work is to be carried on in the winter season make it impossible to do indoor gymnastics which can compare in any wise favorably with those of other colleges. From December 1 to April 1 the drill hall floor is in almost constant use from 8 o'clock in the morning until 9 o'clock at night.

The immediate pressing need of this department is a suitable gymnasium for the physical training of students during the winter months. Every student should receive gymnastic instruction and training of such a nature as to keep his physical education and development on a par with his mental development. Many of our students who should receive individual attention and treatment are neglected simply because the present building is too small, unsanitary and poorly equipped. A suitable gymnasium with a swimming pool is our greatest need.

The greatest problem of this department is to provide means for our students to follow out the exercises prescribed for them, and require those who are not themselves inclined to take exercise to take some form of systematic exercise at least three

times a week. With the completion of the athletic field our ideal of having every student take part in some form of active exercise may be realized for at least half the year, but during the winter months, when there is no military drill, and regular exercise is a necessity, we are confronted with the problem of finding forms of exercise which are possible with our present equipment.

CURRY S. HICKS,
Professor of Physical Education and Hygiene.

The Supervisor of Short Courses.

A. WINTER SCHOOLS.

Twenty-two courses were offered in the ten weeks' winter courses. The enrollment was 153.

Farmers' week was seriously interfered with by one of the most severe storms of the winter, so that the attendance was about one-half what it should have been.

A bankers' conference was held at the college for the first time. An effort was made to create more interest on the part of bankers in agriculture in the State; the attendance was 28, and we believe the effort was very much worth while.

The tree wardens' school was discontinued.

The county agents' conference, the Polish farmers' day, the apple-packing school and the beekeepers' school were held as usual, with increased attendance and interest.

B. SUMMER SCHOOLS.

The summer school of agriculture and country life was held with an increase in attendance over previous years of approximately 25 per cent. A good deal of effort was made to arrange the summer school so that it would appeal to groups of workers such as club leaders, rural school teachers, etc., with good success. Some forty-five courses were offered.

The conference on rural organization, usually held as a closing feature of the summer school, was omitted last summer on account of conflicts with work arranged by the graduate school of agriculture. A small conference of the executive officers of the organizations which assist in the conference on rural organization was held in October. At this time plans centering in the

work of the Massachusetts Federation for Rural Progress were discussed, and I feel these will show very good results later on.

The college was honored last summer by having the sessions of the American Branch of the English Folk Song and Dance Society held on the campus. Not only did this school bring more than one hundred people in touch with the college, but it also gave those who live in this community an entirely new idea and conception of the place which such things as folk songs and dancing may properly occupy in recreation, especially of our small towns.

Recommendations.

I can but reiterate what I have said before, but in stronger terms, if possible, as to the desirability and necessity of placing the supervision of the short courses in the hands of some one who can give them his undivided attention. They have grown to the point where to handle them properly would require the full time of a supervisor.

The short courses need better financial support. Heads of departments are calling for more extra instructors, and since they are no longer considered as extension work, they should be supported from the regular college budget.

Some of the shorter courses, however, are so closely connected with the extension work that I feel the new supervisor should have some official relationship to the director of the extension service.

Many demands are coming from different sections of the State, and from various classes of people, to have the short course enlarged. I feel that these demands should be met at the earliest possible moment.

There seems to be need of short courses and extension courses of the following kinds and grades: —

A. Short courses of college grade.
   For graduates of county agricultural schools.
   For graduates of departments of agriculture in high schools.
   For graduates of high schools not eligible to the four-year work.
   For graduates of liberal arts colleges who desire special work in agriculture.
   For persons over twenty-one years of age who are not prepared for regular four-year work.

B. Short courses of noncollege grade.
One year special technical course, *i.e.*, fruit growing, poultry, etc.
Continuation courses one year in length for graduates of county agricultural schools, or a department of agriculture in high school.
Winter schools of twelve weeks.
Summer schools of two, four, six or twelve weeks.

C. Courses in the nature of conferences or institutes one week or less (might be considered as extension work) such as —
Farmers' week.
Bankers' convention.
Conference of superintendents of State institutions.
Officers of farm bureaus.
County agents' conferences.
Conferences of fertilizer agents.
Conferences of milk inspectors.
Conferences of feed dealers.
Conferences of seed dealers.
Conferences of town officers.
Conferences of tree wardens.
Conferences of rural librarians.
Conferences of grange officers.
Conferences of judges at fairs.
Meetings of rural clergymen.
Meetings of county Y. M. C. A. workers.
Meetings of county Y. W. C. A. workers.
Officers of village improvement associations and for other groups that might be helped by the college.

It is the desire of the college to organize its short course work so that citizens of the State may have a chance to come to the college for help and assistance, be it for a period of three days, three months or for a year.

WILLIAM D. HURD,
Supervisor of Short Courses.

The Director of the Graduate School.

This autumn the enrollment in the graduate school is 57, as compared with 52 of a year ago. Of these, 18 registered for the degree of doctor of philosophy, 29 for the degree of master of science, 5 for the degree of master of agriculture, and 5 registered for no degree. These students come from a wide range of institutions and of territory. Probably we now have more students in the graduate school who were not undergraduates

at this college than we have of those who received their degree here. Last June 3 students received the degree of doctor of philosophy and 5 the degree of master of science.

Instruction.

Many of our best equipped instructors, who are capable of creative and valuable performance and also are needed in directing and suggesting for others who are beginners, are so burdened with routine duties and teaching that results of vital importance to agriculture are wanting. Daily routine grinding on the part of the instructors does not produce the best environment for undergraduate students, does not instill the right spirit into the graduate students who are destined to become the teachers, investigators and experts of the future, and does not contribute to the type of investigations which agriculture is now demanding. It is very much desired, therefore, that financial relief may come to alter this condition, for time, reflection and freedom for study and research are requisite to promote an agriculture which will be professionally on as high a plane as any other field of activity having science as its basis.

Degrees.

It is becoming more and more evident that the work of the institution falls into two broad divisions, one professional and the other scientific (broadly interpreted). Both of these, of course, are based upon the broad subjects which pertain to humanity and culture. These two grand divisions are respectively divided into several subdivisions or specialties. Experts of the most intensive training are demanded in each specialty. Graduate work or study and training are essential to the preparation of these experts, and recognition for this graduate work is measured by degrees.

In the scientific division, the higher degrees of master of science and doctor of philosophy have sufficed for all purposes.

The professional division, however, from time to time calls for more definite designations in order that the degree will specify the particular usefulness of the individual. This institution recognized the growing demand of this professional division by establishing the degrees of master of agriculture and doctor of

agriculture, and recently the graduate staff recommended the establishment of the degree of master of landscape architecture. The multiplication of degrees is seemingly reprehensible, but so far has been the only solution of the difficulties. How far this practice of increasing the number of degrees in connection with well-defined specialization should go is a question which no one has the power to answer offhand. The future only can determine the wise course. However this may be, whenever a course stands out conspicuously and apart from other courses and has a peculiar and well-defined purpose, it may be justifiable to create a degree having as much significance as the course which it represents.

When this is considered in the light of the fact that here in the United States very nearly one hundred different degrees are granted, and also when we must admit that the degree is nothing more than a certificate of definite educational attainment and experience, we must then conclude that these peculiarly specific degrees have an economic and educational value.

General Required Course for Graduate Students.

In a technical institution there is a great tendency to place the limits of education within the circumscribed technical pursuits. Students fail to grasp the broader relations of life and to become appreciative of such thoughts and activities as contribute to its richness and fullness. In order to supply this real want in our educational system in this institution, especially for those whom we are training for experts in the graduate school, a course has been outlined which will extend over three years. The students meet once each week for this period.

This series of studies has been propitiously and satisfactorily initiated by Prof. W. J. Newlin of Amherst College, who has been treating "Ten Great Philosophies" during the first term.

The courses planned are as follows: —

Art.
Literature.
Philosophy.
Logic.
Social Movements.
Philosophy of Science.
Philosophy of Practices.

Facilities for Graduate Students.

It has become a recognized policy on the part of the agricultural colleges of the country to foster graduate work for those who are intending to pursue some phase of intensive agriculture, whether professionally or scientifically. It is an accepted belief by many, too, that it is very desirable to conduct this advanced work in an atmosphere surcharged with agriculture.

While realizing this to be a good policy, it becomes necessary to consider those facilities which will develop within the graduate students the best type of scholarship and the best results of research.

Some of the departments are having difficulty because of material accommodations. There seems to be a growing feeling on the part of several departments that graduate assistants, at least, should be accommodated with private quarters in order that they may carry on their investigations without constant interference from others. This is especially pertinent at the present time to the Departments of Botany, Chemistry and Entomology. They have tried out a common-room plan for graduate students and have found it unsatisfactory, and would now like such modifications as will correct and improve this feature. Laboratories have found that the best research can be done only in seclusion.

The Department of Chemistry, too, suffers from obsolete physical conditions. The present building is unfit for chemical work as well as extremely dangerous. Students must necessarily suffer from such crude facilities as are available, and especially from those which are lacking entirely. We trust that the time may come in the very near future when these requests may be made real by increased State allowances.

Charles E. Marshall,
Director.

The Director of the Experiment Station.

There have been few changes in major positions on the station staff during the year. The frequent loss of promising assistants has rather seriously interfered with progress in certain lines of work. This loss has been due in almost all cases

to the fact that the salaries which we can pay are less than those paid by the Federal government and by similar institutions for work of the same class, or because of the far larger salaries offered in commercial work.

There has been no change in general policy and but little in lines of work in the experiment station during the year. Most of the problems under investigation are fundamental and will require considerable periods of time for thorough study. This, it will be understood, does not mean that results of immediate value in their application to our agriculture are not being secured. Thus, for example, we are studying numerous manurial and fertilizer problems, and in every line new lanes of darkness are constantly disclosed; our results nevertheless enable us meanwhile to give valuable suggestions. Precisely the same situation exists in connection with our study of feeding problems. Indeed, in almost every investigation progress establishes new facts which have a direct bearing upon practice, but at the same time discloses new vistas of needed inquiry. Frequent change in general lines of investigation not only is unnecessary, it would be highly undesirable. The general experimental work now embraces investigations in the following principal lines of inquiry: soil tests with fertilizers with different crops in rotation; comparison of the different materials available as sources respectively of nitrogen, phosphoric acid, potash and lime for both field and garden crops, with a view to determining the ultimate effects of each on the composition of the soil, the micro-organisms it contains and its physical characteristics; comparisons of different systems of fertilizing mowings and orchards; trial of different manures and fertilizers for both tree and bush fruits; comparison of methods of applying manures and fertilizers; variety tests of garden and field crops and fruits; tests of different spray materials and methods of spraying; comparisons of methods of pruning and of cover crops in orchard management; tests of nursery stock from different sources and of different ages; trials of new crops; determinations of the digestibility of feedstuffs; methods of feeding for milk; systems of feeding and management of poultry for eggs; efforts to determine the value and best methods of use of anti hog-cholera serum; studies upon the

diagnosis and transmission of avian tuberculosis; co-operation with selected farmers in the trial of crops and systems of fertilizing them.

In addition, the station is working upon certain research problems involving more fundamental and more strictly scientific investigation, and requiring the approval of the director of the Federal Office of Experiment Stations. The following are among the more prominent investigations of this class: —

1. To determine the principles which should underlie practice in the use of fertilizers for the cranberry crop.

2. Work in plant breeding, in the endeavor to produce more rust-resistant types of asparagus. (In co-operation with the Bureau of Plant Industry, United States Department of Agriculture.)

3. The effect of food on the composition of milk and butter fat and on the consistency or body of butter.

4. Why insecticides burn foliage.

5. Effects of meteorological conditions on the development of plants and crops, both in health and disease.

6. Relation of light to burning from spraying with fungicides and insecticides.

7. Relation of light to burning of vegetation from miscible oils.

8. Study of interrelation of stock and scion in apples.

9. The economic importance of digger wasps in relation to agriculture.

10. The diagnosis of white diarrhœa in adult fowls.

11. A study of the presence and disappearance of organic matter in soils; its influence upon fertility.

12. A study of so-called "tobacco sickness."

The last two have been taken up during the past year; the others named have already engaged our attention for some time.

The fertilizer work with asparagus at the substation in Concord has been discontinued, and definite advice, based upon its results, is given in the twenty-eighth annual report. A second distribution in small lots of roots and seed of rust-resistant strains of asparagus developed in this station was made last spring. Reports both from the 1915 distribution and from that

of this year, as yet incomplete, are in general favorable; but the fact that neither year was one of abundant rust infestation has prevented what can be regarded as a severe and therefore thoroughly satisfactory test.

The research investigations of mosaic disease of tobacco, it is believed, have demonstrated the active causes and have accordingly made it possible to give advice which we are confident will prevent serious injury from this cause. Dr. Chapman who was engaged in these investigations has, therefore, been authorized to undertake the study of what now seems to be a much more serious obstacle to profitable tobacco growing, — the so-called tobacco sickness, — a trouble which has already rendered success with the crop impossible on a considerable acreage which a few years ago was giving fine crops. In this investigation he is to receive such co-operation from the chemists, bacteriologists and mycologists of the station as developments indicate to be desirable. It is anticipated that the tobacco growers of the valley will endeavor to procure in the next session of the Legislature an appropriation to at least in part support this work.

The participation of the experiment station in the work of the market garden substation promises to develop in many important ways. Little can be done, of course, until the market garden station is thoroughly established and funds have been provided for its maintenance.

During the past year the trustees have authorized the employment of an assistant chemist to work in animal nutrition problems, under the immediate oversight of Dr. J. B. Lindsey. The first work to be undertaken will be an investigation of questions connected with the feeding of horses. Accommodations for this work will be provided by extensive changes already nearly completed in the building formerly used as the station creamery. Mr. C. L. Beals, who has served as assistant in the Department of Chemistry since 1912, has been appointed to the new position, and this line of investigation will begin within a few weeks.

The Needs of the Station.

