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JANUARY MEETING—1870.

UNIVERSITY BUILDING,  
URBANA, ILL., *Jan. 12th*, 1870.

The Executive Committee met in the Regent's office at 10, A. M. The Regent in the Chair.

Present—Messrs. Brown, Cobb, Cunningham, Goltra, Pickrell, Wright, and the Regent.

The minutes of last meeting were read and approved.

The Regent then stated that Prof. Robinson had a communication to lay before the Executive Committee, on the subject of the Mechanical Department.

On motion of Judge Brown,

It was voted that Prof. Robinson be invited to appear before the Committee and present his communication in person.

Prof. Robinson was then introduced, and read the following statement, which,

On motion of Judge Cunningham,

Was ordered to be placed upon the minutes of the Executive Committee.

STATEMENT OF PROF. ROBINSON.

URBANA, ILL., Jan. 10th, 1870.

*To the Regent and the Executive Committee of the I. I. U.:*

GENTLEMEN:—Having entered upon duty the first of January, pursuant to the desire expressed by Regent Gregory, in notifying me of your appointment of myself to the chair of Mechanical Philosophy and Engineering, permit me to say that I come to join heartily, and with my whole energy in the work expected of me in connection with this Institution.

I have endeavored, by examining into the intentions of those who established the Institution, by conversation with those familiar with its objects and aims, and by all means at my command, to ascertain as accurately as possible what are the real wants of the Mechanical Department. As it has been wisely adopted as the policy of this University to mingle practical instruction with theoretical, permit me to say that I regard this plan of instruction as especially important to the practical mechanical engineer. He should have a thorough acquaintance with, and almost an intuitive judgment regarding, the strength, weight and durability of steel, iron, brass, wood, etc. This cannot be acquired by listening to lectures, or reading scientific journals. Indeed, an apprenticeship of three or four years would prove of great value to the designer of machinery. Pattern-making should be thoroughly understood, in order to fully realize the importance of so shaping the parts of a machine intended to be of cast-iron, that they may be made with strict reference to their being drawn from the moulder's sand at the foundry, and at the least cost. It is difficult to acquire this without practice at pattern-making. Machinery should be also so made, that the parts may be easily got at when repair is necessary. The designer, moreover, should have such a knowledge of the materials of construction, that the parts of many machines may be by judgment alone.

Machinery, more than any other constructions, is often subject to shock. For such machines calculations from theoretical considerations profit nothing—such, for example, as locomotives, rock-drilling machines, power-hammers, etc. As a substitute for an apprenticeship, I think it extremely advisable, particularly in Industrial Institutions, that liberal means be provided for practical culture; and not only free use of illustrative models of machine, ry, but by practice in constructing parts of machines, and, if possible, making

whole machines. For example: let the student make the design, the patterns, mould them, cast them in heated metal, such as can be fused in a forge, when such materials are suitable, and finish them. Our models for illustrating parts of machinery may be made in this way. As these models must be had, I submit the suggestion, that their manufacture in our own shop will not only cost as little outlay as importation from the old world, where alone they are now made, but this manufacture would afford much of the desired practical instruction for students, and might furnish here, as it does in some European schools, a profitable application of student's labor.

Thus models, not only for the Mechanical, but for all the departments, may be made. When the castings for these models are ordered or made by ourselves, as above suggested, a good number from each may be secured at the same time, and all finished together. In this manner, several duplicates of each model can be cheaply procured, and mostly offered for sale to other institutions. And, indeed, as these models are not now made in this country, their sale will probably prove profitable. As our object in imparting practical instruction will be, primarily, to teach the student, it is not altogether improbable that as much of that class of education may be secured here, in six months of diligent application, as would be if apprenticed for two or three years to an indifferent master, whose main object is to make money. The apparatus for the machine shop will itself furnish, to quite an extent, the necessary models of illustration, and at the same time be true working models, which, of course, are the best. The cylinder of the steam engine may be so made as to admit the application to it of various gears, to convert the engine at pleasure from one to another. In this way, the common slide-valve engine may be changed into a Corliss, or to a regulating cut-off engine, or any other for which we have the suitable valve-gear. Thus, one of the most important of all machines may be exhibited in its various modifications, as an actual working model, to the class. The Mechanical Department, thus equipped, will afford valuable aid to the Agricultural Department, for the repair of agricultural machinery and implements.

The power at hand in the shop will undoubtedly be applied to many useful purposes, to supply a want already felt, such, for instance, as threshing grain, shelling corn, grinding grain, running the carpenter's lathe, buzz saw or other machinery, for the benefit of the Agricultural Department. Indeed, complete machines, experimental or otherwise, can be made, such as it may be desirable to try on the farm or in the shop, and which, on account of originality, cannot be found in the market. On account of these numerous advantages to the Agricultural Department, undoubtedly that department will be glad to hasten the introduction of the shop, by sharing the expenses of fitting up, in providing room for it, and procuring a boiler. As an encouragement to this fitting up of the Mechanical Department, allow me to state, that while all the Mechanical students were before me for the purpose of having explained to them the duties of the Mechanical Engineer, and what acquirements he should attain to, after stating the importance of practical culture, I

ventured to take a vote to ascertain how many wished to engage in labor in the Mechanical shop, provided one be established here. Every man was swift to vote in favor of work.

