ANNUAL REPORT

OF THE

UNIVERSITY OF MAINE

For the Year Ending July 1, 1906

31

Reports of the Trustees, Treasurer, President, and Faculty

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REPORT OF THE BOARD OF TRUSTEES.

To the Honorable Governor and Executive Council of Maine:

The trustees of the University of Maine respectfully submit their thirty-eighth annual report, with the reports of the President and Treasurer.

The past year has been one of unusual progress and prosperity with this institution.

There has been but one change in the board of trustees during the year. The term of Hon. Voranus Coffin expired in April. Capt. Coffin was a faithful and efficient trustee. He was deeply interested in the University and endeavored at all times to promote its welfare.

Hon. William T. Haines of Waterville was appointed to succeed Capt. Coffin. The appointment of Mr. Haines was very gratifying to the alumni and friends of the institution. With an experience of four years as a student and nineteen years as a trustee, thoroughly familiar with the traditions, history and affairs of the institution, Mr. Haines possesses superior qualifications for the position of trustee.

The changes in the faculty during the year have been almost entirely in the way of an increase in numbers and strength. Capt. Charles J. Symmonds, the efficient and successful head of the military department, having served three years, the allotted time, returned to his regiment, in September. Lieut. Walter S. Brown, a native of Maine and a graduate of West Point, has been appointed his successor.

The new library building, the generous gift of Andrew Carnegie, the construction of which was begun last year, was completed and dedicated the second day of November, with appropriate ceremonies. Able and eloquent addresses were made by Governor William T. Cobb and United States Commissioner of Education, Hon. Elmer E. Brown. This building is constructed of Hallowell granite, has a fine location on the campus and is considered to be in every particular a model library building.

The College of Law maintains its popularity and high reputation for successful results. It is greatly in need of more commodious rooms.

While there has been growth in every department, the greatest gain during the year has been made in the departments relating to agriculture.

There are now nearly seven hundred students attending the University of Maine, and to properly provide for this large body of young men and young women is the problem that constantly confronts the

administration of the institution. While the present facilities would have been ample for the student body of a few years ago, they are entirely inadequate to meet the needs of the number now in attendance. As a result of this condition, the University should have, to meet present requirements, a new dormitory; a central power and heating plant; a new building for the Department of Agriculture; a new building for the Department of Physics; a new building, or an increase in the size of the present building, for the Department of Chemistry; larger and better accommodations for the School of Law; and additional equipments for the different departments.

The most pressing of these needs are those of a dormitory and a central power and heating plant. The need of a new dormitory is very urgent. Many students cannot find boarding places except at a long distance from the campus. In getting to and from their recitations these students are subjected to an unnecessary loss of time and money and to much inconvenience. Students have left the University because no suitable living place could be found nearer than Bangor. As soon as possible, a new dormitory, sufficient for one hundred and fifty to two hundred students, should be provided. A building to meet the requirements would probably cost from fifty thousand to seventy-five thousand dollars. The need of a central power and heating plant, since the erection of the new library building, has become more urgent. For the sake of convenience, utility, economy and safety, and from every standpoint from which the matter can be viewed, it would appear that a suitable power and heating plant should be built at an early day. A technical institution of the rank of the University of Maine ought not to be obliged to buy power. It should have a power plant so complete and of such character as to make it a constant object lesson to the students, particularly to those in the engineering courses. The estimated cost of such a plant is sixty-thousand dollars.

The appropriation passed by the Legislature of 1897, of twenty thousand dollars a year for ten years, for the general purposes of the institution, will expire January 1, 1907. It will be necessary for the next Legislature to provide for the future maintenance of the University, having in view the present needs and the probable future growth of the institution. It is hoped that whatever provision the Legislature may deem it wise to make, will be permanent in its character; and the trustees would once more suggest the expediency of the State providing for the maintenance of its University by a tax of a fraction of a mill. This method has been adopted by twelve states of the Union for the support of similar institutions, and appears to be more satisfactory than any other method. Such a system would insure a permanent income for the institution for all future years.

The University of Maine is a prosperous and successful institution, constituting an important part of the educational system of the State. It has more than a score of substantial buildings, with extensive and valuable equipments, located upon a beautiful campus of about four hundred acres, situated near the geographical center of the State. It

has a faithful, able, loyal faculty and a student body, constantly increasing in number, not excelled by that of any institution. All of its departments are well organized, working effectively and harmoniously together. It occupies a prominent position in the front rank of the land grant colleges and its graduates, by their success, are constantly adding to its high reputation. Should not the State make liberal and permanent provision for its future maintenance?

HENRY LORD,
President of the Board of Trustees.

REPORT OF THE TREASURER.

To the Trustees of the University of Maine:

The Treasurer has the honor to submit the following report concerning the financial condition of the University, July 1, 1906:

INCOME OF THE UNIVERSITY OF MAINE FROM JULY 1, 1905, TO JULY 1, 1906

Cash balance July 1, 1905		$6,759 10
Coburn Fund	$4,000 00	
Land Grant Fund	5,915 00	
Morrill Fund	25,000 00	
Receipts from Students	27,702 98	
State	32,000 00	
		94,617 98

RECEIPTS OF THE UNIVERSITY OF MAINE FROM JULY 1, 1905, TO JULY 1, 1906

Bills payable	$25,000 00	
Bills receivable	433 81	
Carnegie Library	15,000 00	
Diplomas	79 70	
Drill hall subscriptions	50 00	
Rents	1,245 03	
Sundry receipts	773 86	
		42,582 40
Total receipts		$143,959 48

EXPENSES OF THE UNIVERSITY OF MAINE FROM JULY 1, 1905, TO JULY 1, 1906

Current Expenses:	
Salaries	$60,295 21

Departments:		
Agriculture (including Farm, Animal Industry, and Horticulture)	$6,299 98	
Bacteriology and Veterinary Science	60 57	
Biology	345 30	
Chemistry	109 80	
Civil Engineering	806 76	
Extension Work	45 11	
Electrical Engineering	142 30	
Greek and Art Guild	6 90	
Mechanics and Drawing	104 58	
Mechanical Engineering	248 02	
Military Science	249 64	
Pharmacy	35 50	
Philosophy	40	
Physics	160 16	
		8,615 02
General Expenses:		
Advertising	572 60	
Bills payable	26,000 00	
Care of buildings	1,737 81	
Commons	537 85	
Commencement	333 25	
Freight and express	431 50	
Furniture and fixtures	351 67	
Grounds	1,804 07	
Heating buildings	2,733 58	
Interest and discount	52 26	
Incidentals	112 42	
Insurance	4,896 40	
Kidder Scholarship	30 00	
Library	1,797 80	
Law library	479 50	
Lecture course	185 00	
Lighting buildings and grounds	850 34	
Light station	4,562 79	
Miscellaneous	1,355 15	
Mt. Vernon House	686 33	
Office	460 02	
Oak Hall charges	464 77	
Postage and stationery	400 29	
Prizes	7 50	
Reading room	70 90	
Repairs	2,896 15	
Shop	339 15	
School inspection	73 04	
Summer school	5 97	
Summer account	22 72	

General Expenses—Continued:		
Track	1 83	
Treasury	103 40	
Trustees' expenses	100 00	
Water supply	966 21	
		55,422 27
Sundry Expenses:		
Carnegie Library		10,278 10
Cash balance		9,348 88
		$143,959 48

Respectfully submitted,

ISAIAH K. STETSON, *Treasurer.*

I hereby certify that I have examined the accounts of the Treasurer and find them correctly kept and properly vouched.

ELLIOTT WOOD, *Auditor.*

Both receipts and expenditures are apparently increased by the inclusion of the receipts and payments for the new library. The sum of $55,000 received from Mr. Carnegie has been included in the accounts of last year and this year.

Following is a summary showing the exact income and expenses of the University for the year:

Expenses:		
Salaries	$60,295 21	
Departmental expenses including equipment,	8,615 02	
All other general expenses	29,422 27	
		$98,332 50
Income:		
Morrill Fund	$25,000 00	
Coburn Fund	4,000 00	
Land Grant Fund	5,915 00	
Receipts from students	27,702 98	
From the State	32,000,000	
		94,617 98
Deficit		$3,714 52

REPORT OF THE PRESIDENT

To the Board of Trustees of the University of Maine:

The President of the University has the honor to present his fifth annual report, covering the years 1905-1906.

Changes in the Faculty

The success of an educational institution depends very largely upon the continued services of an efficient faculty. The University of Maine is this year to be congratulated upon the fact that it loses the services of no regularly appointed head of a department. The only apparent exception that could be made to this statement is the termination of the legal period of service of the military instructor, and the leave of absence given to Professor Rogers and Assistant Professor Thompson. While Professor Lewis' resignation was accepted during the past year, he had been granted a year's leave of absence a year ago.

While the heads of several departments have had offers from other institutions, which have been attractive financially and otherwise, we are glad to say that these offers have been refused, largely because of the confidence felt in the future of this institution. This continuance of the leading members of the faculty has produced a very evident improvement in the scholastic tone of all departments.

While we have lost the services of so few this year, we have gained in several particulars.

Professor Charles Davidson has been appointed the head of the new department of Education. Professor Davidson's experience as head of a similar dtpartment in Pomona College, California, and as Inspector in charge of English in the University of the State of New York, together with many years of previous work in colleges and secondary schools, has eminently fitted him for this position. Professor Davidson graduated from Grinnell College, Iowa, and obtained the degree of Doctor of Philosophy at Yale University.

Professor J. W. Carr has been appointed as head of the Department of Germanic Languages in place of Professor Lewis who left us over a year ago. Professor Carr has been the head of the Department of Modern Languages in West Virginia University, and for the past five years in the University of Arkansas. His scholastic training at Harvard University and the University of Leipsic, together with his success

in two other State Universities, are evidence of his fitness to conduct the work here.

Professor Max Lentz, who was acting professor in charge of the Department of Germanic Languages last year, has been retained permanently in the Department as assistant professor.

To fill the vacancy for one year, caused by the absence of Professor Rogers, Robert J. Sprague, Ph. D., has been appointed. Professor Sprague has been for five years head of the Department of Economics and Sociology at Knox College, Illinois. He is a native of Maine, a graduate of the Eastern Maine Conference Seminary, and of Boston and Harvard Universities.

Assistant Professor Colvin has been made professor of History.

Instructor A. W. Gilbert has been appointed to be assistant professor of Agronomy.

Lieutenant Walter S. Brown has been detailed by the War Department as head of the Department of Military Science.

Mr. George R. Wheeler has been appointed acting assistant professor of English for one year during the absence of Professor Thompson. Mr. Wheeler is a graduate of Albion College, Michigan, and has done graduate work at the University of Mich.

Mr. Maxwell J. Dorsey, a graduate of Michigan Agricultural College, has been appointed instructor in Horticulture in charge of the Department, Professor Munson having transferred the whole of his time to the Experiment Station. This change will give the Department of Horticulture the advantage of the entire services of one man, where heretofore Professor Munson has been compelled to divide his time between the Department and the Experiment Station work.

Mr. R. L. Seabury, a graduate of the University of Maine in the class of 1905, who has been one year assistant in Chemistry, has been made instructor in Agricultural and Biological Chemistry.

The Trustees at their meeting in June authorized the engagement of a physical director. The institution has been fortunate in being able to secure for this position one who is not only fitted for that work, but in addition is a regular physician. Percy L. Reynolds, M. D., has been appointed physical director and University physician. The advantage of having a resident physician as a member of the faculty is very evident. A student is at liberty to consult the physician, who holds regular office hours at the University. In addition to this, the gymnasium work will be put upon regular basis and opportunity given to every student to have systematic physical culture.

The Trustees authorized the addition of another instructor to the Department of English. The necessity for this has been apparent for some time. Mr. Windsor P. Daggett has been appointed instructor in Public Speaking. Mr. Daggett is a graduate of Brown University, in the class of 1902, and of the Leland Powers School of the Spoken Word. Mr. Daggett has had experience as a teacher, and as a dramatic coach and public reader.

Mr. Charles B. Brown, a graduate of the Sheffield Scientific School, with many years of practical experience, has been appointed instructor

in Civil Engineering, to replace Mr. Horace Hamlin who has resigned to go into practical work.

Mr. C. J. Carter has been appointed instructor in Shop Work to succeed Mr. A. W. Cole resigned. Mr. Carter has taken special work in the Massachusetts Institute of Technology, and has had several years of practical experience.

Mr. Gustav Wittig, a graduate of Rutgers College, has been appointed instructor in Electrical Engineering to replace Mr. Carpenter resigned. Mr. Wittig has done graduate work in Columbia University, receiving the degree of C. E., and has had practical experience as a teacher.

Mr. Clarence E. Moots, a graduate of Highland Park College, Des Moines, Iowa, has been appointed instructor in Mathematics and Drawing.

Mr. H. D. Knight, instructor in Animal Industry, has resigned to pursue graduate work in the Iowa Agricultural College.

Mr. Percy A. Campbell, a graduate of New Hampshire College, and who has taken the Master's degree at Iowa Agricultural College, has been appinted instructor in Animal Industry.

Professor W. F. Morse, for some years connected with the Vermont Experiment Station, has been appointed Vegetable Pathologist in the Experiment Station.

Mr. H. A. Emery, a graduate of the University of Maine in the class of 1906, has been appointed instructor in Civil Engineering.

Mr. Henry W. Bearce, a graduate of the University of Maine in the class of 1906, has been appointed tutor in Physics to replace Mr. I. M. Bearce resigned.

Miss J. C. Colcord, a graduate of the University of Maine in the class of 1906, has been appointed assistant chemist in the Experiment Station to replace Mr. L. I. Nurenberg.

Mr. Arthur C. Whittier, a graduate of the University of Maine in the class of 1905, has been appointed assistant chemist in the Experiment Station.

Miss Florence Balentine, a graduate of the University of Maine in the class of 1905, who had been one year assistant in the Department of Biology, has been made tutor in Biology.

Mr. D. J. Edwards, a graduate of the University of Maine in the class of 1906, has been appointed assistant in Biology.

Miss Jennie E. Dunmore, a graduate of Simmons College in the class of 1906, has been appointed cataloger in the Library.

Owing to illness, Mrs. Clara E. Patterson resigned her position as assistant in the Library, and was succeeded by Miss Maude Brown Colcord as acting assistant until June. Miss Colcord has been made assistant in the Library.

Mr. A. M. Shaw, for several years connected with the Department of Horticulture, has been appointed superintendent of grounds and greenhouses.

Mr. Thomas Buck, for four years instructor in the Department of Mathematics, has resigned to pursue graduate work.

Mr. Grant T. Davis, for three years instructor in Chemistry, has resigned to accept a similar position in the University of Illinois.

Mr. H. M. Shute, instructor in Modern Languages, has been appointed instructor in Romance Languages.

Mr. A. W. Sprague, assistant in English, has resigned to pursue graduate work at Harvard University.

Needed Increase of Faculty

The increase in the number of students, especially in the freshman class, calls for an immediate increase in the number of instructors, especially those giving the required work in Modern Languages, Drawing, and Chemistry. Special mention of needs in these departments will be found in the reports of the heads of the departments. It should be noted, however, in this place that nearly all of the professors and instructors are at present giving more hours of classroom instruction per week than is advisable. This matter has been referred to in previous reports, although there has been no opportunity, up to the present time, of relieving them. It is confidently hoped, however, that with the appropriation by the coming legislature these matters may be adjusted for the welfare of faculty and students.

The following is the list of degrees conferred at the last Commencement:

DEGREES CONFERRED

College of Agriculture

Roy Sawtelle Bacon, B. S. ..... Sidney
Frederic Hall Harlow, B. S. ..... Gorham
Thomas Harold Reynolds, B. S. ..... Eastport
Alton Willard Richardson, B. S. ..... Bethel
Edward Arthur Stanford, B. S. ..... Lovell Center

College of Arts and Sciences

Henry Walter Bearce, B. S. (Physics) ..... Hebron
Richard Arthur Bolt, B. A. (Civics) ..... St. John, N. B.
John Meikle Brockie, B. A. (Philosophy) ..... Old Town
Everett Dana Brown, B. A. (History) ..... South Paris
Joanna Carver Colcord, B. S. (Chemistry) ..... Searsport
Guerric Gaspard DeColigny, B. S. (Chemistry) ..... Springfield, Mass.
Dayton James Edwards, B. S. (Biology) ..... Oxford
Joseph Galland, B. S. (Modern Languages) ..... Biddeford
Carolyn Adelle Hodgdon, B. A. (Greek) ..... Hampden Corner
Gertrude May Jones, B. S. (Biology) ..... Corinna
Merton Rooks Lovett, B. S. (History) ..... Beverly, Mass.
Estelle Perry, B. S. (History) ..... Penobscot
Frederick Johnson Simmons, B. A. (Civics) ..... Morrill
Frederick Dean Southard, B. S. (English) ..... Dorchester, Mass.
Mary Frances Webber, B. A. (Latin) ..... Bangor
Albert Ames Whitmore, B. S. (History) ..... Fryeburg

