Public Documents of Maine:

BEING THE

ANNUAL REPORTS

OF THE VARIOUS

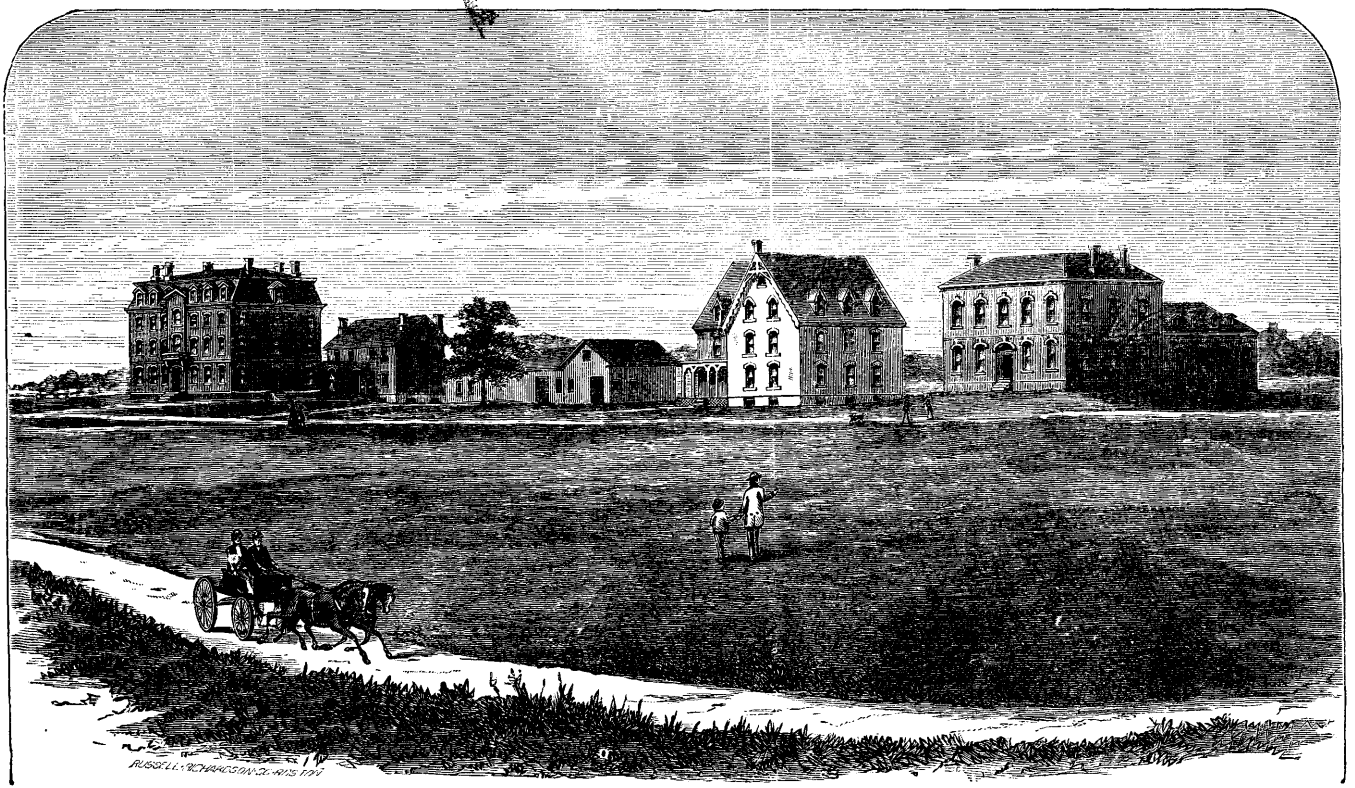
PUBLIC OFFICERS AND INSTITUTIONS

FOR THE YEAR

1876.

VOLUME II.

AUGUSTA:
SPRAGUE, OWEN & NASH, PRINTERS TO THE STATE.
1876.



Dormitory and Boarding House. White Hall. Laboratory.

PRINCIPAL BUILDINGS OF THE STATE COLLEGE OF AGRICULTURE AND THE MECHANIC ARTS, ORONO.

ANNUAL REPORTS

OF THE

TRUSTEES, PRESIDENT,

Farm Superintendent and Treasurer,

OF THE

MAINE STATE COLLEGE OF AGRICULTURE

AND THE

MECHANIC ARTS.

1875.

PUBLISHED AGREEABLY TO A RESOLVE APPROVED FEBRUARY 25, 1871.

AUGUSTA:
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1875.

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TRUSTEES' REPORT.

To the Honorable Senate and House of Representatives in Legislature assembled:

The Trustees of the College of Agriculture and the Mechanic Arts respectfully submit this, their ninth annual report.

They are glad to be able to give the assurance that the year just closed has been one of faithful effort by the officers in immediate charge of the college, and substantial and most gratifying results to the students. The personnel of the Faculty remains unchanged, but the experience of another year upon an educational problem, essentially new in many of its features, is of much practical value to the institution. The draft upon the time and strength of the members of the Faculty has been severe, and after their powers have been taxed to the utmost, they have found themselves unequal to the task of performing all the labor demanded.

The institution has graduated four classes, the last class numbering as many within one as the three preceding classes. The themes of this class on the occasion of their graduation were very creditable to its members, as were also the original parts of the Juniors on a previous occasion during the commencement exercises, and they afforded assurance that the institution is sending out young men who will, at least, be able "to do their own thinking, and writing, and speaking."

The present Freshman class is larger than any preceding class entering at the commencement of the college year. This fact, considered in connection with the circumstance that the severe depression in business matters has the effect to deter many young men from entering on a course of study who otherwise would do so, is one of much encouragement as showing an increasing appreciation of the advantages afforded by the college.

The Trustees are unable to report much progress in providing for the ultimate wants of the college during the present year, the necessary means not having been placed at their command. Some grading of the grounds has been done, and a permanent roadway

for the accommodation of the new barn has been partly constructed.

At the suggestion of one of the professors, some of the public-spirited citizens of Orono have contributed nearly lumber enough to construct a gymnasium and drill-room. A little aid from the State will ensure the erection of the building another season, and thus secure a much needed accessory to the institution.

The wooden buildings on the premises are much in want of repairs and paint, a work that cannot be much longer neglected without serious depreciation in the value of the buildings.

Farm Buildings.

The large barn completed last season proves to be nicely adapted to the purposes for which it was constructed, and the use of it for a year suggests no defects in its arrangements. The method of ventilation (described in the report of 1874) is entirely effective in relieving the cattle stalls and the manure and root cellars of injurious exhalations. The stock was carried through the last winter at a material reduction of the cost of feed, and the spring found it in excellent condition.

A farm-house with the necessary outbuildings on the site reserved for it near the barn, is urgently needed. The house now occupied by the farm superintendent is very poorly adapted to the purposes for which it is used, and is at a distance of sixty rods from the site of the barn. When vacated by the farm superintendent it will be made useful as the residence of one of the professors, or for the accommodation of students who desire to reduce the expenses of the course by boarding themselves.

Other Necessary Buildings.

The wants of the institution are the same that have been so often pressed upon the attention of preceding Legislatures in former reports. The apology for calling attention to them now, if apology be required, is that urgent and important as they are, they have not yet been provided for. The present pressing necessity is *more room*. The recitation rooms, having been constructed for purposes other than that for which they are used, are only half large enough for the classes now in attendance. Into these the students are crowded, to get along as best they may through the hour of recitation, without room in which to move or pure air to breathe. In some instances the professors are obliged to hear

their classes in two divisions, thus *wasting* valuable time that is greatly needed for *useful* purposes.

The liberality of the friends of the college has filled the room used for a library to overflowing. The number of bound volumes, supplied almost entirely by private contribution, has reached 2,300. Many of these are inaccessible for the want of space in which to arrange them. Attention is respectfully called to the suggestion of the Librarian in his report, that a room should be provided of dimensions sufficient for a library and reading room, to which the students may resort and spend a part of every afternoon. Such an accessory would be of inestimable value to the students, and no time should be lost in providing it.

The officers and earnest friends of the institution are industriously collecting valuable material for the cabinets of natural history, while all the available space for the classification and arrangement of these collections was long ago put in requisition. More room is also needed for the deposit and preservation of the valuable apparatus now belonging to the college and for that which will hereafter be acquired. A room for chapel services and two or three additional lecture rooms are needed.

To cover all these wants, a substantial brick building should be provided without unnecessary delay—or what would perhaps be better, two buildings—one for the library, cabinet collections, apparatus and other valuable material—and the other for chapel, lecture and class-rooms. The former should be so constructed as to render the valuable material which shall be deposited in it reasonably secure from destruction by fire. The latter may be a less expensive building. The above described buildings, including farm-house and accessories, would meet the necessities of the college for many years to come. Other buildings may be deemed desirable, but are not absolutely necessary to the existence of the institution.

These buildings, constructed on a scale to accommodate the one hundred and fifteen students now connected with the college, would, with small additional cost, accommodate two hundred students, a number as large, in the judgment of the Trustees, as can be profitably gathered and instructed in a single collegiate institution. The cost of these buildings if thoroughly constructed, might reach $50,000, but would not exceed that sum at present rates for material and labor. It should be remembered that every dollar wisely expended for the benefit of the students now con-

nected with the institution, for permanent buildings or necessary permanent fixtures of any sort, will aid also in the education of the thousands of young men who will be connected with it in coming years. There are a half dozen cities in Maine, scarcely one of which would hesitate to expend for school buildings the sum mentioned above, if necessary to give completeness and efficiency to its system of schools. It certainly cannot be a severe burden upon the State to furnish the same amount within the next two years for the construction of buildings so essential to the usefulness of a most valuable institution, and that, the only collegiate institution, for the support of which the State is directly responsible.

Conclusion.

Although contributions from private sources are most gladly accepted by the college, not only for their intrinsic value, but especially as an expression of generous appreciation of the value of the institution and of interest in its welfare, (and it is most earnestly desired that the volume of such contributions may be largely increased from year to year,) the Trustees cannot but express their dissent from the view that sometimes finds expression, that it should look mainly to private munificence for the means to equip it for its appropriate work. A former Legislature, after deliberation, accepted the grant of lands proffered by Congress, with the pledge to carry out the condition annexed, viz: to establish at least one college for the education of the industrial classes. It had no authority to pledge private citizens. It pledged the only party it *could* pledge, and that party is the State. However sanguine some persons may have been that large contributions would follow to the college from private sources, and however acceptable such contributions might be, the expectation has not yet been realized.

Other collegiate institutions in the State have wealthy religious denominations and a numerous alumni behind them whose aid can always be successfully invoked in case of necessity. The State College has no such resource in *its* hour of need, and its appeal must be to the State. And why should not the State respond to its reasonable requests for aid? It is an important part of the State educational system. It has already attained a character for usefulness that fully justifies the expenditures that have been made in its behalf. It is working in entire harmony with the demand of

the times for practical education. It sustains an intimate and important relation to our system of free high schools, and its influence upon these schools cannot be otherwise than direct and salutary.

The attention of the Legislature is respectfully called to the subjoined reports for information more in detail respecting the interior affairs of the college.

It is with sentiments of satisfaction and pride that the Trustees direct attention to the success attained by the college in the brief period of eight years, and they reiterate their earnest conviction that it is entirely worthy of all the aid at the hands of the Legislature that is asked for it.

The imperative wants of the college are as follows:

For the purchase of apparatus	$3,750
farm expenses, experiments and improvements	2,500
instruction, in addition to the revenue of the Congressional Fund	4,600
payment of outstanding bills	3,500
contingent expenses	1,000
repairs and painting of buildings	1,200
completing street and grading	500
building farm-house	3,500
making bricks and other preparations for the construction of a building or buildings for recitation and lecture rooms, and rooms for library, cabinet collections, chapel services, &c	3,000
	$23,550

As a preparation for building, the making of the bricks on the premises is recommended as a measure of economy, as they can be made at 25 per cent. less cost than they can be purchased and hauled.

Respectfully submitted.

ABNER COBURN, *President.*

PRESIDENT'S REPORT.

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

GENTLEMEN: I have the honor of presenting to you the annual report of the Faculty. The condition of the college is not now materially changed from that represented in the report of last year; and the suggestions there made may be repeated as appropriate to existing circumstances.

THE DESIGN OF THE COLLEGE.

We have endeavored in all our movements to keep in view the design of the institution, which is to give to all who may avail themselves of its privileges a practical and liberal education, especially adapted to the preparation of the students for industrial pursuits and success in business employments; we are convinced that the productive industries of our State will not be prosperous unless labor is guided by intelligence, and that the foundation of a useful life must be broad and deeply laid. This cannot be secured by confining the attention of students to those sciences which have an immediate connection with any one branch of industry, nor by exclusive efforts to make our pupils expert in the routine of any avocation.

The education demanded is to be liberal and scientific, as well as thorough and practical. So far as possible with the limited resources at our command, we have endeavored to illustrate in practice the principles taught in the class-room. Nor have the results hitherto disappointed our reasonable expectations.

Some of our friends forget that this institution is not merely an agricultural college, and that it is for the benefit of the mechanic as well as the farmer. In our State the product of factories are next in importance to those of the fields. The demand from mechanics for skilled labor is imperatively presented at the present time. The manufacturer knows that only the best educated artizans will enable him to succeed in the sharp competition he must

meet. Hitherto the wants in this direction have been supplied by drawing skilled labor from foreign countries The farmer has not so fully realized that educated labor is of equal importance in his calling. If, therefore, graduates from this college should become machinists, or engineers rather than farmers, it would only show that there is a greater demand in those directions for trained intellects. Many of our graduates have gone into agricultural pursuits, and increasing numbers intend to make it their life-work.

Methods of Instruction.

In connection with the regular recitations from the most approved text-books accompanied by frequent and thorough reviews, familiar lectures on the subjects of the recitations are delivered by the professors in their several departments. These lectures are the fruit of previous years of study, and often embody a large amount of instruction that could not otherwise be furnished to the classes; for the facts and illustrations are not found in the books studied, and are often derived from sources inaccessible to our students.

The requisition made on the students to take notes of the lectures, and to reproduce on examination the substance of the information imparted, is a most valuable discipline. No one is properly educated who is not trained to receive instruction orally as well as by studying books.

In the study of natural science, as far as possible, the objects of study are put into the hands of students for investigation; charts and descriptive drawings are used to convey information concerning those plants, animals or minerals, specimens of which cannot be obtained. In chemistry, the students in the recitation room recite from manuals of the science, and they are trained in the laboratory to perform their own experiments and to make careful investigation of the composition and properties of different substances, by the proper use of apparatus. In civil engineering the students, having been made familiar with principles, are taught the use of instruments by actual work in the field and by the most exact surveys and calculations. These are embodied in carefully prepared plans and drawings.

The study of mechanics is illustrated with some models, mostly the work of students, as funds have not been provided for the

needed apparatus, and the classes are taken to visit the machine shops in Bangor.

We regret that suitable arms have not been furnished by the State so that our students could be drilled in accordance with the present United States tactics; and therefore less interest is felt by the students in military exercises. The gymnasium, toward which some of the citizens of Orono contributed so liberally in lumber, has not been erected on account of the lack of some needed materials, and the extra duties that have devolved this term on the professor in charge. We are authorized to expect that the arms requisite will be supplied by the State authorities immediately; and we hope that the United States authorities will assign to us a military instructor.

College Faculty.

There have been no changes in the board of instruction during the year. The several professors by an increase of experience are making themselves more efficient, and their labors more valuable to the college. Our varied departments and extended courses of study require a larger force of teachers to make the work of instruction fully satisfactory to ourselves. The temporary illness of one of the professors has by no means lightened the task of those who have shared his labors among them. We rejoice in the prospect of his complete restoration to health, and expect him to return to his duties at the college on the commencement of the next term. But with all our present force in working order, so many and varied duties are devolved upon each teacher, that it is impossible to bring up the several departments to that state of efficiency demanded by the advanced thought and scholarship of the times. The pressure is so great that there is constant danger of overwork and consequent injury to the health. And this danger is increased by the lack of sufficiently large and well ventilated recitation rooms.

Admission of Students.

Of the forty candidates who presented themselves for examination at the commencement of the last term, thirty-five were admitted as members of the Freshmen class, others have expressed their intention of entering this class at the beginning of the spring term. This is the largest class that has entered the college. They come from all parts of the State, and give promise of becoming an honor to the institution.

