

MAINE STATE LEGISLATURE

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Public Documents of Maine:

BEING THE

ANNUAL REPORTS

OF THE VARIOUS

PUBLIC OFFICERS AND INSTITUTIONS

FOR THE YEAR

1874.

VOLUME II.

AUGUSTA:

SPRAGUE, OWEN & NASH, PRINTERS TO THE STATE.

1874.

ANNUAL REPORTS

OF THE

Trustees, Farm Superintendent and Treasurer

OF THE

MAINE STATE COLLEGE OF AGRICULTURE

AND THE

MECHANIC ARTS.

1873.

PUBLISHED AGREEABLY TO A RESOLVE APPROVED FEBRUARY 25, 1871.

AUGUSTA:

SPRAGUE, OWEN & NASH, PRINTERS TO THE STATE.

1873.

TRUSTEES.

HON. ABNER COBURN, Skowhegan, *President.*

HON. LYNDON OAK, Garland, *Secretary.*

HON. WILLIAM P. WINGATE, Bangor,
HON. SAMUEL F. PERLEY, Naples,
HON. JAMES C. MADIGAN, Houlton,
HON. THOMAS S. LANG, Augusta,
REV. SAMUEL F. DIKE, Bath,
HON. SAMUEL L. BOARDMAN, Augusta,
Secretary Maine Board of Agriculture, and ex-officio }
Member of Board of Trustees. }

HON. ISAIAH STETSON, Bangor, *Treasurer.*

HON. WILLIAM P. WINGATE, }
HON. LYNDON OAK, } *Executive Committee.*
HON. SAMUEL F. PERLEY, }

HON. SIDNEY PERHAM, }
REV. SAMUEL F. DIKE, } *Examining Committee.*
HON. A. M. ROBINSON, }

TRUSTEES' REPORT.

To the Members of the Legislature of Maine :

GENTLEMEN,—The Trustees of the College of Agriculture and the Mechanic Arts respectfully submit the following statement of the condition, prospects and wants of said College.

Five years ago the doors of the College were thrown open and students invited to its privileges. A small class responded to the invitation and was admitted. For the two years immediately following the classes were small.

The institution has entered upon the sixth year of its existence—has graduated two classes, one of six and the other of seven, and has now one hundred students, quietly, industriously and profitably pursuing the studies of the course offered, with a fair prospect of an increase of numbers within the present college year.

The members of the Board of Instruction are laboring with great industry, fidelity and success in their several departments, and are thoroughly committed to the welfare of the college.

The standard of admission has been raised within the last year, by including five books of geometry in the list of preparatory studies, as well as by a more strict examination in the branches, a knowledge of which was before required. This will not only greatly enhance the value of the course to the students, but will have a tendency to raise the standard of instruction in our public schools, where students are studying with the purpose of entering the institution at some future time.

There has been a modification in the course of instruction to meet more fully the wants of students in the department of mechanical engineering. This change rendered an assistant instructor necessary, and the Trustees are gratified to announce that one of the institution's own graduates—Mr. Geo. H. Hamlin, C. E., of the class of 1873, is discharging the duties of the position with credit to himself and profit to the college.

The farm, under the energetic and skillful management of its Superintendent, is improving from year to year in appearance and productiveness.

The affairs of the boarding house have been prudently and successfully conducted, and the Steward is entitled to much commendation for the earnest efforts to promote the welfare of the students. It requires much patience, tact and labor to minister to the comfort of so many away from their homes, to supply their wants in health and to give them the needed attention in seasons of sickness.

MILITARY INSTRUCTION.

The facilities for military instruction in this country are extremely limited, there being but one academy upon whose graduates the government can depend for military knowledge in case their services are needed, and many among the ablest of these fought desperately for the destruction of the government in the war of the rebellion. To compensate in part for this dearth of military knowledge, Congress has required that military tactics shall be included in the course of instruction in the several institutions that exist by virtue of the act for the establishment of Colleges of Agriculture and the Mechanic Arts. This is a subject of vital importance to the States as well as the nation; and, with the lessons of the late war fresh in the public mind, it is only necessary to assert that each State should provide military instruction for a portion of its citizens. Two companies of Cadets have been organized at the State College, and the men composing them have responded to the duties required of them with cheerful alacrity, and an earnest purpose to make the most of their opportunities in this direction. The facility they have acquired in the manual of arms, and the precision of their movements and their soldierly bearing, have been heartily commended by those who have witnessed their performances. These companies need, and ought to have provided for them, a suitable hall where they can drill regularly through the several terms without reference to the condition of the weather.

BUILDING OPERATIONS.

At the date of the last report, the house in process of construction for the family of the President was nearly completed. It has since been fully completed, the grounds around it have been laid out and graded, and a good well, within convenient distance, has been provided.

An addition to the boarding-house, affording more room for cooking, washing and ironing, has been made during the year.

The largely increased number of students has obliged the Trustees to provide larger rooms for the accommodation of the classes in drawing and natural history. This was accomplished by taking away partitions on the first floor of White Hall, thus changing four large rooms and a passage-way to two.

A professor's house has been built, and was ready for the family occupying it early in August. The grounds around this have also been graded and a well of good water supplied.

A barn one hundred feet by fifty, with twenty-four feet posts, has been erected, but it is not completed, the appropriation of last year proving inadequate. In selecting a site for this building, the Trustees sought to secure three advantages, each of which they deemed important—viz.: a central position on the farm, a dry surface, and such conformation of the ground as would favor the construction of a basement for a root and manure cellar that would be easy of access and could be easily drained. Such a site was readily found, but it was at a point where the ledge was close to the surface. The advantages of this site were believed to be too valuable to be abandoned and it was adopted. As was anticipated, it proved an expensive job to remove the ledge, and the cost of construction has thereby been considerably increased. The barn has been finished on the outside with the exception of painting and glazing; the roof has been covered with slate and the walls with clapboards. While its cost will exceed the appropriation for the purpose, it will not exceed the estimate of the Trustees as presented in the report of last year.

The college sustains an important relation to all our institutions of learning. In no way can the teaching of science be better introduced into the common schools than through the influence of the State College. The most of our students are employed in the vacations of their college course as teachers in the high schools, which under the new policy of our State are everywhere springing up, and in the common schools—a hundred teachers going forth from one of these "national schools of science" will foster the taste for scientific studies, and prepare the way for the introduction of such learning as will be most beneficial to the future interests of the whole community.

If additional appropriations are asked it is from the increased prosperity of the institution making a greater demand for the

convenience and wants of the increased number of those who seek to avail themselves of the only opportunity they can ever hope to enjoy of obtaining a liberal education.

NEEDS OF THE COLLEGE.

It will be observed that, after the graduation of a class of seven, within the present year, the number of students is now one hundred, as against seventy-one at the date of the last report—a gain of forty per cent. Increase of numbers and prosperity brings with it the necessity of enlarged accommodations. Additional and larger class and lecture rooms will be required. By the liberality of individuals the rooms assigned to the cabinets and library have been filled to overflowing. For these larger rooms must be provided. As a step towards meeting these necessities of the immediate future, the Trustees recommend the manufacture of 450,000 bricks next summer. Additional apparatus will be needed.

The new barn, although it will not cost more than the estimate of the Trustees, as presented in the report of last year, will, for reasons that have been explained, cost more than the appropriation for its construction. It is very desirable that a few thorough-bred animals, of the most approved breeds, be placed upon the farm.

After very careful consideration, the Trustees recommend the following appropriations:

For the purchase of apparatus.....	\$2,000
improvements on farm and college grounds.....	3,000
making bricks	2,500
instruction, in addition to the revenue derived from Congressional Fund.....	4,000
wing to new barn to shelter stock and farming tools and cover water.....	2,000
periodicals and expenses of library.....	100
for furniture to meet the wants of the expected increase of students.....	500
shop and tools.....	3,000
thorough-bred stock.....	900
Total.....	<u>\$20,000</u>

Respectfully submitted,

ABNER COBURN, *President.*

PRESIDENT'S REPORT.

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

In presenting our Annual Report, we refer with pleasure to the evidences of the prosperity of the institution, manifested by the increased number of students, and by the expressions of confidence in its aims and methods, from leading public men.

While almost every civilized nation is turning its attention to new methods of instruction, and especially to scientific education; and while other States are enlarging their agricultural and technical schools, the people of our State cannot forego the advantage of affording, within our own borders, superior facilities for the education of farmers, mechanics and business men.

Continued efforts have been made during the past year by public addresses, articles in the papers and interviews with influential men, to present the designs and work of the college, and to correct the misapprehensions concerning our purposes. We have endeavored to show that there is no rivalry between this and the classical colleges, and that the education received here is not limited to a mere professional training, but that it is a liberal education, especially adapted to meet the wants of those who are to engage in productive employments.

The general good deportment of the students and attention to study have been well sustained during the past year.

The plan of self-government recommended by the Faculty has been adopted by the students, and has been tried with great success. Offences against decorum and good order have been carefully noted, and the offenders have been prosecuted and tried by officers chosen by the students from their own number. Thus is a valuable lesson in the principles of civil government practically taught. This scheme also prevents the usual antagonism of feeling between the students and the Faculty in the administration of discipline. It is more efficient in preventing disorder by increas-

ing the certainty of detection. The students have the best opportunity of knowing about any irregularities and are more willing to testify against their classmates in their own tribunals, than they would be in a Faculty meeting.

COMMENCEMENT.

The Commencement last August was well attended by the friends of the college, and was a season of great interest. The presence of our Chief Magistrate and his instructive address added to the interest of the occasion. The parts performed by the graduating class merited the high encomiums pronounced upon them by all who were present. The degree of Bachelor of Science was conferred on John M. Oak, F. Lamson Scribner, and Harvey B. Thayer, who had completed the Elective Course. The degree of Civil Engineer was given to Russell W. Eaton, George H. Hamlin, Fred W. Holt and Charles E. Reed. William A. Allen and Rodney D. Hunter of the Junior class received the prize for excellence of composition, and to E. D. Mayo of the Sophomore class was awarded the prize for excellence in declamation.

DEVELOPMENT OF THE DEPARTMENTS.

During the past year there has been a development of our engineering department by a provision for thorough instruction in mechanical engineering. There is need of still further enlargement of our agricultural instruction by the appointment of a suitable professor, who could devote his whole attention to class recitations and practical lessons in the science and art of farming. And by reference to the reports of the several teachers it will be seen how necessary to our full success is more apparatus and another building. The lecture room used for a chapel is becoming too strait for us. We need rooms for our library and cabinets, as well as more recitation rooms. As a new building will be imperatively needed to accommodate the increased number of students at no distant day, it may be considered a matter of economy to make the brick at once upon the premises.

ENGLISH LITERATURE, MENTAL AND MORAL SCIENCE.

During the year I have given instruction in this department, to the Freshman class in rhetoric, to the Juniors in English literature, to the Seniors in American literature, in the history of

civilization, in mental and moral philosophy, in political economy, and in the Constitution of the United States. The instruction has been by means of text-books supplemented by lectures. I have also given lectures to the Senior class on rural and international law. All the students are required to attend to composition and declamation. These exercises have been under my supervision. The library having been enriched by the contributions recently made, affords better facilities for research and reading to our students, who from the hours devoted to labor, recitations and study can redeem but little time for general reading.

DEPARTMENT OF MATHEMATICS AND PHYSICS.

Prof. M. C. Fernald reports :

“The principal changes in this department, since the report of 1872 was published, have been the requirement of plane geometry as one of the conditions of admission to the college, and the adoption of Chauvenet's text-books on geometry and trigonometry. The recitations to which I have attended have been by the Freshmen, two terms in algebra, one term in geometry, and two terms in physics; by the Sophomores, one term in geometry and one term in trigonometry; by the Juniors, one term in analytical geometry, one term in differential calculus, and one term in integral calculus and descriptive astronomy; and by the Seniors, one term in practical astronomy, during which they have become familiar with the most approved methods of determining latitude, longitude and time. In regard to the recitations purely mathematical, it is only necessary for me to state that a good degree of advancement has been made by the several classes.

