

MAINE STATE LEGISLATURE

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Public Documents of Maine:

BEING THE

ANNUAL REPORTS

OF THE VARIOUS

Public Officers and Institutions

FOR THE YEAR

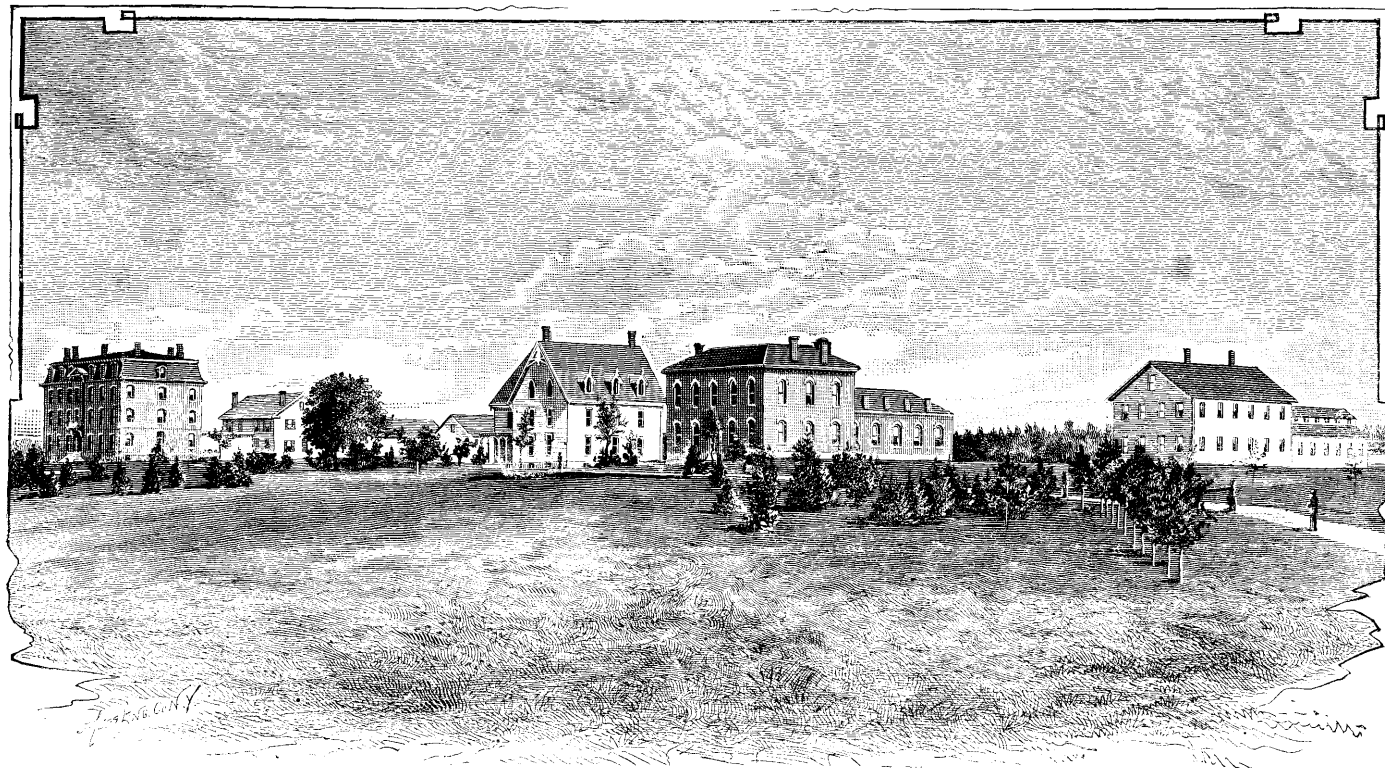
1887³

VOLUME II.

AUGUSTA:

BURLEIGH & FLYNT, PRINTERS TO THE STATE.

1889.



PRINCIPAL BUILDINGS OF THE MAINE STATE COLLEGE.

Brick Hall and Boarding-House.

White Hall.

Chemical Laboratory.

Shop.

ANNUAL REPORTS
OF THE
TRUSTEES, PRESIDENT AND OTHER OFFICERS
OF THE
State College of Agriculture
AND THE MECHANIC ARTS,

Orono, Me., 1887.

Published agreeably to a Resolve approved February 25, 1871.

AUGUSTA :
BURLEIGH & FLYNT, PRINTERS TO THE STATE.
1888.

TRUSTEES' REPORT.

To His Excellency, the Governor, and Honorable Council:

The Trustees of the State College respectfully submit, herewith, their twentieth annual report; also the reports of the President and several members of the Faculty, and that of the Treasurer.

It is with a large measure of satisfaction to the Trustees that they are able to extend the assurance that the year just closed has been characterized by an unusual degree of prosperity and success. The number of students has never been larger; the morale of the Institution has never been better. An improved division of labor and the use of a new supply of apparatus has contributed to give an increased value to the instruction of the several departments.

The changes of the officers of the Institution during the year have been as follows:

Hon. A. M. Robinson of Dover has retired from the Board of Trustees, his term having expired, and Gen. Chas. Hamlin of Bangor has been appointed to fill the vacancy.

Mr. Robinson has been an earnest and steadfast friend of the College from the beginning, and in its early struggle for existence, when its friends were few, he ably and successfully advocated its cause in the Legislature.

As a member of the Board of Trustees, his services and counsels were valuable, and were held in high estimation by his associates.

Prof. C. H. Benjamin, of the Department of Mechanical Engineering, closed work for the College in January last to accept a more remunerative situation elsewhere. Prof.

Benjamin's work at the College was entirely satisfactory to the Trustees, and his resignation was accepted with regret.

Mr. Walter Flint has been appointed to the professorship made vacant by the resignation of Prof. Benjamin. Prof. Flint is a graduate of the College, and, for several terms after graduation, he was a very successful instructor in the department of shop-work. Mr. Howard S. Webb, also a graduate of the College, has been placed in charge of the shop-work department.

Mr. James N. Hart, another graduate, has been appointed instructor in mathematics and drawing.

Mr. G. M. Gowell, who had been Farm Superintendent for a period of five years, resigned his position in April last. These five years constituted a period of signal prosperity to the farm, as has been shown in former reports. But this prosperity was suddenly interrupted by the disaster to the fine herd of cattle, which had been selected by the aid of his excellent judgment. The State had ordered the destruction of the stock for the protection of the public, and had failed to make the necessary provision to restock the farm. The College had no available funds for this purpose. To Mr. Gowell's apprehension the attempt to maintain the fine condition of the farm without the aid of a stock of cattle would prove a failure. Much less would it be practicable for him to realize the carrying out of plans for continued improvement. Mr. Gowell's management of the farm was characterized by remarkable skill and success. But his ability was not limited to skilled management in the work of practical farming. His work in various lines of experimentation was of great practical value. He handled the details of such work with great pains-taking and particularity, and noted results with accuracy. Results thus obtained, given to the public through the reports of the College and Board of Agriculture, and through the agricultural press, were widely read and highly valued, not only by the farmers of Maine, but by those of other States. In view of such considerations, the retirement of Mr. Gowell from the man-

agement of the College farm cannot be regarded as less than a public misfortune.

BOARDING HOUSE.

The management of the boarding house, under Mr. and Mrs. Spencer, continues to be entirely satisfactory. Both are entitled to much credit for the faithful performance of important and somewhat difficult duties. Some needed repairs have been made that will promote the convenience and comfort of those in charge of this department.

It may be said in this connection that, under the direction of Pres. Fernald, much needed and substantial repairs have been made in the interior of Brick Hall. The long halls and stair-ways have been much improved in appearance, at moderate expense.

MILITARY DEPARTMENT.

The Trustees have been glad to notice an increasing interest in this department from year to year. The year just closed has been no exception to the rule. Under the instruction of Lieut. Philips, there has been manifested a tendency towards a higher plane of drill and discipline. An element of interest is a new rifle range that has been constructed within the last year.

The Congressional Act that requires instruction to be given in "military tactics" has a specific and definite object in view. The Trustees have no desire to evade this requirement by a merely nominal compliance with the act. On the contrary, they have endeavored to comply with its requirements in good faith. They have done this the more cheerfully from the conviction that the drill involved has a positive and direct tendency to promote health and physical development.

WATER SUPPLY.

The plans to secure a supply of water for most of the College buildings have been alluded to in former reports. Under the able direction of Prof. Hamlin these plans have been car-

ried forward until the buildings referred to are accommodated with an abundant supply of excellent water. The water is raised by wind power from a deep well to an elevated tank of adequate size, from which it is conveyed through pipes to the buildings, where it is used for various purposes. As a measure of convenience, this arrangement will be very useful. As a sanitary measure, its value is not likely to be over-estimated.

SHOP INSTRUCTION AND PRACTICE.

The Trustees are glad to notice an increasing interest in the practice of hand-craft in the shops. The number of students who avail themselves of instruction and practice in the shops is larger than ever before. This is one of the eminently practical features of the College, and it is increasing in favor from year to year.

NEW BUILDING.

A building adequate in size and appointments to meet the urgent necessities of the Departments of Natural History and Agriculture has, for many years, been an object of earnest desire by the officers of the Institution. By the wise liberality of the Legislature of 1887, the sum of \$25,000 was appropriated to accomplish this object. The work of construction was placed under contract early in the season, the terms of which were considered very favorable to the College. This work is now well advanced.

The amplitude of space in this building, and its admirable adaptation to the purposes of its construction will go very far towards compensating the officers of the College for their long period of somewhat impatient waiting.

The building is a very substantial brick structure, of pleasing proportions and attractive exterior. The plans and specifications were prepared with skill and accuracy by Mr. Frank E. Kidder, a rising young architect of Boston. The officers of the State College take pride in claiming Mr. Kidder as one of its own graduates. Messrs. Haynes, Keyes and Thing were

a committee to procure plans and specifications and place the construction of the building under contract, and to exercise a general supervision of the work. They were assisted by Prof. Hamlin, of the Department of Civil Engineering, who, being on the ground, gave the work, as it progressed from day to day, his careful inspection. Prof. Hamlin's valuable assistance is held in high estimation both by the building committee and Board of Trustees.

The front of the building will bear the inscription "Coburn Hall" engraved conspicuously in enduring granite; and, as long as the building, itself, shall endure, will the memory of the College's most valuable friend and munificent benefactor be perpetuated; and the eye of the future visitor and student, as he approaches the spacious entrance to this hall of science, will linger upon the name that is a synonym for unselfish philanthropy.

The new building will perpetuate the memory of another honored name of a former generation. Over the arched door-way leading to the spacious apartment which is to be used as a museum of Natural History, will be placed the legend "The Holmes Cabinet," as a memorial of the late Dr. Ezekiel Holmes. For his able and conspicuous services in behalf of the farming interests of the State, and of the interests of practical education, Dr. Holmes deserves to be held in grateful remembrance. That the State College exists as an independent institution, unhampered by any connection with any other college in the State, is largely due to the earnest efforts and great influence of Dr. Ezekiel Holmes. It is a matter both of historic and tragic interest, that the great effort of his life was an exhaustive and eloquent argument before a legislative committee in favor of the absolute independence of the College, an effort from which he retired directly to his hotel in Augusta, late at night, and to his home in Winthrop the next morning, there to remain until carried by his friends to his final resting place. The date of the construction of this fine building will constitute an epoch in the history of the State College. Although built with reference

to specific needs of the Departments of Natural History and Agriculture, it will satisfy requirements common to all the departments. To the College, as an aggregation of departments, it will contribute to systemization and unity of method.

It will give the Institution more character and a higher relative position.

THE FARM.

The healthy and highly satisfactory condition of the departments of the College generally was spoken of in the earlier part of this report. The present condition and prospects of the farm, however, are not calculated to inspire enthusiasm. The five years of skillful and vigorous management under Mr. Gowell had done more to inspire confidence and to popularize the College with the farmers of the State than any thing in its previous history. No year failed to disclose improvements that arrested the attention even of the casual observer. No year passed without showing an increase of value and numbers in the herd of cattle, or without disclosing an increased acreage of productive land. To say that the disaster to the stock of cattle brought this progressive condition of affairs to a stand, is to present the case too favorably. In many of the economics of life, the absence of progress is retrogression. The College farm will prove no exception to this rule. Two large barns upon the farm are filled with hay. This may be sold at its market value or judiciously fed to stock.

Whatever its value in market at a given time, it is worth 33 per cent more to feed to a herd of good dairy cows. More than this, so fed, it is returned to the land from which it was taken, and the process of retrogression is not only arrested, but the land is made more productive. But it is said that the farm was designed to be used for educational purposes, and that farming for profit is not in harmony with such design. To the extent required, the farm, with its fields, its forage, its buildings, its tools and stock, *should* be used for educational purposes. It *has* been so used in the past. It

is the design of the Trustees that it *shall be* so used in the future. But, after all the facilities needed for educational purposes shall have been supplied, there will still be a large area of land and a large amount of forage remaining for other purposes. What shall be done with these? Something ought to be done in the interests of *inspirational*, as well as of educational farming. If young men are to be allured to agricultural pursuits, they must be *inspired* with the conviction that brains, muscle, skill and industry will avail to make farming profitable.

Success in business is the goal that all desire to reach. The farming that gives the surest and most ample returns for a given expenditure of labor and money is the type of farming that will attract young men to the field of agriculture. The College farm should afford an example of such farming. To this end, the farm should be placed under the most skillful management attainable. Its ample barns should be filled with cattle to consume its forage. Its herd of cattle should embrace representative animals of the most approved breeds in the State, so that the characteristics and adaptations of each may be carefully studied by students and others. On its broad fields the best methods of culture of the crops to which its soil is adapted should be practiced.

In Maine there is no branch of practical farming that yields more certain and uniform returns than the dairy industry, and there is no industry whose value depends more largely upon careful and skillful management than this.

Hence, there is no branch of practical farming where careful instruction and practice in all matters of method and detail are of more vital importance. For such instruction, a carefully selected herd of dairy cows is an essential element, and they should be supplied by the State to take the place of those destroyed by the order of the State. Such a herd of cows would subserve a most valuable purpose by affording the opportunity to students of becoming acquainted with the best methods in dairying, and, at the same time, it would yield a revenue to the College.

The Congressional act, by virtue of which the State College owes its existence, provides that "its leading object shall be to teach such branches of learning as are related to agriculture and the mechanic arts." Whatever else is done or left undone, instruction in the branches named must be provided for. Nothing is left to the discretion of the State or College. The requirement is absolute. Instruction in "branches of learning related to agriculture" stands first in the list. Evasion of the requirement by a merely nominal compliance would be a breach of faith to the government and to the farmers of the State.

In the department of mechanical engineering, the instruction of the class-room is supplemented by practice in the shops. The same rule is observed in the other departments. Nowhere is its observance of more vital importance than in the department of agriculture. The policy relating to the farm, which has been briefly outlined, was pursued by the College until it was interrupted by the disaster to the herd of cattle in the spring of 1886. It was then abandoned as an act of necessity. It should be resumed at the earliest practicable date as an act of fidelity to the government.

Respectfully submitted,

LYNDON OAK,

President of the Board of Trustees.

PRESIDENT'S REPORT.

To the Trustees of the Maine State College of Agriculture and the Mechanic Arts.

GENTLEMEN :—Specific reports of the several departments of the College have not been deemed necessary, inasmuch as no session of the Legislature is expected to occur during the winter of 1887-8.

In brief, it may be sufficient to say that each department is believed to be fulfilling the design of its establishment, in a manner reasonably satisfactory, and that, as a whole, the College in its work of instruction has had a year of exceptional prosperity.

The number of students in attendance has been larger than for many years, if not larger than at any previous time in its history. The general moral tone of those in attendance has been high, and hence, with only limited exceptions, a regard for order and for the rights of others has been clearly manifest. The accessions to the several classes within the year have been such as to contribute to the creditable reputation and good character which it is the pride of most students to maintain.

In intellectual results also, the year has been one of more than usual value, so closely are the higher moral qualities and mental achievements correlated.

The changes in the force of instruction have been of satisfactory nature, except that it is always a source of regret to lose the services of an instructor so efficient as Professor Benjamin had proved himself to be. The vacancy occasioned

by his retirement from the faculty was filled in the early part of the year by the transfer of Mr. Walter Flint from the position of instructor in shop-work to the chair of Mechanical Engineering. I recommend that he be made full professor in charge of this department. Mr. James N. Hart as Instructor in Mathematics and Drawing, and Mr. Howard S. Webb as Instructor in Shop-work, have shown themselves to be well qualified for their respective duties and valuable additions to our teaching force.

The advanced conditions of admission to the College, sanctioned at your meeting in November, 1886, go into effect at the next Commencement. By advertisement and by published articles, I have endeavored early to direct the attention of candidates for admission, to the new conditions, to the end that they may come fully prepared for the examinations of June and August, 1888. In consequence of the changed conditions of admission, some slight modifications in the arrangement of the studies of the several courses have been found necessary. All these changes are in the line of more symmetrical courses of study, and hence, of better work on the part of the student and a higher grade of instruction on the part of the teacher.

COMMENCEMENT AND DEGREES.

The customary order of Commencement exercises was observed. On Saturday evening, June 25th, the Sophomore Prize Declamations were given. For excellence in declamation, the Prentiss Prize was awarded to John Reed of Benton, the committee of award making honorable mention of Alphonzo John Coffin of Harrington, and of Fred Stevens of Winter Harbor.

On Sunday evening, June 26th, an impressive and scholarly baccalaureate discourse was given by Rev. Thomas Hill, D. D., of Portland.

On Monday evening occurred the Junior Exhibition, consisting of the presentation of original essays. The prize for excellence in composition was assigned to Miss Hannah Ellis

Leavitt of Skowhegan, the writer of the essay on the "Power of Fiction;" the committee commending also as especially meritorious the essay entitled "Centralization, Its Evils and Their Remedies," written by John Russell Boardman of Augusta, and the essay on "Independence of Character," by Nathaniel Estes Wilson of Orono.

The Junior, as well as the Sophomore prize was the gift of Mrs. H. E. Prentiss of Bangor.

The prize given by Hon. Samuel Libbey for best essay on an agricultural subject was assigned to John Wood Hatch of Presque Isle.

On Tuesday afternoon, June 28th, a military drill and review were given on the College campus, and in the evening a reception was given at the President's house.

On Wednesday, June 29th, occurred the graduating exercises of the Senior Class. The titles of essays and the names of candidates for graduation who received degrees are given below.

BACHELOR'S DEGREE IN COURSE.

Degree of Bachelor of Science.—Course in Agriculture: Bert Elmer Clark, West Tremont, Atmospheric Supply of Nitrogen to Vegetation. Degree of Bachelor of Science,—Course in Chemistry: David Wilder Colby, Skowhegan, Prehistoric Races; John Sumner Williams, Guilford, The Utilitarian System. Degree of Bachelor of Science,—Course in Science and Literature: Alice Albur Hicks, Hampden, Every Noble Crown a Crown of Thorns.