The increased number of applicants for admission, and the favorable notices from all quarters show that the instruction is better appreciated by our people.

There are now eight female students, and we have had no reason to regret the policy of admitting them to the privileges of a liberal and practical education in the State College.

Commencement.

The commencement held on the 4th of August attracted a large audience. The increasing number of the graduates enlarges each year the number of interested friends of the institution.

The Governor and Council, and other distinguished visitors from abroad and from our own State were present. All expressed themselves highly pleased with the appearance and performance of the graduating class. All the exercises of commencement week elicited the commendation of the friends of education. The prize declamation by the Sophomores, the Junior exhibition, the commencement themes, the music, and the eloquent address of Hon. Israel Washburn, Jr., so well adapted to the occasion, were highly satisfactory.

The following degrees were conferred: Bachellor of Science on C. F. Colesworthy, A. M. Goodale, W. H. Jordan, F. L. Moore, S. W. Rogers and W. Webb. The degree of Civil Engineer on S. W. Bates, W. A. Bumps, S. H. Clapp, L. F. Coburn, C. F. Durham, E. I. Hitchings, A. G. Mitchell, G. M. Shaw and E. A. Work. The degree of Mechanical Engineer on E. D. Mayo, A. E. Mitchell and M. M. Sewall.

The Coburn prize for excellence in declamation was awarded to E. I. Danforth, and for excellence in composition, to H. M. Estabrooke.

Wants of the Institution.

We need additions to our apparatus as is indicated in the reports from the departments. We need the gymnasium for military drill, in cold and stormy weather. We need additional help in the faculty; and above all, we need a good building, with larger and better ventilated recitation rooms, and for Cabinet, Library and other educational purposes. The present rooms are not sufficient for the classes as they now are constituted.

The grounds around the buildings should be tastefully laid out; and a beginning should be made immediately in planting the trees and shrubs in accordance with some regular plan. Half of the

ornamental trees in the nursery ought to be removed next Spring to afford space for perfect development of the remainder, as well as to supply the want of adornment in our favorable location.

The reports from the different departments will give you more full information of their condition and wants. In addition to other duties, I have had the entire charge of the instruction in the department of English language and elocution, as well as in mental and moral science.

Department of English Literature.

Students entering college without that discipline which the usual requirement of preparatory studies in the languages afford, need a thorough review of their studies in grammar. But the limited time allowed in our course of study for training in the use of language does not admit of extended discipline in this direction. The little attention given has in most cases met with good results.

The first term after their entrance, the Freshmen study rhetoric with exercises in the principles of grammar, giving especial attention to the composition and analysis of sentences. Afterwards through their whole college course, the students are required to perform regular exercises in declamation and composition.

The Sophomores in their second term commence the study of English literature, and continue it for two terms. This gives them some knowledge of the history of our language and an acquaintance with the best authors. A desire is thus awakened for a more thorough examination of the works alluded to in the recitations; and the student is furnished with correct principles in the selection of his subsequent reading, and a good foundation for literary acquirements.

Department of Mental and Moral Science.

Instruction is given to the members of the Senior Class, that are not in the engineering course, in mental and moral philosophy and in the history of civilization. All the Seniors study political economy and the constitution of the United States. Lectures are also given to this class in rural and international law.

To the Junior class instruction is given in logic and in the history of England.

Respectfully submitted.

C. F. ALLEN.

DEPARTMENT OF MATHEMATICS AND PHYSICS.

President Allen:

During the past year the classes under my instruction have been those in algebra, geometry, trigonometry, analytical geometry, calculus, physics and astronomy.

As regards the purely mathematical studies, requiring for the class-room no other appliances than blackboards and crayons, it is sufficient to say that very satisfactory work has been done on the part of the classes to which I have attended.

The science of physics has been taught as heretofore, by the use of an advanced text-book, and by lectures illustrated to the extent practicable with the physical apparatus owned by the institution.

The need of additional apparatus indicated in the last report, but still unsupplied, is not less than it was when that report was submitted.

In galvanic electricity the power now at command is that furnished by three cells of Bunsen's battery. There are needed fifty cells of Tyndall's Grove's battery, or an equivalent in power; also an electric lamp and lantern and the other pieces necessary to complete an electric projection apparatus. Other pieces are needed, but these are deemed the most essential in the list of the immediate wants of this department.

The class in Practical Astronomy has done good work in the class-room, and has also made excellent use of the apparatus placed at its command. All the observations taken for the determination of latitude and longitude have been reduced by the class, so that its members have acquired facility in such computations.

The sextant used by the class was one kindly loaned to the institution, but it has recently been recalled by its owner. It will be needful to supply its place with another instrument. A prismetic sextant also would be a valuable acquisition to the apparatus desirable for the students in Practical Astronomy.

The vertical circle, for which a contract was reported last year, with Messrs. A. Repsold & Sons, Hamburg, Germany, has not yet been received. The latter part of November the makers indi-

cated that the instrument was then nearly completed; it will be expected within a very limited period of time.

I desire again to direct attention to a want of the institution, common to all the departments. I refer to a building which should include "chapel, library, engineering rooms, cabinet, rooms for the department of agriculture, physical laboratory, and rooms giving enlarged accommodations for recitations and for other purposes."

M. C. FERNALD.

DEPARTMENT OF NATURAL HISTORY.

President Allen:

There have been no important changes made in this department during the past year.

Instruction has been given in physical geography, human anatomy, physiology and hygiene, by means of text-books and lectures; in botany, by text-book, lectures and excursions; in zoölogy, entomology and comparative anatomy, by lectures, excursions and cabinet work; in determinative mineralogy, by lectures and laboratory work; in geology, by lectures and excursions.

The above recitations and lectures, together with the daily collection and preparation of specimens, demonstrations and drawings necessary for their illustration, demand an amount of labor beyond the capacity of any one man. I therefore beg that I may be relieved of some part of the above work as soon as practicable, in order that the instruction may be made more efficient in this department, and that some attention may be given to the principles of horticulture, in connection with the instruction in botany.

I have been obliged to conduct most of the above recitations in one small, ill-ventilated room, which is used as a cabinet, storeroom, dissecting-room, and general work-room in botany and comparative anatomy. I therefore most earnestly desire that measures may be taken for the erection of a new college building, containing suitable rooms for recitation purposes, and a cabinet room to contain our growing collections.

Natural history is emphatically an objective study, and very little progress can be made, or interest maintained, without the

objects, or models of them, for personal examination. In the various branches named above, a large number of objects is required, and for this purpose, I desire that an appropriation may be made.

Respectfully submitted.

C. H. FERNALD.

CHEMICAL DEPARTMENT.

President Allen:

At the beginning of the winter term of this year the Sophomore class wishing to take qualitative analysis, was divided into two sections, practicing on alternate days, the quantity of apparatus on hand being insufficient for the whole class, and a part of the laboratory being occupied by the class in mineralogy and students in quantitative analysis. In qualitative analysis the book and instruction were the same as the year before. During the summer term, the class having diminished in numbers, was admitted to the laboratory daily.

The special students of the chemical course have been using an advanced chemical text-book in French, which familiarizes them with the scientific terms of that language, and gives them a thorough knowledge of both theoretical and practical chemistry. Their afternoons have been devoted to quantitative analysis. It is my intention to give them some small German work in the last term of their Senior year, so that they may acquire facility in reading chemical works in that language. I shall also lecture to them on chemical manipulation, etc., that term or the one previous. I have had no students in agricultural chemistry this term.

During the fall term, besides the recitations of the Senior chemical students, I had a class in metallurgy, and the Sophomore class in general chemistry; the text-book being "Miller's Introduction to the study of Inorganic Chemistry."

The needs of the department are very urgent, and remain essentially the same as last year. The need of more glassware is daily felt. A larger supply of chemicals, an assay furnace, and an assay balance are all very necessary. Less than eight hundred dollars would not cover these most pressing needs.

I would also state that I have, in addition to my regular duties, had charge of a class of students reading French. They finished a reader began the term before, and partly read a French comedy by O. Teuillet.

The laboratory building, though admirably fitted for chemical purposes, is too small to be used by as many departments as now hold recitations in it. More room is imperatively needed.

Respectfully submitted.

ALFRED BELLAMY AUBERT.

DEPARTMENT OF CIVIL ENGINEERING.

Presdent Allen:

The following report concerning the department of Civil Engineering is respectfully submitted.

The course of study and the method of instruction have been, during the past year, essentially as heretofore. The aim of the course being to give the students a thorough knowledge of the principles involved in engineering works, and at the same time to give them as thorough a drill in the practical part as is possible in a scientific school.

Particular attention is given to the study of mechanics, both pure and applied to construction, to drawing, and to field work. The usual amount of work in the text-books, in the drawing-room, and in the field, has been done. Students in this department, when not engaged in field practice, are required to work in the drawing-room two hours and a half each afternoon, where the work performed approaches as near to actual office work as it is possible to make it with the limited means at our disposal.

The want of specimen drawings and models is felt very much in both departments of engineering. As yet we have been obliged to depend almost entirely upon our own productions, borrowed ones, and advertisements of construction companies.

In field work, besides laying out all of the various railroad curves, the Junior class, during the summer term, marked out, ready for construction, a railroad line one mile and a half in length.

Among the most urgent wants of this department is the need of drawings, models, and a plane table. For the plane table, three hundred dollars will be required; and not less than one hundred dollars should be appropriated for drawings and models.

WILLIAM A. PIKE.

DEPARTMENT OF MODERN LANGUAGES AND MECHANICS.

President Allen:

I have the honor to submit the following report concerning the various duties performed by me the past year.

Modern Languages. In this department the usual amount of instruction has been given with the usual results. Prof. Aubert has kindly relieved me of the class in French for the greater part of the last term. I wish to repeat my recommendation of last year, that the course of study be so changed that the classes in Civil and Mechanical Engineering can pursue the study of German at least as far as the other classes do now; and that the students in the Elective course can study the languages another year. There is a desire among the students for these changes.

Mechanics. This department, although mentioned in the catalogue as under my charge, does not exist as a separate department. I teach the Junior class in Mechanical Engineering which was formerly instructed by Prof. Whittier. Its progress has been satisfactory.

Military Instruction. The military exercises have been limited to a daily drill of fifteen minutes in the "setting up" and marching and a weekly drill of one hour. It has been impossible to give instruction in the manual of arms, as no weapons, for which the United States Tactics provide, have been furnished us. As we should probably use such arms more than any militia company in the State, and as the charter of the college calls for military instruction, it would seem reasonable and right that the State should furnish us with approved weapons. An effort was made last winter to obtain them but with no success.

Prof. Pike has been absent since the beginning of the last term on account of sickness, and some of his duties have fallen to me. I have instructed the Senior class in Mechanical Engineering and in Perspective Drawing. I have noticed a great lack of apparatus in the department of Mechanical Engineering, and though only temporarily in charge of it, I feel that I ought to ask for $500 to put this department on as good a basis as the other departments in the college.

Very truly,

W. S. CHAPLIN.

DEPARTMENT OF AGRICULTURE.

President Allen:

The course of instruction given in the department of agriculture has continued without important changes since my last report. Students in this course, and those electing agricultural studies, have received instruction in the mechanical cultivation of the soil, the use of farm implements and the principles of their construction, and in cultivation of the cereals, entirely by lectures.

The works employed as text-books on rural architecture, landscape gardening, farm drainage, principles of breeding, sheep husbandry and dairy farming, were not specially designed for the use we make of them. There is therefore large opportunity afforded for discretion in their use, and for supplementary oral teaching.

Since the middle of the fall term, the Sophomore class has been under my instruction in elements of agriculture. There is need of a text-book less rudimentary and imperfect than the one now in use. The interest and progress of the class have perhaps been all that could be expected under the circumstances. Improved methods of instruction demand that the student in agriculture shall not only be taught the principles of the science theoretically, but shall also have those principles explained to him and the teaching enforced by the use of illustrative drawings and models.

With the single exception of the plan of a drained field, drawn and kindly presented to this department by Mrs. C. H. Fernald, we are entirely without means of illustration appropriate to the

class-room. So far as it has been possible, implements used in the cultivation of the farm have been carried to the class-room for the purposes of illustration. This has in some measure supplied our need; but the necessity of clearing the room at the close of each exercise that it may be occupied by students in some other department, almost as unfortunately situated as ourselves in the line of models and other appliances, renders our endeavors to make much out of a little exceedingly laborious and discouraging. It is not reasonable to expect that a department so utterly lacking in most of the aids demanded by the best methods of teaching will present attractions sufficiently strong to draw to it the numbers that seem necessary to meet the popular demand for students in agriculture, and for graduates who will become farmers.

I can only repeat the request urged last year, that some provision be made to supply, in part at least, the wants of this department. Could a room with ample area be assigned to its use, with cabinets for the preservation and display of farm products and forest growths, and in which might be kept models of farm implements and machinery, the students and friends of the institution would undoubtedly contribute to fill its shelves and partially supply our need in this direction; and this department of instruction would have not only a name to live but also a place in which to abide.

J. R. FARRINGTON.

LIBRARY.

President Allen:

The following report concerning the library is respectfully submitted. During the past year the library has been classified and catalogued. It has been open to students one hour every Friday during term time, at which time they are allowed to take out and return their books. This is very unsatisfactory to them as well as to myself, but it is the best that can be done so long as the library is in so small a room. In order that the students may derive the greatest possible advantage from the library it should be placed in a larger room, which should be fitted up for a reading room, and be open at least three hours every afternoon.

At the commencement of the summer term the shelves in the room were all filled with books, and it became necessary to provide more shelf room or pack up some of the books. It was not thought best to pack up our books, and I was authorized by the Faculty to have what space there was on the south end of the room filled with shelves, which was accordingly done, and furnished room for three hundred volumes. Part of the scientific books have been removed to the Engineers' room.

At the time of my last report the library contained 2,052 volumes, and a number of pamphlets which were not reported. It now contains 2,370 volumes of bound books and 416 pamphlets, showing an increase during the year of 318 volumes. Of these, 170 volumes have been purchased with money given to the library by Ex-Governor Coburn; 45 have been given by the trustees of the estate of Rufus Dwinell, 25 by Senator Hamlin, 8 by Hon. S. L. Boardman, 4 by Prof. A. B. Aubert, 2 by Col. C. H. Foster, 1 by Hon. Charles Buffum, 1 by Prof. Hitchcock, 1 by Rev. H. C. Leonard, 1 by E. P. Fuller; 41 volumes have been received from the State library; 3 from the Smithsonian Institution; 4 bound volumes, and Nos. 1, 2, 3 of U. S. Statistical Charts from the Department of Interior, and 12 volumes are bound magazines.

There are many books needed in each of the departments, which should be placed in the library as soon as possible; and I do not doubt that you will recommend a liberal appropriation for this purpose.

G. H. HAMLIN.

FARM SUPERINTENDENT'S REPORT.

Since the value of farm experiments, when carefully and intelligently conducted, increases with each trial, it seemed best when arranging plans for the present year to repeat the experiments of preceding years, already reported, in order that we might by a renewal of the tests either confirm the results obtained, or ascertain by further trial whether any of the conclusions reached are unworthy of confidence.

In the experimental feeding of swine to ascertain the comparative value of cooked and uncooked corn meal for the production of pork, the results differ from those of previous years only in the amount of percentage in favor of raw meal. This experiment has now been conducted for six successive years, with results uniformly in favor of uncooked meal.