College of Pharmacy

Harry Leon Gordon, Ph. C.....Augusta
Leon Herbert Marr, Ph. C.....Farmington

College of Technology

Herbert Lester Abbott, B. S. in Civil Engineering.....Bucksport
Frank Arthur Banks, B. S. in Civil Engineering.....Biddeford
Winfield Dexter Bearce, B. S. in Electrical Engineering.....Auburn
Arthur Guy Bennett, B. S. in Electrical Engineering.....Paris
Walter Horace Burke, B. S. in Electrical Engineering.....Kennebunk
Alfred Jared Butterworth, B. S. in Civil Engineeering,
Southbridge, Mass.
Charles William Campbell, B. S. in Civil Engineering.....Ellsworth
Gotthard Wilhelm Carlson, B. S. in Electrical Engineering.....Bethel
Sidney Cassey, B. S. in Mechanical Engineering.....Lynn, Mass.
Howard Lincoln Churchill, B. S. in Forestry.....Buckfield
Lincoln Crowell, B. S. in Forestry.....Dorchester, Mass.
Charles Ellsworth Currier, B. S. in Electrical Engineering.....Brewer
William Ray Dolbier, B. S. in Civil Engineering.....Salem
Hallet Carroll Elliott, B. S. in Civil Engineering.....Patten
James William Elms, B. S. in Chemistry.....Foxcroft
Harry Alvah Emery, B. S. in Civil Engineering.....North Anson
Clinton Fairfield Forbes, B. S. in Electrical Engineering.....Buckfield
Walter Oscar Frost, B. S. in Forestry.....Rockland
Philip Holden Glover, B. S. in Civil Engineering.....Harrington
Claude Albert Gray, B. S. in Mechanical Engineering.....Bridgton
Wellington Prescott Hews, B. S. in Civil Engineering.....Ashland
George Herbert Hill, B. S. in Civil Engineering.....Saco
Lester Boynton Howard, B. S. in Electrical Engineering.....Dover
Harold Shepherd Hoxie, B. S. in Civil Engineering....Fairfield Center
Harvey Hamlin Hoxie, B. S. in Electrical Engineering.....Waterville
Caleb Hartwell Johnson, B. S. in Mechanical Engineering,
Nahant, Mass.
Harold Lewis Karl, B. S. in Electrical Engineering.....Rockland
Raymond Brown Kittredge, B. S. in Civil Engineering...Beverly, Mass.
Ralph Edwin Lord, B. S. in Civil Engineering.....Bangor
Charles Libby Lang, B. S. in Electrical Engineering.....Harrison
William Lawrence McDermott, B. S. in Mechanical Engineering,
Biddeford
Leroy Cleveland Nichols, B. S. in Electrical Engineering.....Saco
Robert Franklin Olds, B. S. in Civil Engineering.....Lewiston
George Stuart Owen, B. S. in Civil Engineering.....Portland
James Lonsdale Paige, B. S. in Mechanical Engineering,
Southbridge, Mass.
Roy Hiram Porter, B. S. in Mechanical Engineering.....South Paris
Charles Edward Prince, B. S. in Electrical Engineering.....Kittery
Frank Radford Reed, Jr., B. S. in Civil Engineering.....Rumford Falls

Earle Revere Richards, B. S. in Civil Engineering.....New Gloucester
David Nathan Rogers, B. S. in Forestry.....Patten
Harold Dockum Ross, B. S. in Electrical Engineering.....Skowhegan
Edgar John Sawyer, B. S. in Civil Engineering.....Milbridge
Raphael Simmons Sherman, B. S. in Electrical Engineering...Rockland
John Percy Simmons, B. S. in Civil Engineering.....Belfast
Ralph Seldon Smith, B. S. in Civil Engineering.....Old Town
Arthur Leonard Sparrow, B. S. in Mechanical Engineering,
South Orleans, Mass.
Fred Oramel Stevens, B. S. in Civil Engineering.....Milan, N. H.
Frank Carroll Stewart, B. S. in Electrical Engineering.....Farmington
George Roger Tarbox, B. S. in Mechanical Engineering.....Machias
James Gordon Wallace, B. S. in Civil Engineering.....Portland
Arthur Pettingill Weymouth, B. S. in Electrical Engineering....Dexter

College of Law

Gerry Lynn Brooks, LL. B.....Upton
Winfield Scott Brown, LL. B. (B. A., Bates College, 1895).....Dexter
Elmer John Burnham, LL. B.....Kittery
James Adams Colby, LL. B.....Lynn, Mass.
Charles Patrick Conners, LL. B. (B. A., Bowdoin College, 1903),
Bangor
Carl Cotton, LL. B. (B. A., Colby College, 1900).....Bangor
George Albert Cowan, LL. B.....Hampden
James Albert Donnelly, LL. B.....Houlton
Frederick Eugene Doyle, LL. B. (B. A., Holy Cross College, 1901),
Ellsworth
Oscar Hall Dunbar, LL. B.....Jonesport
Lewis Edwin Fox, LL. B.....Lovell
Moses Harry Harris, LL. B.....Auburn
Percy Albert Hasty, LL. B.....Bangor
Joseph Alphonse Laliberte, LL. B.....Fort Kent
Eben Frank Littlefield, LL. B.....Brooks
George William Pike, LL. B.....Lisbon, N. H.
William Richard Roix, LL. B.....Bucksport
Lucius Black Swett, LL. B.....West Hollis

Advanced Degrees

Master of Arts

Helen Veazie Gerrity, B. A. (Mount Holyoke College, 1905) (Mathematics) .....Bangor
Horace Bray Haskell, B. Ph. (Taylor University, 1900) (English),
Orono
William Linscot Waldron, B. A. (Colby College, 1897) (French),
Waterville

MASTER OF SCIENCE

Herman Herbert Hanson, B. S. (Pennsylvania State College, 1902) (Chemistry) ..... Orono
Fred Carlton Mitchell, B. S. (1900) (Physics) ..... Camden

ELECTRICAL ENGINEER

Enoch Joseph Bartlett, B. S. in Electrical Engineering (1902), Hartford, Conn.
Howard Ashburn Smith, B. S. in Electrical Engineering (1903), Lynn, Mass.

MASTER OF LAWS

Ansel Harrison Bridges, LL. B. (1904) ..... Old Town
Clarence Bertram Hight, LL. B. (1904) ..... Dexter
George Henry Worster, LL. B. (1905) ..... Bangor

CERTIFICATES IN THE SCHOOL COURSE IN AGRICULTURE

Stephen Edward Abbott ..... Bethel
Frank Harold Bickford ..... North Dixmont
Ransom Clayton Packard ..... Brockton, Mass.

STUDENTS

The number of students for the year ending June, 1906, was 611. The number listed in the catalog which is now in press, for the year 1906-1907, is 687, subdivided as follows:

Seniors, 102; Juniors, 76; Sophomores, 127; Freshmen, 152; Specials, 49; Short Pharmacy, 16; School Course in Agriculture, 10; College of Law, 90; Summer Term, 60; Short Agricultural, 17; Graduate Students, 15.

GAINS IN 1906-1907

The following table shows the gains in the number of students in the University for this year over the preceding year:

The whole University	12%
College of Arts and Sciences	9%
College of Agriculture	40%
College of Technology	11%
College of Pharmacy	21%
College of Law	10%

Every county in the State is represented in the student body. The smallest number of students from any county is from Sagadahoc County, there being six from that county. The largest number of students from any county is from Penobscot County, the number being 131. The second largest number is from Cumberland County, there being 70. Every county in the State is represented in the freshman class. Besides every county being represented in the freshman class, every state in

New England is represented. The largest number of students from any one town is from Portland. The number of women students is 32.

Of the new students the State of Maine furnishes 160; Massachusetts, 27; New Hampshire, 4; Vermont, 1; Connecticut, 2; Rhode Island, 1; New York, 9; Pennsylvania, 1; Maryland, 1; New Jersey, 1; Michigan, 1; Nova Scotia, 1. The total from outside Maine is 49.

The age of the oldest student in the freshman class is twenty-six years, eight months, and twenty-five days; of the youngest, sixteen years, two months, and twenty days.

Of the whole student body 547 are from Maine; 85 from Massachusetts; 12 from New Hampshire; 7 from Rhode Island; 1 from Vermont; 5 from Connecticut; 10 from New York; 1 from Missouri; 1 from Maryland; 1 from Michigan; 1 from Pennsylvania; 1 from Iowa; 2 from Nova Scotia; 1 from Peru.

Last year for the first time there was printed in the annual report a list of the occupations of the parents of our entering class. It would seem that this is perhaps the most direct method of discovering whether the institution is serving the classes for which it was intended. According to the acts of Congress and of the Legislature of Maine, a "liberal and practical education for the industrial classes is to be provided." The class entering in September, 1906, came from families engaged in the following occupations:

Architect, justice of the peace, fisherman, millwright and carpenter, confectioner, blacksmith, grocer, photographer, real estate and insurance, express messenger, manufacturer, last maker, contractor, meat and produce dealer, iron founder, stone cutter, mechanic, farmer, dentist, coal merchant, hotel keeper, postmaster, sea captain, curator of museum, mining engineer, boot and shoe dealer, overseer in mill, dressmaker, railroad employee, tobacconist, mill superintendent, surveyor, cooper, hardware dealer, music dealer, salesman, bridge engineer, teamster, farm superintendent, traveling salesman, conductor, merchant, carpenter, U. S. customs inspector, freight clark, traveling engineer, doctor, hotel manager, minister, dresser in woolen mill, proprietor of department store, clerk, nurse, electrical engineer, cranberry grower, machinist, insurance agent, teacher, cabinet maker, boat captain, house painter and paper hanger, baker, lumber manufacturer, shipper, architect and builder, brick mason, millwright, lawyer, agent, bookkeeper, landscape engineer, art store, director of experiment station, mason, lumberman.

In the class entering in September, 1906, the religious membership or preference is as follows:

Methodist, 39; Universalist, 25; Baptist, 19; Catholic, 15; Congregational, 54; Unitarian, 5; Union, 1; Presbyterian, 1; Free Will Baptist, 7; Episcopal, 8; Jewish, 1; Christian, 2.

Not only is the total number of students registered this year greater than ever before in the history of the University, but also the number in the freshman class is greater than at any previous time.

Lecture Course

The lecture course was maintained during the year of 1905-1906 on the same plan as previous yeras. The lectures given were as follows:

November 10, Professor Edward S. Morse, Peabody Academy of Science. Subject: Japan and the Japanese.

November 24, Professor J. William Black, Colby College. Subject: Historic Spots in Virginia.

December 14, Mr. Henry Turner Bailey, North Scituate, Mass. Subject: Structural Design.

January 18, Professor Henry L. Chapman, Bowdoin College. Subject: Robert Burns.

February 1, Professor George D. Chase, University of Maine. Subject: The Home of Our Prehistoric Ancestors.

February 23, Mrs. Anita Newcomb McGee, Washington, D. C. Subject: A Woman's Experience in the Japanese Army.

The following is a list of lecturers who have appeared before the students in the College of Technology during the past year:

Mr. E. W. Bolton, with the Penobscot Machinery Company, Bangor. Subject: Steam Pump Installations.

Mr. George H. Hall, Sales Engineer, The Crocker-Wheeler Company, Ampere, N. J. Illustrated lecture on Motor Tool Drive.

Mr. Charles B. Burleigh, with the Boston Branch of the General Electric Company. Subject: The Steam Turbine.

Mr. A. L. Rohrer, Electrical Superintendent, Schenectady Works, General Electric Company. Subject: The Apprenticeship Course at Schenectady.

Mr. Kennedy, of the Western Electric Company, New York Office. Subject: An Apprenticeship Course in Telephone Engineering.

Mr. Walter B. Snow, Manager of the Advance Department of the B. F. Sturtevant Company, Boston. Illustrated lecture on the Creation of a Manufacturing Plant, also, the Sturtevant System of Heating and Ventilation.

Mr. William G. Snow, Boston Manager of the Warren Webster Company. Illustrated lecture on the Vacuum System of Steam Heating.

Buildings

Library—On February 8, 1905, a gift of $50,000 was received from Mr. Andrew Carnegie for the purpose of building a library. The Trustees accepted the gift and inaugurated a competition for plans. Designs were submitted by eleven architects, each design being signed with a fictitious name. The Building Committee, consisting of Messrs. Lord, Winslow and Haskell of the Trustees, and Fellows of the University, assisted by Professor Chandler, Professor of Architecture at the Massachusetts Institute of Technology, examined all the designs, and agreed upon one, before the names of any of the architects were known. The design having been agreed upon, the envelopes containing the names of the competitors were opened, and it was found that the successful design

was prepared by Brainerd and Leeds, of Boston. The Building Committee then advertised in the newspapers of the State for bids for the construction of the library. Several bids by prominent contractors were presented, and the Committee awarded the contract to the Horace Purinton Company of Waterville, that firm being the lowest bidder. Excavation for the foundation was made during the summer of 1905, and the foundation built during the autumn was carefully protected through the winter. The work of the superstructure was begun in April, 1906. The building was completed and dedicated on the 2nd of November, 1906. The program of the dedicatory exercises follows:

Music by University Military Band
Prayer
Report of the Building Committee
Report of the Contractor
Presentation of the Building to the State
By the President of the Board of Trustees, Henry Lord
Delivery of the Keys to the President and Faculty of the University
By the Governor of the State, William T. Cobb
Music by the University Military Band
The Relation of the University Library to the State
By the Librarian of the University, Ralph K. Jones
Dedicatory Address
By the United States Commissioner of Education, Elmer Ellsworth Brown
Reception by "The Round Table" at the New Library
Music by the University Orchestra
Inspection of the Building

Lord Hall—The increase in the number of agricultural students, together with the enlarged work of the Experiment Station, made it impossible to conduct the work of the Department of Agriculture as far as heretofore in Holmes Hall. The attic, or third floor, of Lord Hall has been finished into three fair-sized recitation rooms and two small offices. This additional space gives somewhat increased facilities to the College of Agriculture, although the accommodations are still inadequate. It is hoped, however, that we may get through this year without serious inconvenience, although if next year brings us as many new students in agriculture it will be next to impossible to proceed further without a new building for this work.

Other Buildings—The only remark to be made is that all buildings are overcrowded. Wingate Hall should be entirely devoted to the Department of Civil Engineering. It is almost impossible to find room for the freshman drawing class. The Department of Physics needs more room. The Soils Laboratory, built to accommodate eleven students, is forced to serve twenty-six. Similar statements could be made concerning most of the departments. No remedy can be suggested for this until other new buildings are erected.

College of Agriculture

The growth heretofore noted in the numbers attending the College of Agriculture, is to be repeated, except that a still greater increase has occurred in the fall of 1906. Five students graduated in the full four-year course in the class of 1906, and twenty-six new students entered for the four-year course in the fall of 1906. The need of a new building will be further discussed under the head of Needs.

The correspondence work in Agriculture, undertaken a little over a year ago, has grown greatly. The interest throughout the State is increasing, and the usefulness of this feature is undoubted. Professor Gilbert is compelled to devote nearly the whole of his time to this work. It is carrying out the true ideal of the State University when instruction can be carried directly to the mass of the people. It is sincerely hoped that increased means may be appropriated to further this correspondence and extension work.

For the better organization, and because of the increased demands upon all of the departments of the College of Agriculture, Professor Hurd has been appointed acting dean of the College of Agriculture. This will tend to unify the work of all the departments.

College of Law

All that has been said in previous reports concerning the high grade of work done in the College of Law, and the remarkable success of the graduates, might be here repeated. The College of Law continues to increase in size and in efficiency and its graduates year by year are taking high rank at the bar of this and other states.

The most important item, however, to bring before the Trustees at this time is the absolute necessity of better quarters for the lecture rooms and libraries. We fully understand the difficulties that have arisen in securing better quarters, but it should be noted that the need is now more urgent than ever, since the buildings erected adjoining the lecture rooms have shut off light and air. It is sincerely hoped that some friend of the University may give a sum of money, $30,000 or more, for the building of a proper structure for the College of Law.

College of Technology

The College of Technology provides technical instruction in Chemistry, Chemical, Civil, Mechanical, Electrical and Mining Engineering, and Forestry.

A majority of the students registered in this college take Civil, Mechanical, or Electrical Engineering. All engineering students, however, are required to take a minimum of one and two-fifths credits in Chemistry.

The following table shows the registration in three of the engineering departments since 1894. It is believed that it is self-explanatory and requires no remarks.

TABLE SHOWING THE RELATIVE REGISTRATION SINCE 1894 OF THE THREE ENGINEERING DEPARTMENTS

Year.	Total Civils.	Total Elecs.	Total Mechs.	Total in Univ	Total Engs.	% of Engs. to total.	% of Civils to Engs.	% of Elecs. to Engs.	% of Mechs. to Engs.
1894-5	64	38	36	203	138	67.9	46.4	27.5	26.1
1895-6	59	53	47	243	164	67.5	36.0	35.2	28.8
1896-7	59	80	53	309	192	62.1	30.8	41.6	27.6
1897-8	64	77	61	306	202	66.0	31.6	38.1	30.3
1898-9	62	86	41	293	189	64.5	32.8	45.5	21.7
1899-0	75	82	38	316	195	61.7	38.5	42.0	19.5
1900-1	82	73	33	345	188	54.5	43.6	38.8	17.6
1901-2	102	86	35	350	223	63.7	45.7	38.6	15.7
1902-3	119	93	34	404	246	60.9	48.4	67.9	13.7
1903-4	138	107	52	433	297	68.6	46.5	36.0	17.5
1904-5	140	104	44	449	288	64.1	48.6	36.1	15.3
1904-6	138	112	53	476	303	63.7	45.5	37.0	17.5
1906-7	144	125	54	535	323	60.4	44.6	38.7	16.7

The "Total in Univ." is exclusive of the School of Law, Winter Course in Agriculture, and Summer School.

The departments of this College are in a flourishing condition, and show a steady growth, with perhaps the exception of the Mining Engineering course, this latter being in its infancy, without adequate equipment or instruction. Many of the departments are laboring under difficulties, having congested recitation and drawing rooms and laboratories, insufficient apparatus and equipment. A majority of the instructors must carry so much work that it is impossible for them to obtain the best results.

In spite of these disadvantages, the graduates from these courses, after obtaining employment in some branch of their profession, as a rule are rated favorably with those of other institutions. It is wished to repeat and emphasize the statement made in the last report, that, in order that this rating may be increased as well as kept up to its present standard, it will soon be necessary to increase the number of instructors, and add to the equipment of these departments.

The beginning of the fourth year of the teaching of Forestry in the University furnishes conclusive evidence of the great demand for this work. The University of Maine is the only institution furnishing undergraduate work in Forestry east of Michigan, and unless we should be willing to not do thoroughly the work we have already begun it will soon be necessary to have some increased facilities and instruction in this department.

College of Arts and Sciences

This college includes those departments which are usually found in collegiate institutions. The students who have had the requisite preparation, and who devote one year to the study of either Latin or Greek in college, are candidates for the degree of Bachelor of Arts. Those who do not take work in Latin or Greek are candidates for the degree of Bachelor of Science. In this college it is expected that some one department will be chosen in which the student shall do the major part of his work. Work of this character may be selected from the departments of Biology, Chemistry, Civics, English, German, History, Mathematics, Physics, or Romance Languages. The faculty of this College numbers thirty-five, and there are about one hundred and twenty-five students enrolled.

The Summer Term is a division of the College of Arts and Sciences.

Department of Education

During the present year there has been added one new department, the Department of Education. No department added to the University has met with more prompt appreciation than the new Department of Education. The State Superintendent of Schools, the various teachers' associations in different parts of the State, and other educational organizations, have immediately welcomed the new department. A considerable number of students have already registered for Education as a major course, and it is hoped and believed that in the course of a few years the University may be able to supply at least a reasonable proportion of the demands made upon it for teachers in high schools and academies. Requests are constantly received at the University for principals and department teachers in secondary schools. Probably no more than one-fifth of the teachers asked for can be supplied, chiefly because but few of the students have been planning to be teachers. The opportunity provided by this new department will undoubtedly tend to increase the number of students intending to take up teaching as a profession; at least present indications seem to point to this result.