The Purchase of the Tillson Farm and the Provision of Buildings for Experimental Work. — The Tillson farm is leased on very reasonable terms and the lease still has six years to run. The agreement for lease provides that the college may purchase the farm at any time within the six years, and for a price which does not exceed its normal market value. The purchase can be consummated at so reasonable a price that to fail to complete the transaction would be very short-sighted business policy. In view, however, of the fact that the option still has six years to run, it might be thought that purchase in the near future is not urgent. The fact is, however, that but very little experimental work on this farm will be possible except at very great disadvantage previous to the provision of buildings to be used in connection with the work. It would self-evidently be more than questionable as a matter of business policy to erect buildings on the farm so long as any uncertainty exists as to the ultimate acquisition of the property. It has been found absolutely necessary to make a few changes and repairs in the small cottage and to reshingle the tobacco shed standing on the property. These changes and repairs have cost rather over $500. Before we can undertake much experimental work on the farm — and we have a considerable number of pressing problems the solution of which we should undertake there — we shall find it necessary to erect a barn; and a house for the superintendent should also be provided. For the purposes indicated, the estimated sums needed are as follows: —

Purchase price of farm (definite agreement),	$5,000
Dwelling house for superintendent,	4,000
Barn and outbuildings,	6,000
Total,	$15,000

Land for Experimental Work with Poultry. — The need for additional land for experimental work with poultry, several times referred to in earlier reports, yearly becomes more imperative. The problems of breeding upon which we are engaged necessitate the rearing of very large numbers of birds, and these

to serve the purpose in view must be vigorous and healthy. Such stock is practically assured if chicks from sound birds can be reared on fresh range, but can hardly be secured otherwise. Since the area now available for poultry work is so small that the provision of satisfactory range within its limits is impossible, the lease of additional land is the only alternative if the work is to be successfully prosecuted, — an alternative unsound for business reasons which have previously been stated, and involving other serious disadvantages, chief among which is distance from the poultry center of the institution. The needs of this important branch of our work will be met only when we are provided with a farm for experimental purposes of sufficient size to allow the necessary rotations in the use of its different parts to insure uncontaminated areas annually for rearing experimental stock. The head of the department believes — and in his estimate I coincide — that at least sixty acres will be required. The amount of money which will be needed to purchase the required amount of satisfactory land is at present a matter of great uncertainty, but I do not feel that it will be prudent to estimate it at less than $8,000.

The Tuxbury Land. — The Tuxbury property, now leased for orchard experiments, should be acquired by purchase in the near future. The reasons have been previously stated in some detail. Both sound business policy on the part of the State and such security of tenure as will insure against untimely interruption to the work require that this be done. The estimated cost is $12,000.

Orchard Trees for the Entomological Department. — For the research work of the Entomological Department on insecticides, it is essential that about one acre planted to fruit trees of different kinds be placed under its absolute control. Experience has indicated that only under such control is it possible to obtain results in the integrity of which absolute confidence can be placed. The nature of the investigation is such, and the number of visits for treatment and observation required is so great, that if possible a location near the headquarters of the department should be secured. It is hoped that this need can be met by assignment of orchard already planted and now the property of the institution.

Land for Tobacco Investigations. — Reference has been made in this report to the investigation of tobacco sickness which has recently been begun. In connection with this investigation a moderate amount of plot work will be essential; but since this in the nature of things must for the most part be located on land which is suffering from the trouble under investigation, and since work in a number of different localities will be desirable, it seems best to lease rather than to undertake to purchase the land needed in this investigation. The estimated cost for the year 1917 is $350.

Buildings and Equipment for Market-garden Work. — The necessity for buildings — most important being glass houses adapted to vegetable growing — and equipment for the market-garden work has been referred to. This need cannot be met out of the current resources of the station without such degree of curtailment in other directions as is clearly impracticable.

Additional Experimental Work with Poultry. — There is much demand for an increase in the amount of our experimental work with poultry, far greater than can be met with present resources. An annual grant of $2,000 for this purpose is much to be desired. It is believed and hoped that the poultry keepers of the State will endeavor to secure such an appropriation.

Increases in Station Staff. — If the station is to meet the constantly increasing demands upon it on the part of the public, a gradual increase in the station staff must be provided for. There is already decided pressure for experimental work in rural engineering, in floriculture and in forestry. This demand with our present resources cannot now be met, but the following increases in station staff are so urgently needed that an effort is to be made to provide for them out of current funds: namely, a curator and a field pathologist in the Department of Botany; a high-grade assistant in the Department of Entomology; one graduate assistant each in the Departments of Agricultural Economics and Microbiology; and a stenographer for six months in each year — from May 1 to November 1 — for the cranberry substation. The dates at which it is hoped the employment of each can be made effective, and the estimated annual salaries, are as follows: —

Curator, Department of Botany, from Dec. 1, 1916,	$900
Field pathologist, Department of Botany, from April 1, 1917,	1,200
Assistant, Department of Entomology, from July 1, 1917,	1,800
Graduate assistant, Department of Agricultural Economics, from July 1, 1917,	420
Graduate assistant, Department of Microbiology, from July 1, 1917,	420
Stenographer, cranberry substation, from May 1, 1917,	300

I feel that attention should be called in conclusion to the fact, which finds illustrations in this experiment station, that a high degree of fruitfulness in investigation is not often realized except with a corresponding degree of concentration. Of course, the individual talent and characteristics will always largely determine the result; but these being equal, one man devoting practically all of his time to investigation will accomplish several times more than two men devoting one-half time to that line of work and subject to constant interruptions. This matter has frequently been under discussion in the annual conventions of experiment station directors and workers, and it will not surprise those who know the laws of the human mind that the views just expressed meet general acceptance. It is my belief that the following statement of policy is sound and that our efforts should be increasingly directed toward its early realization.

The Station Staff.

1. It should be the policy of the station in its main lines of investigation to employ in the work men who shall give their entire time to such work. This does not mean that in some cases station men may not do some teaching or extension work, but such work should be restricted to narrow limits. Experience in all stations has shown that a man will be fruitful as an investigator only if his time is but very little taken up by calls upon him for service in other directions. The teaching expected of station men should at most occupy only a small proportion of their time, and as a rule should be confined to advanced work and for the most part to graduate students engaged in research under them. An investigator should not be subject to frequent calls for extension service. Such calls lessen efficiency in sta-

tion work to a degree altogether disproportionate to the apparent consumption of time.

2. The division of individual salaries between college and station should be avoided as far as possible. Those men who are recognized as primarily engaged in college work should be paid exclusively from college funds, and, on the other hand, those men engaged primarily in station work, even though they do some college or extension work, should be paid exclusively from station funds. They should be recognized as station men and should be responsible through the heads of their respective departments to the director of the station. Equity as between college and station on the financial side can be easily provided for on the general principles above stated.

In making the statement concerning the needed increases in the station staff, the gradual realization of this policy has been in mind, and full provision for these increases will be an important step toward its realization.

WILLIAM P. BROOKS,
Director.

The Director of the Extension Service.

In presenting this report I have not attempted, as in former years, to describe the work of the extension service, but confine the discussion to what seems to me to be some of the significant features of our work of the past year.

The extension work of the past year has not been characterized by expansion. Lack of funds prevented the starting of any new lines of work. I do not feel, however, that the work has stood still nor gone backward. The year has been rather one of opportunity to "take stock," and to organize the extension work in its relationships to other departments of the college and to other agencies throughout the State on a far better and more satisfactory basis than formerly. Our extension specialists have studied their fields more thoroughly, have considered their work in its relationship to rural development, and have organized their work with greater care than in the past. And so I feel that very great progress has been made toward developing a State-wide unified and harmonious system of extension teaching for the Commonwealth.

Some of the More Important Features of the Work during 1916.

Several significant features of the work seem to suggest themselves.

1. *County Agent Work.* — The year has been one of marked progress in the organization of farm bureaus. Three new organizations have been started. None have failed. Middlesex, Dukes and Nantucket are the only counties not organized. The first of these will incorporate an organization on December 16. The work in the farm bureaus has been placed on a written project basis, relationships are more clearly defined, farm bureau officers have a better idea of the purpose of their bureaus, the county agents know their field better and are restricting their efforts to fewer lines of work. A significant thing has been the growth of work for women in four counties. Two other counties are to place agents in the field soon.

2. *Junior Extension Work.* — The boys' and girls' club work continues to be our largest and perhaps most popular activity. The development of junior extension work under the wise direction of Mr. Farley will, I think, far surpass any of the work done in the past, although the enrollment may not be so large as in previous years.

There is need of securing the passage of a law giving aid to towns or districts to help maintain supervisors, for adequate follow-up work is in our judgment the thing most needed at present.

3. *Co-operation between the College and the State Board of Agriculture.* — I cannot help but feel that the efforts to bring the trustees of the college and the members of the Board of Agriculture together, in order that there might be a division of labor, a definition of the field each organization is to cover, and the fact that these two boards have met in the spirit already shown, is really one of the achievements of the year.

4. *Rural Organization.* — More progress has been made in organized movements in agriculture in the Commonwealth during the past year. Thirteen new co-operative organizations for buying and selling have been brought into existence; 30 are

now in successful operation. College men and county agents have been leaders in the movement to organize the milk producers. Our publication on "The Cost of Milk Production" and the advance copy of "The Cost of Milk Distribution" have been taken as the authority on which to discuss the situation by all parties concerned. Especial mention should be made here of the great piece of work which has been done by the county agents in organizing the milk producers of the State and in bringing about a better adjustment of the dairy situation during the past few weeks.

5. *Local Community Organization.* — A goodly portion of Professor Morgan's time the past year has gone into important service connected with the development committee and the Massachusetts Federation for Rural Progress. The local community organization work, therefore, has not been prosecuted with the same vigor as in the previous year. Neither has the proper amount of follow-up work been put on communities which had become partially organized. I doubt whether we can afford to neglect the community organization work.

6. *Committee on Publications.* — The committee on publications has been supervising the issuing of all our publications, and I feel that our extension publications are now being issued on a standard which will bear comparison with any others in this country.

7. *Finances.* — Notwithstanding that we have had so many calls for more work, the fact that we came through the year with a balance of $2,572.75, in addition to the reserve and emergency fund, is worth mentioning.

8. *University Extension for the Connecticut Valley.* — During the year this college has joined with Amherst, Smith, Mount Holyoke, the International Y. M. C. A. College, and the Northfield institutions in a co-operative movement to offer university extension work to the people of the Connecticut valley and adjacent towns. This is in accordance with plans suggested by the University Council of Massachusetts for State-wide extension work. A large and comprehensive announcement has been distributed. The University Extension Bureau of the State Board of Education has assigned an agent to organize the work. His headquarters are at this college.

9. *Relationships to the United States Department of Agriculture.* — Our relationships to the United States Department of Agriculture have been most friendly and satisfactory. The work which they have desired to do has generally been carried on in accordance with the general memorandum of understanding, and minor difficulties have been quite easily adjusted.

10. *National Dairy Show.* — The coming of the national dairy show to Springfield seemed to place a peculiar obligation on this college. Ten or more members of our faculty put in a large amount of time in helping to make the show a success. I estimate that we spent between $2,000 and $3,000 in time and money in the work that we did.

Comments on the Work.

There are many problems which we are facing now and will have to face in the immediate future.

Perhaps the most important of these is adequate financial support for extension work. During the past year the following amounts have been spent for extension work in this State: —

1. State funds (apportionment 1915–16),		$43,032 59
2. Smith-Lever funds,		12,930 75
3. United States Department of Agriculture co-operative demonstration funds,		17,026 00
4. Funds raised by county organizations: —		
(*a*) County funds,	$37,200 00	
(*b*) Funds raised from other sources,	28,900 00	
		66,100 00
Total,		$139,089 34

The above sums do not include the appropriation of $50,000 made to the State Board of Education for extension work, the amount spent by the Board of Agriculture in the educational work which it does, the money expended by the county schools of agriculture and vocational departments, nor the money being spent by commercial concerns and individuals.

I feel that in a short time all these agencies will be called to account, and that every effort should be made to hold our college extension work, and also that carried on by organiza-

tions with which we co-operate, to such lines as can be justified before any Legislature or commission.

There are problems of adjustment to be still worked out as between the college, the State Board of Education, the State Board of Agriculture and other organizations, but these things I believe to be only a matter of time.

The relationships between our extension specialists and the county agents comprise a question which is being solved, and in my judgment, as county agent work finds its level these relationships will be easily adjusted. In fact, this problem is working itself out. Unless every county organization in this State is to maintain a corps of specialists comparable in number to the extension service of the college, the problem seems to me to be a rather simple one.

In what has been said I would not convey the impression that the organization of extension work in this institution has been perfected. Much progress has been made in the past year. A complete reorganization of our work into divisions co-ordinate with county agent work and junior extension work, with the idea of really taking hold of the organization of rural problems, will perhaps be the next step. However, little can be done in this direction until there is some relief given to the extremely stringent financial condition in which we find ourselves placed. The college through its extension work will no doubt function more and more as an organizer and administrator of large State-wide movements designed to affect the rural life of the State.

This college should extend its efforts to prepare men for service in the extension work field. There no doubt will be a large call for assistant county agents in the future, and for various lines of work which may be carried on under the Smith-Lever act in other States.

In conclusion, I can but reiterate what I have said before, that at the present time extension work in Massachusetts is organized on a fairly satisfactory basis. The extension service within the college articulates with the other activities of the college and station. Harmonious relationships exist between the college, the United States Department of Agriculture, the other State organizations and the farm bureaus. Differences

in opinion as to what work should be done, and the best methods of organizing, are being worked out in a frank, friendly spirit.

The call is even stronger than a year ago for the development of several new lines of work and for the better support of lines already started. Among the extension specialists most needed are: —

A supervisor of "itinerant instruction" to organize extension schools, exhibits, lecture courses, etc.

An extension specialist to work with the other State institutions, as mentioned in previous reports.

More extension specialists in correspondence courses, poultry husbandry, fruit growing, farm management demonstrations and home economics.

More supervision in the junior extension work.

Additional extension specialists for agronomy, injurious insects and diseases, beekeeping, work with foreigners, and also as advisers to such organizations as the Homestead Commission and others.

Also considerable more clerical assistance.

The cost of maintaining this extra work would be from $40,000 to $50,000 in addition to what we are now receiving. The detailed estimates were made by me in the 1914 and 1915 reports.

It is to be hoped that the work of the past seven years will have proved its value, so that Legislatures in the not distant future will take care of these ever-growing demands for work which means developing the industries of the State.

I wish, as in former years, to mention and commend the spirit shown by the extension specialists and the untiring energy which they put into developing their work. As I look over the extension work of other colleges, I fail to find a corps of workers more devoted to their tasks or more loyal to their institutions than are the men and women who make up our staff.

WILLIAM D. HURD,
Director.

TABLES AND STATISTICS.

Table I. — *New Appointments.*

A. In the Academic Departments.

Position.	Name.	Institution from which graduated and Degrees.
Instructor in zoölogy,	Stanley C. Ball,	Ph.B., Sheffield Scientific School, 1911; Ph.D., Yale University, 1915.
Instructor in dairying,	Harry D. Drain,	B.Sc.Agr., Ohio State University, 1913.
Field agent,[1]	Charles H. Gould,	B.Sc., Massachusetts Agricultural College, 1916.
Assistant in agricultural economics,	Ralph P. Hotis,[2]	B.Sc., Massachusetts Agricultural College, 1915.
Instructor in botany,	George W. Martin,	Litt.B., Rutgers College, 1912; M.Sc., Rutgers College, 1915.
Assistant in rural sociology,[1]	Joseph Novitski,	Oshkosh, Wis., State Normal School.
Assistant professor of English,	Charles H. Patterson,	A.B., Tufts College, 1887; A.M., Tufts College, 1893.
Assistant in English,[1]	Philip W. Payne,	A.B., Amherst College, 1914.
Shop assistant, rural engineering,[1]	George F. Pushee,	– – –
Instructor in poultry husbandry,[1]	Everett H. Rucker,	B.Sc., University of Missouri, 1915; A.M., University of Missouri, 1916.
Instructor in agricultural economics,	Ralph M. Rutledge,	B.Sc., Oregon Agricultural College, 1914; M.Sc., University of Wisconsin, 1915.
Assistant professor of horticulture,[1]	John T. Wheeler,	B.Sc., University of Wisconsin, 1916.