The pigs selected were from a cross between a Yorkshire boar and a White Chester sow. They were from the same litter and were eight weeks old at the time of commencing the experiment. They were kept in separate and adjoining pens, with each of which a small open yard was connected. In these yards they had constant access to the fresh earth, and were occasionally fed with grass and green weeds. The amount of meal fed was proportioned to the wants of each, and care was had that while none of the food was wasted, a full supply was constantly provided. One pig, No. 4, was selected from the same litter and fed with skimmed milk, receiving in all other respects the same treatment given to those fed with meal. At the beginning of the experiment pig No. 1 weighed 45½ pounds; No. 2, 45½ pounds; No. 3, 41½ pounds; No. 4, 37 pounds. The food for each was carefully weighed out and prepared every morning. For the first period of four weeks, No. 1 received cooked meal and Nos. 2 and 3 were fed raw meal. During the second period of four weeks, No. 1 was fed raw meal and Nos. 2 and 3 received cooked meal. This method of alternating the kind of food given was continued thoroughout the twenty-four weeks of the experiment. The feeding in the third

and fifth periods of four weeks was like the first period; and in the fourth and sixth periods the food was given as in the second period. This method of feeding, although open to some objection on account of the change which it makes in the character of the food at the end of each period, yet affords the best opportunity for comparing the effect produced by the two kinds of food upon the same pigs at different times, and also upon the different pigs at the same time. During the progress of the experiment, skimmed milk to the amount of sixty per cent. of the weight of the meal consumed, was mixed with the meal as it was fed. In computing the cost of increase in live weight, the meal is put at two cents a pound and the milk is reckoned at one-half cent a pound or one and one-eighth cents a quart:

Weight of Pigs June 15th.	Gain in live weight in 24 weeks.	Live weight of Pigs Nov. 30.	Dressed weight of Pigs Dec. 2.	Shrinkage.
No. 1, 45½ pounds....	264½ lbs.	310 lbs.	257½ lbs.	52½ lbs.
No. 2, 45½ "	169½ "	215 "	178¼ "	36¾ "
No. 3, 41½ "	233½ "	275 "	232½ "	42½ "
No. 4, 37 "	238 "	275 "	227 "	48 "

In the experiment raw meal was fed to the amount of 1,266½ pounds; this meal reckoned at two cents a pound, cost $25.33; it produced a gain in live weight of 539 pounds; the cost of raw meal consumed for each pound of live weight is 4.7 cents. During the experiment cooked meal was fed to the amount of 1,098½ pounds; this meal reckoned at two cents a pound, cost $21.17; it produced a gain in live weight of 361 pounds; the cooked meal consumed for each pound of increase in live weight, cost 6.5 cents. During the progress of the experiment, skimmed milk was mixed with the meal and fed at the rate of six pounds of milk to every ten pounds of meal, or sixty per cent. of the meal by weight. Putting the value of the milk at one-half cent a pound, which is one and one-eighth cents a quart, food to the value of $28 12 was consumed to produce the increase gained while the raw meal was fed; and each pound of increase cost 5 2 cents. By the same course of reckoning, the value of the food eaten while cooked meal was fed, is $25.26, and the cost of each pound of increase is 6.9 cents.

Pig No. 4 consumed 5,088 pounds of skimmed milk and 194 pounds of raw meal. Reckoned as above, the value of this food is $29.32; each pound of increase in live weight made by No. 4 cost 12.2 cents.

Experiment showing the effect of different fertilizers in the cultivation of Lane's Imperial Sugar Beet for cattle, conducted and reported by C. C. Chamberlain, class of 1878.

The soil in which the beets were sown is a light clay loam. Beets of the same variety have been grown on this plat for four consecutive years. Previous to this year no other fertilizer than manure from the cow stable had been applied. Preparations for sowing the beets were commenced early in May, by turning in to the depth of six inches, six cords of manure to the acre with T. B. Hussey's No. 15 Plow. This was followed by A. Rigby's Subsoil Plow, with which seven inches of the subsoil were well loosened. Eight cords to the acre of cow manure were then spread on the furrow and harrowed in; after which the subsoil plow was again run in lines two and one-half feet apart where the rows of beets were to be sown, to make as light as possible the soil, which had become somewhat compacted by the passing of the cart and teams while spreading manure and harrowing. May 26th the ground was raked down and prepared; the beets were sown May 27th.

The rows, one hundred and nine feet in length, were marked two and one-half feet apart, giving one square rod (nearly) to each row. Lines drawn at right angles with the rows and one foot apart, marked at their points of intersection the places in which the seeds were dropped and covered by hand. The last week in June the beets were thinned, and the missing plants in each row were supplied from the surplus plants in the same row. The ground was kept light and free from weeds through the season by the frequent use of the hand hoe and French's Cultivator. The beets were gathered, and the product of each row carefully weighed October 8th and 12th.

The seeds in the rows on which Kainite was used did not germinate well, and the plants made an unsatisfactory growth throughout the season. Probably from want of care in mixing this fertilizer with the soil, it was brought too closely in contact with the seeds and young plants, and so hindered their growth; and, as the result indicates, did permanent injury to the crop.

No. of Row.	FERTILIZERS. Names.	Weight in pounds.	Result. Wgt. in lbs.
1	Superphosphate	2½	248½
2	Kainite	2½	163½
3	Prepared Fish	2½	227
4	Nothing	–	216
5	Fish and Superphosphate	1¼ each.	256½
6	Fish and Kainite	1¼ "	220½
7	Superphosphate and Kainite	1¼ "	254½
8	Nothing	–	239½
9	Superphosphate	2½	232
10	Kainite	2½	176½
11	Fish	2½	215
12	Nothing	–	177
13	Fish and Superphosphate	1¼ each.	229½
14	Fish and Kainite	1¼ "	178½
15	Superphosphate and Kainite	1¼ "	166½
16	Nothing	–	154

The foregoing experiment has been tried four successive years in the same field, (the north garden) on plats of a like character of soil, yet each year in a different part of the field. In addition to the fertilizers used in the experiment, a good dressing of manure from the stable has every year been spread upon the ground as evenly as possible, and then well worked into the soil.

The average result for each year, and general average for the four years, are as follows:

FERTILIZERS. Names.	Weight in Pounds.	Results. 1872. Wgt. lbs.	1873. Wgt. lbs.	1874. Wgt. lbs.	1875. Wgt. lbs.	Gen. Av. Wgt. lbs.
Nothing	–	248	181	208	196	208
Superphosphate	2½	341	121	231	240	233
Fish	2½	287	160	215	221	221
Kainite	2½	261	211	224	170	216
Fish and Kainite	1¼ each.	297	162	255	199	228
Kainite and Superphosphate	1¼ "	295	174	232	210	228
Fish and Superphosphate	1¼ "	303	191	239	243	244
Dry and ground Seaweed	2½	244	185	223	Supply of Seaweed exhausted.	217
Seaweed and Fish	1¼ each.	270	161	232		221
Seaweed and Superphosphate	1¼ each.	271	198	230		233
Seaweed and Kainite	1¼ each.	244	178	241		219

The above comparison of results shows that in 1872 the best yield was obtained from superphosphate; in 1873, from the Kainite; in 1874, from the mixture of fish and Kainite; in 1875, from the mixture of fish and superphosphate. In 1872–4–5, the superphosphate gave better results than any fertilizer used alone; in 1873, it gave the poorest result. The rows on which it was used yielded on the average sixty pounds to the row less than did those

rows on which no fertilizer was sown. Taking the general average for the four years, the mixture of superphosphate and fish gives the largest yield, superphosphate alone the next to the largest, while fish and kainite, and superphosphate and kainite stand third.

The following table shows the practical value of the fertilizers used in the experiment, so far as indicated by the average results of the four years' trial:

NAMES OF FERTILIZERS.	General average yield per row in lbs	Pounds of increase per acre	Cost per acre for fertilizer.	Cost of increase per bushel of sixty lbs.
Nothing	208	–	–	–
Superphosphate	233	4,000	$12 00	18 cts.
Prepared Fish	221	2,080	6 80	19.6 "
Kainite	216	1,280	9 00	42.1 "
Prepared Fish and Kainite	228	3,200	8 00	15 "
Kainite and Superphosphate	228	3,200	10 60	19.9 "
Prepared Fish and Superphosphate	244	5,760	9 40	8.8 "
Dry and ground Seaweed	217	1,440	8 00	33.3 "
Seaweed and prepared Fish	221	2,080	7 40	21.3 "
Seaweed and Superphosphate	233	4,000	10 00	15 "
Seaweed and Kainite	219	1,760	8 60	29 3 "

Experiment to test the value of different fertilizers for growing potatoes; conducted and reported by F. O. Hamlin, class of 1878.

These potatoes were planted on a moist, loamy soil, sloping to the southeast, with an inclination sufficient to give good natural drainage to the land. The field was greensward plowed the previous autumn, and was in low condition, having produced only a few hundred weight of hay to the acre the year before. No other manures than the fertilizers named in the experiment were used on the crop. The ground was well prepared by use of the pulverizer and the harrow, and furrowed four inches deep with the horse hoe. The rows were ninety feet long and three feet apart, each one containing nearly one square rod. Sixty hills, eighteen inches apart, were planted in a row. The potatoes were planted May 20th and dug early in October.

No. of Row	FERTILIZERS.	Pounds of Fertilizer.	Pounds of large Potatoes	Pounds of small Potatoes.	Total yield.
1	Ashes, (15)	5	57½	12½	70
2	do	2½	48	12	60
3	do	2½	52	14	66
4	Nothing	–	40	14	54
5	Prepared Fish, (1)	5	45	15½	60½
6	do do	2½	45	13½	58½
7	Chloride of Potassium, (2)	5	50	12½	62½
8	do do	2½	50	15	65
9	Nothing	–	40	14	54
10	Kainite, (3)	5	47¾	13	60¾
11	do	2½	40½	24	64½
12	Prepared Fish and Chloride of Potassium, (each)	2½	38½	22	60½
13	Prepared Fish and Kainite, (each)	2½	34	33	67
14	Nothing	–	35	23½	58½
15	Ground Feldspar raw, (4)	5	45½	10½	56
16	do do do	2½	43	17	60
17	Ground Feldspar roasted, (5)	5	39	18	57
18	do do do	2½	35½	24½	60
19	Ground Feldspar raw and prepared Fish, (each)	2½	43	13½	56½
20	do do roasted and do do	2½	42	19	61
21	Feldspathic Phosphate, (6)	5	43	18½	61½
22	Nothing	–	40	18	58
23	Feldspathic Phosphate	2½	41½	17	58½
24	do do and prepared Fish, (each)	2½	43½	18½	62
25	Ground Granite	5	39	17	56
26	do do	2½	53	12	65
27	do do and prepared Fish, (each)	2½	49	11	60
28	Ground raw Bone (8) and Kainite, (each)	2½	55¾	12½	68¼
29	do do and Ashes, (each)	2½	46½	16½	63
30	Tobacco Fertilizer, (9)	5	46½	13½	60
31	Nothing	–	38½	14	52½
32	Tobacco Fertilizer	2½	44¾	12½	57¼
33	Dissolved Bone, (11)	5	36	8	44
34	do do	2½	40¾	7½	48¼
35	Fish, (16)	5	28¼	11	39¼
36	do	2½	27½	15	42½
37	Nitrate of Soda	5	34¾	8½	43¼
38	do do	2½	26½	16½	43
39	do do and Salt, (each)	2½	33½	13	46½
40	do do do do	1¼	33¼	8½	41¾

NOTES ON THE MANURES.

(1)—This was pressed herring chum, mingled with sulphuric acid sufficient to neutralize all the ammonia as fast as formed; allowed to heat and partially decompose. When used, it contained 35 per cent. water, and about 8 per cent. ammonia. Cost in Portland $30 per ton.

(2)—Contained 80 per cent. of the salt. Cost in New York, 3¾ cents per lb.

(3)—Cost in New York $35 per ton. Contained 32 per cent. sulphate of potash, 12 per cent sulphate of magnesia.

(4)—From Topsham—containing 16 per cent. potash. The rock is simply ground.

(5)—Same rock, roasted before grinding

(6)—Consisting of equal proportions of ground feldspar, mineral phosphate, and sulphuric acid of 45°, B.

(7)—From Sangerville. Reported to have been used there with remarkable results.

(8)—Raw bone coarsely ground. Cost $55 per ton in Bangor.

(9)—Prepared by Cumberland Bone Company for use on Connecticut river. It differs from the bone superphosphate prepared by the same company, in that it contains a greater proportion of potash salts.

(10)—Prepared by L. Maddocks, Boothbay, Me. Price $40 per ton.

(11)—Prepared by Cumberland Bone Company. Cost in Portland $55 per ton.

(12)—Cost in Portland $80 per ton.

(13)—Prepared by Charles H. North & Co., Boston, Mass. Sent for trial.

(14)—Cumberland Superphosphate; prepared by Cumberland Bone Company. Price in Portland $55 per ton; and wherever superphosphate is elsewhere mentioned, unless otherwise specified, the article made and sold by the Cumberland Bone Company, Portland, is to be understood.

(15)—From equal proportions of second growth hard and soft wood. Uusually sold at one shilling per bushel.

(16)—Dry herring chum, coarsely broken.

The following experiments, comprising divers ways of cutting and planting potatoes, were originated in connection with the Scientific Society of the Maine State College, in the hope that the methods proposed will be tested, not only by the students at the College farm, but also by practical men in other parts of the State; that by the comparison of results obtained under conditions widely differing from each other, definite conclusions may be reached, which shall be of real value to those who wish to practice the best methods of planting potatoes.

The potatoes used for seed are classed as follows: Large, those weighing seven to eight ounces; Medium, those weighing three to four ounces; Small, those weighing one to two ounces.

Where not otherwise stated, large potatoes are cut into four pieces, medium potatoes are cut into two pieces, and one piece dropped in a hill.

These experiments were this year conducted and reported by G. E. Fernald, class of 1878. G. O. Weston of Norridgewock, who the two previous years has tried and reported the same experiments, writes that he planted the potatoes on poor, dry land where they were overrun with witch-grass, and the experiment was a failure. The results reported this year were obtained on a moist loam, broken from grass in October of 1874. The ground was well manured and in good condition when planted May 28. The vines were killed by rust the last of August.

The last column in the table below gives the average results of five trials of these experiments; two of these trials were made by G. O. Weston, three of them were made on the College farm by students connected with the institution.

No. Exprm't.	Potatoes.	CONDITION OF EXPERIMENTS.	Large lbs.	Small lbs.	Total lbs.	Average result of five trials.
1	Seed end.	Potatoes divided through the centre and	9	4¼	13¼	15 2-5
	Butt end.	the product of the seed end and the butt	16½	3	19½	19 1-3
		end compared.				
2	Large potatoes.	Large, medium and small potatoes com-	8¾	1¾	10½	16 1-2
	Medium "	pared; the seed planted each year to be	5¼	2¼	7½	16
	Small	the product of potatoes of a like class.	5½	2½	8	10 1-2
3	Large potatoes.	Large, medium and small potatoes com-	6¾	1½	8¼	15 3-5
	Medium "	pared; the seed to be selected from an	8¾	4	12¾	15 2-5
	Small "	ordinary pile of potatoes.	10	2½	12½	15 1-4
4	6 inches.	The product of large potatoes compared,	12½	2½	15	16 3-4
	12 "	when planted six, twelve, eighteen and	10¾	1¾	12¾	16
	18 "	twenty-four inches apart.	11½	1½	13	12 1-2
	24 "		12½	2¾	15¼	15 4-5
5	Large potatoes	Equal weight, per acre, of large, medium	12	3¼	15¼	17 3-4
	Medium "	and small potatoes, planted at equal	11¼	5¼	16½	16 3-4
	Small "	distances.	9¾	5	14¾	17 1-2
6	2 inches.		11¾	3¼	15	13 1-2
	4 "	Seed planted on the surface and covered	14½	4¼	18¾	16 1-3
	6 "	to the depth of 2, 4, 6 and 8 inches.	13¾	2½	16¼	16 3-5
	8 "		15	2	17	16 1-6
7	2 inches.		9	2¼	11¼	13 2-5
	4 "	Seed planted below the surface 2, 4, 6 and	10¼	1¾	12	15
	6 "	8 inches, and covered to the same depth.	4½	¾	5¼	9 1-2
	8 "		3½	¾	4¼	9 1-2
8	One piece.	Medium potatoes cut to two parts and the	7½	2½	10	15 1-5
	Two pieces.	product of one part in a hill, compared	9¾	2¼	12	16 1-4
		with two parts in a hill.				
9	Whole potatoes	Medium potatoes planted whole, com-	6½	1	7½	12 1-8
	Cut to two eyes.	pared with the same cut to two eyes, and	8½	2	10½	11 1-4
		one piece planted in each hill.				
10	Flat hills	The amount of potatoes produced by plant-	9½	2	11½	15 1-5
	Pointed hills	ing in flat hills, compared with the amount	13	2½	15½	17 3-4
		produced from pointed hills.				
11	Small hills.	The product of potatoes planted in small	12¼	4¾	17	12 1-2
	Large hills.	hills, compared with the product of pota-	16¼	2½	18¾	16
		toes planted in large hills.				
12	One piece.	Large potatoes cut to two pieces, the pro-	8¾	1¼	10	21 3-8
	Two pieces.	duct of one piece in a hill compared with	10¾	2	12¾	22 1-8
		two pieces in a hill.				
13	Two stalks.	An equal number of eyes planted in each	9½	1¼	10¼	15
	Four stalks.	hill, and an unequal number of stalks	8½	2¼	10¾	17 1-6
	Six stalks.	allowed to grow.	10½	1¾	12¼	18
14	2 inches.	Seed planted at the ordinary depth, and	9¼	2¼	11½	-
	4 "	covered to the depth of 2, 4, 6 and	11½	5¼	16¾	-
	6 "	8 inches.	11¾	2¼	14	-
	8 "		12	2½	14½	-

Experiment in the use of Manures for top-dressing grass land.

