

FIRST ANNUAL REPORT

OF THE

BOARD OF TRUSTEES

OF THE

ILLINOIS INDUSTRIAL UNIVERSITY,

FROM THEIR ORGANIZATION, MARCH 12, 1867,

TO THE

CLOSE OF THE ACADEMIC YEAR,

JUNE 18, 1868.

SPRINGFIELD:

BAKER, BAILHACHE & CO. PRINTERS.

1868.

"The use of manual labor is one which never grows obsolete, and which is inapplicable to no person. A man should have a farm or a mechanical craft for his culture. We must have a basis for our higher accomplishments, our delicate entertainments of poetry and philosophy, in the work of our hands. We must have an antagonism in the tough world for all the variety of our spiritual faculties, or they will not be born. * * * * *

"In general, one may say, that the husbandman's is the oldest and most universal profession, and that where a man does not yet discover in himself any fitness for one work more than another, this may be preferred. But the doctrine of the Farm is merely this, that every man ought to stand in primary relations with the work of the world; ought to do himself, and not to suffer the accident of his having a purse in his pocket, or his having been bred to some dishonorable and injurious craft, to sever him from those duties; and for this reason, that labor is God's education; that he only is a sincere learner, he only can become a master, who learns the secrets of labor, and who by real cunning extorts from nature its sceptre."—*Emerson, Miscellanies, p. 228-232.*

"He must watch the elements: must understand the nature of the soil he tills, the character and habits of each animal that serves him as a living instrument. Each day makes large claims on him for knowledge and sound judgment. He is to apply good sense to the soil. Now these demands tend to foster the habit of observing and judging justly: to increase thought and elevate the man." * * * * *

"To the instructed man his trade is a study: the toils of his craft are books: his farm a gospel, eloquent in its sublime silence: his cattle and corn are teachers: the stars his guides to virtue and to God; and every mute and every living thing, by shore or sea, a heaven-sent prophet to refine his mind and heart. He is in harmony with nature, and his education goes on with the earth and the hours."—*Theodore Parker's Miscellanies, p. 147-259.*

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INTRODUCTION.

“AN ACT donating Public Lands to the several States and Territories which may provide Colleges for the benefit of Agriculture and the Mechanic Arts,” approved July 2, 1862, prescribes as one of the conditions of the grant, that—

“An annual report shall be made regarding the progress of each college, recording any improvements and experiments made, with their costs and results, and such other matters, including State, industrial and economical statistics, as may be supposed useful; one copy of which shall be transmitted free, by each, to all the other colleges which may be endowed under the provisions of this act, and also one copy to the Secretary of the Interior.”

For the purpose of carrying out this requirement of the act of Congress, it was provided, under section 5 of “An act to provide for the organization and maintenance of the Illinois Industrial University,” that—

“The Trustees may appoint, also, the Corresponding Secretary, whose duty it shall be, under the direction or with the approval of the Trustees, to issue circulars, directions for procuring needful materials for conducting experiments, and eliciting instructive information from persons in various counties, selected for that purpose, and skilled in any branch of Agricultural, Mechanical and Industrial Art; and to do all other acts needful to enable him to prepare an annual report regarding the progress of the University in each department thereof—recording any improvements and experiments made, with their costs and results, and such other matters, including State, industrial and economical statistics, as may be supposed useful; not less than five thousand copies of which shall be published annually, and one copy be transmitted by said Corresponding Secretary, by mail, free, to each of the other colleges endowed under the provisions of an act of Congress, approved July 2, 1862, entitled “An act donating lands to the several States and Territories which may provide colleges for the benefit of Agriculture and the Mechanic Arts;” one copy to the United States Secretary of the Interior; and one thousand copies to the Secretary of State of this State, for the State Library, and for distribution among the members of the General Assembly. Also, a Recording Secretary, whose duty it shall be to keep faithful record of the transactions of the Board of Trustees, and prepare the same for publication in such annual report.”

These quotations from the National and State laws upon the subject, show with sufficient clearness the general duties and requirements of the Board of Trustees, and of the Corresponding and Recording Secretaries in reporting their acts. The very comprehensive wording of the statute concerning the duties of the Corresponding Secretary, however, make it desirable to get more precisely at the meaning of the framers of the State statute.

This law was originally drawn up by a committee consisting of Wm. H. Van Epps, Prof. J. B. Turner, A. B. McConnell, B. G. Roots and John P. Reynolds, appointed at the State Fair held at Decatur in 1864, and was presented to the Legislature as the expression of the views of the farmers of Illinois in 1865 and 1867. Although changed in other and important particulars, the general plan of organization and working was left untouched; and I therefore quote from Professor Turner, who doubtless had an important part in drafting the bill, his statement of the intended function of the University in its relation to *practical* agriculture and arts, and the duties of the Corresponding Secretary as a means of intercourse between academic science and practical art.

In an address delivered at the County Fair at Monmouth, October 4, 1866, Prof. Turner said:

“The charter implies that gratuitous experiments in agriculture and the arts should be annually made under direction of the Board, by the County Superintendents, of each crop or special interest, in all the counties in the State; and annual reports made to the Institution, and by it to all other Institutions of the kind in the Union, and to the central department at the Capital, according to the terms of the grant, and much in the same way as the monthly reports are now made from every county to the same department.

“For example: In each of the one hundred counties of Illinois, for one year, some simple, practical, definite experiment would be tried by an intelligent superintendent for that county, on the corn crop, on a small piece of ground: by another superintendent on the wheat crop: by others on diseases of cattle, and hogs, and flocks; by others on the green crops, the garden and orchard; by others on all sorts of mechanical tools, implements and machines; and on the new composition, strength and quality of materials, etc., etc. In short, whatever the Trustees and Faculty should wish to see put to a general, practical, thorough test, on all the varied soils, and affecting all the varied interests of each county in the State, would be ordered for practical trial on a small and cheap, but sufficient scale, in all the counties of the State, to forever settle that point, as a matter of absolute knowledge or science, and not as mere guess work. Thus the science of agriculture and the sciences of the mechanic arts, will advance, almost without cost, more rapidly toward a state of absolute perfection, than any other sciences ever did, or could, under ordinary conditions.

“Thus, too, the whole State, and eventually the whole Union, will become one vast agricultural, experimental farm; and while producing one crop for our present wealth and support, evolving, as it should do, year by year, scientific knowledge, at once diffused through the annual reports over all classes of society, increasing the intelligence of the workmen, and the fertility and capacity of the soil, year by year and enhancing the products and wealth of the State, in a geometrical ratio, to the latest generations to come. This would be intelligently using the soil, and using the continent as it ought to be used, for the good of mankind—in body and in spirit—in intelligence and in art—in wealth and in power, and not simply living on the soil, much as the pigs do, and rooting a bare living out of it, without social co-operation, or plan, or forecast.

“Thus we should evolve a real agricultural science—evolve wealth, and capacity, and power for all other needful sciences and arts whatever. I know of no sane man who doubts that such an organization of our Industrial Universities, all over the land, would increase our wealth by millions, and increase our intellectual and social activity and power in a still greater proportion. The sun never shone on such a nation, and such a power, as this would soon be, with such facilities of public advancement and improvement, put into full and vigorous operation. Set all the millions of eyes in this great Republic to watching, and intelligently observing and thinking, and there is no secret of nature or art we cannot find out; no disease of man or beast we cannot understand; no evil we cannot remedy; no obstacle we cannot surmount; nothing that lies in the power of man to do or to understand, that cannot be understood and done.”

It will be seen from this that large results were expected by the framers of the bill, from the official labors of the Corresponding Secretary; and it is to be hoped that, as the income of the Institution increases, and more means can be spared for the purpose, that this expectation may not be disappointed; as the office can be made, in the hands of the authorities of the University, a most efficient channel of communicating the results of scientific research to practical men, and receiving in turn the isolated facts of experience, whose combination and comparison furnish the best basis of agricultural and mechanical science.

Under the difficulties springing from recent organization, limited means and immature plans, but little could be done or reasonably expected from the efforts of the Corresponding Secretary for the first year after the organization of the University under its charter; and the little that has here been attempted and accomplished may be regarded rather as an indication of the kind of facts wanted, than as any important collection of them.

The large part of the report necessarily occupied by the record of the preliminary labors of the Board of Trustees, has excluded a good deal of matter of a statistical and scientific character, collected for insertion in this report, but now laid over for the next.

In this report, however, will be found a tolerably good presentation of the current practices of our Illinois farmers, and a documentary history compiled from the early writers of our State, on the industrial condition and progress of our people up to a period removed by not much more than one generation from the present time. These two pictures may be regarded as the panorama of the past, giving a general view of the Illinois farmer from the days of the old French settlements to the present time, and in some sort are a summing up of what has been done thus far by our farmers in getting hold of correct theories of agricultural science, and in putting them into practice.

Turning from this presentation of the past to the future, it may not be amiss to indicate what should be done, in part, by this department of the Industrial University in the future.

I. Under the head of Economical Science, a vast work remains to be done in which this department may render efficient service in collecting and collating facts and specimens.

1. The Soils and Subsoils of our State, in all their variety, should be collected and subjected to critical analyses and tests to determine their chemical and mechanical constitution, their peculiar merits or defects, the crops they can most profitably grow, and the manures they can receive with the greatest advantage. Collections similar to those already made by the Illinois Central Railway, and by Mr. Engelmann, late of our State Geological Survey, but much larger, and embracing samples from every county in the State, should, as soon as possible, be made and placed in the cabinet of the University. Our building and lime rocks, coals, clays, etc., should be also collected and tested; but it is presumed that for a considerable part of this work we may depend upon the labors of our Geological Survey.

2. The Meteorology of our State should have a careful study, with the hope of attaining to ultimate practical results. The meteorological data, of which we already have a considerable collection, should be carefully collected and compared, and arrangements made for additional and continued observations in all parts of the State. It is now believed that some of the most destructive vegetable diseases—such as rust in wheat, rot in the potato, mildew and rot of the grape, and blight in the pear tree, are, in part at least, the result of climatological extremes. These conditions should be determined if possible. Numerous stations and

communication with the telegraphic wires would enable us to predict the approach of storms, and to caution the farmer in time of harvest and haying, and the fruit grower at the time of frosts, of the impending danger. Thus the magnetic telegraph and the daily newspaper should be engaged in the immediate service of the American farmer.

3. The Botany of Illinois, both as of interest in itself and as an indication of the character of soils and climates, should be carefully examined in the interest of Industrial science. The economical value of our timber trees and the districts best suited to their growth, and to the growth of trees not native, could thus be measurably determined.

4. The Zoology of our State—especially its Entomology and animals injurious and useful to the farmer and fruit grower—also claims a thorough examination, although the State Entomologist will, in his department, no doubt do all that need be done in that behalf. But the habits of birds as insect and fruit eaters, for instance, need farther examination to determine the facts and the policy to be pursued by the grower of grapes and cherries.

Under all these heads of Economical Science much can be done by merely gathering up facts and observations now isolated, and putting them into new relations, whilst many new facts can be obtained by calling the attention of persons of scientific tastes to the class of facts that we desire to know. There will remain more or less deficiencies to be supplied by our own observations, at the University and elsewhere.

II. This brings up the subject of Experimental Stations or points in different parts of the State, where meteorological observations, chemical analyses, and experiments of more or less practical character, can be carried on simultaneously and in unison with similar experiments and observations at the Industrial University. The advantage of these Stations in Germany was noticed and commented upon by President Pugh, of the Pennsylvania Agricultural College, and latterly by Prof. Johnson, of Yale, in his valuable hand-book entitled "How Crops Grow." Prof. Johnson cites the efforts of Scotch and English agriculturists in this direction, adds: "It is, however, in Germany, that the most expensive and well organized efforts have been made by associations of agriculturists, to help their practices by developing theory. In 1851 the Agricultural Society of Leipsic (*Leipziger Oeconomische*

Societaet) established an *Agricultural Experiment Station* on its farm at Maeckern, near that city. This example was soon imitated in other parts of Germany and the neighboring countries; and at the present writing, 1867, there are of similar Experiment Stations in operation—in Prussia, 10; in Saxony, 4; in Bavaria, 3; in Austria, 3; in Brunswick, Hesse, Thuringia, Anhalt, Wirtemberg, Baden and Sweden, 1 each; making a total of 26, chiefly sustained by, and operating in, the interest of the agriculturists of those countries. These Stations give constant employment to 60 chemists and vegetable physiologists, of whom a large number are occupied largely or exclusively with theoretical investigations; while the work of others is devoted to more practical matters, as testing the value of commercial fertilizers. Since 1859 a journal (*Die Landwirthschaftlichen Versuchs Stationen*—Agricultural Experiment Stations) has been published as the organ of these establishments, and the nine volumes now completed, together with the numerous reports of the Stations themselves, have largely contributed the facts that are made use of in the following pages.”

“Such a Station,” according to Dr. Pugh, “should embrace a farm for experiments in the growth of crops, a chemical laboratory for examining them, and stalls, stables, etc., adapted to feeding animals, with a view of estimating the value of different kinds of food for cattle.” Perhaps the least expensive method of establishing such Stations in Illinois, is to seek out our most intelligent and inquiring farmers, in different parts of the State, who in their own farms have already most of the means of experiment. Supply these men with meteorological instruments, and they can easily furnish meteorological reports. Supply them with seed and instructions as to the character of an experiment, and they can carry it out in a practical way. The same would be true with experiments in feeding, etc. As practical chemists, they would not often be competent; but, with this exception, our more intelligent farmers can be used as experimenters. Such men should be paid for their services an amount sufficient to insure the thorough performance of the duties wherewith they are charged, without detriment to their private interests. If practicable, as it may be in some cases, to bring into juxtaposition with such an experimental farmer, a college or high school, with its chemical apparatus and professor, and a meteorological observer, we could thus ensure a better quality of work in the division of labor. Probably such may, sooner

or later, be the case at Chicago, Galesburg, Bloomington, Jacksonville, Alton, Irvington, and other points. These Stations, however, should at first go to the men and the communities who can appreciate their advantages; where enthusiasts will labor from their love of the subject, and where farmers will be willing to contribute something to support in their midst an attempt to throw the lights of science upon their arts of agriculture.

III. In accordance with the Congressional and Legislative acts the collection of State Industrial and Economical Statistics, is made a part of the duty of the Board of Trustees, and devolved upon the Corresponding Secretary. This can hardly be efficiently done without some grant of power under State law, or better, some State provision for a Statistical Bureau, from which the kind of statistics needed can be drawn. And in view of the strongly expressed opinions of our State Agricultural Society, and of our State Board of Equalization of Taxes, it may be hoped that the next Legislature will make provision for an annual collection of statistics, embracing the progress of Agriculture, Manufactures, Commerce, and other industrial pursuits, as well as vital and social statistics.

IV. The holding of Annual Conventions—either general, as of Farmers, or special, as of Fruit Growers, Wool Growers and Cattle Breeders—is an important aid in gathering facts and disseminating scientific knowledge, and may, perhaps, be regarded as within the province of the Corresponding Secretary. The importance of these “Farmers’ Institutes,” as they have been aptly termed, I have already insisted upon in a communication addressed to the Committee on Course of Study and Faculty of the University, and published in the *Prairie Farmer* of December 21st, 1867. I will ask leave to repeat my reasons in favor of such a course.

“1. It ‘breaks ground’ at the best point. The people of this State look to this Institution for something of more practical value in its immediate application to every-day affairs, than other Institutions have been in the habit of furnishing. A course of lectures and discussions of this kind will show that we are endeavoring to supply that want, and gain their good will to educational schemes of less obvious, though not less real, utility.

“2. Such a course will give a start in self education to a large class who cannot or will not attend the longer courses. The young, or the middle aged man who can spend a week or two in the discussion of topics relating to his every-day business, will go home with material for thought, and theories for better practice, that will last him for years. It will have a tendency also to draw persons into the longer

courses, and to make them anxious that their relatives and friends should avail themselves of the advantages of this Institution. In short, such a course will create a better appreciation of industrial education.

“3. Such a course is also directly valuable as a means of education. While it is somewhat superficial, it has a value from coming into immediate contact with the facts, practices and economies of every-day experience that can hardly be overrated. This is well expressed in the words of the late Prof. John A. Porter, in the *New Englander* for November, 1859. ‘The solution which we propose is the enlistment of practical men, who are not professional teachers, in the work of instruction, and their combination in such numbers, that a small contribution of time and labor from each shall make a sufficient aggregate to meet the object in view. The special necessity for such a system, in the case of the pursuit we are considering, grows out of the fact that there is much in agriculture which has not yet taken the form of science, and can only be acquired from practical men.’

“4. Such courses would be of value to the Faculty of the University in bringing them into contact with the classes whose needs and deficiencies they wish to supply, and thus giving them a more correct idea of practical education, and the drift of things outside the academic walls. Teachers need this, above all other teachers, in an Industrial University.”

V. Personal observation of the farms of our best farmers, and the manufactories of our best mechanics, would be a valuable method of getting hold of the best practical methods in the varied pursuits of Agriculture and the Mechanic Arts; and through the medium of this report the result of such observations could be communicated to all who cared to know. Thus, in another way, the practices of our best grain, grass and stock growers could be communicated to all our farmers, and our methods of farming much improved. Visits to the orchards and vineyards of our best fruit growers, would give, as they already have given, new and better ideas of Horticulture. The workshops of our mechanics would doubtless furnish other valuable material for the study of our artisans.

By such methods as these we may, I think, fairly hope to do a great and good work for our fair and fertile State, and make her as illustrious in the intelligence and wise economy of her industries, as she already is in her natural advantages and her political and military power.

W. C. F.

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“For example: In each of the one hundred counties of Illinois, for one year, some simple, practical, definite experiment would be tried by an intelligent superintendent for that county, on the corn crop, on a small piece of ground: by another superintendent on the wheat crop: by others on diseases of cattle, and hogs, and flocks; by others on the green crops, the garden and orchard; by others on all sorts of mechanical tools, implements and machines; and on the new composition, strength and quality of materials, etc., etc. In short, whatever the Trustees and Faculty should wish to see put to a general, practical, thorough test, on all the varied soils, and affecting all the varied interests of each county in the State, would be ordered for practical trial on a small and cheap, but sufficient scale, in all the counties of the State, to forever settle that point, as a matter of absolute knowledge or science, and not as mere guess work. Thus the science of agriculture and the sciences of the mechanic arts, will advance, almost without cost, more rapidly toward a state of absolute perfection, than any other sciences ever did, or could, under ordinary conditions.

“Thus, too, the whole State, and eventually the whole Union, will become one vast agricultural, experimental farm; and while producing one crop for our present wealth and support, evolving, as it should do, year by year, scientific knowledge, at once diffused through the annual reports over all classes of society, increasing the intelligence of the workmen, and the fertility and capacity of the soil, year by year and enhancing the products and wealth of the State, in a geometrical ratio, to the latest generations to come. This would be intelligently using the soil, and using the continent as it ought to be used, for the good of mankind—in body and in spirit—in intelligence and in art—in wealth and in power, and not simply living on the soil, much as the pigs do, and rooting a bare living out of it, without social co-operation, or plan, or forecast.

“Thus we should evolve a real agricultural science—evolve wealth, and capacity, and power for all other needful sciences and arts whatever. I know of no sane man who doubts that such an organization of our Industrial Universities, all over the land, would increase our wealth by millions, and increase our intellectual and social activity and power in a still greater proportion. The sun never shone on such a nation, and such a power, as this would soon be, with such facilities of public advancement and improvement, put into full and vigorous operation. Set all the millions of eyes in this great Republic to watching, and intelligently observing and thinking, and there is no secret of nature or art we cannot find out; no disease of man or beast we cannot understand; no evil we cannot remedy; no obstacle we cannot surmount; nothing that lies in the power of man to do or to understand, that cannot be understood and done.”

It will be seen from this that large results were expected by the framers of the bill, from the official labors of the Corresponding Secretary; and it is to be hoped that, as the income of the Institution increases, and more means can be spared for the purpose, that this expectation may not be disappointed; as the office can be made, in the hands of the authorities of the University, a most efficient channel of communicating the results of scientific research to practical men, and receiving in turn the isolated facts of experience, whose combination and comparison furnish the best basis of agricultural and mechanical science.

Under the difficulties springing from recent organization, limited means and immature plans, but little could be done or reasonably expected from the efforts of the Corresponding Secretary for the first year after the organization of the University under its charter; and the little that has here been attempted and accomplished may be regarded rather as an indication of the kind of facts wanted, than as any important collection of them.