“The most satisfactory results in teaching such branches as physics and astronomy can be attained only by the aid of a liberal supply of apparatus. The amount of astronomical apparatus owned by the college is very limited. It would be an easy matter to mention a number of instruments which would be very serviceable in teaching astronomy, and which should be procured by the institution at no distant day. The want of one instrument has been constantly felt while attending to field work with the class. A Repsold's Vertical Circle (or an instrument doing the same quality of work) is much needed, and should be supplied at the earliest moment practicable. It would cost several hundred dollars, but its use would add materially to the value of the instruc-

tion in astronomy. The stock of physical apparatus has been increased to only a very limited extent within the last three years. It is more than desirable that a few hundred dollars be appropriated annually for the purchase of apparatus for the benefit of this department. In order to render the study of physics in the highest degree valuable, a well equipped physical laboratory is necessary. Such a laboratory can be provided in the building which will soon be needed—which in fact is now needed—for class purposes, by setting apart a room and fitting it up in a manner that shall best adapt it for physical experiments.”

ENGINEERING.

Prof. W. A. Pike makes the following report :

I.—*Course in Civil Engineering.*

“The instruction in civil engineering has been conducted during the past year on substantially the same plan as heretofore. The course in engineering proper begins with the Junior year, though mechanical drawing and surveying are taught in the second and third terms of the Sophomore year.

“By a new arrangement the present Junior class began mechanical drawing in the second term of their Sophomore year, thus giving those in engineering the opportunity to become thoroughly acquainted with the methods used, before beginning the drawing connected with their course. By this means, also, all the students receive instruction in mechanical drawing. The quantity and quality of drawing done shows the value of this elementary instruction. The aim of the course in civil engineering is 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 paid to the study of mechanics, both pure and applied to construction, to drawing and to field work.

“The class of 1873 had four engineers, each of whom, during the course, executed forty drawings, laid out many railroad curves, marked out ready for construction a railroad line two miles in length, made designs for a number of beams, timber joints, roof trusses and bridges, besides solving many miscellaneous problems. All the members of this class have been engaged in some engineering work since their graduation. One of them, Mr. G. H. Hamlin, has been employed here, and proves

an efficient assistant in this department. One Senior and thirteen Juniors are in the engineering course. Among the most urgent wants of this department is the need of more instruments to accommodate the rapidly increasing classes. There should also be a plane table, such as is used in the United States coast survey. The instrument is now so much used in topographical surveys that our students should be familiar with it. The lack of models and copies for drawing is deeply felt. With suitable tools and materials we could in part supply the want of models. With the insufficient tools at our command we have built during the year several models of bridges.

II.—*Course in Mechanical Engineering.*

“This course was started at the first of this college year; there is therefore little to be said of the work accomplished. In this course the intention is to lay a solid foundation in the knowledge of the principles of machinery and at the same time to make the construction of practical value by means of problems in construction and design, while particular attention is given to drawing. As we have no machine shops, instruction cannot be given in the working of machinery. It is an open question in the best engineering schools, whether the student should have work with his studies or defer the shop practice till the studies are finished, as the student can then spend his time to the best advantage in the practical part of his education. The necessity of suitable models and drawings in this course is readily perceived. As sufficient teaching help is provided, it is only requisite that the necessary apparatus be furnished to make the instruction complete.”

CHEMISTRY AND THE MODERN LANGUAGES.

There has been a succession of changes in the teachers of this department. Prof. Stone, who had given great satisfaction, after a single term retired from educational work. Prof. Atwater succeeded him and remained with us one term, when he accepted a professorship offered him by his Alma Mater. Prof. Randal Whittier, a graduate of the Boston School of Technology, was next selected to fill the vacancy. He reports as follows:

“At the commencement of the last term I was appointed Assistant Professor of Modern Languages and Engineering. When entering upon my duties I was requested to take charge of the

recitations and laboratory exercises of the three higher classes in chemistry. Being only in temporary charge of that department, I have not felt myself justified in making any large expenditures for the laboratory. In the modern languages I found that the students had devoted their attention principally to grammar; I have therefore given the greater part of the time to translation; using in French a story which gave much practice in rendering idioms and familiar expressions into English, and in German a volume of poems by celebrated authors. It is my intention to assign, next term, to the classes in French some scientific work, and possibly to do the same for the class in German. It is very desirable that some arrangement should be made by which all the students will study German, which is at present neglected by those in the engineering course. When relieved from the chemical department, I shall probably give instruction to some of the classes in mechanical or civil engineering."

NATURAL HISTORY.

Prof. C. H. Fernald reports:

"The study of physical geography is pursued by the Freshmen during their first term. This is taught by recitations and lectures illustrated by means of a globe, wall maps and blackboard diagrams. The Freshmen commence the study of botany at the middle of their second term and continue it through the third term and a part of the first term of their Sophomore year. The principles of structural and systematic botany are taught by recitations and lectures, also by a careful analysis of as many of the plants of this region as the time at command will allow. Excursions are made for the purpose of obtaining as complete collections as possible, and to observe the plants in their native habitats. Each student is required to leave with the college one hundred plants collected, identified and pressed by himself. Instruction has also been given to the class in window gardening and practical floriculture. A piece of ground was assigned to each student for a flower bed, seeds were furnished him, and he was taught to prepare the soil, sow the seeds and take care of the flowers. Although this was entirely new work to most of them the show of flowers in the beds and in the rooms was highly satisfactory, and would have done no discredit to persons of experience. The class has also had practical instruction in the use of the microscope and

have studied microscopic plants and the cells and tissues of various orders. After completing the course in botany the study of 'Elements of Agriculture' was pursued to the close of the term. The Juniors receive instruction during the first term, in human anatomy, physiology and hygiene, by recitations and lectures illustrated by the human skeleton and maps supplemented by black-board diagrams, also by the dissection of various organs of the lower animals, and by free discussion of the various topics. During the second term those in the agricultural and elective courses pursue the study of zoölogy with the object in hand; being required to make drawings and notes of every point observed. In addition to this, lectures are given and references made to the best books accessible on the subject. This course is designed to prepare the student of agriculture for the study of entomology the following term; the instruction being given the same as in zoölogy. The habits of the injurious and the beneficial insects are carefully observed. The same method of instruction is pursued in comparative anatomy by the Seniors of the agricultural and the elective courses. The students compare the organs of one animal with those of others, dissecting and studying the tissues with the microscope. Especial attention is paid by the student of agriculture to the anatomy of our domestic animals, in order to understand more fully the principles of stock-breeding and veterinary science. Instruction is given to the Seniors during their second term, in determinate mineralogy with laboratory practice, and during their third term, in geology by means of recitations, lectures and excursions.

The library, which has been under my care for some time, has completely outgrown its present room. The cases have been filled, and temporary shelves, put up in all the available spaces, are also filled, and many more books are packed away. This room is used for a weighing room in chemistry. As it is small and cannot serve the purpose of a general library, I would earnestly recommend that it be devoted to the purpose of a weighing room, for which it was originally designed, and that provision be made for a general library elsewhere.

The pressing wants of the department of natural history are: 1.—A suitable room for herbarium and work-room in botany, where the plants now on hand and further additions may be preserved, and at the same time be accessible for the purpose of study and comparison. Some work of this kind has been attempted on the

grasses and sedges, but we were compelled to suspend it for want of room. 2.—A cabinet to meet the growing demands of the institution. Donations of specimens which have come in so freely, and the collections made by myself while with the United States Commissioner of Fisheries, and also those made at Penikese while at the Anderson School of Natural History, have more than filled the available cases. Many specimens are now packed away not accessible when wanted for instruction. 3.—A room is needed adjoining the cabinet in which the classes in zoölogy, entomology and comparative anatomy, may study the objects of natural history from the cabinet. This will also serve as a dissecting and lecture room. 4.—A microscope of sufficient power and with suitable accessories for the study of the tissues of plants and animals is very much needed. There is not a recitation in this department in which the microscope should not be in constant use. No adequate idea of many of the forms of animal and vegetable life, which we are here called upon to teach, can be obtained without careful study under the microscope. The need of a good instrument has long been felt in the other departments of the college."

MILITARY INSTRUCTION.

The students engage in these exercises with much interest and pleasure. The occasional excursions made to attend the sessions of the Board of Agriculture and to other places, arouse in them a strong desire to make a creditable military appearance, which can only be secured by thorough drill. The friends of the students notice with gratification the improvement in their physical appearance and manly bearing, imparted by military exercises properly conducted. The prize of fifty dollars awarded to the Coburn Cadets at the competitive drill at Bangor on the Fourth of July, has been devoted to the purchase of a beautiful battalion flag, and the balance of money requisite, thirty-seven dollars, has been raised by the students from their own number. Although the students voluntarily assume the expense of their uniforms, and of other needful things in the complete organization of their battalion, yet if assistance could be furnished them the bounty would be well bestowed on some who can hardly afford the expense. The instruction is given by Capt. J. Deane of Bangor.

COMMERCIAL DEPARTMENT.

Students before entering college should receive instruction in book-keeping and commercial forms. As we find, however, a necessity for such teaching, Prof. J. Perley has given a course of lessons, the first part of the second term, to the Freshman class. No one can truly lay claim to a liberal education without a knowledge of the principles of book-keeping, and no one can hope for success as a farmer, mechanic, or business man, without the use of this knowledge.

MANUAL LABOR.

With the increased number of students and the limited means at our disposal, it is found difficult to furnish productive employment to all our students. Meanwhile the increased demand for educational work in the upper classes renders it very desirable for them that the three hours of work be devoted to surveying, engineering, laboratory and cabinet work. Facilities are furnished to those in the upper classes who desire productive labor, by employing them in special work done upon the premises. A part of the farm work is devoted to the trial of new methods in agriculture and to experiments carefully performed for the purpose of settling disputed points in the science.

ADMISSION OF STUDENTS.

To the thirty-two Freshmen of last year nine have been added, swelling the number of our present Sophomore class to forty-one. Thirty-four were admitted this year into the Freshman class, and several others have expressed their intention of uniting with the class at the beginning of the next term. The additional requirement of geometry in the conditions of admission has raised somewhat the scholarship of those who have entered. By gradually increasing the strictness of the examination we hope to raise still farther the standard of qualifications in the candidates, so that the greatest benefit may be derived from the college course.

We have now four female students in college, one in the Senior, one in the Sophomore, and two in the Freshman class. No definite arrangements for labor have as yet been made in the female department, as all but one of these students are living at their own homes.

The advantages of the college are designed only for those who are willing to labor faithfully and to study diligently that they may be prepared for an honorable and useful career.

C. F. ALLEN, *President.*

FARM SUPERINTENDENT'S REPORT.

For the purpose of further testing the comparative value of raw meal and cooked meal, in producing pork ; and of gaining data, which should tend either to confirm, or render doubtful the results heretofore obtained, the methods of feeding practiced in the summers of 1870, 1871, and 1872, have, with slight variations, been continued during five months of the summer and autumn of the present year.

Three White Chester pigs, each from a different litter, and differing in age and weight, were selected and placed in separate pens, June 30. The pigs were fed three times each day. For the first four weeks, only meal, cooked or raw, mixed with water, was given them ; during the remaining weeks an equal amount (about two quarts) of milk and water from the swill tub was fed to each pig with the meal given.

Pig number one, having in twelve weeks increased in weight but fifteen pounds, and appearing in poor health and condition, was, at the end of that time, dropped out of the experiment. Neither the value of the milk and water fed with the meal, nor the cost incurred in cooking the meal, are reckoned in making up the results.