Degree of Bachelor of Civil Engineering.—John Henry Burleigh, Vassalboro', The Destiny of this Republic; Luis Vernet Prince Cilley, Rockland, Railroad Speculation; Edwin Voranus Coffin, Harrington, City Sanitation; Charles Ayers Mason, Bethel, Lost Empires; Henry Allen McNally, Fort Fairfield, Federalism; Fenton Merrill, Orono, Water Supply for Cities and Towns; Cassius Almon Sears, Fort Kent, Sanitation; Charles Fremont Sturtevant, Bowdoinham, Finances of the United States;

Frank Ellsworth Trask, Bethel, Responsibility of Engineers; Charles Thatcher Vose, Milltown, N. B., Railroad Accidents and their Prevention.

Degree of Bachelor of Mechanical Engineering.—James Draper Lazell, Rockland, Explosives; Addison Roberts Saunders, Hanover, Concord versus Discord; Charles Hildreth Stevens, Fort Fairfield, The Steam Engine; Howard Scott Webb, Skowhegan, Force.

MASTER'S DEGREE.

Master of Science.—Fred Wilden Fickett, Galveston, Texas; Oration, Alaska.

Mechanical Engineer.—Wilbur Fish Decker, Minneapolis, Minn.; Thesis, the Steam Power Plant of the West Side Pumping Station, Minneapolis.

On Wednesday evening, following the Commencement exercises, there was a reunion of the Alumni, at which an address was given by Rev. C. F. Allen, D. D., former President of the College, and a poem by H. M. Estabrooke, M. S., of Gorham.

MATERIAL EQUIPMENT OR ADVANCEMENT.

A decided improvement has been made within the year in the development of the system of water supply and in the better drainage of the principal college buildings. For a detailed account of the work accomplished in this regard and the results of the same, reference is made to Prof. Hamlin's report.

Brick Hall has received a very considerable renovation. The wainscoting in each hall of the building has been carried up three and one-half feet, making the full height between six and seven feet. The lower half has been painted India red and the upper half a light contrasting color. Many of the rooms in the building have been fitted up very tastefully. Closets have been placed in the basement and the building, as

a whole, has been so much improved that it can hardly fail to furnish a pleasant residence for students during their course. I am glad to be able to state that great care has been exercised by the students in the building so that the walls should not sustain injury, and that the improvements made seem to be thoroughly appreciated.

It is to be hoped that the work of renovation can be extended to other buildings next season. Additions have been made to the stock of apparatus in the several departments, and other additions can be made in 1888, in accordance with the provisions of the last Legislature for this purpose.

In the material equipment of the College, the most marked advance of the year is the new building for the departments of Natural History and Agriculture. In enlarging the plan of this structure the State builded more wisely than was realized, even by the legislative committee on the College who initiated this important change and carried it to a successful issue.

As the building is now arranged, the basement will furnish large and commodious rooms for the storing of agricultural implements and machinery by which they may be kept on constant exhibition and may serve also for purposes of instruction in the agricultural department of the College. Two rooms on the north side of the main hall, first floor main building, will serve for lecture room and laboratory, Department of Agriculture, and the large room south of the main hall for a physical laboratory, thus supplying a want long felt and the means of enhancing many fold instruction in the important Department of Physics in the Institution. The first floor of the ell will serve for library and reading-room. The entire second floor of the main building will be devoted to the Department of Natural History; the two rooms on the north of the central hall serving for zoological lecture-room and zoological laboratory and the rooms south of the hall, for botanical lecture-room and herbarium. The second and

third floors of the ell will furnish space for cabinet collections of both departments, Natural History and Agriculture. The third floor of the main building will supply on the college premises a commodious audience room, having capacity to seat four hundred people. This room, in the near future, will doubtless be used for the chapel services. Thus the new building, in addition to the original design, supplies a chapel-room, a physical laboratory, and, not least important, a respectable room for the college library. The value of this building for the several departments which by it secure reasonable space for work and growth can scarcely be over-estimated. It was a wise legislative act which provided the means for its construction.

LIBRARY.

The room in the new building to be devoted to the library will allow twenty thousand volumes of books to be so shelved that they will all be accessible and still furnish convenient space for a small reading-room. At the present time, more than one-half of the books belonging to the college library are stored in boxes or in other inaccessible places, simply for the want of available room.

The members of the Faculty have long desired to make the library more serviceable to students but in the cramped quarters which could be assigned to it, anything like a systematic use of it as a reference library has been impossible. Under the new conditions for it, it can be made and should be made an important factor of educational progress. To secure this result in the highest degree, as soon as the books can be transferred to the new library-room, a re-organization of the library should be commenced and the work be carried forward until it is completely catalogued and arranged in accordance with the best devised system of the present day. I recommend that provision be made for carrying out the plan indicated and hence for rendering the few thousand books owned by the College fully and readily available for use by all connected with the Institution.

THE COLLEGE FARM.

The action of the Trustees at the April meeting, 1887, whereby the farm was put under the personal control of the Professor of Agriculture, places it in the same relation to the College as that which we find existing in nearly all the institutions established under the act of Congress of 1862.

More largely than ever before, it may be expected to serve for purposes of instruction of the students in agriculture, so closely related are the processes of the farm and the teachings of the class-room when both are directed by the same individual.

Embarrassed by a heavy debt, the result of misfortune, it cannot, at present, be so managed that its full utility as a factor of instruction can be realized. The net indebtedness of the farm principally if not wholly in consequence of the destruction of its fine herd was found to be in April, last, \$6,103.68. The policy adopted by the Trustees of having the farm run until the next session of the Legislature with a minimum expenditure and yet with a view to maximum money returns, although not a safe one for a long period, I believe to be the true policy for the short period. By following this course, the farm can meet its own bills, pay the interest on the indebtedness and to an extent reduce the principal. The day has passed when this Institution has occasion to fear inappreciative, unjust or ungenerous treatment on the part of the State. Having reduced the debt to the limit to which it can be reasonably reduced, I have faith to believe that the State will cheerfully and promptly cancel the remaining indebtedness as a matter of simple justice too long delayed; and further that the State will then readily provide for keeping upon the farm representatives of the principal breeds of stock, in order that the farm may fulfill its design as a part of the educational equipment of the College.

For other and specific statements in regard to the farm and its management, I would make reference to the report of the Professor of Agriculture.

EXPERIMENT STATION.

By act of the Legislature, the State Experiment Station, located at the College, was abolished on Oct. 1, 1887. In accordance with one of the provisions of the same act, the property held by the Station was transferred to and became the property of the College on the date named. As the State had appropriated money for the expenses of the Station through the year 1887, it seemed only just to continue its work to the close of the year, as planned by its Board of Control and as requested by them. The organization, however, under which the new Station is doing its work, is that required by the Hatch bill, approved March 2, 1887.

The State of Maine and this College have fulfilled all conditions required to entitle the College to the full benefits of the money designed to be appropriated by the Hatch bill. Unfortunately the authorities at Washington regard further action of Congress necessary to make available the sum named in the bill for each State. The Secretary of the Treasury is reported to have given assurance that he will include this item in the Urgent Deficiency bill, and, considering the fact that by nearly unanimous vote the Hatch bill passed both houses of Congress, there is reason to believe that the money designedly appropriated for the current fiscal year will yet become available. The recent convention of representatives of agricultural colleges and experiment stations, held in Washington, addressed itself chiefly to the problem of the best use of the funds provided by the bill under notice. Among the conclusions which received the endorsement of the convention, the following four propositions include those that were put in definite form :

1. "That all appropriations received under what is known as the "Hatch bill," should be applied in good faith to agricul-

tural research and experiment and the dissemination of the results thereof among the people, and that any diversion of these funds to the general uses of the colleges would be a direct violation of the plain spirit and intent of the law, and an inexcusable disappointment of just public expectation.

2. That the experiment stations specially referred to should be so far separate and distinct from the colleges that it shall be possible at any moment to show any authorized inspector or investigator that all the funds from the United States under the Hatch bill have been expended solely for the purposes of agricultural experimentation according to the intent of the law.

3. That every "department to be known and designated as an agricultural experiment station" should be distinctly organized, with its duties and control clearly defined, and with a recognized official head, whose time shall be chiefly devoted to this department, who should be on an equal footing with the other heads of departments or professors of the college, and whose compensation should recognize the fact that the duties of the position occupy every month of the year.

4. That the publications of the stations should be entirely separate from those of the college. The quarterly or more frequent bulletins should give their readers the results of experiments as fast as completed, and only as completed, or as distinct chapters are completed. These bulletins should enlarge on those practical points, such as the improvement or restoration of soils, the development of plants and the breeding of stock, when suggested by work done, even to the extent of repeating well-known principles and facts, when these need to be taught."

By one of the provisions of the Hatch bill, one-fifth of the first appropriation can be used for buildings. Should this first appropriation become available within the present fiscal year, as expected, one of the first problems by which you will be confronted will be that of making proper provision for the Station by way of buildings and equipments. Essentially

all the space in buildings which the College controls, including the new building, is needed for legitimate college work.

A building carefully devised and fittingly arranged, which shall furnish the Station a definite habitation, will be found indispensable. While a portion of the work of the Station might perhaps be carried on in college rooms, I am convinced that much the larger part, if not all, must be done in rooms specially fitted for specific purposes. I beg therefore that early attention be given to the matter of plans for a suitable principal building for the Station, a building that in cost shall not exceed the means which it is believed in the near future can be provided for it. The subject of equipment is an easier one inasmuch as the bill itself makes ample provision for it. From the first year's instalment when received, much of the permanent equipment in books, apparatus, &c., should be made.

A considerable library on the special subjects of investigation will be needed in order that the literature of such subjects may be carefully studied and all needless duplication of work prevented. A good supply of such instruments and apparatus as must be in constant and continued use should likewise be early supplied. The special lines of investigation to be taken up by this Station must also receive early and thoughtful consideration.

SUNDRY TOPICS IN CONCLUSION.

The Young Men's Christian Association has established itself with considerable prominence in the College. It now has about twenty active members, and between twenty and thirty associate members. Its restraining and uplifting influence upon the young men of the College is clearly apparent. It is deserving of the co-operative aid and support of all who value moral and Christian culture.

The contribution of regular prizes has been elsewhere acknowledged in this report. I wish to make public acknowledgment, also, of a gift of thirty dollars for any purpose that

I should name, by a lady friend of the College, who desires that her name shall remain unknown. This money has been divided into two prizes, one of which is to be awarded at the end of the College year to the member of the Sophomore class, and the other to the member of the Freshman class who shall have maintained throughout the year the highest standing in scholarship, deportment and in all regards. Other benefactions of like nature which can be used at discretion would be heartily welcomed. They could be made serviceable and valuable.

The completion of the new building will not only mark an era in the history of the College but it will be an event of so large prospective value, in the enlarged scope which it will give to the departments of Natural History and Agriculture, in the better facilities for the library and in improved conditions for other departments, that it would seem to be worthy of more than passing notice.

Trusting that the plan may meet your approval, I venture to suggest not only the propriety but the eminent fitness of ceremonies of dedication to be held if practicable in the building itself, and would also suggest that some day of the next Commencement week be selected for such services.

Grateful for the wise liberality of the State which has made the construction of this new building possible, and thankful for the prosperity which has attended the College through the past year, all associated in its management can go forward with renewed confidence to the labors and responsibilities which the administration of its affairs imposes, and with hope and trust in the larger usefulness and ampler development which we can but believe the future holds in store for it.

Respectfully submitted.

M. C. FERNALD, *President.*

Military Department.

MAINE STATE COLLEGE, ORONO, ME., }
November 21st, 1887. }

To President M. C. Fernald:

SIR: I have the honor to submit the following report. The routine work of this department during the past year has been much the same as in the previous year. Very few changes have been made. The drills have been well attended, the percentage of students present being larger than ever before.

The work in the theoretical instruction, for which Upton's United States Infantry Tactics was used as a text-book, has been beneficial, aiding and simplifying the work of practical instruction in the field. The interests of the students in military instruction seems to be steadily increasing. The principal matter of interest in this department this year has been the construction of a new rifle range. This has been accomplished by means of the appropriation of \$100 made by the State Legislature for this purpose and the College has now a range fitted with two revolving targets and affording facilities for target practice at all ranges up to and including 600 yards which will compare favorably with any in the State. The importance of this as a means of military instruction can hardly be over-estimated. Through the kindness of the Adjutant General of the State, Gen. S. J. Gallagher, we were enabled to have a larger supply of ammunition, which was expended during October, in target practice by the members of the Senior and Junior classes. In this a highly creditable

showing was made. With more ammunition and an increased allowance of time for practice the Coburn Cadets could, I believe, produce one of the leading rifle teams of the State.

But one change, and that simply an addition, has been made in the battalion organization. This is the appointment of a Cadet Major to act as commander of cadets. This was made for the purpose of centralizing the organization in the cadets themselves and to make it as far as possible a purely student organization. The change has been, I think, beneficial. A slight change, subject to the approval of the Board of Trustees, has been made lately in the uniform. In accordance with the expressed wish of a majority of the cadets for a distinctive uniform to be worn on dress occasions, such as parades, &c., white waist and shoulder belts with special plates have been added to the uniform. There seems to be an almost universal desire to change the uniform trousers and to replace the present grey ones with blue of some shade slightly lighter than the present blouse. As these can be procured of good quality and at the same price, I would respectfully recommend that the change be made. For various reasons the annual encampment was this year omitted, but the custom should by no means be allowed to lapse. An encampment affords too many opportunities for military instruction in directions otherwise impracticable for it to be lightly neglected. They should, if possible, occur every year to be productive of the best results. In regard to this it would be very convenient, to say the least, if a complete set of camp-equipage could be procured for the sole use of the cadets. The encampments could then ordinarily be had in the immediate vicinity of the College thereby saving a great deal of expense and loss of time incidental to longer excursions.

In closing this report, as this will probably be my last opportunity to address you officially, I wish to express my thanks to you and through you to the Board of Trustees and the members of the Faculty for the readiness shown to grant

my wishes in respect to this department and the assistance given to render my tour of duty here a successful one.

Very respectfully,

Your obedient servant,

CHAS. L. PHILLIPS,

2d Lieut. 4th U. S. Artillery,

Prof. Mil. Science and Tactics.





BUILDING OF NATURAL HISTORY AND AGRICULTURE.

Department of Agriculture.

President M. C. Fernald:

The better equipment of the various departments in which the students of Agriculture receive instruction, has resulted in a marked improvement in the quality of the work performed by them during the past year and has also enabled them to cover much more ground than usual.

The building for the Agricultural and Natural History Departments, in course of construction, will add greatly to the facilities of the College for giving thorough instruction in the Agricultural course. This building, while furnishing ample space for class-room purposes, will also fill a long-felt want in providing quarters for a museum for the storage and proper care of specimens and objects to be used in giving instruction in these departments. The building also provides space in a well lighted and dry basement for a small permanent exhibition of agricultural tools and machinery, which will furnish opportunity for a more thorough study of the most important implements and machines employed in carrying on the various branches of agriculture of our State.

The prize offered by the Hon. Samuel Libbey for the best essay on an agricultural topic, to be presented at Commencement each year, has called forth earnest work on the part of those competing for it, and has proved a great incentive to special study on the part of agricultural students.

It is to be hoped that other friends of the College will show their interest in this department by offering prizes for similar objects.

There has been added to the apparatus of the department a Schaffer & Budenber traction dynamometer registering

from 100 pounds up to 2000 pounds, for measuring the force required to draw farm implements and machinery, which promises to work satisfactorily. This instrument consists of a double elliptic spring to which is attached a dial and an index in such a manner that when a tractive force is exerted on the spring the index moves along the dial and indicates the number of pounds of traction on the spring. At one end of the index is attached a pencil whose point rests on a paper moved by clock work, and then traces out the variations in the tractive force exerted at various stages.

In previous reports I have urged the establishment of a department of horticulture at the College, as soon as the financial condition of the Institution would warrant it. The need of more extended instruction in this branch of agriculture than is possible under present conditions is brought to my notice more forcibly each year.

More thorough instruction should also be provided in veterinary science. Maine agriculture is largely dependent on stock industry. The number of persons in the State competent to give sound advice in regard to the care and treatment of animals afflicted with disease is very limited. In my opinion, provision should be made, as soon as practicable, for giving the students in the Agricultural course sufficient training in veterinary science to enable them to treat intelligently all ordinary cases of disease.

After the resignation of Mr. G. M. Gowell as Farm Superintendent, which took effect on April 15th, the "College Farm" was placed in my care. No provision having been made for re-stocking the farm, it was thought advisable to dispose of the swine and fowls and run the farm with as little expense as possible. There have been retained on the farm one team horse and a small flock of pure bred "Shropshire" sheep. These, with a "Jersey" bull presented to the College by the proprietors of "Houghton Farm," constitute all of the live stock owned by the College. There were about 50 tons of hay on the farm in the spring, of which 45 tons were

pressed and sold, netting \$10.25 per ton, in the barn. The remainder was either sold loose or consumed by the stock.

Other property turned over to my care remains as per inventory made at the time.

There were about twenty acres of land under plow in the spring, five of which were controlled by the Experiment Station. Of the remaining fifteen acres all but five were manured in the fall preceding with stable manure. The unmanured portion was fertilized with five hundred pounds of superphosphate to the acre and the entire area sown to oats and seeded down with grass seed. There were harvested from this land 492 bushels of oats (threshers' measure).

There were about 200 tons of hay harvested against 217 tons last year. All of this was put in the barn in good condition, with the exception of 15 tons which was badly damaged.

In the spring, the high water demolished a large portion of the unsightly pole fence along the road in front of the College buildings, and left the remainder in bad condition. At the suggestion of some of the Trustees present at the time, the debris was removed and that portion of the river pasture turned out common. The remainder of the river pasture has been re-fenced along the road with a picket fence and a rail fence run from the White barns to the river, separating it from the upper portion.

The portion of the river pasture in front of the College buildings, which has been referred to as turned out to common, consisting of some ten acres of interval land, would, I think, if plowed and seeded, produce good grass, and with a view to improving it, I have commenced removing the stones and propose to plow a portion of it another year.

There are, on the back end of the College lot, about 150 acres of land, a portion of which is covered with wood and timber and another portion from which the timber has been cut off and the land cleared and seeded several years ago. This land is at present waste land, but if fenced, would furnish good pasturage for fifteen or twenty head of cattle. I recommend that the land be fenced and utilized for a pasture.

The old White barns are badly out of repair and should be thoroughly renovated if they are to be used longer for any purpose whatever.

If the farm is to fulfill its mission as a means of instruction in the course in agriculture it should be re-stocked with representative animals of the different breeds of cattle, sheep, horses, etc. It will become necessary sooner or later to do this or place stock of some kind upon the farm if its present state of fertility is to be maintained.