The large part of the report necessarily occupied by the record of the preliminary labors of the Board of Trustees, has excluded a good deal of matter of a statistical and scientific character, collected for insertion in this report, but now laid over for the next.

In this report, however, will be found a tolerably good presentation of the current practices of our Illinois farmers, and a documentary history compiled from the early writers of our State, on the industrial condition and progress of our people up to a period removed by not much more than one generation from the present time. These two pictures may be regarded as the panorama of the past, giving a general view of the Illinois farmer from the days of the old French settlements to the present time, and in some sort are a summing up of what has been done thus far by our farmers in getting hold of correct theories of agricultural science, and in putting them into practice.

Turning from this presentation of the past to the future, it may not be amiss to indicate what should be done, in part, by this department of the Industrial University in the future.

I. Under the head of Economical Science, a vast work remains to be done in which this department may render efficient service in collecting and collating facts and specimens.

1. The Soils and Subsoils of our State, in all their variety, should be collected and subjected to critical analyses and tests to determine their chemical and mechanical constitution, their peculiar merits or defects, the crops they can most profitably grow, and the manures they can receive with the greatest advantage. Collections similar to those already made by the Illinois Central Railway, and by Mr. Engelmann, late of our State Geological Survey, but much larger, and embracing samples from every county in the State, should, as soon as possible, be made and placed in the cabinet of the University. Our building and lime rocks, coals, clays, etc., should be also collected and tested; but it is presumed that for a considerable part of this work we may depend upon the labors of our Geological Survey.

2. The Meteorology of our State should have a careful study, with the hope of attaining to ultimate practical results. The meteorological data, of which we already have a considerable collection, should be carefully collected and compared, and arrangements made for additional and continued observations in all parts of the State. It is now believed that some of the most destructive vegetable diseases—such as rust in wheat, rot in the potato, mildew and rot of the grape, and blight in the pear tree, are, in part at least, the result of climatological extremes. These conditions should be determined if possible. Numerous stations and

communication with the telegraphic wires would enable us to predict the approach of storms, and to caution the farmer in time of harvest and haying, and the fruit grower at the time of frosts, of the impending danger. Thus the magnetic telegraph and the daily newspaper should be engaged in the immediate service of the American farmer.

3. The Botany of Illinois, both as of interest in itself and as an indication of the character of soils and climates, should be carefully examined in the interest of Industrial science. The economical value of our timber trees and the districts best suited to their growth, and to the growth of trees not native, could thus be measurably determined.

4. The Zoology of our State—especially its Entomology and animals injurious and useful to the farmer and fruit grower—also claims a thorough examination, although the State Entomologist will, in his department, no doubt do all that need be done in that behalf. But the habits of birds as insect and fruit eaters, for instance, need farther examination to determine the facts and the policy to be pursued by the grower of grapes and cherries.

Under all these heads of Economical Science much can be done by merely gathering up facts and observations now isolated, and putting them into new relations, whilst many new facts can be obtained by calling the attention of persons of scientific tastes to the class of facts that we desire to know. There will remain more or less deficiencies to be supplied by our own observations, at the University and elsewhere.

II. This brings up the subject of Experimental Stations or points in different parts of the State, where meteorological observations, chemical analyses, and experiments of more or less practical character, can be carried on simultaneously and in unison with similar experiments and observations at the Industrial University. The advantage of these Stations in Germany was noticed and commented upon by President Pugh, of the Pennsylvania Agricultural College, and latterly by Prof. Johnson, of Yale, in his valuable hand-book entitled "How Crops Grow." Prof. Johnson cites the efforts of Scotch and English agriculturists in this direction, adds: "It is, however, in Germany, that the most expensive and well organized efforts have been made by associations of agriculturists, to help their practices by developing theory. In 1851 the Agricultural Society of Leipsic (*Leipziger Oeconomische*

Societaet) established an *Agricultural Experiment Station* on its farm at Maeckern, near that city. This example was soon imitated in other parts of Germany and the neighboring countries; and at the present writing, 1867, there are of similar Experiment Stations in operation—in Prussia, 10; in Saxony, 4; in Bavaria, 3; in Austria, 3; in Brunswick, Hesse, Thuringia, Anhalt, Wirtemberg, Baden and Sweden, 1 each; making a total of 26, chiefly sustained by, and operating in, the interest of the agriculturists of those countries. These Stations give constant employment to 60 chemists and vegetable physiologists, of whom a large number are occupied largely or exclusively with theoretical investigations; while the work of others is devoted to more practical matters, as testing the value of commercial fertilizers. Since 1859 a journal (*Die Landwirthschaftlichen Versuchs Stationen*—Agricultural Experiment Stations) has been published as the organ of these establishments, and the nine volumes now completed, together with the numerous reports of the Stations themselves, have largely contributed the facts that are made use of in the following pages.”

“Such a Station,” according to Dr. Pugh, “should embrace a farm for experiments in the growth of crops, a chemical laboratory for examining them, and stalls, stables, etc., adapted to feeding animals, with a view of estimating the value of different kinds of food for cattle.” Perhaps the least expensive method of establishing such Stations in Illinois, is to seek out our most intelligent and inquiring farmers, in different parts of the State, who in their own farms have already most of the means of experiment. Supply these men with meteorological instruments, and they can easily furnish meteorological reports. Supply them with seed and instructions as to the character of an experiment, and they can carry it out in a practical way. The same would be true with experiments in feeding, etc. As practical chemists, they would not often be competent; but, with this exception, our more intelligent farmers can be used as experimenters. Such men should be paid for their services an amount sufficient to insure the thorough performance of the duties wherewith they are charged, without detriment to their private interests. If practicable, as it may be in some cases, to bring into juxtaposition with such an experimental farmer, a college or high school, with its chemical apparatus and professor, and a meteorological observer, we could thus ensure a better quality of work in the division of labor. Probably such may, sooner

or later, be the case at Chicago, Galesburg, Bloomington, Jacksonville, Alton, Irvington, and other points. These Stations, however, should at first go to the men and the communities who can appreciate their advantages; where enthusiasts will labor from their love of the subject, and where farmers will be willing to contribute something to support in their midst an attempt to throw the lights of science upon their arts of agriculture.

III. In accordance with the Congressional and Legislative acts the collection of State Industrial and Economical Statistics, is made a part of the duty of the Board of Trustees, and devolved upon the Corresponding Secretary. This can hardly be efficiently done without some grant of power under State law, or better, some State provision for a Statistical Bureau, from which the kind of statistics needed can be drawn. And in view of the strongly expressed opinions of our State Agricultural Society, and of our State Board of Equalization of Taxes, it may be hoped that the next Legislature will make provision for an annual collection of statistics, embracing the progress of Agriculture, Manufactures, Commerce, and other industrial pursuits, as well as vital and social statistics.

IV. The holding of Annual Conventions—either general, as of Farmers, or special, as of Fruit Growers, Wool Growers and Cattle Breeders—is an important aid in gathering facts and disseminating scientific knowledge, and may, perhaps, be regarded as within the province of the Corresponding Secretary. The importance of these “Farmers’ Institutes,” as they have been aptly termed, I have already insisted upon in a communication addressed to the Committee on Course of Study and Faculty of the University, and published in the *Prairie Farmer* of December 21st, 1867. I will ask leave to repeat my reasons in favor of such a course.

“1. It ‘breaks ground’ at the best point. The people of this State look to this Institution for something of more practical value in its immediate application to every-day affairs, than other Institutions have been in the habit of furnishing. A course of lectures and discussions of this kind will show that we are endeavoring to supply that want, and gain their good will to educational schemes of less obvious, though not less real, utility.

“2. Such a course will give a start in self education to a large class who cannot or will not attend the longer courses. The young, or the middle aged man who can spend a week or two in the discussion of topics relating to his every-day business, will go home with material for thought, and theories for better practice, that will last him for years. It will have a tendency also to draw persons into the longer

courses, and to make them anxious that their relatives and friends should avail themselves of the advantages of this Institution. In short, such a course will create a better appreciation of industrial education.

“3. Such a course is also directly valuable as a means of education. While it is somewhat superficial, it has a value from coming into immediate contact with the facts, practices and economies of every-day experience that can hardly be overrated. This is well expressed in the words of the late Prof. John A. Porter, in the *New Englander* for November, 1859. ‘The solution which we propose is the enlistment of practical men, who are not professional teachers, in the work of instruction, and their combination in such numbers, that a small contribution of time and labor from each shall make a sufficient aggregate to meet the object in view. The special necessity for such a system, in the case of the pursuit we are considering, grows out of the fact that there is much in agriculture which has not yet taken the form of science, and can only be acquired from practical men.’

“4. Such courses would be of value to the Faculty of the University in bringing them into contact with the classes whose needs and deficiencies they wish to supply, and thus giving them a more correct idea of practical education, and the drift of things outside the academic walls. Teachers need this, above all other teachers, in an Industrial University.”

V. Personal observation of the farms of our best farmers, and the manufactories of our best mechanics, would be a valuable method of getting hold of the best practical methods in the varied pursuits of Agriculture and the Mechanic Arts; and through the medium of this report the result of such observations could be communicated to all who cared to know. Thus, in another way, the practices of our best grain, grass and stock growers could be communicated to all our farmers, and our methods of farming much improved. Visits to the orchards and vineyards of our best fruit growers, would give, as they already have given, new and better ideas of Horticulture. The workshops of our mechanics would doubtless furnish other valuable material for the study of our artisans.

By such methods as these we may, I think, fairly hope to do a great and good work for our fair and fertile State, and make her as illustrious in the intelligence and wise economy of her industries, as she already is in her natural advantages and her political and military power.

W. C. F.

Regent of the University, when he should be elected, who was also to be President of the Board. He felt that the trust devolving upon them was a highly important one, and that the men who assumed it, and discharged it gratuitously, were serving their State in no mean capacity.

The Governor heartily indorsed the project, and wished it the utmost success, not doubting that it was destined to be one of the foremost institutions of our State at no very distant day. Discretion, labor and perseverance were necessary to give it a successful impulse. He thought the State might congratulate itself upon the appointment of such a board, and again hoped their labors would be crowned with eminent success.

A temporary organization was then effected by the election of His Excellency, Governor Oglesby, as chairman, and James Rea, Esq., as recording secretary.

The secretary then proceeded to call the roll of members as furnished by the Governor's private secretary, Col. George H. Harlow, as follows :

First Congressional District—David S. Hammond, of Cook county, present.

Second Congressional District—Luther W. Lawrence, of Boone county, absent.

Third Congressional District—Horatio C. Burchard, of Stephenson county, present.

Fourth Congressional District—John S. Johnson, of Hancock county, present.

Fifth Congressional District—Samuel Edwards, of Bureau county, present.

Sixth Congressional District—O. B. Galusha, of Grundy county, present.

Seventh Congressional District—M. L. Dunlap, of Champaign county, present.

Eighth Congressional District—Lemuel Allen, of Tazewell county, present.

Ninth Congressional District—Alexander Blackburn, of McDonough county, present.

Tenth Congressional District—M. C. Goltra, of Morgan county, present.

Eleventh Congressional District—J. P. Hungate, of Clay county, present.

Twelfth Congressional District—Willard C. Flagg, of Madison county, present.

Thirteenth Congressional District—A. M. Brown, of Pulaski county, present.

First Grand Judicial Division—L. B. McMurray, of Effingham county, absent.

Charles H. Topping, of Union county, present.

Thomas Quick, of Washington county, present.

Burden Pullen, of Clinton county, present.

Isaac S. Mahan, of Marion county, present.

Second Grand Judicial Division—George Harding, of Edgar county, present.

J. H. Pickrell, of Macon county, present.

Mason Brayman, of Sangamon county, absent.

J. C. Cunningham, of Champaign county, present.

J. W. Scroggs, of Champaign county, present.

Third Grand Judicial Division—John M. Van Osdel, of Cook county, present.

J. C. Burroughs, of Cook county, present.

S. S. Hayes, of Cook county, present.

Emery Cobb, of Kankakee county, present.

Robert Douglass, of Lake county, absent.

EX-OFFICIO MEMBERS.

His Excellency, Governor Oglesby, present.

Newton Bateman, LL. D., present.

A. B. McConnell, absent.

Making in all twenty-six members present, and five absent.

The Governor declared that a quorum of members being present the meeting was regular and lawful for the transaction of the business for which it was convened.

Mr. DUNLAP moved that the board now take a recess till 2 P. M.; which, by request, was withdrawn.

Mr. HAMMOND moved that the present organization be considered as permanent until after the election of a regent; which, on being seconded, was put and carried.

Mr. BURCHARD suggested whether the next business in order would not be the locating of the institution.

Mr. HAYES rose to a question of order, and suggested that to the better carrying out of the spirit of the constitution, it would be proper, before proceeding farther with the business on hand, that the members of the board take the customary oath to preserve the constitutions of the State and Nation, against duelling, etc., and moved that the members present do now subscribe to the said oath; which was seconded and carried.

Police Justice, L. B. Adams, being present, was called upon, and administered the following oath, which was subscribed to by all the members present, with uplifted hands:

“You do severally solemnly swear that you will support the constitutions of the United States and of this State, and faithfully perform the duties of trustees of the Illinois Industrial University, to the best of your knowledge and ability. You do also solemnly swear that you have not fought a duel, nor sent or accepted a challenge to fight a duel, the probable issue of which might have been the death of either party, nor been a second to either party, nor in any manner aided or assisted in such duel, nor been knowingly the bearer of such challenge or acceptance since the adoption of the constitution, and that you will not be so engaged or concerned, directly or indirectly, in or about any such duel, during your continuance in office. So help you God.”

Mr. BURROUGHS preferred that a Regent should be elected to-day, so that the scrip might be issued and located with as little delay as possible.

Mr. BLACKBURN thought that in view of the supplemental act “for the organization, endowment, etc.,” of the University, there could be no doubt that the institution was located at Champaign, and thought the board should assume such a shape as to receive the property donated, before the Regent should be elected.

Mr. QUICK thought that the board should proceed at once to the election of a Regent.

Mr. BURCHARD wanted light as to the best man for the position, and therefore made a motion to adjourn till 2½ P. M., at which time the board shall proceed to the election of a Regent under the law.

An amendment was offered making the election of a Regent the special order for 2½ this P. M.

Mr. SCROGGS thought the motion to adjourn was before the house, and that no discussion was in order.

The Chair stated that the question before the house was whether the election of a Regent shall be fixed as the special order for 2½ this P. M.; which, on being put to the meeting, was carried.

A motion to adjourn, by Mr. GOLTRA, was withdrawn, to make way for nominations for the office of Regent of the University. Nominations for Regent being then in order,

Mr. DUNLAP put in nomination the Hon. DANIEL J. PINCKNEY, of Ogle county.

Mr. QUICK, in an eloquent speech, put in nomination Dr. JOHN M. GREGORY, of Kalamazoo, Michigan.

Mr. BURROUGHS nominated Dr. N. N. WOOD, of Morgan county.

Mr. BURCHARD put in nomination the Hon. J. L. PICKARD, of Cook county.

Mr. BURROUGHS withdrew the name of Dr. N. N. WOOD.

After which the board, on motion, took a recess till 2½ P. M.

AFTERNOON—FIRST DAY.

Board met pursuant to adjournment, when Mr. McCONNELL took his seat, and subscribed to the foregoing oath.

Mr. BURROUGHS offered the following resolution :

Resolved, That sensible of our dependence on the Divine blessing in the great work in which we are engaged, it should be a standing order of this board to commence each day's proceedings by reading of the Word of God and prayer.

Which was seconded, and adopted unanimously ; whereupon,

Mr. MAHAN was called to the platform and led in prayer to Almighty God, in the name of His Son, Jesus Christ, invoking His blessing upon the members individually, and upon the enterprise they were met to organize.

Mr. HAYES submitted the following series of resolutions for adoption :

Resolved, That the recording secretary, *pro tem.*, procure for the use of the board of trustees a well bound book, in which shall be entered of record, in a plain and legible hand, the proceedings of the present and succeeding meetings of this board.

2. That this resolution shall be entered upon said book as a part of the proceedings of this meeting.

3. That until a system of by-laws shall be adopted by the board of trustees, the rules and proceedings usually adopted by deliberative bodies, shall be and are hereby adopted for the government of this board.

4. That all resolutions when offered shall be reduced to writing, and sent to the desk of the recording secretary to be read, before action shall be taken upon such resolutions by the board.

Which were unanimously adopted.

The following was offered by Mr. FLAGG :

Resolved, That the Secretary of State be requested to have immediately printed for the use of this board two hundred copies of all the acts of Congress and of our State Legislature, relating to the Industrial University of this State.

Which was adopted, and the recording secretary ordered to furnish the Secretary of State with a certified copy thereof.

Mr. FLAGG offered the following :

Resolved, That the recording secretary *pro tem.*, be empowered to procure such blanks, rolls, etc., as may be necessary, for the use of the board.

Adopted.

Mr. BURROUGHS offered the following :

Resolved, That we now proceed to an informal ballot for Regent of the Industrial University ;

Which was, on motion, adopted ; but as several gentlemen desired to submit to the board certain statements touching the merits of their respective candidates, the vote by which it was passed was reconsidered and a motion to re-pass it was tabled.

MESSERS. DUNLAP, QUICK, BURROUGHS and BATEMAN, severally spoke at length on the merits of the various candidates put in nomination.

Mr. DUNLAP offered the following ; which was laid on the table :

Resolved, That any member of the General Assembly is competent to hold the office of Regent.

Mr. BLACKBURN offered the following :

Resolved, That a majority of the votes of all the members appointed as trustees, and of the members, *ex officio*, be required to elect any of the officers to be chosen by this board.

Adopted.

Mr. QUICK called up the resolution of Mr. BURROUGHS, which lay on the table, to proceed to an informal ballot for Regent.

Which was agreed to.

And the question being, "Shall the resolution pass?"

Mr. FLAGG moved to amend by striking out the word "ballot," and inserting in lieu thereof, the word "vote," which was lost, and the resolution adopted.

The Chair appointed Messrs. QUICK and BURCHARD tellers.

The Board then proceeded to an informal ballot for Regent, which resulted as follows: Gregory 16, Pinckney 5, Pickard 5, blank 1.

Mr. BLACKBURN offered the following:

Resolved, That we now proceed to elect, by formal ballot, a Regent for the "Illinois Industrial University."

Which was adopted.

Mr. BURCHARD withdrew the name of Hon. J. L. Pickard.

Mr. DUNLAP withdrew the name of Hon. D. J. Pinckney, which was subsequently put in nomination by Mr. PICKRELL.

The Board then voted formally by ballot, when the result stood—Gregory 22, Pinckney 4, blank 1.

On motion of Mr. PICKRELL, Dr. J. M. Gregory was declared unanimously elected.

Mr. BURROUGHS introduced the following:

Resolved, That a committee of three be appointed to arrange and bring to the notice of the Board the business requiring attention at this meeting.

Which was adopted, and, under its provisions, the Chair appointed Messrs. Burroughs, Burchard and Hayes.

Mr. BLACKBURN made a motion that the salary of the Regent be fixed at three thousand dollars (\$3,000) per annum.

Mr. BURCHARD suggested that the motion of Mr. Blackburn be referred to a committee of three.

Mr. HAYES moved the postponement of the consideration of salary.

Mr. BLACKBURN offered as a substitute a motion that the question of the amount of the Regent's salary be referred to a committee of five, to be appointed by the Chair; which was adopted.

The Chair appointed Messrs. Blackburn, Dunlap, Goltra, Quick and Pickrell, as such committee.

TENURE OF OFFICE BY TRUSTEES.

Mr. CUNNINGHAM offered the following :

Resolved, That the Recording Secretary be instructed to prepare nine ballots marked *two* years, nine ballots marked *four* years, and ten ballots marked *six* years; that the Recording Secretary call the roll of members, and that as the names are called, the President draw a ballot, and that the ballot so drawn shall designate the term of service of such member on this Board.