Domestic Economy

In a State University where provision is made, according to law, for education to the "industrial classes," it is certain that domestic economy ought not to be omitted. At present there is no provision for this work. It ought not to be long before women seeking industrial training should have as good an opportunity as men.

Geology and Botany

A present need is also felt for full departments of Geology and Botany. Not only are these departments of work essential to any liberal education, but they are indispensable for the technical courses. We ought not to wait longer than the beginning of the fall term of 1907 for the department of Geology, and a material increase in the amount of Botany

instruction. An independent department for each of these subjects should be established.

No division of the University may be emphasized to better advantage at the present time than the College of Arts and Sciences. Upon this we depend to supply students to meet the constantly growing demand for teachers in Maine and elsewhere, and for preparation for the study of law, medicine, and theology. The influence of this college upon the more teachnical branches of the University is of great value along lines which lead to general culture.

Gifts

Since the last annual report the University has received the following gifts:

DEPARTMENT OF ELECTRICAL ENGINEERING

Panel of Storage Battery parts for demonstration purposes, from the National Battery Company, Buffalo, N. Y.

Samples of wire and cables with modern types of insulation, from the John A. Roebling's Sons Company, Trenton, N. J.

Large framed photographs of General Electric Company machinery, buildings, and railway systems, from, or through the Alumni Association at Schenectady.

Photographs of Bullock Electric Company machinery, from Mr. A. N. Brown, 1905, Cincinnati, Ohio.

Two complete desk telephone sets, from the Kellogg Switchboard & Supply Company, Chicago, Ill.

Photographs showing construction of electrical machinery, from Mr. George H. Hall, 1894, the Crocker-Wheeler Company, Ampere, N. J.

Samples of modern apparatus, consisting of parts and types of telephones for demonstration purposes. Loaned by the American Bell Telephone Company.

COLLEGE OF AGRICULTURE

Through the interest of the C. M. Conant Company of Bangor, a full set of Aspinwall Potato Machinery was loaned for exhibition purposes.

One Kemp Manure Spreader, from the Richardson Manufacturing Company, of Worcester, Mass.

One Standard Sprayer, and one New Standard Potato Digger, from the Standard Harrow Company, Utica, N. Y.

Mr. C. F. Parsons of Fort Fairfield, State Agent for the Evans Potato Planter, presented a planter.

Through the efforts of Professor W. M. Munson and the influence of the George B. Haskell Company of Lewiston, a carload of implements, mostly from the plant of the John Deere Company, of Maline, Illinois, were placed on exhibition.

One Eureka Two-Horse Potato Planter, one Eureka One-Horse Potato Planter, and one Eureka Corn Planter, from the Eureka Mower Company, of Utica, N. Y.

Three Iron Age One-Horse Cultivators, two Iron Age Hand Garden Drills, one Iron Age Hand Garden Hoe, and one Iron Age Sprayer, from the Bateman Manufacturing Company, Greenlock, N. J.

One Miller Manure Spreader, from the Newark Machine Company, Newark, Ohio.

One Adriance Mower from the Adriance Platt Company, Poughkeepsie, N. Y., by their General Agent, George S. Pitts, Bangor.

One Knapsack Sprayer, from the Myers Spray Pump Company.

R. B. Dunning & Company of Bangor, C. M. Conant & Company of Bangor, George B. Haskell Company of Lewiston, and Kendall & Whitney of Portland, all have from time to time furnished free samples of seed for classroom work.

NEEDS

Heating and Power Plant—In the last annual report a brief synopsis of the history of the heating and power plant was given. The conditions have not changed except that more is demanded of the power plant, and the inadequacy is much more apparent than heretofore. It has been found impossible to light the new library at all from our local plant. It has therefore been connected directly with the wires of the Bangor Railway and Electric Company. The following paragraphs are taken from last year's report, as fully exemplifying the needs of a new heating and power plant:

"A need which is growing every day more imperative and which has already been twice brought before the legislature, is for a general heating and power plant.

"In 1898 a small boiler was put into a wooden addition to a wooden building which then served for a shop. This boiler furnished power for the necessary electric lighting of the buildings and grounds as they existed at that time. Because of the failure of the heating plant in Fernald Hall, the exhaust steam from the boiler was soon used to heat Fernald Hall. In 1900 the same necessity compelled new arrangements for heating Oak Hall. A brick conduit was made and steam conducted from the boiler to that building. There was constant danger of the failure both of heating and lighting because of the lack of power, but no accident occurred. In 1901, after the construction of Alumni Hall, a new boiler was added, and these two boilers have, as far as possible, furnished the heating for Oak Hall and the Commons, Wingate Hall, Fernald Hall, Alumni Hall, and since 1904 Lord Hall also. The work put upon these boilers is too great for their capacity and it is impossible to both heat and light the institution at certain hours of the day. For two or three years past we have been compelled to buy power and light from a public company during the hours when the greatest strain is put upon our plant, viz., from 3 to 5 P. M., when all the lights are used in the drawing rooms and all of the buildings connected with the boilers need heat. Our present plant is totally inadequate. At other times, the demand made upon our boilers and dynamos is so great that the slightest accident, the breaking of a belt or anything of that nature, compels us to buy power. We have no reserve, and not enough engine and dynamo force to carry all of our plant at once. In addition to this there are four or five buildings that ought to be connected with the same central plant, which connection is of course impossible. When

the new library is completed there will be still more reason to put in an adequate plant. The great lack of economy in fuel, as well as the increased amount of labor demanded under present conditions, must be obvious to any one who makes a careful investigation."

The expert heating engineers who made estimates two years ago have carefully gone over the subject again and made careful surveys. They find that a proper heating and power plant, supplying all of our present buildings including the new library, and so arranged that additional buildings may be attached to it, can be constructed for between $50,000 and $60,000.

Agricultural Building—All that was said in last year's report to show the need and advisability of having a new structure for the College of Agriculture may be repeated here with emphasis.

The number of students taking work in Agriculture has fully doubled since last year. At the opening of the fall term twenty-six new students entered for the four-year course in Agriculture.

Dormitory—The catalog to be published this fall will show a registration of 687 students (possibly a few more should be added to this). The inadequacy of dormitory room for the students has been apparent for years. It was relieved somewhat two years ago when two new chapter houses were built, but an increase of nearly two hundred students within that time has again rendered the capacity of the University and of the village inadequate for proper accommodations. While rooms in which to stay may be obtained, it is not true that a sufficient number of desirable rooms can be obtained in the village. With the scarcity and increasing demand prices have risen. Hence, need of increased dormitory facilities on the University grounds is more than ever apparent. There should be sufficient accommodation, at reasonable prices and of good quality, furnished by the University so that local prices could not become exorbitant because of the lack of competition.

A most pressing need is for a dormitory providing for not less than 150 students.

Department of Physics—In all previous reports recommendations have been made, though without being strongly urged, for a Physics building.

The Department of Physics now occupies the second floor of the building designed for Civil Engineeering. That building at present cannot supply the drawing rooms necessary for the freshman class alone. What the situation will be next year, if the incoming class is no larger than the one this year, is something the authorities of the University cannot contemplate without alarm. No less than the whole of Wingate Hall should be devoted to the departments of Civil Engineering and Drawing.

In addition to relief for the Civil Engineering and Drawing departments, the floor occupied by the Department of Physics is already overcrowded, and there is no space for expansion.

Chemistry Building—Although the Department of Chemistry has a whole building to itself, its size furnishes adequate facilities for about one-half the students we now have. When it was built many years ago

it was one of the best. Twenty-five years ago perhaps no laboratory in the country was any better than the one we had then, and which we still have. But the same argument which calls for increased room in other departments, applies here. Either considerable additions must be made to the present building, or a new laboratory constructed very soon.

Assembly Hall or Chapel—The Chapel is no longer large enough to accommodate the whole student body. Further remark seems unnecessary. Certainly no institution should be long without some room not only large enough to hold its student body on ordinary occasions, but of sufficient capacity for the more important exercises during the year when visitors are present.

Summary of equipment needed immediately, and buildings which should be built at once, or within two or three years at most:

Biology	$ 709
Museum	1,275
Forestry	525
Chemistry	1,400
Zoology	600
Mechanical Engineering	12,568
Physics	550
Pharmacy	500
Mineralogy	275
Military	500
Electrical Engineering	4,725
Horticulture	11,500
Power plant	50,000 to 60,000
Agricultural Building	50,000 to 60,000
Dormitory	60,000 to 100,000
Physics Building	40,000
Additional farm land	Unknown amount
Houses for farm laborers and other employees	7,500

Increase in Faculty—In addition to the number of instructors demanded from time to time as the number of students increases, there should be immediately added to the faculty a professor and instructor in Botany, an instructor in Entomology, a curator of the Museum, a professor of Geology.

Income from the State

On the 31st of December, 1906, the State appropriation for the support of the University will expire. This is a most important crisis in the history of the University. There may have been times in the past when a question might be raised as to the real vitality of the institution, whether it could or should live. If these times have existed they are all in the past.

The demand for the education offered at the institution is not only far greater than ever before, but far beyond the dreams and hopes of the strongest friends of the University. There are many ways that this might be shown, but the fact that nearly seven hundred students

are enrolled in the fall of 1906, the larger part of these taking our technical and agricultural courses which are not to be had elsewhere in the State, is undeniable evidence that the institution is accomplishing here in New England exactly what State Universities in other states have been accomplishing.

It is difficult to account entirely for the present prosperous condition. For several years facilities for room and board of students have been inadequate. The equipment in laboratories and shops has been far less than was the students' right to expect. The number of classrooms, and of buildings for instruction, has been for several years entirely insufficient. Possibly the optimism of trustees, teachers, and students, and the general belief that the State would come to the rescue in time, may account for the general prosperity up to this point. The limit, however, has been reached. The Legislature of 1907 must plainly and clearly decide whether the University is to be checked in its progress, or go on trying to meet the demands made upon it by the people of the State. If it does its duty by its patrons, the amount of support by the State must be very greatly increased.

I am aware that it is not sensible or practicable to measure one's personal expenses by those of another, but it is a mere matter of business and scientific calculation to determine the approximate amount of money necessary to manage a successful business enterprise of a certain kind. Any wise business man makes use of the experience of others in estimating for the future. A manufacturing concern employing a fixed number of hands, at definite wages, producing a certain amount of goods which may be sold at an approximately certain price, can tell pretty accurately in advance just how much money is necessary to use in the successful management of the business. With not quite as great accuracy, but nearly so, may the necessary income and expenses of an educational institution be estimated.

It is perfectly fair to compare institutions of similar nature, grade, and size. The figures are at hand to show that no State University of equal grade or size receives a less support from the state than from three to ten times as much as the University of Maine. I understand perfectly that many things should be considered when comparisons are made, the real valuation of the property of the state, population, the number of students, etc. North Dakota, with an assessed valuation one-half that of Maine, with two-thirds as many college students, paid last year $62,796 for annual maintenance, and a considerably larger sum for buildings. Colorado, with an assessed valuation just about the same as Maine, and with about one hundred more college students than the University of Maine, received last year for support $209,000. In North Dakota the state supports an Agricultural College in addition to the State University. In Colorado, a State School of Mines and an Agricultural College are supported in addition to the State University.

These are given merely as illustrations, because the students number very nearly the same as in the University of Maine. To continue the comparison would only make the support of the Unversity of Maine

show to greater disadvantage. Of course we do not wish to compete with such states as Illinois, Indiana, Ohio, Wisconsin, Minnesota, Michigan. They are manifestly so far beyond us in population, property, and number of students that it would be of no advantage to anyone to draw parallels. But Maine would show to greater disadvantage than in the two instances stated if compared with such states and territories as Alabama, Arizona, Idaho, Oklahoma, Oregon, Washington, Wyoming.

Farming Special Train

The mission of the State University, and particularly of the agricultural college of the University, is to spread information as widely as possible within the State. With this idea in view it became possible through the generous co-operation of the Bangor and Aroostook Railroad, and the Maine Central Railroad, to run a special train for five weeks during the spring and early summer of 1906.

The President of the University conferred with the Commissioner of Agriculture, Honorable A. W. Gilman, and it was decided to unite the forces of the State Department of Agriculture with those of the College of Agriculture. Invitations to accompany the train were sent to the officers of the State Grange, the State Pomological Society, and the State Dairy Association, indeed to all organizations connected with agriculture, including the editors of the agricultural papers in the State. Representatives of each organization, and of several newspapers in addition to the agricultural papers, were with the train for a longer or shorter period.

The train on the Bangor and Aroostook System ran for twelve days, according to the following schedule:

Monday, April 23

Bradford.....9.00 to 11.00 A. M.
Frankfort.....12.30 to 2.30 P. M.
Searsport.....4.00 and evening

Tuesday, April 24

Prospect.....9.00 to 11.00 A. M.
Lagrange.....1.00 to 3.00 P. M.
Brownville.....4.00 and evening

Wednesday, April 25

Sherman.....10.00 to 12.00 A. M.
Island Falls.....1.00 to 3.00 P. M.
Patten.....4.30 and evening

Thursday, April 26

Oakfield.....9.00 to 11.00 A. M.
Masardis.....1.00 to 3.00 P. M.
Fort Kent.....evening

FRIDAY, APRIL 27

Ashland.....10.00 to 12.00 A. M.
Houlton.....4.00 and evening

SATURDAY, APRIL 28

Monticello.....9.00 to 11.00 A. M.
(Train at Houlton for Sunday.)

MONDAY, APRIL 30

Fort Fairfield.....4.00 and evening

TUESDAY, MAY 1

Easton.....9.00 to 11.00 A. M.
Mars Hill and Blaine.....12.30 to 2.30 P. M.
Presque Isle.....4.00 and evening

WEDNESDAY, MAY 2

Van Buren.....10.00 to 11.30 A. M.
New Sweden.....1.00 to 3.00 P. M.
Caribou.....4.00 and evening

THURSDAY, MAY 3

Limestone.....9.00 to 11.00 A. M.
Bridgewater.....2.00 to 3.30 P. M.
Millinocket ..... evening

FRIDAY, MAY 4

Milo.....9.00 to 11.00 A. M.
South Sebec.....12.30 to 2.30 P. M.
Dover and Foxcroft.....4.00 and evening

SATURDAY, MAY 5

Greenville.....10.00 to 11.30 A. M.
Abbot Village.....1.00 to 2.30 P. M.
Guilford.....3.00 to 4.30 P. M.
(And then back to Old Town.)

The train on the Maine Central system ran fifteen days according to the followig schedule:

THURSDAY, JUNE 14

Danforth.....9.30 to 11.30 A. M.
Kingman.....1.10 to 3.00 P. M.
Lincoln.....3.40 to 5.30 P. M.

FRIDAY, JUNE 15

Orrington.....9.00 to 10.30 A. M.
Bucksport Ctr. (Winterport).....10.45 to 12.50
Bucksport.....2.30 to 4.30 and evening

SATURDAY, JUNE 16

Hancock.....9.30 to 11.30 A. M.
Mt. Desert Ferry (Bar Harbor).....1.10 to 3.00 P. M.
Ellsworth.....4.00 to 6.00 and evening

MONDAY, JUNE 18

Cherryfield.....9.00 to 11.00 A. M.
Harrington.....12.30 to 2.00 P. M.
Columbia Falls.....2.30 to 4.00 P. M.
Machias.....4.45 to 6.00 and evening

TUESDAY, JUNE 19

Dennysville.....9.00 to 11.00 A. M.
Perry.....1.00 to 3.00 P. M.
Eastport.....4.00 to 6.00 and evening

WEDNESDAY, JUNE 20

Pembroke.....9.00 to 11.00 A. M.
Princeton.....1.30 to 3.00 P. M.
Calais.....4.15 to 6.00 and evening

THURSDAY, JUNE 21

Corinna.....2.00 to 3.30 P. M.
Dexter.....4.00 to 6.00 and evening

FRIDAY, JUNE 22

Newport.....9.00 to 11.00 A. M.
Brooks.....1.30 to 3.25 P. M.
Belfast.....4.00 to 6.00 and evening

SATURDAY, JUNE 23

Unity.....9.00 to 11.00 A. M.
Clinton.....1.00 to 3.00 P. M.
Pittsfield.....4.00 to 6.00 and evening

MONDAY, JUNE 23

Oakland.....9.30 to 11.30 A. M.
Fairfield.....1.30 to 3.15 P. M.
Skowhegan.....4.00 to 6.00 and evening

TUESDAY, JUNE 26

Winthrop.....10.00 to 11.30 A. M.
East Livermore.....1.30 to 3.00 P. M.
Farmington.....4.00 to 6.00 and evening

WEDNESDAY, JUNE 27

North Jay.....9.00 to 11.00 A. M.
Greene.....1.00 to 3.00 P. M.
Lewiston (Main Street).....4.00 to 6.00 and evening

THURSDAY, JUNE 28

Lisbon.....9.00 to 11.00 A. M.
Brunswick.....1.00 to 3.00 P. M.
Bath.....4.00 to 6.00 and evening

FRIDAY, JUNE 29

Wiscasset.....9.30 to 11.30 A. M.
Damariscotta Mills.....1.00 to 3.00 P. M.
Rockland.....4.00 to 6.00 and evening

SATURDAY, JUNE 30

Waldoboro.....9.00 to 11.00 A. M.
Back to Bangor.

The first train consisted of two baggage cars and one coach. The two baggage cars contained apparatus and illustrative material relative to Agriculture, Animal Industry, Horticulture, Entomology, and the Experiment Station. Professors representing each of these departments, officers of the State Department of Agriculture, and students in the College of Agriculture, accompanied the train. At every stop from two to four short addresses on practical agricultural topics were given to the people who assembled. Ample opportunity was given for all to go through the train and examine the exhibits and ask questions. Where the train stopped over night an illustrated lecture was given in a public hall. It is estimated that from sixty to seventy thousand people went through the train and listened to the addresses.

The Maine Central train consisted of three baggage cars and a coach, and in addition to the apparatus and illustrative material in the first train, there was increased space given to the Department of Horticulture, and a considerable exhibition of Forestry work. This latter exhibit was greatly improved by the assistance of the State Department of Forestry, and by manufacturing interests dealing with timber.

