

PROCEEDINGS OF THE BOARD.

MEETING OF THE BOARD OF TRUSTEES, DECEMBER, 1882.

The Board met at 3 P. M., December 12, 1882, in the University parlor.

Present: Governor Cullom, Messrs. Mason, Millard, McLean, Kenower, Pearman and Scott,

Absent: Messrs. Cobb, Bennett and Paden.

Mr. Geo. F. Kenower, newly appointed member of the Board, took the oath of office, administered by Hon. W. A. Day.

The record of last meeting was read and approved.

The following report of the Executive Committee was received:

Meeting of the Executive Committee at the Doane House, Champaign, October 27, 1882.

Present: Messrs. Cobb, Scott and Pearman.

Major Pearman, of Nebraska, appeared before the committee and made certain statements concerning the lands owned by the University and situated in Gage county, Nebraska, and making an offer for the purchase of those lands.

After hearing the statements of Major Pearman, on motion of Mr. Scott, seconded by Dr. Pearman, it was ordered:

That the Regent be authorized to advertise the lands owned by the University in Gage county, Nebraska, for sale, for cash, or for one-third cash, the remainder to be paid in three equal installments at the end of one, two and three years respectively, with interest payable annually, at seven per cent. Bids to be required for all the lands owned by the University in said county. The Trustees to reserve the right to reject any or all bids.

Bids to be directed to the Regent of the University, at Urbana, Ill., and to be received on or before four in the afternoon of the twelfth day of December next.

After which the committee adjourned.

EMORY COBB,
JAS. R. SCOTT,
J. T. PEARMAN,

Committee.

The Regent then read his report, which was received and laid on the table:

To the Trustees of the Illinois Industrial University:

GENTLEMEN: The first term of the current college year is rapidly passing away. It has been marked by an attendance equal in numbers to that of the entire year preceding, and not surpassed in the number of matriculated students, members of University classes, in any year of the University's existence. In character and calibre the students who have come to us this year are such as will help to elevate the standards of excellence. An analysis of the attendance during all the years since the organization of the University in 1868, as found in the accompanying table, shows the steady and continuous progress which has been made, year by year advancing from the elementary work of a high school or academy to the more advanced duty of a technical school of high aims and of established success.

Attendance at the University by Years and Classes.

Year ending.	1st year students..	2d year students..	3d year students..	4th year students..		Resident Graduates	Special students..	Total catalogue	University students..
June, 1869....	128							128	.....
1870....	180							180	.....
1871....	169	81	28					274	109
1872....	247	92	29	13				381	134
1873....	233	109	42	16				400	167
1874....	182	119	74	30				405	213
1875....	155	109	60	44				368	213
1876....	159	96	71	44				370	211
	Prep'y.	Fresh'm	Sopho.	Junior.	Senior.				
1877....	114	93	77	56	42	3	3	388	268
1878....	129	98	57	44	45	10	4	387	244
1879....	140	78	78	51	25	11	17	399	232
1880....	131	104	59	70	26	8	16	414	259
1881....	77	116	78	47	50	3	11	382	291
1882....	71	87	91	49	35	9	10	352	262
Fall term, 1882	70	111	68	59	37	5	.....	350	275

The table shows that the number of students of preparatory grade has diminished from 247 in 1872, to 70 in 1882; while the number of University students has increased from 109 in 1871, to 275 in 1882. During the last ten years the aggregate attendance has never exceeded 414, and never fallen below 352.

At present, 59 counties are represented here. Since the organization, every county of the State has been represented except six—Crawford, Gallatin, Lawrence, Massac, Monroe and Saline. About 23 per cent. of the students are reported from Champaign county, a very considerable number of these being from families who have removed hither from other parts of the State for the express purpose of seeking the benefits of this institution. The proportion of

students from Champaign county will be found to be no greater than the proportion of the expense of organization and endowment which that county has paid into the treasury of the University.