	No. of pig.	Raw or cooked meal.	No. lbs. meal fed per week.	Cost of food consumed.	Libs. of gain in weight during each week.	Cost per pound of increase in live weight.
			lbs. oz.	cents.		cents.
End of first week	1	Raw.	12 4	18 3	0	
	2	Raw.	13 2	19.7	3	6.5
	3	Cooked.	14 0	21.0	2	10.5
End of second week.....	1	Raw.	12 4	18.3	2	73.2
	2	Raw.	13 2	19.7	4	5.0
	3	Cooked.	14 0	21.0	5	4.2
End of third week.....	1	Raw.	12 4	18.3	3	36.7
	2	Raw.	13 2	19.7	3	5.5
	3	Cooked.	14 0	21.0	4	4.6

	No. of pig.	Raw or cooked meal.	No. lbs. meal fed per week.	Cost of food consumed.	Lbs. of gain in weight during each week.	Cost per pound of increase in live weight.
			lbs. oz	cents.		cents.
End of fourth week	1	Raw.	13 2	19.7	1	19.7
	2	Raw.	16 10	25.0	3 $\frac{1}{2}$	7.1
	3	Cooked.	18 6	27.5	3	9.2
End of fifth week	1	Cooked.	10 8	15.7	1	15.7
	2	Cooked.	15 12	23.6	5	4.7
	3	Raw.	19 4	29.0	7 $\frac{1}{2}$	3.8
End of sixth week	1	Cooked.	7 14	11.7	0	
	2	Cooked.	14 0	21.0	2	10.5
	3	Raw.	21 0	31.5	3	10.5
End of seventh week	1	Cooked.	7 7	11.2	$\frac{1}{2}$	45.8
	2	Cooked.	15 5	23.0	2	11.5
	3	Raw.	25 13	38.7	5	7.7
End of eighth week	1	Cooked.	8 5	12.5		25.4
	2	Cooked.	13 0	19.5	$\frac{1}{2}$	39.0
	3	Raw.	28 2	42.2	7	6.3
End of ninth week	1	Raw.	10 0	15.0	1	15.0
	2	Raw.	14 3	21.3	8 $\frac{1}{2}$	2.5
	3	Cooked.	24 1	36.1	5	7.2
End of tenth week	1	Raw.	15 12	23.6	2	11.8
	2	Raw.	18 13	28.2	5 $\frac{1}{2}$	5.1
	3	Cooked.	21 14	32.8	3	10.9
End of eleventh week	1	Raw.	16 10	24.9	5	4.9
	2	Raw.	21 0	31.5	9 $\frac{1}{2}$	3.3
	3	Cooked.	20 2	30.2	12	2.5
End of twelfth week ..	1	Raw.	14 0	21.0	3 $\frac{1}{2}$	6.0
	2	Raw.	21 7	32.1	4	8.0
	3	Cooked.	25 6	38.0	4	9.5
End of thirteenth week	1	-	-	-	-	-
	2	Cooked.	26 11	40.0	7	5.7
	3	Raw.	30 3	45.2	7	6.5
End of fourteenth week	2	Cooked.	27 2	40.7	14	2.9
	3	Raw.	32 13	49.2	19	2.6
	2	Cooked.	31 4	46.9	10	4.7
End of fifteenth week	3	Raw.	40 0	60.0	12	5.0
	2	Cooked.	33 8	50.2	9	5.6
	3	Raw.	40 12	61.1	12	5.1
End of seventeenth week	2	Raw.	36 0	54.0	14	3.8
	3	Cooked.	37 0	55.5	18	3.0
	2	Raw.	38 0	57.0	11	5.1
End of eighteenth week	3	Cooked.	37 0	55.5	9	6.1
	2	Raw.	46 8	69.7	11	6.3
	3	Cooked.	44 8	66.7	17 $\frac{1}{2}$	3.8
End of twentieth week	2	Raw.	52 8	78.7	12	6.5
	3	Cooked.	52 8	78.7	6 $\frac{1}{2}$	12.1
	2	Cooked.	52 8	78.7	7	11.2
End of twenty-first week	3	Raw.	53 4	79.9	20	4.0
	2	Cooked.	56 0	84.0	13	6.5
	3	Raw.	63 7	95.1	14	6.8

	No. of pig.	Raw or cooked meal.	No. lbs. meal fed in four weeks.	Cost of food consumed in four weeks.	Lbs. of gain in weight in four weeks.	Cost per pound of increase in weight.
			lbs. oz.	cents.		cents.
During first period of 4 weeks..	1	Raw.	49 14	74.7	2	37.3
	2	Raw.	56 0	84.0	14	6.0
	3	Cooked.	60 6	90.5	14½	6.2
During second period of 4 weeks	1	Cooked.	34 2	51.2	2	25.6
	2	Cooked.	58 1	87.1	9½	9.1
	3	Raw.	94 3	1 41.5	22¾	6.3
During third period of 4 weeks.	1	Raw.	56 6	84.5	11½	7.3
	2	Raw.	75 7	1 13.1	27½	4.1
	3	Cooked.	91 7	1 37.1	24	5.7
During fourth period of 4 weeks	2	Cooked.	118 9	1 77.8	40	4.4
	3	Raw.	143 12	2 15.6	50	4.3
	2	Raw.	173 0	2 59.5	48	5.4
During fifth period of 4 weeks..	2	Raw.	173 0	2 59.5	48	5.4
	3	Cooked.	171 0	2 56.5	51	5.0
	During sixth period, comprising two weeks.....	2	Cooked.	108 8	1 62.7	20	8.1
3		Raw.	116 11	1 75.1	34	5.1

Each pound of live weight produced by feeding raw meal to No. 1, cost 11.7 cents.

“ “ “ “ “ “ No. 2, “ 5.5 “

“ “ “ “ “ “ No. 3, “ 5.0 “

“ “ “ “ “ cooked meal to No. 1, cost 25.6 cents.

“ “ “ “ “ “ No. 2, “ 6.1 “

“ “ “ “ “ “ No. 3, “ 5.4 “

The average cost per pound of live weight produced by feeding raw meal is 5½ cents.

“ “ “ “ “ “ cooked meal 6 cents.

The average cost per pound of increase in live weight obtained by feeding raw meal, is to the average cost per pound obtained by feeding cooked meal as 100 to 109.

A pig from the same litter with No. 3, and noted below as No. 4, was fed wholly from the swill tub, during the twenty-two weeks of the experiment; the feed consisting mostly of sour skimmed milk. The day after the close of the experiment, Nos. 2, 3, and 4 were slaughtered, and their several weights, live and dressed, were as follows:

Live weight.	Dressed weight.	Loss in weight.
No. 2, 190 pounds.....	156 pounds.....	34 pounds.
No. 3, 215 “	181 “	34 “
No. 4, 343 “	282 “	61 “

Experiment showing the effect of different fertilizers in the cultivation of Lane's Imperial Sugar Beet for cattle, conducted and reported by C. E. Oak, class of 1876.

The beets were sown in a light, clay loam soil, which had previously been well dressed with manure from the cow stable. The rows, which were one hundred and nine feet in length, were marked two and one-half feet distant from each other, giving to every row one square rod of land. Lines drawn one foot apart,

and at right angles with the rows, indicated, at the points of intersection, the places where the seeds were dropped, and then covered with the hand. The seeds were sown May 22d. The plants were thinned, and the vacant places in the rows supplied early in July, and the crop was gathered the latter part of October. The beets were grown on a plat of ground joining the one on which a similar experiment was tried last year, and the general conditions of the crop, and the methods of cultivation, were made to correspond as nearly as possible to those of the previous year.

No. of row.	FERTILIZERS.		No. of plants missing at time of thinning.	RESULTS.
	Name.	Weight in pounds.		Weight in lbs.
1	Nothing	—	21	184
2	Prepared Fish, (1)	2½	41	160
3	Kainite, (3)	2½	15	211
4	Superphosphate, (12)	2½	51	121
5	Nothing	—	15	179
6	Prepared Fish and Kainite	1¼ each.	30	162
7	Kainite and Superphosphate.	1¼ “	36	174
8	Fish and Superphosphate	1¼ “	27	191
9	Nothing	—	37	158
10	Dry and ground Seaweed, (11)	2½	30	185
11	Seaweed and prepared Fish	1¼ each.	56	161
12	Seaweed and Superphosphate	1¼ “	37	198
13	Nothing	—	32	197
14	Seaweed and Kainite	1¼ each.	41	174
15	Nothing	—	51	189

Experiment to test the value of various fertilizers when used in the cultivation of potatoes; conducted and reported by G. J. Moody, class of 1876.

These potatoes were planted on a heavy clay loam which was in a low state of cultivation, and from which the grass had been cut until it produced only a very small amount of poor hay. The land was plowed to the depth of seven inches, in September, 1872. It was well pulverized before planting with Nishwitz' Harrow, and furrowed with Chandler's Horse Hoe. The rows were ninety feet long and three feet apart, each row containing one square rod. Sixty hills, eighteen inches apart, were planted in each row. Selected Orono potatoes, weighing about four ounces apiece, were cut in halves and one piece planted in each hill, May 23d. No considerable difference was noticed in the time of breaking ground or in the growth of top. The conditions of the experiment were

made to correspond very nearly to those of a similar trial, made last year.

No. of row.	FERTILIZERS.	Pounds Fertilizers.	Lbs. large potatoes.	Lbs. small potatoes.
1	Nothing.....	-	31	4½
2	Prepared Fish (1).....	5	28	4
3	do do.....	2½	28½	7½
4	Chloride of Potassium (2).....	5	46	5½
5	do do.....	2½	50	4
6	Kainite (3).....	5	45	3½
7	do.....	2½	45½	5½
8	Nothing.....	-	29½	9½
9	Prepared Fish and Chloride Potassium (each).....	2½	47½	4½
10	do do Kainite (each).....	2½	51½	5½
11	Ground Feldspar, raw, (4).....	5	41	10½
12	do do do.....	2½	28	10½
13	Nothing.....	-	26	11½
14	Ground Feldspar, roasted, (5).....	5	30½	10
15	do do do.....	2½	30	11
16	Feldspathic Phosphate (6).....	5	41	9½
17	Nothing.....	-	27	12½
18	Feldspathic Phosphate.....	2½	36	8½
19	do do and Prepared Fish (each).....	2½	32½	8
20	Ground Granite (7).....	5	36½	9½
21	do do.....	2½	37½	9½
22	do do and Prepared Fish (each).....	2½	38½	10
23	Nothing.....	-	36	9½
24	Ground Raw Bone (8).....	5	36½	10
25	do do.....	2½	30½	9
26	do do and Kainite (each).....	2½	42	5
27	do do Ashes do.....	2½	46	6½
28	Tobacco Fertilizer (9).....	5	44½	8½
29	Nothing.....	-	32	11
30	Tobacco Fertilizer.....	2½	42½	11½
31	Upton and Shaw's Phosphate (10).....	5	37	10½
32	do do do.....	2½	38	12½
33	Dried and Ground Seaweed (11).....	5	56	5½
34	do do do.....	2½	53	8½

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, 3¼ cents per lb.

(3)—Cost in New York \$35 per ton. Contained 32 per cent. sulphate of potash, 1¼ 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 Upton & Shaw, Boston, Mass. Cost in Boston \$55 per ton.

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

(12)—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.

Of the one hundred and twenty varieties of potatoes here reported, sixty-two kinds have been planted on the farm four years in succession. There were ten hills of each of these kinds planted May 16th, in rows three feet apart, and eighteen inches between the hills. The remaining sixty varieties were obtained of Crosby Clements of Kenduskeag. Two hills of each of these kinds were planted under like conditions with the other lot. Conducted and reported by G. D. Parks, class of 1876.

First lot, consisting of sixty-two varieties.