There has been expended for labor, fertilizers, feed, repairs, tools, etc., \$813.14. The receipts from all sources have amounted to \$821.73. There are debts against the farm not included in the above, to the amount of about \$125.00. There is due the farm about the same amount, or \$125.00.

Respectfully submitted.

WALTER BALENTINE.

Farm Inventory, December 1, 1887.

LIVE STOCK.		
HORSES.		
1	Percheron-Norman stallion, leased of Houghton Farm.	
1	Bay mare, 12 years old	\$150 00
CATTLE.		
1	Jersey bull, 1 year old	75 00
SHEEP.		
1	Shropshire buck, 2 years old.....	30 00
1	“ ewe, 4 “ “	15 00
1	“ “ 2 “ “	15 00
3	“ ewes, 1 “ “	45 00
4	“ “ lambs.....	40 00
FARMING TOOLS AND IMPLEMENTS.		
VEHICLES.		
1	Farm wagon	50 00
1	“ “ with hay-rack	25 00
1	Hay-rack with wheels	25 00
1	Two-horse dump-cart.....	25 00
1	Single “ with forward wheels.....	20 00
1	Light express wagon	15 00
1	Double-seated pung	25 00
1	Pung, old.....	5 00
MACHINERY.		
1	Champion Mower, old	25 00
1	Mudgett Hay Tedder	25 00
2	Double harpoon hay forks, with carriers, ropes and pulleys,	20 00
4	Sward plows	40 00
1	Sub-soil plow	10 00
1	Fillibrown Harrow.....	6 00
1	Randall “	20 00
1	Thomas Smoothing Harrow	15 00
1	Potato digger	8 00
1	Kemp Manure Spreader	50 00
1	Winnowing machine	10 00
1	Queen of the Harvest Seed Separator	10 00
1	None Such Hay Cutter	3 00
1	Pearless Corn Sheller	1 00
1	Planet, Jr., Planter.....	3 00
1	Mathew Seed Drill	1 00
1	Planet, Jr., Cultivator.....	5 00
1	Corn planter	10 00
1	Root cutter	5 00
1	Feed truck	3 00
7	Scythes with snaths	3 50
5	Drag rakes.....	1 00
8	Hand rakes	75
3	Cant-dogs	3 00
1	Barrel lifter	50
1	Bush scythe and snath	1 00
1	Stone hoe	25
7	Hay forks	1 75
4	Manure forks	1 00
2	Iron rakes	1 00

Farm Inventory—Concluded.

4 Potato hooks.....	\$1 00
1 Hay knife	1 00
1 Spading fork	75
2 Barn hoes.....	50
2 Axes.....	1 00
2 Iron bars.....	2 00
1 Shuffle hoe	45
1 Steelyard	1 50
1 Platform scale	5 00
1 Bull staff.....	50
2 Feed baskets	1 00
2 Grindstones	3 00
1 40-gallon boiler	3 00
1 14-inch rope, 100 feet	5 00
Dairy apparatus.....	100 00
Household furniture and furnishings	350 00
PRODUCE.	
150 tons of hay.....	1,500 00
300 bush. oats	135 00
LUMBER AND WOOD.	
9 M. cedar shingles	20 00
30 cords wood	75 00
Total	\$3,048 45

Summary of Farm Inventory.

Live stock	\$370 00
Farming tools and implements.....	498 45
Dairy apparatus.....	100 00
Household furniture and furnishings	350 00
Produce	1,635 00
Lumber and wood	95 00
Total	\$3,048 45

Water Supply and Sewage Works.

During the season a tower 34.5 feet high has been erected on a masonry foundation five feet deep, and a tank twelve feet high by fourteen feet diameter and holding 10,000 gallons of water has been placed upon it. The tank has been packed to render it frost proof and the tower covered in to preserve it against decay. All the College buildings proper have been connected with the tank by an inch and a quarter galvanized iron pipe. The wind-mill has given an abundant supply of pure water for all College uses and also furnished nearly all the water used by the masons in the construction of the new building.

At as early a date as possible the supply pipe should be extended to all the dwelling houses on the grounds as it gives the only pure water there is on the premises.

A main sewer, six inches in diameter, of carbonized stone drain pipe has been laid from the dormitory to a point just beyond the county road, a distance of 1335 feet. Some arrangement should be made in the spring either to utilize this sewage as a fertilizer or for carrying the sewer to the river.

All the College buildings have been connected with the sewer and supplied with the proper arrangements for the health and convenience of the students.

The grounds around the new building have been partially graded and some of the necessary paths have been gravelled. A quantity of gravel should be procured this winter for the completion of this work in the early spring.

Respectfully submitted.

G. H. HAMLIN,

Professor of Civil Engineering.

TREASURER'S REPORT.

To the Trustees of the Maine State College of Agriculture and the Mechanic Arts:

GENTLEMEN:—I herewith submit my annual report of the receipts and expenditures for the College during the past year.

RECEIPTS.

ENDOWMENT FUND.		
Interest on State of Maine bonds.....	\$7,098 00	
“ “ City of Bangor “	180 00	
“ from Hallowell Savings Institution.....	50 62	
“ “ Augusta Savings Bank.....	80 80	
Deposit “ “ “ “	2,000 00	
“ “ Hallowell Savings Institution.....	1,000 00	
G. M. Gowell, loan to College Farm	1,000 00	
“ “ interest on loan	93 66	\$11,503 08
EXPERIMENT STATION.		
W. H. Jordan, for bills collected	135 00	
“ “ balance due on transfer to College	105 77	
State of Maine “ “ “ appropriation	1,215 99	1,456 76
GENERAL.		
Cash in the treasury December 3, 1886.....	2,004 02	
Orono National Bank, loan on Treasurer's note.....	2,000 00	
State of Maine, appropriation.....	20,550 00	
Bangor Savings Bank, loan on Treasurer's note.....	6,000 00	
Executors Coburn estate, interest bequest	2,000 00	
M. C. Fernald, tuition of students.....	2,270 00	34,824 02
		\$47,783 86

DISBURSEMENTS.

ENDOWMENT FUND.		
G. M. Gowell, Farm Superintendent, salary	\$500 00	
Faculty, salaries.....	11,558 32	
W. S. Dennett, for Lombard Investment Co. bond and accrued interest	3,008 50	\$15,066 82
EXPERIMENT STATION.		
M. C. Fernald, expense to Washington.....	56 00	
W. H. Jordan, “ “ “	56 00	112 00

DISBURSEMENTS—Concluded.

GENERAL.		
C. H. Fernald, to settle claim on natural history collection,	\$69 89	
M. C. Fernald, to pay for periodicals.....	100 00	
" " bills for water supply.....	1,725 00	
A. L. Moore, Trustee expense	40 55	
D. H. Thing, " "	43 74	
C. W. Keyes, " "	35 20	
A. M. Robinson, " "	10 00	
W. T. Haines, " "	34 10	
E. E. Parkhurst, " "	54 00	
R. B. Shepherd, " "	9 00	
Orono National Bank, for Treasurer's note.....	2,000 00	
" " interest on note.....	12 33	
M. C. Fernald, for repairs	500 00	
" " books for library	100 00	
" " to purchase apparatus	1,500 00	
" " pay debts of College Farm	6,000 00	
F. E. Kidder, services as architect on new building.....	550 00	
W. T. Haines, services and exp. on new building.....	129 32	
D. H. Thing, " " " "	40 74	
C. W. Keyes, " " " "	52 00	
M. C. Fernald, for advertising in Cadet.....	60 00	
" " N. E. Magazine.....	50 00	
J. & J. Philbrook, on contract for new building	12,000 00	
M. C. Fernald, on acc't for new building.....	200 00	
W. T. Haines, Attorney, services on Coburn will case.....	100 00	
Getchell & Co., steam heating for new building	700 00	
M. C. Fernald, to pay miscellaneous bills.....	275 00	
Loan on acc't of boarding-house, per order Trustees.....	1,165 91	\$27,556 78
Cash in the treasury December 8, 1887	-	5,048 26
		<hr/> \$47,783 86

SUMMARY.

Cash on hand last report.....	\$2,004 02	
Total receipts for the year	45,779 84	\$47,783 86
Total payments for the year.....	42,735 60	
Cash on hand December 8, 1887.....	5,048 26	47,783 86

CONDITION OF ENDOWMENT FUND.

Invested in State of Maine 6% bonds	\$118,300 00	
" " City of Bangor 6% "	3,000 00	
* " " Hallowell C. and S. Academy 6% bond.....	4,000 00	
" " Lombard Investment Co. 6% bonds.....	3,000 00	
Cash in the treasury, not drawing interest.....	3,000 00	\$131,300 00

*Suspended payment of interest.

The sum of \$3,000 belonging to the endowment fund, and a balance of \$1,344.76 on Experiment Station account, included in the general balance of \$5,048.26, cannot be used to pay any expenses of the college proper. Deducting these, we have \$603.56 available to pay college expenses the remainder of the year.

J. FRED WEBSTER, *Treasurer.*

ORONO, Dec. 14, 1887.

I have examined the foregoing Treasurer's account and find it properly vouched and correctly cast.

CHAS. HAMLIN, *Auditor.*

SUMMARY OF
METEOROLOGICAL OBSERVATIONS,
TAKEN AT THE
MAINE STATE COLLEGE of AGRICULTURE and the MECHANIC ARTS,

Latitude, $44^{\circ} 54' 2''$ N. Longitude, $68^{\circ} 40' 11''$ W.

FROM JANUARY, 1869, TO JANUARY, 1888,

BY PRESIDENT FERNALD.

Height of instruments above the level of the sea, 134 feet until June, 1879,
and 129 feet since that date.

Explanations, Deductions and Remarks.

The hours of observation are the same as those formerly adopted by the Smithsonian Institution, viz: 7 A. M. and 2 P. M., and 9 P. M., local time.

The figures in the columns headed "Force or pressure of vapor," show the height at which a column of mercury is maintained by the weight of the moisture of the air.

The warmest day of the year 1887 was July 2nd, when the mean temperature was 82°.5, and the coldest day was January 9th, when the mean temperature was 13°.8 below zero.

The highest temperature (93°.3) recorded during the year was on the 2nd of July, and the lowest temperature (29°.0 below zero) on the 9th of January.

The range of temperature between the two extremes is 122°.3, which is greater by 7°.4 than the average range between the extremes for the last nineteen years.

The warmest day within the period covered by the tables was August 7th, 1876, when the mean temperature was 85°.3, and the coldest day January 8th, 1878, when the mean temperature was 17°.2 below zero. The highest temperature (96°.7) occurred on August 6th, 1876, and the lowest temperature (35°.6 below zero) on January 8th, 1875.

A comparison, as regards temperature, of the several months of 1887, with the mean temperature of corresponding months for nineteen years, is given below:

Mean temperature from 1869 Months. to 1887 inclusive.	Mean Temperature for 1886.	
January..... 15°.36	14°.02	1°.34 colder.
February 18°.91	17°.75	1°.16 "
March 26°.77	25°.90	0°.87 "
April 39°.90	37°.35	2°.55 "
May 52°.48	55°.92	3°.44 warmer.
June..... 62°.37	62°.83	0°.46 "
July..... 67°.69	71°.02	3°.33 "
August..... 65°.67	63°.35	2°.32 colder.
September 57°.31	54°.48	2°.83 "
October 46°.16	44°.67	1°.49 "
November..... 33°.48	33°.89	0°.41 warmer.
December 20°.90	23°.69	2°.79 "

The year 1886 (mean temperature 42°.07) averaged 0°.18 colder than the mean temperature of the nineteen years under notice.

The latest spring frost was on May 3d and the earliest autumnal frost, on the morning of September 11th, followed by a destructive frost on September 24th.

The principal thunder storms of 1887 occurred on May 23d and 25th, June 3d and 22nd, July 6th, 25th and 28th, August 10th and 11th, and September 7th and 14th.

The rainfall and melted snow of 1887 amounted to 52.88 inches, a quantity larger by 8.16 inches than the average for nineteen years; the snowfall was 115.25 inches, a quantity greater by 20.39 inches than the average for the same period.

The number of days in 1887 on which the sky was at least eight-tenths covered with clouds was 106, or 29 per cent of the whole number. The number of days on which at least .01 of an inch of rain or snow fell was 130, or 36 per cent of the whole number; the number of days, therefore, without any considerable quantity of rain or snow, was 235 or 64 per cent of the whole number.

During the months of May, June and July, the prevailing wind was S. W. and S.; during the other months of the year, N. W. and W. Heavy winds prevailed on January 11th, 14th and 21st, February 4th, 25th and 28th, March 11th, 23d and 25th, April 3d, May 11th, June 23d, July 5th and October 4th, 5th, 8th and 28th, the wind of February 25th, rising to a strong gale.

The prevailing wind for the nineteen years, from 1869 to 1887, inclusive, was from the north-west and west. The relative direction and force of the wind for this period are indicated approximately by the following numbers: N. W. and W., 4; S. W. and S., 3; S. E. and E., 1; N. E. and N., 2.

The principal auroras of 1887 were on the evenings of February 13th and 14th, April 11th, May 11th, 12th and 24th, August 13th and 14th, September 25th, October 8th and November 8th and 17th; those of February 13th and 14th and April 11th being especially brilliant. The principal lunar halos were on February 7th, March 1st, April 1st, October 23d and November 24th, and the principal solar halos, January 31st and April 8th. Brilliant parhelia also appeared on January 31st.

The Zodiacal light was especially conspicuous on the evenings of February 14th and 21st.

On the evening of September 15th, at about 8.30 local time, a brilliant meteor suddenly illuminated the entire horizon—continued visible about five seconds, moving in a direction south 50° east from the College. It was observed by myself and by several members of my class in Astronomy. From communications since received, it appears that it passed over the southern point of Nova Scotia, and the meteorite probably fell into the Atlantic Ocean.

The barometer indicated the greatest pressure in the month of December, and the least in the month of February. The range between the two extremes was 1.893 inches. The least mean pressure was during March and the greatest during February when the average height of the mercury in the barometer at an elevation of 129 feet above the sea level was 30.029 inches.

The mean humidity of the air for the year was .79.

SUMMARY BY MONTHS—1887.

MONTHS.	THERMOMETER IN THE OPEN AIR.									RAIN AND SNOW.		CLDS. Mean percentage of cloudiness.	WINDS.				BAROMETER.			Relative humidity or fraction of saturation.				
	Mean of warmest day.		Mean of coldest day.		Highest temperature.		Lowest temperature.		Mean of maximum temperatures.	Mean of minimum temperatures.	Mean of three daily observations.		Amount of rain and melted snow— inches.	Amount of snow—inches.	Per cent of direction and force.				Barometer height reduced to freezing point of water.					
	Day.	Temperature.	Day.	Temperature.	Day.	Temperature.	Day.	Temperature.							N. W. and W.	S. W. and S.	S. E. and E.	N. E. and N.	Maximum.				Minimum.	Mean.
January	29	38.9	9	-13.8	29	44.2	9	-29.0	24.17	2.18	14.02	7.56	33.50	.62	.44	.33	.05	.18	30.560	29.060	29.873	100	42	90
February	16	37.2	13	- 0.5	16	45.1	14	-25.4	26.57	6.34	17.75	5.89	33.50	.52	.61	.20	.10	.09	30.736	29.917	30.029	100	49	84
March	12	39.7	5	1.9	21	44.4	5	-13.7	33.45	16.82	25.90	5.88	26.50	.57	.50	.06	.12	.32	30.729	29.044	29.730	100	42	85
April	10	48.9	1	24.0	10	63.8	1	4.2	45.85	29.47	37.35	5.08	14.00	.47	.37	.14	.18	.31	30.504	29.041	29.840	100	32	73
May	10	70.6	1	46.0	10	86.2	13	36.4	66.59	45.80	55.92	1.25	-	.49	.19	.40	.11	.30	30.269	29.490	29.949	100	20	67
June	30	80.6	4	52.9	30	91.5	1	47.4	72.50	53.76	62.83	3.36	-	.42	.31	.50	.08	.11	30.315	29.538	29.925	100	32	74
July	2	82.5	11	62.0	2	93.3	16	56.0	79.41	64.18	71.02	7.11	-	.58	.22	.66	.08	.04	30.081	29.488	29.850	100	33	81
August	2	73.0	30	56.1	2	84.2	29	44.8	72.12	55.30	63.35	4.60	-	.45	.48	.34	.09	.09	30.279	29.481	29.798	100	40	79
September	7	67.6	25	41.5	6	77.3	24	30.8	65.40	43.86	54.48	.95	-	.49	.46	.35	.08	.11	30.301	29.359	29.944	100	42	80
October	2	57.7	26	30.6	3	66.1	26	21.3	53.65	34.71	44.67	3.00	.25	.55	.53	.30	.08	.09	30.397	29.096	29.858	100	31	74
November	20	47.9	30	10.5	28	60.0	30	5.0	42.30	26.72	33.89	3.48	1.00	.56	.56	.28	.06	.10	30.670	29.035	29.875	100	40	81
December	11	47.9	30	- 6.5	11	51.3	31	-10.4	30.65	16.40	23.69	4.72	6.50	.51	.63	.14	.06	.17	30.810	29.260	29.927	100	44	85
Year	2	82.5	9	-13.8	2	93.3	9	-29.0	51.05	32.96	42.07	52.88	115.25	.52	.44	.31	.09	.16	30.810	28.917	29.883	100	20	79

METEOROLOGICAL.

SUMMARY BY YEARS—From 1869 to 1887, Inclusive.