To which Mr. HAYES offered the following amendment :

“Strike out ‘ten’ and insert *nine*; and insert after ‘six years,’ ‘and one ballot; blank.’ Add at the close, ‘*the Recording Secretary shall prepare three ballots—one marked two years, one four years, and one six years, and the President shall draw one of them to designate the term of office of the member who shall have drawn the blank ballot.*”

The amendment was accepted by Mr. CUNNINGHAM, and the resolution, as amended, adopted. Whereupon the Recording Secretary prepared the ballots; which were drawn in the manner prescribed, with the following result:

Allen	4 years.	Hammond...	2 years.
Burchard	4 “	Harding.....	6 “
Burroughs	6 “	Hayes.....	6 “
Blackburn	2 “	Hungate.....	6 “
Brown	2 “	Johnson.....	2 “
Brayman	6 “	Lawrence.....	4 “
Cobb.....	6 “	Mahan.....	2 “
Cunningham	4 “	McMurray.....	2 “
Douglass.....	4 “	Pullen	4 “
Dunlap.....	0 “	Pickrell.....	4 “
Edwards.....	2 “	Quick.....	2 “
Flagg.....	4 “	Scroggs.....	6 “
Galusha	4 “	Topping.....	2 “
Goltra	6 “	Van Osdel.....	6 “

Mr. Dunlap subsequently drew a two years ballot.

On motion, the Board took a recess till 7½ P. M.

 EVENING SESSION.

Board met pursuant to adjournment, the Governor in the chair.

REPORTS OF COMMITTEES.

Mr. BLACKBURN, from the committee to whom was referred the question of the Regent's salary, submitted the following report:

“*To the Board of Trustees of the State Industrial University:*”

“The committee on salary respectfully report and recommend that the salary of the Regent of said University be fixed at the sum of three thousand dollars (\$3,000) per annum.

A. BLACKBURN,
M. L. DUNLAP,
M. C. GOLTRA,
J. H. PICKRELL.”

Mr. DUNLAP moved that Mr. Quick be appointed a committee on the part of the Board to inform Dr. John M. Gregory of his election to the Regency of the University, and the amount of salary offered; which was amended by the addition of the names of Mr. Dunlap and Dr. Bateman to the committee, and adopted, as amended.

Mr. BURROUGHS, on behalf of the committee to whom was referred the duty of preparing a routine of business, made the following report:

The committee to which was referred the duty of presenting to the Board subjects, which, by the terms of the bill establishing the college, or by the necessities of the University, will need the attention of the Board, beg leave to report the following order of business for each day's proceedings:

- 1st. The reception of communications.
- 2d. Reports of committees.
- 3d. Unfinished business.

They also report the following subjects as needing the attention of the Board at this session, and recommend that committees be appointed to consider and report on the same:

- 1st. By-laws for the government of the proceedings of the Board.
- 2d. The finances of the University.
- 3d. Election of Treasurer.
- 4th. Corresponding and Recording Secretaries.

The report was accepted.

The same committee also submitted the following supplemental report:

The course of study and the faculty of the University should receive attention at this meeting, and your committee respectfully suggest that a committee of five, of which the Regent shall be chairman, be appointed to consider these subjects and to report at the next meeting of the Board.

Which was accepted.

Mr. CUNNINGHAM offered the following:

“*Resolved*, That when this Board adjourns, it adjourn to meet at the building prepared for the uses of the University at Urbana, on the first Tuesday of May next. That Messrs. Dunlap, Cunningham and Seroggs be a committee to prepare a room

in said building and supply it with the necessary furniture for said meeting of the Board.”

Adopted.

Mr. BURCHARD moved that a committee of three be appointed to prepare *by-laws*, and to report at the next meeting in May; which was agreed to.

The Chair appointed Messrs. Mahan, Allen and Brown, as such committee.

Mr. CUNNINGHAM offered the following, as suggested by the report of the committee:

Order of Business.

Resolved, That a committee of five, of which the Regent shall be chairman, be appointed by the chair, to prepare and report a course of study for the University, to the adjourned meeting of this Board to be held in May next, and also to suggest a faculty.

Carried.

Mr. BURROUGHS moved that the chair appoint a committee of five, to be styled the “Finance Committee,” to serve for one year; which was adopted.

The Chair appointed as such committee Messrs. Cobb, Van Osdel, Cunningham, Galusha and Harding.

Mr. DUNLAP moved to defer the election of the other officers of the Board until its next meeting.

Mr. BATEMAN opposed the motion.

Mr. BURROUGHS called for a division of the question, so as to vote first on the postponement of the election of Treasurer; which was carried; and the question being, “Shall the election of a Treasurer for the University be postponed till the next meeting?” it was decided in the negative; when the second division of the question—“Shall the election of Corresponding and Recording Secretaries be postponed till next meeting?” was put and also negatived.

Mr. BURROUGHS moved to postpone the election of Treasurer till half-past nine to-morrow. Lost.

Mr. McCONNELL moved to proceed to the election of Treasurer now.

Mr. QUICK moved to amend, by inserting “*ten o'clock* to-morrow;” which was agreed to, and the motion put and carried.

Mr. VAN OSDEL introduced a series of resolutions, looking to the establishment of a Polytechnic branch of the University at Chicago; which, by consent, were laid over till to-morrow.

Mr. HARDING moved that the Board proceed to the nomination of candidates for Treasurer; which was agreed to.

Mr. BLACKBURN put in nomination the name of Thomas A. Cosgrove, Esq., of Champaign, and accompanied the nomination by a lengthy petition from citizens of Champaign county, which was laid on the desk of the Recording Secretary.

Mr. CUNNINGHAM put in nomination the name of the Hon. Clark R. Griggs, of Urbana, and accompanied the nomination by a petition from citizens of Champaign county, in support of the same, which was also laid on the Secretary's desk.

Mr. McCONNELL put in nomination the name of John W. Bunn, Esq., of Springfield.

On motion, adjourned till 9½ o'clock to-morrow.

SECOND DAY.

MARCH 13, 1867—MORNING SESSION.

Meeting called to order by Mr. BURROUGHS, in the absence of the Governor, and Mr. Hammond appointed to the chair *pro tem*.

Prayer was offered to Almighty God, in the name of His Son, Jesus Christ, by Rev. Dr. BURROUGHS.

Board proceeded to the election of Treasurer of the University, as per special order.

Mr. CUNNINGHAM spoke at length in favor of the claims of Hon. Clark R. Griggs for the position, and concluded by calling for the reading of a petition from some fifty-two citizens of Champaign county, praying for his election, which lay upon the table of the Recording Secretary; which was read, as requested.

Mr. BLACKBURN followed in a speech in favor of Mr. Cosgrove, and closed by reading a petition numerously signed by citizens of Champaign county, in favor of his candidate.

Mr. McCONNELL spoke in favor of John W. Bunn, Esq., who, he said, had been Treasurer of the State Agricultural Society for many years, and who had always honored the warrants of the Society, whether it had any funds in his hands or not.

An informal ballot was then taken, resulting as follows :

Griggs.....	13
Cosgrove	4
Bunn.....	10

A motion was then made to proceed to a formal ballot for Treasurer.

Mr. QUICK moved to lay the motion on the table, in order to determine the value of the bond which the Treasurer should be obliged to give to the Trustees, conditioned to the faithful performance of his duties ; which motion was carried.

The Governor arrived at this juncture, and assumed the chair.

The Chair announced the committee on course of study, and to suggest a faculty, as follows : The Regent of the University, Gen. Mason Brayman, S. S. Hayes, Willard C. Flag and Dr. Newton Bateman.

Mr. COBB offered a resolution fixing the amount of the Treasurer's bond at \$300,000.

Seconded.

Mr. BATEMAN moved to amend by striking out \$300,000 and inserting in lieu thereof \$100,000.

Seconded.

Mr. QUICK moved to amend the amendment by inserting \$500,000.

Seconded.

The several amendments were put to the meeting and lost, and the question recurring on the original resolution of Mr. Cobb, it was carried.

Mr. BURCHARD offered the following, which was adopted :

Resolved, That the Treasurer's bond, when executed, be referred to the Finance Committee, to report at the next meeting upon the sufficiency of the securities.

Mr. CUNNINGHAM offered the following :

Resolved, That at the earliest moment practicable, a good and sufficient fire and burglar proof safe be procured and placed in the office of the building hereafter to become the seat of the Illinois Industrial University, in which shall be kept all moneys and securities belonging to such Institution, while in the hands of the Treasurer.

Resolved, That the books and papers of each officer to be elected by this Board, together with all moneys and securities in the possession of the Treasurer, belong-

ing to the Illinois Industrial University, be at all times held by such officers open to the examination of any member of this Board.

Resolved, That the Treasurer of this Board be prohibited, under pain of removal from office, from depositing in any bank, banking house or place of deposit, other than as provided above, any part of the money, scrip or securities in his possession belonging to this University, or of loaning any part thereof, or of using on private account, or in any other manner, except as ordered by this Board.

Mr. BLACKBURN moved the reference of Mr. Cunningham's resolutions to the Finance Committee.

Mr. JOHNSON moved to lay the resolutions on the table; which was carried.

Election of Treasurer was proceeded with.

Mr. BLACKBURN withdrew the name of Mr. Cosgrove as a candidate.

The CHAIR appointed Messrs. Quick and Burchard tellers.

A ballot was then taken, resulting as follows:

Bunn.....	14
Griggs.....	11
Cosgrove.....	1

The Chair announced that no candidate having received the necessary number of votes (16) there was no election.

Second Ballot.

A second ballot was then taken, resulting as follows:

Bunn.....	15
Griggs.....	12

No choice.

Third Ballot.

Bunn.....	13
Griggs.....	14

No choice.

Mr. BLACKBURN moved to postpone the election of Treasurer until the meeting in May next.

Lost.

Fourth Ballot.

Bunn...	13
Griggs.....	14

No choice.

Fifth Ballot.

Bunn.....	14
Griggs.....	13

No choice.

Sixth Ballot.

Bunn.....	15
Griggs.....	12

No choice.

A motion to take a recess till 2½ P. M. was put and lost.

Seventh Ballot.

Bunn.....	17
Griggs.....	10

The CHAIR declared John W. Bunn, Esq., as the duly elected Treasurer of the Illinois Industrial University.

On motion of Mr. CUNNINGHAM, the election of Mr. Bunn was declared unanimous, and the Recording Secretary, *pro tem.*, was instructed to inform him of his election.

On motion, the Board took a recess till 2 P. M.

AFTERNOON—SECOND DAY.

Board met, pursuant to adjournment.

Dr. BATEMAN, in the absence of the Governor, in the chair.

Mr. JOHNSON moved that the Board now proceed to an informal ballot for a candidate for the position of Corresponding Secretary.
Carried.

Mr. COBB put in nomination the name of Dr. J. W. Scroggs, of Champaign.

Mr. FLAGG that of O. B. Galusha, of Grundy county.

Mr. QUICK that of Rev. Isaac S. Mahan, of Marion county.

Mr. DUNLAP spoke at some length in favor of the claims of Dr. Scroggs.

Messrs. QUICK and BURCHARD were appointed tellers.

Informal Ballot.

Mahan.....	9
Scroggs.....	7
Galusha.....	6

Formal Ballot.

Mahan.....	10
Scroggs.....	7
Galusha.....	6

No choice.

Second Ballot.

Mr. FLAGG withdrew the name of O. B. Galusha.

Mahan	13
Scroggs	10

No choice.

Third Ballot.

Mahan	13
Scroggs	11

No choice.

Fourth Ballot.

Mr. BURROUGHS, by permission, put in nomination the name of Willard C. Flagg, of Madison county.

Mahan	6
Scroggs	6
Flagg	11

No choice.

Mr. QUICK withdrew the name of Mr. Mahan.

Fifth Ballot.

Scroggs	8
Flagg	16

The CHAIR pronounced Willard C. Flagg as duly elected to the office of Corresponding Secretary of the Illinois Industrial University.

On motion, Mr. Flagg's election was declared unanimous.

Mr. QUICK said that as the law did not limit the term of office of the Corresponding Secretary, he would move that the term be two years.

Which motion, on being seconded, was put to the meeting and carried.

Mr. FLAGG returned thanks for his election.

Mr. QUICK moved that the Board proceed to the election of a Recording Secretary for the Industrial University for the term of two years.

Carried.

Nominations being in order,

Mr. McCONNELL nominated O. B. Galusha, and there being no other nomination, Mr. Galusha was elected by acclamation.

The CHAIR pronounced O. B. Galusha duly elected to the position of Recording Secretary for the period of two years from the next meeting of the Board.

Mr. PICKRELL offered the following :

Resolved, That the Finance Committee be a committee on titles, with power to employ a competent attorney, to examine titles of the real estate proffered to the Trustees of the Industrial University, and report to the next meeting of this Board.

Which, on motion, was adopted.

Mr. JOHNSON moved a reconsideration of the vote by which the next meeting of the Board was fixed to be holden on the first Tuesday in May next, and explained that his object in making the motion was to follow it with another, fixing the next meeting on the first Tuesday in June next.

The question on Mr. Johnson's motion was put by the Chair and declared lost.

POLYTECHNIC BRANCH AT CHICAGO.

Mr. HAYES called up from the table the resolutions offered by Mr. Van Osdel on the previous evening, for the establishment of a Polytechnic Department of the University at Chicago. The resolutions were read by the Secretary, as follows :

WHEREAS, In the act of the General Assembly establishing the Illinois Industrial University, it was contemplated that departments might be established at different points in the State, and particularly that there might be a Mechanical or Polytechnic Department in Chicago; therefore,

Resolved, That whenever the members of the Board, resident in Chicago, shall present to this Board of Trustees evidence that they have secured funds or reliable subscriptions to the amount of fifty thousand dollars, and buildings worth not less than fifty thousand dollars for the use of a Polytechnic College, and shall notify the Board of Trustees that such a College can be advantageously opened there, the Board of Trustees will proceed, upon the basis of such arrangements, to establish a Polytechnic Department at Chicago, which shall thenceforth receive the fostering care of the Board.

Resolved, That the Trustees resident in the Third Grand Judicial Division of the State, be and are hereby appointed a committee, with power to control and carry out the preliminary arrangements for this department.

The question being on the passage of the preamble and resolutions, as read by the Secretary,

Mr. HAYES offered the following substitute therefor :

Resolved, That a Mechanical or Polytechnic Department of the Illinois Industrial University be and the same is hereby established at Chicago, at such a point as a majority of the members of the Board of Trustees, residing in the Third Grand Division and First Congressional District, shall determine.

The said members of said Division and District are hereby authorized and empowered to receive contributions and subscriptions for said department, and, as a committee of the Board, to take all other necessary and lawful proceedings for the organization of said department, and the direction and control thereof.

The substitute was accepted by Mr. Van Osdel.

Mr. BROWN offered the following amendment :

Provided, That said branch be located as near the center of the city as possible.

Mr. QUICK also offered an amendment, which having been further amended by Mr. Burchard, read as follows :

Provided, That no part of the funds, scrip, or other property of the University, other than such as may belong to be received for such department, or be donated for its support or endowment, be used in the establishing or carrying on of said Mechanical or Polytechnic branch or Department.

Amendments accepted by Mr. Hayes.

On motion of Mr. QUICK, Mr. Hayes' resolutions, with the amendments thereto, were adopted,

Mr. GOLTRA moved that Judge Dummer, of Jacksonville, be designated as the advisor of the Finance Committee in the matter of bonds, titles, etc., which were to be passed upon by said committee.

Mr. DUNLAP thought the Finance Committee ought to be left free to select their own attorney, and moved to lay Mr. Goltra's motion on the table.

Which was carried.

Mr. BLACKBURN offered the following :

Resolved, That the Senators and Representatives of the State of Illinois in the Congress of the United States, be respectfully requested to use their influence to procure a change in the act donating lands to the states and territories for the purpose of establishing institutions for the benefit of Agriculture and the Mechanic Arts, so as to enable the Trustees of the Industrial University of the State of Illinois to locate the lands, or any part of them so granted, at their discretion, instead of selling the scrip issued therefor; and that the Governor, Superintendent of Public Instruction, and the President of the State Agricultural Society, be hereby appointed a committee, immediately to lay this resolution before said delegation, and urge the passage of an act before the adjournment of the present session. in accordance with this resolution.

Which, after some discussion, was adopted.

SALARY OF TREASURER.

Mr. BURROUGHS offered the following :

Resolved, That the large amount of business attending the custody and disbursement of the funds of the University, and also the proper disposal of the land scrip, and sale of lands which may be located, together with the general superintendence of the business of the University, will require the entire time and services of the Treasurer, and that in this view the salary of that officer be fixed at \$4,000 per year, to commence as soon as the University is located and in readiness to commence business.

Which resolution was seconded, and the question being on its passage,

Mr. QUICK moved to amend by striking out "four thousand dollars," and inserting in lieu thereof *two thousand dollars*.

Mr. COBB moved to amend the amendment by striking out "two thousand," and inserting in lieu thereof "*fifteen hundred dollars*."

Mr. DUNLAP moved the reference of the resolution of Mr. Burroughs, and the proposed amendments thereto, to the Finance Committee.

Which was carried.

BIENNIAL MEETINGS.

Mr. FLAGG offered the following :

Resolved, That the biennial meetings of the Board that seem to be designed by the act to provide for the organization and maintenance of the Illinois Industrial University, be held on the second Tuesday in March, biennially, dating from the first meeting of the Board.

Which was adopted.

Mr. FLAGG offered the following resolution :

Resolved, That a committee of three be appointed to prepare and present to this Board, at its next meeting, a design for the seal of the Illinois Industrial University.

Which was adopted.

The Chair appointed Messrs. Flagg, Hayes and Van Osdel such committee.

The Corresponding Secretary was recommended to consult the law for the organization, endowment and maintenance of the "University," for information touching his duties, and to enter as soon as practicable upon their discharge.

AUDITING COMMITTEE.

Mr. DUNLAP offered the following :

Resolved, That a committee of three be appointed to audit the expenses of the members of the Board in attendance at this meeting, and that they report at the next meeting of the Board.

Adopted.

The Chair appointed Messrs. Dunlap, Cobb and Edwards, such committee.

SALARIES OF SECRETARIES.

Mr. JOHNSON offered the following :

Resolved, That the salary of the Corresponding Secretary be \$1,500 per annum, and that of the Recording Secretary \$1,000 per annum.

Which, on motion of Mr. DUNLAP, was referred to the Finance Committee.

Mr. PICKRELL offered the following :

Resolved, That the Recording Secretary, *pro tem.*, be allowed the sum of _____ dollars for his services at this meeting, and that a warrant be drawn for the amount.

Referred to the Auditing Committee.

Mr. HAYES offered the following :

Resolved, That the Recording Secretary, *pro tem.*, prepare and engross in full the journal of the proceedings of the Board at this meeting, and that the same, when approved by the President, *pro tempore*, be signed by the officers and published in pamphlet form, as may be directed by His Excellency, the Governor, and that the Recording Secretary, *pro tem.*, mail a copy of said pamphlet to each member of the Board as soon as may be.

Adopted.

THANKS.

Mr. BURROUGHS offered the following :

Resolved, That the thanks of the Board of Trustees be respectfully tendered to His Excellency, Gov. OGLESBY, for the kind and courteous manner in which he has received the Trustees and presided over this meeting.

Adopted.

Mr. HAYES offered the following :

Resolved, That the thanks of the Board be tendered to JAMES REA, Esq., for the able manner in which he has discharged the duties of Recording Secretary, *pro tem.*

Adopted.

ADJOURNMENT.

Mr. JOHNSON moved that this meeting do now adjourn until the first Tuesday of May next, to meet at Urbana, in Champaign county.

Which, on being seconded, was put by the Chair and carried unanimously.

R. J. OGLESBY, *Chairman.*

JAMES REA, *Secretary, pro tem.*

PROCEEDINGS OF MAY MEETING---1867.

ILLINOIS INDUSTRIAL UNIVERSITY,
URBANA, *May 7th*, 1867.

The Board of Trustees of the Illinois Industrial University met, pursuant to adjournment, in the chapel of the Urbana and Campaign Institute, at 10 A. M.

The Governor being absent, the Board was called to order by the Recording Secretary.

On motion of Mr. CUNNINGHAM, Mr. Quick was called to the chair.

Meeting opened with prayer by Rev. Mr. Burroughs.

On the call of the roll, the following gentlemen were present, and answered to their names, viz :

Messrs. Allen, Brown, of Pulaski, Burchard, Burroughs, Cobb, Cunningham, Dunlap, Edwards, Flagg, Galusha, Goltra, Harding, Hayes, Hungate, Johnson, Mahan, McMurray, Pullen, Quick, Scroggs, Topping, Van Osdel, Gregory.

Twenty-two present and ten absent.

REPORT OF COMMITTEE ON REGENCY.