B. In the Experiment Station.

Assistant chemist,	Windom A. Allen,	B.Sc., Tufts College, 1916.
Assistant in veterinary science,	John B. Lentz,	A.B., Franklin and Marshall College, 1908; V.M.D., University of Pennsylvania, 1914.
Assistant chemist,	John B. Smith,	B.Sc., Tufts College, 1916.

C. In the Extension Service.

Extension associate professor of agricultural economics.	Edward F. Damon,	B.Sc., Massachusetts Agricultural College, 1910.
Supervisor of junior extension,	George L. Farley,	B.Sc., Dartmouth College, 1898; M.Sc., Dartmouth College, 1903.
Extension instructor in pomology,	Austin D. Kilham,	A.B., Drury College, 1913; B.Sc. University of Missouri, 1914.
Extension instructor in civic improvement.	Frank A. C. Smith,	B.Sc., Cornell University, 1912; M.L.A., Harvard University, 1914.
Extension instructor in charge of pig club work.	Victor A. Rice,[3]	– – –
Extension instructor in charge of poultry club work.	Roswell W. Henninger,[4]	– – –

[1] New positions.

[2] Temporary employment from March to June.

[3] Services to begin Dec. 4, 1916.

[4] Services to begin Jan. 1, 1917.

TABLE I. — *New Appointments* — Concluded.

D. In the Clerical Staff.

POSITION.	Name.
Chief clerk, Extension Service,	Elbert L. Arnold.
Clerk, Division of Horticulture,	Eleanor Barker.
Clerk, president's office,	Evelyn Brewster.
Stenographer, Extension Service,[1]	Doris Clark.
Cataloguer, library,	Lalia M. Damon.
Inventory clerk, treasurer's office,[1]	Maude Chambers.
Assistant, Department of Physical Education,[1]	Llewelyn L. Derby.
Stenographer, Division of Agriculture,	Hazel Dewar.
Clerk, graduate school,	Marion F. Dondale.
Stenographer, Department of Dairying,[1]	Katherine L. Fenton.
Stenographer, office of the dean and registrar,[1]	Margaret T. Gaskell.
Clerk, Department of Agricultural Economics,	Laura M. Hager.
Clerk, Division of Agriculture,	Mary G. Hanifin.
Clerk, Extension Service,	Ethel L. Kennedy.
Stenographer, Department of Entomology,[1]	Helen A. Martin.
Stenographer, Extension Service,	Gladys Miner.
Clerk, Department of Botany,	Grace B. Nutting.
Stenographer, Extension Service,	Marion Pomeroy.
Assistant, library,	Vivian L. Roy.
Stenographer, Division of Horticulture,	Ethelyn Streeter.
Clerk, Extension Service,	Flora E. Torrey.
Assistant, library,	Ethel M. Turner.

[1] New positions.

TABLE II. — *Resignations.*

POSITION.	Name.
Instructor in dairying,	Harold E. Baldinger.
Instructor in zoölogy and geology,	Frank N. Blanchard.
Extension instructor in charge of boys' and girls' pig club work,	Eric N. Boland.[1]
Clerk, Division of Agriculture,	Frances C. Boynton.
Clerk, president's office,	Bertha A. Brockhaus.
First clerk, Extension Service,	Mabel R. Case.
Cataloguer, library,	Ada M. Chandler.

[1] Takes effect Dec. 2, 1916.

TABLE II. — *Resignations* — Concluded.

POSITION.	Name.
Stenographer, Extension Service,	Phyllis J. Cogswell.
Clerk, Department of Botany,	Jessie V. Crocker.
Assistant chemist, experiment station,	Charles W. Davis.
First Clerk, Division of Agriculture,	Alice M. Gilbert.
Clerk, Extension Service,	Hannah M. Griffin.
Professor of agronomy,	Sidney B. Haskell.
Assistant in agricultural economics,	Ralph P. Hotis.
Clerk, graduate school,	Esther L. Houghton.
Extension professor of agricultural education,	Orion A. Morton.
Assistant in veterinary science, experiment station,	Beryl H. Paige.
Stenographer, Extension Service,	Marion Pomeroy.
Assistant in agricultural economics,	Frederick W. Read.
Extension instructor in pomology,	Ralph W. Rees.
Assistant chemist, experiment station,	Rudolph W. Ruprecht.
Clerk, Division of Horticulture,	Gladys E. Russell.
Stenographer, Extension Service,	Elsa Slattery.
Clerk, Department of Floriculture,	Dorothy F. Smith.
Assistant professor of English,	Henry E. Smith.
Assistant in botany,	Raymond G. Smith.
Professor of botany,	George E. Stone.
Assistant in veterinary science, experiment station,	Arnold P. Sturtevant.

TABLE III. — *Change in Title of Officers of the Institution.*

NAME.	Former Title.	Present Title.
Ernest Anderson,	Associate professor of general and physical chemistry.	Professor of general and physical chemistry.
Paul J. Anderson,	Assistant professor of botany,	Associate professor of botany and associate plant pathologist.
Thomas Butterworth,	Assistant engineer,	Engineer.
George H. Chapman,	Assistant botanist,	Research physiologist.
Orton L. Clark,	Assistant botanist, experiment station.	Assistant professor of botany and assistant plant physiologist.
Harold M. Gore,	Assistant in physical education,	Instructor in physical education.
Marion Guertin,	Stenographer, section of beekeeping.	Clerk, section of beekeeping.
Burt A. Hazeltine,	Assistant in mathematics,	Instructor in mathematics.
Curry S. Hicks,	Associate professor of physical education and hygiene.	Professor of physical education and hygiene.
Arao Itano,	Assistant in microbiology,	Instructor in microbiology.

TABLE III. — *Change in Title of Officers of the Institution* — Concluded.

NAME.	Former Title.	Present Title.
A. Vincent Osmun,	Associate professor of botany,	Professor of botany and botanist.
Sumner R. Parker,	Assistant State leader and extension professor of rural organization.	Extension professor of rural organization and county agent leader.
Loyal F. Payne,	Instructor in poultry husbandry,	Assistant professor of poultry husbandry.
Charles A. Peters,	Associate professor of inorganic and soil chemistry.	Professor of inorganic and soil chemistry.
Aurelia Wentworth,	Stenographer, Division of Agriculture.	First clerk, Division of Agriculture.

TABLE IV. — *Speakers for the Year.*

A. Speakers at Wednesday Assembly for Year ending Nov. 30, 1916.

1915.

Dec. 1. — President Kenyon L. Butterfield.
Dec. 8. — Student forum.
Dec. 15. — Hon. Elmer A. Stevens, Boston, Mass.

1916.

Jan. 5. — Prof. John Phelan, M. A. C.
Jan. 12. — Hon. Francis Neilson, M. P., England.
Jan. 19. — Mr. Francis B. Sayre, Williamstown, Mass.
Jan. 26. — Mr. Jerome Kidder and colored quartet from Hampton Institute, Va.
Feb. 9. — Student forum.
Feb. 16. — Mr. Raymond Robins, Chicago, Ill.
Feb. 23. — Dr. W. H. Jordan, Geneva, N. Y.
Mar. 1. — Mr. Lucius Wilson, Springfield, Mass.
Mar. 8. — Prof. Robert J. Sprague, M. A. C.
Mar. 15. — Prof. Alva Agee, New Brunswick, N. J.
Mar. 22. — President J. H. F. Main, Grinnell College, Iowa.
Apr. 5. — President Kenyon L. Butterfield.
Apr. 12. — Mr. Clarence P. Shedd, Boston, Mass.
Apr. 26. — Mr. Harry W. Kimball, Boston, Mass.
May 3. — Hon. James Wilson, Iowa.
May 10. — Judge Michael J. Murray, Boston, Mass.
May 17. — Prof. Talcott Williams, Columbia University, New York City.
May 24. — Hon. John Hays Hammond, New York City.
May 31. — President Kenyon L. Butterfield.
June 7. — Student forum.
Sept. 27. — President Kenyon L. Butterfield.
Oct. 4. — Dean Edward M. Lewis, M. A. C.
Oct. 11. — President Kenyon L. Butterfield.
Oct. 18. — Mr. Fred B. Freeman, New York City.
Oct. 25. — Mr. George W. Coleman, Boston, Mass.
Nov. 1. — Student forum.
Nov. 8. — Mr. Henry H. White, Amherst, Mass.
Nov. 15. — Dean William M. Warren, Boston University, Boston, Mass.
Nov. 22. — Hon. Samuel J. Elder, Boston, Mass.

TABLE IV. — *Speakers for the Year* — Concluded.

B. Speakers at Sunday Chapel for Year ending Nov. 30, 1916.

1915.

Dec. 5. — Rev. J. Stanley Durkee, Campello, Mass.
Dec. 12. — Prof. Walter Rauschenbusch, Rochester, N. Y.

1916.

Jan. 9. — Dr. Hubert C. Herring, Boston, Mass.
Jan. 16. — Rev. Rockwell H. Potter, Hartford, Conn.
Jan. 23. — Rev. Roger S. Forbes, Dorchester, Mass.
Jan. 30. — Rev. Frank W. Merrick, Danvers, Mass.
Feb. 13. — Rev. E. A. E. Palmquist, Cambridge, Mass.
Feb. 20. — Rev. H. Stiles Bradley, Worcester, Mass.
Feb. 27. — Prof. Benjamin T. Marshall, Dartmouth College, Hanover, N. H.
Mar. 5. — Rev. E. F. Sanderson, Brooklyn, N. Y.
Mar. 12. — Rev. J. Herman Randall, New York City.
Mar. 19. — Dr. Cornelius H. Patton, Boston, Mass.
Apr. 9. — Rev. Christian F. Reisner, New York City.
Apr. 16. — Rev. J. Ross Stevenson, Princeton, N. J.
Apr. 23. — Dr. Lee W. Beattie, New York City.
Apr. 30. — Rev. A. P. Reccord, Springfield, Mass.
Oct. 1. — President Kenyon L. Butterfield.
Nov. 12. — Dr. Richard C. Hughes, Madison, Wis.
Nov. 19. — Rev. Clarence J. Hawkins, Jamaica Plain, Mass.
Nov. 26. — Mr. Fred B. Smith, New York City.

TABLE V. — *Attendance.*

A. In Work of College Grade.

	Registration Nov. 30, 1915.	Registration Nov. 30, 1916.
Senior class,	108	104
Junior class,	110	138
Sophomore class,	162	174
Freshman class,	211	170
	591	586
Graduate students,	52	57
Unclassified students,	25	29
Vocational poultry students,	–	8
	668	680

B. Short-Course Enrollment and Convention Registration.

	1915.	1916.
Winter school,	182	153
Farmers' week,	–	980
Beekeepers' school,	–	10
Polish farmers' day,	–	220
Apple-packing school,	19	8
County agents' conference,	38	55
Bankers' conference,	–	28
Summer school of agriculture and country life,	162	170
Conference on rural community planning,	261	–
Conference on rural organization,	–	38
School for rural social service,	14	35
Poultry convention,	600	268
School for library workers,	25	–
Boys' camps,	92	88
Girls' camps,	13	27
	1,406	2,080

TABLE VI. — *Legislative Budget, 1916.*

ITEMS.	Amount asked.	Amount granted.
Completion of power plant,	$35,000	$4,200
Library and equipment,	230,000	–
Rural engineering shops,	12,000	12,000
Student dormitory,	40,000	–
Miscellaneous improvements and new equipment,	60,000	20,000
Extra labor, Saturday half-holiday,	5,000	–
Mount Toby forest tract,	30,000	30,000
	$412,000	$66,200

TABLE VII. — *Statistics of Freshmen entering Massachusetts Agricultural College, September, 1916.*

A. Home Addresses of Students (classified by Towns and Cities).

Acushnet, 1	Holden, 1	Royalston, 1
ALBANY, N. Y., 1	HOLYOKE, 2	RUTHERFORD, N. J., 1
Amherst, 10	Hopedale, 1	San Antonio, Tex., 1
Arlington, 3	Jefferson Valley, N. Y., 1	Sandwich, 2
Atlantic, 1	Kingston, 1	Sandy Hook, Conn., 1
Belchertown, 2	Lancaster, 1	Santo Domingo, 1
Bolton, 1	LAWRENCE, 1	Shelburne, 1
BOSTON, 10	Lee, 1	Sherborn, 1
Boylston, 1	Leicester, 1	Shrewsbury, 1
Braintree, 1	LEOMINSTER, 1	Somerset, 1
Bridgewater, 1	LOWELL, 3	SOMERVILLE, 3
BROCKTON, 2	Lunenburg, 1	SPRINGFIELD, 5
Buckland, 1	LYNN, 1	Stamford, Conn., 1
Byfield, 1	MALDEN, 3	Sunderland, 1
Canton, 1	Manchester, 1	Syracuse, Ind., 1
CANTON, CHINA, 1	MARLBOROUGH, 2	TAUNTON, 3
Clinton, 1	Maynard, 2	Waban, 1
Dana, 1	MELROSE, 4	Walpole, 1
Dighton, 1	Milford, 1	WALTHAM, 1
Easthampton, 1	Millbury, 1	Wareham, 1
Easton, 1	Millville, N. J., 1	Warren, 1
Egypt, 1	Montvale, N. J., 1	Warwick, R. I., 1
FALL RIVER, 1	NEWBURYPORT, 2	Waverley, 1
Farmington, Conn., 1	NEWPORT, R. I., 1	Wellesley, 2
Florence, 1	NEWTON, 3	West Bridgewater, 1
Framingham, 5	NEW YORK CITY, N. Y., 1	West Springfield, 1
Gardner, 1	NORTH ADAMS, 1	Whitinsville, 1
Gleasondale, 1	Norwell, 1	Whitman, 1
Grafton, 1	Old Westbury, L. I., N. Y., 1	Williamsburg, 1
Great Barrington, 6	Peabody, 1	Williamstown, 2
Greenwich, Conn., 1	PITTSFIELD, 4	Winchester, 3
Groton, 1	Plainville, 1	Winthrop, 1
Hardwick, 1	Port Chester, N. Y., 1	Wollaston, 3
Harrisville, R. I., 1	PORTLAND, ME., 1	Woods Hole, 1
HARTFORD, CONN., 1	Raynham Centre, 1	WORCESTER, 2
HAVERHILL, 1	Reading, 1	

TABLE VII. — *Statistics of Freshmen, etc.* — Continued.