YEAR	TEMPERATURE IN THE OPEN AIR.										RAIN AND SNOW.		CL'ds. Mean percentage of cloudiness.	WINDS.			BAROMETER.			Force or pres- sure of vapor in inches.			Relative humid- ity or fraction of saturation.						
	Mean of hottest day.		Mean of coldest day.		Highest temperature		Lowest temperature		Mean of maximum tem- peratures	Mean of minimum tem- peratures.	Mean of three daily observations.	Amount of rain or melted snow in gauge—inches.		Depth of snow—inches.	Per cent of direction.			Barometer height reduced to freezing point.											
	Day.	Tempera- ture.	Day.	Tempera- ture.	Day.	Tempera- ture.	Day.	Tempera- ture.							N. W. and W.	S. W. and S.	S. E. and E.	N. E. and N.	Maximum.	Minimum.	Mean.	Maximum.	Minimum.	Mean.	Maximum.	Minimum.	Mean.		
1869,	July 11	74.2	Jan. 22	-3.8	July 11	87.2	Mar. 6	-22.0	50.01	33.37	41.77	44.72	84.92	.55	.41	29.14	16.30	30.519	28.858	29.780	.826	.005	.250	100	25	76			
1870,	July 24	82.8	Jan. 14	-9.7	July 24	94.0	Feb. 4	-17.0	53.02	35.45	44.26	40.98	78.75	.50	.35	33.10	22.30	30.578	28.902	29.791	.878	.016	.279	100	13	74			
1871,	May 30	76.0	Jan. 23	-14.9	May 30	88.6	Jan. 23	-20.6	50.44	33.33	41.92	41.63	80.50	.50	.42	33.10	15.30	30.583	29.000	29.795	.956	.006	.244	100	17	75			
1872,	July 16	79.5	Dec. 25	-11.8	June 30	90.6	Dec 25	-23.0	50.02	33.22	41.60	48.54	113.00	.53	.37	29.13	22.30	30.446	28.712	29.706	.793	.011	.258	100	23	77			
1873,	July 30	75.5	Jan. 30	-4.9	July 26	92.0	Jan. 30	-26.5	48.93	31.28	40.93	40.78	124.00	.49	.38	30.10	22.30	30.680	28.423	29.794	.778	.009	.232	100	20	74			
1874,	July 15	76.3	Jan. 26	-15.5	July 15	86.3	Feb. 2	-26.0	50.18	32.21	41.35	44.94	132.00	.52	.37	36.08	19.30	30.719	28.981	29.825	.794	.009	.240	100	19	76			
1875,	Aug. 29	74.8	Nov 30	-9.8	Aug. 29	87.8	Dec 20	-23.0	48.49	30.11	39.58	41.94	93.80	.50	.40	30.09	15.30	30.550	28.939	29.814	.844	.014	.239	100	24	76			
1876,	Aug. 7	85.3	Feb. 24	-13.4	Aug. 6	96.7	Dec 26	-21.5	50.74	32.32	42.03	52.37	123.00	.49	.43	30.08	19.30	30.783	28.458	29.808	.935	.014	.250	100	21	76			
1877,	Aug. 24	75.1	Jan. 25	-11.3	June 1	89.0	Jan. 26	-32.5	52.45	33.63	43.39	40.17	66.50	.52	.34	30.12	24.30	30.494	28.888	29.837	.762	.009	.269	100	19	76			
1878,	June 30	81.9	Jan. 8	-17.2	June 30	93.5	Jan. 8	-35.6	52.07	33.38	44.34	48.57	59.50	.56	.33	33.13	21.30	30.554	28.794	29.796	.872	.009	.280	100	20	78			
1879,	July 16	77.8	Dec. 21	-11.7	Aug. 2	88.0	Dec 27	-26.0	50.10	31.67	41.62	46.73	112.00	.51	.38	37.07	18.30	30.638	28.537	29.851	.843	.012	.258	100	15	75			
1880,	July 10	82.3	Feb. 2	-4.4	July 10	94.8	Jan. 14	-15.4	52.05	33.60	43.85	33.81	69.00	.50	.39	23.18	20.30	30.614	29.090	29.874	.790	.015	.269	100	23	75			
1881,	Aug. 5	78.1	Feb. 2	-9.1	Aug. 5	91.0	Jan. 2	-18.2	52.11	34.98	43.87	42.80	54.50	.54	.45	18.14	23.30	30.647	28.919	29.862	.891	.019	.281	100	21	77			
1882,	Aug. 6	80.7	Jan. 24	-10.0	Aug. 5	92.0	Jan. 25	-22.4	50.76	33.10	42.54	41.26	110.00	.49	.46	18.12	24.30	30.724	29.121	29.885	.819	.016	.261	100	24	75			
1883,	July 6	75.1	Dec 23	-13.1	July 7	85.6	Jan. 6	-25.0	50.04	31.79	40.72	40.60	53.00	.48	.41	30.13	16.30	30.641	28.750	29.904	.860	.015	.259	100	18	78			
1884,	Aug. 18	77.2	Dec 20	-10.4	Aug. 18	86.0	Jan. 28	-29.0	51.57	33.23	42.85	44.95	90.00	.56	.35	33.14	18.30	30.716	28.768	29.875	-	-	-	100	16	81			
1885,	July 25	76.4	Jan 22	-11.5	July 25	89.2	Jan. 31	-22.3	50.54	32.30	41.37	52.99	108.00	.49	.41	32.11	16.30	30.608	28.800	29.849	-	-	-	100	24	79			
1886,	July 7	78.0	Jan 12	-15.3	July 7	92.5	Jan. 12	-26.5	52.20	33.24	42.61	48.04	136.50	.53	.40	35.10	15.30	30.731	28.556	29.889	-	-	-	100	10	78			
1887,	July 2	82.5	Jan. 9	-13.8	July 2	93.3	Jan. 9	-29.0	51.05	32.90	42.07	52.88	115.25	.52	.44	31.09	16.30	30.810	28.917	29.883	-	-	-	100	20	79			
1876.	1878.	1876.	1878.	1876.	1878.	1876.	1878.	1876.	1878.	1876.	1878.	1876.	1878.	Mn.	Mean.	Mn.	Mean.	Mn.	Mean.	Mn.	Mean.	Mn.	Mean.	Mn.	Mean.	Mn.	Mean.	Mn.	Mean.
19 yrs	Aug. 7	85.3	Jan. 8	-17.2	Aug. 6	96.7	Jan. 8	-35.6	50.94	33.59	42.26	44.72	94.86	.52	.40	29.11	20.30	30.810	28.423	29.837	-	-	-	100	10	76			

APPENDIX.

CATALOGUE

OF THE

Maine State College of Agriculture and Mechanic Arts.

ORONO, MAINE, 1887-88.

TRUSTEES:

HON. LYNDON OAK, GARLAND, *President*.
HON. DANIEL H. THING, MT. VERNON.
CAPT. CHARLES W. KEYES, FARMINGTON.
WM. T. HAINES, B. S., L. L. B., WATERVILLE. *Secretary*.
HON. E. F. PARKHURST, PRESQUE ISLE.
GEN. R. B. SHEPHERD, SKOWHEGAN.
ARTHUR L. MOORE, B. S., LIMERICK.
GEN. CHARLES HAMLIN, BANGOR.
HON. Z. A. GILBERT, EAST TURNER,
Secretary of Maine Board of Agriculture, *ex-officio*.

TREASURER:

J. FRED WEBSTER, ORONO.

EXECUTIVE COMMITTEE:

HON. LYNDON OAK.
WM. T. HAINES, Esq.
GEN. CHARLES HAMLIN.

EXAMINING COMMITTEE:

HIS EXCELLENCY SEBASTIAN S. MARBLE.
REV. CHARLES F. ALLEN, D. D.
GEN. CHARLES HAMLIN.

FACULTY.

MERRITT C. FERNALD, A. M., PH. D., PRESIDENT,
and Professor of Physics and Mental and Moral Science.

ALFRED B. AUBERT, B. S.,
Professor of Chemistry, and Secretary of the Faculty.

FRANCIS L. HARVEY, M. S.,
Professor of Natural History.

GEORGE H. HAMLIN, C. E.,
Professor of Civil Engineering, and Librarian.

ALLEN E. ROGERS, A. M.,
Professor of Modern Languages, Logic and Political Economy.

WALTER BALENTINE, M. S.,
Professor of Agriculture.

WALTER FLINT, M. E.,
Professor of Mechanical Engineering, and Registrar.

JAMES N. HART, B. C. E.,
Instructor in Mathematics and Drawing.

LIEUT. CHARLES L. PHILIPPS, 4th U. S. ARTILLERY,
Professor of Military Science and Tactics.

HOWARD S. WEBB, B. M. E.,
Instructor in Shop-Work.

AARON E. SPENCER,
Steward.

STUDENTS.

SENIOR CLASS.

Andrews, Hiram Bertrand,
Bachelder, George Stetson,
Blanchard, Charles DeWitt,
Boardman, John Russell,
Brick, Francis Stephen,
Buker, Albion Henry,
Butler, Harry,
Campbell, Dudley Elmer,
Eastman, Fred Langdon,
Elwell, Edward Henry, Jr.,
Hancock, Willie Jerome,
Hatch, John Wood,
Howes, Claude Lorraine,
Kirkpatrick, Fred Hudson,
Leavitt, Hannah Ellis,
Lincoln, Harry Foster,
Lord, Thomas George,
Marsh, Ralph Hemenway,
Miller, Seymore Farrington,
Philbrook, William,
Rogers, Seymour Everett,
Seabury, George Edwin,
Small, Frank Llewellyn,
Smith, Frank Adelbert,
Wilson, Nathaniel Estes,

Cape Elizabeth.
Exeter Mills.
Oldtown.
Augusta.
Biddeford.
Rockland.
Hampden.
North Harpswell.
East Hiram.
Deering.
Saco.
Presque Isle.
Boston, Mass.
Bangor.
Norridgewock.
Dennysville.
Skowhegan.
Bradley.
Burlington.
Shelburne, N. H.
Stetson.
Fort Fairfield.
Freeport.
East Corinth.
Orono.

JUNIOR CLASS.

Briggs, Fred Percy,
Coffin, Alphonso John,
Cushman, Charles Granville,
Edgerly, Joseph Willard,
Ferguson, Jere Sweetzer,
Freeman, George Gifford,
Gay, George Melville,
Leavitt, Nellie Louise,
Matthews, Maude Arnold,
Reed, John,
Reed, Nellie Waterhouse,
Sargent, William Henry,
Stevens, Fred,
Vickery, Gilbert Scovil,
White, Ambrose Harding,
White, Mark Elmer
Wilson, Mortimer Frank,

Hudson.
Harrington.
North Bridgton.
Princeton.
Searsport.
Cherryfield.
Damariscotta.
Norridgewock.
Stillwater.
Benton.
Stillwater.
Brewer Village.
Gouldsboro'.
Bangor.
Bucksport.
Ashland.
Orono.

SOPHOMORE CLASS.

Andrews, Frank Orris,	Rockland.
Babb, George Herbert,	Sebago.
Bird, John, 2d,	Rockland.
Blackington, Ralph Harvey,	Rockland.
Cargill, Carroll David,	Livermore Falls.
Clark, Hugo,	Lincoln.
Croxford, Walter Everett,	Jackson.
Dillingham, Charles Albert,	Oldtown.
Dow, Fred Todd,	Gorham.
Drew, Albert Wilson,	Canaan.
Dunton, Harris Drummond,	Boothbay.
Farrington, Horace Parker,	Cape Elizabeth.
Gould, George Pendleton,	Stillwater.
Grover, Nathan Clifford,	West Bethel.
Harvey, Chandler Cushman,	Fort Fairfield.
Hastings, Allie Mills,	Rockland.
Hayes, Samuel Henry Tewksbury,	Oxford.
Heath, Everett Fenno,	Bangor.
Jones, Leon Houston,	Rockland.
Kelley, Edward Havener,	Belfast.
Kenniston, Irving Chase,	Boothbay.
Lewis, John Winchcomb E.,	Milton Mills, N.H.
Morey, Elmer Lake,	Colombo, Ceylon.
Morrill, Edmund Needham,	Deering.
Norton, Jay Pearl,	York Corner.
Owen, John Wesley, Jr.,	Saco.
Packard, Robert Messer,	Rockland.
Peirce, Varna John,	Hudson.
Peirce, William Bridgham,	Hudson.
Pierce, William Barron,	Springvale.
Pillsbury, George Melville,	Scarboro'.
Quincy, Fred Grant,	Masardis.
Rackliffe, Joseph Riley,	Hampden.

Reed, Fullerton Paul,
Rowell, Herbert Burns,
Sawyer, Frank Wade,
Swan, Clarence Buzzell,
Wallace, Chester Jay,
Webber, Gilman Hodgdon,
Wight, Ralph Holbrook,
Williams, Laforest Charles,

Boothbay.
Solon.
Milford.
Oldtown.
Jackson.
East Boothbay.
Belfast.
Athens.

FRESHMAN CLASS.

Andrews, Arthur Wellington,	Biddeford.
Boadway, Leslie Albert,	Orono.
Butterfield, William Rowe,	Milford.
Clayton, Charles,	Bangor.
Cobb, Charles Edward,	Patten.
Colburn, Willard Leslie,	Olamon.
Davis, James Walker,	Yarmouthville.
Farrington, Wallace Rider,	Cape Elizabeth.
Farrington, William Rowe,	Portland.
Flanagan, John Henry,	Rockland.
Fuller, Robert Warren,	Newtonville, Mass.
Graves, Joseph Colburn,	Orono.
Hamlin, Cyrus,	Bangor.
Harlow, William Augustus,	Milford.
Hatch, Earnest Stearns,	Lovell Centre.
Hersey, Jacob Frye,	Patten.
Hodgdon, Edward Wyman,	Brewer.
Hodgkins, Byron Cony,	Stillwater.
Jackson, Joseph Maddocks,	Boothbay.
Keith, William Everett,	Oldtown.
Lord, Robert,	Skowhegan.
Menges, Hugo Gustave,	Bangor.
Merrill, True Lander,	Orono.
Miller, Albert Morton,	Waldoboro'.
Morris, William Allen,	Bangor.
Moulton, Fred Charles,	Hiram.
Patten, William Nickels,	Cherryfield.
Pillsbury, Clifford Irving,	Rockland.
Scott, Clarence,	Olamon.
Starrett, Henry Vaill,	Warren.
Thompson, George Edward,	Orono.
Tirrill, Leonard Alexander,	Holden.
Webster, Alden Palmer,	Orono.

SPECIAL COURSE.

Dresser, Cora Lena,	Orono.
Folsom, Arthur Melville,	Oldtown.
Greenwood, Elmer Ellsworth,	No. Anson.
Haggett, Eben Raymond,	Newcastle.
Libbey, John Charles,	Orono.

SUMMARY.

Seniors,	25	Freshmen,	33
Juniors,	17	Special,	5
Sophomores,	41		
		Total,	<u>121</u>

PRIZES FOR 1887.

Prentiss Prize, for best Junior Essay, awarded to Miss Hannah Ellis Leavitt of Skowhegan.

Prentiss Prize, Sophomore Declamation, awarded to John Reed of Benton.

Libbey Prize, for best Agricultural Essay, awarded to John W. Hatch of Presque Isle.

MILITARY DEPARTMENT.

COBURN CADETS.

Second Lieutenant CHARLES L. PHILLIPS, 4th U. S. Artillery,
Commanding.

Cadet WILLIAM PHILBROOK, Major and Commandant of Cadets.

Cadet N. E. WILSON, First Lieutenant and Adjutant.

Cadet HARRY BUTLER, First Lieutenant and Quartermaster.

Cadet C. G. CUSHMAN, Sergeant Major.

Co. A.

Co. B.

<i>Captain</i>	D. E. Campbell	C. L. Howes.
<i>1st Lieutenant</i>	E. H. Elwell	G. S. Bachelder.
<i>2d</i> "	F. A. Smith	C. DeW. Blanchard.
<i>2d</i> "	G. E. Seabury	T. G. Lord.
<i>1st Sergeant</i>	A. J. Coffin	J. Reed.
<i>Sergeant</i>	G. S. Vickery	J. W. Edgerly.
"	G. M. Gay	A. H. White.
"	J. S. Ferguson	A. M. Folsom.
<i>Corporal</i>	E. H. Kelley	C. A. Dillingham.
"	J. Bird, Jr.	E. F. Heath.
"	F. T. Dow	E. N. Morrill.
"	R. H. Wight	F. W. Sawyer.
<i>Musician</i>	F. L. Eastman. <i>Armorer</i>	F. Stevens.

COLOR GUARD.

<i>Color Sergeant</i> , F. P. Briggs.
" <i>Corporal</i> , E. H. Kelley.
" " C. A. Dillingham.
" " E. F. Heath.

DESIGN OF THE INSTITUTION.

It is the design of the Maine State College of Agriculture and the Mechanic Arts to give, at a moderate cost, the advantages of a thorough, liberal and practical education. It seeks to do this by means of approved methods of instruction, and especially by making prominent the system of practically applying in the drawing-room, in the laboratory, in the shop and in the field, the lessons of the class-room. It thus endeavors to make its courses of high practical value.

By the act of Congress granting public lands for the endowment and maintenance of such colleges, it is provided that the leading object of such an institution shall be, "without excluding other scientific and classical studies, and including military tactics, to teach such branches of learning as are related to Agriculture and the Mechanic Arts."

While the courses of study fully meet this requisition, and are especially adapted to prepare the student for agricultural and mechanical pursuits, it is designed that they shall be also sufficiently comprehensive, and of such a character, as to secure the discipline of mind and practical experience necessary for entering upon other callings or professions.

CONDITIONS OF ADMISSION.

Candidates for admission to the Freshman Class must be not less than fifteen years of age, and must pass a satisfactory examination in Arithmetic, Geography, English Grammar (especial attention should be given to Orthography, Punctuation and Capitals), History of the United States, Physical Geography, Book-Keeping, Algebra to Logarithms and Plane Geometry.

Although the knowledge of Latin is not required as a condition of admission, yet the study of this language is earnestly recommended to all who intend to enter this Institution.

Candidates for advanced standing must sustain a satisfactory examination in the preparatory branches, and in all the studies previously pursued by the class they propose to enter.

Satisfactory testimonials of good moral character and industrious habits will be rigidly exacted. They should be presented on the day of examination.

The Friday following the last Wednesday of June, and the day of the beginning of the first term in August, are the appointed times for the examination of candidates at the College.

Arrangements have been made by which applicants accommodated by the plan may pass examination for admission without incurring the expense of coming to Orono. The gentlemen named below have been appointed examiners for the sections of the State in which they severally reside :

C. P. Allen, B. S.,	Presque Isle.
H. M. Estabrook, M. S.,	Gorham.
E. S. Danforth, B. S., }	Skowhegan.
S. W. Gould, B. S., }	
Henry K. White, A. M.,	Newcastle.
Charles A. Black, A. M.,	East Machias.
Rev. W. R. Cross,	Milltown, N. B.
W. R. Howard, B. S.,	Bethel.
I. C. Phillips, A. B.,	Wilton.
Hon. N. A. Luce,	Augusta.
W. R. Whittle, A. B.,	Ellsworth.
W. E. Sargent, A. M.,	Hebron.
Edwin P. Sampson, A. B.,	Saco.

Examiners will indicate to parties applying, the time and special place of examination. Arrangements have also been made with the Seminary at Bucksport and with the Academy at Hampden, by which students from these institutions may be admitted to the College on certificate of qualification from the respective Principals.

All candidates, wherever they may arrange to be examined, should make early application to the President of the College. Applications will be recorded and regarded in the order of their reception.

COURSES OF INSTRUCTION.

Five full courses are provided, viz: A course in Agriculture, in Civil Engineering, in Mechanical Engineering, in Chemistry, and in Science and Literature.

The studies of the several courses are essentially common for the first year, and are valuable not only in themselves, but also as furnishing a necessary basis for the more technical studies and the practical instruction of the succeeding years.