The occupations of those who send to the University, so far as they have been ascertained, have been, from the beginning, as follows :

From parents occupied in agricultural pursuits, including farmers, nurserymen, stock-raisers, etc.....	52 %
From parents occupied in mechanical pursuits, including workers at trades, laborers, miners, etc.....	12 %
From parents occupied in mercantile pursuits, including wholesale or retail dealers, agents, bankers, etc.....	23 %
From parents occupied in professional pursuits, including teachers, physicians, lawyers, clergymen, etc.....	13 %

This institution is emphatically the haven of the needy student who seeks the privileges of a higher intellectual training. Without question, three-fourths of our students either support themselves or come from homes where the yearly income is seriously diminished by the effort to send one or more away for instruction.

It is still farther worthy of note that a sound technical education in agriculture, in mechanics, in architecture, in engineering, in chemistry, in pharmacy, in veterinary science, may be secured at this University, at an aggregate cost for fees paid into the college treasury, for a four years' course, of \$105; while a similar course of study would cost the Illinois student at Ann Arbor \$145; at Cornell, \$300; at the Sheffield School at New Haven, or the Steven's Institute at Hoboken, \$600, and at the Columbia School of Mines, at New York, or the Institute of Technology, at Boston, \$800. As to the instruction given, it may seem presumption to claim equality with schools of greater age and of vastly greater wealth; but we may remark, without overstepping the bounds of modesty, that whenever it has happened that our students have left us to go to schools named in the list above, they have, in every case, been admitted to classes of grade even with those they occupied with us, and they have graduated honorably without loss of time.

The students who have matriculated at this University have chosen courses of study as follows :

	From the beginning.	Present year.
In the College of Agriculture	13 per cent.	6 per cent.
College of Engineering	24 per cent.	29 per cent.
College of Natural Science (chemistry, &c.)	10 per cent.	16 per cent.
In Elective Scientific courses	13 per cent.	11 per cent.
Total in Technical courses	60 per cent.	62 per cent.
In the College of Literature and Science	32 per cent.	35 per cent.
Commercial, Special and Resident Graduates.....	8 per cent.	3 per cent.

The ratio of women in attendance is about 20 per cent.; from the beginning 18.4 per cent. Of these about one-twentieth, or 1 per cent of the aggregate of students, have taken technical courses. If, then, we deduct from each of the great divisions of students,

the proper proportions of women, it appears that of all the men who have been matriculated, 74 per cent. have taken technical courses, and 18 per cent. literary courses; and that of the men now in attendance 78 per cent. take technical courses, and 20 per cent. literary courses.

A more just and equitable application of the resources of the University could hardly be devised. It meets in the letter and in the spirit, that requirement of the congressional act, when it ordains that the "leading object of the University shall be to give instruction in Agriculture and the Mechanic Arts, without neglecting other scientific and classical subjects." It should not be forgotten, that in the harmonious working of these two systems, side by side, the technical students acquire a certain invaluable share of literary culture, while the literary students possess unusual facilities for a good proportion of scientific training. Both classes find advantages which must be denied them in institutions less thoroughly equipped.

The occupation of graduates, so far as known, is as follows.

In Agricultural pursuits.....	20 per cent.
Technical pursuits.....	35 per cent.
Mercantile pursuits.....	16 per cent.
Professional pursuits.....	28 per cent.

It is too early yet to generalize upon this point. Many of our graduates are yet employed provisionally, at occupations which offer temporary support while preparations are completed for undertaking the real work to which they will ultimately devote their energies and their education.

It appears to me that the facts presented above in a condensed form, are such as must convince candid minds that this University has been, and is now, doing with unswerving fidelity the work which lies in its legitimate province. That it has earned, and therefore deserves, the confidence of the people, and the support of those who are entrusted with the management of the people's affairs.

The question of paramount importance at this time, one which overshadows all others by the dangers with which it menaces present welfare and future prosperity, is the question.

How shall this work be carried forward?