VARIETY.	YIELD FROM TEN HILLS.			
	LARGE.		SMALL.	
	Lbs.	Oz.	Lbs.	Oz.
Andes	18	0	2	0
Bagley's	0	8	3	0
Bermuda	11	8	1	0
Black Diamond	11	8	3	0
Breese's Prolific	13	8	3	8
Buckeye	9	0	1	8
Calico	6	8	2	8
Callao	5	8	1	0
Central City	13	8	2	0
Chamberlain's Seedling	7	0	3	0
Chenery	13	8	3	0
Cinnamon Garnet	8	0	3	0
Coffin's Seedling	12	0	2	8
Colesbrook's Seedling	6	8	2	0
Common Peachblow	7	8	0	8
Concord	11	0	3	8
Cowhorn Seedling	6	0	3	0
Cuzco	6	0	4	8
Dana's Seedling	8	8	0	8
Dover	10	0	0	8
Dover Seedling	13	8	0	8
Early Benton	14	8	2	0
Early Golden	4	8	2	0
Early Henry	4	8	3	0
Early June	9	0	2	8
Early Peachblow	13	0	1	0
Early Peachblow, No. 2	8	0	2	0
Early Prince	6	8	1	0
Early Rose	2	8	1	0
English Blossom	17	8	1	8
Excelsior	8	0	2	0
Fluke	9	8	0	8
Garnet Chili	6	8	5	0

First lot—(Concluded.)

VARIETY.	YIELD FROM TEN HILLS.			
	LARGE.		SMALL.	
	Lbs.	Oz.	Lbs.	Oz.
General Green.....	13	8	3	0
Gleason.....	12	8	2	0
Goodrich Seedling, V.....	4	0	2	8
Goodrich Seedling, W.....	6	0	2	0
Goodrich Seedling, Y.....	7	8	2	0
Goodrich Seedling, Z.....	11	0	0	8
Granite State.....	13	8	1	8
Hamilton.....	6	8	2	0
Harrison.....	12	0	2	0
Jackson White.....	7	0	0	8
Johnson.....	7	8	2	0
Jones' Seedling.....	9	8	1	0
Kenduskeag.....	16	8	1	0
King of the Earlies.....	4	8	3	0
Lapstone Kidneys.....	8	0	2	0
Orono.....	13	8	3	8
Pale Blush Pinkeye.....	9	0	3	0
Patterson's Blue.....	9	0	0	8
Pinkeye Rustycoat.....	4	8	0	0
Prairie Seedling.....	10	0	1	0
Prince Albert.....	7	8	1	0
Rochester Seedling.....	4	8	0	8
Shaw.....	8	8	2	0
Snowball.....	6	8	3	0
Stevens.....	10	8	0	8
Union.....	8	0	1	8
White Mountain.....	3	0	3	0
White Rock.....	4	8	3	8
Worcester Seedling.....	4	8	3	8

Second lot, consisting of sixty varieties.

VARIETY.	YIELD FROM TWO HILLS.			
	LARGE.		SMALL.	
	Lbs.	Oz.	Lbs.	Oz.
Barrows' Pinkeye.....	5	0	1	0
Barrows' Seedling.....	3	0	0	8
Beacroft Seedling.....	1	8	2	0
Black Shenango.....	1	8	0	8
Black Republican.....	4	8	0	8
Blue Nose.....	1	8	1	0
California.....	1	8	0	8
Canada White.....	4	8	0	0
Cape of Good Hope.....	2	0	1	0
Churchill.....	2	0	0	8
Climax.....	5	8	1	0
Columbia.....	4	8	0	8
Creole.....	2	0	1	8
Davis' Seedling.....	4	0	0	0
Dill.....	5	0	0	0
Dunbar's Seedling.....	1	0	0	8
Early Blue.....	0	8	1	8
Early Goodrich.....	2	8	2	0

Second lot—(Concluded.)

VARIETY.	YIELD FROM TWO HILLS.			
	LARGE.		SMALL.	
	Lbs.	Oz.	Lbs.	Oz.
Flower	4	8	0	8
General Grant.....	1	0	0	8
Gilbert	3	0	0	0
Granite State Buckeye.....	2	8	0	0
Hamlin	1	8	0	0
Irish Apple.....	5	0	0	8
Jackson	4	8	0	0
Late Rose.....	6	0	0	0
Libby's Seedling.....	1	0	0	0
Lincoln	1	8	0	8
Maxim.....	1	8	0	8
Mohawk	2	8	0	0
Monitor.....	1	8	0	0
No name, No. 1.....	3	0	0	8
No name, No. 2.....	2	0	1	0
North Pond.....	0	8	0	4
Ohio Peachblow.....	3	8	0	8
Oxford	1	0	0	8
Paterhoff.....	1	0	0	8
Peasly, No. 1.....	1	0	1	0
Peasly, No. 2.....	1	0	1	0
Peasly, No. 3.....	1	0	0	0
Philadelphia.....	2	8	1	8
Pogje	2	0	0	8
Pride of Duchess.....	4	0	0	8
Prolific	4	0	0	8
Red Jackson	3	8	0	8
Rocky Mountain.....	0	0	0	2
Seedling	1	0	0	8
Sebec Seedling.....	1	0	0	8
Shaker Fancy.....	2	8	0	0
Stackpoce.....	0	8	1	0
State of Maine	0	0	0	8
Thomas	0	0	1	0
Withee	2	8	0	8
No. 1.....	1	0	1	0
No. 3.....	0	0	1	0
No. 5.....	1	0	1	8
No. 7.....	0	0	1	0
No. 9.....	0	0	1	8
No. 10.....	0	0	0	8
No. 12.....	0	0	0	2

Several experiments in the use of manures were suggested in the early spring by S. L. Boardman, Secretary Maine Board of Agriculture. It has been possible to arrange for testing but one of them, viz.: The use of different manures for top dressing grass land. The other experiments suggested are of practical value, and will be available for use another year.

In this experiment the manures were applied to the sward of a heavy clay soil, located near the easterly corner of the farm. It had been in grass five years, and produced one ton of hay per acre the previous year. The grass roots were well set and uniformly

distributed, and appeared to offer favorable conditions for a fair trial of the different manures. The manures were spread May 20. The grass was cut the second week in July, and well dried before weighing. Each plat contained four square rods; the plats were separated by an intervening space four feet wide, on which no manures were used.

The results appear to indicate that manures had little influence upon the amount of hay harvested. This was undoubtedly the case, as the small amount of rain that fell during the time in which it was possible for the manures to influence the growth of the grass, was probably not sufficient to render available, and convey to the roots of the grass, the fertilizing properties of the manures.

MANURE.	RATE PER ACRE.	WEIGHT OF HAY.
Cow manure.....	Five cords.....	63 pounds.
Horse manure.....	Five cords.....	71 "
Fine old muck, (a).....	Five cords.....	83 "
Fine old muck and salt.....	Muck, five cords; salt, three bushels.....	73 "
Plaster.....	Two bushels.....	51 "
Wood ashes.....	Five bushels.....	81 "
Salt.....	Three bushels.....	87 "
Nothing.....		87 "

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.

The first results given were obtained at the college farm by J. H. Williams, class of 1876; the second series of results is reported by G. O. Weston of Madison, Me., a graduate of the college, class of 1872, and a practical farmer.

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

Number of Experiment.	CONDITIONS OF EXPERIMENTS.	REPORTED BY J. H. WILLIAMS.				REPORTED BY GEORGE O. WESTON.			
		Large, pounds.	Medium, pounds.	Small, pounds.	Total, pounds.	Pounds, large.	Pounds, small.	Pounds, total.	
1	Seed end.....	} Potatoes divided through the center, and the products of the seed end and the butt end compared.....	6	9	2	17	5½	1¾	7
	Butt end.....		7	12½	2	21½	7¾	2	9½
2	Large potatoes.....	} Large, medium and small potatoes compared; the seed planted each year to be the product of potatoes of a like class.....	6	5	9	20	5¾	2¼	8
	Medium potatoes.....		5	11	4	20	8¼	1¾	10¼
	Small potatoes.....		5	4½	1½	11	6¾	1¾	8¾
3	Large potatoes.....	} Large, medium and small potatoes compared; the seed to be selected from an ordinary pile of potatoes.....	5	7½	5	17½	4	2¾	6¾
	Medium potatoes.....		8½	8	2½	19	5¼	2¾	8
	Small potatoes.....		5	6	1	12	5¾	1¼	6¾
4	6 inches.....	} The products of large potatoes compared, when planted six, twelve, eighteen and twenty-four inches apart.....	2	3	1½	6½	18¼	18¼	36½
	12 inches.....		2	5	3	10	13	8	21
	18 inches.....		3	6	4	13	8¾	5	13¾
	24 inches.....		4	9	7	20	8¼	2	10¼
5	Large potatoes.....	} Equal weight per acre of large, medium and small potatoes, planted at equal distances.....	3½	11	5½	20	9¼	2	11¼
	Medium potatoes.....		5	9½	1½	16	6½	3	9½
	Small potatoes.....						6¼	1¾	8
6	2 inches.....	} Seed placed on the surface, and covered to the depth of two, four, six and eight inches.....	4	9	4½	17½	7	2¼	9¼
	4 inches.....		4½	9	4	17½	6¾	1½	8¾
	6 inches.....		4	12	3	19	8	2	10
	8 inches.....		4½	9	4	17½	6¼	1¾	8
7	2 inches.....	} Seed planted below the surface, two, four, six and eight inches, and covered to the same depth.....	4	10	2	16	7	2	9
	4 inches.....		12	10	1½	24	5½	2	7½
	6 inches.....		7½	4	1	12½	6½	1	7½
	8 inches.....		4	5	2	11	7¼	1¼	8¾

8	One piece	} Medium potatoes cut to two parts, and the product of one part in a hill compared with the product of two parts in a hill..... }	8	8	1½	17½	6½	2½	9
	Two pieces		5	10	2	17	5	6½	11½
9	Whole potatoes	} Medium potatoes planted whole, compared with the same cut to two eyes, and one piece planted in each hill	7½	9	2	18½	8¾	2¾	10¾
	Cut to two eyes		7½	4	1½	13	7½	1¼	8¾
10	Flat hills	} The amount of potatoes produced by planting in flat hills, compared with the amount produced from pointed hills..... }	5½	12	1½	19	7¼	2¼	9½
	Pointed hills.....		6	12	2	20	8	2½	10½
11	Small hills	} The product from potatoes planted in small hills, compared with the product of potatoes planted in large hills..... }	4	11½	2½	18	8½	3	11½
	Large hills		2	10	1½	13½	8¼	2¾	11
12	2 pieces	} Large potatoes cut into parts containing one eye each, and the products of two, four, six and eight pieces planted to a hill compared. }	6	3	½	9½			
	4 pieces		2	12	1½	15½			
	6 pieces		7	6	1½	14½			
	8 pieces		7	16	½	23½			
13	2 stalks	} An equal number of eyes planted in each hill, and an unequal number of stalks allowed to grow..... }	6	5	2	13			
	4 stalks		12	7½	½	20			
	6 stalks		7	12	1	20			
	8 stalks		3½	11	1½	15			

STOCK OF THE FARM.

Thoroughbred Shorthorn. One bull, Napoleon I., three and one-half years old.

Grade Shorthorn. Two cows; two heifers, three years old; one heifer, two years old; two heifer calves.

Thoroughbred Jersey. Two bulls. Penobscot, two years old; Butternut, one year old.

Grade Jersey. Three cows; three heifers, two years old; three heifers, one year old; five heifer calves.

Native. Two cows; one yearling heifer.

HORSES.

Five team horses are owned by the College. Constant employment has been furnished them by the work required on the farm and in the erection of buildings. They will probably be kept at the farm through the winter, where an amount of work sufficient to keep them fully employed is needing to be done.

SWINE.

Six White Chester; one pair of Essex.

SHEEP.

Fifteen South Down and Cotswold grades.

IMPLEMENTS.

J. B. Hussey & Son of Unity, Me., have presented to the College for use on the farm, four plows of their manufacture. These plows are of different patterns, designed to meet the various requirements of farm culture. They were tried in the presence of several practical farmers of this vicinity, and gave good satisfaction. Further use of them has confirmed the favorable impressions at first given. In removing the earth from the cellar of the new barn, the strength of these plows was submitted to the severest tests, and they were proved to possess that quality in a marked degree. The ease with which they are guided in the furrow, renders the labor of the plowman comparatively light. There is room for improvement in the style and completeness of finish of these plows, a change which the manufacturers give assurance will be promptly made. A further improvement by which lightness of draft shall be secured, will essentially increase their value.