My own conviction is, that a shop should be immediately provided. I would, therefore, respectfully ask the Executive Committee to sanction the purchase of the following named machinery and apparatus for that purpose :

I. An engine of 8 or 10 horse power, with regular cylinder, made to order, in such a manner as to be susceptible of receiving different valve-gears, for \$250 or \$300.

II. A machinist or engine lathe, from the Putnam Machine Company, of Fitchburg, Massachusetts, of 14 inch swing, having all the modern improvements, and being itself a model of workmanship, which can be purchased at reduced rates for this institution, at \$310.

III. A chuck, drills, etc., for, say \$40.

IV. Twenty feet of  $\frac{1}{2}$  inch shafting at, say \$20.

V. Material and apparatus for, or perhaps a portable forge, for \$20 or \$40.

VI. Anvil, vises, hammers, etc., say \$40. The necessary shop room may be provided for by raising the roof of the present carpenter's shop, thereby adding a second story, which will perhaps cost \$130, making room for the present for the machine and carpenter's shop, both of which can be supplied by the same power. This enlargement of the building, and also, the purchase of a boiler for \$300 or \$400, perhaps the Agricultural Department will be willing to undertake first, because the appropriation to the Mechanical Department for the purchase of models and machinery is small, and second, on account of the many benefits to the Agricultural Department arising from the presence of the shops. It is my belief, that the \$2,000 appropriated to the Mechanical Department for providing models, etc., can be best used in first procuring apparatus for a shop, as above indicated, and then paying students for work producing models.

I think it is also advisable, that the Executive Committee sanction the employment of an experienced workman, to be present at the shop, engaged at model work, and when not there myself, having the immediate oversight of students at work in the shop. Mr. Alexander Thompson, a graduate of Michigan University, is such a man, and a rapid worker, whom I can recommend in the highest terms. He can be secured for \$1,200 per year, and if permanency cannot be promised, I would very strongly recommend as an economical measure, his temporary employment for model work, etc., till the \$2,000 already appropriated for illustrative models, be exhausted. I submit the following estimate of expenses and receipts for the year, for which the Mechanical Department will be liable on account of the shop, if instituted :

Expenses.....	\$750 00
Cost of machinery.....	200 00
Wages of mechanic.....	1,200 00
Materials.....	400 00
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	\$2,550 00

RECEIPTS.	
Models on hand, or sold.....	\$500 00
Value of work done for other departments.....	200 00
	<u>\$700 00</u>
Expenditures over receipts.....	\$1,850 00
Appropriation.....	2,000 00
• Balance on hand.....	\$150 00

S. W. ROBINSON,

*Prof. Mech. Phil. and Engineering.*

On motion of Judge Brown,

It was voted that the Regent and Prof. Robinson be authorized to purchase, at once, for the Mechanical Department :

1. An engine of 8 or 10 horse power, of the description mentioned in his memorial, and a suitable boiler for same.
2. A machinist's or engine lathe, of the size and character recommended in the same paper.
3. Chuck, drills, etc.
4. Twenty feet half-inch shafting.
5. A suitable forge.
6. One anvil, two vises, and the necessary hammers for the shop.
7. The raw material necessary to commence operations.

They were also authorized to raise the roof of the shop, to furnish room for the shop of the Mechanical Department.

The Regent then read the statement of the Book-keeper, as follows :

Statement of the expenditures of the University from March 12th, 1869, to January, 1870; arranged under titles of Appropriations, as made by the Board of Trustees and the State :

Board expense.....	\$846 00
Salaries.....	14,126 13
Farm account.....	4,227 87
University building.....	2,753 11
"    grounds.....	583 62
Student labor.....	1,443 29
Fuel and lights.....	573 92
Incidental expense.....	1,281 71
Treasurer's and Corresponding Secretary's salaries.....	700 00
Taxes on lands.....	988 48
Purchase of two lots.....	425 00
Military buttons.....	50 00
Geological excursions.....	200 00
Meteorological inst.....	81 50
Stationery.....	179 35
Appropriation of 1868.....	432 70
Carpenter's shop, material on hand.....	939 82
Total expended from Board appropriation.....	<u>\$29,836 00</u>

Agricultural Department.....	\$1,563 67
Horticultural ".....	3,332 00
Chemical laboratory.....	1,151 86
Books and apparatus.....	4,986 25
Total expenditures from State appropriation.....	<u>\$10,972 67</u>
Grand total.....	\$40,808 67

## COLLECTIONS FOR THE TREASURER TO JANUARY 10TH. •

Collected from G. S. Upstone, from sales on farm to January 1st, 1870.....	\$153 05
Collected for coal, from students.....	103 08
Fees, from students.....	373 50
Prof. W. F. Bliss, for sale of farm produce.....	198 60
	<u>\$833 23</u>
Previous collections.....	3,442 48
Total collected for Treasurer.....	<u>\$4,275 71</u>

Very respectfully,

E. SNYDER, *Book-keeper.*

On motion,  
Adjourned to 3 o'clock, P. M.