B. Home Addresses (classified by States).

	Number.	Per Cent.		Number.	Per Cent.
China,	1	.59	New York,	5	2.94
Connecticut,	5	2.94	Rhode Island,	3	1.76
Indiana,	1	.59	Santo Domingo,	1	.59
Maine,	1	.59	Texas,	1	.59
Massachusetts,	149	87.65		170	100.00
New Jersey,	3	1.76			

C. Home Addresses (classified by Counties of Massachusetts).

	Number.	Per Cent.		Number.	Per Cent.
Barnstable,	3	2.01	Middlesex,	38	25.50
Berkshire,	14	9.40	Norfolk,	9	6.04
Bristol,	9	6.04	Plymouth,	9	6.04
Essex,	8	5.37	Suffolk,	12	8.05
Franklin,	3	2.01	Worcester,	21	14.09
Hampden,	8	5.37		149	99.99
Hampshire,	15	10.07			

D. Nativity of Parents.

	Number.	Per Cent.
Neither parent foreign born,	124	72.94
Both parents foreign born,	33	19.41
Father (only) foreign born,	7	4.12
Mother (only) foreign born,	6	3.53
	170	100.00

E. Education of Father.

	Number.	Per Cent.
Common school,	83	48.82
High school,	41	24.12
Business school,	13	7.65
College or university,	28	16.47
No statistics,	5	2.94
	170	100.00

TABLE VII. — *Statistics of Freshmen, etc.* — Continued.

F. Religious Census.

	Membership.		Preference.		Totals.	
	Number.	Per Cent.	Number.	Per Cent.	Number.	Per Cent.
Baptist,	13	7.65	8	4.71	21	12.35
Catholic,	14	8.24	–	–	14	8.24
Congregationalist,	46	27.06	31	18.24	77	45.29
Episcopal,	13	7.65	–	–	13	7.65
Hebrew,	4	2.35	3	1.77	7	4.12
Methodist,	10	5.88	5	2.94	15	8.82
Presbyterian,	3	1.77	1	.59	4	2.35
Unitarian,	3	1.77	1	.59	4	2.35
Universalist,	1	.59	3	1.77	4	2.35
Miscellaneous,	3	1.77	4	2.35	7	4.12
No statistics,	–	–	–	–	4	2.35
	110	64.73	56	32.96	170	99.99

G. Occupation of Father.

	Number.	Per Cent.
Agriculture and horticulture,	34	20.00
Artisans,	45	26.47
Business,	41	24.12
Deceased, or no statistics,	13	7.65
Miscellaneous,	11	6.47
Professional,	23	13.53
Retired,	3	1.77
	170	100.01

H. Intended Vocation of Student.

	Number.	Per Cent.
Agriculture or horticulture (practical),	62	36.47
Agriculture or horticulture (professional),	70	41.18
Miscellaneous,	–	–
Professions,	4	2.35
Undecided or no statistics,	34	20.00
	170	100.00

TABLE VII. — *Statistics of Freshmen, etc.* — Concluded.

I. Farm Experience.

	Number.	Per Cent.
Brought up on a farm,	53	31.18
Not brought up on a farm and having had no or practically no farm experience.	51	30.00
Not brought up on a farm but having had some farm experience.	66	38.82
	170	100.00

J. Miscellaneous Statistics.

Average age,	19.16 years.
Number signifying their intention to seek student labor,	94 (55.30 per cent.)
Number boarding at the college dining hall,	117 (68.82 per cent.)

TABLE VIII. — *Entrance Statistics of Freshman Class.*

Number of applications (preliminary applications number 54),		352
Admitted,	202	
Matriculated,	170	
Failed to report,	32	
Rejected,	150	
Total,		352
Matriculated on certificate,		74
Matriculated on examination,		14
Matriculated on certificate and examination,		69
Matriculated on credentials from another college,		5
Re-entered,		8
		170
Matriculated without condition,		108
Matriculated with condition,		62
		170

TABLE IX. — *Cases treated at the Infirmary, Dec. 1, 1915, to Nov. 30, 1916.*

	Daily Count.	Individual Count.
December 1, 1915, to January 1, 1916: —		
House cases,	62	15
Out-patients,	26	25
January 1 to February 1: —		
House cases,	82	17
Out-patients,	50	28
February 1 to March 1: —		
House cases,	52	12
Out-patients,	38	17

TABLE IX. — *Cases treated at the Infirmary, Dec. 1, 1915, to Nov. 30, 1916* — Concluded.

	Daily Count.	Individual Count.
March 1 to April 1: —		
House cases,	10	4
Out-patients,	71	24
April 1 to May 1: —		
House cases,	6	2
Out-patients,	85	27
May 1 to June 1: —		
House cases,	26	10
Out-patients,	63	33
June 1 to June 19: —		
House cases,	29	8
Out-patients,	23	15
September 16 to October 1: —		
House cases,	–	–
Out-patients,	13	13
October 1 to November 1: —		
House cases,	22	7
Out-patients,	129	63
November 1 to December 1: —		
House cases,	35	9
Out-patients,	70	29

Number of house cases,	324
Number of out-patients,	568
Total,	892
Number cared for in the house,	84
Number cared for as out-patients,	274
Total,	358

Report of the Treasurer

For the Fiscal Year ending Nov. 30, 1916.

Balance Sheet.

		Dr.	Cr.
1915. Dec. 1.	To balance on hand,	$53,139 07	
1916. Nov. 30.	To receipts for fiscal year,	657,679 74	
	Expenditures for fiscal year,		$668,964 27
	Balance on hand,		41,854 54
		$710,818 81	$710,818 81

Schedule A. — Income.

		Items.	Totals.
Income from students and others,			$94,075 29
Tuition,		$3,200 00	
Laboratory fees,		5,718 75	
Rents,		5,521 51	
Department sales,		48,190 34	
Department transfers,		20,095 43	
Miscellaneous,		11,349 26	
Income from grants by nation and State: —			
State aid,			441,756 50
Income from endowment,		$3,313 32	
Appropriation for current expenses,		245,000 00	
Administration,	$32,000 00		
Maintenance,	105,000 00		
Instruction,	100,000 00		
Graduate School,	3,000 00		
Additional land,	5,000 00		
Appropriation for extension service,		50,000 00	
Appropriation for experiment station,		36,000 00	
Maintenance,	$30,000 00		
Feed law,	6,000 00		
Receipts from special appropriation,		107,443 18	
Federal aid,			84,785 23
Income from land grant of 1862,		$7,300 00	
Income from Hatch fund of 1887,		15,000 00	
Income from Adams fund of 1906,		15,000 00	
Income from Morrill fund of 1890,		16,666 66	
Income from Nelson fund of 1907,		16,666 67	
Income from Smith-Lever fund of 1914,		14,151 90	
Income from other sources: —			
Income from experiment station,			31,400 70
Fertilizer receipts,		$9,400 00	
Agricultural receipts,		5,080 69	
Cranberry receipts,		2,771 12	
Chemical receipts,		12,002 98	
Miscellaneous receipts,		2,145 91	

SCHEDULE A. — INCOME — *Concluded.*

	Items.	Totals.
Income from other sources — *concluded.*		
Income from extension service,		$5,662 02
Winter school,	$979 90	
Summer school,	1,825 88	
Correspondence courses receipts,	696 96	
Exhibits,	525 00	
Civic improvements,	986 11	
Miscellaneous receipts,	648 17	
Total,	$657,679 74	$657,679 74

Classification of Income from Students and Others.

	Laboratory Fees.	Department Sales.	Transfers.	Rent.	Miscellaneous.	Tuition.	Totals.
Agricultural economics,	–	–	–	–	$21 00	–	$21 00
Agricultural education,	–	–	–	–	70 00	–	70 00
Agronomy,	$137 75	–	–	–	–	–	137 75
Animal husbandry,	280 50	$0 38	–	–	–	–	280 88
Beekeeping,	–	288 05	–	–	–	–	288 05
Botany,	1,073 50	50 45	–	–	–	–	1,123 95
Chemistry,	2,506 75	44 41	–	–	–	–	2,551 16
Dairy,	101 00	11,131 41	$9,445 76	–	–	–	20,678 17
Entomology,	78 00	13 26	–	–	–	–	91 26
Farm administration,	–	1 50	100 55	–	–	–	102 05
Floriculture,	55 75	3,433 04	19 14	–	9 12	–	3,517 05
Farm,	–	28,146 91	840 02	–	–	–	28,986 93
Forestry,	10 50	–	–	–	–	–	10 50
General agriculture,	–	–	24 09	–	100 55	–	124 64
General horticulture,	–	2 50	3,827 67	–	237 12	–	4,067 29
Graduate school,	–	2 00	–	–	–	–	2 00
Grounds,	–	–	–	–	25 32	–	25 32
Hospital,	–	–	–	–	25 73	–	25 73
Improvements, 1916,	–	–	–	–	670 06	–	670 06
Landscape gardening,	242 00	12 92	–	–	–	–	254 92

Language and literature,	46 25	–	–	–	–	–	46 25
Library,	–	540 46	–	–	–	–	540 46
Market gardening,	18 50	1,730 37	396 07	–	–	–	2,144 94
Mathematics,	65 00	–	–	–	–	–	65 00
Microbiology,	331 25	–	–	–	115 68	–	446 93
Miscellaneous,	–	–	–	–	2,881 15	–	2,881 15
Military,	–	–	–	–	44 23	–	44 23
Physics,	6 00	–	–	–	8 96	–	14 96
Pomology,	100 50	1,336 31	215 24	–	–	–	1,652 05
Physical education,	–	–	–	–	98 50	–	98 50
Poultry husbandry,	105 50	1,329 64	4,926 89	–	108 38	–	6,470 41
Rural engineering,	111 00	104 23	–	–	–	–	215 23
Rural sociology,	–	–	–	–	1 59	–	1 59
Veterinary,	–	22 32	–	–	–	–	22 32
Zoölogy and geology,	449 00	18	–	–	–	–	449 18
Operating and maintenance,	–	–	300 00	–	6,893 99	$3,200 00	10,393 99
North dormitory,	–	–	–	$1,853 00	–	–	1,853 00
South dormitory,	–	–	–	2,171 80	–	–	2,171 80
College residences,	–	–	–	659 30	–	–	659 30
Executive order,	–	–	–	–	37 88	–	37 88
Draper hall,	–	–	–	837 41	–	–	837 41
Totals,	$5,718 75	$48,190 34	$20,095 43	$5,521 51	$11,349 26	$3,200 00	$94,075 29

Schedule B. — Expenditures for Fiscal Year.

	Items.	Totals.
College expenses,		$394,683 19
Administration,	$34,729 71	
Maintenance,	215,409 87	
Instruction,	144,543 61	
Experiment station,		96,954 59
Administration,	$1,029 25	
Feed inspection,	5,632 53	
Fertilizer law,	11,434 88	
Salaries,	42,986 41	
Department,	35,871 52	
Extension service,		69,883 31
Salaries,	$38,546 56	
Travel,	10,291 70	
Departments,	21,045 05	
Special appropriation,		107,443 18
1914, agriculture building,	$16,109 87	
Microbiology building,	47,935 38	
Improvements and equipment,	17,336 77	
1916, agriculture building,	12,243 49	
Retaining wall and platform,	4,200 00	
Rural engineering shop,	9,617 67	
Total,		$668,964 27

Analysis of College Expenditures.

Administration.	Office Expense.	Salaries and Labor.	Travel.	Minor Equipment.	Building Supplies.	Publicity and Lectures.	Student Activity.	Commencement.	Miscellaneous.	Totals.
Dean's office,	$241 00	$280 06	–	$8 72	–	–	–	–	–	$529 78
Executive order,	–	–	$2,335 99	–	–	$1,474 64	$1,092 68	$537 30	$2,981 16	8,421 77
President's office,	756 77	124 63	128 83	–	$8 06	–	–	–	89 22	1,107 51
Registrar's office,	435 67	100 54	42 71	–	–	–	–	–	–	578 92
Treasurer's office,	365 32	309 64	143 84	101 51	7 68	–	–	–	142 77	1,070 76
Administration (salaries),	–	23,020 97	–	–	–	–	–	–	–	23,020 97
Totals,	$1,798 76	$23,835 84	$2,651 37	$110 23	$15 74	$1,474 64	$1,092 68	$537 30	$3,213 15	$34,729 71

Maintenance.	Office Supplies.	Labor.	Laboratory Supplies.	Refunds.	Minor Equipment.	Building Supplies.	Travel.	General Expense.	Miscellaneous.	Salaries.	Totals.
Academic maintenance: —											
Agriculture,	–	$1,151 76	–	–	$194 60	$240 20	–	–	$23 58	–	$1,610 14
Agricultural economics,	$143 97	9 63	$50 52	–	15 79	–	$8 37	–	–	–	228 28
Agricultural education,	213 57	56 77	75 47	–	55 20	–	30 61	–	61 65	–	493 27
Agronomy,	68 51	204 43	269 24	$74 65	64 11	–	57 75	–	–	–	738 69
Animal husbandry,	90 93	109 10	59 82	10 50	8 96	–	119 20	–	–	–	398 51
Beekeeping,	115 75	1,058 19	131 45	–	238 09	121 17	17 71	–	–	–	1,682 36
Botany,	149 29	627 97	599 51	48 50	26 62	12 75	25 42	–	–	–	1,490 06
Chemistry,	184 47	1,138 23	2,938 26	681 07	16 64	55 37	5 74	–	–	–	5,019 78
Dairying,	150 09	2,538 85	21,052 70	8 94	921 28	71 44	101 94	–	–	–	24,845 24
Economics and sociology,	22 97	15	6 42	–	8 07	–	2 00	–	–	–	39 61
Entomology,	47 21	301 70	147 99	2 50	45 69	67 28	3 38	–	–	–	615 75
Farm administration,	126 05	25 93	56 28	–	49 60	–	36 43	–	100 55	–	394 84
Floriculture,	132 84	4,483 56	1,392 49	1 50	96 56	72 82	140 78	–	–	–	6,320 55
Forestry,	24 38	75 26	53 46	–	85 40	–	75 98	–	–	–	314 48
History and government,	1 40	–	–	–	–	–	–	–	–	–	1 40