Mr. QUICK, chairman of the committee appointed by the Board, at its Springfield meeting, to inform the Regent elect of his election, reported as follows :

To the Board of Trustees of the Illinois Industrial University :

GENTLEMEN—The undersigned, committee appointed to inform Dr. John M. Gregory of his election, as Regent of said University, and of the amount of his salary, as fixed by the Board, respectfully report: That they have performed that duty, and that the Regent elect accepted the position to which he had been elected, and entered upon his duties on the first day of April, 1867.

Your committee further report that, after consulting the Regent, they deem his salary to be inadequate, and recommend that it be increased one thousand dollars per annum

Which is respectfully submitted.

Signed:

THOMAS QUICK,
M. L. DUNLAP,
Committee.

The ayes and noes being called for on the adoption of the report, were taken, and resulted in—22 affirmative votes, and one negative vote.

Mr. QUICK introduced Dr. Gregory to the Board, who accepted his position, and took his seat as President of the Board of Trustees.

The oath of office was administered to the Regent by Hon. J. O. Cunningham.

L. R. McMURRAY also took the oath of office at this time.

MASON BRAYMAN filed his oath of office as Trustee.

Mr. CUNNINGHAM moved that inasmuch as the minutes of the former meeting are published, they be adopted without reading.

Carried; and minutes adopted.

PROF. POWELL'S LETTER.

The President announced that the receiving of communications was in order, and introduced Dr. Sewall, of the Normal University, who read a communication from Prof. Powell, of Normal, in relation to his proposed expedition to the Rocky Mountains.

The letter was referred to a committee of five, who were appointed as follows:

Messrs. Burchard, Scroggs, Goltra, Brown, of Pulaski, and Quick.

Regent called for reports of committees.

Mr. COBB, Chairman of the Finance Committee, reported that the committee had used due diligence to obtain an attorney to aid the committee, but had not succeeded until this morning.

The services of Thomas P. Bonfield, of Kankakee, have now been secured, who is now engaged in examining titles to the lands offered by Champaign county to the Industrial University.

TREASURER'S BOND APPROVED.

Mr. COBB further reported that the Treasurer's bond had been examined and was considered ample.

The bond was read, and, on motion of Mr. HAYES, was approved.

Mr. GOLTRA moved that the bond be put on record.

The motion prevailed.

Mr. VAN OSDEL, from Committee on Seal, reported that the Chairman was not present, and asked further time.

Mr. DUNLAP, of Local Committee, reported a bill of Wm. W. Strong, for furniture for University; which was referred to Finance Committee.

Dr. SCROGGS, in behalf of the Congregational Society of Champaign, offered the basement rooms of their church for the use of the Board.

Mr. HAYES moved that the invitation be accepted, and that when this Board adjourn, it adjourn to meet at the Congregational Church.

The motion prevailed.

COMMITTEE ON BUILDINGS AND GROUNDS.

Mr. GOLTRA moved that a committee of five members, upon Buildings and Grounds, be appointed.

The motion prevailed, and the committee was appointed, as follows:

Messrs. Goltra, Van Osdel, Edwards, Dunlap, and Pullen.

Mr. BURCHARD moved that the Board adjourn, to meet at seven o'clock this evening.

The motion prevailed, and the Board was declared adjourned.

EVENING SESSION—MAY 7TH, 1867.

Board met, pursuant to adjournment, in the Congregational Church.

REGENT in the Chair.

Meeting opened with prayer by Rev. Mr. Stoughton.

Twenty-two members present.

President called for reports of committees.

1st. Finance Committee.

Mr. COBB, Chairman of Finance Committee, read the report of Thomas P. Bonfield, attorney of the committee, respecting titles of real estate conveyed by Champaign county to the Board of Trustees.

Which report was ordered placed on file.

Mr. BURCHARD moved that Mr. Bonfield be instructed to personally examine all titles of the real estate, and make a full abstract and certificate of all titles to all lands offered by the county to this Board. Carried.

Mr. BURCHARD, Chairman of Committee on Prof. Powell's letter, asked time (until morning) to report.

Which was granted.

The Committee on By-Laws, reported, in part, through its chairman, Mr. Mahan, and asked further time.

Which was given.

REPORT OF FINANCE COMMITTEE.

Mr. COBB, of Finance Committee, further reported, as follows :

The committee, believing that the titles to the lands offered by Champaign county are substantially perfect, are prepared to recommend the acceptance of such titles : *Provided*, said county or its citizens shall execute to the University a bond in the sum of \$25,000, conditioned that no latent defect shall affect said titles.

Signed by the committee.

Mr. A. M. BROWN moved the adoption of the report.

Mr. JOHNSON moved to amend by referring the report back to the committee.

Mr. HAYES moved to amend by recommitting the report, with instructions to the committee to ascertain and report, as early as convenient, the utmost amount of damage that might accrue from the defects in the titles referred to ; and that they procure and present to this Board a bond sufficient to indemnify the Board against loss from such defects of titles.

Amendments accepted and report referred back to the committee.

On motion of Mr. SCROGGS, the Board adjourned until nine o'clock to-morrow morning.

CHAMPAIGN, MAY 8TH—9 O'CLOCK, A. M.

Board of Trustees met, according to adjournment.

REGENT presiding.

Session opened with prayer by Mr. Rea, according to the form of the Protestant Episcopal Church.

Present: Messrs. Allen, A. M. Brown, Burchard, Burroughs, Cobb, Dunlap, Edwards, Galusha, Goltra, Hayes, Hungate, Johnson, Lawrence, Mahan, McMurray, Pickrell, Pullen, Quick, Scroggs, Topping, Van Osdel, the Regent—22 members.

The minutes were read, but action thereon deferred.

Mr. LAWRENCE took the oath of office, which was administered by Hon. A. M. Brown.

REPORT OF FINANCE COMMITTEE.

Mr COBB, Chairman of the Finance Committee, reported as follows:

Your committee consider that sufficient assurances have been given by the Illinois Central Railroad Company that they will fulfill their agreement in regard to the fifty thousand dollars freight proposed in the offer of Champaign county.

Further: that Mr. Dunlap has filed with the Secretary a sufficient bond, covering the furnishing of two thousand dollars worth of trees and FRUIT ery.

Further: that the one hundred thousand dollars of Champaign county bonds are in the hands of the committee, to be delivered as soon as the location is made.

Further: in regard to salaries of officers, which were referred to this committee, we would report that, inasmuch as the duties of said Treasurer and Secretaries are, as yet, not defined, we would respectfully suggest that, for the present, we allow pay according to services rendered.

Which report was adopted.

Mr. BURROUGHS moved that the Finance Committee be instructed to examine the lands deeded to the Illinois Industrial University by Champaign county, and ascertain and report whether these lands correspond, in respect to quantity and location, with the offer of said county to the State. Carried.

EXPENSES OF MEMBERS AUDITED.

Mr. DUNLAP, Chairman of Auditing Committee, reported bills of expenses of members attending the meeting of the Board at Springfield, and bill of the Recording Secretary, *pro tem*.

Mr. BURCHARD moved to amend by adding the condition that the warrants shall not be drawn until there are funds in the treasury with which to pay them.

The amendment was lost, and the report of the committee adopted.

Mr. CUNNINGHAM, from Finance Committee, made a verbal and explanatory report upon titles of real estate. No action taken.

LOCATION OF THE ILLINOIS INDUSTRIAL UNIVERSITY.

A. M. BROWN read the following preamble and resolutions, and moved their adoption by the Board, viz:

WHEREAS, The county of Champaign has caused to be conveyed to the Board of Trustees of the Illinois Industrial University, by good and unincumbered titles, the building and grounds known as the Urbana and Champaign Institute, described as follows: Commencing at the north-west corner of the south-west quarter of the south-east quarter of section seven (7), town nineteen (19), range nine (9) east;

running thence east four hundred and sixty-two (462) feet; thence south seven hundred (700) feet; thence west four hundred and sixty-two (462) feet; thence north seven hundred (700) feet, to the place of beginning. Also, a part of the south-west quarter of section number eighteen (18), in said township, as follows: Beginning at the north-east corner of said tract; thence west eighty (80) rods; thence south one hundred and seven and thirty one-hundredths (107 30-100) rods; thence east eighty (80) rods; thence north one hundred and seven and thirty one-hundredths (107 30-100) rods, to the place of beginning. Also twenty-eight (28) acres off the north side of the south half of the south-east quarter of said section number eighteen (18). Also, the north half of the south-east quarter of said section eighteen (18). Also, the north-west quarter of section nineteen (19), in said township. Also, the north half of the south-west quarter, the south half of the north-east quarter, the north-west quarter of the south-east quarter, and the north-east quarter of the north-east quarter, of said section nineteen (19). Also, the south half and the south half of the north-east quarter of section twenty one (21), in said township; and,

WHEREAS, also, said county of Champaign has issued, under the forms of law, and delivered to said Board of Trustees, one hundred thousand dollars in the bonds of said county, due and payable ten years hence, bearing interest at ten per cent. per annum; and,

WHEREAS, also, the contract of M. L. Dunlap for the delivering, upon the order of the said Board, of fruit, shade and ornamental trees and shrubbery, to the value of two thousand dollars, has also been delivered to this Board; and,

WHEREAS, the Illinois Central Railroad Company has likewise assured to said Board the sum of fifty thousand dollars in freight over said road: and in consideration of the foregoing premises, therefore, be it

Resolved, That the Illinois Industrial University be and the same hereby is permanently located at Urbana, Champaign county, Illinois,

The ayes and noes were called on the resolution, which resulted in an unanimous affirmative vote—twenty four members voting.

On motion of Mr. HAYES, the Board excused the Finance Committee from further consideration of a bond of indemnity.

Moved that the Board take a recess until two o'clock P. M., when it shall meet in secret session. Carried.

AFTERNOON SESSION OF MAY 8TH.

Board met, as per agreement.

President called Rev. Mr. Burroughs to the chair.

Mr. FLAGG, Corresponding Secretary, appeared and took his seat with the Board.

On motion of Mr. SCROGGS, the regular order of business was suspended to allow time for special business.

The Finance Committee presented several communications relating to the subject of the scrip.

SALE OF SCRIP ORDERED.

Mr. A. M. BROWN offered the following resolutions :

Resolved, That true policy requires that the land scrip under the control of this Board, or the greater part of it, should be sold at as early a day as practicable, and the proceeds thereof invested in interest-bearing securities ; therefore,

Resolved, That the Treasurer be authorized and directed to sell not less than one hundred and eighty thousand (180,000) acres, and not more than three hundred thousand (300,000) acres, of the said scrip, for the best possible price : *Provided*, That he shall sell no part thereof at a less price than fifty-four cents per acre : *And provided, also*, That he shall make no sale without the advice and consent of a majority of the Finance Committee.

Mr. QUICK offered the following as a substitute for Mr. BROWN'S resolutions :

Resolved, That the Treasurer be instructed to sell, with the advice and consent of the Regent and Finance Committee, scrip to the amount of one hundred and eighty thousand (180,000) acres of land, on the best possible terms, and at the earliest period practicable.

The substitute was adopted.

LOCATION OF LANDS AUTHORIZED.

Mr. EDWARDS moved the passage of the following resolution :

Resolved, That the Regent, Treasurer and Finance Committee be instructed to take immediate steps to ascertain the practicability of obtaining timber lands easily accessible by water communication, and that if, in their judgment, a judicious location of such lands can be made, they be authorized to do so to the extent of one hundred thousand acres.

Mr. GALUSHA moved to amend by striking out the words "easily accessible by water communication."

Mr. MAHAN moved further to amend by substituting the word "desirable" for the word "timber."

Amendments both adopted, and the resolution passed.

ADDITIONS TO FINANCE COMMITTEE.

On motion of Mr. COBB, Messrs. Brayman and Gregory were added to the Finance Committee.

REPORT OF COMMITTEE ON BUILDINGS AND GROUNDS.

Mr. GOLTRA, Chairman of Committee on Buildings and Grounds, reported as follows :

Your Committee on Buildings and Grounds would respectfully report :

That a principal front entrance should be constructed to the college building, with suitable stone steps and portico to such front entrance. Also, that a central

hall be arranged on the principal floor by the removing of a center wall in the principal story. Also, that two partitions be removed so as to enlarge the rooms on each side of the central hall, making them suitable for the principal office and reception rooms. The cost of this improvement will be about three thousand dollars, exclusive of freight on materials.

Your committee would further report, that a sewer should be constructed from the building to the brook at or near Springfield street. The sewer, of brick-work, two feet in diameter, would cost about two thousand dollars.

Also, that it will be necessary to have considerable grading done about the building, at a cost estimated at one thousand dollars.

Also, that a plain fence be made, to inclose the premises around the building, twenty-three hundred (2300) feet, at a cost of three hundred and fifty dollars.

We also recommend the construction of an out-building, about twenty by forty (20x40) feet, of brick, two stories high, to contain the necessary privies, tool-house and work-shop, which may be used temporarily as a stable, etc. Such building would cost about fifteen hundred dollars.

RECAPITULATION.

Front entrance, etc	\$3,000
Sewer	2,000
Grading.....	1,000
Fence	350
Out building	1,500
	\$7,850

We also recommend the passage of the following:

Resolved, That it is expedient to employ a competent mechanic, to work and superintend improvements in and about the college building; and that the Regent, in concurrence with the Committee on Buildings and Grounds, be authorized to employ such mechanic, at a salary of not over one thousand dollars per annum.

M. C. GOLTRA,
SAMUEL EDWARDS,
B. PULLEN,
JOHN M. VAN OSDEL,
M. L. DUNLAP,

Committee on Buildings and Grounds.

The report of the committee was adopted.

On motion of Mr. COBB, J. M. Gregory was appointed the agent of this Board for the receiving of the freights donated by the Illinois Central Railroad Company.

REPORT OF COMMITTEE ON PROF. POWELL'S LETTER.

Mr. BURCHARD, Chairman of the Committee to whom Prof. Powell's letter was referred, reported the following:

To the Board of Trustees of the Illinois Industrial University:

Your committee, to whom was referred the proposition of Prof. Powell, and his letter in relation thereto, respectfully report:

That in the opinion of your committee, it is for the interest of the University to accept the offer of Prof. Powell. That the collections and specimens proposed to be sent us from his private cabinet, as well as those obtained from his proposed expedition, would be valuable, and more than equivalent for the proposed appropriation. But inasmuch as the donations and resources of this Institution have not, as yet, been converted into available funds, to enable us to make an appropriation for that purpose, we recommend that the Regent be authorized to confer with Prof. Powell, and, on behalf of the Board, to make some arrangement with him in regard to the expedition, and assure him of our desire to participate in its advantages, and willingness, hereafter, to contribute toward its expenses the amount proposed.

H. C. BURCHARD,
J. W. SCROGGS,
THOMAS QUICK,
M. C. GOLTRA,
Committee.

The report was adopted.

REPORT OF COMMITTEE ON BY-LAWS.

Mr. MAHAN, Chairman of Committee on By-Laws, reported a code of by-laws.

Mr. EDWARDS moved that they be read, and voted upon *seriatim*.

Mr. BROWN moved to amend by striking out the clause providing for the creating of a "working committee."

The amendment was accepted, the motion put and lost.

On motion of Mr. QUICK, the report was referred back to the committee, to be presented at the next meeting of the Board.

Mr. EDWARDS offered the following resolution, and moved its adoption :

Resolved, That the improvements recommended in the report of the Committee on Buildings and Grounds be authorized to be made by this Board, under the direction of the Committee on Buildings and Grounds, as soon as there are funds in the treasury for the same.

Adopted.

The Board then took a recess until half past seven o'clock this evening.

EVENING SESSION OF MAY 8TH.

Mr. DUNLAP presented the following resolution :

Resolved, That the Executive Committee consist of nine members.

The resolution was laid upon the table.

Mr. QUICK offered the following ; which was adopted, viz :

Resolved, That no member shall, during the remainder of the session of this Board, be permitted to speak more than once upon any question, without leave of the Board; nor shall any member be permitted to speak longer than five minutes at one time.

Mr. FLAGG, Chairman of Committee on Designs for Seal, reported four designs, numbered 1, 2, 3 and 4.

The report was accepted, and committee discharged.

Mr. A. M. BROWN moved that the report of the Committee on Course of Study be made the special order of business for half-past eight this evening. Motion prevailed.

VOTE ON BY-LAWS RECONSIDERED.

Mr. QUICK moved to reconsider the vote by which the report of the Committee on By-Laws was referred back to said committee. Carried.

Mr. MAHAN, Chairman of the Committee on By-Laws, reported in part, stating that he was not prepared to make a full report.

Mr. DUNLAP moved to lay the report upon the table; which was lost.

Mr. BURCHARD moved that the report be so amended as to provide for the appointment of a committee of five on the mechanic arts. Carried.

The report was then read, and acted upon *seriatim*, as follows :

STANDING COMMITTEES.

SEC. 1. Adopted.

The following standing committees shall be annually appointed, to consist as below specified:

1. An Auditing Committee—of — members;
2. A Finance Committee—of — members;
3. On Faculty, and Course of Study—of Regent and five members;
4. On Agricultural Department—of five members;
5. On Horticultural Department—of five members;
6. On Military Department—of five members;
7. On Mechanical Department—of five members;
8. On Buildings and Grounds—of Regent and five members;
9. On Library and Cabinets—of five members;
10. On By-Laws and Rules for the Board and the University—of Regent and three members.

SEC. 2. Adopted.

The auditing committee shall audit and authorize the payment of all the necessary bills for the running expenses of the University, and for all expenses authorized by

the Board. They shall make a report of their doings at every meeting of the Board, and shall have no powers except such as are herein specified.

SEC. 3. Adopted.

The finance committee shall have the general supervision of the financial affairs of the University, subject to the rules and control of the Board. They shall make to the Board, at the annual meetings, a report, showing the financial operations of the University for the preceding year; the condition of its treasury, its revenues and its funds, with an estimate of the probable receipts and expenditures for the next year, accompanied with such recommendation as they may deem proper.

SEC. 4. Referred back to committee for revision.

SEC. 5. Adopted.

The committee on rules and by-laws shall prepare and recommend, from time to time, by-laws for the government of the Board in its business, and rules for the management of all the departments of the University.

SEC. 6. Referred back to committee for revision.

DESIGN FOR SEAL ADOPTED.

Mr. PICKRELL moved to proceed to vote for designs by numbers, on roll call

Motion carried and vote taken, resulting as follows:

Design No. 1 received	seven votes.
“ No. 2 “	one “
“ No. 3 “	four “
“ No. 4 “	ten “

Design number four was declared adopted.

Mr. A. M. BROWN presented, and moved the passage of the following resolution, which was adopted, viz:

Resolved, That the Auditing Committee shall have power to make all contracts and purchases that may be necessary for carrying into effect the orders made by the Board at its present session.

REGENT TO BE PAID MONTHLY.

Mr. COBB moved that the Regent be authorized to draw on the Treasurer monthly for his salary. Carried.

RESOLUTIONS ON SALARIES OF OFFICERS.

Mr. PICKRELL presented the following preamble and resolutions, which were adopted:

WHEREAS there have been and may still be elected members of the Board of Trustees of the Illinois Industrial University to offices, who shall receive annual or special salaries,

Resolved, That the salary of any member of this Board who may be elected to any office shall be referred to a committee, for action, of which said member shall not be a member.

Resolved, That we spread this upon the record as a standing rule of guidance and precedence.

On motion of Mr. FLAGG, the Auditing Committee was instructed to procure a seal for the use of this Board corresponding with the design adopted.

SPECIAL ORDER, 8½ O'CLOCK.

HON. A. M. BROWN in the Chair.

The REGENT, Chairman of the Committee on Course of Study, made a full and very able report.

Mr. BURROUGHS moved that the report be recommitted to the committee, with instructions to procure the publication of the same, as embodying the aims and designs of this institution.

The motion prevailed.

Mr. BURROUGHS presented the following resolution, which was adopted, viz :

Resolved, That this Board, having at the present meeting had ample opportunity to see what has been done by the people of Champaign county to secure the location of the Industrial University, entertain a lively sense of the noble liberality of the contribution to this object, and also of the promptness and exemplary good faith with which the pledges made to the Legislature have been fulfilled.

The thanks of the Board are, also, due for the courteous hospitality with which the citizens of Champaign and Urbana have received and entertained the members of the Board. In all which, the Board welcomes the earnest of a spirit, which, in co-operation with the efforts of the Trustees, and the general good will of the people of the State, will, we believe, make the University as great a blessing to this community as they have hoped for, and as their enterprise and liberality deserve.