The strongest assurances have been received from all parts of the State that great good has been done in encouraging improved methods in poultry and dairy work, orchard and farm crops. Every day inquiries come to the Experiment Station or to the University from those who

visited the train or who have heard of it, and who wish detailed information regarding fertilizers, seed, stock feeding, and other matters of similar nature. There is little doubt that the two trains, which were run largely as an experiment, have resulted in a quickened interest in all lines of agricultural work among those who are already ambitious, and in an awakened interest among many who had never thought much about improved farming methods.

REPORT OF THE DEAN

President G. E. Fellows:

SIR:—During the past two years the routine work of this office has been the same as that set forth in my last report, except that applications for admission to advanced standing in the University are now passed upon by the Dean of the College of Arts and Sciences, who acts also as Chairman of the Registration Committee.

I wish to especially call your attention to the favorable results of the new requirements for admission and of our membership in the New England College Entrance Certificate Board. In 1904 the requirements for admission to technical courses were raised by fully one-third. At the same time we began the practice of accepting certificates from those schools only that were approved by the New England College Entrance Certificate Board. As a natural result there was a considerable falling off in the entering class that year. At the present time, however, that loss seems to have been more than made good, candidates and schools having learned to adapt themselves to the new requirements. The following comparison may be of interest:

STUDENTS ADMITTED TO FOUR YEAR COURSES, 1904

Regular freshmen	88
Special students	27
Total	115

Percentage of special students, 23.5.

STUDENTS ADMITTED TO FOUR YEAR COURSES, 1906

Regular freshmen	152
Special students	17
Total	169

Percentage of special students, 10.

The gain in thoroughness of preparation is quite as marked as the increase in numbers, the percentage of "conditioned" students in 1906 being only seven-tenths of what it was in 1904.

While the decrease in percentage of conditioned students is gratifying, it does not give a full idea of the improvement, but when joined with the decrease in first year specials it is very satisfactory.

It may also be of interest to compare the average number of points offered by all candidates admitted in 1904, both with and without conditions, with the average offered in 1906.

In 1904 all candidates averaged 23.8 points.

In 1906 all candidates averaged 25.9 points.

This year's admissions to the freshman class, classified by the schools where preparation was made, are as follows:

Maine Schools

Bangor, 8; Portland and Hebron Academy, 7 each; Deering, 6; Paris, 5; Orono, Thornton Academy, Washington Academy, Westbrook, 4 each; Boynton High School, Cony High School, Ellsworth, Kennebunk, Old Town, Rumford Falls, Skowhegan, Vanceboro, Yarmouth, 3 each; Bar Harbor, Belfast, Calais, East Maine Conference Seminary, Edward Little, Farmington, Foxcroft, Greeley Institute, Houlton High, Ricker Classical Institute, Waterville, 2 each; Berwick Academy, Brunswick, Camden, Farmington Normal, Fryeburg, Gardiner, Good Will, Guilford, Island Falls, Maine Central Institute, Norway, Parsonsfield Seminary, Rockland, Sabattus, Sangerville, 1 each.

Other States

Lynn, Mass., 6; Brooklyn, N. Y., 4; Utica, N. Y., 3; Fall River, Ipswich, and Malden, Mass., and Somersworth, N. H., 2 each; eight towns in Massachusetts, two in New Hampshire, one in Rhode Island, one in Connecticut, one in New York, Lansing, Mich., George School, Penn., Bridgton, Nova Scotia, one each.

In the above report no account is made of students admitted to the Short Pharmacy Course, or the School Course in Agriculture, as those admissions are administered by the Professor of Pharmacy and the Dean of the College of Agriculture respectively.

A still more careful administration of our requirements for admission will undoubtedly result in increased numbers, as well as in greatly improved quality of preparation.

Respectfully submitted,

J. N. HART, *Dean.*

REPORT OF THE DEPARTMENT OF AGRONOMY

President G. E. Fellows:

SIR:—I have the honor to present the following report of the Department of Agronomy, and, as you requested, have also mentioned some of the immediate needs of the College of Agriculture as a whole:

The work of the Department of Agronomy has been developed along the lines indicated in the last report. During the past year three elective courses have been added, making ten in all. The work of instruction besides these ten college courses consists of that given in the Two Years School Course, and the short winter courses. At the beginning of the year a small room on the third floor of Fernald Hall was at slight expense made into a temporary soils laboratory, and some apparatus has been provided. The maximum capacity of this room is ten, but at the present time twenty-six are registered in this course. One plane table has been made in the department and one purchased during the year. A set of tools for the taking of soil samples has also been made here. These all add greatly to the efficiency of the teaching of this subject, but it is obvious, on account of the larger numbers now taking these courses, that the equipment and room is entirely inadequate, and more of each must be provided in the near future. There is much equipment needed in the department which I have spoken of, later on, in the needs of the College of Agriculture.

As in previous years the management of the College Farm has been in my hands. During the year there was grown on the farm 160 tons of hay; 200 tons silage corn; 8 acres of oats, 5 acres of potatoes; 1½ of ruta-bagas; 1 of mangel wurtzels, and a few beans. These crops have either been sold to the fraternity houses or consumed by the live stock owned by the University. The income derived from these crops and from labor furnished by the farm resulted in a little over $350 net profit for the year. The rotation of crops started in 1904 is being carried out with excellent results. During the year about one-half mile of tile drain has been laid in that section of the farm to the south of the Carnegie Library. There is still need of a large amount of under-drain in other sections of the farm and I would recommend that this be laid at the earliest possible moment. Very little equipment was added to the farm during the year. The urgent needs of the farm are listed under those of the College of Agriculture.

Progress During the Year

It gives me pleasure to report at this time a continuance in the increase of agricultural students. During the year the following numbers have taken one or more courses in the College of Agriculture:

In Four Year Agricultural Course	21
In Two Year School Course	12
In Short Winter Courses	9
In Special Poultry and Horticulture Course	9
Students from other courses in the University taking courses in Agriculture	14
Students in Summer School taking Elementary Agriculture and Nature Study	10
Total taking work in the College of Agriculture	75
Total number enrolled in Correspondence courses, 100, of which fifty are returning written answers to questions	50
Total number receiving systematic instruction last year in College of Agriculture	125

During the year much interest has been manifested throughout the State in the work of the College of Agriculture. The Maine Dairymen's Association has offered prizes aggregating $30.00 for essays on dairy subjects.

Hon. A. W. Gilman and Hon. Z. A. Gilbert each offer prizes of $25.00 for best essays. Mr. L. C. Bateman, of Lewiston, Mr. H. E. Cook, of Denmark, N. Y., and Mr. George Aiken, of Woodstock, Vermont, offer a prize of $20.00 for essays on stable sanitation, and The Bowker Fertilizer Company of Boston offer a prize to Short Winter Course students for the best essay on Fertilizers.

About two years ago an effort was made to secure a chapter of Alpha Zeta, the national honorary agricultural fraternity. Last year the matter was again taken up, this time the efforts being successful. Last May eleven Agricultural students and three members of the faculty were made members. The fraternity has active chapters in twelve other state colleges and universities and should help greatly in giving this college a high standing among similar institutions.

Five men received the degree of B. S. in the Agricultural Course last June, and three received certificates in the School Course in Agriculture.

During the year the Four Years Agricultural Course was re-drafted and made a 30-credit course, putting it on the same basis with other technical courses in the University.

About four times as many inquiries about the Agricultural Courses came into my hands as in any other year since I came here. These came from all sections of the United States and some foreign countries.

Gifts and Donations During the Year

During the year several manufacturers of agricultural implements have given for exhibition, and in some instances the privilege of use is allowed, the following implements and machinery:

The Richardson Mfg. Co., Worcester, Mass.

1 Kemp Manure Spreader.

The Standard Harrow Co., Utica, N. Y.

1 Standard Sprayer,

1 New Standard Potato Digger.

Mr. C. F. Parsons of Fort Fairfield, State Agent for the Evans Potato Planter, presented a planter.

Through the interest of the C. M. Conant Co. of Bangor, a full set of Aspinwall Potato Machinery, consisting of

1 Aspinwall Planter,

1 Aspinwall Sprayer,

1 Aspinwall Potato Sorter,

1 Aspinwall Seed Potato Cutter,

were loaned for exhibition purposes.

Through the efforts made by Professor W. M. Munson and the influence of the Geo. B. Haskell Co. of Lewiston, a carload of implements, mostly from the plant of the John Deere Co. of Maline, Ill., were placed on exhibition. These consisted of

4 Plows of different types,

1 Spike Tooth Harrow,

1 Disc Harrow,

1 Riding Disc Cultivator,

1 Riding Shovel Tooth Cultivator with extra attachments,

1 Deere Two Row Riding Corn Planter,

1 Deere Two Disc Gang Plow,

1 Deere Grain Drill and Seeder,

2 Deere Hay Loaders.

The Eureka Mower Co., Utica, N. Y.

1 Eureka Two Horse Potato Planter,

1 Eureka One Horse Potato Planter,

1 Eureka Corn Planter, No. 2.

The Bateman Mfg. Co., Greenlock, N. J.

3 Iron Age One Horse Cultivators,

2 Iron Age Hand Garden Drills,

1 Iron Age Hand Garden Hoe,

1 Iron Age Sprayer.

The Newark Machine Co., Newark, Ohio.

1 Miller Manure Spreader.

The Adriance Platt Co., Poughkeepsie, N. Y., by their General Agent, Geo. S. Pitts, Bangor,

1 Adriance Mower.

The Myers Spray Pump Co.

1 Knapsack Sprayer.

R. B. Dunning & Co. of Bangor, C. M. Conant & Co. of Bangor, Geo. B. Haskell Co. of Lewiston, and Kendall & Whitney of Portland, all have from time to time furnished free samples of seed for classroom work.

The above machinery is now all on exhibition, and for study in Machinery Hall. To the individuals, the firms who aided in getting this equipment and to the manufacturers themselves the department wishes to express thanks and appreciation at this time.

Extension Work

At the beginning of the year a systematic effort was made to develop the Correspondence and Lecture Courses. Prof. A. W. Gilbert was put in charge of the correspondence and details of the work. About January 1st last, Extension Circulars Nos. 1 and 2 were sent out over the State, and in two months' time more than 100 were enrolled in the Correspondence Courses. The number who at once took up this work is proof of the need for it and it is to be hoped that a member of the faculty can give his entire time to this work soon.

The Lecture Courses have been much sought after, lectures by different members of the faculty having been given in nearly every section of the State. During the year monthly lists of news items have been sent to about 100 papers in this and other states. The extension work is spoken of more fully under the needs of the College.

Needs of the College of Agriculture

There is the greatest immediate need of a modern building for the purposes of agricultural instruction and demonstration. The instruction in the three departments is now being given in eight separate buildings, only one of which, the dairy building, is properly equipped for first-class instruction. It is unnecessary to say that these three departments which are so closely dependent on each other could be greatly strengthened and the work made of a much higher grade if they were brought together into one building. The size of the classes at the present time absolutely demands that new quarters be provided, as those now available are entirely inadequate.

The building should be large enough to furnish ample room for the three departments. This means offices, classrooms, laboratories for each department, reading room, assembly room, museum, library, seminar rooms, a safe for records, mice and rat proof room for seeds and plants, photography room, soils laboratory, farm crops laboratory, stock judging room, cold storage room, drawing room, apparatus rooms, rooms for veterinary science and bacteriology; these latter include an operating room and rooms for the keeping of animals under test.

The Department of Agronomy needs more room and more apparatus for soil laboratory work. A large amount of equipment with which to develop phases of Agricultural Engineering other than the study of Farm Implements should be provided. At least two levels, rods and

chains, and two transits and compasses should be provided for the work in leveling, land drainage and farm surveying.

Models of plants, mounted specimens, samples of farm crops, charts and books are also needed.

The University Library has on hand nearly all of the reports and publications of the different state departments, colleges, and experiment stations, but these are not available for use. They must be bound and an index provided before the department can do satisfactory work in its courses.

A departmental library would also be of great usefulness to both instructors and students.

A dynamometer, for testing draft in the field, charts and material illustrating road making, models and charts showing construction of farm buildings, belts, pulleys, shafting, motors, and gasoline engines are some of the things needed.

The farm needs more land in order to extend operations, do demonstration work, and raise feed for the numbers of animals that should be kept. It is almost impossible at present to get men at reasonable wages for farm labor because there is no house in which they can live. A farm house large enough for at least one family and with room enough for several boarders should be built. At present there is no place where the potato crops and root crops can be stored. This causes considerable loss each year and a frost proof house similar to those used on farms in Aroostook county, costing from $700 to $1,000, should be built.

On account of lack of shed room it is necessary at present to let wagons and sleighs remain outdoors. Machinery Hall has been sided up and painted one coat. It needs more paint and some new floor. A grain room should also be built in this building.

The facilities for keeping stock should be increased. The college should breed and rear its own draft horses. The college should breed enough live stock of all kinds so that examples in breeding and care would be on hand for the study of students at all times. Better quarters for swine should be provided. There is also great need of sets of herd, stud, and flock books of the different kinds.

Mr. Dorsey reports the following needs in the Department of Horticulture:

At the end of the present year the Department of Horticulture will be without classrooms, and at present there is no laboratory for this department. A suitable laboratory should be provided with equipment for demonstrating, the making of sprays, grafting, budding, studying varieties, cold storage and handicraft work in general. The equipment of the laboratory should consist of balances, microscopes, graduates, barrels, pails, spray pumps, and nozzles of the different makes, and a supply of the different materials used in spraying.

For handicraft work in general there will be needed budding knives, pruning shears, saws, and the implements generally used for illustrative purposes. A collection of the implements used in harvesting fruit should

be on hand for illustration and a collection of the different packages for marketing and storing is needed.

A cold storage room should be provided for the keeping of fruits and vegetables for purposes of study.

Models, charts, photographs, and mounted specimens are needed for illustration.

A collection of injurious insects and fungus diseases affecting fruits and trees should be made for purposes of instruction.

A section of the greenhouse should be set aside for student work and student practice.

Some land should be devoted to small fruit, vegetable, and flower culture.

The extension work of the College of Agriculture should be developed farther. I have made inquiry into what is being done in twenty-two Eastern and Central states and find that about 75% of these colleges have extension work in some form. In a majority of these cases the work is carried on by means of special appropriations. These vary from $2,000 to $35,000 per annum. We need a special appropriation of not less than $4,000 a year to pay the salary of a man, his traveling expenses and the cost of carrying on co-operative and demonstration work all over the State. The work of the man in charge of this extension work would consist chiefly of co-operative work showing better methods of farming all over the State, the publishing of helpful circulars for farmers, the organization of Nature Study clubs in village and rural schools, demonstration work at fairs, educational work with granges, and lectures at institutes and other gatherings.

An effort should be made to gather together a model agricultural library to be exhibited at the larger fairs, the State Teachers' Association and the State Grange. Books should be suggested to the several grange libraries. When this work is started it will be necessary to get office equipment, duplicating machines, correspondence files, a stereopticon and slides, and clerical help will have to be provided.

The demand for men trained in Agriculture continues to increase. We had more than three times as many applications for men this year as we had men to fill the places.

At the beginning of the year Professor Arthur W. Gilbert took up his work as instructor. He has shown a deep interest in the development of the department, and the College of Agriculture.

Respectfully submitted,

WILLIAM D. HURD,

Acting Dean and Professor of Agronomy.

REPORT OF THE DEPARTMENT OF ANIMAL INDUSTRY

President G. E. Fellows:

SIR:—The buildings occupied by this department with their furnishings and animals make the facilities for instruction in animal feeding, breeding, judging and handling sufficiently good for present needs.

The cattle herd consists of forty animals, including representatives of six different breeds, viz: Jersey, Ayrshire, Guernsey, Shorthorn, Hereford and Red Poll. The swine herd contains five Berkshire breeding animals. There are fifty-four sheep, all pure-blooded Horn Dorsets, Cheviots, Hampshires, and Oxfords.

The Dairy Building is in good condition and well equipped with modern machinery and fixtures.

The poultry plant of the Experiment Station has been increased in buildings and fixtures and in connection with a large, private, commercial breeding plant in the neighborhood, furnishes unequaled facilities for studying poultry breeding and investigations.

The department has two urgent needs: one, a piped brooder house, 100 feet long, so that students may be given instruction in raising broiler chickens in winter; the other, a shed 60 feet long and 20 feet wide, in which to raise our dairy-bred heifers in the open air, more than is now practicable with our present barn arrangements.

Mr. Percy A. Campbell assists in the work of the department and teaching.

The calls for public lectures both in and out of the State have required a large amount of time and have been met whenever possible.

Respectfully submitted,

G. M. GOWELL,

Professor of Animal Industry.

REPORT OF THE DEPARTMENT OF BIOLOGY

President G. E. Fellows:

SIR:—So many students have registered in the Biological Department that we find great difficulty in providing for them in the laboratory because of insufficient space and apparatus. It has become necessary to divide the class in General Biology into three laboratory sections in order to accommodate them at all, and a class of fourteen and another class of thirteen are placed in a small laboratory that is intended for only eight. All of the regular lockers in the department have been assigned and a few students have been assigned drawers away from their desks. It has become necessary to schedule more than one class in the same laboratory at the same time and temporary tables have been crowded in. In order to accommodate these classes at all, it has been necessary to order eleven new microscopes and still many of these microscopes are used by as many as three different classes, and some by four classes, the result being that it is impossible to make certain individuals responsible for the care of their instruments. Many of the microscopes have to be transported from one place to another for the different classes.

The urgent needs of the department include more space, more instruments and a division of the work. We especially need a Botanist, an Entomologist and a Curator of the Museum. The work of the department has become such that it calls for specialists along these lines. The educational value of a Natural History and Industrial Museum is being recognized all over the country and material is constantly coming to us that calls for care and display. The department needs a vivarium and greenhouse in which material may be kept during our long and severe winters, for class work both in Botany and Zoology. It would then be possible for students to become acquainted with the habits and method of growth of forms they are studying, and to investigate many problems that are denied without this aid. An addition to the basement of Coburn Hall could be constructed at small cost, that would answer our present needs nicely.

Respectfully submitted,

GILMAN A. DREW,

Professor of Biology.

APPENDIX TO REPORT OF DEPARTMENT OF BIOLOGY

March 20, 1906.