ANALYSIS OF COLLEGE EXPENDITURES — *Concluded.*

MAINTENANCE.	Office Supplies.	Labor.	Laboratory Supplies.	Refunds.	Minor Equipment.	Building Supplies.	Travel.	General Expense.	Miscellaneous.	Salaries.	Totals.
Hospital,	–	$943 76	–	–	$65 00	–	–	$200 30	–	–	$1,209 06
Landscape gardening,	$12 73	8 02	$268 24	$26 35	62 23	–	$11 37	–	–	–	388 94
Language and literature,	24 96	133 11	91 87	16 32	102 60	–	–	–	–	–	368 86
Market gardening,	71 09	2,504 47	800 26	2 00	81 21	$3 06	158 26	–	–	–	3,620 35
Mathematics,	59 75	78 95	34 85	5 00	–	25 82	–	–	–	–	204 37
Microbiology,	94 95	254 78	375 11	137 64	105 65	41 91	3 95	–	$163 82	–	1,177 81
Military science,	157 47	892 82	2 67	–	275 16	10 04	7 50	–	252 92	–	1,598 58
Physical education,	155 91	135 30	292 58	–	80 14	32 62	324 41	–	–	–	1,020 96
Physics,	62 80	333 75	111 90	5 00	127 71	15 47	3 17	–	–	–	659 80
Pomology,	92 05	2,416 62	816 40	50	36 14	11 59	38 49	–	–	–	3,411 79
Poultry husbandry,	535 85	2,397 29	5,938 33	1 50	336 98	154 31	39 15	–	–	–	9,403 41
Rural engineering,	19 71	141 16	289 73	10 00	121 63	–	77 84	–	–	–	660 07
Rural sociology,	69 40	28 19	20	–	2 46	–	29 74	–	–	–	129 99
Veterinary science,	55 00	302 15	796 59	–	1 70	161 09	23 07	–	–	–	1,339 60
Zoölogy and geology,	29 71	182 75	209 01	27 50	55 89	–	50 31	–	–	–	555 17
General maintenance: —											
Equipment, 1916,	–	–	–	–	–	–	–	1,789 65	–	–	1,789 65
Farm,	–	–	–	–	–	–	–	35,143 56	–	–	35,143 56
General horticulture,	–	–	–	–	–	–	–	8,586 92	–	–	8,586 92
Graduate school,	–	–	–	–	–	–	–	134 61	–	–	134 61
Grounds,	–	–	–	–	–	–	–	5,092 93	–	–	5,092 93
Land,	–	–	–	–	–	–	–	8,350 00	–	–	8,350 00
Library,	–	–	–	–	–	–	–	7,269 08	–	–	7,269 08
Miscellaneous,	–	–	–	–	–	–	–	5,434 41	–	–	5,434 41
Operating and maintenance,	–	–	–	–	–	–	–	71,665 52	–	–	71,665 52
Improvement, 1916,	–	–	–	–	–	–	–	2,001 47	–	–	2,001 47
Totals,	$2,912 81	$22,534 65	$36,861 35	$1,059 47	$3,281 11	$1,096 94	$1,392 57	$145,668 45	$602 52	–	$215,409 87
Instruction (salaries),	–	–	–	–	–	–	–	–	–	$144,543 61	144,543 61
Grand total,	–	–	–	–	–	–	–	–	–	–	$394,683 19

Current Accounts.

Disbursements and Receipts.

Accounts.	Disbursements from Nov. 30, 1915, to Nov. 30, 1916.	Receipts from Nov. 30, 1915, to Nov. 30, 1916.	Apportionment for Year ending Nov. 30, 1916.	Balance to Credit.
Administration: —				
Dean's office,	$529 78	–	$500 00	—$29 78
Executive order,	8,421 77	$37 88	9,500 00	1,116 11
President's office,	1,107 51	–	1,000 00	—107 51
Registrar's office,	578 92	–	600 00	21 08
Salaries,	23,020 97	–	22,000 00	—1,020 97
Treasurer's office,	1,070 76	–	1,400 00	329 24
State Treasurer,	–	35,000 00	–	–
Maintenance academic: —				
Agriculture,	1,610 14	124 64	1,400 00	—85 50
Agricultural economics,	228 28	21 00	200 00	—7 28
Agricultural education,	493 27	70 00	460 00	36 73
Agronomy,	738 69	137 75	550 00	—50 94
Animal husbandry,	398 51	280 88	420 00	302 37
Beekeeping,	1,682 36	288 05	1,500 00	105 69
Botany,	1,490 06	1,123 95	825 00	458 89
Chemistry,	5,019 78	2,551 16	2,000 00	—468 62
Dairying,	24,845 24	20,678 17	4,400 00	232 93
Economics and sociology,	39 61	–	50 00	10 39
Entomology,	615 75	91 26	720 00	195 51
Farm administration,	394 84	102 05	400 00	107 21
Floriculture,	6,320 55	3,517 05	2,900 00	96 50
Forestry,	314 48	10 50	375 00	71 02
History and government,	1 40	–	25 00	23 60
Hospital,	1,209 06	25 73	1,500 00	316 67
Landscape gardening,	388 94	254 92	–	–
Language and literature,	368 86	46 25	373 50	50 89
Market gardening,	3,620 35	2,144 94	2,300 00	824 59
Mathematics,	204 37	65 00	250 00	110 63
Microbiology,	1,177 81	446 93	1,125 00	394 12
Military science,	1,598 58	44 23	1,500 00	—54 35
Physical education,	1,020 96	98 50	700 00	—222 46
Physics,	659 80	14 96	600 00	—44 84
Pomology,	3,411 79	1,652 05	1,875 00	115 26
Poultry husbandry,	9,403 41	6,470 41	3,300 00	367 00
Rural engineering,	660 07	215 23	450 00	5 16
Rural sociology,	129 99	1 59	200 00	71 60
Veterinary science,	1,339 60	22 32	1,300 00	—17 28
Zoölogy and geology,	555 17	449 18	350 00	244 01
Maintenance general: —				
Equipment, 1916,	1,789 65	–	–	–
Farm,	35,143 56	28,986 93	3,000 00	—3,156 63
General horticulture,	8,586 92	4,067 29	3,500 00	—1,019 62
Graduate school,	134 61	2 00	200 00	67 39
Grounds,	5,092 93	25 32	5,500 00	432 39
Improvements, 1916,	2,001 47	670 06	–	–
Library,	7,269 08	540 46	6,600 00	—128 62
Miscellaneous,	5,434 41	2,881 15	–	–
Operating and maintenance,	71,665 52	15,915 50	56,000 00	249 98
State Treasurer, maintenance,	–	107,000 00	–	–
Land,	8,350 00	–	10,000 00	1,650 00
Endowment fund,	–	10,613 32	–	–
Instruction: —				
Salaries,	144,543 61	–	–	–
United States Treasurer: —				
Morrill fund,	–	16,666 67	–	–
Nelson fund,	–	16,666 66	–	–
State Treasurer: —				
Instruction,	–	100,000 00	–	–
Graduate school,	–	3,000 00	–	–
Totals,	$394,683 19	$383,021 94	$151,848 50	–
Balance beginning fiscal year Dec. 1, 1915,	–	31,357 66	–	–
Balance on hand Nov. 30, 1916,	19,696 41	–	–	–
Totals,	$414,379 60	$414,379 60	–	–

College Accounts.

Comparative Disbursements and Receipts for 1915–16.

Accounts.	Disbursements.		Receipts.	
	1915.	1916.	1915.	1916.
Agricultural economics,	$164 45	$228 28	$17 25	$21 00
Agricultural education,	508 11	493 27	96	70 00
Agronomy,	445 80	738 69	511 00	137 75
Animal husbandry,	543 75	398 51	280 00	280 88
Beekeeping,	1,597 29	1,682 36	103 79	288 05
Botany,	1,386 06	1,490 06	674 48	1,123 95
Chemistry,	4,661 05	5,019 78	2,961 28	2,551 16
Dairying,	21,917 41	24,845 24	18,696 58	20,678 17
Dean's office,	486 04	529 78	–	–
Economics and sociology,	36 40	39 61	–	–
Entomology,	732 70	615 75	114 06	91 26
Equipment,	7,737 96	1,789 65	–	–
Executive order,	7,915 34	8,421 77	48 85	37 88
Farm administration,	585 11	394 84	28 38	102 05
Farm,	31,441 99	35,143 56	31,985 41[1]	28,986 93
Floriculture,	4,669 08	6,320 55	3,087 20	3,517 05
Forestry,	327 72	314 48	167 40	10 50
General agriculture,	–	1,610 14	–	124 64
General horticulture,	7,234 72	8,586 92	3,819 30	4,067 29
Graduate school,	82 26	134 61	–	2 00
Grounds,	3,616 53	5,092 93	507 70	25 32
History and government,	5 27	1 40	–	–
Hospital,	741 11	1,209 06	30 77	25 73
Improvements,	7,455 01	2,001 47	–	670 06
Land,	–	8,350 00	–	–
Landscape gardening,	446 35	388 94	416 04	254 92
Language and literature,	169 80	368 86	40	46 25
Library,	6,804 27	7,269 08	607 71	540 46
Market gardening,	3,644 91	3,620 35	1,487 65	2,144 94
Mathematics,	263 66	204 37	90 00	65 00
Military,	1,310 48	1,598 58	5 90	44 23
Microbiology,	691 26	1,177 81	450 16	446 93
Miscellaneous,	–	5,434 41	–	2,881 15
Physical education,	922 69	1,020 96	1 25	98 50
Physics,	586 38	659 80	93	14 96
Pomology,	3,472 54	3,411 79	1,805 72	1,652 05
Poultry husbandry,	6,405 28	9,403 41	3,570 90	6,470 41
President's office,	937 99	1,107 51	55	–
Registrar's office,	514 28	578 92	–	–
Rural engineering,	461 98	660 07	106 56	215 23
Rural sociology,	94 00	129 99	1 40	1 59
Salaries,	151,671 88	167,564 58	373 34	–
Treasurer's office,	1,419 46	1,070 76	–	–
Veterinary,	1,235 66	1,339 60	27 13	22 32
Zoölogy and geology,	774 76	555 17	414 75	449 18
Operating and maintenance,	56,541 14	71,665 52	13,603 71	15,915 50
State Treasurer: —				
Endowment fund,	–	–	10,613 32	10,613 32
Graduate school,	–	–	2,000 00	3,000 00
Maintenance,	–	–	105,000 00	107,000 00
Instruction,	–	–	90,000 00	100,000 00
Administration,	–	–	31,000 00	35,000 00
United States Treasurer: —				
Morrill fund,	–	–	16,666 66	16,666 66
Nelson fund,	–	–	16,666 67	16,666 67
Totals,	$342,659 93	$394,683 19	$357,945 16	$383,021 94
Balance beginning fiscal year,	–	–	16,072 43	31,357 66
Balance on hand at close of fiscal year,	31,357 66	19,696 41	–	–
Totals,	$374,017 59	$414,379 60	$374,017 59	$414,379 60

[1] This large amount of receipts is due to the sale of milk the last three months of 1914, paid in 1915.

COLLEGE ACCOUNTS — *Concluded.*

Summary.

	Disbursements.	Receipts.
Cash on hand Dec. 1, 1915,		$31,357 66
Institution receipts Nov. 30, 1916,		94,075 29
State Treasurer's receipts Nov. 30, 1916,		255,613 32
United States Treasurer's receipts Nov. 30, 1916,		33,333 33
Total disbursements,	$394,683 19	-
	$394,683 19	$414,379 60
Bills receivable Dec. 1, 1915, deducted,		5,669 36
Bills payable Dec. 1, 1916, deducted,	2,742 27	
	$391,940 92	$408,710 24
Bills receivable Nov. 30, 1916,	-	8,077 39
Bills payable Nov. 30, 1916,	6,250 83	-
Balance,	18,595 88	-
	$416,787 63	$416,787 63

Farm Disbursements.

	Labor.	Equipment.	Feed.	Fertilizer.	Seeds.	Stock.	Supplies.	Improvements.	Totals.
Cattle,	$5,850 00	–	$6,203 77	–	–	–	$399 65	–	$12,453 42
Dairy,	2,119 27	$114 04	–	–	–	–	2,577 05	–	4,810 36
Horses,	2,279 03	–	1,383 83	–	–	$325 20	381 25	–	4,369 31
Sheep,	203 97	–	136 45	–	–	–	65 40	–	405 82
Swine,	608 58	–	1,436 29	–	–	–	79 43	–	2,124 30
Field crops,	3,712 13	–	–	$1,143 09	$431 96	–	121 56	–	5,408 74
Miscellaneous,	2,269 77	–	–	–	–	–	125 67	$1,612 16	4,007 60
Tools and machinery,	–	–	–	–	–	–	393 64	–	393 64
Live stock,	–	–	–	–	–	–	1,170 37	–	1,170 37
Totals,	$17,042 75	$114 04	$9,160 34	$1,143 09	$431 96	$325 20	$5,314 02	$1,612 16	$35,143 56

Farm Credits.

	Milk.	Stock.	Sundry.	Hay.	Roots.	Labor.	Potatoes.	Totals.
Cattle,	–	$1,728 50	$180 53	–	–	–	–	$1,909 03
Dairy,	$21,207 85	–	–	–	–	–	–	21,207 85
Horses,	–	135 00	719 34	–	–	–	–	854 34
Sheep,	–	126 00	84 50	–	–	–	–	210 50
Swine,	–	1,856 85	2 00	–	–	–	–	1,858 85
Field crops,	–	–	–	$602 94	$463 15	–	$525 95	1,592 04
Miscellaneous,	–	–	367 75	–	–	$986 57	–	1,354 32
Totals,	$21,207 85	$3,846 35	$1,354 12	$602 94	$463 15	$986 57	$525 95	$28,986 93

Agricultural Division.

Disbursements and Receipts.

	Disbursements.	Receipts.
Agronomy,	$738 69	$137 75
Animal husbandry,	398 51	280 88
Dairying,	24,845 24	20,678 17
Farm,	35,143 56	28,986 93
Farm administration,	394 84	102 05
Poultry husbandry,	9,403 41	6,470 41
Rural engineering,	660 07	215 23
Division totals,	$71,584 32	$56,871 42

Summary.

	Dr.	Cr.
By total division receipts,		$56,871 42
By bills receivable,		4,823 32
By net apportionment,		12,520 00
To total disbursements,	$71,584 32	
To bills payable,	3,118 60	
Balance,		488 18
	$74,702 92	$74,702 92

Inventory of Quick Assets.

	Nov. 30, 1915.	Nov. 30, 1916.
Inventory of produce,	$11,518 42	$8,533 40
Inventory of cattle,	14,945 00	14,200 00
Inventory of swine,	900 00	1,505 00
Inventory of horses,	5,425 00	6,765 00
Inventory of poultry,	1,162 25	2,277 00
Inventory of sheep,	591 00	668 00
	$34,541 67	$33,948 40

Horticultural Division.

Disbursements and Receipts.

	Disbursements.	Receipts.
Floriculture,	$6,320 55	$3,517 05
Forestry,	314 48	10 50
General horticulture,	8,586 92	4,067 29
Grounds,	5,092 93	25 32
Landscape gardening,	388 94	254 92
Market gardening,	3,620 35	2,144 94
Pomology,	3,411 79	1,652 05
Division totals,	$27,735 96	$11,672 07

Summary.