Mr. SCROGGS presented the following, and moved its adoption :

Resolved, That the thanks of the Board of Trustees of the Industrial University are due to Dr. James Rea for the able and faithful service he has rendered the Board in his reports of the minutes of said Board at its last session, and also for other favors.

The resolution was adopted.

Mr. BURCHARD offered the following resolution, which was adopted :

Resolved, That the thanks of the Board are tendered to the Congregational Society of Champaign, for kindly placing at our disposal the use of their Church edifice, during this session of the Board.

Mr. SCROGGS moved that a committee of three be appointed, who shall ascertain upon what terms the lands lying between the University building and the one hundred and sixty acre tract can be obtained, and report at the next meeting of this Board.

The motion prevailed, and the Committee was appointed, as follows :

Messrs. Cunningham, Scroggs, and Dunlap.

Mr. EDWARDS moved that the roll be called, and that members who intend to remain for to-morrow's session vote aye.

Carried, and vote taken, which resulted in eighteen members voting aye.

Dr. SCROGGS moved to adjourn until to-morrow morning, at eight o'clock, at this place.

Mr. QUICK moved to amend, as follows :

" We do now adjourn to meet on the tenth day of June."

Ayes and noes were called for, and taken on the amendment, resulting in four affirmative and sixteen negative votes.

The original motion prevailed, and the Board was declared adjourned until to-morrow morning, at eight o'clock, at this place.

CHAMPAIGN, MAY 9TH—8 O'CLOCK, A. M.

Board convened, pursuant to adjournment, REGENT presiding, and meeting opened with prayer by Rev. Mr. LAWRENCE.

The following members were present, viz: Messrs. A. M. Brown, Burchard, Burroughs, Cobb, Cunningham, Dunlap, Edwards, Flagg, Galusha, Harding, Hungate, Lawrence, McMurray, Scroggs, Topping, Van Osdel, Gregory, and Pickrell—eighteen (18).

The minutes were read and approved.

MINIMUM PRICE OF LAND SCRIP.

Mr. CUNNINGHAM offered the following resolution, moving its adoption :

Resolved, That the Treasurer and Finance Committee be instructed to sell none of the land scrip at a less price than fifty-four (54) cents per acre.

Adopted.

The PRESIDENT announced that the reception of communications was in order; whereupon

Mr. DUNLAP presented a communication from Professor Gow, which was referred to the Committee on Course of Study.

REPORT OF CORRESPONDING SECRETARY.

Mr. FLAGG reported the progress he had made in discharge of his duties as Corresponding Secretary; which, on motion of A. M. Brown, was approved, and the Auditing Committee instructed to settle for freight and expressage upon the books and pamphlets collected by the Corresponding Secretary for the Board.

EXECUTIVE COMMITTEE.

Mr. A. M. BROWN read a resolution creating an Executive Committee.

Mr. BURROUGHS offered the following as a substitute, which was accepted by Mr. BROWN, viz :

The Board shall appoint an Executive Committee, consisting of nine (9) members, who shall meet at the seat of the college at least quarterly, and oftener if they shall find it necessary, for the transaction of any business necessary to be done in the vacations of the Board. The said Executive Committee shall, for the purpose for which they were appointed, possess all the powers of the Board: *Provided*, that they shall not revise or change the acts of the Board, nor of any committee of the Board entrusted with special business; shall not sell real estate, nor the land scrip or bonds belonging to the University, without the consent, in writing, of a majority of all the members of the Board; and shall be strictly confined to such business as can not be left till the annual meetings of the Board. The committee shall hold their office till the annual meeting next after their appointment.

RESOLUTION ON TIME OF OPENING THE UNIVERSITY.

Mr. FLAGG offered the following resolution :

Resolved, That the best interests of the University require a postponement of the commencement of the principal courses of study until the year 1868.

The resolution was so amended as to be in the following words, viz :

Resolved, That the best interests of the University require a postponement of the commencement of the principal courses of study until the first Monday of March, A. D. 1868.

The resolution, thus amended, was unanimously adopted.

BUSINESS TRANSFERRED TO EXECUTIVE COMMITTEE.

Mr. A. M. BROWN read and moved the adoption of the following, viz :

Resolved, That the business intrusted to the Auditing Committee by previous orders of the Board, except the auditing of the Treasurer's accounts, be referred to the Executive Committee, and that the special committee appointed to report in relation

to the acquisition of the lands lying between the University building and the farm, be discharged; and that the duties assigned to them be referred to the Executive Committee.

The resolution was adopted.

ORDER FOR SALE OF CHAMPAIGN COUNTY BONDS.

Mr. BURCHARD offered the following resolution :

Resolved, That the Treasurer be authorized to sell, under the direction of the Finance Committee, not exceeding twenty thousand dollars of Champaign county bonds : *Provided*, the same shall be sold at not less than par.

Adopted.

Mr. BURCHARD also presented the following resolution, which was adopted, viz :

Resolved, That the Treasurer of the Board be instructed to invest the proceeds of the sale of land scrip in either United States Stock, stocks of the State of Illinois, or in county bonds, or any of them, drawing interest at not less than six per cent.

Mr. DUNLAP presented a resolution, as follows :

Resolved, That the Illinois Industrial University will be open to students of both sexes.

Which was referred to the Executive Committee.

PAYMENT OF EXPENSES OF MEMBERS.

Mr. A. M. BROWN read and moved the adoption of the following :

Resolved, That the members make out their accounts for expenses in attending this meeting, and transmit them to the Auditing Committee, upon whose approval the Executive Committee shall order their payment.

Which was adopted.

The following resolution, offered by Mr. BURCHARD, was laid upon the table :

Resolved, That the Committee on Course of Study and Faculty be authorized to select and engage the necessary professors and instructors for the University, their terms of engagement to commence upon the opening of the University for instruction.

PAYMENT OF SEXTON.

On motion of Mr. SCROGGS, it was

Resolved, That an order of four dollars be drawn on the Treasurer to pay the sexton for lighting the house, etc.

Mr. FLAGG moved that the subject of the annual report of the Corresponding Secretary be referred to the Executive Committee.

Which was so voted.

REGENT MADE CHAIRMAN OF EXECUTIVE COMMITTEE.

On motion of Mr. QUICK, the Regent was constituted Chairman and member of the Executive Committee.

APPOINTMENT OF MEMBERS OF EXECUTIVE COMMITTEE.

Mr. BURCHARD moved that we proceed to ballot for eight members of the Executive Committee.

On motion of Mr. SCROGGS, the appointment of the Executive Committee was referred to the Regent, who made the appointment, as follows :

• Messrs. Cunningham, Scroggs, Dunlap, Cobb, Pickrell, Van Osdel, Mahan and Quick.

These appointments were approved by vote of the Board.

MEMBERS OF STANDING COMMITTEES.

The REGENT announced the names of members of committees, whose appointments, except those previously appointed, were confirmed by vote of the Board, as follows, viz :

Auditing Committee—Messrs. Lawrence, Edwards, Galusha, Burchard and A. M. Brown.

Finance Committee—(Previously appointed)—Messrs. Cobb, Van Osdel, Cunningham, Galusha and Harding.

Committee on Courses of Study and Faculty—(Previously appointed)—The Regent, Messrs. Brayman, Hayes, Flagg and Bateman.

Committee on Buildings and Grounds.—Messrs. Goltra, Brown of Chicago, Van Osdel and Johnson.

Committee on Agricultural Department—Messrs. Quick, Pickrell, Flagg, McConnell and McMurray.

Committee on Horticultural Department—Messrs. Pullen, Topping, Galusha, Hammond and Edwards.

Committee on Mechanical Department—Messrs. Scroggs, Goltra, Hungate, Topping and Van Osdel.

Committee on Military Department—Messrs. Brayman, Quick, Lawrence, the Governor and Allen.

Committee on Library and Cabinets—Messrs. Burroughs, Flagg, Bateman. A. M. Brown and Mahan.

Committee on By-Laws and Rules—Messrs. Mahan, Burchard and A. M. Brown.

The Board adjourned at 12 o'clock, M.

J. M. GREGORY, *Regent*.

O. B. GALUSHA, *Recording Secretary*.

REPORT OF COMMITTEE
ON COURSES OF STUDY AND FACULTY FOR THE ILLINOIS
INDUSTRIAL UNIVERSITY.

Inasmuch as some time must necessarily elapse before the University can be properly equipped and prepared for opening, the Committee present, now, only the outlines and some of the general features of a plan of organization, hoping to be permitted, by fuller consultation with each other, and with eminent educators in other States, who are engaged in organizing similar institutions, to ripen their plans more fully before presenting them in detail. In laying the foundations of an institution which is to last through coming ages, and to affect all future generations, we have need to plan wisely. We must not expose ourselves, needlessly, to the inconveniences of changes, nor to suspicions of caprice.

THE GENERAL AIMS OF THE UNIVERSITY:

The aims of any institution necessarily control its organization. It should be fitted to its uses. The great general aims of the University are defined by the statutes under which it is established. Though not strictly confined by law to the objects proposed in the Congressional grant, we are yet bound to meet those objects fully and fairly. According to the language of the grant, "the leading object 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, in order to promote the liberal and practical education of the industrial classes, in the several pursuits and professions in life."

Or, changing the order of statement, the chief aim of the University is, "*the liberal and practical education of the industrial classes*, in the several pursuits and professions in life;" and in order to this end, the University is "to teach such branches of learning as are related to agricultural and the mechanic arts, without excluding other scientific and classical studies, and including military tactics." The military tactics are required, and the scientific and classical studies are permitted. Such at least is the common construction of these clauses, though the language may not unreasonably be understood to imply that the latter studies *shall not* be excluded from the course.

The State law evidently aims to carry out the intention of the Congressional grant, and gives the trustees power "to appoint such professors and instructors, and establish and provide for the management of such model farms, model art and other

departments, as may be required to teach, in the most thorough manner, such branches of learning as are related to agriculture and the mechanic arts, and military tactics, without excluding other scientific and classical studies." This slight change of the order of the language of the Congressional enactment, gives additional emphasis to the opinion that it was intended to prohibit the exclusion of other scientific and classical studies." Under any construction the Legislature evidently intended to insist—as the law of Congress insists—on the industrial and military education, yet explicitly allowing the trustees to enlarge the scope of studies as they may see fit.

A clear insight into the real intention of the Congressional grant may be gained if we call to mind that the colleges, existing at the time of the passage of the act making this grant, were adapted only to fit men for the so-called "learned professions," and that the influence of these colleges tended to withdraw their students from the pursuits of industry. Congress therefore proposed to create a new class of colleges, which should train men for industrial pursuits, and help to turn some portion of the great currents of educated life into the channels of industry. They aimed to link learning more closely to labor, and to bring the light of science more fully to the aid of the productive arts. Any other interpretation of the design of Congress than this would involve an absurdity.

The Industrial College was not an expression of Congressional condemnation of the ordinary college, or opposition to it. A grant of a township of land in each new State had already provided for State Universities of the common sort. And besides these, rich and powerful seats of learning were every where fitting men for the great public fields of Law, Medicine and Theology. Congress only sought to extend still wider the benefits of science and liberal culture. They wished to establish other seats of learning, equally great and equally powerful, which should send scholars of high scientific attainments and broad and liberal culture, to the farms and workshops of the country.

And finally, as it was not the object of the Industrial Colleges to educate simply the sons of farmers and mechanics, so it was not their design to teach the mere manual arts of agriculture and manufacture. The college course can not replace the apprenticeship in the shop or on the farm; and if it could, a hundred such Universities as this could not train to their various trades, the future farmers and mechanics of this State. Some practice should, if possible, accompany the scientific study of the several arts, but the aim of this practice must be to insure the thorough comprehension of the principles involved. To teach the millions their trades, however desirable, is beyond our power. To so teach the few who will come and patiently complete their course, that they shall be thorough masters of practical science, and able in their turn to teach others, this is the worthy and attainable end of the University.

The committee profoundly appreciate and commend the far-reaching wisdom and beneficence of these aims of the Congressional grant, and would seek to carry them out to the very letter. They have discussed thus fully the intent of the Congressional enactment, in order to brush aside the false impressions which may have gained currency, and to bring out into clearer relief this grand idea of the Industrial University, as it lies involved in both State and National statutes—a true University, organized in the interest of the industrial, rather than of the professional pursuits, and differing from other Universities in that its departments are technological rather than professional—schools of Agriculture and Art, rather than schools of Medicine and Law. Its central educational courses, while equally broad and liberal

are to be selected to fit men for the study and mastery of the great branches of industry, rather than to serve as introductions to the study of law, medicine, or theology.

This broad idea of the Industrial University proceeds upon the two fundamental assumptions: First, that the agricultural and mechanical arts are the peers of any others in their dignity, importance and scientific scope: and, Second, that the thorough mastery of these arts, and of the sciences applicable to them, requires an education different in kind, but as systematic and complete as that required for the comprehension of the learned professions. It thus avoids the folly of offering as leaders of progress in the splendid industries of the nineteenth century, men of meager attainments and stunted culture, and steers clear also of that other and absurder folly of supposing that mere common school boys, without any thorough discipline, can successfully master and apply the complicated sciences which enter into and explain the manifold processes of modern agriculture and mechanic art.

Nor is it forgotten that man is something more than the artisan, and that manhood has duties and interests higher and grander than those of the workshop and the farm. Education must fit for society and citizenship, as well as for science and industry. The educated agriculturist and mechanic will not unfrequently be called to serve in Senate Chambers and gubernatorial chairs, and will need an education broader and better than the simple knowledge of his art.

The State has need every where, but especially in the center and at the head of the great industries, on which, as on corner stones, rest down her material progress and power, of broad-breasted, wise-hearted, clear-thinking men—men of rich, deep culture, and sound education.

And besides all this, it should be reflected that half the public value of a body of educated and scientific agriculturists and mechanicians will be lost, if they lack the literary culture which will enable them to communicate through the press, or by public speech, their knowledge and discoveries; or if they are wanting in that thorough discipline which will make them active and competent investigators and inventors, long after their school days are over.

Nor would we forget, nor attempt by a one-sided education to restrain, that free movement and versatility of American life and genius which leads so many of our more eminent citizens to the successive mastery of several vocations. Let us educate for life, as well as for art, leaving genius free to follow its natural attractions, and lending to talent a culture fitting it for all the emergencies of public or private duty. If some of our graduates shall quit, for a time, the harvest field for the forum, or prefer medicine to mechanic art, we shall hope they will demonstrate that, even in professional life, the education we give is neither inferior nor inadequate. And in riper years they will return to their first love, and bring their gathered wealth and honors to lay them in the lap of the agriculture and art we have taught them. Let the State open wide, then, this Pierian fount of learning. Let her bid freely all her sons to the full and unfailling flow: those whose thirst or whose needs are little, to what they require; those whose thirst and whose capacities are large, to drink their fill. Let the University be made worthy the great State whose name it bears; worthy the grand and splendid industries it seeks to promote; and worthy of the great century in which we live.

DEPARTMENTS AND COURSES OF INSTRUCTION.

Having thus defined the general idea and aims of the University, the Committee suggest the following enumeration of departments, with the courses of instruction in each:

I. The Agricultural Department—Embracing:

1. The course in Agriculture proper.
2. The course in Horticulture and Landscape Gardening.

II. The Polytechnic Department—Embracing:

1. The course in Mechanical Science and Art.
2. The course in Civil Engineering.
3. The course in Mining and Metallurgy.
4. The course in Architecture and Fine Arts.

III. The Military Department—Embracing:

1. The course in Military Engineering.
2. The course in Military Tactics.

IV. The Department of Chemistry and Natural Science.

V. The Department of Trade and Commerce.

VI. The Department of General Science and Literature—Embracing:

1. The course in Mathematics.
2. The course in Natural History, Chemistry, etc.
3. The course in English Language and Literature.
4. The course in Modern Languages and Literature.
5. The course in Ancient Languages and Literature.
6. The course in History and Social Science.
7. The course in Philosophy, Intellectual and Moral.

It may not be found feasible to develop all these departments at the outset, but ultimately, even others may be added to those here enumerated.

The following brief exposition of some of the principal courses will exhibit their general scope:

1. The course in agriculture proper may embrace the study of common tillage, arboriculture, fruit growing, cattle and sheep husbandry, veterinary art, agricultural chemistry, and rural engineering and architecture.

Its aim will be to give a practical knowledge of the various kinds of soils, their composition and improvement, by chemical or by mechanical treatment; the several classes of crops, with the preparation of the soil, seeding, cultivation and harvesting of each; the rotation of crops, and preparation and use of fertilizers; vegetable anatomy and physiology, with the classification, values, and laws of growth and culture of the cereals, grasses and other useful plants, together with general botany; fruit-growing, and the several modes of propagation, and the production of new varieties; arboriculture, with the nature and value of the various species of ornamental, shade and forest trees, the propagation, growth and care of forests, their importance and value in a prairie country, in their effects upon climate, vegetation and health; animal anatomy and physiology, with a study of the breeds of domestic animals, and their values for the dairy, for fattening, for draught, and for wool or other products, and of the principles of stock-breeding; veterinary art, with the laws of feeding, care and training of the domestic animals; the apiary and poultry yard; agricultural chemistry, applied to the analysis of soils, fertilizers and food, etc.; entomology, especially including the useful insects and those injurious to animal life; meteorology and climatology; rural architecture and engineering, embracing the planning of farm buildings, and the laying out, draining and fencing of farms; political

economy, the laws of production, consumption and markets ; real estate jurisprudence, the laws regulating the tenures and transfers of land, and the laws relating to rural affairs ; the history of agriculture, and general views of the husbandry of foreign countries. To these studies should be added, either to prepare for the foregoing, or as necessary to complete education, courses in mathematics, language and literature, mental and moral philosophy, logic, history and science of government.

The instruction should be partly by text-books, and partly by lectures, enforced by observation and practice in the laboratory, and the various departments of the experimental farm.

2. The course of instruction in horticulture may comprehend most of the studies already described under the course in agriculture, omitting stock-breeding and veterinary art, and adding to the fruit-growing, the culture of the small fruits and culinary vegetables, and the culture of flowers ; the construction and management of the hot-bed, the green-house, the grapery, the seed-plot and the nursery ; landscape gardening, the laying out and ornamentation of public and private pleasure grounds, parks, cemeteries, etc. The methods of instruction should be like those in the department of agriculture.

3. The courses in mechanics, civil engineering and mining belong, properly, to the polytechnic school. All the fundamental sciences involved in them being taught at the University, these courses may also be developed there. The committee defer the delineation of a course of instruction in this department till the question of the extent of its means of development is settled.

4. Military tactics being specifically required by the act of Congress, the development of this department, to such an extent as may be found practicable, should be undertaken at the outset. While the effect of this department will be to scatter through the State a body of men, so far advanced in military art, that, in case of war, they will furnish skillful officers, ready to drill and lead the volunteer forces of the country, it is the opinion of many experienced educators that the introduction of the military drill and discipline is of positive value for their educating influence. They will materially assist in the government of the institution, and tend to form those habits of order and punctuality, for want of which so many educated men fail of usefulness and success.

It is strongly recommended by eminent military officers, that some simple and tasteful uniform be prescribed for all the students, as the law contemplates and provides ; that the organization partake somewhat the military form, and that a daily drill be had in military tactics. The uniform would not be more expensive than ordinary clothing, and its use would repress extravagance in dress, and promote a feeling of democratic equality among the whole body of students. It will help, also, to stimulate the virtues of personal neatness and manly courtesy of demeanor.

By frequent rotations in office, and by making those eligible to office who merit it by proficiency in drill, and by good soldierly conduct, a sufficient stimulus would be gained to insure attention, and both the faculties of obedience and command would be developed. Students of the first year might be required to serve in the ranks and as non-commissioned officers, the higher officers being selected from the advanced classes. Some new drill might also be introduced for each advanced class, and thus the interest be sustained.

Besides the field exercises, some elementary text books should be used, and the students be required to read for recitations or for examinations on the general principles of military science.

It is hoped by the friends of military education that provision will soon be made by Congress for the detail of competent officers of the army to act as professors of military science in the colleges introducing it, and that in this way the university may be provided with instructors in this department.

5. The course in chemistry and natural science will embrace the study of analytical and practical chemistry, the analysis of soils, ores, minerals and organic bodies, and the applications of chemistry in agriculture and the arts of dyeing and bleaching, and the manufacture of sugar, salt, glass, etc. It will embrace, also, the more extended and practical study of mineralogy, geology, and natural history in general, with the arts of collecting and preserving specimens, and of arranging cabinets and conducting geological surveys.