I have prepared from the printed reports of the proceedings of this board a tabulated statement showing the yearly income of the endowment fund, sacred as you know to the payment of the salaries of instructors, the yearly aggregate sums paid to professors and teachers; and the yearly aggregate sums paid for all expenses, save such as were paid from legislative appropriations made for specific purposes.

YEAR ENDING	No. teachers..	Students, Uni- versity.....	Students, total	Aggregate sal- aries	Income from endowment..	Total expenses other than Legislative..
March—						
1869	10	.....	128	\$14,840 30	\$20,450 00	\$36,715 56
1870	16	.....	180	18,327 75	24,390 00	33,246 30
1871	16	109	274	20,576 42	26,610 00	37,923 26
1872	21	134	381	20,473 58	26,894 00	44,866 05
1873	24	167	400	25,433 87	28,680 00	46,156 30
March to September—						
1873 .....	.....	.....	.....	12,649 10	21,055 00	27,384 23
September—						
1874	25	213	405	27,731 01	27,710 00	45,048 47
1875	25	213	368	30,833 63	27,710 00	45,971 71
1876	27	211	370	35,314 90	32,543 50	44,369 88
1877	26	268	385	33,921 94	29,368 25	44,350 61
1878	29	227	387	29,556 56	25,695 00	43,163 38
1879	30	232	399	29,779 30	20,470 00	37,399 32
1880	29	259	414	28,775 89	19,598 40	34,084 22
1881	26	291	342	26,402 53	20,960 00	36,293 46
1882	26	262	352	29,898 22	19,335 00	31,362 44
1883 .....	.....	.....	.....	.....	15,721 00	.....

From the above table it will be seen :

First—That the income increased gradually as the land-scrip was sold, and the proceeds were properly invested, from \$20,450, in 1869, to \$29,368.25 in 1877; that it has since then steadily decreased until in 1882 it has become \$19,335, and in 1883 the endowment, as it now stands, will yield but \$15,721. The depreciation in interest within the last six years amounts to \$13,668.25. This depreciation, it will be understood, represents no malfeasance on the part of the Trustees or of other officers of the University, but comes from well known causes, which have reduced the current rates of interest on first-class securities from ten per cent. per annum to four or five per cent., with a still downward tendency.

Second—It will be seen that the sums paid for salaries have varied from \$14,840.30 in 1869, when the institution was organized, to \$35,314.90 in 1875, thence descending to \$29,898.22 in 1882. It will be remembered that the first salaries were, in most cases, wages given of young men whose futures were yet to be created, and who were induced to join their fortunes to those of the University by the promise that their fame, and their wages as well, should grow as the enterprise prospered. I need not explain to you, as I might be required to show those less familiar with these details, the work of these men, their fidelity, their growth, their deserts, or the meagreness with which you have been compelled to reward them not according to their merits. Some thing must be done to bring the wages of our professors up to the standards which such men secure, east and west.

Third—It will be seen that the general aggregate of expense, which began at \$36,715.56 in 1869, became \$44,866.05 in 1872, and did not vary from that amount by more than \$1,500 in any year until 1877, when it was \$44,350.61. Since that date it has been constantly reduced until in 1882 it was but \$31,362.44. This certainly shows

with what care, discretion, and fidelity the finances of this institution have been administered, and that the Trustees and all officers concerned have fulfilled their duties with the utmost economy.

The expenses for the year ending Sept. 1, 1884, are estimated as follows:

Salary of Regent.....	\$3,000	
10 Professors @ \$2,000.....	20,000	
1 Professor @	1,800	
2 Professors @ \$1,500.....	3,000	
2 Instructors @ \$1,200.....	2,400	
1 Instructor @	1,000	
3 Instructors @ \$750.....	2,250	
		\$33,450
Current expenses.		
Board expenses.....	\$500	
Fuel and Lights.....	3,200	
Printing, Advertising, Stationery and Postage.....	1,400	
Janitors and Firemen.....	1,500	
Sundries.....	500	
		7,100
Total expenses.....		\$40,550
The income from sources in control of the University:		
Interest from endowment.....	\$15,721	
From fees and profits.....	10,000	
Ill. Central freight donation.....	1,000	
		26,731
Leaving deficit to be supplied.....		\$13,819

This, it will be remembered, will provide merely for maintaining things as they are, and will make no provision for such progress as an institution like this will be reasonably expected to make before a critical and exacting public.