The experimental plats are each two rods square, containing 1-40 of an acre; they are staked out in two rows, four in a row, and are separated from each other by a strip of land four feet wide, which received no manure. These plats are situated near the easterly corner of the farm, in a level field of heavy undrained clay soil. This field is one of the more recently cleared portions of the farm; it is in better condition than are the other unmanured fields, yielding on the average more than one ton of hay per acre.

The manures were first applied May 20th, 1873, and the grass was cut the second week in July.

In 1874, manures similar in kind and quantity to those used the previous year, were applied to the same plats May 22d; the grass was cut July 29th.

This year (1875) no top-dressing was used; the plats were mowed July 26th. The following are the results:

MANURE.	Rate per acre.	1873. Weight of Hay.	1874. Weight of Hay.	1875. Weight of Hay.
Cow manure	Five cords	63 lbs.	150 lbs	182½ lbs.
Horse manure	Five cords	71 "	127 "	152 "
Fine old muck*	Five cords	83 "	148 "	117 "
Fine old muck and salt	Muck, five cords / Salt, three bushels	73 "	121 "	108 "
Plaster	Two bushels	51 "	115 "	79 "
Wood ashes	Five bushels	81 "	97 "	103 "
Salt	Three bushels	87 "	92 "	101 "
Nothing	- -	87 "	88 "	88 "

* From a bed of swamp muck four feet in depth It had been exposed to the weather one year.

Experiment comparing the product of wheat sown broadcast by hand, with wheat sown in drills by a machine on plats of ground prepared in three different ways, viz: by pulverizer and harrow, by plow with subsoil attachment, by subsoil plow.

The plats were located in field No. 1, which lies along the town road next to the southerly line of the farm. The ground was broken from grass in September, 1873. In the spring of 1874 it was liberally dressed with manure from the horse stable and planted with potatoes, and was again plowed in October of the same year. Commencing on the south side of the field, six strips were measured off, each two rods wide and running from the town

road to a field of rutabagas on the east side of field No. 1. These parcels of land were numbered 1, 2, 3, 4, 5, and 6. Early in May 1875, Nos. 1 and 4 were plowed six inches deep with T. B. Hussey's A. 2, sward plow, with the subsoil attachment running five inches below the bottom of the furrow. A. Rigby's Subsoil Plow was run eleven inches deep through Nos. 2 and 5, and Nos. 3 and 6 received a thorough stirring with Share's Harrow and Nishwitz' Pulverizer. Four cords to the acre of cow manure were then spread over the surface and harrowed in with Share's Harrow. May 22d wheat was sown in drills at the rate of one and one-fourth bushels to the acre on Nos. 1, 2, and 3. The grain drill used was the Farmer's Favorite, loaned last year to the farm by J. S. Grant of Sidney.

Nos. 4, 5, and 6 were sown broadcast by hand, at the rate of two and one-half bushels to the acre, and covered with Share's Harrow. The drill was arranged to sow the grain three inches deep. The broadcast sown wheat was covered as evenly as it is possible to cover grain with a harrow, and it was left all the way from three inches deep to lying exposed on the surface. The soil was dry and light when the wheat was sown; it was made smooth and compact by drawing over it a heavy farm roller. After a few days a pouring shower of rain completely saturated the ground, causing the compacted, clayey particles of the soil to adhere, and as the surface of the field became dry it formed a coating of hard earth almost impervious to the growing wheat. As the drilled wheat was more deeply covered, it was especially effected by these unfavorable conditions. Some of it evidently did not break ground at all. Owing apparently to these circumstances, the drilled wheat was not in the early part of the season so forward and vigorous in its growth as was that sown broadcast. It, however, changed its appearance as the season advanced, and the results show that the unfavorable conditions were well overcome.

It occurred in another part of the field, that through want of care in arranging the feed of the machine, wheat was drilled on one-fourth of an acre at the rate of four bushels to the acre, an amount of seed per acre which probably no sane man would intentionally sow; while testing the results on the experimental plats, an equal plat was taken from this piece for comparison. It is marked No. 7.

To obtain plats for testing these different methods, lines two rods apart were run across the six before mentioned strips at right

angles with them, enclosing four square rods or one-fortieth of an acre from each of the experiments. These plats were reaped September 6th, put into stooks the next day, and when properly dry were housed. October 18th the wheat was threshed, winnowed and weighed, and the several results were noted:

Plat No. 1 yielded 73 pounds, equal to 48⅔ bushels to the acre.
" 2, " 68 " " 45⅓ " "
" 3, " 65½ " " 43⅔ " "
" 4, " 54 " " 36 " "
" 5, " 62 " " 41⅓ " "
" 6, " 73½ " " 49 " "
" 7, " 51 " " 34 " "

Average product of broadcast wheat per acre, 41.1 bush.
" " drilled " " 45.9 " nearly.

Farm Implements.

Generous donations of valuable farm implements have been made by several manufacturers. These friends will undoubtedly receive a partial return for their gifts, by the increased celebrity their wares will acquire through the attention given to them at the farm by students and interested visitors.

Early in May, in season to use for the spring plowing, T. B. Hussey of North Berwick, sent three plows of his own make, and no charge. They were a No. 10 one-horse plow, a No. 15 light two-horse plow, and an A 2 sward plow with subsoil attachment. These plows are of good material, well put together, and are favorites in the field. The one-horse plow and the plow with subsoil attachment, are very acceptable, since they meet a want not before supplied.

A side-hill plow may at first thought seem to be a useless implement on this farm, whose fields have only level or undulating surfaces. Yet a Charter Oak Swivel Plow, presented by Hon. Fred Atwood for the Higganum Manufacturing Co., has rendered us good service. It completely inverts the furrow, even when turning it up a slight inclination, and is particularly useful in plowing fields where we wish to avoid a dead furrow. The peculiar form of the mold board, together with the hinged joint and sliding brace, by which it is attached to the share, enable the operator to adapt the plow to furrows of different widths and depths, and to fields of various surfaces.

The subsoil plow presented by A. Rigby of Upper Stillwater, is a recent invention which seems worthy to come into general use. It is light, strong, easily managed, and designed to run at any reasonable depth. It lifts and loosens the soil without inverting it, and hence may be used on greensward as well as on plowed land. From the rear end of the share, which is twelve inches wide, are finger-like projections, that increase its pulverizing action. We used it in preparing ground for sugar beets and rutabagas. We have no other implement that, with an equal expenditure of power, will so completely loosen the soil to the same depth as will this plow.

The gift of a Powell's Wheel Harrow and Grain Coverer, by the National Wheel Harrow Co. of Burlington, Vt., afforded our first opportunity to use a harrow so contrived as to be under control of the driver, who rides at his ease on a comfortable spring seat while he directs the working of the implement and the movements of his team. The construction of the teeth is such that they will pass over roots, stones and other obstructions, without dragging them along, and will cut into the soil, throw up and leave it light and smooth. An arrangement for controlling its cutting depth in the soil, gains an important point in covering grain. Any one who has walked over the uneven surface of plowed fields by the side of an old fashioned harrow, will appreciate an invention that converts a wearisome task into a comfortable ride and brings the harrow under perfect control. There is need to improve the form of the teeth The extreme of the wing, as it projects to the rear, is turned forward too abruptly, and in moist, clayey soil it becomes clogged. Were a longer and more gradual sweep given to this part of the tooth, it would, without detracting from its efficiency in any soil, remove a defect which gave us much annoyance.

We are pleased to acknowledge the gift of a Yankee Horse Rake from the inventor and maker, Charles G. Allen of Barre, Mass. Good workmanship, strength and durability of parts, simplicity of arrangement, ease of control, and ability to do neat and rapid work, are claimed for the rake. Having used it enough to test it merits, we do not hesitate to allow the claim. The parts of this rake are so arranged that the driver operates the holding and tripping gear with his feet, which leaves his hands entirely free for driving the horse. First impressions gained from actual trial of the rake were not altogether favorable, since the pressure required on the foot piece of the tripping arrangement is so slight, that a

careless movement of the foot would sometimes bring the gear into instant action, and leave the hay in undesirable places. Further experience in its use, however, convinced us that the exceptionably prompt and easy action of its parts is a desirable feature, since it not only serves to keep the driver on the alert, but also enables him to do very thorough and accurate work.

Farm Crops.

The land under cultivation was apportioned to the several crops as follows. The areas are given in acres and tenths of an acre:

Potatoes,	3 8	acres,	yield	430 bushels.
Barley,	3.2	"	"	83 "
Barley, mown for fodder,	2.7	"	"	2 tons.
Wheat, Lost Nation,	3.4	"	"	66 bushels.
Oats,	1.2	"	"	36 "
Beets, for stock,	1.4	"	"	483 "
Rutabagas,	1.2	"	"	516 "
English turnips,	0.5	"	"	172 "
Beans,	0.5	"		not yet threshed.
Fodder corn,	1 0	"	"	light.
Millet,	0.9	"	"	excellent.
Strawberries,	0.3	"	"	fair.
East garden,	0.9	"	Garden vegetables.	

South garden, 1.5 acres, Garden vegetables and small fruits.

The crops harvested from these fields are quite satisfactory. While few, if any of them, could take first rank as *premium* crops, they each give fair returns for the expense incurred in their cultivation.

Most of the potatoes were grown on land lying in the rear of the Laboratory. This is a clayey field, part of which is quite level and not properly drained. The seed planted in some low places was rotted by standing water. The vines were killed by rust about the first of September, consequently the potatoes were not of large size, and there was an undue proportion of small ones. The quality, however, was good, and the number of bushels harvested quite satisfactory. The principal varieties planted were Orono, Excelsior and Early Rose.

Two and seven-tenths acres of barley were sown on the slope of old pasture land west of the new barn. The soil is heavy clay

and is kept moist by several springs which break out from the underlying ledge. This ground, with the exception of a small part of it, was plowed six inches deep the previous autumn, for the first time in many years. In the spring it was prepared for the crop by thoroughly breaking the surface with pulverizer and harrow and spreading a light dressing of cow-manure. Just as the kernel of the growing barley began to form, the leaves and straws were discolored by rust to a degree that indicated a yield of only inferior or worthless grain; it was, therefore, immediately mowed and dried to make fodder for winter use. Of the remaining three and two-tenths acres sown to barley, nine-tenths of an acre was old green sward plowed the fall before and in the spring well enriched with manure from the cow stable, while two and three-tenths acres were level clay loam, planted last year to potatoes, and this year dressed with a light coat of manure spread on the furrows before the land was harrowed down to prepare it for the barley.

Field No. 1, on which the wheat grew, has an undulating well drained surface and a good clayey loam soil. It was broken from green sward in '73 and in '74 was well manured and planted to potatoes, turnips and cabbages. A fair quantity of manure was again spread on the surface and harrowed in before it was sown to wheat. As elsewhere stated, the part devoted to the experimental plats were sown May 22d, one-half the remainder was sown June 1st, and the other half June 12th. The average yield of the experimental plats was 42.5 bushels per acre, while the average yield from the whole field was only 19.4 bushels to the acre. This marked difference arises from several conditions. The six strips of land selected and plowed as described in th experiment were located in the best part of the field, where the soil is drier and more favorable to the growth of wheat than are the other parts of the field. The lines also which marked out the test plats enclosed the best portions of these strips. An open ditch, eighteen rods long, made to drain the north end of the field, takes something from its actual growing surface. The experimental strips were the earliest sown and did not suffer from the weevil; while the later sown wheat was much injured, and that sown June 12th was nearly half destroyed by this enemy.

The crop of oats was not so great as the character of the soil (which was a dry, gravelly loam,) and the liberal dressing of

manure given to it, led us to expect. There was a heavy growth of straw, but the oats were light and of inferior quality.

One acre of the beets grown for stock was in the north garden, which is a dry, light loam. The other four-tenths of an acre was a dry, gravelly soil near the north line of the farm, and its crop was so near a failure that only twenty-five bushels were gathered from the piece. Most of the beets grown are Lane's Improved Sugar Beet. Although these do not produce so many bushels to the acre as do the Norbitan Giant and some other varieties of the Mangel Wurzels, yet we think them superior for feeding purposes. They contain more nutrition in proportion to the weight, and are eaten with greater relish by neat stock and swine.

The rutabagas were grown on the western part of field No. 2, lying on a low ridge which runs northerly from the south line of the farm. These roots are of good size, smooth and fair. That they are of finest quality, the number of bushels sold for table use fully attests. The apparently light returns from this field and from that sown to beets, may partly result from our system of measuring, which is to gather the roots from heaps in the field into barrels, in which they are carried to the cellar, and each full barrel is reckoned to hold two bushels.

The English turnips were sown in July, on vacant spots in the cultivated fields and outlying patches of land, more to subdue and enrich these neglected places, than from any expectation of actual profit to be gained from a crop that is at best only inferior for feeding purposes. Wood ashes, dissolved bone and superphosphate were sown on parts of these for comparison, with results decidedly in favor of superphosphate.

The growth of fodder corn was light. The yield of millet was abundant. The experience of several years seems to indicate that millet is more profitable to grow on this farm for soiling purposes than is fodder corn.

The East Garden was devoted to cabbages of many varieties, early beets, cucumbers, squashes, experimental fodder corn, and one hundred varieties of potatoes. The South Garden contains the nursery of apple trees, Kitatinny and early Wilson blackberries, black and red raspberries, some thirty flowering shrubs intended for the college grounds, a bed of asparagus, another of rhubarb, currant and gooseberry bushes, and twenty fine apple trees in bearing. The area not thus occupied was planted to early corn, peas, beans, squashes, melons, tomatoes, beets and carrots.

Improvements.

Within the past five years nearly all the mowing fields on the "White farm" have been put under the plow and brought to a good condition of fertility. The same is true of the "Frost farm," with the exception of some acres in the vicinity of the college buildings. The average quality of the hay steadily improves as the old worn-out fields are thus enriched and rendered productive. One hundred tons of excellent hay have been housed in prime condition. This is nearly up to the quantity required to feed what stock the new barn will accommodate, together with the sheep and horses that are at present kept in the old buildings near the farm-house. It is very important that something be done to improve the pasture lands. There are many acres of wild rough land now growing only worthless bushes and weeds, which might be made to yield an abundance of rich succulent grasses for summer feeding. The cost of the grain we are now obliged to feed to the milch cows during the summer months, increases in no small degree the running expenses of the farm. A moderate outlay made in the direction indicated would permanently reduce this drain upon our funds and prove to be a profitable investment. During the past two years we have built two hundred and five rods of cedar "stake and bunk" fence, and two hundred and seventeen rods of board fence, (nearly one and one-third miles in all,) to enclose our enlarged pasture grounds. About one-half of this is of new material obtained by purchase.

The low, narrow swale running from the south line of the farm to and through the south end of the college lawn, has long been a source of annoyance to us and of surprise to visitors, because of its prominence and unsightliness, lying as it does directly across the line of travel to the college buildings and the new barn. During the fall term an open ditch, with sloping sides, from three to four feet deep, was dug through this swale from the culvert of the new road to the barn, to the college road, a distance of eight hundred feet. When completed, this ditch will effectually drain a piece of land hitherto producing nothing of value.

The labor required for these and many other improvements, and for all the operations of the farm is, with inconsiderable exception, performed by the students and the regular farm assistants. The students are generally well disposed, industrious and gentlemanly.

They show a commendable interest in their work, and a desire to gain practical knowledge of farming operations.

The new barn continues to receive close and interested attention from many visitors. It is but just to say that it fully meets our reasonable expectations, and leaves little to be desired in the way of convenience and comfort.

Farm Stock.

There are thirty-three head of cattle on the Farm at the present time, as may be seen by the list given below. Five grades and one thoroughbred (the Jersey bull calf Prince,) have been sold for $342, seven dollars more than their estimated value in the report of last year. The decrease in the aggregate value of the stock as compared with last year, is due partly to the general shrinkage in prices—partly to the fact that nearly all the animals sold had fully grown and had reached their highest value, while their places are filled by young animals, (the natural increase of the stock,) which will rapidly increase in value,—and partly to the loss of the best two bulls in the herd, the Jersey bull Butternut and the shorthorn bull Napoleon. The former, although a very handsome animal, having been very uncertain as a stock getter, was slaughtered. The shorthorn bull died of an unknown disease that appeared to be an affection of the salivary glands.