A No. 1 Eagle plow, presented by Fred. Atwood of Winterport, has been used to some extent. The first impressions of this plow are favorable. The handles, sloping well back from the body of the plow, enable the plowman to use his strength advantageously in its management. The sharp steel cutter is set at an angle which enables it to make a clean cut through the turf; the wheel that regulates the depth of the furrow, is placed in close proximity to the cutter, and by it the stubble and other debris, which would otherwise clog and throw out the plow, is constantly forced down and left in position to be turned under by the next furrow. It has a simple and complete arrangement for gauging the depth and width of the furrow, by means of which the plowman is able either completely to invert the furrow slice or to leave it inclined at almost any desired angle. Another desirable feature is the lightness of draft. The brisk, free movement of the horses while drawing it was in marked and pleasing contrast with their slow, laboring motions, when doing the same work with a different plow. The one objectionable feature is its want of steadiness, which causes it to cut an unequal furrow, or throw entirely out if left to itself. To overcome this tendency requires the continual attention of the plowman.

An Eagle pruning tool, received from the same source, is a strong, simple and efficient implement with which to perform the work for which it is designed.

This same gentleman also presented to the college an Excelsior Lawn Mower, which proved a most valuable gift, and which has done excellent service in the work for which it is designed.

A premium Root Cutter, presented by Hon. S. F. Perley of Naples, one of the Trustees of the college, materially lessens the time and labor heretofore required to prepare the roots fed to the stock.

Other implements absolutely indispensable, have been obtained by purchase, yet there is large room for important additions to the stock of tools, particularly of such as are used in garden culture.

It is evidently important that students who work on the farm shall not only have the opportunity to acquire skill in handling farm tools, but shall also know by actual use of them the superior value of improved and labor-saving implements. The opportunity here afforded, to confer a mutual favor, by supplying the wants of the farm, and bringing their wares

into extensive notice, seems to be well worthy the attention of manufacturers and dealers in agricultural implements and machinery.

PRODUCTS OF THE FARM.

One hundred tons of hay, one acre of fodder corn, one-half acre Hungarian Millet, forty-six bushels of Lost Nation wheat, thirty bushels of oats, one hundred bushels of barley, seven hundred and twenty-five bushels of potatoes, one hundred and eighty bushels of Lane's sugar beet, fifty bushels mangolds, two hundred bushels English turnips, two hundred and twenty-five bushels ruta bagas, thirty bushels turnip beets, seven hundred marketable cabbages, twenty hundred weight of squashes. Such other vegetables as have been needed to meet the demands of the boarding house and the farm house, have been grown in the gardens.

The hay was cut and put into the barn before the 25th of July, and was generally in excellent condition. It is of superior quality, and the quantity is considerably greater than will be required to meet the demands of the stock.

The corn grown for fodder was of the *sweet* variety. It was planted in rows two and one-half feet apart, and two feet between hills. Most of it was cut just as the kernel began to form in the ear; while a part of it was allowed to make a full kernel, and the ears were gathered for the market. A greater amount of fodder could, no doubt, have been obtained by planting in close drills, with a larger growing variety, yet the comparatively small quantity raised by this method, was more easily cultivated and gathered, was eaten with greater relish, and seemed to be fully equal in value to the larger and more luxuriantly growing varieties.

The large amount of fodder obtained from the half acre of millet sown, shows it to be a profitable crop for soiling purposes.

The oats were raised from three bushels, sown on one and one-fourth acres of land. The results, a light crop, short rusty straw, and a poor catch of grass, so like the experience of former years, seem to class this among the grains which cannot be profitably grown on the farm.

The barley was grown from ten bushels of seed, sown on five acres of exhausted mowing land, which the fall previous had been plowed to the depth of six inches. A compost was prepared last autumn, consisting of fine swamp muck and stable

manure in equal parts; to this, lime that had been dry slaked with strong pickle was added, at the rate of one cask of unslaked lime to each cord of the compost. The whole was well mixed, by a first and second shoveling. The second week in June the ground was pulverized with a Nishwitz' cultivator. Five cords per acre of the compost were then spread on the surface, and well worked into the soil with a Shares' harrow. The barley was sown and harrowed in June 18th, and the surface made compact and smooth with a farm roller.

The wheat was the product of seven bushels sowing, on three and one-half acres of well prepared ground. While the amount harvested was exceptionally small, the quality was good and the kernel was well formed and filled. Not more than one half the seed sown germinated. This indeed was true of nearly all the cereal and root crops, and it may largely be attributed to this, that the harvests were in some instances so unsatisfactory.

The potatoes were raised on five acres of old mowing land, four acres of which were plowed in the month of August, 1872. This ground was prepared for planting, by spreading on the furrows five cords per acre of coarse green manure from the horse and cow stables. This was first harrowed thoroughly and then turned under by running the plow at a depth of about four inches, care being taken not to disturb the old sod. After a second harrowing the potatoes were dropped in furrows three feet apart, and covered with a horse hoe. The remaining acre of land was plowed the first week in June. One-half of this planted in the manner just described; the other half acre was manured in the furrow and the seed dropped between the shovelfuls of manure, which were eighteen inches apart in the furrow.

The potatoes dug from the rows manured in the furrow were double in quantity, and superior in size, to those on the other half acre. Of the seven hundred and twenty-five bushels of potatoes harvested, six hundred and forty bushels were of merchantable size. They are of the finest quality, entirely free from rot, and find a ready market at remunerative prices.

Named in the order of their quality, the potatoes planted for field crops will stand thus: Excelsior, Early Rose, Orono, Coffin Seedling, Chamberlain Seedling. In the order of productiveness, thus: Coffin Seedling, Excelsior, Orono, Chamberlain Seedling, Early Rose.

The turnips and other roots for cattle were grown on one and

one-half acres of land. The smallness of the crop must in some measure be due to the severity of the drouth that prevailed in the months of July and August.

As a whole, the labors of the farm have received encouraging returns. Although, with the exception of the hay crop, the harvests have not been of marked abundance, yet the cultivated fields have yielded a fair amount, while the large and constantly increasing amount of forage gathered from the mowing fields, gives pleasing evidence that the exhausted soil, which before had borne only white weed and poverty grass, will respond with abundant harvests, when manures are spread with a liberal hand and diligent culture prevents the growth of harmful weeds.

In accordance with the advice of the Trustees, preparation has been made for setting an orchard near the northerly line of the farm, where several acres of gravelly and naturally drained soil, having a western exposure, seem to present favorable conditions for the growth of fruit trees. The land has been plowed, a part of it well enriched, and a few trees have been set.

An evergreen hedge, which will give protection to the trees from the severe north winds, to which this locality is exposed, has been commenced by the students, under the direction of Prof. C. H. Fernald.

Under favorable circumstances, more can be done than has yet been accomplished in the culture of small fruits. The gardens are well adapted to their growth and a ready market is close at hand. The strawberry plat has been increased to one-fourth of an acre of flourishing plants, a few currants, gooseberries, raspberries and blackberries are cultivated; but amid the multitudinous demands of perplexing cares, it has not been possible to devote in this direction the time and attention requisite to secure the best success.

The barn erected the past season occupies an elevated and central position, some sixty rods south of the college, and the same distance east of the farm house. It is one hundred feet long, fifty feet wide, twenty-four feet in height of post. Two large, well-proportioned ventilators upon the roof, ensure thorough ventilation to the body of the building, and provision for an ample supply of fresh air in the cellar and stables is made by means of eight ventilating tubes, opening under the roof. The main floor, fourteen feet wide, runs lengthwise through the center of the building. The space on either side of this floor is appropriated to floors and pens for stock, implement rooms, granary, &c. Means are pro-

vided, by which the entire space above the scaffold girts can be used for storing hay and grain. The roof of the building is slated, the outside is finished and covered with one coat of paint. The windows are not put in, and the work of finishing the inside is incomplete. A cellar nine and one-half feet deep, which extends under the entire building, will furnish ample room for the saving and manufacture of manure and the storage of roots for cattle. Two driveways on the south side, fourteen feet in width, render this accessible with teams in every part. In excavating the cellar it was necessary to remove a large amount of very difficult ledge; to do this caused much delay, and added largely to the cost of the work. It will be exceedingly fortunate and cheering if the work so well begun can be carried to speedy completion, and a farm house and out-buildings, adequate to the capacities of the farm, and worthy of the institution, be erected in connection with the barn already secured.

INVENTORY OF FARM TOOLS AND EQUIPMENTS.

4 Sward Plows.	2 Two-horse Hay Racks.
3 Stubble Plows.	1 Two-horse Farm Wagon.
1 Swivel Plow.	1 Two-horse Farm Jigger.
1 Garden Plow.	3 Two-horse Farm Carts.
1 Furrow Plow.	1 One-horse Express Wagon.
1 French's Cultivator.	1 One-horse Riding Wagon.
1 Nishwitz's Pulverizer.	1 One-horse Pung.
1 Share's Coulter Harrow.	2 Two-horse Logging Sleds.
2 Scotch Harrows.	1 Two-horse Wood Sled.
1 Chase's Revolving Tooth Harrow.	1 One-horse Wood Sled.
1 Chandler's Improved Horse Hoe.	2 Double Team harnesses.
1 Farm Roller.	1 Single Team Harness.
1 Farm Scraper.	1 Carriage Harness.
1 Stone Drag.	5 Sets Double Team Whiffletrees and Chains.
1 Clipper Mower.	4 Crotch Chains.
1 Warrior Mower.	3 Logging Chains.
1 Bay State Horse Rake.	2 Draft Chains.
1 Whittemore's Horse Rake.	6 Horse Blankets.
1 Whitcomb's Horse Rake.	6 Head Halters.
	5 Surcingles.

INVENTORY OF FARM TOOLS AND EQUIPMENTS—Concluded.

20 Long Handle Shovels.	1 Pick Handspike.
7 Short Handles.	3 Stone Hammers.
3 Long Handle Garden Spades.	6 Chopping Axes.
3 Short Handle Garden Spades.	2 Broad Axes.
8 Spading Forks.	2 Hand Axes.
10 Manure Forks.	5 Nail Hammers.
3 Garden Trowels.	4 Jack Planes.
21 Garden Hoes.	2 Jointing Planes.
5 Potatoe Diggers.	1 Smoothing Plane.
1 Grubbing Hoe.	6 Mortise Chisels.
6 Garden Rakes.	3 Paring Chisels.
13 Grass Scythes.	2 Bitstocks.
1 Grain Scythe.	1 Set Auger Bits.
1 Bush Scythe.	1 Extension Bit.
27 Hay Rakes.	3 Handsaws.
3 Drag Rakes.	1 Splitting Saw.
18 Hay Forks.	1 Fine Saw.
1 Hay Knife.	1 Pruning Saw.
1 Hay and Straw Cutter.	1 Cross-cut Saw.
1 Fanning Mill.	4 Wood Saws.
1 Root Cutter.	1 Meat Saw.
6 Potatoe Baskets.	1 Carpenters' Square.
18 Wooden Pails.	1 Try Square.
15 Grain Bags.	1 Carpenters' Bevel.
1 Steelyard.	1 Draw Shave.
1 Beam Scales.	1 Spoke Shave.
1 Fairbanks' Platform Scales.	1 Saw Sett.
3 Wheelbarrows.	1 6-8 inch Gauge.
2 Grindstones.	1 Eagle Pruning Tool.
1 Jackscrew.	1 Ralph's Oneida Cheese Vat.
3 Clay Picks.	1 Ralph's Cheese Press and
3 Gravel Picks.	Equipments.
2 Iron Bars.	1 Lactometer.
2 Steel Bars.	2 Milk Testing Tubes.
2 Cant Dogs.	

TREASURER'S REPORT.

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

GENTLEMEN,—I present herewith my annual statement of receipts and expenditures since my last report, made November 25, 1872.

General Account.