Physical Geography, required on admission, serves as a suitable introduction to Geology, which is taken up in each of the courses. Physiology serves as an introduction to Comparative Anatomy, and Algebra, Geometry and Trigonometry taught in the first year are needful preliminaries to the higher mathematics and the practical applications required in Surveying, Engineering proper and Astronomy. Botany, Chemistry and Physics are highly important branches, common to all the assigned courses, and hence taken by all the students who are candidates for degrees.

Rhetoric, French and English Literature form the early part of the line of studies which later includes German, Logic, History of Civilization, United States Constitution, Political Economy, and Mental and Moral Science, branches, several of which relate not more to literary culture than to social and civil relations, and to the proper preparation for the rights and duties of citizenship.

Composition and Declamation are regular exercises in all the courses throughout the four years. For the characteristic features of each course reference is made to the explanatory statements following the several schemes of study.

SPECIAL COURSES.

Students may be received for less time than that required for a full course, and they may select from the studies of any class such branches as they are qualified to pursue successfully. Students in Special Courses are not entitled to degrees, but may receive certificates of proficiency.

DEGREES.

The full course in Civil Engineering entitles to the Degree of Bachelor of Civil Engineering; the full course in Mechanical Engineering, to the Degree of Bachelor of Mechanical Engineering; the full course in Agriculture, Chemistry, or Science and Literature, to the Degree of Bachelor of Science.

Three years after graduation, on presentation of a satisfactory thesis with the necessary drawings, and proof of professional work or study, the Bachelors of Civil Engineering may receive the Degree of Civil Engineer; the Bachelors of Mechanical Engineering, the Degree of Mechanical Engineer; the Bachelors of Science, the Degree of Master of Science.

COURSE IN AGRICULTURE.

FIRST YEAR.

<i>First Term.</i>	<i>Second Term.</i>
Physiology.	Botany.
Rhetoric.	French.
Solid Geometry.	Logarithms and Trigonometry.
P. M. Labor on Farm.	P. M. Labor on Farm.
Free-Hand Drawing.	Mechanical Drawing. (F. of T.)
Dissecting.	Botanical Laboratory Work. (L. of T.)

SECOND YEAR.

<i>First Term.</i>	<i>Second Term.</i>
Botany.	Qualitative Chemistry.
General Chemistry.	Physics. (F. of T.)
French.	German.
Physics.	Surveying. (L. of T.)
P. M. Laboratory Work in Botany.	English History (L. of T.) for ladies.
Laboratory Work in Physics.	P. M. Field Work and Forge Work.
	Laboratory Physics.
	French Translations for V.

THIRD YEAR.

<i>First Term.</i>	<i>Second Term.</i>
Agricultural Engineering, including Farm Implements, Farm Drainage and Mechanical Cultivation of the Soil.	Agricultural Chemistry, Landscape Gardening, Horticulture and Arboriculture and Farm Accounts.
Agricultural Chemistry or Advanced Logic.	Zoology and Entomology.
Chemistry, for V.	P. M. Laboratory Work and Experimental Farming or *Analysis of English Authors, and German Translations.
English and American Literature.	
German.	
P. M. Laboratory Work or *Analysis of English Authors and Translations from the French.	

FOURTH YEAR.

<i>First Term.</i>	<i>Second Term.</i>
Cattle Feeding and Dairy Farming.	Stock Breeding and Veterinary Science.
Comparative Anatomy.	Sheep Husbandry and Cultivation of Cereals.
History of Civilization.	Mineralogy and Geology.
Political Economy.	U. S. Constitution.
P. M. Experimental Farming and Agricultural Botany or *Translations from German.	Mental and Moral Science.
	P. M. Thesis and Laboratory Work and Theme and Thesis Work.

*To be taken in Course in Science and Literature in place of study preceding.

EXPLANATORY STATEMENTS.

This course is designed to fit young men to follow Agriculture as a profession with success, as well as to prepare them for the intelligent performance of the duties of citizenship.

To this end, the curriculum of studies is largely scientific and technical, not omitting, however, those branches that have been referred to as pertaining to social and civil relations.

The instruction in Agriculture is given largely by lectures, and embraces subjects of great practical importance to the farmer, which are briefly explained under the following heads:

Agricultural Engineering.—Combined with recitations in mechanics from a text-book, lectures are given on the principles of construction and use of farm implements, illustrated by charts to the extent possible, on the construction of roads, culverts and masonry, and on soil physics, or the relations of the soil to heat and moisture, the mechanical conditions of the soil best adapted to plant growth and the objects to be gained by cultivation.

Agricultural Chemistry.—Under this head are considered the various methods of retaining and increasing the fertility of the soil, the sources, composition and methods of valuation of commercial and farm manures, together with the principles governing their treatment and application, the composition of cattle foods, their changes and uses in the animal system, and the value and economic use of the various kinds of fodders.

Landscape Gardening.—The object of this study is to furnish correct ideas of the manner of laying out and beautifying grounds. This subject is followed by lectures on Horticulture and Arboriculture.

Cultivation of Cereals.—Lectures are given upon the best methods of cultivating the principal farm crops.

Dairy Farming.—This embraces the chemical and physical properties of milk, and the principles and practical operations that underlie its production and manufacture into butter and cheese.

Sheep Husbandry.—The characteristics and comparative merits of our different breeds of sheep are discussed, also their adaptability to different conditions and uses.

Botany.—Following recitations and practical work in Botany, lectures are given upon fungi injurious to the farmer.

Chemistry.—One term is devoted to General Chemistry, two terms to Agricultural Chemistry, one-half term to Organic Chemistry, and

the afternoons of several terms are devoted to laboratory practice, including analysis of farm products.

Zoology and Entomology.—In Zoology the larger groups of the animal kingdom are taken up and described in lectures which are illustrated by means of diagrams, models, or the objects themselves, and the students are required to make critical studies of typical animals of each group. Such laboratory practice is regarded an indispensable training for the more advanced study of the higher animals, and also forms the basis of the study of Historical Geology.

The studies in Entomology are conducted in a similar manner. After a general review of the orders has been given, illustrated by such common insects as are familiar to all, the beneficial and injurious are taken up more in detail, their round of life described, together with the injuries they do to the products of the farmer, the gardener and the fruit raiser, as well as to our forests and building materials, and the best known means of keeping them in check. For the purpose of making the instruction as practical and impressive as may be, many of the injurious insects are carried through their transformations in the class-room, where each student can note the various changes from day to day, and learn to recognize these insect enemies in any stage of their existence; and each member of the class is required to devote some time in field-collecting, and in observing the habits and work of insects in nature.

The subject of Bee-keeping is taken up quite at length; the different kinds of bees in a swarm, their habits, anatomy, and the mode of collecting the different products are all described and illustrated by means of elaborate models, while artificial swarming, the mode of hybridizing a swarm, and the advantages of the same, with the most approved methods now in use for the care and management of bees, are also fully described.

Comparative Anatomy.—Under Comparative Anatomy are taken up the anatomy and physiology of our domestic animals, together with a brief outline of our wild animals, so far as time permits. This is followed by instruction in Stock Breeding and Veterinary Science.

Mineralogy and Geology.—A preliminary course of lectures is given on Mineralogy, followed by laboratory practice in the determination of minerals, and in Lithology, special attention being called to gypsum, limestone, and such other minerals as are of direct importance to the students of Agriculture.

The instruction in Geology is by means of illustrated lectures and excursions, critical attention being given to the origin and formation of soils.

Law.—A course of lectures is given to the Senior Class on International and Rural Law.

Throughout the course, the endeavor is made to inculcate established principles in agricultural science, and to illustrate and enforce them to the full extent admitted by the appliances of the laboratory and the farm. So far as possible, students are associated with whatever experimental work is carried on, that they may be better fitted to continue such work in after life.

Those who complete this course receive instruction also in Mathematics, French, German, English Literature, Logic, United States Constitution, Political Economy, and Mental and Moral Philosophy, and on presenting satisfactory theses upon some agricultural topic, are entitled to the degree of Bachelor of Science.

The Course in Science and Literature includes French and German, the general, mathematical, and most of the scientific studies of the agricultural course. Instead of certain branches quite purely technical in the latter course, History, and English and American Literature are substituted.

In the special laws of the State passed in 1872, it is provided that young ladies "who possess suitable qualifications for admission to the several classes may be admitted as students in the college."

In arranging the course in Science and Literature, reference has been had to this enactment. From this course, however, young men who desire it are not excluded, as, on the other hand, young ladies are not excluded from any of the other courses.

COURSE IN CIVIL ENGINEERING.

FIRST YEAR.

First Term.

Solid Geometry.
 Rhetoric.
 Physiology.
 P. M. Free-Hand Drawing.
 Dissecting.
 Labor on Farm.

Second Term.

Logarithms and Trigonometry.
 Botany.
 French.
 Mechanical Drawing. (F. of T.)
 P. M. Botanical Laboratory Work.
 (L. of T.)
 Labor on Farm.

SECOND YEAR.

First Term.

Descriptive Geometry.
 General Chemistry.
 French.
 Physics.
 P. M. Mechanical Drawing.
 Laboratory Work in Chemistry.

Second Term.

Analytical Geometry.
 German.
 Physics. (F. of T.)
 Surveying. (L. of T.)
 Qualitative Chemistry.
 P. M. Field Work.

THIRD YEAR.

First Term.

Calculus.
 Henck's Field Book and R. R. Surveying.
 German.
 P. M. Field Work and Drawing.

Second Term.

Calculus. (F. of T.)
 Descriptive Astronomy. (L. of T.)
 Mechanics. (F. of T.)
 Graphic Statics. (L. of T.)
 Logic.
 P. M. Isometric and Cabinet Projection and Perspective.

FOURTH YEAR.

First Term.

Civil Engineering.
 Stereotomy. (F. of T.)
 Sanitary Engineering. (L. of T.)
 Practical Astronomy.
 Political Economy.
 P. M. Higher Surveying.

Second Term.

Civil Engineering, Designs and Specifications.
 Mineralogy and Geology.
 U. S. Constitution.
 P. M. Designing and Thesis Work.

EXPLANATORY STATEMENTS.

The object of this course is to give the student a thorough knowledge of Higher Mathematics, Mechanics, Astronomy and Drawing, and, at the same time, a thorough drill in the use and care of the ordinary engineering instruments and in the application of the mathematical principles and rules, so that the graduates can at once be made useful in engineering work and be fitted, after a limited amount of experience in the field, to fill positions of importance and trust. The course is also arranged so as to afford, so far as can be, the education required to prepare the graduate for a responsible position among *men*, as well as among engineers.

In this course the work is identical with that of the other courses during the first year. During the fall term of the Sophomore year, students in this course work two hours each afternoon, in the drawing room, on free-hand and mechanical drawing. In the last term of this year, the subject of land surveying is taken up. The first eight weeks are devoted to tinting, shading, etc., in water colors, while the remaining twelve weeks are given to practical surveying. Besides an hour's recitation each day, the class is engaged two hours, either in the field or drawing room, becoming familiar with the use and care of instruments, putting into practice the problems found in the text-book, and making actual surveys.

In the first term of the Junior year, Henck's Field Book is used as a text-book, from which the student obtains methods of running railroad curves, putting in switches and turnouts, setting slope-stakes, and the calculation of earthwork. This is supplemented with examples worked by the student, and lectures on levelling, preliminary and final surveys and on the resistance to trains offered by grades and curves, together with the theory and construction of country roads, streets and pavements. These methods of the text-book, so far as possible, are applied in the field by the execution of the preliminary and final surveys of a railroad from the College buildings to some point on the Maine Central R. R., together with the necessary drawings, calculation of earthwork and estimate of the cost of building and equipping the same.

The subject of Applied Mechanics is taken up the last term of this year, in which the students receive a thorough training in the principles underlying construction, illustrated as far as possible by practical examples, in which these principles are applied. During

this term, each student in the class works two hours each day in the drawing room, where isometric, cabinet and perspective projection are taught by means of lectures and problems drawn by the students.

During the first term of the Senior year an extended topographical survey, with the plane table and stadia measurements, is made, based upon a previous trigonometrical determination of the principal points. During this term the students are also taught the use of the current meter and apply their knowledge in the actual measurement of the volume of the Stillwater river.

In the recitation room during this term the principles of the strength of materials are taken up, supplemented by information as to durability, preservation and fitness for special purposes. The theories of ties, struts, beams, foundations, retaining walls and arches, are fully treated.

Stone cutting is taken up this term, by lectures and practical problems, each student being required to make a complete set of working drawings of the most common forms of masonry arches.

Six weeks of this term are devoted to sanitary engineering; especial attention being given to ventilation, heating, purity of water supply and the proper drainage of houses and towns.

The first part of the last term of this year is devoted to the theory of roof and bridge trusses, the principles of hydraulics as applied in engineering practice, lectures on the locomotive engine, while the greater part is given to the application of the principles already learned, to the designing and calculation of various kinds of engineering structures, and to making out estimates and specifications.

This, together with the preparation of a satisfactory thesis, completes the work in the course of Civil Engineering.

MINERALOGY AND GEOLOGY.

Mineralogy is taught by an introductory course of lectures, followed by laboratory practice in the determination of minerals and rocks, especial attention being given to their value for building purposes. This is immediately followed by a course of lectures in Geology, together with excursions for the purpose of studying the rocks *in situ*, and also superficial deposits. Critical examinations are made in various railroad cuts, of the hardness, slaty structure, jointed structure, etc., as bearing upon the cost of excavation.

ASTRONOMY.

In the last part of the spring term, Descriptive Astronomy is taken by the students of the Junior Class, and Practical Astronomy in the first term, Senior year.

The course in Astronomy is designed to enable students to determine with accuracy geographical positions. The principal instruments employed are chronometer, sextant, transit, and for work of precision, the Repsold vertical circle, an instrument made in Hamburg, Germany, in 1874, for this Institution. Practical instruction is given in the use of these instruments, and in the most approved methods of reducing observations for the determination of latitude and longitude.

DEGREES.

Students in this department secure the degree of Bachelor of Civil Engineering on graduating, with the full degree of Civil Engineer three years after, on presentation of a satisfactory thesis, with proof of professional work or study.

COURSE IN MECHANICAL ENGINEERING.

FIRST YEAR.

First Term.

Solid Geometry.
 Physiology.
 Rhetoric.
 Free Hand Drawing.
 Dissecting.
 P. M. Labor on Farm.

Second Term.

Logarithms and Trigonometry.
 Botany.
 French.
 Mechanical Drawing. (F. of T.)
 Botanical Lab'y Work. (L. of T.)
 P. M. Labor on Farm.

SECOND YEAR.

First Term.

Descriptive Geometry.
 French.
 Physics.
 General Chemistry.
 P. M. Carpentry.
 Lab'y Work in Chemistry.

Second Term.

Analytical Geometry.
 Drawing and Kinematics.
 Physics.
 Surveying.
 Qualitative Chemistry.
 P. M. Mechanical Drawing and
 Forge Work.

THIRD YEAR.

First Term.

Calculus.
 Kinematics.
 Vise Work.
 P. M. Machine Drawing.

Second Term.

Calculus. (F. of T.)
 Descriptive Astronomy. (L. of T.)
 Mechanics and Machine Design.
 Logic.
 Elements of Mechanism.
 Link and Valve Motions.
 P. M. Isometric and Cabinet Projec-
 tion and Machine Drawing.

FOURTH YEAR.

First Term.

Steam Engineering.
 Practical Astronomy.
 Political Economy.
 P. M. Machine Drawing and De-
 signing.

Second Term.

Steam Engineering.
 Wood Turning.
 Hydraulic Engineering.
 Mineralogy and Geology.
 U. S. Constitution.
 P. M. Machine Drawing, Designing
 and Thesis Work.

EXPLANATORY STATEMENTS.

It is the design of this course to give such a knowledge of Mathematics, Mechanics, Principles of Mechanism, Drawing and Manual Art as shall enable the student successfully to enter practical life as an engineer, with the same thorough education in subjects required to fit him for the general duties of life as is afforded by the other courses.

The first two years' work is identical with that of the students in Civil Engineering, except that carpentry and forge work are taken the second year in place of part of the drawing. In the Junior year, the first term is devoted to the geometry of machinery, showing the students how different motions may be obtained independently of the power required. Special attention is here given to the subject of gearing, and a full set of problems worked out, illustrating cases commonly occurring in practice. In the second term of this year the subject of the geometry of machinery is continued by lectures on other methods of transmitting motion, as by belts, cams, couplings, and links. Considerable time is given to the study and designing of the various valve and link motions used on the steam engine. During the same term instruction is given in mechanics and the laws of the strength of materials, the student being required to design machine details in accordance with those laws.

The first part of the first term, Senior year, is employed in studying the laws of the expansion of steam, and their influence upon the construction of steam engines and boilers, the subject being illustrated by experiments on the shop engine, with the aid of an indicator. During the remainder of the term, the students are engaged in designing engines and other machines, and in making detail drawings of the same, such as would be required to work from in the shop.

During the last term, Senior year, the study of steam engineering is continued in its application to compound engines, and the subject of hydraulic engineering is taken up briefly, by lectures on the storage of water for power and the theory and construction of modern water wheels.

TEXT-BOOKS AND BOOKS OF REFERENCE.

Weisbach,	Mechanics of Engineering.	Smith,	Steam Engine.
Goodeve,	Elements of Mechanism.	Smith,	Steam Boilers.
MacCord,	Kinematics.	Trowbridge,	Steam Boilers.
MacCord,	Slide Valve.	Zeuner,	Valve and Link Motions.
Van Buren,	Strength of Machinery.	Auchincloss,	Valve and Link Motions.
Knight,	Mechanical Dictionary.	Clark,	Manual.

SHOP WORK.

There are now three shops equipped according to the Russian system, and work in these is required of all students in this course. The first term of the Sophomore year, two hours of each day are devoted to work in carpentry, special attention being given to accuracy of workmanship.

During the second term of the same year, the student receives instruction in forge work, including the welding and tempering of steel. A course in vise work during the first term of the Junior year gives the student practice in the various methods of shaping and fitting metals by the use of the chisel, hack-saw and file. During their second term, the Junior students in this course take turns in running the shop engine, and are taught the rules of safety and economy in this branch of engineering. Instruction in wood-turning is given during the last term of the Senior year.

DRAWING.

The work in drawing commences with a course in Free-Hand and Elementary Mechanical Drawing, extending through the Sophomore year.

The first term of the Junior year, the student spends the time allotted to drawing in working out practical problems on the construction of gear teeth, cams, etc., and in elementary practice in line-shading and tinting.

The second term of this year is devoted to isometric projection, and the making of finished drawings in ink and in water colors. In the first term of the Senior year, the student prepares an original design of some machine, makes working drawings of its details on tracing cloth, and finally prepares copies by the blue-print process. The afternoon work of the spring term consists of making calcula-

tions for designs of engines and boilers, the construction of the necessary working drawings, and making thesis drawings.

The remarks under Course in Civil Engineering, with regard to Astronomy, Mineralogy and Geology, apply also to this course, and to them reference is made.