	Dr.	Cr.
By total division receipts,		$11,672 07
By bills receivable,		1,232 85
By apportionment,		16,450 00
To total division disbursements,	$27,735 96	
To bills payable,	535 69	
By balance,	1,083 27	
	$29,354 92	$29,354 92

Inventory of Quick Assets.

	Nov. 30, 1915.	Nov. 30, 1916.
Floriculture,	$550 00	$500 00
Market gardening,	121 50	150 00
Pomology,	375 00	575 00
General horticulture (live stock),	1,695 00	1,750 50
	$2,741 50	$2,975 50

Expense Operating and Maintenance.

	Salaries.	Labor.	Fuel and Water.	Repairs.	Supplies.	Tools.	Architect.	Engineer.	Miscellaneous.	Totals.
General: —										
General superintendent,	$3,201 73	–	–	–	–	–	–	–	–	$3,201 73
Office,	–	$1,075 65	–	–	–	–	–	–	–	1,075 65
General expense,	–	–	–	–	$3,288 75	–	–	–	–	3,288 75
Power plant: —										
Heat,	–	6,152 89	$30,806 05	$1,177 24	$104 94	–	–	–	–	38,241 12
Light,	–	526 61	16 79	279 33	69 41	–	–	–	–	892 14
Tools,	–	–	–	–	–	$1,129 61	–	–	–	1,129 61
Gas mains,	–	5 72	–	–	–	–	–	–	–	5 72
Amherst Water Company,	–	–	2,187 36	–	–	–	–	–	–	2,187 36
Night watchman,	–	1,344 05	–	–	–	–	–	–	–	1,344 05
Mail service	–	246 31	–	–	–	–	–	–	–	246 31
Water mains,	–	101 23	–	–	–	–	–	–	–	101 23
Steam mains,	–	949 89	–	–	–	–	–	–	–	949 89
Electric light circuit,	–	304 91	–	–	–	–	–	–	–	304 91
Waiting station janitor,	–	5 90	–	–	–	–	–	–	–	5 90
Miscellaneous sundry,	–	–	–	–	–	–	–	–	$5,963 46	5,963 46
Sewers and cesspools,	–	31 80	–	–	–	–	–	–	–	31 80
Walks,	–	75 37	–	–	–	–	–	–	–	75 37
Emergency maintenance,	–	1,531 31	–	–	–	–	–	–	–	1,531 31
Expert services,	–	–	–	–	–	–	$1,098 17	$49 15	–	1,147 32
Fire department,	660 00	77 92	–	–	29 71	–	–	–	1 75	769 38
Amherst Gas Company,	–	–	55 52	–	–	–	–	–	–	55 52
Totals,	$3,861 73	$12,429 56	$33,065 72	$1,456 57	$3,492 81	$1,129 61	$1,098 17	$49 15	$5,965 21	$62,548 53

EXPENSE OPERATING AND MAINTENANCE — *Concluded.*

COLLEGE BUILDINGS.	Electric Repairs.	Plumbing Repairs.	Heat Repairs.	C. and M. Repairs.	Janitor.	Bell Ringing.	Sundry.	Totals.
College buildings: —								
Animal husbandry building,	$1 07	$2 33	$5 87	$1 07	–	–	–	$10 34
Horse barn,	5 37	2 40	28	120 67	–	–	–	128 72
Dairy barn,	8 97	44 66	69 17	31 99	–	–	–	154 79
Young stock barn,	–	38	–	8 25	–	–	–	8 63
Power building,	6 34	47 55	–	134 69	$248 65	–	–	437 23
Chemical building,	1 91	62 00	12 28	63 49	–	–	–	139 68
Poultry building,	6 89	23 58	4 21	20 78	–	–	–	55 46
Dairy building,	41 44	65 89	44 25	306 95	–	–	–	458 53
Drill hall,	5 73	36 44	24 88	157 60	–	–	–	224 65
Veterinary building,	2 28	9 00	91	73 32	–	–	–	85 51
Apiary building,	2 80	10 49	2 18	45 78	–	–	–	61 25
Mathematic building,	–	86	42 32	15 12	–	–	–	58 30
Entomology building,	23 33	64 92	18 84	229 81	–	–	–	336 90
Clark hall,	13 93	68 65	23 71	203 87	–	–	–	310 16
French hall,	12 55	15 42	19 53	74 99	–	–	–	122 49
Wilder hall,	41 70	6 55	27 36	7 51	–	–	–	83 12
Upper plant house,	–	10 09	11 26	7 73	–	–	–	29 08
Old Durfee range,	–	59	14 63	35 96	–	–	–	51 18
Horticultural barn,	62	–	–	74 38	–	–	–	75 00
Physics building,	27 52	8 41	15 96	16 22	–	–	–	68 11
East experiment station,	34	37 03	62 05	7 82	–	–	–	107 24
West experiment station,	11 10	39 59	21 71	166 42	–	–	–	238 82
Experiment station barn,	–	18 95	57 07	7 35	–	–	–	83 37
Rural engineering building,	7 67	–	17 82	18 61	–	–	–	44 10
Microbiology building,	45 50	9 75	3 27	18 80	–	–	$150 00	227 32
Draper hall,	36 91	174 87	67 19	487 33	–	–	880 60	1,646 90
Hospital,	4 35	20 15	9 59	54 96	–	–	–	89 05
Stockbridge hall,	116 43	57 50	7 56	278 83	–	–	13 00	473 32
Cold-storage building,	–	–	–	3 14	–	–	–	3 14
Machine barn,	–	8 84	–	1 90	–	–	–	10 74
Sheep barn,	–	7 01	–	52 07	–	–	–	59 08
Piggery,	–	–	–	28	–	–	–	28
Quarantine barn,	–	–	–	78 75	–	–	–	78 75
Poultry demonstration house,	–	–	–	42 77	–	–	–	42 77
Poultry feed house,	–	–	–	24 00	–	–	–	24 00
Poultry brooding house,	–	–	–	1 18	–	–	–	1 18

Poultry killing house,	–	–	–	48	–	–	–	48
Poultry judging house,	–	–	–	30 04	–	–	–	30 04
Poultry colony house,	–	–	–	3 58	–	–	–	3 58
North College,	81 39	30 28	11 46	134 69	523 41	–	79 50	860 73
South College,	81 03	70 80	19 96	214 71	510 93	–	81 00	978 43
Chapel,	40 93	39 28	2 59	45 77	148 41	$125 00	–	401 98
College residences: —								
Harlow place,	–	–	–	97 84	–	–	–	97 84
Kellogg place,	24	21 34	–	40 21	–	–	10 31	72 10
Goldberg place,	–	1 12	–	–	–	–	–	1 12
President's house,	2 58	14 61	8 70	216 90	–	–	–	242 79
Waugh house,	1 70	3 26	7 83	72 19	–	–	–	84 98
Registrar's house,	–	–	6 11	26	–	–	–	6 37
Farm superintendent's house,	3 75	21 25	27 94	117 64	–	–	–	170 58
Farm help's house,	–	10 64	–	27 69	–	–	8 40	46 73
Stockbridge house,	–	4 10	–	11 30	–	–	–	15 40
Farm cottage,	–	27 21	44 40	3 04	–	–	–	74 65
Totals,	$636 37	$1,097 79	$712 89	$3,890 73	$1,431 40	$125 00	$1,222 81	$9,116 99

Summary.

General,	$62,548 53
College buildings,	8,304 43
College residences,	812 56
Total,	$71,665 52

Experiment Station.

Disbursements and Receipts.

Accounts.	Disbursements from Dec. 1, 1915, to Nov. 30, 1916.	Receipts from Dec. 1, 1915, to Nov. 30, 1916.	Apportionment for Year ending Nov. 30, 1916.	Balance to Credit.
Administration,	$1,029 25	$13 46	$1,200 00	$184 21
Agricultural economics,	650 24	–	1,000 00	349 76
Agricultural,	7,417 23	5,080 69	3,100 00	763 46
Apiculture,	102 73	–	100 00	—2 73
Asparagus,	12 26	–	350 00	337 74
Botanical,	1,589 04	30 00	1,600 00	40 96
Chemical,	12,069 86	12,002 98	1,000 00	933 12
Cranberry,	3,106 97	2,771 12	3,000 00	2,664 15
Entomological,	452 21	–	600 00	147 79
Equipment,	717 02	–	750 00	32 98
Feed inspection,	5,632 53	6,000 00	–	–
Fertilizer inspection,	11,434 88	9,400 00	–	–
Freight and express,	382 33	91 26	400 00	108 93
Graves' orchard,	658 13	1,131 15	800 00	1,273 02
Horticultural,	1,700 83	53 08	1,600 00	—47 75
Library,	682 10	–	700 00	17 90
Microbiology,	273 80	–	1,000 00	726 20
Meteorology,	369 11	–	375 00	5 89
Poultry,	1,811 21	–	1,800 00	—11 21
Publications,	795 14	–	800 00	4 86
Salaries,	42,986 41	–	43,400 00	413 59
Tillson Farm,	1,921 78	320 96	500 00	—1,100 82
Treasurer's office,	181 70	–	425 00	243 30
Veterinary,	943 73	–	725 00	—218 73
Hatch fund,	–	15,000 00	–	–
Adams fund,	–	15,000 00	–	–
State fund,	–	30,000 00	–	–
Blood test,	34 10	506 00	–	–
Totals,	$96,954 59	$97,400 70	$65,225 00	–
Balance beginning fiscal year Dec. 1, 1915.	–	8,077 29	–	–
Balance on hand Nov. 30, 1916,	8,523 40	–	–	–
	$105,477 99	$105,477 99	–	–

EXPERIMENT STATION — *Continued.*

Comparative Disbursements and Receipts, 1915–16.

ACCOUNTS.	DISBURSEMENTS.		RECEIPTS.	
	1915.	1916.	1915.	1916.
Administration,	$1,011 28	$1,029 25	$34 72	$13 46
Agriculture,	5,247 13	7,417 23	2,365 01	5,080 69
Asparagus,	701 48	12 26	–	–
Botanical,	1,469 01	1,589 04	3 00	30 00
Chemical,	11,015 52	12,069 86	10,732 09	12,002 98
Cranberry,	3,015 05	3,106 97	2,437 01	2,771 12
Entomology,	477 98	452 21	–	–
Feed inspection,	5,337 54	5,632 53	6,000 00	6,000 00
Fertilizer inspection,	10,047 01	11,434 88	10,088 00	9,400 00
Freight and express,	311 55	382 33	32	91 26
Graves' orchard,	737 73	658 13	1,027 19	1,131 15
Horticultural,	1,803 75	1,700 83	187 64	53 08
Library,	855 91	682 10	–	–
Meteorology,	278 49	369 11	–	–
Poultry,	2,034 82	1,811 21	4 33	–
Publications,	818 66	795 14	–	–
Salaries,	39,199 74	42,986 41	–	–
Treasurer's office,	377 87	181 70	–	–
Veterinary,	238 11	943 73	–	–
Equipment,	1,821 22	717 02	–	–
Agricultural economics,	605 94	650 24	–	–
Apiculture,	–	102 73	–	–
Microbiology,	773 08	273 80	–	–
Miscellaneous,	–	–	90 00	–
Tillson farm,	–	1,921 78	–	320 96
Blood test,	–	34 10	–	506 00
Hatch fund,	–	–	15,000 00	15,000 00
Adams fund,	–	–	15,000 00	15,000 00
State fund,	–	–	25,000 00	30,000 00
Totals,	$88,178 87	$96,954 59	$87,969 31	$97,400 70
Balance at beginning of fiscal year,	–	–	8,286 85	8,077 29
Balance on hand at close of fiscal year,	8,077 29	8,523 40	–	–
	$96,256 16	$105,477 99	$96,256 16	$105,477 99

EXPERIMENT STATION — *Concluded.*

Analysis of Experiment Station Accounts.

	Adams Fund.	Feed Law.	Fertilizer Law.	Hatch Fund.	State Fund.	Totals.
Salaries,	$15,357 88	$4,218 71	$7,490 42	$14,883 69	$12,744 84	$54,695 54
Labor,	–	267 73	1,315 59	–	20,683 93	22,267 25
Publications,	–	24 50	633 00	–	425 89	1,083 39
Postage and stationery,	–	39 10	192 76	–	1,391 19	1,623 05
Freight and express,	–	–	43 79	–	431 51	475 30
Heat, light, water and power,	–	42 50	174 03	–	180 61	397 14
Chemical and laboratory supplies,	–	162 65	688 66	–	977 09	1,828 40
Seeds, plants and sundry supplies,	–	74 56	62 86	–	2,584 81	2,722 23
Fertilizers,	–	–	–	–	868 16	868 16
Feeding stuffs,	–	–	–	–	1,896 68	1,896 68
Library,	–	8 10	–	–	791 27	799 37
Tools, machinery and appliances,	–	6 75	30 24	–	764 89	801 88
Furniture and fixtures,	–	–	3 30	–	303 93	307 23
Scientific apparatus and specimens,	–	–	26 21	–	311 97	338 18
Liv stock,	–	350 00	–	–	457 65	807 65
Traveling expenses,	–	435 04	749 02	–	2,492 50	3,676 56
Contingent expenses,	–	–	–	–	30 00	30 00
Buildings and land,	–	2 89	25 00	–	2,247 72	2,275 61
Equipment,	–	–	–	–	60 97	60 97
Totals,	$15,357 88	$5,632 53	$11,434 88	$14,883 69	$49,645 61	$96,954 59

Summary.

	Disbursements.	Receipts.
Cash on hand Dec. 1, 1915,	–	$8,080 12
Receipts from State Treasurer,	–	36,000 00
Receipts from United States Treasurer,	–	30,000 00
Receipts from other sources,	–	31,400 70
Total disbursements,	$96,954 59	–
	$96,954 59	$105,480 82
Bills receivable Dec. 1, 1915, deducted,	–	865 22
Bills payable Dec. 1, 1915, deducted,	862 39	–
	$96,092 20	$104,615 60
Bills receivable Nov. 30, 1916,	–	2,776 06
Bills payable Nov. 30, 1916,	865 00	–
Balance,	10,434 46	–
	$107,391 66	$107,391 66

Extension Service.

Disbursements and Receipts.