1873.		RECEIPTS	
Nov. 24,	By interest received on bank deposits for the last year		\$220 73
Nov. 25,	balance carried to new account.....		4,885 98
			\$5,106 71
1872.		EXPENDITURES.	
Nov. 25,	Balance due on old account this day settled.....!		\$5,106 71

Construction Account.

1872.		RECEIPTS.	
Nov. 25,	Balance old account.....		\$10,363 97
1873.			
Mar. 13,	Received of State Treasurer in part for Legislative appropriation..		6,350 00
Mar. 29,	said Treasurer balance of same.....		17,650 00
June 16,	of Pritchard & Fairbanks for overcharge for furnace....		7 50
			\$34,371 47
1872.		EXPENDITURES.	
Nov. 29,	Paid David McMillan, work on President's house.....		\$517 30
Dec. 12,	Charles Buffum, expenses incurred for college.....		53 20
1873.			
Jan. 11,	J. R. Farrington, hauling lumber, &c.....		55 83
Jan. 11,	J. R. Farrington, grading about President's house.....		47 54
Jan. 22,	N. W. Bond, tubing		11 84
Jan. 23,	E. W. Mansfield, iron work.....		5 65
Feb. 18,	A. B. Mosher, expressage.....		9 46
Feb. 21,	D. McMillan, work on boarding-house.....		84 00
Feb. 27,	W. & L. Cutler, plans for President's house, &c.....		46 92
Mar. 13,	Treasurer's note, dated June 14, 1872, and given to raise funds for construction of the President's house.....		6,350 00
Mar. 13,	A. W. Reed, table and crockery ware.....		94 75
	Pritchard & Fairbanks, furnace for President's house.....		240 00
Mar. 22,	C. F. Allen, carpeting, &c.....		60 12
Mar. 26,	S. P. Bradbury, soapstone and marble for President's house..		31 40
April 3,	Fogg & Bridges, materials for boarding house, &c.....		123 15
	Muzzy Iron Works, materials for boarding house, &c.....		46 32
	C. B. Brown, College buildings		1,000 00
April 5,	W. & L. Cutler, lumber and labor.....		23 19
April 8,	T. T. Cates.....		64 46
May 3,	P. D. & E. Webster, lumber.....		70 62

Construction Account—(Concluded.)

		EXPENDITURES.	
1873.			
May 3,	Paid J. R. Farrington, expenses for new barn		\$141 08
May 5,	Wood, Bishop & Co., mantles for President's house.....		68 25
May 7,	Dole Brothers, earth closet.....		14 00
May 14,	H. M. Farrington, bricks.....		50 40
May 15,	C. B. Brown, boarding house extension		500 00
May 17,	J. R. Farrington, department of Improvements.....		66 25
	J. R. Farrington, lumber, &c.....		55 66
May 21,	A. Noyes & Co., stove, furniture, &c.....		211 79
May 23,	G. W. Merrill & Co., extension tables.....		30 00
May 24,	E. & N. A. Railroad Co., stone		100 00
May 28,	J. R. Farrington, building purposes.....		200 00
June 2,	W. H. Pennell & Co., work on college buildings.....		265 53
June 5,	C. B. Brown, work on White Hall.....		348 00
June 6,	A. Leighton, work on college buildings.....		290 80
June 11,	C. F. Allen, blinds for President's house.....		98 27
June 26,	C. B. Brown, on contract for new house.....		1,500 00
July 16,	Fogg & Bridges, Nails.....		71 15
July 18,	J. R. Farrington, for construction of barn.....		500 00
July 18,	C. H. Fernald, transplanting trees.....		50 00
Aug 2,	W. A. Pike, improvements of college grounds		235 00
Aug. 8,	D. McMillan, drains and cement.....		11 00
	D. McMillan, labor and materials for class room and dormi- tory		191 95
Aug. 8,	C. B. Brown, on contract for President's house.....		1,500 00
Aug. 9,	J. R. Farrington, construction of barn.....		300 00
Aug. 27,	Fogg & Bridges, construction of barn.....		95 35
Aug. 28,	Hinckley & Egery Iron Co., class room and White dormitory		43 65
Aug. 30,	J. R. Farrington, construction of barn.....		300 00
Sept. 11,	J. M. Winchester, construction of barn.....		270 50
Sept. 12,	A. G. Ring, lumber for barn.....		295 81
Sept. 19,	J. R. Farrington, construction of barn.....		500 00
Sept. 20,	G. W. Ladd, construction of barn.....		25 00
Oct. 4,	J. R. Farrington, construction of barn.....		500 00
Oct. 25,	C. B. Brown, balance due on construction of President's house		106 06
Nov. 1,	H. S. Hobbs, in part for slating barn.....		100 00
Nov. 11,	J. S. Ricker, table ware.....		145 13
Nov. 11,	G. W. Merrill & Co., furniture &c.....		36 85
Nov. 14,	J. R. Farrington, construction of barn.....		500 00
Nov. 14,	J. R. Farrington, construction of well at President's house..		72 82
Nov. 17,	J. R. Farrington, construction of well at Professor's house..		56 90
			\$18,782 95
	Balance to new account.....		15,688 52
			\$34,371 47

Congressional Endowment Account.

		RECEIPTS.	
1872.			
Dec. 7,	Received of State Treasurer, interest on bonds.....		\$2,163 00
1873.			
Jan. 2,	six months' interest on \$6,000 City of Bangor bonds.....		180 00
Jan. 8,	three months' interest on preferred stock in St. P. & S. C. Railroad Co.....		250 00
Jan. 27,	of State Treasurer balance due on sale of lands donated by Congress.....		294 47
Feb. 21,	Received of State Treasurer, interest on State bonds....		990 00
April 5,	three months' interest on preferred stock in St. P. & S. C. Railroad Co.....		250 00
May 8,	of State Treasurer, interest on State bonds.....		417 00
July 1,	of State Treasurer, interest on State bonds.....		2,145 00
July 1,	interest on \$6,000 city of Bangor bonds.....		180 00

Congressional Endowment Account—(Continued.)

1873.		RECEIPTS.	
July 7,	Received three months' interest on preferred stock in St. P. & S. C. Railroad Co.		\$250 00
Aug. 21,	of State Treasurer, interest on State bonds.		990 00
Sept. 5,	two months' interest in preferred stock in St. P. & S. C. Railroad Co., \$10,000 at 10 per cent. per annum.		166 67
	N. B.—This stock was redeemed September 1, by the Railroad Company, and the same amount was invested in said Company's bonds bearing 8 per cent.		
Oct. 6,	Received one month's interest on said stock at 8 per cent.		66 67
Nov. 4,	of State Treasurer, interest on State bonds.		417 00
Nov. 25,	Balance carried to new account.		8,759 81
			10,526 02
			\$19,285 83
1872.		EXPENDITURES.	
Nov. 25,	Balance old account this day settled.		\$4,359 22
Nov. 29,	Paid J. R. Farrington, farm purposes.		300 00
	C. H. Fernald, three months' salary.		375 00
	C. F. Allen, three months' salary.		500 00
Nov. 30,	M. C. Fernald, three months' salary.		450 00
Dec. 9,	A. W. Reed, labor of students.		300 00
1873.			
Jan. 11,	J. R. Farrington, farm purposes.		200 00
Jan. 18,	J. R. Farrington, three months' salary.		225 00
Jan. 27,	State Treasurer for \$300 State of Maine bonds at 99 $\frac{1}{4}$, accrued interest \$5.80.		303 55
	N. B.—See "Receipts" under date of January 2d.		
Feb. 7,	Paid C. H. Fernald, apparatus.		69 00
Feb. 13,	James Dean, military instruction.		40 50
Feb. 28,	M. C. Fernald, three months' salary.		450 00
Mar. 1,	C. H. Fernald, three months' salary.		375 00
Mar. 1,	W. A. Pike, three months' salary.		375 00
Mar. 5,	C. F. Allen, three months' salary.		500 00
	J. Perley, book-keeping, one term.		80 00
Mar. 8,	C. F. Stone, chemicals, &c.		90 85
Mar. 13,	S. S. Smith & Son, printing catalogues.		49 00
Mar. 22,	C. H. Fernald, department of natural history.		94 77
Mar. 26,	M. C. Fernald, periodicals.		50 00
	S. L. Goodale, expenses as Trustee.		60 25
	S. F. Perley, expenses as Trustee.		99 00
Mar. 29,	J. R. Farrington, farm purposes.		500 00
April 5,	B. A. Burr, printing blanks.		13 25
April 15,	W. A. Pike, purchase of apparatus.		500 00
	J. R. Farrington, three months' salary.		225 00
April 25,	C. F. Stone, three months' salary.		375 00
	C. F. Stone, purchase of spectroscope.		65 00
April 26,	C. H. Fernald, students' work.		6 63
May 3,	S. F. Dike, expenses as Trustee.		69 35
May 7,	J. R. Farrington, farm purposes.		300 00
	C. H. Fernald, purchase of apparatus.		40 00
May 12,	S. L. Goodale, expenses and services at Washington, D. C.		150 00
May 27,	W. A. Pike, three months' salary.		375 00
	W. A. Pike, purchase of apparatus.		200 00
May 28,	J. R. Farrington, farm purposes.		500 00
May 31,	M. C. Fernald, three months' salary.		450 00
June 2,	C. H. Fernald, three months' salary.		375 00
	C. F. Allen, three months' salary.		500 00
June 11,	W. O. Atwater, salary.		150 00
June 16,	Insurance of President's house.		43 75
June 19,	Lyndon Oak, expenses as Trustee.		40 70
	Lyndon Oak, services and expenses as Executive Committee.		133 45
July 18,	J. R. Farrington, three months' salary.		225 00
	C. H. Fernald, for department of natural history.		20 35
July 21,	W. O. Atwater, chemical apparatus.		200 00

Congressional Endowment Account—(Concluded.)

1873.		EXPENDITURES.	
Aug. 2,	Paid	W. A. Pike, three months' salary.....	\$375 00
		C. H. Fernald, for department of horticulture.....	32 50
Aug. 8,		W. O. Atwater, balance of salary.....	350 00
Aug. 9,		J. R. Farrington, farm expenses.....	300 00
Aug. 19,		James Dean, military instruction.....	52 20
Aug. 25,		C. H. Fernald, three months' salary.....	375 00
Aug. 30,		J. R. Farrington, farm purposes.....	300 00
Sept. 1,		Agricultural Insurance Company, insurance of new house...	30 00
Sept. 3,		C. F. Allen, three months' salary.....	500 00
Sept. 5,		M. C. Fernald, three months' salary.....	450 00
Oct 25,		J. R. Farrington, three months' salary.....	225 00
Nov. 12,		R. Whittier, chemical apparatus.....	47 51
Nov. 19,		W. A. Pike, to pay labor of students.....	120 00
Nov. 22,		C. H. Fernald, three months' salary.....	375 00
Nov. 22,		G. H. Hamlin, three months' salary.....	150 00
Nov. 22,		W. A. Pike, three months' salary.....	500 00
Nov. 22,		Randal Whittier, three months' salary.....	300 00
			\$19,285 83

The foregoing exhibit shows that the General Account
 is overdrawn..... \$4,885 98
 The Congressional Endowment Account overdrawn... 10,526 02
 \$15,412 00
 The Construction Account shows a balance to its credit
 of.....\$15,588 52
 Leaving a balance in the hands of the Treasurer of.... \$176 52

The income from the College funds the next year, is estimated at \$8,264.00, a sum manifestly inadequate for the requirements of the College should there not be a dollar expended for construction purposes.

The College has, the past year, become the grateful recipient of a second donation of \$500 from its early and steadfast friend, Gov. Coburn, to be expended for the increase of the Library. There remains of this sum in the hands of the Treasurer \$150.

Respectfully submitted,

ISAIAH STETSON, *Treasurer.*

NOVEMBER 25, 1873.

I hereby certify that I have carefully examined the accounts of Hon. Isaiah Stetson, Treasurer College of Agriculture and the Mechanic Arts, as presented in the foregoing exhibit, and find them correctly entered and cast, and supported by the proper vouchers.

LYNDON OAK, *Auditor.*

DONATIONS.