The committee to whom you referred this subject at your last meeting has carefully considered this question, and I ask for their report your most thoughtful attention.

THE NEBRASKA LANDS.

At a late meeting of the Executive Committee, of which a report will be presented to you, the Regent was instructed to advertise for proposals for the purchase of the lands belonging to the University, and lying in Gage Co, Nebraska. The lands were accordingly offered for sale, as by the terms of an advertisement communicated herewith. The offers are to be made on this day, and will be laid before you as you shall direct, together with all accompanying documents.

The current work of the University may be learned from the following table, which shows for each instructor the kind of duty, number of classes, and of hours, and the number of students attending, both male and female. It shows that twenty-two teachers of all grades, teach 66 classes per diem, and that the average time in the class room is 19 hours per week, or 3.8 hours per day. This schedule does not show the time employed by many of the same persons in other official studies of scarcely less importance.

Work of Instruction during term ending Dec. 20, 1882.

Instructor.	Subjects taught.	No. of classes.	Hours per week.	No. of students.		
				Male.	Female.	Total.
S. H. Peabody....	Men. Sci. and Hy. Re. M.	2	10	24	12	36
T. J. Burrill....	Bot. and Horticulture..	2	11	7	3	10
S. W. Shattuck..	Mathematics.....	3	15	69	13	82
E. Snyder.....	Modern Languages.....	6	30	138	57	195
J. C. Pickard....	Eng. Lit. and Anglo-Sax	4	20	47	53	100
N. C. Ricker.....	Architecture.....	2	20	9	.....	9
J. D. Crawford..	History and Latin.....	5	25	34	34	68
G. E. Morrow....	Agriculture.....	2	20	15	.....	15
F. W. Prentice..	Veter. Sci. and Physiol.	3	15	31	15	46
P. Roos.....	Free Hand Drawing.....	2	20	20	20	40
W. T. Wood.....	Military Science.....	2	4	23	.....	23
L. O. Baker.....	Civil Engineering.....	3	30	41	.....	41
C. H. Peabody....	Mech. Engineering.....	4	22	65	12	77
W. McMurtrie....	Chemistry and Mineral.	8	25	92	16	108
B. C. Jillson....	Geol. and Phys. Geog.	2	10	29	3	32
E. A. Kimball....	Mach. Shop Practice....	2	20	29	.....	29
N. S. Spencer....	Wood Shop Practice....	2	10	10	.....	10
J. Sondericker..	Drawing and Math's....	3	25	101	.....	101
C. W. Rolfe.....	Prep. Alg. and Physiol.	4	20	96	10	106
E. P. Morse.....	Latin and Greek.....	4	20	11	7	18
H. Slawson.....	Asst. in Chem. Lab'y....	.....	25	.....	.....	.....
A. W. Palmer.....	Asst. in Chem. Lab'y....	.....	20	.....	.....	.....

Prof. Wm. McMurtrie brings to the chair of Chemistry great zeal, earnestness, and efficiency. The circumstances connected with the vacation of the chairs of chemistry at the end of last year, have left great difficulties to be overcome by the new incumbent, whoever he might be. When time and tact shall have softened these asperities, I am confident that the department of Chemistry will be found to have acquired a vigorous and healthy stamina, very greatly to be desired. The chemistry of to-day is an exact science, as precise as mathematics and as positive as engineering.

Prof. B. C. Jillson has made a good beginning in the department of Geology and Zoölogy.

The lady appointed at your last meeting did not accept the position offered her; and I have secured for the present year the services of Mr. Edward P. Morse, a graduate of the University of Vermont. I hope to arrange satisfactorily for the appointment of a lady in this position at the end of the current year.