6. The instruction in the department of trade and commerce will have for its aim to give students a knowledge of the principles of business, and of the customs and laws of trade—the collection, transportation, exchange and distribution of the valuable products of nature and art. Such knowledge will be eminently valuable to the educated farmer, and is of vital necessity to those who are to be employed in the great commercial branches of industry. The crowded rooms of the commercial schools, meagre and unscientific as the instruction of these schools often is, prove conclusively the felt need of such a department of instruction, and the university would be incomplete in its industrial courses if it should leave this important form of human industry unprovided for.

The studies in this department, in addition to such literary studies as are necessary for the requisite discipline and culture, and such knowledge of natural sciences as may be needful to an understanding of the origin, nature, quality and cost of the commodities, crude and manufactured, known to commerce, should embrace also political economy, the laws of production, exchange and consumption as they affect markets; the theories of banking, insurance, and foreign and domestic exchange; the laws governing importation and exportation, the several classes of imposts, duties, etc., and the theories connected therewith; commercial geography, with the staple commodities of the different regions and nations, their commercial condition, usages and markets; book-keeping in its several forms, commercial customs, papers and correspondence; and finally, commercial law and the history of commerce, with its growth and variations. Such knowledge, while it would make intelligent business men, farmers, merchants and manufacturers, and managers of the great business enterprises of the nation, would help to prevent those ruinous speculations and disastrous failures which spring as often from a pitiable ignorance of the great fundamental laws of trade, as from a willful violation of them.

DEPARTMENT OF GENERAL SCIENCE AND LITERATURE.

The several courses in this department make up the general educational or college course. Their main aim is to furnish such a liberal education as may best fit students either for the mastery of the special courses in the arts, or for the general duties of life. The final composition and adjustment of this central course will demand the most careful consideration. The conflicting views which prevail as to relative values of different branches of learning, and the consequent disposition to scout some as useless, and to magnify others as of overshadowing importance, make it requisite for us to recur briefly to some fundamental principles which ought to control our selection.

The knowledges considered as instruments of culture or education, may be broadly grouped into four grand divisions, as follows :

1. Natural sciences, or sciences of observation and experiment.
2. Mathematics, or the science of imagination and calculation.
3. Linguistic and philological sciences, or the sciences of formal expression.
4. Philosophical and speculative sciences, or the sciences of consciousness and reflection.

Each form of knowledge affects culture by two separate methods. First, by the kind and extent of the exercise its study affords the mind, and, secondly, by the exciting and stimulating effect of its proper ideas. Some studies are chiefly valuable for the former, and others for the latter use.

The natural sciences, or sciences of nature, embracing natural history, chemistry, natural philosophy, geology, physical geography and uranography, especially exercise and cultivate the powers of observation, classification and inductive reasoning.

The mathematical studies, embracing both pure and applied mathematics, exercise and develop the capacity to form and combine abstract conceptions, and cultivate the deductive reason. They also promote habits of mental concentration and continuity of thought.

Linguistic studies educate the discriminative judgment, and develop the power both of the expression and reception of thought. They train, also, the faculty of discursive reasoning, and help to give to the mental action a precision and clearness not otherwise to be gained.

The philosophical and speculative sciences, embracing mental and moral philosophy, and historical and social science, address themselves to minds already well matured, and powerfully exercise the reflective faculties. They especially develop the habit of looking for the fundamental and essential, in facts and things; of investigating the real nature and causes of social and vital phenomena, and of that reasoning from the contingent and the probable, which goes among us by the name of "common sense."

If we turn now to note the other educational force found in these several classes of knowledge—the stimulating power of their proper ideas—we shall find an equal diversity in the kind and degree of their influence; the philosophical studies being, to the majority of mature minds, the most stimulating, and the mathematical the least.

Natural science gives us a knowledge of physical facts and phenomena, and of the great forces and laws of nature underlying these. This knowledge has in all ages stimulated the most eager curiosity, and awakened the spirit of inquiry into physical causes. It has also excited the most wild and extravagant speculations.

The mathematics afford us only the knowledge of the abstract relations of quantity and number, and of certain formulas of analysis. It is by its problems that this science excites the mental activities. Its ideas lie mostly inert in the mind, except when wanted as instruments of calculation.

Language, like mathematics, is mainly concerned with relations; but it is with the relations of ideas and thoughts in all departments of knowledge. The study of language is the study of the connections, as well as of the expression, of thought. Grammar, as J. Stuart Mill has justly observed, is "incipient logic." But language is the *instrument* and the *store-house*, as well as the *vehicle* of thought. It is full of history, philosophy, science and poetry. It powerfully stimulates the thinking

processes by the facilities it affords for the manufacture as well as the commerce of thought.

But no knowledge so profoundly stirs and stimulates the human mind as the great questions with which philosophy and history have to do. These questions come down to us from those great central heights of truth, unattainable, it may be, in their heaven-piercing summits, but still irresistibly attracting all great thinkers, and calling for the mightiest efforts of the human intelligence in the struggle to master their mysterious and still unsolved problems.

It seems too obvious to need further argument that a true educational course must include these four classes of studies, and that if we would send forth a body of thoroughly educated agriculturists, to stand as the peers of the educated men found in other professions, we must give our students the benefits of a course with its full proportionate measure of each of these elements. "It is an ancient and universal observation," said that great thinker and teacher, Sir William Hamilton, "It is an ancient and universal observation, that different studies cultivate the mind to a different development; and as the end of a liberal education is the general and harmonious evolution of its faculties and capacities in their relative subordination, the folly has accordingly been long and generally denounced, which would attempt to accomplish this result, by the partial application of certain partial studies." Testimony could be multiplied on this point from the world's greatest thinkers.

It is not necessary that all the branches in each of these great classes of studies be included in the course. Provided that each class is represented in something like its due proportion, we are at liberty to select of two kindred studies, of nearly equal disciplinary power, that one which most conduces to the special uses we have in view. In making up a course for the Industrial University, we may wisely and safely depart from the common college curriculum; and, without losing any of its real advantages, may gain much special assistance for our industrial courses.

STUDIES OF THE UNIVERSITY COURSE.

In Physical Sciences, the course should embrace botany, zoology, mineralogy, chemistry, geology and physics, not in the stunted measure and nearly useless manner in which they are usually taught, but with such extent and thoroughness as shall give students a practical comprehension and knowledge of each. The scientific farmer or mechanic should be a good naturalist.

In Mathematics, beside algebra and geometry, the student of agriculture needs trigonometry and land surveying; while the mechanic and civil engineer require also analytical geometry, mechanics and the calculus. These studies, therefore, should find place in this general course.

In Language, the course should embrace a thorough study of our own language, its rhetoric and literature.

Of Modern Languages, it should include the French and German, taught with such thoroughness that the student may read them with ease, and converse in them with some facility. The scientific agriculturist ought to be able to avail himself of the fresh discoveries of the French and German men of science. He is shut out from the best scientific thinkers of the age, and from many of the best sources of knowledge, if he can not read the languages of France and Germany. And the prevalent use of these languages in our own country, among large masses of our population, gives to their study an additional value.

The Latin language, both because it enters so largely into our own and other modern languages, and because it is to such an extent the language of science, will demand a place in the course. As an instrument of linguistic culture, it greatly surpasses modern languages, and its literature is of perennial value. When well taught, no study more richly rewards the student. The Greek should be afforded, at least as an optional study, to all who desire to pursue it. It will never lose its value in the eyes of the highest grade of scholars.

Mental and Moral Philosophy, Logic, History, Political Economy, Civil Polity, and Constitutional Law, will all properly enter into the course as philosophical and speculative studies, and because of their high practical values.

A course, composed of these studies, reaching through four years, will fully equal, in its disciplinary power, the ordinary college course, and be of much more value to the student of the industrial arts.

It seems almost idle to say, we admit, many of these studies are not necessary to the mere practical farmer. Latin will not help a man to hold the plow, nor will mental philosophy teach how to fatten hogs. But, we reiterate, the Industrial University is not needed and was not founded for the common education of men, farmers or others. "The liberal and practical education" proposed by Congress will require all the amplitude of study here described.

It is not insisted that all students shall take this general course, though it is strongly recommended. Students may take up special courses without stopping to complete this, just as they may take a medical or law course at any other University, without first graduating from the college course.

The special courses in agriculture and the arts will comprehend many of the studies belonging to the general course, and they may be so arranged that a diligent student, of good abilities, while pursuing the regular University course, may also take up and carry forward one of the special technical courses. The studies of the University course being the minimum of study required to entitle the student to regular standing, it will be found that many students can perform, successfully, more than this minimum.

By further arranging the special courses so as to connect them with the last three years of the University course, and by bringing them, as far as practicable, into the fall and winter session, we may comply with the provision of the law, and also allow students of Agriculture or Horticulture, alone, to complete their special studies in a three years' course.

OPTIONAL AND SELECT COURSES.

The opinion gathers currency that students of mature age and experience should be permitted to enter our universities and colleges, and select for themselves such studies as they may need, and as they are qualified to pursue successfully with the regular classes in those studies. It may sometimes also occur that persons will desire to enter the university simply to attend some course of lectures, or to attain an insight into some agricultural or other industrial process, as the budding, grafting or pruning of trees, the management of a grapery, etc. Such students should be furnished with all the facilities consistent with the good order of the institution.

QUALIFICATIONS FOR ADMISSION.

The question of the qualifications required for admission to the University is one demanding careful consideration. These requirements should not be so high as to virtually exclude those who might successfully pursue the course of studies, nor so low as to permit those who are unprepared to profit by a residence at the Institution, and whose time would be uselessly wasted in the attempt to grasp studies beyond their comprehension.

The law prescribes that "no student shall be admitted to instruction in any of the departments of the University, who shall not have attained to the age of fifteen years, and who shall not previously undergo a satisfactory examination in each of the branches ordinarily taught in the common schools of the State." The committee understand this language, not as fixing definitely the qualifications for admission, but only as determining their lowest limit. The Trustees may require both a maturer age and a higher grade of scholarship, whenever, in their estimation, the interests of the State and of the University require it. It would certainly be better if students never entered college under eighteen years of age; but the average age of those applying for admission will doubtless be above this, without any special rule requiring it. Experience shows that students who enter college at a less age than that here indicated, are often injured by being thrown so early into the indiscriminate associations and powerful stimulation of college life. The University is the place for men rather than for mere boys.

It seems requisite that two different sets of qualifications shall be prescribed: the one for students who wish to pursue simply the studies of some select or partial course, and the other for candidates for the regular University courses.

1. QUALIFICATIONS FOR ADMISSION TO SELECT COURSES.

Students may properly be admitted to take some select course, on passing a thorough examination in the common school branches of reading, writing, arithmetic, geography and grammar, and on evidence of sufficient maturity and intelligence to pursue successfully the studies selected by them.

2. ADMISSION TO REGULAR UNIVERSITY COURSES.

While the Committee would wish to open the University as widely as possible to the youth of the State, they can not forget that its real utility will depend on establishing and maintaining a high standard of scholarship. As it can not legally do common school work, so neither ought it to undertake to do the work already provided for in the public high schools. It would prove a most sorry blunder if in our too eager desire to popularize the Institution, and under pretence of bringing its advantages within the easy reach of all, we should create a gigantic and expensive high school, and, having thus consumed our means, should fail to make any University at all. It is absolutely essential, if the University is to do the higher and scientific work required of it, that it shall leave the preparatory work mainly, if not entirely, to the public high schools and academies of the State; else it may fritter away its funds and its teaching forces, on the mere elementary work already sufficiently provided for, and leave undone all the great work which we ask at its hands for scientific agriculture and industrial arts.

The reasonable construction of the statute is, that while the University shall not comprehend the ordinary common school studies, it shall so arrange its terms of admission that the public schools may be able to meet them, and that there be left no unbridged chasm between the body of the State school system and the University at its head.

In the better class of public schools there are now taught, not only Grammar, Geography and Arithmetic, but also Algebra, Geometry, Natural Philosophy, History of the United States, and Human Physiology, and in very many of them the Latin language. All these may properly be prescribed, therefore, as preparatory studies for the University. They are all so elementary in character as to come within the easy comprehension of students under fifteen years of age; they all need to be studied as preparations for mastering the University course; and they may all be successfully taught in public high schools. In the Latin, the quality of the scholarship attained, rather than the quantity of the reading, may wisely be made the test, and the student should be admitted who can construe readily any passage in Cicero's Select Orations, or Virgil's *Georgics* and *Æneid*.

The preparatory course above indicated, differs from that ordinarily prescribed for admission to colleges, in the omission of the Greek language, and in the extension of the requirements in mathematics and other studies. It is believed that this variation will not only better adapt the preparation to the peculiar character of the University, but will adjust the University much more nearly to the ordinary course of studies now generally taught in our public high schools. These schools universally teach Geometry and Algebra; but only in a few cases teach Greek to any great extent. The grade of scholarship required for admission will thus be made as high as that required at other Universities, though made up of different elements. To make the work of the Industrial University thorough and complete, demands that the preparation for it shall be also full and sufficient.

The argument for an elevated standard of qualifications for admission gains great force from the fact, that until the student has made as much progress as this preparatory course requires, he has not usually formed his purpose and tested his strength and ability to pursue a course of liberal or scientific study. The history of preparatory schools is full of proof that many of those who set out for a College course stop short of the College doors. Science, like scripture, has its "stony ground" hearers, who at first receive the word with joy, but who, when the hot sun of hard study is up, wither away. If our doors must be held open to every half-taught youth who is seized with a sudden ambition to "go to the University," our halls will be flooded annually with fresh hosts of mere tyros, who will stay only long enough to manifest their unfitness for the place, and then go forth to shame the Institution whose students they will claim to have been; thus ruining its reputation, after helping to destroy or impair its usefulness.

Among this host of short-lived "students of the Industrial University" the State will look in vain for that long line of graduates—the ripe and scholarly leaders in her agriculture and her great industries—which she has hoped to see proceed annually from the University halls.

The Committee are confident that no person who properly considers the amount of more important work which the University has to accomplish, will wish to see its forces diverted to the teaching of these elementary branches which the high schools may properly claim as their own ground; and certainly no one who desires the success of the University, as a great scientific and industrial college, will wish to see students entering its classes with less preparation than is here prescribed.

It needs to be repeated that this does not forbid students of suitable maturity and experience to come to the University to take a few select studies, without passing an examination in Latin and the higher mathematics named.

HONORARY SCHOLARSHIPS.

The law for the organization of the University provides that "each county in the State shall be entitled to one honorary scholarship in the University, for the benefit of the descendants of soldiers and seamen who served in the armies and navies of the United States during the late rebellion; preference being given to the children of such soldiers and seamen as are deceased or disabled; and the Board of Trustees may, from time to time, add to the number of honorary scholarships, when, in their judgment, such additions will not embarrass the finances of the University; nor need these additions be confined to the descendants of soldiers or seamen. Such scholarships to be filled by transfer from the common schools of said county, of such pupils as shall, upon public examination, be conducted as the Board of Trustees of the University may determine, be decided to have attained the greatest proficiency in the branches of learning usually taught in the common schools, and who shall be of good moral character and not less than fifteen years of age." These scholarships entitle the incumbents to free tuition for three years.

The Committee recommend that the Regent, in connection with the Superintendent of Public Instruction, prepare examination papers, and transmit the same to the County Superintendent of Schools in each county, who, with other examiners, appointed by the Regent and Superintendent, will see that the examinations are properly conducted, and will return the papers, with the written answers of the several candidates and with such testimonials as they may present, to the Regent, who shall determine on the papers and notify the successful candidates of their appointment.

A competitive examination, thus uniform in character and thus fairly conducted, can not but react with a most healthful stimulation upon the public school interests of the State; and this stimulation will be increased by a publication of the names of the schools in which the successful candidates were prepared, and the teachers by whom they were taught. In case any counties shall neglect to send students on their scholarships, the Regent may be authorized to award such scholarships, for the year, to suitable candidates from other counties.

CHARGES FOR TUITION, AND OTHER EXPENSES.

The Committee would rejoice if the condition of our funds and the provisions of the law would permit the University to be made free to all citizens of the State, and they cordially recommend that its tuition be made thus free at the earliest practicable moment; and that from the outset the charges be made as light as is consistent with justice to the Institution itself.

The charges in American Colleges range from a few dollars per annum to several hundreds. In Yale College the annual fees amount to \$85. The annual fees at Harvard are \$133. At the Michigan University each student pays a matriculation fee of \$10, and an annual fee of \$5. At the Michigan Agricultural College the tuition is free for citizens of the State. Students from other States pay \$20 per annum. All students pay a matriculation fee of \$5. The proposed fees for the Cornell University are \$20 a year for tuition; matriculation fee \$15.

The Committee recommend that the Academic year be divided into two semi-annual sessions, as nearly equal as may be, and that the tuition and other fees for each session be fixed at the following rates:

For tuition to students from other States, \$10 per term.....	\$20 per annum.
For incidentals, care and warming of public rooms, etc., \$5 per term.....	10 " "
For room rent, \$6 per term.....	12 " "

They recommend, also, that a matriculation fee of \$10 be charged to each student on first entering the Institution. This fee is never charged a second time, but, once paid, entitles the student to all the privileges of membership at any time thereafter.

Students on the "honorary scholarships" will pay the matriculation fee and charges for room rent and incidentals, but will be charged nothing for tuition.

BOARDING DEPARTMENT.

The building is provided with the necessary rooms for a boarding department. It is believed that in a short time we may wholly dispense with this department, even if it must be opened at the outset. Suitable boarding houses will doubtless soon spring up in the neighborhood, and the rooms in the University building may be appropriated to more public and proper uses.

STUDENTS' ROOMS.

There are in the University buildings sixty-six rooms designed for students' dormitories, each dormitory being calculated to accommodate two students. These rooms are without furniture. It is customary to leave students to provide their own furniture, as they will ordinarily take better care of their own property than they will of that belonging to a public Institution.

MANUAL LABOR SYSTEM.

One of the most important and difficult questions concerning the organization of the University, is that of the introduction of the manual labor system. It is true that the attempt to connect manual labor with schools has, in many instances, failed; but the nature and extent of this failure have not been generally understood. It has not failed because the students were unwilling to work, nor because the work was injurious either to their health or culture. It has simply failed to pay. The labor of students was found unprofitable.

The high success and utility of the labor system, as practiced at the Michigan Agricultural College, has, in the minds of your committee, fully demonstrated its feasibility and value; and they would heartily recommend its adoption here, provided similar conditions can be secured. There, each student is required by law to work three hours a day, unless excused on account of sickness. The professors accompany the students to the garden or field, and participate in and direct the work, which is made to illustrate the principles taught in the lecture rooms. Wages, according to the value of the work done, not exceeding seven and a half cents an hour, are allowed the student, and he is thus enabled to pay a considerable part of the expense of his schooling by his labor. Even there the work has never yet proved remunerative to the institution, though it annually approaches nearer this result.

It should be added that the manual labor system, as practiced at the above named institution, has been carefully inspected by gentlemen sent from several of the Eastern States, and has been warmly commended, in their published reports, as eminently satisfactory and successful.

The chief advantages of the labor system are these :

1. It promotes the physical health and development of the student.

2. It cultivates habits of industry, and, keeping the student inured to muscular effort, renders his return to the farm, or other physical labor, natural and easy. This is a point of much importance, if we wish successfully to turn the tides of educated life into the industrial employments.

3. When made, as in the agricultural course, to bear upon the studies pursued, it creates a practical interest in, and comprehension of, those studies, which can not be obtained by mere abstract study.

4. When pursued, as here recommended, in the society of intelligent class-mates and teachers, and lighted with a knowledge of the reason of every process, it is not only pleasant, but comes to be seen as noble and dignified; and thus the sentiment of honor to labor is deeply implanted in the mind.

5. It aids the student to pay his own way, and cultivates in him the feeling of manly independence.

These considerations are so important that they incline us to recommend its introduction, even though it should fail to pay all the expenses attending it. But if proper care is taken not to establish too high a rate of compensation, the committee are not without hope that no loss need result, even if no profit is gained.

APPARATUS OF ILLUSTRATION AND INSTRUCTION.

Each department in the University will require, besides the general cabinets or collections, some means of illustration and instruction peculiar to itself. For general study of the natural sciences there will be needed full and well classified collections of specimens in mineralogy and geology, in botany and in the various branches of zoology.