The Committee met pursuant to adjournment.

The report of the committee appointed at the last meeting, to effect an insurance on the University building, was received and approved.

## REPORT OF COMMITTEE.

The undersigned, to whom was referred the question of the insurance of the University building, library and apparatus, at the last meeting of your Committee, would report, that insurance was effected as follows :

*On Building.*—Underwriters', \$5,000; Lumberman's of Chicago, \$5,000; Home, of New Haven, \$5,000; State, of Chicago, \$5,000; North American, of Philadelphia, \$5,000; Illinois Mutual, of Alton, \$5,000; Hartford, of Hartford, \$5,000.

*Library and Apparatus.*—Sangamo, of Springfield, \$5,000.

That said insurance was effected at nine-tenths of one per cent., from Dec. 19th, 1869, to Dec. 19th, 1870, on representing to the agents that the Trustees had ordered two fire extinguishers, and had effective aid for extinguishing fires on the premises. Dated Jan. 12th, 1870.

J. M. GREGORY,  
J. O. CUNNINGHAM.

The same committee, consisting of Dr. Gregory and Judge Cunningham, were authorized to effect an insurance on the Gardener's house.

Judge Cunningham made the following report for the committee appointed to rent the Griggs farm :

## REPORT OF COMMITTEE.

In pursuance of the authority given at a previous meeting, and in the absence from the State of Mr. Griggs, I advertised, by hand-bills, to rent the lands belonging to the University, known as the Griggs farm, to the highest bidder, on the 18th day of December last. The bidding for the lands was spirited, and resulted in letting them as follows:

J. I. Toy,.....s ½ sw ¼ sec 21.....	.80 acres at \$3.60.....	\$288
C Weeks.....n ½ sw ¼ sec 21.....	.80 " " 2.80.....	224
G. W. Burton...s ¼ se ¼ sec 21.....	.80 " " 4.00..	320
" " .....nw ¼ se ¼ sec 21.....	.40 " " 4.05.....	162
W. Hill Burton...ne ¼ se ¼ sec 21.....	.40 " " 4.05.....	162
M. Dare Burton...sw ¼ ne ¼ sec 21.....	.40 " " 5.00.....	200
C. Burnett.....se ¼ ne ¼ sec 21... ..	.40 " " 4.40.....	176
Total.....		\$1,532

I took from each tenant his note, with good security, for amount of his note, to the 25th of December, 1870, to the University.

Respectfully submitted.

January 12, 1870.

J. O. CUNNINGHAM.

On motion of Mr. Goltra,

The report was received and adopted.

The following bills were then audited and allowed :

Beidler & Kratz, lumber... ..	\$ 60 73
Fuller, Finch & Fuller, paint and varnish.....	48 66
" " " " glass.....	9 80
Hulburt & Herrick, drawing tools .....	11 50
J. Ely, spring wagon and repairs.....	163 35
Union Coal Co., 3 cars coal.....	60 00
F. M. & A. Avey, blacksmithing .....	3 68
Recording Secretary's account, postage, etc .....	10 80
Prof. W. F. Bliss, petty expense for farm.....	53 79
J. M. Turnell, 2 bugles and mouth-pieces .....	17 00
Park Royer, lumber account .....	67 50
George Upstone, petty account for farm. ....	74 68
" " expense to fairs .....	19 20

Dr. Gregory presented a report, giving some details of his visit to European schools, and presented the bills of purchase of books and apparatus, stating that the books have all arrived and the last of the apparatus was on the way.

The bills were allowed.

Dr. Gregory was requested to make, at the next meeting of the Board of Trustees, a full report of his visit to European schools.

Mr. Cobb offered the following preamble and resolution :

WHEREAS, It appears upon an examination of the accounts of the Book-keeper, that in some cases the appropriations of the March meeting, 1869, for the current year, were insufficient, and in others excessive, but that the aggregate

amount appropriated is believed to be nearly sufficient for all requirements; therefore, be it

*Resolved*, That the Regent and Book-keeper be authorized to re-arrange the amounts appropriated, so as to cover all the necessary expenses for the current year, ending March 1st, 1870, and report said arrangement immediately to the Treasurer.

Carried.

Mr. Pickrell, of the Farm Committee, presented a plan of a barn for the Stock farm, explaining that he had been unable to get the specifications for it, and could consequently present no formal report.

On motion of Mr. Cobb,

The Farm Committee was instructed to obtain specifications for a barn, to be built of wood, on a stone foundation.

On motion of Judge Brown,

Voted, that the Regent be authorized to purchase the seeds needed for the Vegetable and Flower gardens, and also such floral plants as he may deem proper and necessary.

On motion of Mr. Cobb,

*Resolved*, That \$100 be allowed to Prof. Snyder for his services as Assistant Secretary for the past year, and that a warrant be drawn for said amount.

On motion of Mr. Goltra,

Adjourned to meet at the call of the Regent,

J. M. GREGORY.

W. F. BLISS, *Secretary*.

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