Classification.	Disbursements.	Receipts.	Apportionment.	Balance.
Administration,	$1,502 91	$92 05	$1,700 00	$289 14
Director's office,	1,263 32	44 28	1,300 00	80 96
Salaries,	29,646 19	121 67	29,862 59	338 07
Correspondence courses,	1,078 64	696 96	200 00	—181 68
Civic improvement,	1,310 16	986 11	450 00	125 95
Community planning,	697 86	2 25	550 00	—145 61
Library extension,	199 93	–	200 00	07
Lectures,	221 23	1 00	500 00	279 77
Exhibits,	1,250 26	525 00	500 00	—225 26
Equipment,	704 91	–	1,800 00	1,095 09
Pomology,	284 54	88 20	400 00	203 66
Printing and publicity,	967 09	134 92	1,000 00	167 83
Animal husbandry,	230 22	2 00	350 00	121 78
Agricultural education,	2,386 27	53	2,300 00	—85 74
Farm management,	397 26	109 50	100 00	—187 76
Poultry husbandry,	99 21	9 78	150 00	60 57
Home economics,	354 81	–	350 00	—4 81
Short courses,	11,520 87	2,805 78	9,220 00	504 91
Dairying,	71 91	–	200 00	128 09
County and local agents,	463 65	24 20	520 00	80 55
Agricultural economics,	690 62	17 79	600 00	—72 83
Reserve and emergency,	–	–	9,357 14	–
State treasurer,	–	50,000 00	–	–
Totals,	$55,341 86	$55,662 02	$61,609 73	$2,572 75
Balance at beginning of fiscal year Dec. 1, 1915,	–	11,719 54	–	–
Balance on hand Dec. 1, 1916,	12,039 70	–	–	–
Totals,	$67,381 56	$67,381 56	–	–

Summary.

	Disbursements.	Receipts.
Balance Dec. 1, 1915,	–	$12,622 56
Receipts Nov. 30, 1916,	–	5,662 02
Received from State Treasurer,	–	50,000 00
Received from United States Treasurer,	–	14,151 90
Disbursements to Nov. 30, 1916,	$69,883 31[1]	–
	$69,883 31	$82,436 48
Bills receivable Dec. 1, 1915, deducted,	–	152 00
Bills payable Dec. 1, 1915, deducted,	594 31	–
	$69,289 00	$82,284 48
Bills receivable Nov. 30, 1916,	–	622 12
Bills payable Nov. 30, 1916,	116 87	–
Balance,	13,500 73	–
	$82,906 60	$82,906 60

[1] Includes Federal Smith-Lever fund.

Extension Service — *Concluded.*

Analysis of Extension Service Disbursements.

	Travel.	Equipment.	Printing.	Supplies.	Instruction and Lectures.	Salaries.	Miscellaneous.	Totals.
Administration,	$790 68	–	–	$694 38	–	–	$17 85	$1,502 91
Agricultural education,	915 25	$177 81	–	999 03	–	–	461 99	2,554 08
Agricultural economics,	582 96	29 15	–	107 66	–	–	–	719 77
Animal husbandry,	144 22	–	–	86 00	–	–	–	230 22
Agricultural camps,	40 15	–	–	587 01	–	–	25 00	652 16
Apple packing,	–	–	–	29 32	–	–	–	29 32
Bankers' conference,	109 80	–	–	45 25	–	–	–	155 05
Beekeeping,	1 44	–	–	123 89	–	–	–	125 33
Civic improvements,	526 82	27 65	–	783 34	–	–	–	1,337 81
Community planning,	587 40	40 00	–	110 46	–	–	–	737 86
Conference rural community planning,	–	–	–	37 59	–	–	–	37 59
Correspondence courses,	153 68	40 08	–	924 96	–	–	–	1,118 72
County agents,	442 57	88 27	–	21 08	–	–	–	551 92
County agents' conference,	22 25	–	–	35 04	–	–	–	57 29
Dairying,	4 87	–	–	67 04	–	–	–	71 91
Directors' office,	–	134 38	–	1,231 21	–	–	32 11	1,397 70
Exhibits,	85 68	–	–	–	–	–	1,164 58	1,250 26
Farmers' week,	643 47	–	–	271 00	$398 55	–	–	1,313 02
Home economics,	185 18	48 02	–	169 63	–	–	–	402 83
Library extension,	–	–	–	199 93	–	–	–	199 93
Miscellaneous,	–	–	–	34 06	–	–	–	34 06
Pomology,	155 73	109 05	–	128 81	–	–	–	393 59
Poultry convention,	10 95	–	–	313 76	–	–	–	324 71
Poultry husbandry,	39 53	10 50	–	59 68	–	–	–	109 71
Printing and publications,	47 70	–	–	919 39	–	–	–	967 09
Salaries,	–	–	–	–	–	$32,043 69	–	32,043 69
Supervision,	–	–	–	58	–	–	–	58
Summer school,	80 02	–	$400 56	838 36	3,032 56	–	111 65	4,463 15
Ten weeks' course,	–	–	265 28	1,031 23	604 60	–	30 00	1,931 11
Farm demonstration,	–	–	–	397 26	–	–	–	397 26
Lectures,	43 71	–	–	–	–	–	177 52	221 23
Totals,	$5,614 06	$704 91	$665 84	$10,246 95	$4,035 71	$32,043 69	$2,020 70	$55,331 86

Smith-Lever Fund (Federal).

	Disbursements.	Receipts.
Salaries,	$8,900 37	-
Home economics,	623 24	-
Animal husbandry,	412 92	-
Dairying,	288 20	-
Pomology,	382 30	-
Farm management,	473 10	-
Boys' and Girls' Club,	1,174 48	-
Poultry,	682 38	-
Extension school,	328 57	-
Publications and printing,	924 08	-
State leader,	351 81	-
State Treasurer,	-	$14,151 90
Totals,	$14,541 45	$14,151 90
Balance at beginning of fiscal year, Dec. 1, 1915,	-	1,984 58
Balance on hand Nov. 30, 1915,	1,595 03	-
	$16,136 48	$16,136 48

SPECIAL APPROPRIATIONS.

	Date made.	Amount of Apportionment.	Amount previously expended.	Amount expended during Fiscal year.	Amount expended to Date.	Amount received from State Treasurer.	Balance on Hand with State Treasurer.
Agricultural building,	1914	$210,000 00	$192,824 67	$16,109 87	$208,934 54	$208,934 54	$1,065 46
Microbiology building,	1915	67,500 00	14,754 27	47,935 38	62,689 65	62,689 65	4,810 35
Improvements and equipment,	1916	20,000 00	–	17,336 77	–	–	2,663 23
Agricultural building,	1916	13,732 34	–	12,243 49	–	–	1,488 85
Retaining wall and platform,	1916	4,200 00	–	4,200 00	–	–	–
Rural engineering shop,	1916	12,000 00	–	9,617 67	–	–	2,382 33
Totals,		$327,432 34	$207,578 94	$107,443 18	$271,624 19	$271,624 19	$12,410 22

Inventory — Real Estate.

Land (Estimated Value).

Allen place,	$500 00
Baker place,	2,500 00
Bangs place,	2,350 00
Brown land,	500 00
Charmbury place,	450 00
Clark place,	4,500 00
College farm,	37,000 00
Cranberry land,	10,975 50
Dickinson land,	7,850 00
Harlow farm,	3,284 63
Hawley and Brown place,	675 00
Kellogg farm,	5,868 45
Loomis place,	415 00
Louisa Baker place,	5,000 00
Newell farm,	2,800 00
Old creamery place,	1,000 00
Owen farm,	5,000 00
Pelham quarry,	500 00
Wescott place,	2,250 00
Total,	$93,418 58

College Buildings (Estimated Value).

	Inventory at Beginning of Year.	Per Cent.	Value at Beginning of Year less Per Cent. Deterioration.	Repairs and Improvements during Year.	Total Value.
Apiary,	$3,042 08	2	$2,981 24	$61 25	$3,042 49
Animal husbandry building,	9,825 50	2	9,62 99	10 34	9,639 33
Chemical laboratory,	7,735 90	5	7,349 10	1,014 03	8,363 13
Clark hall,	66,459 04	2	65,129 86	541 30	65,671 16
Cold-storage laboratory,	11,851 09	2	11,614 07	3 14	11,617 21
Dairy building,	74,224 17	2	72,739 69	458 53	73,198 22
Dairy barn and storage,	29,180 06	3	28,304 66	417 34	28,722 00
Dining hall,	58,703 87	3	56,942 75	766 30	57,709 05
Drill hall and gun shed,	9,640 28	5	9,158 27	224 97	9,383 24
Durfee glass houses, old,	9,548 50	5	9,071 07	51 18	9,122 25
Durfee glass houses, new,	14,576 72	5	13,847 88	–	13,847 88
Entomology building,	78,773 17	2	77,197 71	360 51	77,558 22
Farm bungalow,	2,046 63	3	1,985 23	74 65	2,059 88
Farmhouse,	2,482 07	3	2,407 61	170 58	2,578 19
French hall,	49,710 76	2	48,716 54	122 49	48,839 03
Horse barn,	4,875 71	3	4,729 44	128 72	4,858 16
Horticultural barn,	2,497 83	3	2,422 90	92 70	2,515 60
Horticultural tool shed,	1,940 00	3	1,881 80	–	1,881 80
Hospital,	15,452 28	2	15,143 23	89 05	15,232 28
Machinery barn,	3,885 07	3	3,768 52	10 74	3,779 26
Mathematical building,	5,751 14	5	5,463 58	58 30	5,521 88
Microbiology building,	–	–	62,144 41	–	62,144 41
North dormitory,	24,804 44	2	24,308 35	257 82	24,566 17
Physics laboratory,	5,339 06	5	5,072 11	68 11	5,140 22
Piggery,	2,920 47	3	2,832 86	28	2,833 14

College Buildings (Estimated Value) — Concluded.

	Inventory at Beginning of Year.	Per Cent.	Value at Beginning of Year less Per Cent. Deterioration.	Repairs and Improvements during Year.	Total Value.
Poultry department: —					
Breeding houses,	$1,568 00	2	$1,536 64	–	$1,536 64
Brooder house,	1,083 55	2	1,061 88	$1 18	1,063 06
Incubator cellar and building,	1,372 00	2	1,344 56	42 77	1,387 33
Incubator cellar and storage building,	800 00	2	784 00	727 12	1,511 12
Crematory,	50 00	2	49 00	–	49 00
Duck house,	100 00	2	98 00	–	98 00
Killing and fattening laboratory,	1,345 51	2	1,318 60	30 52	1,349 12
Laying house,	1,764 00	2	1,728 72	–	1,728 72
Mechanics and storage building,	1,894 67	2	1,856 78	79 46	1,936 24
Transfer house,	–	–	504 60	–	504 60
Power plant and storage building, including coal pocket,	30,872 28	2	30,254 83	5,024 89	35,279 72
President's house,	11,881 21	3	11,524 77	258 06	11,782 83
Quarantine barn,	194 00	3	188 18	329 31	517 49
Rural engineering building,	3,550 00	2	3,479 00	127 06	3,606 06
Sheep barn,	1,415 66	3	1,373 19	59 08	1,432 27
South dormitory,	35,248 44	2	34,543 47	981 88	35,525 35
Stockbridge hall,	184,000 00	2	180,320 00	1,136 73	181,456 73
Agronomy greenhouse,	2,150 00	2	2,107 00	–	2,107 00
Stone chapel,	29,510 58	2	28,920 37	147 64	29,068 01
Three houses on Stockbridge Road,	5,175 10	5	4,916 34	106 75	5,023 09
Vegetable plant house,	4,593 31	5	4,363 64	29 08	4,392 72
Veterinary laboratory and stable,	23,127 39	2	22,664 84	759 03	23,423 87
Waiting station,	495 80	2	485 88	5 90	491 78
Wilder hall,	36,812 29	2	36,076 04	83 12	36,159 16
Young stock barn,	6,419 50	3	6,226 91	8 63	6,235 54
Totals,	$880,689 13	–	$922,569 11	$14,920 54	$937,489 65

College Equipment (Estimated Value).

Administrative division: —	
Dean's office,	$519 05
President's office,	1,564 25
Registrar's office,	931 46
Treasurer's office,	2,571 25
Agricultural division: —	
Agronomy,	6,710 90
Animal husbandry,	810 61
Dairy,	16,584 94
Farm administration,	1,119 67
Farm management,	37,596 58
General agriculture,	4,214 78
Poultry,	4,357 69
Rural engineering,	2,848 63
Dining hall,	6,843 86
Extension,	12,825 19
General science: —	
Apiary,	1,846 02
Botanical,	15,046 25
Chemical,	11,160 68
Entomology,	6,242 32
Microbiology,	7,017 37

General science — *Concluded.*		
Mathematics,		$2,367 50
Physics,		5,349 57
Veterinary,		10,439 93
Zoölogical laboratory,		10,142 93
Zoölogical museum,		6,511 05
Graduate school,		97 88
Horticultural division: —		
Floriculture,		8,039 57
Forestry,		2,326 60
General horticulture,		7,602 47
Grounds,		820 75
Landscape gardening,		4,971 66
Market gardening,		1,507 68
Pomology,		5,772 61
Hospital,		945 38
Humanities, division of: —		
Economics and sociology,		142 17
Language and literature,		422 50
Library,		89,655 85
Military,		1,494 32
Operating and maintenance: —		
College supply,		1,127 62
Fire apparatus,		1,851 15
General maintenance,		93,239 00
Equipment,	$79,769 17	
Carpentry and masonry supplies,	4,181 08	
Electrical supplies,	2,127 02	
Heating and plumbing supplies,	6,294 38	
Painting supplies,	867 35	
Janitors' supplies,		870 51
Sewer line,		12,385 50
Water mains,		10,911 66
Physical education,		2,511 00
Rural social science: —		
Agricultural economics,		563 95
Agricultural education,		499 99
Rural sociology,		258 02
Textbooks,		527 39
Trophy room,		1,564 74
Total,		$425,732 45

Experiment Station Buildings (Estimated Value).

	Inventory at Beginning of Year.	Per Cent.	Cost at Beginning of Year less Per Cent. Deterioration.	Repairs and Improvements.	Total Value.
Agricultural laboratory,	$15,162 51	2	$14,859 26	$107 24	$14,966 50
Agricultural barns,	4,882 27	3	4,735 80	41 67	4,777 47
Agricultural farmhouse,	1,455 00	3	1,411 35	1 12	1,412 47
Agricultural glass house,	475 00	5	451 25	–	451 25
Cranberry buildings,	2,645 00	–	2,490 00	–	2,490 00
Plant and animal chemistry laboratory,	29,512 13	2	28,921 89	238 82	29,160 71
Plant and animal chemistry barns,	3,999 28	3	3,879 30	41 68	3,920 98
Plant and animal chemistry dairy,	1,940 00	3	1,881 80	–	1,881 80
Six poultry houses,	588 00	2	576 24	–	576 24
Entomological glass houses,	783 75	5	744 56	–	744 56
Totals,	$61,442 94	–	$59,951 45	$430 53	$60,381 98

Experiment Station Equipment (Estimated Value).

Agricultural laboratory,	$7,212 13
Botanical laboratory,	6,465 74
Chemical laboratory,	22,147 02
Cranberry station,	3,052 53
Director's office,	5,071 45
Entomological laboratory,	23,562 45
Horticultural laboratory,	4,159 05
Meteorology laboratory,	855 00
Microbiology laboratory,	577 45
Poultry department,	5,312 03
Treasurer's office,	1,118 00
Veterinary laboratory,	40 16
Total,	$79,573 01

Inventory Summary.