Names and Value of Stock on Farm of Maine State College.

Neat Stock.

Shorthorn cow Cornelia, 9 years old	$150 00
" heifer Duchess of Lakeside, 3 years	150 00
" " Cornucopia, 1 year	100 00
" " Duchess of Mains, 1 year	100 00
" bull calf, Napoleon, 2nd, 1 month	75 00
Ayrshire bull Mains, 5 years	100 00
" cow Olee, 4 years	200 00
" " Isabel, 5 years	175 00
" calf Olivia, 1 year	100 00
" heifer calf Olecanne, 2 months	60 00
Jersey cow Hebe, 9 years	250 00
" " Pride of Lachine, 6 years	200 00
Heifer calf Hepsy, 1 year	150 00

Bull calf Harry, 3 months	$35 00
Bull calf Paturnus, 2 months	28 00
Grade Shorthorn cow Dora, 5 years	80 00
" " heifer Nell, 2 years	60 00
" " " Maggie 2d, 2 years	60 00
" " " Tilly, 2 years	55 00
" " " Dorothy, 1 year	38 00
" " " Maggie 3d, 1 year	35 00
" " " Dot, 1 year	30 00
Grade Jersey cow Joanna, 10 years	60 00
" " Maggie, 6 years	80 00
" " Topsy, 5 years	100 00
" " Susan, 5 years	65 00
" heifer Gipsey, 3 years	80 00
" cow Dinah, 5 years	55 00
" heifer Millie, 2 years	55 00
" " Marilla, 2 years	60 00
" " May, 1 year	40 00
" " calf Tina, 3 months	15 00
" " " Totsy, 3 months	30 00

HORSES.

Dick, 11 years old	$225 00
Louis, 10 years	200 00
Robin, 8 years	250 00
Nell, 9 years	300 00

SWINE.

2 Yorkshire	40 00
3 White Chester breeding sows	90 00
1 Boar, "Jackson"	30 00
2 Shotes	20 00
1 Store Hog	20 00

SHEEP.

6 Grade South Down ewes	40 00
11 " Cotswold ewes	35 00
8 " " ewe lambs	44 00
1 South Down ewe	8 00
1 Cotswold ewe	8 00
1 " buck	20 00
	$4,201 00

INVENTORY OF FARM TOOLS AND EQUIPMENTS.

1 Sward Plow with Subsoil Attachment.
1 Subsoil Plow.
4 Sward Plows.
4 Stubble Plows.
1 Charter Oak Swivel Plow.
1 Light one-horse Plow.
1 Garden Plow.
1 Furrow Plow.
1 French's Cultivator.
1 Nichwitz' Pulverizer.
1 Share's Coulter Harrow.
2 Scotch Harrows.
1 Chase Revolving Tooth Harrow.
1 Powels' Wheel Harrow and Grain Coverer.
1 Chandler's Improved Horse Hoe.
1 Share's Horse Hoe.
1 Farm Roller.
1 Farm Scraper.
3 Stone Drags.
1 Clipper Mower.
1 Warrior Mower.
1 Superior Hay Spreader.
1 Bay State Horse Rake.
1 Yankee Horse Rake.
1 Whittemore's Horse Rake.
1 Whitcomb's Horse Rake.
20 Long Handle Shovels.
7 Short Handles.
3 Long Handle Garden Spades.
2 Short Handle Garden Spades.
8 Spading Forks.
8 Manure Forks.
3 Garden Trowels.
18 Garden Hoes.
5 Potato Diggers.
1 Grubbing Hoe.
4 Garden Rakes.
18 Grass Scythes.
10 Scythe Snaths.
1 Grain Scythe.
3 Bush Scythes.
28 Hay Rakes.
3 Drag Rakes.
22 Hay Forks.
1 Hay Knife.
1 Hay and Straw Cutter.
1 Fanning Mill.
1 Root Cutter.
8 Potato Baskets.
15 Wooden Pails.
20 Grain Bags.
1 Steelyard.
1 Beam Scales.
1 Fairbanks' Platform Scales.
3 Wheelbarrows.
2 Grindstones.
1 Jackscrew.
4 Clay Picks.
4 Gravel Picks.
2 Iron Bars.
2 Steel Bars.
2 Cant Dogs.
1 Queen of Harvest Separator.
1 Patent Wain Jack.
2 Two-horse Hay Racks.
1 Two-horse Farm Wagon.
1 Two-horse Farm Jigger.
3 Two-horse Farm Carts.
1 One-horse Express Wagon.
1 One-horse Riding Wagon.
1 One-horse Pung.
2 Two-horse Logging Sleds.

FARM TOOLS AND EQUIPMENTS—Concluded.

1 Two-horse Wood Sled.
1 One-horse Wood Sled.
2 Double Team Harnesses.
1 Single Team Harness.
1 Carriage Harness.
5 Sets Double Whiffletrees and Chains.
4 Crotch Chains.
3 Logging Chains.
2 Draft Chains.
1 set Tag Chains for Logging.
6 Head Halters.
5 Surcingles.
1 Spring Scales.
1 Pick Handspike.
3 Stone Hammers.
6 Chopping Axes.
2 Broad Axes.
3 Hand Axes.
4 Nail Hammers.
4 Jack Planes.
2 Jointing Planes.
1 Smoothing Plane.
6 Mortise Chisels.
8 Horse Blankets.
3 Paring Chisels.
2 Bitstocks.
1 Set Auger Bits.
1 Extension Bit.
3 Handsaws.
1 Splitting Saw.
1 Fine Saw.
1 Pruning Saw.
1 Cross-cut Saw.
6 Wood Saws.
1 Meat Saw.
2 Carpenters' Squares.
1 Try Square.
1 Carpenter's Bevel.
1 Draw Shave.
1 Spoke Shave.
1 Saw Sett.
1 6-8 inch Gauge.
1 Eagle Pruning Tool.
1 Ralph's Oneida Cheese Vat.
1 Ralph's Cheese Press and Equipments.
1 Lactometer.
2 Milk Testing Tubes.

J. R. FARRINGTON, *Farm Superintendent.*

TREASURER'S REPORT.

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

GENTLEMEN:—The following exhibit will show the Receipts and Expenditures of the College for the past year:

GENERAL ACCOUNT.

1874.	RECEIPTS.	
Nov. 17,	Balance on hand, per Treasurer's last report	$650 54
1875.		
Mar. 29,	Legislative appropriation	10,500 00
Nov. 15,	Interest on bank deposits	24 50
		$11,175 04
1874.	EXPENDITURES.	
Nov. 19,	Paid M. C. Fernald, apparatus	$450 00
Nov. 21,	J. R. Farrington, farm purposes	250 00
1875.		
Jan. 4,	J. S. Kimball, insurance	112 91
Mar. 18,	D. M. Howard, "	495 32
Mar. 29,	P. M. Blake, "	174 00
April 6,	Seth Emery, express sled	50 00
April 6,	Benjamin Adams, repairs express wagon	13 25
April 7,	J. S. Kimball, insurance	40 00
April 14,	Wiggin & Chaplin, insurance	174 00
April 22,	S. F Dike, expenses as trustee	59 55
	W. P. Wingate, services and expenses since Jan. 25, 1872	196 60
April 23,	J. R. Farrington, to pay college debts	2,000 00
April 24,	F. M. Sabine, insurance	203 30
	M. C. Fernald, periodicals	50 00
May 3,	L. Oak, expenses as trustee	55 90
	W. H. Pennell & Co., repairs of boiler &c	95 64
	S. Richardson & Co, baking apparatus	88 00
May 8,	J. R Farrington, to pay college debts	2,000 00
May 27,	S. L. Boardman, expenses as trustee	27 60
Aug. 16,	J. R. Farrington, farm purposes	500 00
Oct. 29,	J. R. Farrington, "	300 00
Nov. 15,	A. W. Reed, horse and express wagon	226 31
		$7,562 38

Congressional Endowment Fund.

	RECEIPTS.	
1874.		
Dec. 3,	Interest on State of Maine bonds	$2,145 00
1875.		
Jan. 4,	Interest on city of Bangor bonds	180 00
Jan. 6,	" preferred stock St. P. & S. C. R. R	200 00
Mar. 2,	" State of Maine bonds	90 00
Mar. 22,	" State of Maine bonds	900 00
May 3,	" preferred stock St. P. & S. C. R. R	100 00
May 5,	" State of Maine bonds	417 00
June 18,	" State of Maine bonds	2,145 00
July 1,	" city of Bangor bonds	180 00
July 7,	" preferred stock St. P. & S. C. R. R	101 00
Sept. 7,	" State of Maine bonds	990 00
Oct. 6,	" preferred stock St. P. & S. C. R. R	102 01
Oct. 17,	" State of Maine bonds	417 00
		$7,967 01
	EXPENDITURES.	
1874.		
Nov. 19,	Paid W. A. Pike, three months' salary	$450 00
	A. B. Aubert, do do	375 00
	G. H. Hamlin, balance due on salary	150 00
Nov. 24,	C. H. Fernald, three months' salary	375 00
Dec. 1,	C. F. Allen, do do	500 00
Dec. 1,	M. C. Fernald, do do	450 00
Dec. 2,	W. S. Chaplin, do do	375 00
1875.		
Jan. 11,	J. R. Farrington, do do	225 00
Feb. 19,	C. W. George, do do	100 00
Feb. 27,	W. A. Pike, do do	450 00
	A. B Aubert, do do	375 00
	George H. Hamlin, salary	200 00
Mar. 3,	C. H. Fernald, part of salary due	200 00
Mar. 6,	W. S. Chaplin, do do	100 00
Mar. 27,	W. S. Chaplin, balance due on salary	275 00
Mar. 30,	C. F. Allen, three months' salary	500 00
	M. C. Fernald, do do	450 00
	C. H. Fernald, balance due on salary	175 00
April 3,	A. B. Aubert, part of salary	225 00
April 14,	J. R. Farrington, three months' salary	225 00
April 17,	W. A. Pike, part of salary	250 00
	George H. Hamlin, balance due on salary	50 00
April 22,	C. W. George, three months' salary	100 00
May 29,	C. H. Fernald, do do	375 00
	M. C. Fernald, do do	450 00
	A. B. Aubert, balance due on salary	150 00
	W. A. Pike, do do	200 00
	G. H. Hamlin, three months' salary	250 00
June 2,	W. S. Chaplin, do do	375 00
June 2,	C. F. Allen, do do	500 00
July 15,	J. R. Farrington, do do	225 00
July 17,	A. B. Aubert, on account salary	225 00
July 31,	W. A. Pike, do do	125 00
Aug. 10,	G. H. Hamlin, do do	200 00
Aug. 16,	Daniel Tibbetts, three months' salary	100 00
Aug. 28,	C. H. Fernald, do do	375 00
Sept. 11,	M. C. Fernald, do do	450 00
	W. A. Pike, balance due on salary	325 00
	W. S. Chaplin, three months' salary	375 00
	A. B. Aubert, balance due on salary	150 00
	C. F. Allen, three months' salary	500 00
Sept. 11,	G. H. Hamlin, balance due on salary	50 00
Oct. 15,	J. R. Farrington, three months' salary	225 00
Nov. 6,	Daniel S. Tibbetts, do do	100 00
Nov. 13,	A. B. Aubert, do do	375 00
		$12,675 00

SUMMARY.

RECEIPTS.		
GENERAL ACCOUNT.		
Balance per Treasurer's report of Nov. 17, 1875	–	$650 54
Legislative appropriation	–	10,500 00
Balance interest on bank deposits	–	24 50
		$11,175 04
ENDOWMENT FUND.		
Interest on State of Maine bonds	$7,104 00	
Interest on other securities	863 01	
		$7,967 01
Balance due Treasurer, carried to new *General Account*	–	1,095 33
		$20,237 38
EXPENDITURES.		
GENERAL ACCOUNT.		
Payment of College debts under supervision of Trustees	$4,000 00	
Apparatus	450 00	
Farm products	1,050 00	
Insurance	1,199 53	
Expenses of Trustees	339 65	
Baking apparatus	88 00	
Horse and wagon	226 31	
Periodicals, repairs and incidentals	208 89	
		$7,562 38
ENDOWMENT FUND.		
Salaries of Teachers, Farm Superintendent and Assstant	–	12,675 00
		$20,237 38

It will be seen that the expenditures have exceeded the receipts $1,095.33 on bills already paid.

The income for the ensuing year from the college funds may be estimated at $7,864.

A balance of $50 of the Coburn Library Fund is unexpended and is in the hands of the Treasurer.

Respectfully submitted.

ISAIAH STETSON, *Treasurer.*

NOVEMBER 17, 1875.

DONATIONS.

To the Library.

45 volumes from Estate of Rufus Dwinell.
25 " " Hon. H. Hamlin.
8 " " Hon. S. L. Boardman.
4 " " Prof. A. B. Aubert.
2 " " Col. C. H. Foster.
1 " " Prof. Hitchcock.
1 " " Rev. H. C. Leonard.
1 " " E. P. Butler.
41 " " State Library.
3 " " Smithsonian Institute.
4 volumes and 3 Nos. of Statistical Charts, Department of Interior.

To the Cabinet.

Collection of Minerals from G. M. Fillebrown.
" " Edmund Abbott.
" Fossils, Fred W. Holt.
" Birds' Eggs, R. S. Howe.
" Insects, G. E. Brackett.
Specimens Silver Ore, Charles Mitchell.
Prairie Rattle Snake, C. B. Kennedy.

CATALOGUE

OF THE

OFFICERS AND STUDENTS

OF THE

Maine State College of Agriculture and the Mechanic Arts,

Orono, Me., 1875-6.

FACULTY.

REV. CHARLES F. ALLEN, D. D., President and Professor of English Literature, Mental and Moral Science.
MERRITT C. FERNALD, A. M , Professor of Mathematics and Physics.
ALFRED B. AUBERT, B. S., Professor of Chemistry.
WILLIAM A. PIKE, C. E., Professor of Engineering.
CHARLES H. FERNALD, A. M., Professor of Natural History.
WINFIELD S. CHAPLIN, Professor of Modern Languages and Mechanics, and Military Instructor.
GEORGE H. HAMLIN, C. E., Assistant Professor of Engineering.
JOSEPH R. FARRINGTON, Farm Superintendent and Instructor in Agriculture.
G. M. FILLEBROWN, Steward.
PROF. W. A. PIKE, Secretary.
PROF. G. H. HAMLIN, Librarian.

STUDENTS.

SENIOR CLASS.

Abbott, Edmund.....Winterport.
Allen, Charles Plummer.....Presque Isle.
Beckler, Eldridge Harlow.....Livermore Center.
Bisbee, Fred Milton.....Livermore Center.
Blanding, Edward Mitchell.....Saco.
Brainard, Charles Marcellus.....Skowhegan.

SENIOR CLASS—CONCLUDED.

Buker, George Haskell.....Castine.
Cowan, Florence Helen.....Orono.
Grosby, Oliver.....Dexter.
Cyr, Vetal.....Fort Kent.
Dike, James Edward.....Sebago.
Dike, Willis Oliver.....Sebago.
Estabrooke, Horace Melvyn.....Linneus.
Farrington, Arthur Manly.....Orono.
Foss, George Obed.....Dexter.
Haines, William Thomas.....West Corinth.
Hamilton, Henry Fairfield.....Saco.
Haskell, Newall Prince.....New Gloucester.
Hubbard, Philip Wadsworth.....Hiram.
Jones, Samuel Messer.....Madison.
Lewis, Albert Augustus.....Orono.
Long, Herbert Augustine.....Machias.
Lothrop, Luther Ramsdell.....Leeds.
Martin, Nelson Hussey.....Linneus.
Moody, George Jameson.....South Windsor.
Oak, Charles Edson.....Garland.
Parks, George Daniel.....Richmond.
Peirce, Hayward.....Frankfort.
Reed, Frank Radford.....Roxbury.
Reynolds, Henry Jones.....Dennysville.
Rogers, Charles Wilson.....Richmond.
Stevens, William Lewis.....West Waterville.
Williams, John Howard.....Orono.

JUNIOR CLASS.