The departments of Civil and Mechanical Engineering are showing unusual activity. The new observatory with the large theodolite has aroused much interest among the civil engineers, who are doing work of great excellence. The mechanical engineers have so filled the shop that it is difficult to furnish to advanced men the proper machine tools for carrying on the practice required from them. The erection and equipment of the blacksmith shop and foundry is a great necessity, as well as the addition of tools in the machine shop.

The condition of the departments of Agriculture and of Horticulture will be shown by the reports of the professors in charge, which reports are presented herewith.

Agreeably to your instructions, a set of books has been prepared to contain the inventories of the several departments, and in most of them the inventories have been written up in a permanent form. A certain amount of incompleteness remains, which I hope to have corrected at an early day.

The results are shown in the following table, making a grand total of \$127,287.74, of which \$7,259.50 belong to the U. S. Government, and is deposited here for use, mostly under bonds for safe keeping and return when required. Deducting this sum, the movable property of the University amounts to \$120,028.24.

Inventory of Apparatus, Library, Machinery, and other movable property belonging to the—

Department of—	Value of enumerated articles.	Estimated value of other articles.	Value of articles loaned by U. S. Gov't	Total values.
Agriculture	\$3,402 15	\$12,363 00	\$73 00	\$15,838 00
Horticulture and Botany	1,135 00	2,744 25		3,880 10
Mechanical Engineering	7,548 00	761 04	52 00	8,361 04
Architectural	2,541 48	1,202 00		3,743 48
Civil Engineering	2,570 90		79 50	2,650 40
Physical Laboratory	4,715 85	100 00		4,815 85
Chemical Laboratory		16,021 19		16,021 19
Blue Printing Laboratory	48 50	29 78		78 28
Museum of Natural History	6,430 00	1,400 00		7,830 00
Library	27,426 00			27,426 00
Art Gallery	3,084 10			3,048 10
Art and Design		500 68		500 68
Military and Gymnasium	688 00	65 00	7,055 00	7,808 00
Furniture, etc.		3,250 62		3,250 62
Heating Apparatus.		23,000 00		23,000 00
Total inventory.....				\$127,287 74
Belonging to U. S. Gov't.....				7,259 50
Total belonging to University				\$120,028 24

I present the petition of the literary societies asking for more light in their halls, and approve its request.

I present a communication from the Commissioner of the Agricultural Department at Washington, asking that you will appoint delegates to conventions called by him to sit at his office in the last week of January next. The conventions which will most nearly concern this institution are those which will consider the needs of the agricultural colleges, and of the stock-growing interests.

All of which is respectfully submitted.

SELIM H. PEABODY, *Regent.*

Mr. Millard moved that the bids on Nebraska lands be now opened before the bidders present. Carried.

The following ten bids received were opened:

1. Bowdle & Newcome, Eldora, Iowa, \$6.43 per acre.
2. John Ellis, Beatrice, Nebraska, \$5.65 per acre.
3. W. E. Haywood, Pana, Ill., \$4.14 per acre.
4. C. C. Burr and T. S. Sheldon, Lincoln, Neb., \$6.05 per acre.

5. H. B. Scott, Peoria, Ill., \$6.02 per acre.
6. Ford Lewis, Peoria, Ill., \$4.86 per acre.
7. J. H. McMurthrie, Lincoln, Nebraska, \$5.25 per acre.
8. John D. Knight, Lincoln, Neb., \$5.55 per acre.
9. Emile C. Dremush, Jerseyville, Ill., \$5.13 per acre.
10. John G. Zeller, Spring Bay, Ill., \$4.60 cash or \$5.15 time.

On motion of Dr. Pearman, seconded by Mr. McLean, it was resolved, that all bids this day received and opened for the purchase of Nebraska lands, be refused and rejected.

Adjourned to 7:30 P. M.

EVENING SESSION.