TO THE LIBRARY.

Besides the valuable books purchased by the gift of Gov. Coburn, there have been presented to the library by
George A. Thatcher, Esq., of Bangor, twenty volumes.
Mrs. J. P. Flagg of Hallowell, three hundred and fifty volumes.
Hon. Hannibal Hamlin, Public Documents.
Hon. John A. Peters, Public Documents.
Hon. Warren Johnson, Maine School Reports.
Hon. S. L. Boardman, Agricultural Reports.
Dr. E. N. Mayo, Report of Medical Com. of Massachusetts.
Samuel Libbey, Esq., Maine Register, 1873.
Smithsonian Institution, Contributions, Vol. xviii.
Superintendent of Coast Survey, Coast Survey Report.

TO THE CABINET.

Miss Susan Hallowell, Bangor, collection of European plants.
F. L. Scribner, Manchester, collection of plants from Mt. Katahdin; fossils from Manchester; collection of insects.
W. O. Dike, Casco, specimens of tourmaline.
E. D. Mayo, Mt. Desert, collection of fishes.
Miss Maud Webster, Orono, collection of fishes.
William Henderson, Stillwater, markings on cedar.
Mrs. Dinsmore, New York, dried toad from California.
Hon. S. L. Goodale, Saco, Colorado potato beetles.
Lieut. C. W. Rogers, U. S. A., collection of minerals.
A. A. Lewis, Orono, skull of wildcat.
L. M. Gerrish, skull of fisher.
Walter Balentine, Waterville, simulus and cassis.
J. H. Williams, Orono, wood tarapin, young and adult; pictured slate, from Brownville.
Prof. C. A. Stone, Waltham, epidote from Austria.
G. J. Moody, Windsor, ear of corn, Rocky Mountain variety.
Anson Allen, Esq., Orono, collection of shells and corals.

William H. Pennell, Portland, collection of minerals.
 G. M. Shaw, Augusta, collection of fossils.
 A. E. Mitchell, Madison, collection of fossils.
 R. W. Eaton, Norridgewock, sponges and crustaceans.
 C. E. Oak, Garland, fossils and shells.
 S. H. Clapp, Damariscotta, fresh water sponge.
 H. Pierce, Frankfort, specimens of granite.
 E. Abbot, Winterport, specimens of serpentine.
 E. M. Blanding, Saco, birds' eggs.
 C. F. Andrews, Biddeford, specimens of fossils.
 M. F. Herring, Dexter, specimen of hornstone.
 Miss A. T. Emery, Orono, canary birds' eggs, Balt. oriole's nest.
 Benj. Stewart, Esq., Orono, ash tree gnawed by beavers.
 R. M. Montague, North Hadley, Mass., Indian implements.
 E. C. Larabee, Winterport, variety of specimens.
 J. W. Lang, Belfast, collections of minerals and woods.
 George Eddie Lang, Belfast, miniature farm tools.
 I. S. Jellison, bark, foliage and cones of the sequoia, California.
 Mr. Webster, polished and hammered granite, Fox Island.
 Highland Slate Co., Brownville, specimens of slate.
 Hallowell Granite Co., Hallowell, block of granite.
 Mr. Coart, jasper incrustated with bryozoans.
 Enos Wasgatt, live oak with mistletoe from Jacksonville, Fla.
 S. Libbey, Esq., Orono, clay concretions.
 Dr. E. N. Mayo, Orono, rattlesnake's skin.

TO STATE COLLEGE FARM.

Hon. S. F. Perley, Naples, a premium root cutter; early May peas.
 Thos. B. Hussey & Son, Unity, four plows of their manufacture.
 J. E. Bennock, Orono, two Sheldon pear trees.
 Fred. Atwood, Winterport, a No. 1, Eagle plow; Eagle pruning tool; one dozen Light Brahma eggs.
 Hon. S. L. Goodale, Saco, a variety of corn from Montana Ter.
 Crosby Clements, Kenduskeag, sixty-three varieties of potatoes.
 Reuben Bagley, Esq., Bangor, seedling potatoes.
 William H. Cook, Eddington, seeds of premium pumpkin.
 Department of Agriculture, Washington, D. C., twenty varieties of garden seeds.

CATALOGUE

OF THE

OFFICERS AND STUDENTS

OF THE

Maine State College of Agriculture and the Mechanic Arts,

ORONO, MAINE, 1873-'74.

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.

RANDAL WHITTIER,
Assistant Professor of Modern Languages and Mechanics.

GEORGE H. HAMLIN, C. E.,
Assistant Teacher of Engineering.

JOSEPH R. FARRINGTON,
Farm Superintendent.

X. A. WILLARD, A. M.,
Lecturer on Dairy Farming.

JAMES J. H. GREGORY, A. M.,
Lecturer on Market Farming and Gardening.

CAPT. JAMES DEANE,
Military Instructor.

JOHN PERLEY,
Instructor in Book Keeping and Commercial Forms.

REV. A. W. REED,
Steward.

STUDENTS.

SENIOR CLASS.

Allen, William Albert.....	Orono.
Balentine, Walter.....	Waterville.
Gerrish, Willie Herbert.....	Portland.
Gurney, John Irvine.....	Foxcroft.
Hunter, Rodney David.....	Clinton.
* Reed, William Henry.....	Springfield.
Ramsdell, Louise Hammond... .	Atkinson.

JUNIOR CLASS.

Bates, Solomon Wheaton.....	Somerset Mills.
Bumps, Wilbur.....	Bangor.
Clapp, Samuel Hervey.....	Damariscotta.
Coburn, Lewis Farrin.....	Brunswick.
Colesworthy, Charles Franklin.....	Portland.
Durham, Charles Frederic.....	Monroe.
Goodale, Alfred Montgomery.....	Saco.
Hitchings, Edson Forbes.....	Waterville.
Jones, Freeland.	Bangor.
Jordan, Whitman Howard.....	New Gloucester.
Mayo, Edward Doliver.....	S. W. Harbor.
Mitchell, Allen Gilman.....	Madison.
Mitchell, Albert Eliphalet.....	Madison.
Moore, Fred Lamson.....	Sebec.
Rogers, Luther Woodman.....	Stillwater.
Sewall, Minott Wheelwright.....	St. Albans.
Shaw, George Moore.....	Augusta.
Southard, Louis Carver.....	Boston, Mass.
Webb, Wesley.....	Unity.
Work, Edgar Alexander.....	Bangor.

SOPHOMORE CLASS.

Abbott, Edmund.....	Winterport.
Allen, Charles Plummer.....	Maysville.
Bacon, Francis Henry.....	Biddeford.
Blanding, Edward Mitchell.....	Saco.
Brainard, Charles M.....	Skowhegan.

* Deceased.

SOPHOMORE CLASS—*Concluded.*

Buker, George Haskell.....	Castine.
Crosby, Oliver.....	Dexter.
Cowan, Florence Helen.....	Orono.
Cyr Vetal.....	Madawaska.
Dike, James Edward.....	Sebago.
Dike, Willis Oliver.....	Sebago.
Estabrooke, Horace Melvin.....	Linneus.
Farrington, Arthur Manley.....	Orono.
Foss, George Obed.....	Dexter.
Gurney, Frank Paris.....	Foxcroft.
Haines, William Thomas.....	Levant.
Hamilton, Henry Fairfield.....	Saco.
Haseltine, Frank Adlam.....	Dexter.
Haskell, Newall Prince.....	New Gloucester.
Hopkins, Eugene.....	Oldtown.
Hubbard, Philip Wadsworth.....	Hiram.
Jones, Samuel Messer.....	Madison.
Lewis, Albert Augustus.....	Orono.
Linnell, James Warren.....	Exeter.
Long, Herbert Augustine.....	Machias.
Martin, Nelson.....	Topsfield.
Moody, George Jameson.....	S. Windsor.
Mudgett, Webster.....	Albion.
Oak, Charles Edson.....	Garland.
Parks, George Daniel.....	Richmond.
Pierce, Hayward.....	Frankfort.
Pillsbury, Edward Butler.....	Belfast.
Reed, Frank Radford.....	Roxbury.
Reynolds, Henry Jones.....	Dennysville.
Robinson, Walter Franklin.....	Hartford.
Rogers, Charles Wilson.....	Richmond.
Soule, Sidney Smith.....	Freeport.
Southard, Frank Edwin.....	St. Albans.
Stevens, William Lewis.....	West Waterville.
Whitaker, Frank Pierce.....	Albion.
Williams, John Howard.....	Orono.

FRESHMEN CLASS.

Andrews, Charles Frederic.....	Biddeford.
Bisbee, Fred Milton.....	Livermore.
Bunker, Fred Storey.....	Cambridge.
Burns, Robert Bruce.....	Fort Fairfield.
Blackinton, Alvah De Orville.....	Rockland.
Chase, Edson Clifford.....	Stillwater.
Dow, William Wheeler.....	Dover.
Emery, Alicia Towne.....	Orono.
Emery, James Thissell.....	Stillwater.
Freeman, Charles Morse.....	Portland.
Goud, Frank Herbert.....	Fort Fairfield.
Gould, Samuel Wardsworth.....	Hiram.
Harvey, Austin Irving.....	Carmel.
How, Edward S.....	Portland.
Herring, Menzies F.....	Dexter.
Larrabee, Edward Chamberlain.....	Winterport.
Lothrop, Luther Ramsdall.....	Leeds.
Lovejoy, Ardean.....	Orono.
Lunt, Joseph Coney.....	Benton.
Mallett, Fred Bartlett.....	Fort Kent.
Partridge, Ferd Lincoln.....	Stockton.
Phillips, Fred Foster.....	Hermon.
Pullen, Fred Hubbard.....	Foxcroft.
* Reed, Frank Elmon.....	Springfield.
Roberts, Woodbury Davis.....	Stockton.
Seavey, Thomas Burnham.....	Hiram.
Shaw, Samuel.....	Augusta.
Smullen, Thomas.....	Bangor.
Town, Charles Elmer.....	East Dover.
Townsend, Henry Clay.....	Fort Fairfield.
Weeks, James Walter.....	Castine.
Weeks, Nellie Estelle.....	Orono.
Wiggin, Fred Sumner.....	Fort Kent.
Whitney, William Butler.....	Stillwater.

SPECIAL COURSE.

Rich, Wilfred Babson.....	Brooks.
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* Deceased.

SUMMARY.

Seniors	7
Juniors	20
Sophomores	41
Freshmen	34
Special Course	1
Total	<u>103</u>

OFFICERS OF THE COLLEGE MILITARY COMPANIES.

Major of batallion, William A. Allen. Company A,—Captain, J. Irvine Gurney; Lieutenants, Walter Balentine, Rodney D. Hunter; Sergeants, Charles F. Colesworthy, Willie H. Gerrish, Edward D. Mayo, Francis H. Bacon; Corporals, S. H. Clapp, J. E. Dike, W. H. Jordan, W. L. Stevens, C. W. Rogers. Company B,—Captain, George M. Shaw; Lieutenants, Alfred M. Goodale, Edson F. Hitchings; Sergeants, Lewis F. Coburn, Frank P. Gurney; Corporals, Frank H. Goud, Fred H. Pullen, S. W. Gould, F. M. Bisbee.

DESIGN OF THE INSTITUTION.

It is the design of the Maine State College of Agriculture and the Mechanic Arts to give to 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 lessons 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 Freshmen 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.

COURSES OF INSTRUCTION.

Four full courses are provided, viz: A course in Agriculture, a course in Civil Engineering, a course in Mechanical Engineering, 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 the 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 the 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, sec-

ond, 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, 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, pneumatics, acoustics. Algebra, Robinson. Botany, Gray. Book-keeping, Commercial Forms.

Third Term.—Physics, Ganot: heat, light, electricity. Geometry, Chauvenet. Botany, Gray. Horticulture.

SECOND YEAR. *First Term.*—Chemistry, Elliot & Storer. 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, (quantitative analysis.) (E.) History of England (Elizabethan Age.) (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, Huxley. Origin, preparation and analysis of soils, fertilizers, ashes, &c. French, Magill.