The departments of agriculture and horticulture will require, in addition, cabinets of seeds, grasses, grains and fruits; models or drawings of farming and garden implements, of farm buildings, and plans of farms, gardens, celebrated parks, and landscape gardens, etc.; and specimens and drawings of various breeds of domestic animals.

The department of mechanics and civil engineering, will demand a cabinet of models and drawings of machinery, architectural plans and plans of roads, bridges and other structures, and specimens of building materials, as the various woods, marbles, granites and more common building stones.

The military department will require its specimens or drawings of the various kinds of arms and military structures, together with plans of celebrated battle-fields, sieges, encampments, etc.

The department of fine arts will require casts, photographs or engravings of the great master-pieces in art. These may be obtained at reasonable rates, and original drawings, paintings and sculptures will, in due time, be added. The healthful, refining and stimulating influence of such collections on the minds of the young, must be seen to be properly appreciated.

The common working apparatus of instruction must embrace a good set of chemical and philosophical apparatus. The prominence due to chemistry in such an institution as this, will demand at the earliest practicable day, a separate and suitable building for a chemical laboratory, such as exists at Harvard, Yale and Amherst, and at the Michigan University.

The experimental farms, orchards and gardens, with the several stock barns, yards, pens, etc.; the mechanic shops, tools and machinery; the military arms and parade grounds; the engineer's tools, and the model counting house, will furnish the

fitting apparatus for teaching in the several leading departments of special instruction.

As the collection of cabinets is a work of years, it is important that it begin at once, and that applications for duplicate specimens, casts, etc., be made as early as practicable, wherever they may be obtained. The friends of the University in the various sections of the State would doubtless donate many specimens, if a brief circular, containing a statement of our wants, and instructions for packing and forwarding, were sent out.

FACULTY.

The committee were also instructed "to suggest a faculty" for the University. In the entire work of organizing the institution, there is no more difficult or important part than this. On the character and ability of its faculty, will the character and success of the University depend, more than upon all other circumstances taken together. Buildings, cabinets, libraries and rich endowments will be all in vain, if the living agents—the professors—be not men of ripe attainments, fine culture and eminent teaching powers.

Numerous applications have already flowed in upon the committee, but the time has been quite too brief, since the last meeting of the Board, to allow any such careful and extensive inquiries as would justify the committee in presenting any names at this time. Self-nominated candidates will always be abundant, but the men we want will need to be sought for as with lighted candles. The incumbent of a professor's chair should be no ordinary man. In this, its chief seat of learning, in which it proposes to provide for the highest education of its sons, and from which, as a great center of science, it seeks to diffuse light to all the great fields of its industries, the State needs men of the highest type, as scholars and as men. The qualifications of every candidate for a professorship must be rigidly scrutinized without fear or favor; and none but men of tried and proven ability must be admitted to a place. Older and ordinary colleges may do with second rate men; this University can only succeed with the best men.

A good college professor should have the three-fold qualification of eminent and extensive scholarship, at least in his department; thoroughly tested ability to teach; and high-toned, gentlemanly character and culture. The first two are indispensable qualifications; the third will never be overlooked by those who have marked how inevitably and ineffaceably the teacher impresses his manners and habits upon his pupils. If culture is the better part of education, high-toned character and genuine courtesy of manner and feeling are the better part of culture.

The number of professors must depend upon the extent of the endowments and the consequent ability to pay salaries. Until the Trustees shall determine upon the disposition of the land scrip, and thus approximately determine the prospective extent of its funds, this question of the numerical force of the faculty must remain unsettled.

The corps of instruction may properly embrace four classes of teachers: 1st. *Professors*, or principal instructors in each department of study. 2d. *Assistant Professors*—younger, or less accomplished teachers, employed in sub-departments, or to aid in departments in which the work can not be fully done by one man. 3d. *Lecturers*, or non-resident Professors—men eminent in some speciality of art or science, who may be employed to visit the University at specified seasons, and give

courses of lectures. 4th. *Tutors*, or young men, employed temporarily to give instruction in the more elementary studies.

The Committee would indicate the following as among the more important departments or chairs of instruction :

1. The Professorship of Practical and Theoretical Agriculture.
2. " " of Horticulture.
3. " " of Analytical and Practical Mechanics.
4. " " of Military Tactics and Engineering.
5. " " of Civil Engineering.
6. " " of Botany and Vegetable Physiology.
7. " " of Zoology and Animal Physiology.
8. " " of Mathematics.
9. " " of Chemistry.
10. " " of Geology, Mineralogy and Physical Geography.
11. " " of English Language and Literature.
12. " " of Modern Languages.
13. " " of Ancient Languages.
14. " " of History and Social Science.
15. " " of Mental and Moral Philosophy.

In addition to these, the Committee would suggest the following lectureships :

1. The Lectureship of Veterinary Science.
2. " " of Commercial Science.
3. " " of Human Anatomy, Physiology and Hygiene.
4. " " of Constitutional, Commercial and Rural Law.

Several of these departments may, at the outset, be represented by the same man. The professor of Botany may also be professor of Horticulture ; and the professor of Zoology may fill, likewise, the chair of Practical Agriculture. Civil and military engineering may be united in one chair ; and the professor of Chemistry may teach also Mineralogy or Meteorology.

The professor of Practical Agriculture should be the superintendent of the experimental farm, with such foremen and other laborers under him as may be necessary to carry out his plans. The farm is his laboratory and apparatus of instruction, by which he illustrates the scientific principles and theories which he teaches, and demonstrates both the truth and the value of his doctrines. His plans for the treatment of each field and crop, and for the several experiments to be tried, should be submitted to the Regent and Faculty, and after careful discussion and final adoption by them, or by the Executive Committee, should be put on record as the settled plan for that season, to be carried out under the careful supervision of the superintendent, and its progress and results fully recorded in the farm record.

In like manner, the professor of Horticulture should be superintendent of the gardens and ornamental grounds, and should, in the same way, present to the Faculty for their discussion and approval, his plans for the management of such grounds and gardens. He, too, when necessary, may be aided in his work by a foreman and other laborers. The students, in their labors in the gardens or on the farm, will be under the guidance of the professors whose instructions those labors are designed to illustrate and apply ; and thus the lecture room and the field practice will teach the same truths, and throw upon each other the light of a mutual illustration.

The professor of Mechanics may have under his care such shops as may be needed on the grounds for purposes of repairs, or of such new constructions of any kind as may be easily made. With a small steam or caloric engine as a motor power, there may be run a variety of common machinery, such as the turning lathe, circular saws, mills for grinding feed, etc., and threshing and other machines, which will enable the instructor in this department to furnish practical illustration of the principles of mechanics. The truth taught to the eye is much more easily understood and re-

membered than that which is stated in mere words. Every where the practical methods should supplement and impress the theoretical instruction.

At the Michigan Agricultural College the students repair the farm tools and make many of them. Several important improvements in farming implements have already originated there, though they have, as yet, no fully provided mechanical department. Students are also employed in the erection of new buildings as they are needed, and they are said to soon excel common workmen in the excellence of their work.

CONCLUSION.

In presenting this preliminary report, the committee purposely hold in reserve several points of much interest and importance, which they hope to be able to present finally in a much more definite and satisfactory form than can be done with the information now in hand. Maturer consideration than the time now allowed them has permitted, may also lead to some modification of certain of the points here presented.

Fully comprehending the great magnitude and the immeasurable importance of the enterprise which they are seeking to shape into life and power, they can only bespeak for it the wise support and the just forbearance of all good and intelligent citizens.

An Industrial University such as we are planning is, in a large part, without precedent or example. The field of its labors is as yet almost untracked in its widest stretches. The very classes for whom its benefits are designed, are as yet not half persuaded of the importance and real value of those benefits. The farmers and mechanics, accustomed to regard higher education as needful and desirable only for professional men, and almost wholly incredulous as to the utility of science in its applications to their work, will look with slow-coming faith upon a University which proposes to make farming a scientific employment, and to lift mechanics into a learned profession. They have, in many cases, yet to be convinced that a highly cultured mind may be linked to a brawny hand, and that a classical scholar may feel at home in a workshop; aye! and find use for all his scholarship and taste in the successful practice of his art.

But the age is propitious. The working masses of mankind are waking to their needs, and calling for light. The thunder of the machinery by the side of which they toil, and the magic power of the new processes of arts which they daily employ, have roused the long slumbering power of thought. Brains are coming into use and honor in all the fields of human labor, and brains will speedily demand light and knowledge. In an age of learning, the farmer and the mechanic will soon come to covet the rich heritages of science for their sons. Already the children of the laboring classes are crowding the public high schools. They will not stop there. The University lies the next step beyond. They will crowd to its doors; and soon will begin to issue from its halls that long column, with its yearly additions, of graduates with broad brows, and science-lighted brains, bearing back to the farms and the workshops an intelligent skill and power, to invoke new and unwonted fruitfulness from the soil and from the mechanic's art. "If I had fifty sons," said a farmer who had reluctantly permitted his eldest boy to take a course at an Agricultural College, and now brought his youngest to the same College, "If I had fifty sons they should all go to this College, for my boy, who graduated here, farms so much better than I ever did, skillful as I thought myself, that he is getting rich from his half of the crops he raises on my land, and I live like a prince on the remainder."

And the light of high and classic learning will be found as beautiful and becoming when it shines in an educated farmer's home, as when it gilds the residence of the graduated lawyer or physician. Rich libraries are already seen in the houses of some of our leading agriculturists, and no one has found that they hinder the growth of harvests, or unfit the hand of the reaper. When our Industrial University shall have come fully into its work, these libraries will be increased in number, and there will gather around the firesides in our farm houses, and in the homes of our master mechanics, groups of cultivated and intelligent people, the peers in knowledge, refinement and power of the best and bravest in the land.

And what richer growths shall yet start from these magnificent prairies to repay the farmer's toil, and what more splendid achievements shall yet spring from our myriad-handed mechanic art—what more beautiful bloom in our gardens, and more delicious fruits from our orchards—what more tasteful and convenient homes from our architecture, and what grander and more abundant products from our multiplying manufactories—what nobler forms of civilization to grace our free institutions, and what better types of manhood to tell of the blessings of liberty and learning, when education shall have fully achieved this last triumph, and carried her victorious banner of light down into the fields where the toiling millions of mankind must still, by the stern but beneficent ordination of Heaven, "eat their bread in the sweat of their brows."

J. M. GREGORY,
 NEWTON BATEMAN,
 MASON BRAYMAN,
 S. S. HAYES,
 WILLARD C. FLAGG,

Committee.

NOTE—TIME OF OPENING.

It was the earnest desire both of the Trustees and of the Regent to open the University for students, as early at least as next September; but a careful consideration of the character and extent of the preparations necessary to be made, in order to the successful inauguration of an enterprise of such magnitude and importance, convinced the Board of the necessity of some delay. It was accordingly voted that the opening be deferred till the *first Monday in March, 1868.*

It was found that important alterations were needed to be made in the University building, requiring several months for their completion; the University grounds, which are a portion of an open and unsettled prairie, were to be graded, and this grading will leave the soil naked, to be turned into an expanse of mud by the autumnal rains; fences were to be built, walks laid, sewers constructed, out-houses erected, blackboards and other apparatus and furniture to be made or purchased, and the institution to be equipped for service.

Financial considerations of much importance also forbade haste. The sale of the scrip, which could not be made for several weeks, was uncertain. No interest would accrue on the fund still the first of May, 1868, and the expense of the repairs and equipments, together with nearly the entire amount for salaries and current expenses would have to be taken from the principal of the University fund, thus seriously diminishing the means needed for the permanent support of the Institution.

But even if these difficulties could be overcome or safely submitted to, the selection of a faculty could not be wisely made in a time so limited. To ripen the working plans, to select and appoint a suitable faculty, to allow the professors, when chosen, time to close their present engagements, and to remove their families and effects to the seat of the University, to properly advertise the opening, and to diffuse every where through the state clear and definite information of the proposed courses of instruction and conditions of admission, to carry out the plan for the examination of candidates for the honorary scholarships, and to do all this well and thoroughly, required much more time than could be gained in a single summer. In an institution which is to last through ages, the delay of six months in the opening is of little consequence if it avails to make that opening successful and auspicious.

It was believed that the opportunity afforded by this delay to the Regent to visit the different counties of the State, and, by public addresses and personal interviews, to diffuse information concerning the plans and purposes of the University, would pave the way for a much more successful inauguration of its career.

PROCEEDINGS OF NOVEMBER MEETING---1867.

URBANA, *November 26, 1867.*

The Board of Trustees of the Illinois Industrial University, met at the University building, in the Regent's office, at 9 o'clock, A. M., November 26th, 1867, pursuant to the call of the Regent and the Executive Committee.

The meeting was opened with prayer by the Regent.

Upon the roll being called, nineteen members were present and answered to their names. Other members arrived later, making in all twenty-two present at the meeting.

The absentees were, Brown of Chicago, Hammond, Hungate, Pullen, VanOsdel, and the Governor.

Reports of committees were called for.

J. W. SCROGGS, Secretary of the Executive Committee, made a full report, by reading the record of the acts of said committee to this date. Action upon this report was deferred.

The REGENT called for the report of the Auditing Committee.

MR. LAWRENCE, Chairman of said committee, reported, informally, that he had corresponded with members of his committee, in reference to auditing the accounts of expenses of members of the Board, and had, with their consent, forwarded these accounts, with his approval, to the Regent.

The REGENT called for the report of the Finance Committee.

MR. COBB, Chairman, made a full report of the action of said committee to this date, as follows:

To the Board of Trustees of the Illinois Industrial University:

GENTLEMEN—The Finance Committee are only required by the statute to report at the regular annual meetings. But, thinking that a brief statement, upon some of

the more important matters referred to us, might be of interest to you, we herewith submit the following :

1. **SALE OF SCRIP.**—As per your instructions, the Treasurer, Regent and Chairman of the Finance Committee advertised and sold, 180,000 acres of the scrip, realizing therefor \$101,764 50.

This sale, being considered favorable at the time, induced the Executive Committee to recommend to the Trustees the sale of an additional 100,000 acres.

Your approval, in writing, having been obtained, the sale was conducted in the same manner as the first, realizing therefor the sum of \$58,427 91.

2. **FUNDS FOR CURRENT EXPENSES.**—In accordance with a resolution offered by Mr. Barchard, at our last meeting, the Treasurer sold twenty thousand dollars (\$20,000) of Champaign county bonds, using money obtained from the sale of scrip for the purchase of the same ; thereby keeping our one hundred thousand dollars of Champaign county bonds good.

3. **LOCATION OF SCRIP.**—A resolution of the Board instructed our Committee to take immediate steps to ascertain the practicability of obtaining desirable lands, and if, in their (our) judgment, a judicious location of such lands can be made, they (we) were authorized to locate the same to the extent of one hundred thousand acres. The Committee having become convinced, after extensive inquiries, that excellent lands could be obtained, instructed the Regent and their Chairman, with such other Trustees as they might call in to aid them, to proceed to make locations in the four States of Minnesota, Iowa, Kansas, and Nebraska.

The Regent and Mr. Goltra proceeded to Minnesota, and, after a careful inspection, located about sixteen thousand acres in that State.

At a later date, Mr. Goltra proceeded to Nebraska, and located about nine thousand acres ; making in all, located to this time, something over twenty-five thousand acres.

Mr. Goltra expresses his opinion that thirty thousand acres, in addition, can be advantageously located during the next four months ; and that, by taking a little further time, the balance, to make the entire amount of one hundred thousand acres, can be well located.

It is believed that the lands already obtained will, within a few years, bring from three to five dollars per acre.

As soon as the location of the 100,000 acres is completed, a descriptive catalogue should be issued and measures taken to secure an early sale.

Upon application to the Regent for a detailed statement of the expenditures thus far, he furnished the following, which, upon examination, seems to be correct, and in accordance with instructions of the Board and Executive Committee :

EXPENDITURES.—The total expenditures made thus far, for all purposes, is twenty-five thousand six hundred and twenty-two dollars and thirty-five cents (\$25,622 35). Some of the warrants embraced in this amount are, probably, still outstanding, and may not, therefore, appear in the Treasurer's statement.

Of these expenditures, much the larger part, viz: fourteen thousand and eighty-two 35-100 dollars, (\$14,082 35,) was paid for additional grounds. The other expenses were as follows, viz :

For expenses of meetings of boards and committees.....	\$1,032 30
For grading grounds.....	902 32
For furniture, stationery, printing, etc.....	690 00
For cut stone, lumber, labor, etc.....	3,053 07
For salary of Regent.....	2,333 33

For expenses attending sale of scrip.....	\$385 55
For insurance.	132 18
For cabinet, Powell's expedition.....	500 00
For express charges on books.....	61 25
For fees and expenses locating scrip.....	24 50

There are outstanding bills and contracts for labor, material and lands, which will require, perhaps, three thousand dollars more.

In order to make an estimate of our expenses for the coming winter, we would respectfully ask Chairman of committees, or members of the Board, to hand in accounts or unpaid bills at once.

Mr. PICKRELL moved that the bills presented at this meeting be referred to the Auditing Committee.

The motion was sustained.

Mr. BRAYMAN moved that the report of the Finance Committee be laid upon the table, to be taken up for action at some future time during this meeting.

Carried.

Mr. GOLTRA, Chairman of the Committee on Buildings and Grounds, asked further time to report; which was granted.

REPORT OF COMMITTEE ON AGRICULTURAL DEPARTMENT.

Mr. QUICK, Chairman of Committee on Agricultural Department, presented the following report:

The Committee on Agriculture beg leave to submit, for the consideration of the Board of Trustees, the following, as the result of their deliberations since the May meeting, touching the condition and management of the University lands:

1. The *present extent* of our grounds, including the purchases made by the Executive Committee, exclusive of the University lot, is about (1000) one thousand acres: nearly 200 adjoining the University lot, 410 in the Busey farm, and 400 in the Griggs farm.

2. There will be needed, for the University work, only about 600 acres; the 35 acres of the new purchase for horticulture, 160 acres for the experimental farm, and the 410 for the stock farm, tree planting, etc.

3. The Griggs farm should be sold as soon as it can be done wisely, and the proceeds should be sacredly kept to reimburse the permanent fund for the sums used in the purchase of additional lands.

4. The Horticultural Department may be allowed twenty acres, from the one hundred and sixty, for orchards.

5. The remainder of the experimental farm should be put at once, the coming season, under active cultivation, both to bring it into a higher state of improvement, and to ascertain carefully its soil and topography, preparatory to the subdivision into proper fields, for the future work of the Agricultural Department.

6. The stock farm (Busey place) may also be taken into the care and supervision of the University officers, in order to secure on it a cultivation which may tend to its improvement, and leave at our disposal such part of it as may be found necessary

to occupy. Such fields as are not wanted for the year's work may be rented, under such conditions as to use as may seem necessary.

7. To carry on the work on the farm, it is desirable that there be secured the services of a competent head farmer, who, under the direction of the Regent and Professor of Agriculture, shall oversee and carry forward the farm work.

8. The committee recommend the appointment of —— as head farmer, with a salary of \$—— per annum.

9. It is desirable, also, to secure, as early as may be, two or three good farm hands, to be permanently employed. These, with the students (if the students are to labor on the farm), will be able to do the work on the farm.

10. There will also be needed for the farm two or three horse teams, and the necessary tools for the working of the farm. These the Executive Committee may be instructed to purchase, when they are needed; or, in the absence of the Executive Committee, the Regent may direct the purchase of tools which may be wanted.

11. The Regent may be directed to secure, with the aid of the Faculty, at as early a day as practicable, a complete topographic survey of the farms, and an analysis of the several soils, and present to the Board a map of the farms, with a plan for the subdivisions, roads, building sites, etc.

12. In the absence of suitable barns and buildings, for the care of fine stock, it is desirable to confine the purchases of stock, the first year, to such animals as may be needed for economy on the farm and in the boarding hall.

In the mean time, the Faculty should be requested to act in conjunction with the Farm Committee, in preparing a thoroughly digested report of the character and extent of the future Stock Department, and of the barns and buildings needed for its accommodation.

All of which is respectfully submitted.

[Signed]

T. QUICK,

Chairman of Com. on Agricultural Department.

On motion of Mr. CUNNINGHAM, the report was laid upon the table, to be taken up for consideration in its due order.

The report of the Committee on Horticulture was called for, but the Chairman was not present and no one responded.