Theses are required of all students as a condition of graduation, and must be on some subject directly connected with Mechanical Engineering.

Students in this course receive the degree of Bachelor of Mechanical Engineering upon graduation, with full degree of Mechanical Engineer three years afterwards upon presentation of a satisfactory thesis and proof of professional work or study.

COURSE IN CHEMISTRY.

FIRST YEAR.

<i>First Term.</i>	<i>Second Term.</i>
Physiology.	Botany.
Rhetoric.	French.
Solid Geometry.	Logarithms and Trigonometry.
P. M. Labor on Farm.	P. M. Labor on Farm.
Free Hand Drawing.	Mechanical Drawing. (F. of T.)
Dissecting.	Botanical Lab'y Work. (L. of T.)

SECOND YEAR.

<i>First Term.</i>	<i>Second Term.</i>
General Chemistry.	Qualitative Chemistry.
Botany.	Physics.
French.	German.
Physics.	Surveying.
P. M. Lab'y Work in Botany, Physics, Chemistry.	P. M. Field Work. Laboratory Physics.

THIRD YEAR.

<i>First Term.</i>	<i>Second Term.</i>
Chemistry.	Chemistry.
German.	Zoology and Entomology.
English and American Literature.	Logic.
P. M. Laboratory Work.	P. M. Laboratory Work.

FOURTH YEAR.

<i>First Term.</i>	<i>Second Term.</i>
Chemistry.	Chemical Lab'y Work.
Comparative Anatomy.	Mineralogy and Geology.
History of Civilization.	U. S. Constitution.
Political Economy.	P. M. Laboratory Work.
P. M. Laboratory Work.	

EXPLANATORY STATEMENTS.

This course aims to supply a want felt by students who wish to enter certain industries in which a somewhat extensive knowledge of Chemistry is important. The first two years are mainly like those of the other courses, Qualitative Analysis being, however, obligatory for these students in the second term of the Sophomore year.

During the Junior year, daily recitations are held in advanced Inorganic Chemistry. In the Senior year, advanced Organic Chemistry is taken up. The afternoons are devoted to Quantitative Chemical Analysis by the Junior and Senior students of the course. The work consists of the most useful gravimetric and volumetric methods, beginning with the simple estimations, which are followed by more complex analyses of alloys, minerals, fertilizers, farm products, &c. A short course in the assay of gold and silver is also given.

The class-room text-books used by this department are: Roscoe's Lessons in Elementary Chemistry and Naquet's Principes de Chimie. In the Laboratory are used: Craft's Qualitative Chemical Analysis, Fresenius' Quantitative Chemical Analysis, Caldwell's Agricultural Chemical Analysis, Wohler's Mineral Analysis, J. A. Wanklyn's Milk Analysis, Flint's Examination of Urine, and Rickett's Notes on Assaying.

Valuable books of reference are found in the library.

Students taking qualitative analysis must furnish a deposit of at least five dollars when they begin; those taking quantitative analysis are required to deposit at least seven dollars. Students taking the Course in Chemistry or an extended course in quantitative analysis are expected to provide themselves with a small platinum crucible.

The students, after passing all the required examinations and presenting satisfactory theses upon some chemical subject, graduate with the degree of Bachelor of Science.

Post graduate and special students can make arrangements with the Professor of Chemistry for an advanced or special course of laboratory work and recitations.

TABLE OF HOURS—FIRST TERM.

	SENIORS.	JUNIORS.	SOPHOMORES.	FRESHMEN.
7.30 A. M.	Chapel Services.	Chapel Services.	Chapel Services.	Chapel Services.
7.45 A. M.	History of Civilization, I, IV, V. Civil Engineering, II.	German, I, II, IV, V. Kinematics, III.	General Chemistry.	Geometry.
8.40 A. M.	Stock Feeding and Dairy Farming, I. Advanced Chemistry, IV. Practical Astronomy, II, III, V.	English and American Literature, I, IV, V. Calculus, II, III.	Botany, I, IV, V. Descriptive Geometry, II, III.	
9.35 A.M.	Stereotomy (F. of T.), II. Sanitary Engineering (L. of T.), II. Comparative Anatomy, I, IV, V. Steam Engineering, III.	Agricultural Engineering, I. Vise Work, III. Advanced Chemistry, IV.	French.	Rhetoric.
10.30 A.M.	Political Economy.	Agricultural Chemistry, I. Field Book, Road and Railroad Sur- veying, II. Vise Work, III.	Physics.	Physiology.
P. M.	Laboratory and Farm Practice, I. Higher Surveying, II. Designing and Drawing, III. Laboratory Work, IV. German Translations, V. Military Exercises.	Laboratory work, I, IV. Field Work, II. Machine Drawing, III. Analysis of English Authors and French Translations, V. Military Exercises.	Laboratory Work in Chemistry. Laboratory Work in Botany, I, IV, V. Laboratory Work in Physics, I, IV, V. Mechanical Drawing, II. Carpentry, III. Military Exercises.	Labor on Farm. Free-Hand Drawing. Dissecting, two hours per week. Military Exercises.

NOTE.—Roman numerals refer to courses as follows: I, Agriculture; II, Civil Eng.; III, Mech Eng.; IV, Chemistry; V, Science and Lit.

TABLE OF HOURS—SECOND TERM.

	SENIORS.	JUNIORS.	SOPHOMORES.	FRESHMEN.
7.30 A. M.	Chapel Services.	Chapel Services.	Chapel Services.	Chapel Services.
7.45 A. M.	Mineralogy. Geology.	Agricultural Chemistry, etc., I. Calculus (F. of T.), II, III. Advanced Chemistry, IV. Descriptive Astronomy. (L. of T.)	German, I, II, IV, V. Drawing and Kinematics, III.	
8.40 A. M.	Mental and Moral Science, I, V. Civil Engineering (F. of T.), II. Contracts, Specifications, etc., II. Wood Turning, III. Laboratory Work, IV.	Logic.	Qualitative Analysis. Analytical Geometry, II, III.	Botany.
9.35 A.M.	Stock Breeding and Veterinary Science and Cultivation of Cereals, I. Steam Engineering & Hydraulics, III. Laboratory work, IV.	Zoology and Entomology, I, IV, V. Applied Mechanics (F. of T.), II. Graphic Statics (L. of T.), II. Elements of Mechanism (F. of T.), III. Link and Valve Motion (L. of T.), III.	Qualitative Analysis.	French.
10.30 A.M.	U. S. Constitution.	Zoology and Entomology, I, IV, V. Mechanics and Machine Design, III.	Physics (F. of T.) Surveying, (L. of T.) English History (L. of T.), for ladies.	Logarithms and Trigonometry.
P. M.	Thesis and Laboratory Work, I. Designing and Thesis Work, II. Machine Drawing and Thesis Work, III. Laboratory Work, IV. Theme and Thesis Work, V. Military Exercises.	Laboratory and Garden Practice, I Isometric and Cabinet Projection, and Perspective, II. Drawing, III. Laboratory Work, I, IV. German Translations, V. Military Exercises.	Forge Work, I, III. Field Work, I, II, IV, V. Laboratory Physics. French Translations, V. Military Exercises.	Labor on Farm. Mechanical Drawing. (F. of T.) Laboratory Work in Botany. (L. of T.) Military Exercises.

LABOR.

It is a characteristic feature of the College, that it makes provision for labor, thus combining practice with theory, manual labor with scientific culture.

The maximum time of required labor is three hours a day for five days in the week.

The larger part of the labor is educational, and for such labor no compensation in money is made. Students in the lowest class perform non-educational labor when required by the College and receive compensation, according to their industry, faithfulness and efficiency. The maximum price paid is ten cents an hour. In arranging for compensated labor, it should be understood that the College does not engage to furnish opportunities for such labor continuously, but rather as the farm and other interests require.

The students of the three upper classes carry on their principal labor in the laboratory, the drawing rooms, the workshops, or in the field, and for such labor they receive no pecuniary consideration, since it is of a purely educational character.

MILITARY INSTRUCTION.

Thorough instruction in Military Science is given by an officer detailed by the Secretary of War from the active list United States Army, and is continued throughout the entire course. All able-bodied male students receive instruction in the school of the soldier, company and battalion drill. Arms and equipments are furnished by the United States Government. The uniform, furnished by students, is a dark blue blouse similar to the regulation blouse of an army officer, but with State of Maine buttons and gilt braid on cuff, and for officers with chevrons and shoulder straps of red and gold; the pants of cadet gray with dark blue stripes, one and one-fourth inches wide, on outside seams; the cap blue with gold wreath ornament. The uniform is required to be worn during military exercises, and it is recommended that it be worn at recitations and at other class and general College exercises.

LOCATION.

The College has a pleasant and healthful location, between the villages of Orono and Stillwater, about a mile from each. Stillwater

river, a tributary of the Penobscot, flows in front of the buildings, forming the western boundary of the College farm, and adding much to the beauty of the surrounding scenery.

The Maine Central Railroad, over which trains pass many times each day, has a station at the village of Orono. The College is within nine miles of the city of Bangor, and is consequently easily accessible from all parts of the State.

FARM AND BUILDINGS.

The College farm contains three hundred and seventy acres of land, of high natural productiveness, and of great diversity of soil, and is therefore well adapted to the experimental purposes of the Institution.

White Hall, the building first erected, affords excellent accommodations for a limited number of students. The lower rooms of this building are appropriated to general and class purposes.

Brick Hall contains forty-eight rooms, and has connected with it a boarding-house for students. With these buildings, the Institution furnishes desirable accommodations for one hundred and twenty-five students.

The Laboratory contains two apparatus rooms, a lecture room, a cabinet, a library room, weighing room, a recitation room, and rooms for analytical and other purposes, and is in all respects admirably adapted to the wants of the chemical and mineralogical departments.

The shop, built during the summer of 1883, is equipped for instruction in three departments of mechanical work, viz: fling, forging and working in wood.

Coburn Hall, the new building for the departments of Natural History and Agriculture, will be occupied after June, 1888. In addition to the rooms needful for the two departments named, it contains a large audience-room, a commodious room for the College Library and a room especially arranged for a Physical Laboratory.

APPARATUS.

The College is furnished with valuable apparatus for the departments of Agriculture, Chemistry, Physics, Civil Engineering and Mechanical Engineering, to which additions are made as the exigencies of the several departments require. Models have been

made by instructors and students and others have been purchased that serve for purposes of instruction.

LIBRARY.

The library contains five thousand volumes, a large part of which has been obtained through the generosity of the late Ex-Governor Coburn. Valuable additions have also been made to it by other friends of the College, only a small number of the volumes having been purchased with money appropriated by the State. It is earnestly hoped that so important an auxiliary in the education of the student will not be disregarded by the people of the State, and that liberal contributions will be made to the library, not only of agricultural and scientific works, but also of those profitable to the general reader.

The following periodicals are supplied by the College to the library :

American Journal of Science and Art, Popular Science Monthly, National Live Stock Journal, American Agriculturist, Journal Royal Agricultural Society (England), Journal Franklin Institute, Eclectic Engineering Magazine, Century Magazine, Atlantic Monthly, Harper's Monthly Magazine, North American Review, Education, American Machinist, Science, American Naturalist, Botanical Gazette.

READING ROOM.

The reading room is supplied with a number of valuable newspapers and periodicals. Grateful acknowledgment is herewith made for the following papers, generously sent by the proprietors to the College :

American Cultivator, American Sentinel, Aroostook Republican, Gospel Banner, Eastern Farmer, Kennebec Journal, Lewiston Journal, Maine Farmer, Maine Industrial Journal, New England Farmer, Oxford Democrat, Piscataquis Observer, Portland Transcript, Somerset Reporter, Daily Whig and Courier, Zion's Herald, Official Gazette U. S. Patent Office, Bangor Daily Commercial, Farmington Chronicle, Phillips Phonograph, Springvale Advocate, Mount Desert Herald, Maryland Farmer, Dexter Gazette, Eastport Sentinel, Bee Journal, American Garden, Mirror and Farmer, Temperance Record, The Industrialist (Kansas).

The following papers are furnished by subscription, principally by the students :

American Machinist, Cultivator and Country Gentleman, Colby Echo, Bowdoin Orient, Scientific American, Scientific American Supplement, Eastern Argus (furnished by S. W. Gould), Lewiston Evening Journal, Journal of Education, Sanitary Engineer, Popular Science News, Washington Post, Boston Herald, Family Herald and Weekly Star (Montreal), Portland Express, Boston Record, Boston Globe (furnished by A. M. Miller).

CABINET.

The natural history collections of the College include about nine hundred named and mounted species of the flowering plants of Maine; a collection of sections of tropical species of wood presented by the Department of Agriculture at Washington, and a similar collection of the United States species from the Census Bureau.

The College also has a working collection of carefully selected forms representing the prominent groups of the animal kingdom; a large and valuable collection of Maine insects, carefully mounted and authentically named, and a fine collection of marine animals in alcohol, mostly from the coast of Maine, donated to the College by the United States Fish Commissioner. The above collections, together with charts, diagrams, skeletons, models, microscopes and other apparatus for illustrating the studies in natural history, are on exhibition in White Hall.

In the Laboratory are a good series of the more common minerals and ores supplemented by a collection presented by the National Museum; a collection of building stones from many of the Maine quarries, and a collection presented by the Smithsonian Institution, together with a series of microscopical sections of building stones, given by G. P. Merrill, M. S. In the same room is exhibited a series of typical fossils which illustrate the various geological horizons, together with a collection of Indian stone implements, and various curiosities presented by the friends of the Institution.

PUBLIC WORSHIP.

All students are required to attend daily prayers at the College, and public worship on the Sabbath at some one of the neighboring churches, unless excused by the President.

YOUNG MEN'S CHRISTIAN ASSOCIATION.

The students of the College maintain an active organization of the Young Men's Christian Association, holding meetings weekly.

Its elevating influence in the College is clearly manifest, especially in the earnest and high moral and Christian life of those who constitute its membership.

EXPENSES.

Tuition is thirty dollars a year, divided equally between the two terms. The cost of material and repair of tools for the course of instruction in the vise shop is ten dollars; in the forge shop, nine dollars; in the wood shop, four dollars.

Laboratory expenses are at cost of glass ware broken, injury to apparatus, and chemicals used. A deposit of five dollars is required of students entering upon a term's work in Qualitative Analysis, and of seven dollars per term from students in Quantitative Analysis. Room rent is four dollars for the first term and five dollars for the second term of the College year.

Students residing too far from the College to *live* at home are required to room and board at the College, unless special permission to live elsewhere be granted by the President. Students receiving such permission pay room rent and fuel rent as though residing at the College.

Bedding and furniture must be supplied by the students, who also furnish their own lights. Tables, chairs, bedsteads, sinks and husk mattresses can be purchased at the College at moderate rates.

The price of board is two dollars and sixty cents per week; washing averages not more than sixty cents per dozen.

The warming by steam of single rooms (each suitable for two occupants) has averaged for the past six years about eleven dollars a room for each term. The expense of heating recitation rooms and rooms for general purposes has been about two dollars a term for each student, and the incidental expenses, including pay for the services of janitor, pay for bringing mail, for cleaning and renovating rooms, for general repairs, &c., have been about three dollars per term for each student.

From the items given, with an allowance of a few dollars a year for necessary text-books, quite an accurate estimate of needful expenses can be made.

The College term bills are payable, one-half at the commencement, and the remainder at or before the close of each term.

As security for the payment of College bills, a bond of one hundred and fifty dollars with satisfactory securities is required. A blank form of bond will be given with the ticket of admission.

MEANS OF DEFRAYING EXPENSES.

The terms are so arranged that the long vacation occurs in the winter, that students may have an opportunity to teach during that time. The summer vacation is in the haying season, when farm labor is most profitable. By availing themselves of the opportunities thus afforded, together with the allowance for labor on the College farm, industrious and economical students can cancel the greater part of their College expenses.

SCHOLARSHIPS.

The trustees make provision for the establishment of free scholarships by the following action :

Voted, That any individual or society paying to the Treasurer a sum not less than seven hundred and fifty dollars, shall be entitled to one perpetual free scholarship in the College.

GRADUATES.

CLASS OF 1872.

<i>Name and Occupation.</i>	<i>Residence.</i>
Benjamin F. Gould, C. E., Farmer	San Juan, California
George E. Hammond, C. E. Civil Engineer,	
	Navy Yard, Portsmouth, N. H.
Edwin J. Haskell, B. S., Silk Manufacturer.	Saccarappa
Heddle Hilliard, C. E., Civil Engineer	Oldtown
Ebner D. Thomas, B. S., Civil Engineer.	Grand Rapids, Mich.
George O. Weston, B. S., Farmer	Norridgewock

CLASS OF 1873.

Russell W. Eaton, C. E., Cotton Mill Engineer..	Montreal, Quebec
George H. Hamlin, C. E., Professor	State College, Orono
Fred W. Holt, C. E., Civil Engineer,	
	G. S. R. R., St. George, N. B.
John M. Oak, B. S., Salesman	Bangor
Charles E. Reed, C. E., Farmer and Civil Engineer.	Clinton
Frank Lamson Scribner, B. S., Mycologist Dep. of Ag.,	
	Washington, D. C.
Harvey B. Thayer, B. S., Druggist	Presque Isle

CLASS OF 1874.

William A. Allen, C. E., Chief Engineer, M. C. R. R	Portland
Walter Balentine, M. S., Professor of Agriculture,	
	State College, Orono
William H. Gerrish B. S., M. D., Physician.. . .	Merrimac, Mass.
John I. Gurney, B. S., Florist	Dorchester, Mass.
David R. Hunter, B. S	Oakland, Cal.
Louise H. Ramsdell, B. S., (wife of Milton D. Noyes, Farmer,)	
	Atkinson

CLASS OF 1875.

<i>Name and Occupation.</i>	<i>Residence.</i>
Solomon W. Bates, C. E., Solicitor of Patents.....	Portland
Wilbur A. Bumps, C. E., M. D., Physician.....	Dexter
*Samuel H. Clapp, C. E., Teacher.....	Danvers, Mass.
Lewis F. Coburn, C. E., Civil Engineer.....	Crescent City, Cal.
Charles W. Colesworthy, B. S.....	Nevada
*Charles F. Durham, C. E., Teacher.....	Crescent City, Cal.
Alfred M. Goodale, B. S., Supt. Cotton Mills....	Waltham, Mass.
Edson F. Hitchings, C. E., Teacher.....	Warren, Mass.
Whitman H. Jordan, M. S., Director State Experiment Station,	Orono
Edward D. Mayo, M. E., Mill Furnisher and Draughtsman,	Minneapolis, Minn.
Albert E. Mitchell, M. E., Mechanical Engineer...	Altoona, Penn.
Allen G. Mitchell, C. E., Civil Engineer, Pennsylvania Railroad,	Cornellsville, Pa.
*Fred W. Moore, B. S., Teacher.....	California
Luther W. Rogers, B. S., Merchant.....	Waterville
Minott W. Sewall, M. E., Mechanical Engineer..	Wilmington, Del.
George M. Shaw, C. E., Principal of Schools.....	Oroville, Cal.
Wesley Webb, M. S., Editor Farm and Home.....	Dover, Del.
*Edgar A. Work, C. E.....	U. S. Military Academy

CLASS OF 1876.