Board met as by adjournment. Present as before.

The Executive Committee presented the schedule of appropriations to be asked from the Legislature. The report was accepted, the recommendations approved, and the Regent was instructed to present the same in proper form to the Governor and Legislature.

The Treasurer's report was read, received and referred to the Auditing Committee.

ILLINOIS INDUSTRIAL UNIVERSITY,

To John W. Bunn, Treasurer.

1882.		Cr.	
Sept. 13.	By balance.....		\$13,519 41
30.	amount received on acct' fees.....		3,000 00
30.	Tuition in Preparatory Dept.....		410 00
Oct. 1.	interest on Douglas county school bonds.....		300 00
Nov. 1.	Champaign county bonds.....		3,066 67
30.	amount received on acct' Horticultural Department.....	\$114 12	
	" " " " Agricultural Department.....	3,049 71	
	" " " " Mechanical Department.....	298 36	
	" " " " Architectural Department.....	882 95	
	" " " " Chemical Department.....	135 00	
	" " " " Physical Laboratory.....	15 00	
	" " " " Music.....	75 00	
	" " " " Tuition in Preparatory Dep.....	45 00	
	" " " " Fees.....	233 00	
	" " " " Buildings and Grounds.....	179 58	
			5,027 72
Dec. 12.	By balance.....	\$10,471 44	\$25,320 80
1882.		DR.	
Nov. 30.	To amount paid salaries.....	\$3,509 22	
	" " " " on account Board expense.....	302 59	
	" " " " buildings and grounds.....	668 56	
	" " " " fuel and lights.....	192 15	
	" " " " stationery and printing.....	141 69	
	" " " " furniture and fixtures.....	21 34	
	" " " " Mechanical Department.....	416 36	
	" " " " Architectural Department.....	624 86	
	" " " " Agricultural Department.....	1,878 95	
	" " " " Horticultural Department.....	196 52	
	" " " " Chemical Department.....	206 24	
	" " " " Military Department.....	11 35	
	" " " " Library and apparatus.....	27 67	
	" " " " Incidental expenses.....	47 88	
	State appropriations—		
	To amount paid on account buildings and grounds.....	\$162 13	\$8,245 88
	" " " " Chem., Phys. and Bot. Labs..	737 73	
	" " " " Mech. and Arch. shops.....	560 00	
	" " " " books and publications.....	190 70	
	" " " " current expenses.....	4,196 64	
	" " " " cabinets.....	32 06	

The report from Prof. Morrow, for the Agricultural Department, was read, received and ordered on file:

UNIVERSITY, December 11, 1882.

Dr. S. H. Peabody, *Regent*:

DEAR SIR—The financial results of the year's work on the University farms are shown by the following summary:

Sales and credits.....	\$8,548 46	
Expenses.....	7,548 33	
Surplus of sales.....		\$1,000 13
Salable property, December 1, 1882.....	\$12,419	
Salable property, December 1, 1881.....	11,920	
Increase.....		499 00
Value of teams, December 1, 1882.....	\$1,400	
Value of teams, December 1, 1881.....	1,000	
Increase.....		400 00
Value of machinery and tools, 1882.....	\$1,846 25	
Value of machinery and tools, 1881.....	1,764 50	
Increase.....		81 75
Increase for year.....		\$1,980 88

The credit balance could be handsomely increased by legitimate charges for improvements made during the year, including sheds, fencing, tile drainage, pump, cistern, etc., and for extra cost of labor in experimental work and of animals purchased for experimental feeding, but it is preferred to have the account as given.

Summaries of the leading items of sales and expenses are given herewith, as also summary of the inventory of property. Detailed statements with vouchers for all expenditures are on file. Care has been taken to make the valuation as accurate as possible. In some cases exact quantities could not be determined—notably of corn in field—but it is believed the total valuation is within, rather than above, the selling value at present prices.