Land,	$93,418 58
College buildings,	937,489 65
College equipment,	425,732 45
Experiment station buildings,	60,381 98
Experiment station equipment,	79,573 01
Total,	$1,596,595 67

Students' Trust Fund Account.

	Disbursements for Year ending Nov. 30, 1915.	Receipts for Year ending Nov. 30, 1916.	Balance on Hand.	Balance brought forward Dec. 1, 1915.
Athletics,	$9,879 20	$9,341 80	$1,804 51	$2,341 91
College signal,	8 73	–	–	8 73
Dining hall,	60,698 73	54,809 34	—12,005 19	—6,115 80
Keys,	89 25	80 00	35 75	45 00
Student deposits,	19,226 23	20,142 00	8,057 24	7,141 47
Social union,	890 39	1,125 19	934 40	699 60
Textbooks,	4,535 59	4,781 07	1,181 87	936 39
Athletic field,	639 75	1,584 69	—252 22	—1,197 16
Uniforms,	3,589 90	2,704 85	2,423 64	3,308 69
1916 index,	400 00	394 24	–	5 76
Totals,	$99,957 77	$94,963 18	$2,180 00	$7,174 59
Balance on hand Dec. 1, 1915,	–	7,174 59	–	–
Balance on hand Nov. 30, 1916,	2,180 00	–	–	–
	$102,137 77	$102,137 77	–	–

Detailed Statement of Dining Hall.

		Liabilities.	Resources.
1915. Dec. 1.	Balance,	$6,115 80	
1916. Nov. 30.	Total disbursements,	60,698 73	
	Outstanding bills,	3,860 88	
	Total collections,		$54,809 34
	Accounts outstanding,		2,174 03
	Inventory,		3,110 30
	Balance,		10,581 74
		$70,675 41	$70,675 41

Endowment Fund.[1]

	Principal.	Income.
United States grant (5 per cent.),	$219,000 00	$7,300 00
Commonwealth grant (3½ per cent.),	142,000 00	3,313 32
	–	$10,613 32

[1] This fund is in the hands of the State Treasurer, and the Massachusetts Agricultural College receives two-thirds of the income from the same.

Burnham Emergency Fund.

	Market Value Dec. 1, 1916.	Par Value.	Income.
Two bonds American Telephone and Telegraph Company 4s, at $910,	$1,820 00	$2,000 00	$80 00
Two bonds Western Electric Company 5s, at $1,000,	2,000 00	2,000 00	100 00
	$3,820 00	$4,000 00	$180 00
Unexpended balance Dec. 1, 1915,	–	–	320 55
Cash on hand Nov. 30, 1916,	–	–	$500 55

Library Fund.

Five bonds New York Central & Hudson River Railroad Company 4s, at $930,	$4,650 00	$5,000 00	$200 00
Five bonds Lake Shore & Michigan Southern Railroad Company 4s, at $950,	4,750 00	5,000 00	200 00
Two shares New York Central & Hudson River Railroad Company stock, at $102,	204 00	200 00	10 00
Amherst Savings Bank, deposit,	167 77	167 77	7 09
	$9,771 77	$10,367 77	$417 09
Nov. 20, 1916, transferred to college library account,	–	–	417 09

Special Funds.

Endowed Labor Fund (the Gift of a Friend of the College).

Two bonds American Telephone and Telegraph Company 4s, at $910,	$1,820 00	$2,000 00	$80 00
Two bonds Lake Shore & Michigan Southern Railroad Company 4s, at $950,	1,900 00	2,000 00	80 00
One bond New York Central Railroad debenture 4s,	930 00	1,000 00	40 00
Amherst Savings Bank, deposit,	143 39	143 39	6 07
One bond Metropolitan Street Railway of Kansas City, 5s,	950 00	1,000 00	100 00
	$5,743 39	$6,143 39	$306 07
Unexpended balance Dec. 1, 1915,	–	–	230 97
Cash on hand Nov. 30, 1916,	–	–	$537 04

Whiting Street Scholarship Fund.

One bond New York Central debenture 4s,	$930 00	$1,000 00	$40 00
Amherst Savings Bank, deposit,	271 64	271 64	11 51
	$1,201 64	$1,271 64	$51 51
Unexpended balance Dec. 1, 1915,	–	–	187 67
Cash on hand Nov. 30, 1916,	–	–	$239 18

SPECIAL FUNDS — *Continued.*

Hills Fund.

	Market Value Dec. 1, 1916.	Par Value.	Income.
One bond American Telephone and Telegraph Company 4s, at	$910 00	$1,000 00	$40 00
One bond New York Central & Hudson River Railroad debenture 4s, at	930 00	1,000 00	40 00
One bond New York Central & Hudson River Railroad debenture 3½s, at	870 00	1,000 00	17 50
Two bonds Metropolitan Street Railway of Kansas City 5s, at $950,	1,900 00	2,000 00	90 00
Three bonds Pacific Telephone and Telegraph Company 5s, at $990,	2,970 00	3,000 00	150 00
One bond Western Electric Company 5s, at	1,000 00	1,000 00	50 00
Boston & Albany Railroad stocks, 3⅝ shares, at $187,	677 88	362 50	31 68
Amherst Savings Bank, deposit,	72 75	72 75	3 06
Electric Securities Company bonds, 1⁹⁄₅₀, at $1,000,	1,121 00	1,180 00	59 00
Electric Securities Company bonds, 1⁹⁄₅₀, at $1,000 changing serial,	–	–	41 30
Kansas City Street Railway 5½s,	–	–	110 00
New York Central & Hudson River,	–	–	20 00
New York Central & Hudson River rights,	–	–	5 00
	$10,451 63	$10,615 25	$657 54
Unexpended balance Dec. 1, 1915,	–	–	899 77
	–	–	1,557 31
Disbursements for fiscal year ending Nov. 30, 1916,	–	–	176 90
Cash on hand Nov. 30, 1916,	–	–	$1,380 41

Mary Robinson Fund.

Amherst Savings Bank,	$142 00	$142 00	$6 03
Boston & Albany Railroad stock, ⅜ share, at $187,	70 13	38 00	3 32
Electric Securities Company bonds, 4¹⁄₅₀ share, at $1,000,	779 00	820 00	41 00
Electric Securities Company bonds, 4¹⁄₅₀ share, at $1,000, changing for later serial number,	–	–	28 70
	$991 13	$1,000 00	$79 05
Unexpended balance Dec. 1, 1915,	–	–	59 63
Cash on hand Nov. 30, 1916,	–	–	$138 68

Grinnell Prize Fund.

Ten shares New York Central & Hudson River Railroad stock, at $102,	$1,020 00	$1,000 00	$50 00
Unexpended balance Dec. 1, 1915,	–	–	195 74
	$1,020 00	$1,000 00	$245 74
Disbursements for prizes,	–	–	50 00
Cash on hand Nov. 30, 1916,	–	–	$195 74

Gassett Scholarship Fund.

One bond New York Central & Hudson River Railroad debenture 4s,	$930 00	$1,000 00	$40 00
Amherst Savings Bank, deposit,	11 64	11 64	46
	$941 64	$1,011 64	$40 46
Unexpended balance Dec. 1, 1915,	–	–	142 31
Cash on hand Nov. 30, 1916,	–	–	$182 77

SPECIAL FUNDS — *Concluded.*

Massachusetts Agricultural College (Investment).

		Market Value Dec. 1, 1916.	Par Value.	Income.
One share New York Central & Hudson River Railroad stock,		$102 00	$100 00	$5 00
Unexpended balance Dec. 1, 1915,		–	–	75 45
Cash on hand Nov. 30, 1916,		–	–	$80 45

Danforth Keyes Bangs Fund.

Two bonds Pacific Telephone and Telegraph Company 5s, at $990,		$1,980 00	$2,000 00	$100 00
Two bonds Union Electric Light and Power Company 5s, at $980,		1,960 00	2,000 00	100 00
Two bonds American Telephone and Telegraph Company 4s, at $910,		1,820 00	2,000 00	80 00
Interest from student loans,		–	–	42 63
		$5,760 00	$6,000 00	$322 63
Unexpended balance Dec. 1, 1915,		–	–	671 62
		–	–	$994 25
Total loans made to students during fiscal year,	$1,345 00			
Cash received on account of student loans,	1,351 00			
Excess over loans made to students,		. . .	. . .	6 00
Cash on hand Nov. 30, 1916,		–	–	$1,000 25

John C. Cutter Fund.

One bond Pacific Telephone and Telegraph Company 5s,		$990 00	$1,000 00	$50 00
Unexpended balance Dec. 1, 1915,		–	–	47 84
		$990 00	$1,000 00	$97 84
Disbursements for fiscal year to date,		–	–	29 67
Cash on hand Nov. 30, 1916,		–	–	$68 17

William R. Sessions Fund.

One bond New York Central & Hudson River Railroad stock 6s,		$555 00	$500 00	$30 00
Amherst Savings Bank, deposit,		4,500 00	4,500 00	146 25
Disbursements for fiscal year to date,	$126 09	$5,055 00	$5,000 00	$176 25
Refund for fiscal year to date,	35 40	–	–	90 69
		–	–	$85 56
Cash on hand Nov. 30, 1915,		–	–	15 00
Cash on hand Nov. 30, 1916,		–	–	$100 56

Alvord Dairy Scholarship Fund.

Amherst Savings Bank, deposit,		$4,000 00	$4,000 00	$170 00
Overdraft Dec. 1, 1915,	$600 00	–	–	–
Less amount of receipts,	170 00	–	–	–
Overdraft Nov. 30, 1916,		–	–	–$430 00

SUMMARY OF BALANCES ON HAND OF THE INCOME FROM FUNDS HELD IN TRUST BY THE MASSACHUSETTS AGRICULTURAL COLLEGE.

Burnham emergency,	$500 55
Endowed labor fund,	537 04
Whiting Street scholarship fund,	239 18
Hills fund,	1,380 41
Mary Robinson fund,	138 68
Grinnell prize fund,	195 74
Gassett scholarship fund,	182 77
Massachusetts Agricultural College investment fund,	80 45
Danforth Keyes Bangs fund,	1,000 25
John C. Cutter fund,	68 17
Willam R. Sessions fund,	100 56
	$4,423 80
Alvord dairy scholarship fund overdraft,	430 00
	$3,993 80

I hereby certify that I have this day examined the Massachusetts Agricultural College account, as reported by the Treasurer, Fred C. Kenney, for the year ending Nov. 30, 1916. All bonds and investments are as represented in the treasurer's report. All disbursements are properly vouched for, and all cash balances are found to be correct.

CHARLES A. GLEASON,
Auditor.

DEC. 18, 1916.

HISTORY OF SPECIAL FUNDS.

Burnham emergency fund: —

A bequest of $5,000 from T. O. H. P. Burnham of Boston, made without any conditions. The trustees of the college directed that $1,000 of this fund should be used in the purchase of the Newell land and Goessmann library. The fund now shows an investment of $4,000 00

Library fund: —

The library of the college at the present time contains 52,928 volumes. The income from the fund raised by the alumni and others is devoted to its increase, and additions are made from time to time as the needs of the different departments require. Dec. 27, 1883, William Knowlton gave $2,000; Jan. 1, 1894, Charles L. Flint gave $1,000; in 1887, Elizur Smith of Lee, Mass., gave $1,215. These were the largest bequests, and now amount to . . . 10,000 00

Endowed labor fund: —

Gift of a friend of the college in 1901, income of which is be be used for the assistance of needy and deserving students, 5,000 00

Whiting Street scholarship: —

Gift of Whiting Street of Northampton, for no special purpose, but to be invested and the income used. This fund is now used exclusively for scholarship, ... 1,000 00

Hills fund: —

Gift of Leonard M. and Henry F. Hills of Amherst, Mass., in 1867, to establish and maintain a botanic garden, . $10,000 00

Mary Robinson fund: —

Gift of Miss Mary Robinson of Medfield, in 1874, for scholarship, ... 1,000 00

Grinnell prize fund: —

Gift of Hon. Wm. Claflin, to be known as the Grinnell agricultural prize, to be given to the two members of the graduating class who may pass the best oral and written examination in theory and practice of agriculture, given in honor of George B. Grinnell of New York, ... 1,000 00

Gassett scholarship fund: —

Gift of Henry Gassett of Boston, the income to be used for scholarship, ... 1,000 00

Massachusetts Agricultural College investment fund: —

Investment made by vote of trustees in 1893 to purchase one share of New York Central & Hudson River Railroad stock. The income from this fund has been allowed to accumulate, ... 100 00

Danforth Keyes Bangs fund: —

Gift of Louisa A. Baker of Amherst, Mass., April 14, 1909, the income thereof to be used annually in aiding poor, industrious and deserving students to obtain an education in said college, ... 6,000 00

John C. Cutter fund: —

Gift of Dr. John C. Cutter of Worcester, Mass., an alumnus of the college, who died in August, 1909, to be invested by the trustees, and the income to be annually used for the purchase of books on hygiene, ... 1,000 00

Alvord dairy scholarship fund: —

Gift of Henry E. Alvord, who was the first instructor in military tactics, 1869–71, and a professor of agriculture, 1885–87, at this institution. The income of this fund is to be applied to the support of any worthy student of said college, graduate or post-graduate, who may be making a specialty of the study of dairy husbandry (broadly considered), with the intention of becoming an investigator, teacher or special practitioner in connection with the dairy industry, provided that no benefits arising from such fund shall at any time be applied to any person who then uses tobacco in any form or fermented or spirituous beverages, or is known to have done so within one year next preceding, ... 4,000 00

William R. Sessions fund: —

In accordance with the request of my deceased wife, Clara Markham Sessions, made in her last will, I bequeath to the trustees of the Massachusetts Agricultural College, Amherst, Mass., the sum of $5,000, it being the amount received by me from the estate of the said Clara Markham Sessions. The said $5,000 to be kept by the said trustees a perpetual fund, the income from which shall be for the use of the Massachusetts Agricultural College; and according to the further request of my deceased wife, made in her last will, this is to be known as the William R. Sessions fund, and is to be a memorial of William R. Sessions; and it is my special request that the said trustees shall make record of the fact that this fund came from the estate of my deceased wife, Clara Markham Sessions, in accordance with her request made in her last will, . . $5,000 00

$49,100 00

Prizes.

Animal husbandry. The F. Lothrup Ames prize, given by F. Lothrup Ames, Langwater Farms, North Easton, Mass., consisting of $150 a year, offered for a period of five years, to be given to the three students standing highest in the work of advanced live stock judging, and to be used in defraying their expenses incurred by participation in the students' judging contest at the National Dairy Show, Chicago. Given in May, 1912, available first in autumn of 1912, and for the four succeeding years, ... $150 00

FRED C. KENNEY,
Treasurer.

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