Blackinton, Alvah De Orville.....Rockland.
Burns, Robert Bruce.....Fort Fairfield.
Danforth, Edward Franklin.....Norridgewock.
Elkins, Augustus Jerome.....Oldtown.
Emery, Alicia Town.....Orono.
Gould, Samuel Wadsworth.....Hiram.
Harvey, Austin Irving.....Carmel.
Lunt, Joseph Coney.....Benton.
Mallett, Fred Bartlett.....Fort Kent.
Phillips, Fred Foster.....Hermon.
Shaw, Samuel.....Augusta.
Stone, Frank Pierce.....Livermore Falls.
Stevens, Thomas Jefferson.....Auburn.
Sturgis, George Eugene.....Vassalboro'.
Towne, Charles Elmer.....East Dover.
Townsend, Henry Clay.....Fort Fairfield.
Webb, Clara Ella.....Unity.
Weeks, James Walter.....Castine.
Weeks, Nellie Estelle.....Orono.
Wiggin, Fred Sumner.....Fort Kent.

SOPHOMORE CLASS.

Brown, Emma ..... Orono.
Caldwell, Andrew James ..... Orono.
Chamberlain, Cecil Calvert ..... Foxcroft.
Crocker, Appleton ..... West Enfield.
Fernald, George Everett ..... South Levant.
Hartwell, Howard Hampson ..... Fox Island.
Heald, James ..... Orono.
Howe, Richard Scrope ..... Fryeburg.
Leathers, Alvra Willis ..... Dover.
Locke, John Jr ..... Fryeburg.
Miller, Silas Niles ..... Orono.
Oakes, Frank Judson ..... Oldtown.
Patterson, John Cameron ..... Dexter.
Perkins, Frank Judson ..... Oldtown.
Plumly, Charles Fremont ..... Lincoln.
Richardson, John Oakes ..... Oldtown.
Tripp, Winfield Eastman ..... Lyman.
Walker, Edward Colby ..... Fryeburg.
Warriner, Edson ..... Fryeburg.
Webster, Ivan Eldorus ..... Orono.
Webster, Otis Colby ..... Augusta.
Weeks, Erastus Gilmore ..... Jefferson.

FRESHMAN CLASS.

Allison, Daniel ..... Linneus.
Bean, Henry Percy ..... Bangor.
Blake, Edward Josiah ..... North Bridgton.
Brown, Arthur Prentiss ..... Orono.
Colburn, Fred Alden ..... Orono.
Cousens, James William ..... Stillwater.
Curtis, John Andrew ..... Bowdoin.
Cutter, John Dana ..... Brewer.
Decker, Wilbur Fisk ..... Bowdoinham.
Decrow, David Augustus ..... Bangor.
Emerson, Fred A ..... Veazie.
Ferguson, Willis Edwin ..... Bangor.
Gibbs, Charles Wingate ..... Glenburn.
Goodale, Loomis Farrington ..... Bangor.
Gould, Annie May ..... Stillwater.
Hawes, Edwin Augustus ..... Riverside.
Holt, Nellie Maud ..... Orono.
Johnson, Edward Clinton ..... Gorham.
Jones, Oliver S ..... Corinna.
Kidder, Frank Eugene ..... Bangor.
Knapp, John N ..... Bradley.
Loring, Charles Sewall ..... Phipsburg.
Merrill, Albert Young ..... Orono.
Moore, Arthur Lee ..... Limerick.
Morse, Charles Adelbert ..... Bangor.

FRESHMAN CLASS—CONCLUDED.

Morton, Asa Croxford	Bangor.
Peaks, Henry Wilson	Charleston.
Potter, Fred David	Waldoboro'.
Titus, William Nelson	Alna.
Warren, George Otis	Fryeburg.
Webster, Herbert	Orono.
Webster, Howard Elmer	Orono.
Wellington, Arthur Lee	Fort Fairfield.
Wilson, Chester Miller	Orono.
Vinal, Percia Ann	Orono.

SPECIAL COURSE.

Dakin, Eugene Herbert	Bangor.
Dustin, George A	Dexter.
How, Edward Stevens	Portland.
Plummer, David Smyth	Winterport.
Lunt, James	Bangor.

SUMMARY.

Seniors	33
Juniors	20
Sophomores	22
Freshmen	35
Special Course	5
Total	115

OFFICERS OF THE COLLEGE MILITARY COMPANIES.

Company A—Captain, W. L. Stevens; 1st Lieutenant, J. E. Dike; 2d Lieutenant, G. H. Buker. Company B—Captain, N. P. Haskell; 1st Lieutenant, H. Peirce; 2d Lieutenant, G. D. Parks.

PRIZES.

SOPHOMORES,—For excellence in Declamation, to E. F. Danforth.
JUNIORS,—For best Essay, to H. M. Estabrooke.

DESIGN OF THE INSTITUTION.

It is the design of the MAINE STATE COLLEGE OF AGRICULTURE AND THE MECHANIC ARTS, to give the young men of the State who may desire it, at a moderate cost, the advantages of a thorough, liberal and practical education. It proposes to do this, by means of the most approved methods of instruction, by giving to every young man who pursues the course of study, an opportunity practically to apply the lesson he learns in the class-room, and by furnishing him facilities for defraying a part of his expenses by his own labor.

By the act of Congress donating 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 course of study fully meets this requisition, and is especially adapted to prepare the student for agricultural and mechanical pursuits, it is designed that it shall be also sufficiently comprehensive, and of such a character as to secure to the student 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, History of the United States, Algebra as far as Quadratic Equations, and five books in Geometry.

Although the knowledge of Latin is not required as a condition of admission, yet the study of that 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.

COURSE OF INSTRUCTION.

Five full courses are provided, viz: A course in Agriculture, a course in Civil Engineering, a course in Mechanical Engineering, a course in Chemistry, and an Elective course. The studies of the several courses are essentially common for the first two years.

Branches marked thus, (E) are Elective, and from them students may select, with the advice of the Faculty, to make up the required number (three) of daily exercises.

There will be regular exercises during the four years in English Composition, Declamation, and Military Tactics. Lectures will be given to the Freshmen Class, on Physics, Meteorology, Physical Geography and Botany. To the Sophomore Class, on Chemistry, Horticulture and Practical Agriculture. To the Junior Class on Anatomy, Physiology, Astronomy and English Literature. To the Senior Class, on Rural Law, Mineralogy, Geology, Stock Breeding, Cultivation of Grasses and Cereals.

Elective Course. Students in the Elective Course will pursue the required studies common to all the other courses, and may select from other courses and the elective studies, to make up their full course.

Special Course. Students may be received for less time than the full course, and may select from the studies of the first, second or third term of any year, such branches of study as they choose, provided they are qualified to pursue them successfully.

Students in the Special Course will not be entitled to a Degree, but certificates of proficiency may be given them.

Degrees Conferred. The full course in Civil Engineering entitles to the Degree of Civil Engineer; the full course in Mechanical Engineering to the Degree of Mechanical Engineer; the full course in Agriculture, in Chemistry, or the full Elective Course, to the Degree of Bachelor of Science.

First Year—*First Term.* Physical Geography, Guyot; Meteorology; Algebra, Robinson; Rhetoric, Haven.

Second Term. Physics, Ganot; General Properties of Bodies, Hydrostatics, Pneu-

matics, Acoustics; Algebra, Robinson; Botany, Gray; Book-keeping and Commercial Forms.

Third Term. Physics, Ganot; Heat, Light, Electricity; Geometry, Chauvenet; Botany, Gray; Horticulture.

SECOND YEAR—*First Term.* Chemistry, Miller; Trigonometry, Chauvenet; (E.) Navigation; Botany, Gray; Horticulture; Elements of Agriculture, Waring.

Second Term. (E.) Chemistry, (qualitative analysis); (E.) History of France; English Literature; French, Magill; Free Hand Drawing; Mechanical Drawing.

Third Term. (E.) Chemistry, (qualitative analysis); (E.) English Literature; Surveying, Gillispie—with chain, with compass, computing areas, dividing land, leveling, Topographical Drawing; French, Magill.

THIRD YEAR—COURSE IN AGRICULTURE. *First Term.* Human Anatomy, Physiology and Hygiene, Dalton; Agricultural Chemistry; French, Smith; (E.) History of England.

Second Term. Zoology; Farm Implements; Mechanical Cultivation of the Soil; Farm Drainings, Waring; (E) German.

Third Term. Mechanics, Peck; Dairy Farming, Willard; Entomology; (E) Logic; (E.) German.

COURSE IN CIVIL ENGINEERING.—*First Term.* Human Anatomy, Physiology and Hygiene, Dalton; Analytical Geometry, Loomis; Engineering—Henck's Field Book, Survey of Roads and Railways; Computation of Earthwork and Masonry; Mechanical Drawing; French, Smith.

Second Term. *(E.) Zoology; Differential Calculus, Loomis; Descriptive Geometry, Warren; Mechanical Drawing; Engineering, Rankine—Construction of Roads, Railways and Canals; Hydraulics; (E.) German.

Third Term. Integral Calculus, Loomis; Descriptive Astronomy, White—the Earth, the Sun, the Moon, Gravitation, Planets, Comets, Nebulæ; Descriptive Geometry, Warren; Mechanics, Rankine; Drawing—Plans, Profiles, Elevations, Sections, &c.; (E.) German.

COURSE IN MECHANICAL ENGINEERING.—*First Term.* Human Anatomy, Physiology and Hygiene, Dalton; Analytical Geometry, Loomis; Elements of Mechanism, Goodeve; Mechanical Drawing; French, Smith.

Second Term. (E) Zoology; Differential Calculus, Loomis; Descriptive Geometry, Warren; Machinery and Millwork, Rankine; Mechanical Drawing; (E) German.

Third Term. Integral Calculus, Loomis; (E.) Descriptive Astronomy, White; Descriptive Geometry, Warren; Machinery and Millwork, Rankine; Mechanical Drawing; (E.) German.

COURSE IN CHEMISTRY.—*First Term.* Chemistry—Analytical and General; Human Anatomy; French.

Second Term. Chemistry; Zoology; German.

Third Term. Chemistry; (E.) Entomology; (E) Logic; German.

FOURTH YEAR—COURSE IN AGRICULTURE. *First Term.* Comparative Anatomy; Stock Breeding, Goodale; Sheep Husbandry, Randall; Veterinary Art; (E.) German; (E.) History of Civilization.

Second Term. Constitution of the United States; Mineralogy, Dana; Cultivation of the Cereals; Landscape Gardening, Kemp; Rural Architecture; (E.) Mental Philosophy, Haven; (E.) International Law.

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* Zoology is only elective to the Engineering Classes.

Third Term. Political Economy; Geology; Rural Economy of England and the United States; Rural Law; (E.) Moral Philosophy, Haven; (E) International Law.

COURSE IN CIVIL ENGINEERING.—*First Term.* Practical Astronomy, Coffin—Time, Latitude, Longitude; Engineering, Rankine—Theory of Structures, Field Practice; Stereotomy—Applications to Masonry and Carpentry; Drawing—Plans, Profiles, Elevations, Sections, &c.; (E.) German; (E.) History of Civilization.

Second Term. Constitution of the United States; Mineralogy, Dana; Engineering, Rankine—Strength of Materials, Structures of Stone, (Foundations, Retaining walls, Arches, Bridges), Hand Machinery, Water Wheels; Drawing—Plans, Profiles, Elevations, Sections, and Machinery; (E.) Mental Philosophy.

Third Term. Political Economy; Geology; Engineering, Rankine—Structures of Wood, Framing, Structures of Iron, Boilers, Steam Engines, Field Practice; Drawing—Plans and Specifications; (E.) Moral Philosophy; (E.) International Law.

COURSE IN MECHANICAL ENGINEERING.—*First Term.* (E.) Practical Astronomy, Coffin; Steam Engines, Rankine; Application of Descriptive Geometry; Mechanical Drawing; (E.) German; (E.) History of Civilization.

Second Term. Constitution of the United States; Mineralogy, Dana; Building Materials; Hand Machinery; Water Wheels, &c.; Drawing; (E.) Mental Philosophy.

Third Term. Political Economy; Geology, Dana; Designs; Estimates; Specifications for Machinery; Drawing; (E) Moral Philosophy; (E.) International Law

COURSE IN CHEMISTRY.—*First Term.* History of Civilization; Chemistry; Comparative Anatomy.

Second Term. Constitution of the United States; Chemistry; Mineralogy; (E.) Mental Philosophy.

Third Term. Political Economy; Chemistry; Geology; (E.) Moral Philosophy.

SPECIAL FEATURES OF THE COURSE.

The prominence given to the Natural Sciences, and the practical element associated with nearly all departments of study, cannot fail to render the course especially valuable.

Nearly a year is devoted to Botany and Horticulture, commencing early in the spring and continuing till late in autumn. This course embraces a thorough drill in Botanical Analysis; the study of plants as to their relative importance and geographical distribution; the study of those having commercial or medical value; of those which are cultivated for ornament, and also those which are detrimental, as weeds and poisonous plants. The students learn practically the operations and processes in the department of Horticulture.

A year and a half is devoted to Chemical Physics and Chemistry, commencing with the third term of the first year. The course in Chemistry proper will include General, Analytical, and Agricultural Chemistry. Under Analytical Chemistry will be taken up general analysis, use of blow-pipe, analysis of minerals, alloys, fertilizers and farm products.

All the students, while studying, devote two hours a day to analysis, under the direction of the Professor of Chemistry, thus acquiring facility in conducting experiments, and securing a practical knowledge of the methods employed in chemical investigations. Those in the course of Chemistry devote three hours a day to laboratory work.

Under Agricultural Chemistry will be considered composition of soils, relations of air and moisture to vegetable growth, food of plants, chemical changes during vegetable

growth, chemistry of farm processes, methods of improving soils, and various other topics which may properly be treated of under this department.

Other departments of science are studied and taught, so far as may be, with special reference to their practical bearing, or their relations to Agriculture and Useful Arts.

LABOR.

It is a peculiarity of the College, that it makes provision for labor, thus combining practice with theory, manual labor with scientific culture. Students in this institution are required to labor a certain portion of each day, not exceeding three hours, for five days in the week.

The labor is designed to be as much as possible educational, so that every student may become familiar with all the forms of labor upon the farm and in the gardens. In the lower classes the students are required to work on the farm, and thus receive compensation for their labor according to their industry, faithfulness and efficiency, the educational character of the labor being also taken into account The maximum amount paid will be thirty cents for three hours labor.

MILITARY.

Thorough instruction is given in Military Science by a competent officer. The instruction extends through the whole College course, and embraces personal, squad, company and battalion drill. The students are enrolled in companies under their own officers. Arms are furnished by the State.

LOCATION.

The College has a pleasant and healthful location, between the village of Orono and Upper Stillwater, and 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 European and North American Railway, over which trains pass several 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. The Boarding House connected with the College buildings, is open to students. With these buildings, the institution furnishes desirable accommodations for one hundred and twenty-five students.

The Chemical Laboratory contains two apparatus rooms, a lecture room, a cabinet, a library and 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.

APPARATUS.

The College is furnished with new and valuable apparatus for the Departments of Physical Geography, Natural Philosophy and Chemistry, and for Surveying and Civil Engineering, to which additions will be made as the exigencies of the several Depart-

ments require. Models have been obtained from the United States Patent Office, and others have been purchased, that serve for purposes of instruction.

LIBRARY

The Library already contains 2,200 volumes, some of which have been obtained by purchase, while others have been kindly given to the College. The volumes secured through the liberality of Gov. Coburn, and the gifts of other friends, are a valuable addition to this Department. It is earnestly hoped that so important an auxiliary in the education of students in the College will not be disregarded by the people of the State, but that liberal contributions will be made to the Library, not only of Agricultural and Scientific works, but also works of interest to the general reader.

READING ROOM.

The Reading Room is supplied with a number of valuable newspapers and periodicals. Grateful acknowledgement is herewith made for the following named papers generously sent by the proprietors to the College :

American Sentinel, Bangor Weekly Courier, Christian Mirror, Christian Register, Dexter Gazette, Dirigo Rural, Eastern Argus, Kennebec Journal, Maine Farmer, Maine Standard, New England Farmer, New York Observer, Northern Border, North Star, Official Gazette, U. S. Patent Office, Patten Tribune, Oxford Register, Piscataquis Observer, Somerset Reporter, Sunrise, York County Independent.