The season as a whole has not been a favorable one. The cold, wet spring and early summer prevented the planting of the full acreage intended for corn, greatly increased the cost of cultivating the crop, and reduced the yield, although this was better than was thought possible a few months since. Most kinds of farm work have been done at greater cost and at later date than in former years. It is probably unprecedented in the history of the farm that there should be 50 acres of corn unhusked at December 1, but it has only been by careful hand-picking, rejecting the more immature ears, that we have been able to secure as much as has been harvested.

We have not been fortunate with the breeding stock. Without any epidemic, our losses from disease and accident have been greater than usual, while the additions have been fewer than was to have been expected.

On the other hand, the yield of small grains was satisfactory, and that of hay unusually good. The pastures have been in good condition during the season.

The efforts to improve the quality of the breeding and fattening stock are thought to have been quite successful. The stock of all classes is believed to be more valuable than at any former time.

The Dairy has been satisfactory. The sales of butter and milk aggregate \$708.25 for the year. In addition the partially or wholly skimmed milk has been used in rearing the calves. The butter made has been of good quality. It has largely been sold to members of the Faculty and to the Doane House in Champaign.

Experiments have been tried in feeding cattle and pigs; in comparison of modes of cultivation of corn and tests of some twenty varieties; with commercial fertilizers; in the series to compare effects of rotation with continuous cultivation of one crop, etc. Detailed statements of these will be made.

A Silo has been filled this Autumn, corn, sorghum, artichoke tops and broom-corn seed each being used. Repeated breakage of the cutting apparatus interfered with the plan made for this experiment.

A large trade in seed corn was had last Spring—the sales aggregating \$967.65. Such sales seem to me especially appropriate, and I have had careful selection of seed made this Autumn. We will also be able to furnish good seed oats.

The demand for breeding stock continues good, although the limited number for sale has not justified advertising. During the year a large quantity of work has been done in placing the hedge and other fences in good condition, a work that is comparatively nearly completed.

Work on repairs and rearrangement at the barns, commenced last Summer, has been delayed in completion, partly because of pressure of work in the Architectural Department and partly because of attempt to have much of it done by the farm force when leisure could be found. Some could not be done until the weight of hay had been removed.

Prof. Burrill's report was presented, read and ordered on file :

INDUSTRIAL UNIVERSITY.

Dr. S. H. Peabody, Regent:

The work in the Horticultural Department for the year just closed has been reasonably satisfactory, though the season has in many respects been unfavorable. The long drouth of 1881, together with the warm and humid autumn, caused most plants to go into their winter's rest in poor condition. Nearly all the apple-trees in the country became diseased—the peculiar conditions favoring the extraordinary development of a not uncommon fungus parasite which in the autumn, spring and summer severely injured the young shoots, leaves and fruit. Many trees remained throughout the summer with impaired foliage, often appearing half dead, and the small amount of fruit escaping other vicissitudes became nearly worthless from "scab," as the effect of this fungus is popularly called. Pear-trees similarly suffer from the same cause, but with us not so badly this year. An account of my investigations upon this destroyer—*Fusicladium dendriticum*, Fekl., has been published in the American Agricultural Review, and is to be presented this week to the Illinois State Horticultural Society.

The very backward spring and the late frosts caused other injuries. Cherries and apples (fruit) were considerably destroyed. Curiously enough, pears produced a good crop, though subjected several times while in full bloom to from two to six degrees of frost. Somewhat less freezing in the southern part of the State, occurring at the same time, but when the fruit had become well set, entirely destroyed the crop. The case was somewhat similar with peaches. Strawberries with us were badly injured. From this and other causes our small fruits were a practical failure. We have, however, reset about an acre of strawberries for next year's fruiting, and these are now in good condition.