Edmund Abbott, B. S., M. D., Physician.....	Providence, R. I.
Charles P. Allen, B. S. Lawyer.....	Presque Isle
Elbridge H. Beckler, C. E., Chief Engineer, Mon. Cen. R'y,	Helena, Mon.
Fred M. Bisbee, C. E., Civil Engineer.....	Dexter
Fred M. Blanding, B. S., Editor Maine Industrial Journal, Bangor	
Charles M. Brainard, B. S., Lumberman.....	Skowhegan
*George H. Buker, B. S., Apothecary.....	Presque Isle
Florence H. Cowan, B. S., Teacher.....	Orono
Oliver Crosby, M. E., Proprietor Machine Shop...	St. Paul, Minn.
Vetal Cyr, B. S., Principal of Madawaska Training School,	Fort Kent

<i>Name and Occupation.</i>	<i>Residence.</i>
James E. Dike, C. E., U. S. Deputy Surveyor,	Grand Forks, Dakota, Ter.
*Willis O. Dike, B. S	Gorham
Horace M. Estabrooke, M. S., Teacher, Normal School . . .	Gorham
Arthur M. Farrington, B. S., Veterinary Surgeon,	Washington, D. C.
George O. Foss, C. E., Ass't Engineer, N. P. R. R. . . .	Butte, Mon.
William T. Haines, B. S., L. L. B., Lawyer	Waterville
Henry F. Hamilton, B. S., D. D. S., Dentist,	124 Commonwealth Avenue. Boston
Newall P. Haskell, B. S., Farmer	Orono
Edward S. How, M. E., Office Light House Board, Treas. Dept.,	Washington, D. C.
Philip W. Hubbard, B. S , Apothecary	Farmington
Samuel M. Jones, M. E., Engineer,	Corliss Engine Works, Providence, R. I.
Albert A. Lewis, B. S., Clergyman	Brewer
Herbert A. Long, M. E., Farmer	Roque Island, Machias
Luther R. Lothrop, C. E., Asst. Engineer N. Pac. R. R.,	Helena, Mon.
Nelson H. Martin, B. S., Teacher	Ft. Fairfield
Charles E. Oak, M. E., Lumberman	Caribou
George D. Parks, C. E., Lawyer and Civil Engineer . . .	Brunswick
Hayward Pierce, B. S., West Waldo Granite Works. . .	Frankfort
Frank R. Reed, C. E., Carpenter	Roxbury
Henry J. Reynolds, B. S., Druggist	Eastport
Charles W. Rogers, M. E., Mechanical Engineer . . .	Boston, Mass.
William L. Stevens, M. E., Grain Dealer	Minneapolis, Minn.
John H. Williams, B. S., Government Surveyor	Dakota

CLASS OF 1877.

Alvah D. Blackington, C. E., Division Engineer, Erie R. R.,	Dunmore, Pa.
Robert B. Burns, C. E., Supt. of Construction, Midland R. R.,	Leadville, Colorado
Eugene H. Dakin, B. S., Financial Agent, Industrial Journal,	Bangor
Edward F. Danforth, B. S., Lawyer	Skowhegan
Augustus J. Elkins, B. M. E., City Engineer, Fergus Falls, Minn.	

*Deceased.

<i>Name and Occupation.</i>	<i>Residence.</i>
Alicia T. Emery, B. S., Teacher	Orono
Samuel W. Gould, B. S., Lawyer	Skowhegan
*Joseph C. Lunt, B. C. E., Civil Engineer, Mex. C. R. R.,	El Paso, Texas
Fred F. Phillips, B. S., Lawyer	Bangor
*Samuel Shaw, B. M. E., Architectural Draughtsman,	Boston, Mass.
Frank P. Stone, B. S., Farmer	Livermore Falls
Thomas J. Stevens, B. M. E., Apothecary	Portland
George E. Sturgis, B. C. E., Apothecary	Portland, Oregon
Charles E. Town, B. C. E., Government Surveyor, Helena, Montana	
James W. Weeks, B. M. E., Draughtsman	Des Moines, Iowa
Nellie E. Weeks, B. S., (Mrs. Llewellyn Spencer)	Orono
Ivan E. Webster, B. S., Lumberman	West St. Paul, Minn.

CLASS OF 1878.

Emma Brown, B. S., Teacher, (Mrs. Charles Gilman)	Enfield
Andrew J. Caldwell, B. M. E., Mech. Engineer . . .	Brooklyn, N. Y.
Cecil C. Chamberlain, B. S., Merchant	Anoka, Minn.
George E. Fernald, B. C. E., Commercial Salesman, Waterloo, Iowa	
James Heald, B. S., Surveyor	Minneapolis, Minn.
John Locke, B. S.	Maine Central R. R., Portland
Frank J. Oakes, B. C. E., Draughtsman.	Brooklyn, N. Y.
John C. Patterson, B. C. E., Assistant Engineer,	St. P., M. & M. R. R., St. Paul, Minn.
Winfield E. Tripp, B. C. E., Commercial Salesman, Madison, Wis.	
Edward C. Walker, B. S., Lawyer	Lovell
Otis C. Webster, B. S., Druggist	Augusta

CLASS OF 1879.

Harry P. Bean, C. E., Ass't Engineer, N. B. R. R.,	Woodstock, N. B.
Edward J. Blake, C. E., Chief Engineer, St. J. & C. B. Railway,	St. Joseph, Mo.
Simon P. Crosby, B. S., Lawyer	St. Paul, Minn.
John D. Cutter, B. S., M. D., Physician, 336 West Washington St.,	Chicago, Ill.

<i>Name and Occupation.</i>	<i>Residence.</i>
Wilbur F. Decker, M. E.	Minneapolis, Minn.
David A. Decrow, B. C. E., Holly Man'f'g Company, Lockport, New York	
Willis E. Ferguson, B. S., Farmer	Alhambra, California
Charles W. Gibbs, C. E., Resident Engineer, C. M. R. R., Colorado Springs, Col.	
Annie M. Gould, B. S., (Mrs. Loomis F. Goodale) Monument, Colorado.	
*Nellie M. Holt, B. S., Teacher..	Orono
Frank E. Kidder, C. E., Architect	Boston, Mass.
Mark D. Libby, B. C. E., Civil Engineer.....	Santa Fe, N. Mexico
*Charles S. Loring, B. M. E., Machinist	Lewiston
George P. Merrill, M. S., Curator, Nat. Museum, Washington, D. C.	
John W. Meserve, B. M. E., Mech. Engineer, Cambridgeport, Mass.	
Arthur L. Moore, B. S., Farmer... ..	Limerick
Charles A. Morse, C. E., Div. Engineer, A., T. & S. F. R. R., Topeka, Kansas	
Fred D. Potter, B. M. E., Engineer and Contractor, New York City	
Alton J. Shaw, B. M. E., Draughtsman, E. P. Allis & Co., Milwaukee, Wis.	
Percia A. Vinal, M. S. , (Mrs. Albert White).....	Orono
George O. Warren, B. S., Farmer.....	Fryeburg
Herbert Webster, B. S.....	Monrovia, Cal.

CLASS OF 1880.

Horace W. Atwood, B. S , Veterinary Surgeon ...	Brockton, Mass.
James M. Bartlett, M. S., Analytical Chemist, Experiment Station, Orono	
Albert H. Brown, B. S., Coal Merchant.....	Oldtown
Marcia Davis, B. S., Clerk, Office Registry of Deeds, West Bay City, Michigan	
Fred B. Elliot, B. S., Farmer.....	Bowdoin
Sarah P. Farrington, B. S., (Mrs. George P. Merrill), Washington, D. C.	
Charles W. Fernald, B. S., Merchant.....	Levant
Fred W. Fickett, M. S., U. S. Signal Service ..	Galveston, Texas
George W. Lufkin, B. C. E., Civil Engineer.....	Biddeford

<i>Name and Occupation.</i>	<i>Residence.</i>
Frank A. Mansfield, M. S., Clergyman.....	Boston, Mass.
Annie A. Matthews, B. S., Teacher.....	Stillwater
Henry W. Murray, B. C. E., Teacher.....	Milton, California
Franklin R. Patten, C. E., Supt. Iron Works, Barnston, Chester County, Pa.	
Charles T. Pease, B. S., Civil Engineer.....	Denver, Colorado
James F. Purington, B. S., Farmer.....	Bowdoin

CLASS OF 1881.

Henry H. Andrews, M. E., Bank Cashier.....	Callaway, Neb.
Henry W. Brown, M. S., Instructor Literary Institute, New Hampton, N. H.	
Clara L. Buck, B. S., (Mrs. Thomas W. Hine)...	Phoenix, Arizona
Fannie E. Colburn, B. S., (Mrs. Arthur L. Fernald), Omaha, Nebraska	
Edward H. Farrington, M. S., Chemist, Agricultural Experiment Station, New Haven, Conn.	
Oliver C. Farrington, B. S., Yale College.....	New Haven, Conn.
Charles H. Fogg, B. C. E., Div. Supt., Penn. R. R., Greensburg, Pa.	
Aldana T. Ingalls, B. C. E., Division Engineer, A., T. & S. F. R. R., Toronto, Kansas	
Robert John Johnson, B. C. E., Civil Engineer...	St. Paul, Minn.
Clara A. Libby, B. S., Teacher.....	Augusta
Horace F. McIntire, B. M. E., Mill Business.....	Waldoborough
Charles L. Moor, B. C. E., Lumber Business.....	Hartland
*Benjamin F. Murray, B. C. E.....	Stillwater
Edwin W. Osborne, B. C. E., N. Pacific R. R....	Brainard, Minn.
Oscar L. Pease, B. S., U. S. Signal Service.....	Phoenix, Arizona
Harold M. Plaisted, B. M. E., M. E. (Stevens Institute) Car In- spector, C. M. & St. Paul R. R.....	Milwaukee, Wis.
Alice I. Ring, B. S.....	Orono
Mary L. Ring, B. S., Teacher.....	Orono
*Roscoe L. Smith, B. S., Farmer.....	Lewiston
George Washington Sturtevant, B. C. E., Civil Engineer, St. Cloud, Minn.	
Frank S. Wade, B. S., M. D., Physician.....	Richmond, Wis.
Walter A. White, B. C. E.....	Newport
*John B. Wilson, B. S., Medical Student.....	Orono
Levi A. Wyman, B. C. E., Lawyer and Civil Engineer..	Ellsworth

CLASS OF 1882.

<i>Name and Occupation.</i>	<i>Residence.</i>
Charles S. Bickford, B. S., Book-Keeper	Belfast
Jacob L. Boynton, B. S	Cambridgeport, Mass.
Charles W. Brown, B. M. E., Draughtsman, Patent Office,	Washington, D. C.
Stephen J. Buzzell, B. C. E., Civil Engineer	Argyle
Oscar H. Dunton, B. M. E., Draughtsman,	Harris Corliss Engine Co., Providence, R. I.
Walter Flint, M. E., Professor State College	Orono
George R. Fuller, B. S., Law Student	Portland
Charles C. Garland, B. S., Real Estate Broker,	211½ Nicollet Avenue, Minneapolis, Minn.
Joseph F. Gould, B. S., Lawyer	Oldtown
Thomas W. Hine, B. S., Lawyer	Phoenix, Arizona
Will R. Howard, B. S., Principal, Academy	Bethel
Alonzo L. Hurd, B. S., Hampden Watch Co . . .	Springfield, Mass.
Alfred J. Keith, B. C. E., Merchant	Oldtown
Frank I. Kimball, C. E., Mining Engineer	Greensburg, Pa.
James H. Patten, B. S., M. D , Physician	Ellsworth
Frederic M. Reed, B. M. E., Draughtsman,	B. & S. Man'fg Co., Providence, R. I.
Gleason C. Snow, B. S., Farmer	North Orrington
Avery P. Starrett, B. S., Farmer	Warren
Frank H. Todd, B. C. E., Civil Engineer	St. Cloud, Minn.
Eben C. Webster, B. S., Lumber Manufacturer	Orono
Willard A. Wight, B. C. E., Supt. Gas Works	Trinidad, Col.
Daniel C. Woodward, B. M. E., Draughtsman . . .	Milwaukee, Wis.

CLASS OF 1883.

James H. Cain, B. S., Time Keeper	Great Works
Jonathan V. Cilley, B. C. E., Railroad Engineer,	Buenos Ayres, Arg. Rep., S. A.
Frank E. Emery, B. S., Superintendent Maplecroft Stock Farm,	Pawling, N. Y.
Arthur L. Fernald, B. S., Commercial Salesman, Omaha, Nebraska	
Bartholomew P. Kelleher, B. S., M. D., Physician	Orono
Lucius H. Merrill, B. S., Assistant, Experiment Station. . .	Orono
Jennie C. Michaels, B. S., Teacher	Stillwater

<i>Name and Occupation.</i>	<i>Residence.</i>
Charles W. Mullen, B. C. E., Civil Engineer	Oldtown
Truman M. Patten, B. C. E., C. R. & M. R. R., Weyerhauser, Wis.	
Harry W. Powers, B. S.	Orono
Charles E. Putnam, B. C. E., Civil Engineer.	Boston, Mass.
Lewis Robinson, Jr., B. M. E., M. D., Physician	Stetson
George A. Sutton, B. C. E., Merchant.	Abbott
Levi W. Taylor, B. S., Instructor M. C. Institute.	Pittsfield

CLASS OF 1884.

George H. Allen, B. S., Law Student	Portland
*Will H. Burleigh, B. C. E.	Vassalboro'
Mary F. Conroy, B. S., Assistant in Post Office	Orono
Leslie W. Cutter, B. C. E., Contractor and Builder.	Bangor
Hattie C. Fernald, B. S., School of Library Economy, Columbia College, New York City	
Elmer E. Hatch, B. S., Teacher	Lagrange
John E. Hill, B. C. E., U. S. Signal Service.	Fort Smith, Ark.
Joseph G. Kelley, B. C. E., Civil Engineer.	Bar Harbor
Edwin F. Ladd, B. S., Ass't Chemist, Experiment Station, Geneva, N. Y.	
Clarence S. Lunt, B. C. E., City Editor, Commercial	Bangor
Fred L. Stevens, B. S., Principal of Schools	Sedalia, Mo.
William Webber, B. M. E., Draughtsman, McCormick H. Works, Chicago, Ill.	

CLASS OF 1885.

George W. Chamberlain, B. S., Principal Grammar School, Farmington, N. H.	
Asher Dole, B. C. E., Civil Engineer, Mon. Cen. Railway, Helena, Mon.	
Frank O. Dutton, B. S., Teacher.	Orono
Henry T. Fernald, B. S., Post Graduate in Biology, Johns Hopkins University, Baltimore, Md.	
Elmer O. Goodridge, B. M. E., Ass't Engineer, Mon. Cen. Railway, Helena, Montana	
George L. Hanscom, B. S., Teacher	Rockland
James N. Hart, B. C. E., Instructor, State College.	Orono

*Deceased.

<i>Name and Occupation</i>	<i>Residence.</i>
Frank E. Hull, B. C. E., Engineer	Rockland
Austin H. Keyes, B. C. E., Instructor, Nat. Ger. Teachers' Sem'y,	Milwaukee, Wis.
William Morey, Jr., B. C. E., Signal Service, . .	Washington, D. C.
Joseph P. Moulton, B. S., Farmer.	Springvale
Leonard G. Paine, B. M. E., (Stevens Institute),	Draughtsman, B. & S. Man'f'g Co., Providence, R. I.
Elmer E. Pennell, B. M. E.	Saccarappa
Louis W. Riggs, B. M. E., Teacher of Science, Mt. Hermon, Mass.	
Fremont L. Russell, B. S., Vet. Surgeon.	Lewiston

CLASS OF 1886.

Bert J. Allen, B. C. E., Teacher, Academy	Hampden
Josiah M. Ayer, B. C. E., Civil Engineer.	Boston, Mass.
George G. Barker, B. M. E., Draughtsman.	Chicago, Ill.
George F. Black, B. C. E., Civil Engineer, M. C. R. R. . . .	Portland
John D. Blagden, B. C. E.	Carmel
Heywood S. French, B. C. E., Civil Engineer.	Boston, Mass.
Edwin D. Graves, B. C. E., Civil Engineer, Somerset R. R.,	No. Anson
Ralph K. Jones, B. S., Clerk	Boston, Mass.
Elmer Lenfest, B. C. E., Civil Engineer, Mon. Cen. Railway,	Helena, Mon.
James F. Lockwood, B. M. E., Draughtsman	New York, N. Y.
George F. Lull, B. S., Chemist, Penobscot Chem. Fibre Co.,	West Great Works.
Willis H. Merriam, B. C. E., Civil Engineer, M. S. S. M. & A.	Railway, Minneapolis, Minn.
Elmer E. Merritt, B. M. E., Draughtsman.	Chicago, Ill.
Arthur D. Page, B. C. E., Civil Engineer.	St. Cloud, Minn.
Irving B. Ray, B. C. E.	Harrington
Sydney S. Twombly, B. S., Adj. Prof. of Chem., Ind. University,	Fayetteville, Ark.

CLASS OF 1887.

John H. Burleigh, B. C. E., Civil Engineer.	Boston, Mass.
Luis V. P. Cilley, B. C. E., Civil Engineer,	Buenos Ayres, Argentine Republic, S. A.
Bert E. Clark, B. S., Teacher	West Tremont

<i>Name and Occupation.</i>	<i>Residence.</i>
Daniel W. Colby, B. S., S. Water Co.....	Skowhegan
Edwin V. Coffin, B. C. E.....	Harrington
Alice A. Hicks, B. S., Teacher.....	Brewer
James D. Lazell, B. M. E., Draughtsman.....	Philadelphia, Pa.
Charles A. Mason, B. C. E., Civil Engineer.....	Los Angeles, Cal.
Henry A. McNally, B. C. E., Signal Service.....	Portland
Fenton Merrill, B. C. E., Civil Engineer.....	Orono
Addison R. Saunders, B. M. E., Teacher.....	Lebanon
Cassius A. Sears, B. C. E.....	Fort Kent
Charles H. Stevens, B. M. E., Manufacturer.....	Fort Fairfield
Charles F. Sturtevant, Civil Engineer.....	St. Cloud, Minn.
Frank E. Trask, B. C. E., Civil Engineer.....	Pomona, Cal.
Charles T. Vose, B. C. E., Civil Engineer, Somerset R. R.,	No. Anson
Howard S. Webb, B. M. E., Instructor in Shop Work,	State College, Orono
John S. Williams, B. S., Teacher.....	New Portland

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PROF. WALTER FLINT, Orono.