Second Term.—Zoology, Nicholson. Farm Implements. Mechanical cultivation of the soil. Farm Drainage, Waring. (E.) German.

Third Term.—Mechanics, Peck. Dairy Farming, Flint. Etymology, Packard. (E.) Logic. (E.) German.

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

Second Term.—(E.) Zoology, Nicholson. (Zoology is only elective to the Engineering classes.) 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, nebulae. Descriptive Geometry, Warren. Mechanics, Rankine. Drawing: plans, profiles, elevations, sections, &c. (E.) Logic. (E.) German.

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

Second Term.—(E.) Zoology, Nicholson. 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.) Logic. (E.) German.

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

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

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

COURSE IN CIVIL ENGINEERING. *First Term.*—Practical Astronomy, Coffin: time, latitude, longitude. (E.) Comparative Anatomy, (elective only for the Civil and Mechanical Engineers.) 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 and Moral Philosophy. (E.) International Law.

Third Term.—Political Economy. Geology, Dana. Engineering, Rankine: structures of wood, framing, structures of iron, boilers, steam engines, field practice. Drawing: plans and specifications. (E.) Mental and Moral Philosophy. (E.) International Law.

COURSE IN MECHANICAL ENGINEERING. *First Term.*—(E.) Practical Astronomy, Coffin. (E.) Comparative Anatomy. 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 and Moral Philosophy. (E.) International Law.

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

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, Analysis of Soils, Ashes of Plants, Fertilizers and Farm Products.

Students in Chemistry devote two hours a day to Analysis, under the direction of the Professor of Chemistry, thus requiring facility in conducting experiments, and securing a practical knowledge of the methods employed in chemical investigations.

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 will be studied and taught, so far as may be, with special reference to their practical bearing, or their relations to Agriculture and the 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.

Students 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, and choose their officers. Arms are furnished by the State. The uniform of the students is similar to that of Cadets at West Point.

LOCATION.

The college has a pleasant and healthful location intermediate between the village of Orono and Upper Stillwater, and about a mile from each. Stillwater river, a tributary of the Penobscot,

flows a short distance 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 for the experimental purposes of the institution.

White Hall, the building first erected, contains eighteen rooms and 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 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 departments require. Models have been obtained from the United States Patent Office that serve for purposes of instruction.

LIBRARY.

The Library already contains fifteen hundred volumes, some of which have been obtained by purchase, while others have been kindly given to the college. The volumes recently secured through the liberality of Gov. Coburn, and the gifts of Mrs. Flagg of Lowell, Mr. Thatcher of Bangor, and others, are a valuable addi-

tion 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 this collection of books, 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 acknowledgment is herewith made for the following named papers generously sent by the proprietors to the college:

Sunrise, Presque Isle, Maine.
 Piscataquis Observer, Dover, Maine.
 American Sentinel, Bath, Maine.
 Maine Farmer, Augusta, Maine.
 Dexter Gazette, Dexter, Maine.
 North Star, Caribou, Maine.
 Somerset Reporter, Skowhegan, Maine.
 Aroostook Times, Houlton, Maine.
 Kennebec Journal, Augusta, Maine.
 New England Farmer, Boston, Mass.
 York County Independent, Saco, Maine.
 Bangor Weekly Courier, Bangor, Maine.
 Maine Democrat, Biddeford, Maine.
 Santa Barbara Press, Santa Barbara, Cal.
 Ohio Farmer, Cleveland, Ohio.
 Southern Farmer, Memphis, Tenn.
 Official Gazette, U. S. Patent Office, Washington.
 Northern Border, Bangor, Maine.

The following are furnished by subscription :

Journal Royal Agricultural Society, England.
 Edinburgh Review.
 Westminster Review.
 Blackwood's Magazine.
 Eclectic Magazine.
 Harper's Magazine.
 Atlantic Monthly.
 Scribner's Monthly.
 Old and New.

Galaxy,
 American Naturalist.
 American Journal of Science.
 Van Nostrand's Engineering Magazine.
 Boston Journal of Chemistry.
 American Agriculturist.
 Scientific American.
 Littel's Living Age.
 Harper's Weekly.
 Hearth and Home.
 Appleton's Journal.
 Independent.
 The Nation.
 Evening Post—(Weekly.)
 New York Tribune—(Weekly.)
 Boston Daily Globe.

The College Courant is furnished by Prof. W. O. Atwater, and the Portland Daily Press by Fred H. Pullen.

CABINET.

Rooms have been fitted up with cases for 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. Large 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, AND MEANS OF DEFRAYING THEM.

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, and each room is furnished with a bedstead, mattress, table, sink and chairs. All other 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 expense.

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 sureties, 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 of the college.

Candidates for the next class should make early application.

CALENDAR.

1873. August 28—Thursday, First Term commenced.
 November 25 and 26—Tuesday and Wednesday, Examination. First Term closes. Vacation of ten weeks.
1874. February 5—Thursday, Second Term commences.
 April 28 and 29—Tuesday and Wednesday, Examination. Second Term closes. Vacation of one week.
 May 7—Thursday, Third Term commences.
 August 3 and 4—Monday and Tuesday, Examination.
 August 3—Monday, Exhibition Junior and Sophomore classes.
 August 5—Wednesday, Commencement.
 August 6—Thursday, Examination for admission to college. Vacation of three weeks.
 August 25—Examination for admission to college.
 August 27—Thursday, First Term commences.
 November 24 and 25—Tuesday and Wednesday, Examination. First Term closes. Vacation of ten weeks.



SUMMARY OF
METEOROLOGICAL OBSERVATIONS

TAKEN AT THE

Maine State College of Agriculture and the Mechanic Arts,

FROM JANUARY, 1869, TO JANUARY, 1874.

BY PROF. M. C. FERNALD.

Latitude $44^{\circ} 53' 10''$ N. Longitude $68^{\circ} 38' 57''$ W. Elevation above the sea, 134 feet.

EXPLANATIONS, DEDUCTIONS AND REMARKS.

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

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

The tables indicate that the warmest day of the year 1873 was July 30th, when the mean temperature was 75°.5, and the coldest day January 30th, when the mean temperature was 4°.9 below zero.

The highest temperature (92°.0) recorded during the year was on the 26th of July, and the lowest temperature (26°.5 below zero) on the 30th of January.

The range of temperature between the two extremes is 118°.5, which is 6°.2 greater than the average range of temperature for the last five years.

The warmest day within the period covered by the tables was July 24th, 1870, when the mean temperature was 82°.2, and the coldest day, January 23d, 1871, when the mean temperature was 14°.9 below zero. The highest temperature (94°.0) occurred on July 24th, 1870, and the lowest temperature (26°.5 below zero) on January 30th, 1873.

A comparison, as regards temperature, of the several months of 1873, with the mean temperature of corresponding months for five years, is given below.

Months.	Mean temperature from 1869 to 1873, inclusive.	Mean temperature for 1873.	
January	17°.30	15°.01	2°.29 colder.
February.....	18°.81	16°.23	2°.58 colder.
March.....	26°.41	27°.22	0°.81 warmer.
April.....	40°.74	39°.58	1°.16 colder.
May.....	51°.60	52°.03	0°.43 warmer.
June... ..	62°.47	60°.74	1°.73 colder.
July.....	67°.95	68°.45	0°.50 warmer.
August.....	65°.21	63°.65	1°.56 colder.
September.....	57°.24	55°.50	1°.74 colder.
October.....	46°.48	47°.40	0°.92 warmer.
November.....	31°.37	25°.17	6°.20 colder.
December.....	19°.49	20°.12	0°.63 warmer.

The year 1873 averaged 1°.17 colder than the mean temperature for the five years above noticed.

The earliest frost noted, the latter part of the year 1873, was on the morning of the 28th of August.

The rain-fall for the year 1873 was less by a little more than 2.5 inches than the average rain-fall for five years; while the amount of snow (124 inches) was greater by nearly 28 inches than the average snow-fall for that period.

The prevailing wind during 1873, as also during the period of five years, was from the northwest. The relative direction and force of wind for five years are indicated very nearly by the following numbers: N. W. and W., 4; S. W. and S., 3; S. E. and E. 1; N. E. and N. 2.

Quite heavy gales, destructive in certain parts of the State, occurred during the evenings of June 1st and July 26th, 1873.

The brilliant auroras of the year were on the evenings of January 6th and 7th, June 20th and 24th, July 20th, and October 9th and 22d.

The barometer indicated the greatest pressure of the atmosphere in January and December, and the least in November. The least mean pressure was during the month of March, the greatest during the month of December.

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 gauge—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
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.		LOUDS.	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 gauge—inches.	Depth of snow—inches.	Mean per centage of cloudiness.	PER CENT. OF DIRECTION.				BAROMETER HEIGHT REDUCED TO FREEZING POINT.			FORCE OR PRESSURE OF VAPOR, IN INCHES.			RELATIVE HUMIDITY OR FRACTION OF SATURATION.		
	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
Year.....	July 24	82°. ²	Jan'y 14	-9°. ⁷	July 24	94°. ⁰	Feb'y 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.		CLLOUDS.	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 gauge—inches.	Depth of snow—inches.	Mean per centage of cloudiness.	PER CENT. OF DIRECTION.				BAROMETER HEIGHT REDUCED TO FREEZING POINT.			FORCE OR PRESSURE OF VAPOR, IN INCHES.			RELATIVE HUMIDITY OR FRACTION OF SATURATION.		
	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.
									Day.	Temperature.	Day.	Temperature.	Day.	Temperature.													
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
Year.....	30	76° 0	23	-14° 9	30	88° 6	23	-20° 6	50° 44	33° 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.		CLLOUDS.	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 gauge—inches.	Depth of snow—inches.	Mean per centage of cloudiness.	PER CENT. OF DIRECTION.				BAROMETER HEIGHT REDUCED TO FREEZING POINT.			OF VAPOR, IN INCHES.			HUMIDITY OR FRACTION OF SATURATION.		
	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
Year.....	July 16	79° 5	Dec. 25	-11° 8	June 30	90° 6	Dec. 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.		LOUDS.	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 gauge—inches.	Depth of snow—inches.	Mean per centage of cloudiness.	PER CENT. OF DIRECTION.				BAROMETER HEIGHT REDUCED TO FREEZING POINT.			FORCE OR PRESSURE OF VAPOR, IN INCHES.			RELATIVE HUMIDITY OR FRACTION OF SATURATION.		
	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.
									Day.	Temperature.	Day	Temperature.	Day.	Temperature.													
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	30.84	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	78.60	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	28.423	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
Year.....	July	75° 5	Jan'y	-4° 9	July	92° 0	Jan'y	-26° 5	49° 53	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 FROM 1869 TO 1873, INCLUSIVE.

YEARS.	THERMOMETER IN THE OPEN AIR.										RAIN AND SNOW.		LOUDS.	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 gauge—inches.	Depth of snow—inches.	Mean per centage of cloudiness.	PER CENT. OF DIRECTION.				BAROMETER HEIGHT REDUCED TO FREEZING POINT.			FORCE OR PRESSURE OF VAPOR, IN INCHES.			RELATIVE HUMIDITY OR FRACTION OF SATURATION.		
	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	44.717	84.92	.55	.41	.29	.14	.16	30.519	28.858	29.780	.826	.005	.250	100	25	76
1870.....	July 24	82.2	Jan. 14	-9.7	July 24	94.0	Feb. 4	-17.0	53.02	35.45	44.26	40.976	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	41.630	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	48.577	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	40.780	124.00	.49	.38	.30	.10	.22	30.680	28.423	29.794	.778	.009	.232	100	20	74
Five years.....	1870 July 24	82° 2	1871 Jan. 23	-14° 9	1870 July 24	94° 0	1873 Jan. 30	-26° 5	50° 68	33° 33	42° 10	Mean. 43.336	Mean. 96.23	.51	.39	.31	.11	.19	30.630	28.423	29.785	.956	.005	.253	100	13	75