President G. E. Fellows:

SIR:—In compliance with your request I submit the following report of the needs of the Department of Biology at the University of Maine:

As is the case with most of the older universities, the Department of Biology consists of what is left over after dividing what was known as the Department of Natural History. At present the department includes many divisions which are known as separate departments in many of the institutions in the United States. These divisions are: Botany, Zoology, Entomology, Physiology, Bacteriology, Embryology, and Herbarium and Museum. While these departments are in many ways related, they are sufficiently distinct to be run as separate departments wherever the finances of the institution allow it. With the technical departments of this institution there is a special need of good departments in Botany and Entomology that will deal with the economic side more fully than is possible under the present arrangement. The needs of the department may be taken up under several heads.

1. Space.

A. Laboratory. With the present number of students that take work in the department, and the subjects that have to be taught, our laboratory space, which is limited to one large room that will accommodate thirty-five students and one smaller room that will accommodate eight students, it becomes necessary to frequently have more than one class in the laboratory at the same time. This term, for instance, a class working on the embryology of the chick and a class in General Botany are in the laboratory at the same time, and another class working in Zoology together with another division of the class in General Botany are in the laboratory together. Later in the term, when the work in Bacteriology begins, it will be necessary to have a portion of this work done in the large laboratory, so there will be three classes dealing with different subjects and under different instructors, in the laboratory together. With the present arrangement there is no provision for those students who are taking advanced work and it becomes necessary for them to go to the laboratory and get such microscopes and desks as are not in use whenever it is possible for them to find accommodations. We are very much in need of the other room on the second floor of Coburn Hall, now used by the English department, in order that it may be equipped as a laboratory and the classes separated. The present arrangement necessarily causes confusion. We are also in need of at least two small rooms, one to be used for a workshop for the preparation of skeletons and other anatomical work, and another for drying, pressing and mounting plants. These rooms need not be large, and may be in the basement, but they should be well lighted and properly heated.

B. Museum. The present quarters of the Museum are so cramped that it is impossible to place any considerable portion of the material that we have, so it can be seen by the students or visitors, and the result

is, that that which is on exhibition is crowded and poorly arranged. To exhibit the material properly we will need fully twice as much room as we now have. When the library leaves Coburn Hall, the room now occupied as a reading-room would make very suitable quarters for the present needs, as it is both well lighted and large enough for a proper arrangement of cases. Further increase in the Museum can be provided for by cutting an archway from the present Museum into the room occupied by the Civics department, but the time is probably not far off when the building will not be adequate for the Department of Biology and for the Museum. The building is not properly arranged for a Museum and is not fire-proof. The expense always incident to the making of a Natural History collection is very great and the collection would be completely destroyed in case of fire, so it is desirable that the Museum be housed in a fire-proof building. This is being recognized as a necessity by most of our leading institutions and public museums.

C. Greenhouse and Vivarium. With our long winters it is a continual problem to arrange to have proper material for the work in both Botany and Zoology and there is no provision for caring for material in Entomology. A decided need of the department is some addition, connected with the laboratory, in which living material may be kept. At present we depend upon a small, cold room in the basement of Coburn Hall, together with aquaria and covered glass boxes put upon the laboratory tables. At an expense of only a few hundred dollars, three or four, I should think, it would be possible to make a small greenhouse connected with the basement of Coburn Hall and heated by the steam plant in that building. It would be very desirable to have this greenhouse arranged so that it would be possible to add to it and make a place for aquaria to keep many of the lower animals, needed for class work. This plan has been wonderfully successfully arranged at the University of Pennsylvania, where they have not only fresh water but salt water aquaria and breeding pens for pigeons, rabbits, etc., in which material for laboratory work is kept, and where experiments on inheritance can be made. The salt water aquaria are so arranged that the water is filtered through sand and kept at a constant density by adding fresh water. The water is pumped into tanks where it is saturated with air, and is then allowed to run down into the aquaria again. Situated as we are, near the sea, a plant like this would be practical and very useful to the department. I believe that this plant cost the University of Pennsylvania about $7,000.

2. Apparatus.

Laboratory. The past term the number of students made it necessary to assign each microscope to at least two different students and sometimes to three or four different students who used them at different periods during the day or different days of the week. Such an arrangement for such instruments as microscopes is unsatisfactory, as the student knowing he is not responsible for the instrument as others are using it, does not take the care that he otherwise would. Accordingly it is desirable to have enough microscopes to supply each student with

one. This would call for about fifty and they cost $48.75 each. It is necessary to have more another year than we now have, and it is very desirable that we buy at least one-half this number immediately. The other pieces of apparatus that are needed are:

2 Y dissecting microscopes, at $21.00 each	$42 00
1 erecting tube for microscopes	12 00
2 aquaria stands, to be made by the U. of M. carpenter,	40 00
1 case for models, to be made by the U. of M. carpenter,	125 00
1 case for apparatus, to be made by the U. of M. carpenter	20 00
1 pulse recording machine	25 00
1 camera for field work	50 00
1 photomicrographic camera	75 00
1 Abbe Camera Lucida	16 00
2 instructors' desks arranged for microscopic work	42 00
8 adjustable stools for small laboratory	20 00
1 set zoological charts	75 00
1 bat skeleton	12 00
1 human skeleton, with clutch standard	65 00
1 monkey skeleton	22 00
1 alligator skeleton	50 00
1 codfish skeleton	18 25

Other skeletons and models should be purchased as soon as the University can afford it, as they furnish, together with descriptions, about all of the available material for the study of important forms. A reasonable list of such material *that would be used in class work every year* would no doubt cost several hundred, probably more than one thousand dollars. The usual glassware and chemicals needed for running the department cost annually about $150.00 and must be added to the above items. If the new laboratory room can be had, desks for it would cost about $150.00. Stools for this room (15) would cost about $38.00.

Museum. If it is possible to spare the room to extend the Museum, about twenty-four cases should be made. These should be arranged as wall cases and floor cases. As an estimate, I should say the cases would cost about $50.00 each and this would amount to $1,200.00. Possibly if built by the U. of M. carpenter the expense would not be so great. Exhibition trays for the specimens to be placed in should be purchased and would probably cost two or three hundred dollars.

A museum should be properly labelled in order that students and visitors may not only learn the names of the animals, but something about their habits, distribution, abundance and uses to man. To have such labels it is necessary to have rather large cards, which would have to be printed. These labels could be printed at much less expense to the University and less bother to the department, if we had a printing press. I should estimate from the prices that I have seen that a satisfactory printing press, type and stock would cost about $175.00. The

room in the basement that is needed for pressing and mounting plants could be used for the printing equipment at present.

Our present Museum cases are in bad condition, due to their having been moved from the room below, to their present position. The floors of Coburn Hall are not level and the cases have been sprung from their original shape, so in some cases the doors do not close. It is impossible to fight the moths which have already become established in the bird and mammal skins, without tight cases, and they should be repaired immediately. This can be done by cutting the flanges from the doors and putting on rubber weather strips. This repairing should not cost more than twenty or twenty-five dollars.

3. Department Help.

Under the present arrangement I am expected to oversee the work in all of the branches of the department. With the importance of Botany to the technical departments of the institution, it is very desirable that it should be made a separate department, under a thoroughly competent botanist. The present arrangement is probably as satisfactory as can be arranged until that department is established, but more help is needed in the laboratory in some of the courses. The Botanical instructor is expected not only to give work upon General Botany, such as would be of interest to the ordinary college student, but to give the Botany that is required by the Departments of Agriculture, Forestry, and Pharmacy. In order to get the best results it will be necessary to have at least a professor and an instructor in this department.

With the great economic importance of insects there is, of course, very much demand for work in Entomology by students in the Agricultural department. Entomology, while really a branch of Zoology, is very distinct, especially its economic aspects, and it takes a specialist in this line to do the work satisfactorily. I have no doubt that it would be possible to get an instructor in Entomology, probably at a salary of about $800.00, who would for the present do this work very satisfactorily and make collections, especially of the economic insects of Maine, to be used in class work. Such a collection is not in the institution and it is frequently very discouraging to try to teach the subject with so few forms to be referred to.

If anything is to be done with the Museum, even if it is to be saved from destruction, it will be necessary to have a person whose duty it is to care for the material. It has been and will no doubt continue to be quite impossible for me to attend to it. To get a satisfactory person as Curator of the Museum it will be necessary probably to pay as much as $800.00 to begin with, with the understanding that he shall be allowed to work up to the salary of a full professor. Any other arrangement should be looked upon as only a makeshift for the present.

A great need of the department is to have a man who is capable of doing some mechanical work, such as repairing or even making simple instruments, mounting skeletons and the like. Such a man should also see to the cleaning of the Museum cases, take the care of the appliances in the laboratory and do the general cleaning up. There is hardly

another important Biological laboratory in my knowledge that has not such a man.

In the line of instruction, it seems very desirable that there should be a course in advanced Physiology that should include laboratory work as well as lecture work. The present course in Physiology is not sufficient for those students who intend to go into medicine or to specialize in the line of Zoology even as high school teachers. A course in General Zoology that would deal principally with birds and mammals but treat also of fishes, amphibia and reptiles, is a need that many people feel, and that would be a distinct advantage for those who are preparing to teach, as well as for those in the Departments of Agriculture and Forestry, who must deal with animals more or less in their work. It has been impossible to find time to give a course in Embryology. This year, for the first time, I am giving Embryological instruction, using the chick and the frog as examples. This is given to four advanced students and is given under the head of Advanced Zoology. For those who are training themselves in Zoology, Embryology, both of the vertebrates and the lower forms, is absolutely essential and certainly should be included among our regular studies.

While it is possible to carry on the work with the present kind of assistants who are just finishing or have just finished their college course, for the best success it is desirable to have trained instructors, who will know what to do without being told, and not make it necessary for the head of the department to constantly give instruction to those who are to instruct the students. When so many laboratory methods must be understood, much time is consumed in giving such instruction, that could be much more profitably devoted to something else if the instructors did not require it.

4. Library.

Like all other departments, the department of Biology is greatly in need of reference books and journals. Many of the journals are very expensive, as the articles must frequently be well illustrated with expensive figures, but for all of the advanced students as well as for the instructors, it is essential that these journals should be where they can be referred to. Without reference to the original literature it is impossible to know what has been done in the special lines, so only the repeating of work already done can be attempted until it is possible to get at the literature. Advanced students cannot be expected to make even infrequent trips to the libraries of Boston and it is frequently impossible to borrow the required literature or even to find where the needed articles are published.

A list of desirable books and periodicals is being prepared for the Librarian, which, while it will be by no means complete, will cover the needs that are constantly arising.

5. Repairs.

Some improvements are greatly needed in the rooms occupied by the department. The window curtains in the main laboratory are worn out and should be replaced. The walls and ceilings have been greatly

damaged in making the changes in the rooms above and by water, and should be repaired and painted. The blackboard in the lecture room is in bad condition and the repairing on it during the past years has not been successful. A new composition board is needed. The complete absence of any system of ventilation in Coburn Hall makes crowded lecture rooms almost unbearable as well as positively dangerous. To this is added a heating plant that is uncontrollable. It is impossible to turn off the steam in the lecture room, probably because of necessary connections with the rooms above. This should be remedied and if possible some system of ventilation arranged.

I trust that this report will cover your needs, but if other information is desired I will be glad to furnish it.

Respectfully submitted,

GILMAN A. DREW,

Professor of Biology.

REPORT OF THE DEPARTMENT OF CHEMISTRY

President George E. Fellows:

Since writing my last report a few changes in the teaching force under my direction have taken place. Dr. M. Hume Bedford is now in charge of Elementary Chemistry and Qualitative Analysis. Mr. R. L. Seabury, B. S., teaches Biological and Agricultural Chemistry and assists me in the quantitative laboratory. Mr. Willis F. Washburn assists in Qualitative Analysis. These instructors have done the work required of them in a very efficient and satisfactory manner.

A new course in Physical Chemistry has been introduced and will be given on alternate years.

With the exception of a forced draught for ventilation and a room for water analysis fitted up in the cellar, the needs of the department are practically what they were two years ago, only they have become more urgent than ever owing to the increasing number of students that have to be accommodated in our laboratories. We not only need larger rooms, but a number of rooms for special purposes. It is, I think, impossible to enlarge and change Fernald Hall in such a manner as to convert it into an up-to-date laboratory; the most satisfactory solution of the question is the erection of a large modern laboratory fitted to our present and probable future needs. We are now working at great disadvantage and will continue to do so unless something is done for our relief. For several years no appropriation has been received by this department except for the purchase of a balance, so it has become imperative that a fair sum of money be made available for apparatus if we are to equal in equipment other institutions of our size and standing.

The following is a list of apparatus of which we are most in need: a polarizing saccharimeter, assay furnaces, spectroscope, balances, weights, platinum ware, ore crusher, mortars of agate and steel, glassware, apparatus for gas analysis, calorimeter, apparatus for electro-chemical analysis. All of this apparatus will not cost more than $3,000. Our library is very deficient in modern works of reference on chemical subjects and full sets of chemical periodicals. These are indispensable for advanced or research work. A small beginning could be made for $1,000; this followed by annual appropriations of $500 would soon give us a fair working library.

I cannot close my report without referring to the fact that our gas supply is very unsatisfactory. The machine in use is too old to be properly repaired without considerable expense. It would be more profitable to replace it by a new and improved one.

Respectfully submitted,

A. B. AUBERT,

Professor of Chemistry.

REPORT OF THE DEPARTMENT OF CIVIL ENGINEERING.

October 20, 1906.

President G. E. Fellows:

SIR:—I herewith submit the following report and recommendations of the Department of Civil Engineering.

It is now two years since the establishment of the Department of Mechanics and Drawing, and the subsequent relief from this department of the oversight and teaching of these subjects. The result has been beneficial in allowing the Department of Civil Engineering to concentrate its efforts along purely engineering lines. New courses have been added and former courses broadened and improved.

On the completion of Lord Hall the space in Wingate Hall vacated by the Departments of Mechanical and Electrical Engineering was divided as follows: The South drawing-room, which up to this time had been used jointly by the Departments of Civil Engineering, and Mechanics and Drawing, was refitted with tables and occupied by this department. The north drawing-room was taken by the Department of Mechanics and Drawing. The drawing-room on the first floor was converted into a recitation room, with a large board space, and is occupied by the Department of Civil Engineering. The office formerly used by the professor of Electrical Engineering is now used by the professor of Mechanics and Drawing, while that formerly used by the professor of Mechanical Engineering has been converted into a laboratory for the use of the Department of Physics. The remaining three recitation rooms are used chiefly by the two departments, although it has been found necessary to have some classes in mathematics scheduled at times when they are not in use. This has its disadvantages, but owing to the lack of available space for recitation rooms it seems impossible to make other arrangements.

At the time of this change it appeared that both departments would have enough space for several years, but at the present time the available space is not adequate for the number of students registered. The reason for this is twofold. First, the increased number of students, and second, the increase in the number of courses.

The increase in the number of students results in the necessity for more divisions in a subject. An illustration of this is the number registered for Descriptive Geometry; previously it has been very easy

to handle this number in three divisions, but this year they are badly congested, and it will probably be necessary to divide them hereafter into four divisions. This results in either more rooms being required, or more work for the instructor, or both.

The increase in the number of courses given is the expected result from the creation of the Department of Mechanics and Drawing.

The congestion in drawing-room space is also augmented by a necessary change in the time scheme whereby all freshman drawing, previously coming in the morning, now comes in the afternoon. This results in the two large drawing-rooms on the third floor being idle during the morning hours. If the time scheme could be changed to admit the use of these rooms during the entire day this congestion would be satisfactorily relieved. This, however, does not seem to be possible so long as an elective schedule is allowed for engineering students. Many things in the engineering departments would be simplified, and better results obtained if the courses could be required without allowing electives. It would appear, from the number of students registered outside of the College of Engineering, that this is now possible without injury to any other department.

During the past two years the juniors have been required to attend a surveying summer school for two weeks following Commencement. Although this results in a hardship to some students who wish to leave college early in the spring on engineering work, it has been a decided success, and it is earnestly recommended that this be extended to the sophomore class. About the same conditions prevail with this class in the surveying work of the spring that prevailed with the juniors before the change of their field work, the large number taking this course preventing proper instruction and practice during the short time that it is possible to be out in the field in this climate. These conditions could be largely overcome by having the work come as a summer school. This scheme is in practice in many institutions.

It is to be regretted that an interchange of courses is not possible between the three engineering departments. Up to the present time the only course given by any of the departments which could be elected by students outside of that particular department has been the course in surveying and field work. There are certain other courses which it is desirable, and in certain cases imperative, to include in the requirements of all of the engineering departments. There are other courses which should be given as short courses for the benefit of students in the other branches of engineering. This is not possible to any great extent owing to the lack of space, equipment, and instruction. It is, however, being tried this year, in a small way, chiefly at the sacrifice of the time of the already overworked instructors, with the hope that it will later be possible to continue the work along broader lines under less severe conditions.

Nearly all of the courses given in this department need to be broadened and strengthened. This can only be done by having instructors who are familiar with their subject, and by paying such men enough

to keep them. Also by having a sufficient number of instructors so that such time as may be necessary may be devoted to the subjects taught. Under the present conditions the number of subjects that must be handled by each instructor prevents the best class of work being done.

I would recommend the followning as being conservative for the faculty in this department: The head of the department, who shall have direct charge of Structural, and advanced Hydraulic Engineering; an assistant professor, who shall have charge of the designing and assist the head of the department in classroom work; an assistant professor who shall have charge of the Railroad Engineering and Surveying; two instructors who shall be paid at least the maximum instructors' salary, and possibly a tutor or instructor to divide with the Department of Mechanics and Drawing for problem work, drawing-room work, etc. In numbers this amounts to about two more than we have at present, the chief addition being in increased salary, which increase is necessary in order to obtain the right engineers for the work.

Under the existing conditions the heads of the engineering departments, in order to make their departments successful, must devote so much time to college work that no time is left for private practice. That this latter is necessary, if the engineer is to keep abreast with the engineering world and not become a back number, must be conceded by every liberal-minded person.

Another need of the department is more instruments. At least two new transits and two new levels should be added to the equipment. The estimated cost of the four instruments is from $800 to $950.

More and better cement testing machinery is needed to the amount of $1,000.

The available engineering library is not sufficient for the needs of the department. At least $300 should be expended for this department alone. A partial list is attached.

During the past two years several engineers have been secured to deliver lectures before the students on different engineering subjects. Such men are willing to come with no fee beyond their expenses. As the list includes men from Washington, Boston, etc., the expenses, at times, are considerable. In general this is paid by the students, who realize the help to be obtained from such lectures. A small fund should be available from the treasury to meet such expenses.