The following are furnished by subscription :

American Agriculturist, American Chemist, American Naturalist, Appleton's Journal, Bangor Daily Whig and Courier, Atlantic Monthly, Bangor Daily Commercial, Boston Journal of Chemistry, Boston Daily Globe, Boston Statesman, Evening Post, Engineering Magazine, Entomologist, Galaxy, Gardener's Chronicle, Harper's Monthly, International Review, Journal Royal Agricultural Society, England ; Journal Franklin Institute, London Times, Popular Science Monthly, Scribner's Mouthly Technologist, Toledo Blade.

CABINET.

Rooms have been fitted up with cases of Minerals, and specimens of Natural History, and several hundred specimens have been presented to the College. The valuable private Cabinet of Prof. C. H. Fernald is placed in these rooms, and is accessible to the students. All specimens presented will be properly credited and placed on exhibition. Rocks illustrating the different Geological formations, and minerals found within the State are particularly solicited. Additions have been made during the past year.

LITERARY SOCIETIES.

Flourishing societies have been organized by the students of the College, which hold weekly meetings for declamations, discussions and other literary exercises.

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.

EXPENSES.

Tuition is free to students from all parts of the State. Those from other States will be charged twelve dollars per term. Rooms are free; all bedding and furniture must be supplied by the students, who will also furnish their own lights. Board, washing and fuel will be furnished at cost. The price of board has been, hitherto, three dollars per

week, the fuel and washing fifty cents per week. These bills, with those for incidental expenses, are payable at or before the close of each term.

The terms are so arranged that the long vacation occurs in the winter, that students may have an opportunity to teach during that time. By means of the amount thus earned, together with the allowance for labor, the industrious and economical student can cancel the greater part of his college expenses.

GRADUATES.

Class of 1872.

Benjamin F. Gould, C. E. ..... San Juan, California.
George E. Hammond, C E ..... Elliot.
Heddle Hilliard, C. E. ..... Grand Southern R. R., N. B.
Edwin J. Haskell, B. S ..... Saccarappa, Haskell Silk Company.
Eber D. Thomas, B. S. ..... Grand Rapids, Mich.
George O. Weston, B. S. ..... Norridgewock.

Class of 1873.

Russell W. Eaton, C. E. ..... Providence, R. I., D. M. Thompson & Co.
George H. Hamlin, C. E. ..... Orono, Maine State College.
Fred W. Holt, C. E ..... Phœnixville Bridge Company.
Charles E. Reed, C. E. ..... Free Press, Detroit, Mich.
John M. Oak, B. S. ..... Garland.
Frank Lamson Scribner, B. S. ..... Bangor.
Harvey B. Thayer, B. S ..... Garland.

Class of 1874.

William A. Allen, C. E. ..... Portland, M. C. R. R.
Walter Balentine, B. S ..... Wesleyan University.
William H. Gerrish, B. S ..... Portland.
John I. Gurney, B. S. ..... Dorchester, Mass.
David R. Hunter, B. S. ..... Clinton.
Louise H. Ramsdell, B. S. ..... Atkinson.

Class of 1875.

Solomon W. Bates, C. E. ..... Somerset Mills.
Wilbur A. Bumps, C. E ..... Dexter High School.
Samuel H. Clapp, C. E. ..... B. & P. R. R.
Lewis F. Coburn, C. E. ..... Brunswick.
Charles F. Durham, C. E ..... Monroe.
Edson F. Hitchings, C. E. ..... B. & P. R. R.
Allen G. Mitchell, C. E. ..... Somerset R. R.
George M. Shaw, C. E ..... Lewiston & Augusta R. R.
Edgar A. Work, C. E ..... Hermon.
Edmund D. Mayo, M E. ..... S. W. Harbor.
Albert E. Mitchell, M. E. ..... Madison
Minott W. Sewall, M. E. ..... St. Albans.
Charles F. Colesworthy, B. S. ..... California.
Alfred M. Goodale, B. S ..... Saco.
Whitman H. Jordan, B. S ..... New Gloucester.
Fred L. Moore, B. S ..... Foxcroft.
Luther W. Rogers, B. S ..... Stillwater.
Wesley Webb, B. S. ..... U. S. Military Asylum, Togus.

GENERAL STATEMENT.

Students are required to make their own beds, and sweep their own rooms.

Each student is required, at the commencement of his College course, to deposit with the Treasurer of the College, a bond for $100, signed by responsible securities, to secure the payment of his board bill and any incidental charges.

Strict conformity to College regulations and requirements is the only condition of continued membership in the College.

Candidates for the next class should make early application.

CALENDAR.

1875. Aug. 26—Thursday, First Term commenced.
" Nov. 18 and 19—Thursday and Friday, Examination.
" Nov. 19—Term closes. Vacation of ten weeks.
1876. Feb. 1—Tuesday, Second Term commences.
" April 20 and 21—Thursday and Friday, Examinations.
" April 21—Term closes. Vacation of one week.
" May 2—Tuesday, Third Term commences.
" July 29—Prize Declamation by Sophomores.
" July 30—Baccalaureate Address.
" July 31—Prize Essays by Juniors.
" Aug. 1—Examinations.
" Aug. 2—Commencement.
" Aug. 3—Examination of Candidates for Admission. Vacation of 3 weeks.
" Aug. 23—Examination of Candidates for Admission.
" Aug. 24—Thursday, First Term commences.
" Nov. 16 and 17—Thursday and Friday, Examination.
" Nov. 17—Term closes. Vacation of ten weeks.

SUMMARY—1869.

MONTHS.	THERMOMETER IN THE OPEN AIR.											RAIN AND SNOW		CLOUDS.	WINDS.				BAROMETER.			FORCE OR PRESSURE OF VAPOR IN INCHES			RELATIVE HUMIDITY OR FRACTION OF SATURATION.		
	Mean of hottest day.		Mean of coldest day.		Highest temperature		Lowest temperature.		Mean of maximum temperature.	Mean of minimum temperature.	Mean of three daily observations.	Amount of rain or melted snow in guage—inches.	Depth of snow—inches.	Mean per centage of cloudiness.	PER CENT. OF DIRECTION.				BAROMETER HEIGHT REDUCED TO FREEZING POINT.								
	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.	Maximum.	Minimum.	Mean.	Maximum.	Minimum.	Mean.
		°		°		°		°	°	°	°																
January	5	37.5	22	-3.8	8	43.0	19	-16.0	25.44	10.74	18.37	2 542	10.75	.61	.46	.16	.03	.35	30 391	29.178	29 767	.293	.011	.092	100	26	78
February	13	37.4	2	7.7	13	44 0	25	-8.0	29.21	14 79	21.83	4.264	32.25	.58	.46	.25	.04	.25	30 254	28 858	29.706	.191	.020	.094	100	25	74
March	27	42.3	5	1.2	28	50.0	6	-22 0	32 62	12 51	22.99	3.356	10.42	.46	.54	.32	07	.07	30.300	29 265	29 828	.236	.005	.099	100	29	67
April	21	48.1	4	25.8	28	60.5	5	18.5	46 78	33.33	39.51	2 392	1.75	.58	.51	26	.09	.14	30.016	29.319	29.660	.377	.071	.179	100	27	73
May	26	67.6	4	37 8	25	80.3	1	30 0	58.72	41.55	51.33	2 950	.....	.63	.43	.25	.16	.16	30 030	29.088	29 630	.546	.112	.279	100	27	73
June	3	67.7	9	52.5	3	81.5	9	38.0	68 38	50.34	59 58	3.800	.....	.56	.41	.34	.23	.02	30 143	29 346	29.797	574	.196	.405	100	35	80
July	11	74.2	1	57 5	11	87.2	2	45 0	76.07	56 69	66.66	1.620	.....	.46	.29	.53	.18	00	30 137	29.291	29.735	.826	.286	.495	100	38	76
August	20	74.0	31	51 2	11	83.0	8	44 0	71.91	53.10	62.25	1.910	.....	.42	.48	.32	.08	.12	30.229	29.447	29.818	.730	.229	.406	100	34	72
September	8	69.5	28	41 7	5	80.5	29	35 0	68 86	50.67	59 55	3.670	.....	.55	.26	.39	23	.12	30.243	29 316	29.979	.758	.154	.415	100	42	80
October	4	65.3	28	26.2	1	73 5	28	21 0	53.38	38 05	44 83	9.570	9 00	.54	.34	.29	.20	.17	30.167	29.176	29.746	.585	.095	.269	100	38	82
November	6	46.3	16	24.0	20	52 8	26	15 5	38.93	24 42	32.32	3 360	0.75	.62	.29	.28	.24	.19	30.174	28.883	29 740	.374	.057	.162	100	35	85
December	1	39 7	15	-0.2	1	53.0	9	-13.5	29.85	13 28	22.08	5.283	20.00	.55	.39	.12	.11	.38	30.519	28.891	29 949	.375	.009	.109	100	28	77
	July		Jan'y		July		March																				
Year	11	74°.2	22	-3°.8	11	87°.2	6	-22°.0	50° 01	33° 37	41°.77	44.717	84 92	.55	.41	.29	.14	.16	30.519	28.858	29.780	.826	.005	.250	100	25	76

SUMMARY—1870.

MONTHS.	THERMOMETER IN THE OPEN AIR.										RAIN AND SNOW		CLOUDS.	WINDS.				BAROMETER.			FORCE OR PRESSURE OF VAPOR IN INCHES			RELATIVE HUMIDITY OR FRACTION OF SATURATION.		
	Mean of hottest day.		Mean of coldest day.		Highest temperature.		Lowest temperature.		Mean of maximum temperature.	Mean of minimum temperature.	Mean of three daily observations.	Amount of rain or melted snow in guage—inches.	Depth of snow—inches.	Mean per centage of cloudiness.	PER CENT. OF DIRECTION.				BAROMETER HEIGHT REDUCED TO FREEZING POINT.								
	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.	Maximum.	Minimum.	Mean.	Maximum.	Minimum.	Mean.
		°		°		°		°	°	°	°															
January	23	40.6	14	-9.7	23	44.2	14	-14.2	30.92	13.05	22.35	5.615	26.00	.57	.38	.26	.12	.14	30.578	29 249	29.913	.284	.020	.108	100	26	80
February	15	39.6	4	-6.6	19	47.0	4	-17 0	26.59	8.36	18.22	4.296	15.00	.57	.43	.12	.21	.24	30.409	28.902	29 692	.323	.016	.093	100	47	80
March	30	42.2	11	6.2	30	52.5	12	-5.8	35.01	21.09	27.90	2.114	10.50	.47	.44	.04	.08	.44	30 343	29.190	29.761	.227	.020	.104	100	18	65
April	28	57.4	4	34 3	28	70.0	16	25 5	52 78	34.61	43 51	3.553	2.00	.57	.18	.24	.19	.39	30 402	29.390	29.850	.443	.068	.206	100	13	73
May	29	65.0	9	39.8	29	81.0	5	31 0	62.26	41.48	51.87	1 960	.....	.44	.31	.40	.10	.19	30.211	29 347	29.791	.604	.102	.264	100	20	68
June	25	74.7	9	56.7	25	89.5	10	51 0	75.34	57.24	65 74	2.070	.....	.53	.19	.58	.13	.10	30.023	29.455	29.813	703	.253	.479	100	30	76
July	24	82.2	1	58.5	24	94.0	2	48 0	79.03	58 35	68 88	1.780	.....	.40	26	.58	.10	.06	29.980	29.543	29.758	.878	.228	.499	97	28	71
August	10	77.8	27	54 6	9	88.0	27	39.8	77.52	55.60	66.69	3.210	.....	.41	.34	.42	.13	.11	30.136	29 488	29.805	.805	.217	.470	100	31	72
September	4	68 4	12	48 3	4	78.0	13	35 0	67.26	47.64	57.76	2 230	.....	.37	.41	.34	.03	.22	30.273	29.392	29.928	.725	.170	.363	100	29	70
October	12	60.1	27	31.0	2	70.0	27	21 0	56.24	38.91	47.25	5.530	1.50	.50	.30	.55	.05	.10	30 414	29.116	29.840	527	.096	.271	100	31	79
November	3	52.0	30	23.6	3	56.8	30	21.0	42.80	30.61	36.58	5 608	5.50	.55	.47	.28	.07	.18	30.240	29.194	29 702	.436	.068	.173	100	38	77
December	2	36 9	24	3.4	2	44.0	24	-8.3	30.54	18.50	24 43	3.010	18.25	.61	47	.17	.02	.34	30.320	29.175	29.645	.226	.028	.114	100	42	80
	July		Jan'y		July		Feb'y																				
Year	24	82° 2	14	-9°.7	24	94°.0	4	-17°.0	53° 02	35° 45	44°.26	40.976	78 75	.50	.35	.33	.10	.22	30.587	28.902	29.791	.878	.016	.279	100	13	74

SUMMARY—1871.

MONTHS.	THERMOMETER IN THE OPEN AIR.											RAIN AND SNOW		CLOUDS.	WINDS.				BAROMETER.			FORCE OR PRESSURE OF VAPOR IN INCHES			RELATIVE HUMIDITY OR FRACTION OF SATURATION.		
	Mean of hottest day.		Mean of coldest day.		Highest temperature		Lowest temperature.		Mean of maximum temperature.	Mean of minimum temperature.	Mean of three daily observations.	Amount of rain or melted snow in guage—inches.	Depth of snow—inches.	Mean per centage of cloudiness.	PER CENT. OF DIRECTION.				BAROMETER HEIGHT REDUCED TO FREEZING POINT.								
	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.	Maximum.	Minimum.	Mean	Maximum.	Minimum.	Mean.
		°		°		°		°	°	°	°																
January	16	37.6	23	-14 9	16	42 0	23	-20.6	21.74	5.08	13.34	2 597	13 50	.57	.47	.16	.05	.32	30.585	29.263	29.988	.236	.006	084	100	17	80
February	25	42 1	5	-6.8	25	47.2	5	-16.7	30.42	10.99	19.90	2 532	14.00	.43	.55	.27	.11	.07	30 348	29.025	29.766	.234	.013	.092	100	38	72
March	12	51 4	24	24.8	12	58 7	29	17 0	41.02	28.35	34 65	4.108	8 00	.59	.39	.37	.07	.17	30 282	29 128	29.788	.354	.053	.159	100	27	76
April	21	52.7	6	30 9	21	66 5	1	22 6	48.02	33 97	40 85	4.010	1.00	65	.35	21	.12	.32	30 193	29 269	29.704	.335	.052	.187	100	34	73
May	30	76.0	5	36.3	30	88.6	5	33 0	59 73	41 43	50.65	3 480	1.50	.48	47	43	.03	.09	30 167	29.136	29.763	.545	.089	.240	100	17	63
June	3	75.4	16	52 9	3	87.8	16	44.0	72.01	51.82	61.99	2 580	.....	45	.45	51	.02	.02	29.990	29.302	29.708	.638	.203	.396	100	31	72
July	14	72.8	17	59.3	13	85.0	1	47 0	77.48	57.78	67.05	2 130	.....	.46	27	49	.14	.10	30.111	29 392	29.771	.671	.272	.482	100	31	75
August	4	73.9	20	58.2	4	85.0	22	42.0	75.85	56.08	65.83	3.850	.....	.37	.39	.41	.14	06	30.247	29.420	29 788	.956	.244	.471	100	35	74
September	3	69.5	30	44.8	3	80 0	15	28 8	64 11	44.53	54 70	1 100	.....	35	41	30	.14	.15	30 270	29 453	29 885	644	.095	.326	100	20	76
October	11	62 8	19	34.4	10	72.5	21	25.3	55 95	38 84	47.68	7 500	.....	.56	.29	.40	.20	.11	30.362	29.404	29 858	.644	.107	.272	100	39	76
November	1	43 0	30	3.4	1	53.0	30	0.0	34 53	22.95	29.00	3.580	15.00	.48	58	.07	.10	.25	30 299	29.150	29.728	.403	.031	.132	100	44	78
December	4	40.4	21	-9.8	25	47.5	22	-11.5	24.87	8 16	17.43	4 163	27.50	59	.40	33	.07	.20	30.534	29.000	29.794	277	.024	.090	100	42	84
	May		Jan'y		May		Jan'y																				
Year	30	76°.0	23	-14°.9	30	88° 6	23	-20°.6	50° 44	33c 33	41°.92	41.630	80.50	50	.42	.33	.10	.15	30.585	29.000	29.795	.956	.006	.244	100	17	75

SUMMARY—1872.