Grapes severely suffered from several diseases, producing fungi infesting the shoots, leaves and fruit. Two of these especially produce what is called "rot" of the berries, and this year made serious havoc with the fruit in June and the first part of July. This difficulty is wholly prevented by inclosing the bunches, soon after they are formed, in paper bags such as are used by grocers; and, though the process is somewhat tedious, the cost does not prevent the use of the bags when grapes are grown for profit if three or more cents per pound can be secured for the crop. Some experiments during the summer showed that the bunches so covered are not later in ripening than those left exposed to the sun and air, neither is their quality affected, while the appearance of the fruit—clean and with full surface bloom—is much better, besides being absolutely free from rotten berries. Considerable attention was also given to these destructive fungi during the summer vacation, but the results are not considered ready for publication. Other studies were made upon diseases of the blackberry, which have been received for publication in the proceedings of the American Society for the Promotion of Agricultural Science and in the American Agricultural Review.

Further investigations were made in the entirely new subject of minute organisms (bacteria) inhabiting the tissues of apparently healthy plants (especially poison ivy, etc.), and an account published in the American Microscopical Journal and to appear in the forthcoming proceedings of the American Association for the Advancement of Science.

I may say in this connection that a considerable portion of my time during the summer and early part of the autumn has been devoted to the study of bacteria in general, and in preparing for the forthcoming Report of the Trustees of the University, a comprehensive paper upon the subject. A large and increasing amount of correspondence upon these and kindred matters seems to show a general interest in the work done. I am pleased to report that the new microscope and its equipments purchased for such work gives entire satisfaction and considerably improves the facilities for investigations of these kinds.

In the experiments on grapes the fact was noted that cutting off the fruit bearing shoots a short distance above the bunches made the berries about one week later in ripening, but increased their size.

A peculiar result came from an experiment in planting large and small seed potatoes (whole). Planting, May 30th. Conditions the same throughout. The large tubers produced on an average six vines, which at first surpassed in vigor of growth the three vines (average) from the small tubers. But during the drouth of August, by the 20th of this month all vines from the large tubers were dead, while the others remained alive, and after the rains of the last of August rapidly grew and finally produced double the yield of the former.

Experiments were made in killing cabbage-"worms," and an emulsion of coal oil was found wholly successful. So far as tried (with soap, concentrated alkali, milk, etc.), the best effect is obtained by forming an emulsion of strong soap solution (soft soap or hard soap dissolved in the least practicable amount of water) by vigorously stirring in an equal volume of kerosene oil and afterward adding water. When ten times the amount of water was added, the insects were all killed, but some spots on the leaves also perished. With care in stirring the mixture, so as to make a perfect emulsion, this or a still more watery preparation may be successfully and readily used. The same may be used for insects on very many other plants and crops. For house plants the addition of twenty times as much water as soap and oil makes an effective emulsion into which the affected parts may be fearlessly plunged.

An experiment in attempting to "seed" corn with spores of smut proved a failure. May 5th, seed corn was covered with smut spores and planted in six rows of fourteen hills each, among similar rows planted with the same seed not smutted. On June 8th, smut spores in water were poured on one row of fourteen hills not previously treated with the smut. September 14th the six rows from smutted seed had smut on twenty stalks. Six

rows from clean seed had twenty-five stalks with smut. One row with smut spores on seedlings had two stalks smutted, while in some other rows from clean seed as many as eight were found. Corn was raised on the same ground two years before but none last year. The life history of this smut fungus is still unknown. The vegetative threads (mycetium) do, however, penetrate the tissues of the plant early in the season and ultimately spread throughout most of the cells of the stalk and ear or leaves, if these latter finally become the place of the spore production.

The ornamental grounds have been kept in good condition. The backwardness of the spring prevented the display of bedding plants as early as usual, but the favorable conditions of the latter part of the season made full recompense for this and the beds and lawn made an excellent showing.

Correspondence is now in progress by which it is believed a suitable man for gardener will be found ready to commence work with the beginning of the new year. I have tried to secure definite information permitting the nomination of a man at the approaching meeting of the Trustees, but am not quite prepared.

All of which is respectfully submitted,

T. J. BURRILL,

Professor of Botany and Horticulture.

Adjourned to 9:30 A. M.