One of the chief additions to the department has been the conversion of waste space on the third floor into a filing-room for drawings. This allows the systematic filing of plans, working drawings, etc., obtained from different sources, in a manner that they may be used to advantage by the students.

The only additions in the way of instruments for the past two years consist of a Price Current Meter of the same form as that used by the U. S. Geological Survey, and a Triangulation Transit, reading to 10″. These are both excellent instruments.

The U. S. Geological Survey gaging station at West Enfield has been almost entirely carried on during the past two years by the students of this department in a satisfactory manner.

A laboratory for testing materials, hydraulic work, etc., is needed for the use of all engineering students. Such a laboratory should be in a building by itself, and contain much expensive machinery and testing apparatus. It will probably be unwise to attempt anything along this line until it is possible to house such apparatus in a satisfactory manner.

It is generally known that an engineering course, extending over four years, contains about five years' work. With this fact before us it would seem that for engineering students at least, Saturday work is imperative. Many of the higher class of technical institutions have Saturday forenoon, or in some cases, all day, in their regular schedule. This of course depends somewhat upon the pay and required time of the instructors.

Respectfully submitted,

H. S. BOARDMAN,

Professor of Civil Engineering.

BOOKS FOR DEPARTMENT OF CIVIL ENGINEERING

Index to Periodical Technical Literature published by Engineering Magazine:	
Vol. I, 1884-1891	$5 00
Vol. II, 1892-1895	5 00
Vol. III, 1896-1900	7 50
Experimental Engineering. Carpenter, Wiley	6 00
The Civil Engineer's Pocket Book. Trautwine, Wiley (Last Edition)	5 00
Mechanics of Engineering. Church, Wiley	6 00
The Elasticity and Resistance of the Materials of Engineering. Burr, Wiley	7 50
The Materials of Construction. Johnson, Wiley	6 00
Steel. Metcalf, Wiley	2 00
Mechanics of Materials. Merriman, Wiley	5 00
A Treatise on Concrete, Plain and Reinforced. Taylor & Thompson, Wiley	5 00
The Materials of Engineering. Thurston, Wiley:	
Part I	2 00
Part II	3 50
Pumping Machinery. Barr, Lippincott	5 00
Hydraulics and Hydraulic Machinery. Blaine, Spon	5 00
Hydraulic Motors and Turbines. Bodmer, Van Nostrand	5 00
Hydraulic Rams. Clark, Batsford	70
Water Power. Frizell, Wiley	5 00
Water Works for Small Cities and Towns. Goodell, McGraw	2 00
Towers and Tanks for Water Works. Hazelhurst, Wiley	2 50
Hydraulic Power Engineering. Marks, Van Nostrand	3 50
Irrigation Institutions. Mead, Macmillan	1 25

A Treatise on Hydraulics. Merriman, Wiley (Last Edition).. 5 00
Irrigation in the United States. Newell, Crowell & Co..... 2 00
Hydraulic Power and Hydraulic Machinery. Robinson, Lippincott 9 00
Manufacture and Properties of Iron and Steel. Campbell, Scientific Pub. Co. 5 00
Iron and Steel Manufacture. Macmillan..... 1 00
Steel, Its Metallurgy and Treatment. Harbord & Hull, Griffin, 9 00
An Elementary Textbook of Metallurgy. Sexton, Lippincott.. 2 25
The Metallurgy of Iron. Turner, Lippincott..... 4 50
A Treatise on Masonry Construction. Baker, Wiley..... 5 00
A Text Book on Field Astronomy. Comstock, Wiley..... 2 50
A Treatise on Surveying. Two Vols. Gillespie, Appleton.... 5 00
Text Book of Geodetic Astronomy. Hayford, Wiley..... 3 00
Theory and Practice of Surveying. Johnson, Wiley..... 4 00
Elements of Precise Surveying. Merriman, Wiley..... 2 50
Text Book on Roofs and Bridges. Four Vols. Merriman & Jacoby, Wiley (Last Edition)..... 10 00
A Practical Treatise on Foundations. Patton, Wiley..... 5 00
Surveying Manual. Pence & Ketchum. Eng. News (Last Edition) 2 00
Tunneling. Prelini, Van Nostrand 3 00
De Pontibus. Waddell, Wiley 3 00
Engineering and Architectural Jurisprudence. Wait, Wiley.... 6 00
Municipal Engineering and Sanitation. Baker, Macmillan..... 1 25
Water and Public Health. Fuertes, Wiley..... 1 50
Sanitary Engineering. Gerhard 1 25
Elements of Sanitary Engineering. Merriman, Wiley..... 2 00
The Principles of Sanitary Science and the Public Health. Sedgwick, Macmillan 3 00
Public Water Supplies. Turneaure & Russell, Wiley..... 5 00
Road Making and Maintenance. Aitken, London..... 6 00
A Treatise on Roads and Pavements. Baker, Wiley..... 5 00
Highway Construction. Byrne, Wiley 5 00
City Roads and Pavements. Judson, Eng. News..... 2 00
The Block System of Signalling on American Railroads. Adams, Railroad Gazette Pub. Co. 2 00
Railroad Curves and Earthwork. Allen, Spon (Last Edition).. 2 00
American Railway, Its Construction and Development. Clark, Scribner 3 00
Locomotive Engine Running and Management. Sinclair, Wiley, 2 00
Railway Track and Track Work. Tratman, Eng. News..... 3 00
Economic Theory of Railway Location. Wellington, Eng. News, 5 00
Modern Locomotives. R. R. Gazette Pub. Co. 7 00
Influence Lines for Bridges and Roofs. Burr & Falk, Wiley.. 3 00
Graphic Statics. Sondericker, Wiley 2 00
Stresses in Bridge and Roof Trusses, Arched Rib., etc. Burr, Wiley 3 50

Mechanics of Engineering. Du Bois, Vol. 2, Wiley	10 00
Design and Construction of Dams. Wegmann, Wiley	5 00
Railroad Construction. Webb, Wiley	5 00
Field Manual. Nagle, Wiley	3 00
Transition Curve. Crandall, Wiley	1 50
Proceedings of the Institute of Civil Engineers (English)	

REPORT OF THE DEPARTMENT OF ECONOMICS AND SOCIOLOGY

President G. E. Fellows:

SIR:—Professor Rogers is on leave of absence for one year and is lecturing in the Law School of the University of Illinois. I am conducting the work of the department while he is away.

At the beginning of this year several changes, with the approval of the faculty, were made. The name of the department was changed from "Civics" to "Economics and Sociology," and the courses now offered are as follows: First term: Political Economy, Anthropology and Sociology, International Law, and Governments of Europe; second term: Money, Banking and Finance, Practical Social Reform, Business Law, and Governments of America.

In each course of study the first term is devoted to the introductory work and the study of principles, while the second term is given to the practical operation of the economic, social, and political institutions.

I will not attempt to compare this year's work with that of the past, because the revised courses have been in operation only a few weeks and I am not sufficiently acquainted with the condition of previous years. But two needs of the department are apparent to all, viz., a constantly growing department library for collateral reading, and a good outfit of modern maps and charts.

Respectfully submitted,

ROBERT J. SPRAGUE,

Acting Professor of Economics and Sociology.

REPORT OF THE DEPARTMENT OF EDUCATION

President G. E. Fellows:

SIR:—A report from the Department of Education must of necessity be a report of scope, plans, and needs, since the department, being less than two months old, has little work for record.

First, then, as to its field of activity: The special task for a University Department of Education is the training of high school teachers, principals of schools, and superintendents of town, village, and city schools. The training of principals and superintendents, however, involves the study of the problems of the elementary schools from the standpoint of administration and supervision, but does not include the practice teaching so necessary for the teacher in such schools and so effectively given in the normal schools. The University Department of Education, therefore, does not contemplate duplication of the work of the normal schools, but will attempt to satisfy demands that are of growing insistence as calls for trained superintendents multiply and the high schools advance in efficiency.

The field of the department is not, however, limited to the needs of the student body; teachers in active service have claims upon it for instruction and advice, and administrative school officers may rightfully ask for the collection and publication of data bearing upon the profession of education, and these demands the department will attempt to satisfy as rapidly as may prove practicable.

The work undertaken in this first semester may be summarized as follows: Courses in the History of Education, in Organization and Administration, and in General Methodology have been instituted and have been taken by reasonable numbers, the beginning course having a very satisfactory attendance while the advanced classes are small as is usual in a new department. The first two courses will continue through the year, but Special Methodology will displace General Methodology the second term that each student may specialize in his own department; for these students such arrangements as may prove practicable for direct classroom experience in instruction will be made.

Further, a preliminary organization of teachers' courses has been made, providing for one regular Saturday extension class and another evening lecture course which teachers from the district accessible, viz., from Milo, Brownville, Old Town, Orono, Veazie, Bangor and Brewer, expect to attend.

A beginning has also been made in meeting with teachers in associations and other educational gatherings.

So far as the plans for next year have yet shaped themselves, they include the addition of courses in School Hygiene and Child Study; an investigation of the conditions of work for teachers in this State who receive less than $300 as their living wage for a year's services; the gathering of much fugitive material in programs, courses of study, reports of superintendents and educational bodies for reference in the work of the department, and the strengthening of the work already undertaken.

As is usual in the organization of a new department, the Department of Education has imperative needs. First is the need of a classroom which can also be used as a seminar and lecture room—two classes meet at present in the building of the Experiment Station and one in the hall of Engineering; this need, I understand, will be provided for within a few months. There is also need of models and charts particularly adapted to the requirements of the teachers' lecture courses. These should include models of the eye and ear that will show more clearly the mechanism for the transmission of vibrations to nerve filaments than is usual or necessary in models for teaching physiology; wall charts are needed for the instruction of large lecture classes of teachers. The new courses in School Hygiene and in Child Study will require a considerable reference library in books and periodicals; the library for the present courses should also be supplemented and strengthened in some particulars. Some clerical labor and incidental expense will necessarily be required for bringing any investigation to a fruitful issue; it would seem to be the duty of a State University to serve the State through investigation, and there is no field in which effective and economical administration by the State depends more directly upon such investigations than in education, and none, I may add, where reliable investigation is more difficult through the lack of useful local data. Lastly, the calls for visits to schools distant from the University for consultation, inspection, and advice, and for meetings with associations and groups of teachers are likely to increase rapidly, and provision should be made for the necessary expense involved.

Respectfully submitted,

CHARLES DAVIDSON,

Professor of Education.

REPORT OF THE DEPARTMENT OF ELECTRICAL ENGINEERING.

October 31, 1906.

President G. E. Fellows:

SIR:—The work of the Electrical Engineering Department is greatly hampered through lack of equipment for demonstration purposes and for the laboratory; and the department is gradually falling behind, in comparison with the electrical course given in other educational institutions, in its facilities for developing an efficient and modern Electrical Engineering course, owing to the comparatively small amount of funds available in the past for keeping pace with the progress made along this line of work. Our course needs a complete reorganization to meet the requirements of modern practice, and to produce results that mean a real technical training rather than an imitation of such; to accomplish this means the assistance of appropriate rather than elaborate equipment; and the amount of funds necessary is not unreasonable with the circumstances and resources involved; the benefit resulting will be many times the cash value of the investment of about $5,000 for equipment and about $5,500 per year for total running expenses (present annual expense about $3,000), as shown on the accompanying sheets giving details.

It is greatly desired to give the Electrical Engineering students a broader fundamental training in Mechanical and Civil Engineering; the lack of such training being one of the weak points of the Electrical course. By increasing the efficiency of the teaching of the purely electrical work, with the assistance of proper equipment, more time will be available for this general engineering training; it being recognized that a broader training both in engineering and in general culture is more appropriate and more efficient for the coming engineer than a highly specialized training in one line of engineering only; the broader the fundamental training the greater the specialist developed later in actual practice. The Mechanical and Civil Engineering Departments wish to give their students a fundamental and appropriate training in Electrical Engineering. This means an increase in the staff of the three engineering departments in the very near future; and if we are to develop our engineering courses to greater usefulness and worth, some provision must be made for such a desirable increase.

The Electrical course has been developed to a point where practical original research work is very desirable for the senior students, as a valuable addition to their training. To intelligently carry on research work requires the development of a good technical reference library, so that work done in the past be not duplicated; at present we have

little or nothing in reference books along this line of work. It is earnestly hoped that suitable provision will be made for such a technical library, in the very near future.

Last spring a trip was taken which enabled the senior students to visit some of the large electrical and other manufacturing and operating companies throughout New England. This trip gave the students a broader and more practical view of engineering work than it was possible to give at the University. A student can sometimes settle in his own mind just what line of work he wishes to take up after graduation by having the opportunity to observe the general types of engineering practice, and thus save himself several months or more of energy and time in getting started at once in a life's work most appropriate to his character, ability, and liking. It is planned to make at least one such tour each year. There will be some small expense to the University in sending an instructor to conduct the excursion.

The student organization known as the "Electrical and Mechanical Engineering Society" deserves every assistance from the department and from the University; and as Orono is a considerable distance from the center of general engineering practice, it is very desirable to have engineers of high standing lecture before this student body on the particular phase of engineering work in which they are engaged, not only to broaden the point of view of the student, but to have the opportunity of knowing even a little of the character, personality, and experience of men who are successful in their profession. At times there are expenses involved in securing such men beyond the means of the student society; and it is hoped that there will be funds available in the future to assist as far as reasonable in bringing appropriate lecturers to the University.

A conservative outline of the expense necessary to attain the above conditions is as follows, the details being given on the accompanying sheets. This includes only the expense that is almost absolutely necessary to provide for the recent increase in the number of students of from fifty to one hundred per cent in the sophomore and freshman classes, registered for the Electrical Engineering course, and to give a reasonably good fundamental technical training to from twenty to twenty-five per cent of the total number of students attending the University:

Laboratory equipment very urgently needed.....	$2,000 00
Additional laboratory equipment, to cover the fundamental points only of the several branches of Electrical Engineering work	1,920 00
Fundamental demonstration apparatus, for classroom work	755 00
Equipment	$4,675 00 net
Annual running expenses of the department.....	$5,440 00

Respectfully submitted,

W. K. GANONG,

Professor of Electrical Engineering.

APPENDIX TO REPORT OF DEPARTMENT OF ELECTRICAL ENGINEERING

November 1, 1906.

President G. E. Fellows:

SIR:—In order to have the essential equipment in the laboratory to meet the advanced work of our present senior class, it is greatly desired to order at once as much of the following apparatus as the University can reasonably afford this year. These prices are as low as we have been able to secure; and possibly a portion of the material can be located as second-hand, with price accordingly:

Four indicating wattmeters, 5 K. W. each	$152 00 net
Two A. C. portable ammeters	30 00
Two A. C. portable voltmeters	38 00
One 10 H. P. three-phase induction motor	161 00
Two transformers, 6 K. W. each	120 00
	$501 00

Respectfully submitted,

W. K. GANONG,

Professor of Electrical Engineering.

LABORATORY APPARATUS, VERY URGENTLY NEEDED

One 10-horsepower, three-phase induction motor		$161 00 net
Four Thompson indicating wattmeters	$152 00	
Five Thompson portable ammeters	75 00	
Four Thompson portable voltmeters	76 00	
		303 00
One low-reading alternating current voltmeter		46 49
Seven switchboard instruments for alternating current work; and illustrating modern switchboard equipment,		308 83
One series instrument transformer		7 29
One voltage instrument transformer		13 83
Rheostats and resistances		about 100 00
One 15-horsepower variable speed motor		318 00
Two special two-phase to three-phase transformers, 12 K. W.		120 00
Three single-phase transformers, 4 K. W. each		120 00
One three-phase Westinghouse generator, or rotary, 12 K. W.		320 00
One mercury arc rectifier, complete		100 00
Fundamental apparatus for telephone engineering		74 96
		$1,993 40 net

ADDITIONAL LABORATORY APPARATUS, NECESSARY FOR A MODERN ALTHOUGH SIMPLE EQUIPMENT

Extension of our common wooden switchboard, increase of laboratory resistances, rheostats, variable inductances, etc.	$200 00
A 500-volt 25 H. P. railway motor, complete with controller	366 00
A single-phase railway motor, for alternating and direct current, complete with controlling apparatus	400 00
To develop apparatus for lighting systems, including arc lamps, mercury vapor lamps, tantlum lamps, etc.; also a constant current transformer. For demonstration and testing purposes	120 00
Transmission and absorption dynamometer, speed indicators, tachometers, etc.	150 00
A combination alternating current generator and motor manufactured by the General Electric Company	675 00
	$1,911 00 net

NOTE.—This does not give an elaborate laboratory equipment, but covers the necessary facilities for the fundamental work required in an Electrical Engineering course.

In addition to the above, it is very desirable to have a standardization laboratory, such as is necessary with the large electrical manufacturing and operating companies and with first-class and second-class Electrical Engineering courses. For this we have neither room nor facilities.

DEMONSTRATION APPARATUS, REQUIRED IN CONNECTION WITH CLASSROOM WORK TO DEMONSTRATE FUNDAMENTAL PRINCIPLES

Large demonstration instruments, ammeter, voltmeter, wattmeter	$200 00
A simple special fundamental generator and motor, one for direct current and one for polyphase alternating current	60 00
A direct current and an alternating current electromagnet, an auto-transformer and high-frequency experimental apparatus (special). (The U. S. Electrical Supply Company, Mount Vernon, N. Y.)	150 00
A small motor-generating set	50 00
Types of switches, fuses, circuit-breakers, lightning arresters, simple rheostats, etc	120 00
A special Department Lantern (for Electrical and Mechanical Departments) "Reflectoscope." (A. T. Thompson & Company, Madison Avenue, Boston)	175 00
	$755 00

NOTE.—The above apparatus is in addition to what can be secured as gifts for demonstration purposes.