TREASURER.

PROF. W. H. JORDAN, Orono.

NECROLOGIST.

E. M. BLANDING, Bangor.

CLASS SECRETARIES.

- 1872. E. J. HASKELL, Saccarappa.
- 1873. J. M. OAK, Bangor.
- 1874. W. BALENTINE, Orono.
- 1875. E. F. HITCHINGS, Warren, Mass.
- 1876. N. P. HASKELL, Orono.
- 1877. S. W. GOULD, Skowhegan.
- 1878. E. C. WALKER, Lovell.
- 1879. F. E. KIDDER, Boston, Mass.
- 1880. A. H. BROWN, Oldtown.
- 1881. A. T. INGALLS, Wilmington, Ohio.
- 1882. O. H. DUNTON, Providence, R. I.
- 1883. C. E. PUTNAM, Boston, Mass.
- 1884. G. H. ALLAN, Dennysville.
- 1885. H. T. FERNALD, Amherst, Mass.
- 1886. J. F. LOCKWOOD, New York City.
- 1887. C. F. STURTEVANT, St. Cloud, Minn.

NON-GRADUATES.

Average period of attendance, one and a half years.
 Present residence not being known, the former residence is given.
 Special students are marked in the classes with which they principally recited.

[Corrections for a revised list are solicited].

CLASS OF 1872.

<i>Name and Occupation.</i>	<i>Residence.</i>
John T. Bowler, Register of Deeds.....	Bangor
William H. Cary, Jr.....	St. Paul, Minn.
Edward F. Fisher.....	San Diego, Cal.
William H. George, Presbyterian Clergyman.....	Topeka, Kansas
William L. Harlow, Farmer.....	Buckfield
George L. Macomber.....	Durham
Charles C. Norton.....	Buffalo Meadows, Nevada
William B. Oleson, Clergyman.....	Honolulu, Sandwich Islands
Frank W. Rollins, Teacher.....	Stillwater, Minn.
Oren S. Sargent, M. D., Physician.....	Lawrence, Mass.
*Marcus P. Shorey.....	Oldtown
Benjamin F. Watson, Farmer.....	Levant

CLASS OF 1873.

William H. Claffin, Merchant.....	Boston
Joseph E. P. Clark, Book Business.....	Minneapolis, Minn.
*John Jackson.....	Alfred
Samuel Lane, Insurance Agent.....	Houlton
William F. Lovejoy, Book-Keeper.....	Winn

*Deceased.

<i>Name and Occupation.</i>	<i>Residence.</i>
Thomas P. Pease.....	Bridgton
Clarence Pullen, Civil Engineer.....	Foxcroft
Frederic A. Ransom.....	Augusta

CLASS OF 1874.

Frank P. Burleigh.....	Springfield
*Mark E. Burnham.....	Garland
Louville Curtis.....	Bowdoinham
Roland Curtis, M. D., Physician.....	Bowdoinham
Samuel C. Moore.....	Cherryfield
Charles F. Osgood, Farmer.....	Garland
*William H. Reed.....	Springfield
George I. Trickey, Lawyer.....	Caribou
Manley H. Whitehouse.....	Orrington
Edward R. Wingate, Lumber Business.....	Cherryfield
William I. Wood, Lawyer.....	Corinna

CLASS OF 1875.

Gustavus Bellows, Farmer; Specialty, Fruit.....	Freedom
Leander H. Blossom, Farmer.....	Turner
John H. Carver, Clerk.....	Boston, Mass.
William B. Dole, Mechanic.....	Bangor
George N. Gage, Physician.....	E. Washington, N. H.
Benson H. Ham, Merchant.....	Charleston
Alton A. Jackson, M. D., Physician.....	E. Jefferson
Manley Jackson, Organ and Sewing Machine Business.....	Jefferson
Freeland Jones, Merchant and Surveyor.....	Caribou
Ora Oak.....	Caribou
Sidney S. Soule, Farmer.....	Freeport
Louis C. Southard, Lawyer, Boston,	
	Residence, North Easton, Mass.
*George W. Spratt, Merchant.....	Bangor
Charles H. Spring, Wool Grower, Buenos Ayres, Arg. Rep., S. A.	

*Deceased.

CLASS OF 1876.

<i>Name and Occupation.</i>	<i>Residence.</i>
Francis H. Bacon, Architect, 98 Washington Street, Boston, Mass.	
Russell A. Carver	Dixfield
Frank P. Gurney, Farmer	Dover, Dakota
*Frank A. Hazeltine, Farmer.....	Dexter
Eugene Hopkins.....	Oldtown
James W. Linnell, Farmer.....	Exeter
George J. Moody, Lawyer.....	Montesano, Wash. Ter.
Webster Mudgett	Albion
Edward B. Pillsbury, Supt. United Lines Tel. Co ...	Boston, Mass.
Randall H. Rines, Merchant	Portland
Walter F. Robinson, Signal Service	Fort Apache, Arizona
Edward C. Shaw, Draughtsman.....	Providence, R. I.
Frank E. Southard, Lawyer.....	Augusta
Frank P. Whitaker, Physician.....	Hermon

CLASS OF 1877.

Charles F. Andrews.....	Biddeford
Fred S. Bunker, A. B. (Harvard)...	City Hospital, Boston, Mass.
*Edson C. Chase	Stillwater
William W. Dow, Printer.....	Rehoboth, Mass.
James T. Emery	Stillwater
Charles M. Freeman.....	Portland
*Frank H. Goud, Clerk	Fort Fairfield
Austin I. Harvey, M. D., Physician.....	Carmel
Menzies F. Herring, Editor and Publisher	Dexter
Ardean Lovejoy.....	Orono
Fred B. Mallet, Lumbering Business.....	Minneapolis, Minn.
Fred L. Partridge.....	Stockton
Fred H. Pullen.....	Foxcroft
*Frank E. Reed.....	Springfield
Woodbury D. Roberts, Merchant.....	Cheney, Wyoming
Thomas B. Seavey, Clerk.....	Chicago, Ill.
Henry C. Townsend, Farmer	Fort Fairfield
Clara E. Webb, Teacher	Unity

*Deceased.

<i>Name and Occupation.</i>	<i>Residence.</i>
Fred S. Wiggin, Farmer.....	Presque Isle
William B. Whitney	Iowa

CLASS OF 1878.

Charles H. Benjamin, M. E.....	Boston, Mass.
Eugene M. Berry.....	Sumner
*Nathaniel A. Crocker	W. Enfield
Charles C. Elwell, Ass't Engineer, W. & N. R. R., Wilmington, Del.	
Howard H. Hartwell.....	Vinalhaven
John E. Haynes, Jeweller.....	Oldtown
Fred H. Hinckley, Clerk in U. S. Land Office.....	Eureka, Nev.
Richard S. Howe.....	Fryeburg
Carl S. Jameson, Boot and Shoe Dealer	Providence, R. I.
William S. Jameson, Dealer in Sugar Machinery, Guadalajara, Mex.	
Edgar H. Lancaster, Mechanic in R. R. Shop.....	Oldtown
*Alvra W. Leathers.....	Dover
James Lunt.....	Bangor
Herbert A. Mallett, Lumberman.....	Stillwater, Minn.
Silas N. Miller, Prospecting for Gold and Silver, Fairplay, Colorado	
Frank J. Perkins, Dry Goods Dealer.....	Oldtown
Charles F. Plumley, Merchant.....	Lincoln
John O. Richardson, Trader, Paints and Oil.....	Oldtown
A. Judson Small.....	No. Lubec
Albert H. Stewart, Piano Regulator.....	Boston, Mass.
Edson Warriner, Watchmaker and Jeweller	Fryeburg
Erastus G. Weeks, Merchant.....	Jefferson

CLASS OF 1879.

Daniel Allison.....	Linneus
Arthur P. Brown, Mechanic... ..	Orono
Benjamin V. Carver, Machinist	Hartford, Conn.
Byron H. Cochrane.....	Woonsocket, R. I.
Fred A. Colburn, Clerk and Scaler.....	Stillwater, Minn.
James W. Cousens, Teacher.....	Stillwater
John A. Curtis, U. S. Deputy Surveyor.....	Phoenix, Arizona
George A. Dustin, Machinist and Trader.....	Dexter

*Deceased.

<i>Name and Occupation.</i>	<i>Residence.</i>
Loomis F. Goodale, Div. Eng., D. & S. F. R. R.,	Monument, Col.
Edwin A. Hawes, Mechanic	Ontario, Cal.
*Edwin C. Johnson	Gorham
Oliver S. Jones, Farmer	Corinna
Albert Y. Merrill, Lawyer, Judge of Probate	Aitkin, Minn.
Asa C. Morton, Clerk	Bangor
Harry W. Peakes, Merchant	Charleston
David S. Plummer, Book-Keeper	Boston, Mass.
*Eugene G. Smith	Richmond
William N. Titus, Lawyer, Boston	Residence, Woburn, Mass.
Howard E. Webster, Lumberman	Orono
Arthur L. Wellington, Shipping Agent	Detroit, Mich.
Charles M. Wilson	San Francisco, Cal.

CLASS OF 1880.

Charles M. Allen, Teacher	Kingston, Penn.
Edward N. Atwood, Asst. Supt., Ker. Oil Works	Portland
Granville Austin, Clerk	Boston, Mass.
Sylvester A. Brown, Clerk	Boston, Mass.
*Ada M. L. Buswell, Teacher	Minneapolis, Minn.
Charles E. Cheney, Farmer	W. Scarboro'
Woodbury F. Cleveland, M. D., Physician	Eastport
Samuel H. Dyer	Yarmouth
Osgood E. Fuller, Druggist	Albany, N. Y.
Harry H. Goodwin, Sec'y to Amer. Consulate	Anaberg, Saxony
John B. Horton, Book-Keeper	Sandusky, Ohio
Daniel S. Jones, Watchmaker and Jeweller	Kansas
Prescott Keyes, Jr., Farmer	Richmond
*Charles W. Nash	Addison
Willis L. Oak, Clerk	Presque Isle
Fred W. Powers, Farmer and Teacher	Fryeburg
Emily Ramsdell, Teacher	Atkinson
Mortier C. Randall	Stillwater
William J. Rich, Chemist, Cambria Iron Co.	Johnstown Pa.
Charles S. Simpson, Civil Engineer and County Surveyor,	Florence, Wis.

<i>Name and Occupation.</i>	<i>Residence.</i>
Frank A. Spratt, A. B., Principal Academy.....	Hampden
Daniel Webster, Express Agent.....	Augusta

CLASS OF 1881.

Henry W. Adams, Lumberman,.....	Wisconsin
*Lorin T. Boynton	Ashland
Charles P. Chandler, Machinist	New Gloucester
Elmer C. Chapin, Commercial Traveller	Bangor
*Frank P. Fessenden.....	South Bridgton
Archy S. Gee, Clerk	Minneapolis, Minn.
George W. Holmes, Merchant.....	Norway
John F. Horne, Shoe Manufacturer.....	Auburn
Benjamin Johnson	Portland
Edward C. Luques, Broker.....	Biddeford
Charles S. Macomber, Lawyer	Carrollton, Iowa
Charles I. D. Nichols, Farmer	Hollis
James Martin Nowland, Farmer.....	Ashland
Charles C. Ross, Commercial Salesman.....	St. Stephens, N. B.
Clara Southard (Mrs. Hammond).....	Lincoln Center
*Charles P. Tidd, Tel. Operator	Forest Green, Missouri
Harry P. Tidd,	Forest Green, Missouri
William R. Tilden, Workman in Shoe Factory...	Campello, Mass.
William A. Vinal, Scaler.....	Orono
William G. Wales.....	Monticello, Iowa
Frank B. Weeks, Government Quartermaster's Office,	San Francisco, Cal.
Flora Welch, Nurse.....	Boston, Mass.
George H. Wilson, Clerk, Gov. Storehouse.....	Maricopa, Arizona

CLASS OF 1882.

Joseph B. Bartlett.....	Ashland
Charles E. Chapin	Bangor
Charles C. Dunn, Farmer.....	Ashland
Charles W. Fenlason.....	Bridgewater
John I. Greenlaw, Merchant.....	N. Fryeburg
William H. Hatch.....	Lisbon
Wesley J. Jameson.....	Frankfort

<i>Name and Occupation.</i>	<i>Residence.</i>
Frederick A. Kenniston, Salesman.....	Brockton, Mass.
Frederick O. Kent.....	Bremen
Walter H. Nason, M. D., Physician.....	Hampden
Atta L. Nutter, Teacher.....	Wilmington, N. C.
Parker J. Page.....	Orono
Harry K. Poole.....	Bremen
Louis C. Tilley, Farmer.....	Castle Hill

CLASS OF 1883.

George R. Currier, Teacher.....	E. Wilton
Arthur T. Drummond, Farmer.....	Sidney
William E. Emery, M. D., Physician.....	Surry
Norman F. Kelsea, Clerk.....	Brockton, Mass.
Edwin P. Kendall, Farmer and Miller.....	Bowdoinham
Henry W. Longfellow, Clerk.....	Machias
Charles S. Murray.....	Stillwater
George A. Rich, A. B., On Editorial Staff Advertiser, Boston, Mass.	
Everett F. Rich, Clerk.....	Bangor
Ralph Starbird, Lumber Dealer.....	Ellsinover, Cal.
Ralph R. Ulmer, Lawyer.....	Rockland
Frank C. Webster, Clerk, Am. Exp. Co.....	Bangor
Frank G. Webster, Clerk.....	Orono
Lewis H. White, M. D., Physician.....	Lincoln Centre

CLASS OF 1884.

Edward S. Abbott, M. D., Physician.....	Bridgton
Edward M. Bailey, Merchant.....	Bangor
Joseph B. Bartlett.....	Nottingham, N. H.
William A. Berry, Sailor.....	Hampden
James A. Dunning, Clerk.....	Bangor
Freeland Ellis, Clerk.....	Guilford
Eugene L. Folsom, Machinist.....	Stillwater
Evie M. Hamblen.....	Stillwater
Robert S. Leighton.....	Steuben
*Gilbert Longfellow, Jr.....	Machias
Cephas R. Moore, Trader.....	Anson

<i>Name and Occupation.</i>	<i>Residence.</i>
William R. Pattangall	Athol, Mass.
Robert C. Patterson, Surveyor	Minneapolis, Minn.
Charles S. Pendleton, Farmer.....	Philbrook, Montana
Herbert L. Rich	Attleboro', Mass.
Flora M. Ricker (Mrs. P. J. Page)	Orono
Warren J. Ridley, Conductor, Street R. R. . .	South Boston, Mass.
Elmer A. Savage.....	Minneapolis, Minn.
Mertie Sawyer.....	Hampden
Charles F. Smith, Prin. High School.....	Lenox, Mass.
*Horace G. Trueworthy.....	Orono
Jotham Whipple, Jr.....	Solon

CLASS OF 1885.

James W. Bishop, Farmer.....	Milo
Frederick H. Butler, Division Engineer, C., M. & St. P. R. R., Berlin, Wis.	
Harry W. Davis, Banker	Church's Ferry, Dakota
Fred W. Dickerson.....	Belfast
Samuel W. Hill.....	Machias
Willard A. Libby	Denver, Col.
Charles L. Libby, Draughtsman.....	Bridgeport, Conn.
*Frank E. Manter.....	Milo
Dennis D. Merrill, Engineer, Steam Mill.....	Stillwater
Dudley W. Moor, Jr.....	Waterville
Carl H. Prince, Farmer	Turner
Elisha C. Vose, Signal Service and Journalist ..	Milwaukee, Wis.
Charles S. Williams.....	Monhegan Island

CLASS OF 1886.

Eugene C. Bartlett, Medical Student.....	Orono
John I. Chase, Clerk.....	Riverside, Cal.
Charles H. Merriam.....	Fort Laramie, Wyoming Ter.
Harry E. Powers	Bowdoinham
Harold E. Trueworthy.....	Houlton

CLASS OF 1887.

<i>Name and Occupation.</i>	<i>Residence.</i>
Alton D. Adams, Elec. Light Co.....	Lynn, Mass.
John W. Allen	Presque Isle
Alice Benjamin.....	Oakland
Irving M. Clark, Civil Engineer.....	Boston, Mass.
Jennie L. Dority.....	Wells
Wm. J. Harris.....	Groton, Mass.
Austin D. Houghton.....	Waterville
James S. Kennedy	Ludlow
William L. Perham	Paris
Wm. P. Sherburn.....	Dover
Frank L. Tucker.....	Norway
Charles W. Wentworth, Law Student.....	Portland
Rodney A. B. Young, Medical Student.....	Baltimore, Md.
Alfred S. Ruth.....	Olympia, Wash. Ter.

CLASS OF 1888.

Charles W. Breed, Clerk.....	Philadelphia, Pa.
Frederick L. Burke.....	Boston, Mass.
James K. Chamberlain, Plumber and Sanitary Engineer... Bangor	
Frank P. Collins	Ft. Fairfield
Fred T. Drew	Orono
George K. Hagerthy.....	So. Hancock
Edwin B. Lord.....	Stillwater
Alphonso F. Marsh, School of Pharmacy.....	Boston, Mass.
Frank J. Page	Orono
Henry F. Perkins, Mechanic ..	Oakland
Nathan A. Ring.....	Orono
Clara Rogers ..	Hampden
Charles C. Rolfe, Teacher	Presque Isle
Abram W. Sargent	Seattle, W. T.
Joseph S. True, Farmer	New Gloucester
Ernest H. Trumbull	St. John, N. B.

CLASS OF 1889.

<i>Name and Occupation.</i>	<i>Residence.</i>
Benjamin R. Clark	No. Lubec
George G. Fernald	Wilton
Arthur M. Folsom	Oldtown
Charles B. Gould	Orono
Temple Grosvenor	Canterbury, N. B.
Lewis F. Johnson	La Grange
John E. Littlefield	Brewer
Albert L. Lyford	Corinna
Frederick L. Thompson, Medical Student...	Augusta
Norman Tripp	Unity
Fred W. Webb	Skowhegan

CLASS OF 1890.

George W. Hodgdon	Rumford
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CALENDAR.

- 1888—Feb. 7. Tuesday, Second Term commences.
- June 21, 22. Thursday and Friday, Examinations.
- “ 23. Saturday, Prize Declamations by Sophomores.
- “ 24. Sunday, Baccalaureate Address.
- “ 25. Monday, Prize Essays by Juniors.
- “ 27. Wednesday, Commencement.
- “ 29. Friday, Examination of Candidates for Admission.
- Vacation of five weeks.
- Aug. 7. Tuesday, Examination of Candidates for Admission.
- First Term commences.
- Nov. 26, 27. Monday and Tuesday, Examinations.
- Vacation of eleven weeks.
- 1889—Feb. 6. Tuesday, Second Term commences.