MONTHS.	THERMOMETER IN THE OPEN AIR.											RAIN AND SNOW.		CLOUDS.	WINDS.				BAROMETER.			FORCE OR PRESSURE OF VAPOR IN INCHES.			RELATIVE HUMIDITY OR FRACTION OF SATURATION.		
	Mean of hottest day.		Mean of coldest day.		Highest temperature		Lowest temperature.		Mean of maximum temperature.	Mean of minimum temperature.	Mean of three daily observations.	Amount of rain or melted snow in guage—inches.	Depth of snow—inches.	Mean per centage of cloudiness.	PER CENT. OF DIRECTION.				BAROMETER HEIGHT REDUCED TO FREEZING POINT.								
	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.	Maximum.	Minimum.	Mean.	Maximum.	Minimum.	Mean.
		°		°		°		°	°	°	°																
January	13	32.8	7	-2.4	23	38 2	7	-9.2	24.99	9.54	17.45	2.182	16.00	.54	.48	.23	.05	.24	30.446	29.264	29.712	.201	.028	.087	100	49	82
February	25	31.6	23	2.2	21	40.0	3	-9.8	28.99	7.13	17 89	1.703	13.50	39	.53	.15	.09	.23	30.382	29.140	29.708	.226	.025	.082	100	28	76
March	27	33.5	6	-8.0	26	44.0	7	-16.5	29.01	10.00	19.30	5 234	38.00	.51	.52	.13	.05	.30	30.202	28 988	29.702	.191	.025	.086	100	32	76
April	30	49.2	1	27.4	20	63.0	7	20.0	48.72	31.49	40.26	1.928	3.00	.49	.48	.31	.05	.16	30.200	29 219	29.731	.302	.070	.162	100	25	66
May	27	60.2	5	41.5	19	71.8	11	34 0	60.08	44.10	52.13	3.920	.....	.67	.19	.32	.12	.37	30 162	29.244	29.745	.416	.098	.280	100	23	73
June	30	78.5	2	49.0	30	90.6	4	37.3	73.28	56.22	64 30	4.470	.....	.55	.27	.34	.19	.20	30 040	29.449	29.772	750	.210	.459	100	36	77
July	16	79.5	27	61.1	16	90.0	26	49 0	78.54	59 19	68.69	2.680	.....	.47	.34	.42	.13	.11	30.047	29.531	29.736	.793	.256	.517	100	33	74
August	9	76.8	30	54.3	9	90.3	29	45.2	76.32	59.46	67.63	6.230	.....	.45	.30	.36	.18	.16	30.075	29.277	29.823	.750	.236	.530	100	28	79
September	8	72.2	3	52.5	8	84.3	5	41.4	66.16	51.38	58.70	3.550	.....	.56	.27	.30	.27	.16	30.172	29.409	29.829	.688	.234	.403	100	39	81
October	7	60.5	28	33.3	7	66.0	29	23.0	53.78	37.39	45.75	6.010	.....	.47	.23	.34	.12	.31	30.423	29.279	29 838	.500	.108	.254	100	36	80
November	12	44.6	30	20.4	12	47.0	21	12.4	39 35	28.18	33.77	7.055	10.00	.64	.29	.25	.20	.26	30.252	28 712	29.770	.323	.068	.163	100	41	83
December	3	34.5	25	-11.8	6	38.4	25	-23.0	21.07	4 52	13.39	3 615	32.50	.59	.55	.23	.11	.11	30.363	29 056	29.822	.196	.011	.077	100	44	78
	July		Dec.		June		Dec.																				
Year	16	79°.5	25	11°.8	30	90°.6	25	-23°.0	50°.02	33°.22	41°.60	48.577	113 00	.53	37	.28	.13	.22	30.446	28.712	29.766	.793	.011	258	100	23	77

SUMMARY—1873.

MONTHS.	THERMOMETER IN THE OPEN AIR.										RAIN AND SNOW.		CLOUDS.	WINDS.				BAROMETER.			FORCE OR PRESSURE OF VAPOR IN INCHES.			RELATIVE HUMIDITY OR FRACTION OF SATURATION.		
	Mean of hottest day.		Mean of coldest day.		Highest temperature		Lowest temperature.		Mean of maximum temperature.	Mean of minimum temperature.	Mean of three daily observations.	Amount of rain or melted snow in guage—inches.	Depth of snow—inches.	Mean per centage of cloudiness.	PER CENT. OF DIRECTION.				BAROMETER HEIGHT REDUCED TO FREEZING POINT.								
	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.	Maximum.	Minimum.	Mean.	Maximum.	Minimum.	Mean.
		°		°		°		°	°	°	°																
January	17	37.8	30	-4.9	17	43.1	30	-26.5	23.52	4 75	15.01	4.090	22.00	.56	.38	.21	.09	.32	30.680	29.148	29 882	.275	.009	.086	100	44	83
February	28	31.4	2	-2.7	7	39.5	2	-14.0	24.84	5.69	16.23	2.965	28.00	.48	.47	.20	.04	.29	30.290	28 960	29.690	.174	.020	.079	100	41	76
March	30	38.3	24	12.6	29	46.2	5	-5.6	34.21	19.19	27.22	4.700	31.00	.54	.36	.29	.14	.21	30.311	28 838	29.682	.288	.028	118	100	27	76
April	30	46.6	19	34 2	30	61.6	17	26.0	46.22	32.82	39.58	2 590	5.00	.58	.42	.10	.20	.28	30 060	29 205	29.717	.230	.088	.164	100	24	68
May	28	68.2	14	42 8	28	81.2	7	31.5	62.03	41 89	52 03	1.960	.....	.43	.41	.38	.04	.17	30.084	29.291	29 802	.663	.088	.245	97	20	62
June	26	72.7	4	47.1	26	86.5	3	36.0	71.57	48.78	60.74	1.320	.....	.40	.35	.32	.15	.18	30 142	29 296	29.770	.673	.115	.356	100	22	68
July	30	75.5	18	62.1	26	92.0	7	47.0	78.80	58 60	68 45	3.260	.....	.47	.34	.50	.11	.05	30.110	29.492	29.801	748	.191	.497	100	26	71
August	3	73.4	24	55 3	3	88.0	28	35.0	74.50	52.95	63 65	1.810	....	.41	.30	.33	.08	.29	30.141	29.621	29.878	.778	.197	.420	99	23	72
September	5	68.6	22	46.9	5	82.5	18	31.2	66.47	44.80	55.50	4.740	.....	.38	.34	.41	.13	.12	30.258	29.413	29.864	.690	.170	.346	100	31	76
October	6	58.9	30	34.0	11	70.0	18	24.5	56.87	37.73	47.40	6.560	.....	.46	.20	.40	.16	.24	30.308	29.180	29.863	.500	.099	.264	100	31	78
November	2	43.0	30	5.2	3	53.2	30	-4.0	31.64	18.30	25.17	5 050	24.00	.55	.54	.18	.06	.22	30.332	28.432	29.689	.232	.039	.109	100	42	75
December	4	46.5	1	-3.5	4	50.3	2	-26 0	28.45	9.87	20.12	1.735	14.00	.59	.41	.24	.05	.30	30.680	29.108	29.893	.343	.014	.099	100	31	80
	July		Jan'y		July		Jan'y																				
Year	30	75°.5	30	-4°.9	26	92°.0	30	-26°.5	49°.93	31° 28	40° 93	40.780	124 00	.49	38	.30	.10	.22	30.680	28.423	29.794	.778	.009	.232	100	20	74

SUMMARY—1874.

MONTHS.	THERMOMETER IN THE OPEN AIR.											RAIN AND SNOW.		CLOUDS.	WINDS.				BAROMETER.			FORCE OR PRESSURE OF VAPOR IN INCHES.			RELATIVE HUMIDITY OR FRACTION OF SATURATION.		
	Mean of hottest day.		Mean of coldest day.		Highest temperature		Lowest temperature.		Mean of maximum temperature.	Mean of minimum temperature.	Mean of three daily observations.	Amount of rain or melted snow in guage—inches.	Depth of snow—inches.	Mean per centage of cloudiness.	PER CENT. OF DIRECTION.				BAROMETER HEIGHT REDUCED TO FREEZING POINT.								
	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.	Maximum.	Minimum.	Mean.	Maximum.	Minimum.	Mean.
		°		°		°		°	°	°	°																
January	8	48.3	26	-15.5	8	54.4	27	-19.0	27.49	10.12	19.28	4.570	25.00	.56	.40	.21	.14	.25	30.623	29.381	29.988	.400	.019	.112	100	41	86
February	14	38.7	2	-15.1	14	46.0	2	-26 0	26.00	8.50	17.50	5.500	40.00	.48	.58	.23	.05	.14	30.719	29 254	29.924	.285	.012	.086	100	26	77
March	4	45.1	24	5.4	19	50.0	1	-5.4	35.78	19.41	27.56	3.400	14.00	.48	.57	.31	.04	.08	30.279	28 983	29.645	.319	.027	.112	100	24	67
April	15	47.9	1	13.9	15	60 0	1	1.0	40.50	26.16	33 30	3.760	30.00	.57	.35	.32	.08	.25	30 260	28 984	29.764	.351	.031	.133	100	26	67
May	28	64.9	1	35.8	28	78.3	2	31.0	61.35	41.71	51.88	4.740	.....	.45	.29	.43	.12	.16	30.200	29.110	29.708	.602	.096	.255	100	19	64
June	28	71.6	12	48.1	28	82.8	2	41.2	69.71	51 06	60.17	4.930	.....	.65	.31	.35	.04	30	30.004	29 323	29.692	.685	.177	.391	100	26	74
July	15	76.3	3	54.1	15	86.3	3	50.0	75.44	58.29	66.73	2.100	.....	.54	.23	.54	.12	.11	30.045	29.432	29.799	794	.304	.515	100	41	80
August	11	72.4	26	54.7	11	82.0	27	40 3	72.75	53.69	63.17	5.390	.....	.43	.36	.44	.06	.14	30.167	29.373	29.826	.662	.250	.447	100	34	77
September	10	68.4	22	50.2	10	83.3	23	34.2	67.73	48.69	58.38	4.370	.....	.53	.26	.41	.10	.23	30.321	28.981	29.921	.573	.240	.402	100	34	83
October	11	54.2	23	37.3	26	65.7	23	28 0	57.46	37.30	47.91	1.140	.....	.44	.28	.50	.04	.18	30.341	29.355	29.851	.427	.104	.254	100	26	75
November	5	47.5	22	13.8	5	54.7	23	5.2	41.32	24.62	32.66	3.060	10.00	.49	.46	.37	.07	.10	30.406	29.024	29.922	.353	.057	.158	100	39	80
December	3	38.7	15	-4.0	3	44.7	16	-19.1	26.67	7 01	17.63	1.980	13.00	.57	.36	.20	.11	.33	30.606	29.319	29.858	.254	.009	.093	100	45	81
	July		Jan'y		July		Feb'y																				
Year	15	76°.3	26	-15°.5	15	86°.3	2	-26°.0	50°.18	32°.21	41°.35	44.940	132 00	.52	.37	.36	.08	.19	30.719	28.981	29.825	.794	.009	.246	100	19	76

SUMMARY—1875.

MONTHS.	THERMOMETER IN THE OPEN AIR.											RAIN AND SNOW.		CLOUDS.	WINDS.				BAROMETER.			FORCE OR PRESSURE OF VAPOR IN INCHES.			RELATIVE HUMIDITY OR FRACTION OF SATURATION.		
	Mean of hottest day.		Mean of coldest day.		Highest temperature		Lowest temperature.		Mean of maximum temperature.	Mean of minimum temperature	Mean of three daily observations.	Amount of rain or melted snow in guage—inches.	Depth of snow—inches.	Mean per centage of cloudiness.	PER CENT. OF DIRECTION.				BAROMETER HEIGHT REDUCED TO FREEZING POINT.								
	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.	Maximum.	Minimum.	Mean.	Maximum.	Minimum.	Mean.
		°		°		°		°	°	°	°																
January	29	25 9	20	-5.9	31	32.6	20	-22.5	17.23	-1 56	8.22	2.00	19.70	.47	.70	.06	.04	.20	30.397	29 212	29 938	.144	.015	.056	100	50	79
February	24	39.3	7	-8.3	24	46.0	14	-20.0	23.59	3.82	13.44	3.80	8.50	.45	.60	.19	.10	.11	30.349	29.101	29.778	.267	.014	.082	100	44	79
March	27	36.9	1	4.7	27	45 2	1	-3.5	31.89	15.28	24.54	4.47	33.60	.52	.39	.26	.07	.28	30.550	29.271	29.909	.201	.025	.101	100	34	71
April	25	47.0	20	18.4	24	58.0	21	14.6	44.79	28.50	36.69	3.85	4.50	.51	.52	.22	.09	.17	30.300	29.194	29.745	.276	.068	.141	100	24	64
May	25	70 3	2	39.5	25	85.4	6	32.2	61.22	41.78	52.07	3.31	.....	.45	.33	.41	.11	.15	30.239	29.243	29.772	.661	.122	.257	100	24	67
June	24	73 4	13	51.5	28	85.0	14	39.6	70.88	51,31	61.18	4.85	.....	.52	.25	.47	.17	.11	30.123	29.318	29.812	717	.214	.407	100	31	74
July	5	74.0	18	60 8	5	85.0	19	50.3	77.00	57 58	66.83	2.11	.....	.45	.35	.52	.04	.09	30.074	29.440	29.748	.729	.254	.490	99	34	75
August	29	74.8	2	59.9	29	87.8	24	45.3	78.28	58.33	68.20	2.32	.....	.43	.25	.57	.16	.02	30.213	29.685	29.893	.844	.246	.557	100	35	81
September	3	68 2	29	40.8	1	81.8	29	26.2	63.75	43 51	54.17	5.10	.....	.51	.40	.42	.09	.09	30.301	29 242	29.789	.648	.118	.323	100	35	78
October	4	55.7	29	31.9	4	62.8	14	21.7	51 52	34.52	43.61	4.75	.....	.58	.38	.23	.11	.28	30.274	29.039	29.802	.421	.097	.229	100	29	78
November	13	39.3	30	-9.8	13	51.7	30	-16.2	35 02	19.08	27.17	3.87	14.50	.53	.73	.10	.06	.11	30 526	28 939	29 814	.275	.014	.129	100	39	81
December	23	41.6	20	-8.0	23	50.2	20	-23 0	26.67	9.17	18.78	1.51	13.00	.51	.62	.20	.02	.16	30.539	28.963	29.768	.217	.015	.091	100	32	80
	Aug.		Nov.		Aug		Dec.																				
Year	29	74°.8	30	-9°.8	29	87° 8	20	-23°.0	48°.49	30° 11	39° 58	41.94	93 80	.50	.46	.30	.09	.15	30.550	28.939	29 814	.844	.014	.239	100	24	76

SUMMARY FROM 1869 TO 1875, INCLUSIVE.

MONTHS.	THERMOMETER IN THE OPEN AIR.											RAIN AND SNOW.		CLOUDS.	WINDS.				BAROMETER.			FORCE OR PRESSURE OF VAPOR IN INCHES.			RELATIVE HUMIDITY OR FRACTION OF SATURATION.		
	Mean of hottest day.		Mean of coldest day.		Highest temperature.		Lowest temperature.		Mean of maximum temperature.	Mean of minimum temperature.	Mean of three daily observations.	Amount of rain or melted snow in guage—inches.	Depth of snow—inches.	Mean per centage of cloudiness.	PER CENT. OF DIRECTION.				BAROMETER HEIGHT REDUCED TO FREEZING POINT.								
	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.	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	30.519	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	30.578	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	30.585	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	48.58	113.00	.53	.37	.28	.13	.22	30.446	28.712	29.766	.793	.011	.258	100	23	77
1873	July 30	75.5	Jan. 30	-4.9	July 26	92.0	Jan. 30	-26.5	49.93	31.28	40.93	40.78	124.00	.49	.38	.30	.10	.22	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	30.719	28.981	29.825	.794	.009	.246	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	.46	.30	.09	.15	30.550	28.939	29 814	.844	.014	.239	100	24	76
Seven years	1870 July 24	82°.2	1874 Jan. 26	-15°.5	1870 July 24	94°.0	1873 Jan. 30	-26°.5	50°.42	32°.71	41° 63	Mean. 43.37	Mean. 101.00	.51	.39	.31	.11	.19	30.719	28.423	29.795	.956	.005	.250	100	13	75