RECOMMENDED ANNUAL RUNNING EXPENSES FOR THE ELECTRICAL DEPARTMENT

Thesis fund, and for repairs to laboratory (in addition to laboratory fees) per year	$200 00
This thesis fund is to cover some of the expenses connected with original investigation by the senior students; in some cases for the construction of advanced special laboratory equipment, and demonstration apparatus.	
Operating expenses for laboratory, for power, etc., to be covered by "Laboratory Fees."	
For yearly increase in laboratory equipment (in addition to the initial expense for equipment as previously stated, in order to keep in touch with modern facilities), conservative average	400 00
Department books and periodicals, to be located in the department building, per year	40 00
Salaries (taking into account the development of the department in the near future):	
Instructor, assistant professor, major instructor	4,800 00
Annual running expenses of the department (not including initial expenditures for equipment)	$5,440 00

REPORT OF THE DEPARTMENT OF ENGLISH

President G. E. Fellows:

SIR:—Since writing my last report several changes have been made in the Department of English, chief of which is an attempt to emphasize the value of the art of public speaking. To this end the services of Mr. Windsor P. Daggett, a graduate of Brown University and of the Leland T. Powers School of Vocal Expression, have been secured. Mr. Daggett brings to his work not only excellent scholarship and wide experience as a public reader, but an aptitude for teaching a difficult subject. Already an increased interest in public speaking and debating can be seen. Opportunity for advanced study in elocution has been made by the introduction of two new courses, so that the student after completing the required work in public speaking may elect an additional year's work of three hours per week. It is believed that these two courses will give those who are fitting themselves to become teachers in high schools and academies an excellent preparation for one branch of their work.

In my last report I called your attention to the need of a better equipment of books for the study of English literature. Sometime during the early summer Professor Thompson and I made a list of the books for which there was the greatest present need. This list is too long for publication in this connection, as it comprises several hundred names. At present we have comparatively few complete sets of works, and those we do have are mostly bound in the cheapest and most unattractive manner. We ought to have standard books enough to illustrate every phase of the development of English literature from the earliest times to the present day. These need not be purchased all at once, but provision should be made for a steady increase of books needed in the study of our language and literature.

I wish to lay particular emphasis upon the desirability of purchasing at as early a day as possible the Oxford Dictionary. The publication of this work has now progressed so far that we may hope to see the final volume within a comparatively short time. Its scope is so great, its scholarship so accurate and exhaustive, that it is indispensable to the earnest student of English. The ordinary dictionary, however good, is no substitute for it.

But perhaps the most pressing want of the department is readers—men who shall read and correct freshman and sophomore compositions.

None but those who have had experience can appreciate the amount of labor involved in teaching composition to a class of one hundred and fifty students. Modern methods call for daily themes, the reading of which means an appalling amount of work for the instructor. At present we cannot come fully up to this requirement, but we must do so if we are to keep abreast of the times. The appointment of even a single reader would help to solve the problem of daily themes.

Before closing I wish to express my hearty appreciation of the work of my colleagues in the department. Their unfailing enthusiasm and generous devotion to the interests of the University are all that the most exacting could demand.

HORACE M. ESTABROOKE,
Professor of English.

REPORT OF THE DEPARTMENT OF FORESTRY

President G. E. Fellows:

SIR:—I have the honor to submit herewith a report of the Department of Forestry.

In the college year of 1905 and 1906 37 students elected courses in Forestry. Of this number 17 registered for Forestry as a major subject. At the beginning of the college year of 1904 there were 10 names recorded for Forestry as a major subject. At the opening of the school year of 1906 there were 26 students who majored in Forestry besides 4 taking special work. Of this number 12 are registered in the freshman class, as against 4 last year. This very material increase in the registration for Forestry is good evidence that there is a demand for instruction in this subject and that it is an increasing one in the State. Adequate provision must be made to meet the demands for training in Forestry, not only those which the increased attendance enforces but those which the profession itself entails. The lack of aid to give the necessary instruction limits the work of the department and is seriously felt.

The course in Forestry has been changed from a 25-credit basis to one of 30 credits. Two courses have been added which are a continuation of former ones, so that now the courses in Forest Measurements which were given only in the fall term are continued in the spring term. The tentative course which had been provided for the junior and senior years has been rearranged and a definite schedule provided. We believe that the courses in Forestry are equal to the courses of a like character and of equal extent offered by other institutions. During the year instruction in Forestry was given in nine different courses, four of which continue more than one semester. The courses and the number of students taking each are as follows:

General Forestry	18
School course in Forestry	3
Silviculture	5
Field work in Silviculture	5
Forest Measurements	6
Field and office work in Forest Measurements	6
Lumbering	6
Forest Management	6
Thesis in Forest Management	6
	61

In addition to conducting the above courses attention must be given to the correspondence of the department and this takes no small amount of time. Many letters have been received making inquiries regarding different phases of forestry, such as the management of wood-lots, the handling of certain kinds of tree seeds, the time to plant trees, the species to plant, etc. In view of the advance movement in forestry throughout the whole United States there is good reason to believe that the number of such inquiries will continue to increase. Provision for this important line of work should, therefore, be made at an early date.

The University wood-lot has received due attention and the data collected, tabulated and put in proper form by the students will be used as a guide in regulating the cutting and improving the condition of the woods. The planting of 2,000 white pine seedlings included a part of the practice work for the spring term. One-half pound of white pine seed was purchased and sown in the College nursery.

An addition has been made to the equipment of the department by the purchase of tools and instruments for use in the practical work. The list consists of tree calipers, hypsometers for obtaining the height of standing trees, Pressler's increment borers, steel tapes, compass, staff head, mirror right-angle finder, tally sheet holders and planting tools.

A visit was made to the State Normal Schools during the fall term and a general talk on forestry given at each. This was followed by a second visit in the spring made in conjunction with a visit by Mr. Dick J. Crosby of the Office of Experiment Stations, Washington, D. C., who gave helpful and instructive talks on school ground improvement and suggestions for the use of native trees and plants for the purpose. The department is co-operating in other ways with the Superintendent of Public Instruction in introducing instruction in forestry in the Normal Schools. The schools at Castine and Gorham have already begun the work and it is understood that two others are planning to do so this year.

An exhibit was prepared for the Maine Farming Special, wood-lot management being represented as one of the features. The general interest manifested in the work only partially represented by the exhibit was a source of much satisfaction and a criterion of the need of such work in the State.

Respectfully submitted,

GORDON E. TOWER,

Professor of Forestry.

REPORT OF THE DEPARTMENT OF GERMANIC LANGUAGES

October 31, 1906.

President G. E. Fellows:

SIR:—I have the honor to submit the following report for the Department of Germanic Languages:

Prof. A. F. Lewis, who had been on a leave of absence since the fall of 1905, resigned the chairmanship of this department on the first of April, 1906.

Professor J. W. Carr, for the past four years chairman of the Department of English and Modern Languages in the University of Arkansas, was elected last June to the position made vacant by Prof. Lewis's resignation. At the same time Acting Professor M. C. G. Lentz, who had had charge of the German work during Prof. Lewis's absence, was promoted to an assistant professorship.

That this department has shared in the general growth and prosperity of the University is sufficiently indicated by the fact that the entire time of two professors is now required to give instruction in German, whereas two years ago the one professor of German was assisted by an instructor who gave only part of his time to German.

Two new courses have been added and are being taken this year, one in Middle High German, and one in Old High German. These courses and that in the History of German Literature are highly important for those who intend to teach German or who, for any purpose, make a special study of German.

The variety and amount of German work offered by this department will compare favorably with that of any New England college except Harvard, Yale, and Brown. Nineteen and one-half hours, requiring at least four years for completion, are being taken at the present time.

The department is entirely without maps. It needs pictures of German authors and of characters and scenes in German classics as well as of German buildings and places of literary significance to be framed and hung in the departmental classrooms. It is true that there is now the nucleus of a German library in the University, but more reference books are needed for the students in German 4a, 4b, 5a, 5b, 8a, and 8b. In my opinion it would help the work in German conversation and train the ear by the variety of German heard, if a phonograph with German records were provided for students. The department also needs another commodious classroom and far more blackboard space than it now has.

Respectfully submitted,

JOSEPH WILLIAM CARR,

Professor of Germanic Languages.

REPORT OF THE DEPARTMENT OF GREEK

President G. E. Fellows:

SIR:—The first point to be noted in the development of the Greek department as marking a radical change from the conditions obtaining at the time of my last report, is the placing of Greek among the elective studies for the B. A. degree. The University of Maine has followed in this particular the example of many of the leading colleges of the country with the general good results that those who take this study now, while somewhat fewer in numbers, are better prepared to receive larger benefits from it.

By a recent vote of the faculty, a student may now elect Freshman Greek instead of Freshman Latin hitherto required for the B. A. degree.

More and more is being made out of the general courses on Greek art, religion, life, and literature, adapting their scope to the needs and viewpoint of those who may not happen to be students of classics, or at least of Greek. Such courses can be made of inestimable value in bringing the essential elements of Greek civilization into the educational horizon of all students in the Arts Courses.

The large collection of pictures belonging to the Art Guild will now, for the first time, have a worthy home in the Carnegie Library, and situated as they will be, in immediate proximity to the reference books and seminar room, this valuable apparatus of over three thousand reproductions of the masterpieces of painting, sculpture and architecture can be utilized to far greater advantage than heretofore.

I feel that it is important to direct your attention to the need of establishing at an early date a department of architecture as one of our technical schools, and in preparation for such a course and an introduction leading up to practical work in architecture, I recommend the introduction of a general course in the historical development of architectural styles. Our collection of photographs would furnish ample apparatus for a course of this character.

Respectfully submitted,

J. H. HUDDILSTON,

Professor of Greek.

REPORT OF THE DEPARTMENT OF HISTORY

President G. E. Fellows:

SIR:—No important changes have been made in the Department of History since my last report. An effort has been made to adapt the work more fully to the needs of this institution, and to make the catalog statement more definite.

The department now offers fifteen courses; eight of these are open for general registration, and the others only to advanced students.

In view of the demand for graduate instruction, a part of the new books have been selected with the definite purpose of strengthening the departmental equipment along certain lines. We are now able to offer courses for the degree of Master of Arts in three subjects.

Our need of more books, documents, etc., is still great; particularly duplicate copies of standard works and source material.

Respectfully submitted,

CAROLINE COLVIN,

Professor of History.

REPORT OF THE DEPARTMENT OF LATIN

President G. E. Fellows:

SIR:—The Latin department begs to report gratifying progress. The change in the head of the department a year ago rendered some readjustment of the work advisable. We believe that this has been effected without loss to the department. The fact that more than half of all the eligible members of the sophomore class are electing Latin, and more than one-third are selecting Latin as their major subject, would seem to indicate this.

A considerable number of the students in Latin are planning to become teachers after graduation. The work of the department is so arranged as to keep the needs of this class in mind, without losing sight of the value of Latin for general culture and discipline.

The material equipment of the department suffered a loss in the change of head. Professor Harrington had procured, partly at his own, partly at the University's expense, a working collection of lantern slides for instruction in topography, private life, history, archæology, etc. His own, of course, he took with him, leaving the collection incomplete. The lantern which his efforts had secured for the classical departments was last year used mainly by the Greek department. I trust the administration will recognize the desirability of continuing in the classical departments this part of their equipment, in spite of its temporarily crippled use.

A more pressing need is of books. In spite of the recent additions to the library at the request of the department, the fact remains that we still lack many of the standard works in English, not only on the general field of Latin but also on the particular subjects with which our courses deal, while the standard works in German, French, Italian, etc.—far more important than the English works—are almost entirely wanting. A working library is best built up gradually. We need sadly a reasonable sum of money annually to devote to the purchase of Latin books. We should have not less than $150 a year for several years and after that such sums as were found necessary from year to year.

Respectfully submitted,

GEORGE DAVIS CHASE,

Professor of Latin.

REPORT OF THE COLLEGE OF LAW

Bangor, Me., Nov. 21, 1906.

President G. E. Fellows:

SIR:—I have the honor to submit the following report for the School of Law:

The total registration of the Law School for 1906-07 is 90, up to date, as against 81 at the time of my report last year, November 27, 1905.

The students for the present year are classified as follows: Graduate Students 31, Seniors 14, Juniors 17, First Year men 23 (as against 14 last year), Special Students 5. The number of new men is 29, the largest entering class the school has had so far.

The different colleges of the country are represented in the Law School as follows: Bates 2, Bowdoin 2, Colby 5, Maine 3, St. Mary's 1, Brown 1, Yale 1, and Dartmouth 1—a total of 16, all holders of degrees in letters or sciences, or two less than last year. There are seven men that have a partly collegiate education gained by an attendance of from two to nearly four years in college, representing the following institutions: Colby, Maine, Boston University, Brown, Howard University, and Vermont, also two less than last year. For the first time other law schools are represented in our school to an appreciable degree, the schools in question being the Albany Law School, the Boston University Law School, the Harvard Law School, the Howard University Law School, the George Washington University Law School, and the University of Indiana School of Law. It is certainly difficult to determine whether the slight decrease in the number of college men is purely accidental, or whether it is due to the poor accommodation our ill-ventilated and badly lighted rented rooms afford in contrast to the splendid facilities offered by even our poorest colleges, or whether still other causes should be looked for; but whatever may be the real cause of this decrease, it is always safer for us, as well as for the Law School and the University, to assume that the cause of it, somewhere and somehow, lies in ourselves and not in pure accident, and thus guard against relaxation either in vigilance or effort. There is, however, no difference in the spirit that has animated the school since its foundation. If there is any change at all, it is certainly in the line of a still greater determination on the part of the men to do honest and faithful and loyal work, and the addition to the student body of new and earnest men that have studied in other law schools is in itself a distinct gain that we welcome and that cannot but benefit the institution.

The different counties of the State are represented in the school as follows: Androscoggin 3, Aroostook 6, Cumberland 7 (an increase of 2), Franklin 1, Hancock 3, Kennebec 2, Oxford 1, Penobscot 21, Piscataquis 4, Somerset 2, Waldo 3, Washington 3, and York 5.

The ever increasing representation of Massachusetts in the Law School is one of the most gratifying features of its development. It

has risen from 8 in 1903, to 15 in 1904, to 17 in 1905, and now it stands at 22, that is, it is larger than the number of men enrolled from either eastern or western Maine, and is almost equal to that of central Maine. This large percentage of Massachusetts men in the school, a little more than 24 per cent, gives the institution a good standing not only in Massachusetts, but in an even greater degree in Maine itself, where this fact is most favorably commented on by our attorneys and considered as a strong endorsement of the school by the grand old Commonwealth from whose loins our State has sprung.

The following states have one representative each in the Law School: Connecticut, Colorado, New Hampshire, New York, South Carolina, Vermont, and Washington, D. C.

The eastern counties of Maine—Aroostook, Hancock, Piscataquis, and Washington—are represented by 16 students; the central counties—Penobscot and Waldo—by 24; and the western counties—Androscoggin, Cumberland, Franklin, Kennebec, Oxford, Somerset, and York—by 21. This goes to show that the student body of the Law School is drawn uniformly from every section of the State, an advantage first gained in 1904 and since maintained.

At the Commencement last June the degree of Bachelor of Laws was conferred upon 18 students, as against 19 last year, and 14 the year before, while the degree of Master of Laws was bestowed upon three graduate students for advanced work done by them, the same number as last year.

The applicants from this graduating class of the Law School for admission to the Maine State Bar passed all without a single exception, and the excellent record the men had held for the last three years, showing an average very much higher than that of the applicants for admission from the Harvard and Boston University Law Schools, was not only maintained this year, but greatly surpassed.

Of the four men that passed the Massachusetts Bar examination this year, three had studied law for only two years, instead of three. While their success is highly gratifying in so far as they were able to accomplish what is not usually accomplished except after three years of hard work, yet success means in nearly every such case the abandonment of further study at the Law School, the renouncing of the degree, and immediate entrance upon the practice of the law.

The chief needs of the Law School are the old ones—more suitable quarters, a more rapid rate of increase for the law library, and another man to give his whole time to the school; but of all these, under the present circumstances, the one great, absolutely paramount need is the securing of better quarters. This need cannot be emphasized too much. Longer to delay to satisfy this need means to cripple the Law School and, through it, the University, and to do permanent injury to both, and not to them alone, but to the State of Maine as well, to its children as also to its fair name at home and beyond its borders.

Respectfully submitted,

W. E. WALZ,

Dean of the College of Law.

REPORT OF THE LIBRARIAN

President G. E. Fellows:

SIR:—The number of bound volumes in the library on June 30, 1906, was 29,535, an increase of 3,921 during the biennial period covered by this report. The number of pamphlets on the same date was about 9,000. Of the books added during the two years, 891 were obtained by purchase, 634 by binding, and 2,396 by gift. Of the gifts, 1,446 were from the U. S. Superintendent of Documents, 108 from Mary King Longfellow of Portland, 71 from the Maine State Library, 59 from Philip Dorticos of the class of 1904, 57 from Mrs. G. P. Jefferds of Bangor, 47 from the Michigan State Library, 45 from the Ohio State Library, 28 from T. S. Lazell of Paterson, N. J., 28 from the Carnegie Institution of Washington, 24 from the Connecticut State Library, 22 from the Library of Congress, 10 from the Indiana State Library, 10 from the University of Chicago, and the remainder from various miscellaneous sources. General Charles Hamlin of Bangor gave $100.00 to be applied to the purchase of a set of the English Ruling Cases for the College of Law, and Hon. L. C. Southard, class of 1875, gave an additional $25.00 for the same purpose. Mr. Southard has given another $25.00 which was used in the purchase of a set of the Federal Statutes, Annotated. Grateful acknowledgement is made for all these gifts.

The volumes added to the library are classified as follows: General Works, 206; Bibliography, 66; Philosophy, 27; Religion, 17; Sociology, 384; Law, 314; U. S. documents (depository series), 1,494; Military Science, 11; Education, 73; General Philology, 18; General Natural Science, 25; Mathematics and Astronomy, 61; Physics and Electrical Engineering, 72; Chemistry and Chemical Technology, 58; Geology, 31; Biology (including Zoology), 70; Botany, 39; General Useful Arts, 32; Medicine and Veterinary Science, 32; Pharmacy, 29; Civil and Mechanical Engineering, 161; Agriculture, 174; Forestry, 49; Fine Arts, 65; General Literature, 52; English, 36; German, 32; French, 9; Latin, 22; Greek, 8; General History, 6; Description and Travel, 48; Ancient History, 4; European History, 76; American History, 94; Maine Local History, 22.

The regular assistant in the library for 1904-06 was Mrs. Clara E. Patterson. Her health failed last winter, and the position was filled by Miss Maude Brown Colcord, who had been a volunteer assistant for

some months. Miss Colcord has been retained for another year. In accordance with authority given by the Trustees, Miss Jennie Elizabeth Dunmore, a graduate from Simmons College in the course in Library Economy, has been appointed Cataloger in the Library for 1906-7.

For several years past the report of the Librarian has emphasized the need of a suitable library building. We are indeed fortunate in having had this need supplied by Mr. Andrew Carnegie, whose gift of $50,000 for the building, together with an additional $5,000 for equipment, was obtained through the solicitation and upon the representations of the President of the University. The building will be ready for occupancy in the fall of 1906, and it promises to be as satisfactory as it certainly is substantial and attractive. The architects, Messrs. Brainerd and Leeds, Boston, included in their specifications every item of importance asked for by the Librarian. The building contains suitable rooms for reading, reference, and administration. It has five seminar rooms for the use of advanced students, and a stack room which will accommodate about 70,000 volumes. It was possible to provide in it a lecture room which will seat over a hundred, and another room of the same size, called a club room, where student organizations of various kinds may meet and where a certain class of social functions may be held. The design of the building is such as to permit it to be extended when necessary so as to considerably more than double its present capacity. The furniture which has been bought is, like the building itself, substantial and attractive.

The library, which has been accumulated during the thirty-eight years of the existence of the University, is a working collection of much greater practical value than many libraries which contain a much larger number of volumes, owing to the relatively small proportion of obsolete material which it contains. Considerably more than half the volumes have been added within the last eight years. This is all right as far as it goes, but it does not go far enough. In the courses of instruction which are offered by the University nearly the whole field of human knowledge is covered, and the library falls far short of being able to meet the calls upon it.

No argument is needed to support the claim that the University of Maine library should be at the very least as good as the libraries of other institutions in New England with which the University ranks in instruction and attendance. For the purpose of bringing out the facts, a table is given below which gives the number of volumes in the library, the annual additions, the amount expended for books, periodicals, binding, etc., and the number of undergraduates for each of the colleges of New England with which comparisons may fairly be made, except Tufts and the University of Vermont, from which no replies were received to inquiries sent. The statistics were collected last year, and are for the college year 1904-5, but those for 1905-6 would vary but little.

Institution.	Volumes in library.	Accessions for year.	Expenditures for books, etc.	Undergraduates.
Amherst	85,000	4,100	$3,000	455
Bowdoin	82,000	4,250	3,121	289
Brown	140,000	5,000	7,000	845
Dartmouth	110,000	2,730	5,500	898
Mass. Ins. Tech	72,000	3,900	6,300	1,440
Wesleyan	72,000	1,700	3,700	321
Williams	57,000	3,300	4,600	443
Average	88,287	3,569	4,746	670
Maine	29,000	1,250	1,700	448

This table shows that the University of Maine library contains only about a third as many volumes as the average for the seven other institutions. It shows also that instead of growing faster than the others and spending more money in order to make our library as good as theirs, we are spending only about a third as much and increasing only about a third as fast, so that instead of catching up gradually we are falling farther behind each year. This is not a creditable showing, but I should be derelict in my duty if I failed to call your attention to the facts. We have about two-thirds as many students at Maine as the other institutions average, and are growing in attendance faster than any of them.

There is another point which requires consideration in connection with the rate of growth and the annual expenditure of our library and those with which comparison has been made. There is not a single one of them which is covering anything like the field of instruction which we offer here, and this has a material bearing on our needs. The fact is that, however we look at it, the need exists of a greater expenditure here for current publications than at any of those with which comparison is made. We should certainly have for the purchase of new books, magazines, binding, etc., $5,000 a year at the very least, with not less than $2,500 additional to be used for filling in the gaps in our standard books and sets of periodicals and proceedings. I have in my possession lists from the heads of departments showing their needs which demonstrates the necessity of such a provision. There is nothing more certain than that an adequate supply of books and periodicals is absolutely essential to thoroughly satisfactory work in any department, whether it be agriculture, engineering, science, literature, law, or some other branch of instruction.

While the needs of students and faculty are the most pressing and should probably be met first, it must be borne in mind that our library is that of a State University and is under peculiar obligations to have upon its shelves publications relating to every industry carried on within the limits of the State, in order that any of its citizens may be able to

secure the latest and most accurate information upon all questions connected with the development of its varied interests.

The need exists of a very considerable increase in the allowance of funds for the University library, unless the work of every department of instruction is to be seriously hampered by its limitations. The facts are before you.

Respectfully submitted,

RALPH K. JONES,

Librarian.

REPORT OF DEPARTMENT OF MATHEMATICS AND ASTRONOMY.

President G. E. Fellows:

SIR:—During the past two years there has been a gradual strengthening of the work of the classes in this department. For this improvement two reasons, at least, may be assigned: first, the more thorough preparation of the students upon admission to college, due to our increased requirements; and second, the very efficient work of the instructors, Messrs. Buck, Willard, and Morley. The department has been fortunate in having had only one change in its teaching force. At the close of the last college year Mr. Thomas Buck resigned, to continue graduate work at the University of Chicago. It is to be hoped that when he is ready to enter again upon teaching we may retain his services. To fill the vacancy caused by Mr. Buck's resignation Mr. Elmer E. Moots, a graduate of Highland Park College, was made instructor in Mathematics, and is filling the place very satisfactorily. If the present rate of increase in the number of students in the University continues there will soon be need of an additional instructor. At the present time instruction is being given to 320 students, reciting in thirteen classes or divisions. It will be necessary next term to have one or two additional divisions, as some of our classes this term are too large for the best work.

At the last Commencement one student received the M. A. degree for graduate work in Mathematics, and one student is now registered for work leading to the M. S. degree. Eight undergraduates are registered as taking their major in Mathematics.

I wish to renew the recommendation in my last report that as soon as possible one or more of the instructors be given a permanent appointment.

The need of additions to the books and periodicals in the mathematical section of the library is still imperative.

Respectfully submitted,

J. N. HART,

Professor of Mathematics and Astronomy.

REPORT OF THE DEPARTMENT OF MECHANICAL ENGINEERING.

November 1, 1906.

President G. E. Fellows:

SIR:—I have the honor to submit the following report for the Department of Mechanical Engineering.

Since the last report submitted, some changes have been made in this department both in the instruction and in the instructors. The courses of instruction have been rearranged in some particulars with the idea of maintaining a closer connection between related courses in different terms, thus making a more effective course as a whole.

As now arranged the work of instruction in all courses, except manual training, is divided between the professor in charge of the department and Mr. T. M. Gunn, the instructor in Mechanical Engineering, who is now in his second year with us. Three courses have been arranged in Marine Engineering with Mr. Gunn in charge.

Mr. C. J. Carter has been appointed instructor in Machine Tool Work to fill the vacancy caused by the resignation of Mr. Cole. Mr. Carter devotes his entire time to Machine Tool instruction, repair work, and the care of the power, heat and light. Since Mr. Carter has entered the shop many repairs have been and are being made which will result in a much improved Machine Tool Laboratory. Some new apparatus has been added, which will be mentioned later.

Mr. E. W. Davee continues as instructor in Carpentry, Pattern Making, and Forge Practice. The wood-working shop has had some small tools added and more benches have been made available for use by the purchase of several new vises.

The machine shop has been much improved by the addition of a speed lathe, a power hack saw, an arbor press, and a quantity of small tools replacing many which had been worn out or broken. As laboratory work is now scheduled it is impossible to serve more than three divisions in Machine Tool Work. Our present equipment is insufficient for more than ten, or at most twelve, students in a division. While we are able to amply provide for all students in this course this year, the increasing registration indicates that the next year we shall have more students than we are prepared to teach. I should advise the installation of at least three more engine lathes to provide for that many more students in a division, and that an arrangement be made

so that a two-hour period in this shop-work may be scheduled in the forenoon, from ten to twelve.

We should have a core oven in the foundry.

The Mechanical Engineering Laboratory is in great need of increased equipment; it is desirable that three or four thousand dollars per year be expended here for the next four or five years. For the present year five hundred dollars is very much needed for small apparatus for use in connection with our present equipment and to allow of our constructing two or three pieces of apparatus.

A new power plant, when built, should be so designed that much of its equipment will be of direct value as laboratory apparatus to students in Mechanical Engineering, and thus obviate the need of an expenditure for similar apparatus for experimental work only. It is such pieces of equipment as will decrease the cost of operating the power plant that are most desired for student demonstration and experiment.

Lord Hall, now finished, has added greatly to the convenience of the departments occupying it. Our need of drawing desks for the drawing room has grown since last mentioned and it would seem fitting that they be furnished soon.

In our work, more especially in our advanced subjects, we are daily reminded of our need for more engineering books in the library. In books of reference it would seem that we obtain greater value for the money expended than in any other thing, and it is hoped that our new library may come to its maximum of usefulness by having some liberal provision made for new books. Each year many theses are added to the library as the result of students' work.

As provision is being made for an enlarged museum, I would suggest that an industrial branch be added, more especially showing the manufacturing industries of the State.

Finally, in spite of our many needs and the difficulties under which we labor, I have to report that there are many signs of progress and that results obtained are very gratifying.

Respectfully submitted,

A. C. JEWETT,

Professor of Mechanical Engineering.

REPORT OF THE DEPARTMENT OF MECHANICS AND DRAWING.

October 26th, 1906.

President G. E. Fellows:

SIR:—The Department of Mechanics and Drawing, established in the fall of 1904, is now entering on its third year, and the work of the department is being given as outlined in my first report with the addition of a sophomore course in drawing, running four hours a week for the fall term, which has been taken over this year from the departments of engineering, and the separation of the freshman fall term work in drawing into two courses, one for the technical and the other for the non-technical students.

The department occupies an office and recitation rooms on the first floor of Wingate Hall and a drawing-room on the third floor formerly occupied by the departments of Electrical and Mechanical Engineering. This drawing-room, containing sixty desks, is already taxed to its full capacity by the constantly increasing number of the entering class, two years ago the registration for freshmen drawing being about 95, last year about 120, and this year about 160. The crowded condition has been temporarily relieved by subdividing divisions and scattering the work in the drawing-rooms of the other departments to the inconvenience of the work already scheduled there, and can probably be relieved for a year or two by the readjustment of the time schedule, but within a very few years additional drawing-room space must be provided.

The department shares an instructor with the department of Civil Engineering and has also the services of a student assistant, but there is urgent need for the full services of an instructor as well as a tutor or student assistant in order to care for the increasing number of students in satisfactory manner.

The pressing material needs of the department are new drawing desks and stools, a complete and satisfactory system of lighting for the drawing-room, an additional case of instrument lockers, and a supply of charts and models.

Respectfully submitted,

CHAS. P. WESTON,

Assistant Professor of Mechanics and Drawing.

REPORT OF THE DEPARTMENT OF MILITARY SCIENCE AND TACTICS

November 24, 1906.

President G. E. Fellows:

SIR:—The work in this department under the rules now adopted by the faculty, and the orders from the War Department, gives good results. It is not believed that they should be materially altered.

The blue uniform, now worn by the cadets, is difficult to keep clean. It shows the slightest wear. It is believed that an olive drab uniform, such as the present army service, would possess the advantages of being better material, at the same cost, would not show wear, be adapted to general use throughout the freshman year, and in general present a much more desirable appearance, than the present style, blue uniform, which from its cost is of an inferior grade of cloth and workmanship. The olive drab would also be much more comfortable to wear, and better suited to drills, and target practice.

The present range, being such that it can be used only at reduced targets and ranges, is not suited to the U. S. Army rifle, model 1898, just issued. At very little expense, and work, it can be adapted to a range for two and three hundred yards, which is necessary to give the best results from the preliminary drills, and gallery practice. This 200 and 300 yards is about the minimum distance, as is shown by the fact that the full course of target practice includes ranges up to 1,000 yards.

Respectfully submitted,

WALTER S. BROWN,

Captain, — Infantry, Professor Military Science and Tactics.

REPORT OF THE DEPARTMENT OF PHARMACY

President G. E. Fellows:

SIR:—With the present entering class twelve classes have entered and ten classes have graduated from this department since its opening in 1895. Dividing the twelve entering classes into two groups, the first six and the last six classes; and similarly the ten graduating classes into the first five and the last five classes, we thereby obtain a comparative table of attendance at beginning and end of Pharmacy course for each of the two periods considered:

	4-yr. course	2-yr. course
Number entered, first six classes.....	10	47
Number entered, last six classes.....	10	64
Number graduated, first five classes.....	4	18
Number graduated, last five classes.....	3	18

This table does not include students taking occasional work in pharmacy courses. The number of those who have taken some of the work in pharmacy, materia medica, or in one or more of the chemical courses offered by this department is considerable but has not been separately computed.

It will be noted that out of 131 entering only 43 graduated. It will also be noted that the average number entering has increased only from 9 1-2 per class for the first period to 12 1-3 per class for the last period. That is, in the rapid numerical growth of attendance at this University during the past decade, this department has not largely shared. Several contributing factors to this end have been previously considered. It may suffice to note that pharmacy as a calling is followed by only about 1-10 of one per cent of the total population of the United States; and of this small fraction, less than ten per cent being college trained, it may be said, notwithstanding recent rapid growth in educational opportunities and in the recognition of the need for educational fitting for pharmacy, that it yet remains true that pharmacy is practically the only profession of modern times in which the majority yet enter without preliminary technical educational training. After all, the chief reason that the pharmacy colleges do not generally share in the recent increased patronage of technical schools is that pharmacy still remains more of a trade than a profession, and is hence so rated and paid. Consequently the hope therein, to the beginner, of immediate or prospective rewards for a broader training is little beyond those offered by purely trade callings, which latter generally do not require special technical training at all. That the public weal demands more thorough training in pharmacy than formerly sufficed does not, in short, appeal to the young pharmacist in the absence of financial inducements. Also, considerable capital is necessary to successful venture in this calling, which is not

the case in certain others; and which latter furthermore offer greater initial rewards with greater prospects of advancement. Long hours, weighty responsibilities, and rigid State Board examinations also aid to check more than normal accessions to the ranks of beginners.

It not being expected then that the proportionate number of beginners in pharmacy can be easily increased, the hope of any one pharmacy college for much proportionate increase of numbers would seem to be more or less based on expectation of drawing them from the natural clientele of other colleges, rather than from unexploited material. This forces the query: what inducements have we to offer to enable us to compete with the older, famed and centrally located colleges—Boston and New York, for instance—with their imposing buildings, laboratories, and libraries, liberally equipped, and provided with an ample corps of instructors who present and emphasize everything taught from the standpoint of its practical pharmaceutical bearing? To raise the question is to answer it. Doubtless the question of buildings and laboratories is not important so long as we do not encroach on others; but we are beginning to encroach on the Chemical Department for laboratory facilities and this may become an important future problem. But the question of insufficient equipment of library and laboratory, of insufficient instructors, and of instructors qualified and disposed to present the pharmacy bearings of their specialty are problems immediately pressing.

Our only new apparatus received since last report is a Linbarger Jolly balance, costing $22.50. This is our most valuable apparatus, and has been more in use the past year than any other single article. Its value has been demonstrated, and it is open to use of students of other departments.

The present entering class in the short course is exceptionally well fitted and promising. In fact the average quality of entering classes has steadily improved of late years, and is now very satisfactory (except in the customary deficient preparation in arithmetic, to which I have so regularly referred in my previous reports). Most of the members of recent entering classes were high school graduates, and but few had had as little as two years of high school—preparation much in advance of our actual catalog requirements.

Changes in curriculum are the dropping of military drill as a requirement for first year students, and adding Bl 9, Physiology, as a requirement for second year students.

In another communication I have submitted a moderate estimate to cover our more immediate needs, amounting to $350 in all.

In conclusion: we must necessarily compete with well-equipped colleges; but ignoring this our self-respect should forbid us to bid for the patronage of the young seeker for the best education (usually of limited means) unless we are prepared to give in return and in fair measure opportunity commensurate with this confidence and patronage.

Respectfully submitted,

W. F. JACKMAN,

Professor of Pharmacy.

REPORT OF THE DEPARTMENT OF PHILOSOPHY

President G. E. Fellows:

SIR:—In virtue of the recent establishment of a Department of Education, two of the branches hitherto included in the Department of Philosophy, namely, History of Education, and Principles of Pedagogy and School Management, have been, very properly, transferred to the new department.

This change has enabled me to respond to a petition several times renewed, for the introduction of a course on the Problems of Philosophy, and at the same time to expand the work in the History of Philosophy from the half year to the full year.

As now arranged, the courses offered by this department include General Psychology, Experimental Psychology, Comparative Psychology, Advanced Psychology, Logic, Ethics, History of Greek and Medieval Philosophy, History of Modern Philosophy, and Problems of Philosophy. These branches are purely elective.

In an institution in which technological studies necessarily hold a very prominent place, a large registration in philosophical studies is hardly to be expected under the elective system. It is, therefore, indicative of a genuine interest in such studies, when I can report, as at the present time, fifteen students registered in the Problems of Philosophy, twenty-two for the course in Ethics, and forty-four in General Psychology.

The needs of this department include books for the library and apparatus for the Psychological laboratory. For simply current books of reference in Psychology, Ethics, and Philosophy, at least $200 should be assigned.

To remedy, in part, the deficiencies in apparatus, $400 would be a minimum estimate, for pieces ranging from $1 to $50 in value. This estimate does not include any of the expensive pieces found in most psychological laboratories of the present day.

Respectfully submitted,

M. C. FERNALD,

Professor of Philosophy.

REPORT OF THE DEPARTMENT OF ROMANCE LANGUAGES

October 31, 1906.

President G. E. Fellows:

SIR:—The Department of Romance Languages offered in 1905-6 twenty-eight hours, of which twenty-two were in French and six in Spanish. In 1906-7 there are offered thirty-six hours, of which twenty-eight are in French and eight in Spanish. These thirty-six hours are distributed as follows: First year French, one section (5 hrs.); Intermediate French, one section (2 hrs.); second year French, three sections (9 hrs.); third year French, two sections (6 hrs.); fourth year French, one section (2 hrs.); elementary and advanced conversation and composition, one section each (4 hrs.); first year Spanish, two sections (6 hrs.); second year Spanish, one section (2 hrs.).

The number of students enrolled in the department in the last four years is as follows:

1903-4	150
1904-5	191
1905-6	216
1906-7	260

The year 1906-7 compared with the year 1903-4 shows an increase in the number of students of 73%.

There has been a steady increase in the number of students. We may then look forward to a corresponding increase in 1907-8.

With this constantly increasing number of students our present quarters are unsatisfactory. The students have been laboring under great difficulties in our present small classroom. Two spacious classrooms and an office-room are needed by the department.

Mr. Shute, who until this year was instructor both in the German and Romance departments, is now doing his work in the Romance department only.

The part of the library relating to this department is greatly in need of enlargement. Only by spending yearly a very liberal sum of money for books will it be possible to place the same upon a workable basis.

Respectfully submitted,

J. B. SEGALL,

Department of Romance Languages.