Upon the call for report from the Committee on Mechanical Department, Mr. Scroggs, Chairman, stated that he had not conferred with members of the Committee, and was unable to report.

Gen. BRAYMAN, Chairman of Committee on Military Departments, asked further time, to enable him to complete his report; which was granted.

Mr. BURROUGHS, Chairman of Committee on Library and Cabinets, asked the same favor; which was given.

Also, Mr. MAHAN, Chairman of Committee on By-Laws; the same.

PURCHASE OF ADDITIONAL LOTS.

Mr. SCROGGS, Chairman of the Committee of the Executive Committee, on the purchase of additional lots, reported as follows :

The Committee appointed to inquire into the feasibility of the purchase of additional lots to the Illinois Industrial University grounds, would beg leave to respectfully submit the following report :

One entire tier of lots upon the west side of said grounds has been purchased, and the deeds have been made out, and are now ready for delivery whenever the money shall be paid for the same, except two, viz: Nos. 140 and 173. On account of a little delay on the part of the agent for the sale, lot No. 140 has not been fully secured by deed. The temporary absence of Mr. Sherfy has also delayed the transfer, by deed, of lot No. 172. The lots already deeded to the Trustees rate as follows, viz:

Lot No. 105.	\$300
“ 106.	300
“ 139.	300
“ 174.	300
“ 206.	250
“ 207.	250
“ 208—half lot.	150
	<u>\$1850</u>

Your Committee would further state that, in setting the fence on the west side, fourteen feet of said grounds were left out, so as to make the street on the west (Wright street) eighty feet in width, and would suggest that the same width—eighty feet—be continued south, along the 40 acres, on the west line, making an avenue through to the 160 acres known as the experimental farm, and that said avenue be called “College Avenue.”

Time having been given to the Committee to report upon the purchase of the lots upon the east side of the University grounds, the Committee now report as follows :

Twenty-four lots upon the east side of the University grounds, in blocks 41, 42, 51 and 54, making half of said blocks, and consisting of three tiers of lots, running from Main street, on the north of the University, to the Springfield road south. The cost of said twenty-four lots on the east would be, at present prices, as follows:

Lot 5	Block 41	\$300
“ 6	“ 41	450
“ 5 & 6	“ 42	900
“ 5 & 6	“ 51	900
“ 5	“ 54	300
“ 6	“ 54	300
“ 3	“ 41	300
“ 4	“ 41	300
“ 7 & 8	“ 41	900
“ 3 & 8	“ 42	600
“ 4 & 7	“ 42	900

Lot 3	Block 51	.....	\$300
" 4, 7, 8	" 51	.....	1,350
" 3	" 54	.....	450
" 4 & 8	" 54	.....	600
" 7	" 54	.....	300
Twenty-four lots.....			<u>\$9,150</u>

By the vacation of the streets, four more lots would fall to the Trustees, which would make the whole number of the lots, in fact, twenty-eight; twenty-four of which would have to be paid for, and four gained by the vacation of the streets passing between certain lots in the twenty-four.

The purchase of these lots would add over five and a half acres to the grounds, making in all about twenty acres, which will prove in the end to be none too much.

In the purchase of the above lots, the ground would be extended on the east and west, so as to bring the University grounds proper to the same width as the forty acre tract known as the Wills tract; thus amplifying the college grounds for ornamental shrubbery, flower gardens, parade grounds, etc., and bring it into uniform width with the farming lands, adding beauty and symmetry to the whole premises. A consideration of these facts induces your Committee to most respectfully recommend the purchase of the last-mentioned twenty-four lots.

(Signed)

J. W. SCROGGS,
M. L. DUNLAP,
J. H. PICKRELL.

By vote of the Board, this report was laid upon the table.

The Treasurer of the Board, J. W. BUNN, read, by request, a statement of his receipts, expenditures and investments to this date.

Mr. COBB, from Finance Committee, read a proposition from Mr. Lewis, for the purchase of one hundred thousand acres of scrip at eighty-five cents per acre.

The proposition was referred to the Finance Committee.

On motion, the Board took a recess until 2 o'clock, P. M.

AFTERNOON SESSION.

November 26, 1867.

Board met at 2 o'clock.

REGENT in the Chair.

Twenty-two members were present.

The CHAIRMAN called for the report of Committee on Library and Cabinet.

Mr. BURROUGHS, Chairman, reported in a fragmentary manner, asking time to arrange and file his report.

On motion, his request was granted, with instructions to lay his report, when arranged, upon the table, to be taken up in its regular order.

On motion of Mr. JOHNSON, Mr. JOHN P. REYNOLDS, Secretary of the Illinois State Agricultural Society, who was present, was invited to participate in the deliberations of the Board.

Mr. QUICK presented the following resolution, which was laid upon the table, to be taken up in connection with the report of the Committee on Library and Cabinets, viz :

Resolved, That the Committee on Library and Cabinets be authorized, in their discretion, to purchase the Cabinet of Professor Bromley, as soon as there are sufficient funds in the treasury, on the best possible terms, not to exceed in amount the sum of six thousand dollars.

REPORT OF COMMITTEE ON HORTICULTURAL DEPARTMENT.

SAMUEL EDWARDS, from Committee on Horticultural Department, made a minority report, which was laid upon the table, to be considered in its proper order, viz :

The undersigned, members of the Committee on Horticulture, would respectfully represent to this Board, that having had no previous notice that a report would be expected from us at this meeting, and also, the majority of the members of our committee being absent, we are unable to make a full or even a majority report. Yet we would recommend to the Board that a suitable person or persons be employed by the Agricultural and Horticultural Committees, to survey and lay out the one hundred and sixty acre farm, as well as the lands surrounding the Institute building, with the intervening lands, employing an experienced landscape gardener, if they deem expedient, to assist in said survey, causing accurate maps of the same to be made, and that the said person or persons shall take measures to secure the preparation of ground and planting of screens, the coming spring, upon the west and north sides of the experimental farm and the Busey farm. Also, as liberally as may be practicable, for the purpose of shelter, on grounds surrounding the University building, without injuring the general appearance of said grounds.

We would also further recommend that, in said survey, provision be made for planting an arboretum of all ornamental and forest trees, likely to succeed, fruit trees of various kinds adapted to cultivation here, and for shrubbery, kitchen and flower garden.

[Signed]

SAMUEL EDWARDS,
O. B. GALUSHA.

[CHARLES H. TOPPING arrived a little later, read and signed the above report, thus making it a *majority* report.—*Rec. Sec.*]

Mr. GOLTRA presented a proposition which had been handed him,

relative to hedging a portion of the lands located by the Board ; which, on motion of Mr. BRAYMAN, was indefinitely postponed.

REPORTS CONSIDERED.

Mr. FLAGG moved that the reports of the several committees, which had been laid upon the table, be taken up in their regular order for action.

Carried.

I. REPORT OF EXECUTIVE COMMITTEE.

The report of the Executive Committee was called up, when Mr. A. M. BROWN moved its approval, but temporarily withdrew his motion.

Mr. BURROUGHS offered an amendment to the resolution creating an Executive Committee of this Board.

On motion of Mr. MAHAN, the resolution of Mr. BURROUGHS was referred to Committee on By-Laws.

Mr. BROWN's motion for approval was then renewed.

Mr. BURCHARD moved the postponement of the consideration of this motion, until the meeting of the Board to-morrow morning; which was agreed to.

II. REPORT UPON ACQUISITION OF ADDITIONAL LOTS.

Mr. A. M. BROWN moved that we now take up the report of the committee appointed by the Executive Committee, for the consideration of the purchase of lots adjoining the University building and grounds.

The motion prevailed, and Mr SCROGGS read said report. [See page 70.]

Mr. A. M. BROWN offered the following resolution:

Resolved, That the Executive Committee be authorized and directed to purchase the lots specified in the report just read, provided the money necessary to make the purchase can be raised by sale of a sufficient portion of the Griggs farm.

Mr. JOHNSON moved to refer the report, and resolution of Mr. BROWN, to the Finance Committee, with instructions to report to-morrow morning, at 10 o'clock.

Which was lost.

The resolution of Mr. BROWN was then put to vote, and lost.

Mr. LAWRENCE moved that the report read by Mr. SCROGGS be referred to the Finance Committee, with instructions to report to the Board, at its next annual meeting.

Carried.

III. REPORT OF FINANCE COMMITTEE.

Mr. BURCHARD called up the report of Finance Committee, and moved its adoption.

Carried.

Mr. A. M. BROWN moved that the Finance Committee be instructed to report, at its earliest convenience, the amount of Champaign county bonds it will be necessary to sell, to furnish funds for the immediate use of the Board.

Carried.

IV. REPORT OF COMMITTEE ON AGRICULTURAL DEPARTMENT.

Mr. FLAGG moved to take up the report of the Committee on Agriculture; which was so voted, and the Secretary read the report. [See page 68.]

Mr. DUNLAP moved to strike out the words "Regent and Professor of Agriculture," as superintending and directing the work of the "head farmer," and insert the words "Executive Committee" in their stead.

Mr. A. M. BROWN presented the following as a substitute for article 7, which Mr. DUNLAP proposed to amend, viz:

Resolved, That — be appointed Superintendent of the farm of the University, and that he have the control and management of the said farm; that he shall, in March of each year, make a report to the Regent, indicating his plans for the coming season, with an estimate of the cost of labor, implements, seeds, working and other animals, required by him; and this report shall be submitted to the Executive Committee, for their approval or rejection, and for the appropriation of the necessary funds. And the said Superintendent shall, also, in — of each year, make a report to the Regent of the result of his plans of the previous season.

The substitute of Mr. BROWN, and the amendment of Mr. DUNLAP, were lost.

Article 7 of the report was adopted.

Article 8 of the report was, upon motion, referred to the Committee on Agriculture, with instructions to report to-morrow morning.

Mr. PICKRELL asked to be excused from further attendance at this meeting; which was granted, by vote.

On motion of Mr. MAHAN, the Board adjourned (at 5:30), to meet at this place at 7 o'clock, this evening.

EVENING SESSION.

November 26th, 1867.

The Board assembled, and was called to order, by the Regent, at 7 o'clock.

The REGENT, having called Gen. BRAYMAN to the Chair, moved that the report of Committee on Library and Cabinet be taken up.

It was so voted by the Board. (Mr. BURROUGHS having, agreeably to vote of the Board, arranged and filed his report, upon which Mr. QUICK's resolution for the purchase of cabinet was based.)

V. REPORT OF COMMITTEE ON LIBRARY AND CABINET.

The Committee on Library and Cabinet respectfully report :

That no funds having been placed at their disposal, and no authority having been given them to make any purchases, their labors have been confined to inquiries what were likely to be the immediate and most pressing needs of the University, in respect to books and means of illustrating the different departments of Natural History, on the opening of the courses of instruction in the spring, and how these wants can be best met.

Having in view a proportionate distribution of the present financial resources of the University between the different departments, according to the experience of similar institutions, the Committee believe that, from the present means, at least ten thousand dollars to library, and ten thousand to cabinet, would be only a fair proportion.

It is not, however, supposed that it would be possible for the Board to appropriate this whole amount for immediate expenditure; and the Committee therefore ask that (\$1,000) one thousand dollars be placed at their disposal, to be expended during the next winter, at the best advantage possible, in purchasing such books as are indispensable on the opening of the University in the spring.

In respect to cabinet, the Committee have pleasure in calling the attention of the Board to an opportunity which they believe to be of unusual interest. A collection in the three different departments of Mineralogy, Geology and Conchology, which was made by Prof. Bromby, of Georgia, during the last twenty-five years, is offered to this University on terms which we believe extremely favorable.

The catalogues of this collection, with estimates of its value, from Prof. C. U. Shepherd and other leading scientific authorities, are present; and presenting these

to the Board for their full information, the Committee recommend the purchase of the collection, as the best means ever likely to be offered for the supply of this important department.

All of which is respectfully submitted.

[Signed]

J. C. BURROUGHS,
A. M. BROWN,
NEWTON BATEMAN,
I. S. MAHAN,
W. C. FLAGG.

Mr. QUICK's resolution of appropriation for library and cabinet was read [see page 72]; when

Mr. DUNLAP moved to postpone indefinitely its consideration.

This motion was put and lost.

The resolution was adopted.

Mr. MAHAN, Chairman of Committee on By-Laws, reported a code of by-laws for the government of the Board.

Mr. DUNLAP moved that the by-laws be read and acted upon *seriatim*.

Which was so ordered by the Board.

The code of laws was read and adopted, as follows:

B Y-L A W S .

I. MEETINGS OF THE BOARD.

SECTION 1. All meetings of the Board of Trustees shall be held at the University building, in Champaign county, and a majority of all the Board shall constitute a quorum.

SEC. 2. The annual meeting shall be held on the — Tuesday in March.

SEC. 3. Special meetings may be called, whenever necessary, by the Regent, Corresponding Secretary or any five members of the Board, by mailing to each member of the Board, or personally serving a copy of such call, at least ten days before the day of meeting, provided, that in such notice the business to be attended to at such meeting shall be specified.

II. ORDER OF BUSINESS.

SECTION 1. The order of Business, at each meeting of the Board, shall be :

1. Reading of the Scripture, and prayer.
2. Calling the roll of members.
3. Reading, correction and approval of minutes of last meeting.
4. Reports of the Executive Committee of all business transacted since the last meeting of the Board.
5. Reception and consideration of communications.
6. Reports of officers.
7. Reports of standing committees.
8. Reports of special committees.
9. Unfinished and new business.

III. RULES OF DEBATE.

SECTION 1. In discussions, and the disposition of business, the Board shall be governed by the parliamentary rules and usages usually governing deliberative bodies.

SEC. 2. Every resolution offered shall be reduced to writing, and sent to the Secretary's table.

SEC. 3. No member shall speak more than ten minutes, or more than twice, upon any proposition, without the consent of the Board.

IV. OFFICERS AND APPOINTEES OF THE BOARD.

The officers of the Board shall consist of the Regent, Treasurer, Corresponding Secretary, and Recording Secretary; and the Board may, from time to time, appoint such professors, tutors or instructors, and such subordinate officers and employees, as they may deem necessary to carry on the Institution.

V. TERMS OF OFFICE.

SECTION 1. The Regent and Treasurer shall be elected at each biennial meeting, and hold their offices for two years, and until their successors are elected and qualified.

SEC. 2. The Corresponding and Recording Secretaries shall be elected at the annual meeting, and hold their offices for one year, and until their successors are elected and qualified.

SEC. 3. Professors, and other officers and employees, shall be appointed at such time, in such manner, and for such term, as the Board shall, by resolution, in each case, direct, and be subject to removal at the pleasure of the Board.

VI. DUTIES OF REGENT.

SECTION 1. The Regent shall be the President of the Board of Trustees, and of all the several faculties of the University; may vote on all questions or propositions submitted to the Board, and, upon calling any member to the chair, may participate in debate.

SEC. 2. He shall be the chief executive officer of the Board, and shall see that the orders and resolutions of the Board are carried into effect, when the Board shall not otherwise direct; and shall take care that the by-laws and regulations relating to the duties of subordinate officers, instructors, and students, are faithfully observed.

SEC. 3. He shall be the Chairman of the Executive Committee, and, as such, shall report at each meeting of the Board the doings of the committee since the last session of the Board.

SEC. 4. He shall also, as Regent, make an annual report to the Board, exhibiting the progress and condition of the several departments of the University, with such suggestions as he may deem needful for their improvement.

VII. TREASURER.

The Treasurer shall give bond, with approved security, in the sum of three hundred thousand dollars. He shall be the custodian of all moneys and securities belonging to the University, except such as are, by law, placed in the custody of the State, and of the land scrip, until the same shall be sold or located. He shall invest the funds of the University, as directed by the Board, and he shall pay no money out of the treasury, except upon a warrant of the Regent, countersigned by

the Recording Secretary. He shall, also, annually, and oftener, when required, make a detailed report to the Board of all receipts and disbursements, since making his last report.

VIII. CORRESPONDING SECRETARY.

The Corresponding Secretary shall perform the duties indicated and required by the act creating his office. He shall hold his office in the University building as soon as the institution is opened.

IX. RECORDING SECRETARY.

SECTION 1. The Recording Secretary shall perform the duties required of him by law, and usually appertaining to his office. He shall keep the books and papers belonging to his office at the University building, at Champaign, and the same shall be open to the inspection of any member of the Board, or officer of the University. He shall be the clerk of the Executive Committee, and, as soon as the University is open, reside at or near thereto.

SEC. 2. He shall countersign all warrants on the Treasurer, and note on each the date of the order of the Board or Executive Committee authorizing the issuing of the same.

X. SALARIES.

The salary of each officer, professor, instructor and other employee of the University shall be fixed by resolution at the time the appointment is made, subject to alteration in the discretion of the board; and a warrant shall be drawn for the same according to law, on the Treasurer, as the same shall fall due, provided there are funds in the treasury to pay the same.

Salaries shall be payable quarterly, on the first days of April, July, October and January, of each year.

XI. DISABILITIES OF MEMBERS.

No Trustee, except as provided in the charter, shall receive any salary or compensation (except actual expenses) for services as an officer, or while acting under any appointment of the Board: nor shall any Trustee be interested in any contract made with, or on behalf of, the Board: *Provided*, that this section shall not apply to any of the present officers or appointees of the Board.

XII. STANDING COMMITTEES.

At the annual meeting, the following Standing Committees shall be appointed:

1. An Executive Committee, consisting of the Regent and eight members.
2. An Auditing Committee, of five members.
3. A Finance Committee, of five members.
4. Committee on Faculty and Study, of Regent and five members.
5. Committee on Agricultural Department, of five members.
6. Committee on Horticultural Department, of five members.
7. Committee on Military Department, of five members.
8. Committee on Mechanical Department, of five members.
9. Committee on Buildings and Grounds, of Regent and five members.
10. Committee on Library and Cabinets, of five members.
11. Committee on By-Laws and Rules, of three members and the Regent.

XIII. DUTIES OF THE EXECUTIVE COMMITTEE.

SECTION 1. The Executive Committee shall meet, at the seat of the College, at least quarterly, and oftener if they shall find it necessary, for the transaction of any business necessary to be done in the vacation of the Board.

SEC. 2. The Executive Committee shall, for the purposes for which they were appointed, possess all the powers of the Board: *Provided*, That they shall not revise or change the acts of the Board, nor act upon any matters referred to any committee of the Board, that may be entrusted with any special business; shall not purchase or sell real estate, nor the land scrip nor bonds belonging to the University, without the consent, in writing, of a majority of all the members of the Board, and shall be strictly confined to such business as cannot be left till the annual meetings of the Board.

SEC. 3. The Committee shall hold their office till the annual meeting next after their appointment; and they shall submit the minutes of their proceedings, or make a report, through their Chairman, to every meeting of the Board, of all their transactions since the last meeting of the Board.

SEC. 4. Special meetings of the Executive Committee may be called in the same manner as special meetings of the Board.

XIV. AUDITING COMMITTEE.

The Auditing Committee shall examine and report upon all accounts of the Regent and the Treasurer, and audit all accounts referred to them by the Board or Executive Committee.

XV. THE FINANCE COMMITTEE.

The Finance Committee shall have the general supervision of the financial affairs of the University, subject to the rules and control of the Board. They shall make to the Board, at the annual meetings, a statement of the condition of the finances of the University, and an estimate of the income from all sources, and of its necessary and probable outlay for the succeeding year. And they shall report at all other meetings of the Board and of the Executive Committee, when required, and shall recommend such measures for the management of the revenues as they may think best.

XVI. COMMITTEE ON FACULTY AND COURSES OF STUDY.

The Committee on Faculty and Courses of Study shall recommend, from time to time, suitable persons for positions in the Faculty, in its various departments, and all necessary changes or modifications in the course of study.

XVII. DUTIES OF COMMITTEES ON DEPARTMENTS.

The Committees on Agricultural, Horticultural, Mechanical and Military Departments shall attend to the several subjects indicated by the titles of the committees. They shall recommend all measures necessary for the advancement of the interests of the various departments.

XVIII. COMMITTEE ON BUILDINGS AND GROUNDS.

The Committee on Buildings and Grounds shall consider and report upon all plans, estimates or proposals for the sale or exchange, repair or improvement of the buildings or grounds belonging to the University, or for the erection of buildings or fences on the same, and for their convenient division; and all orders of the Board for improvements on buildings and grounds (except the farms) shall be under the charge and control of the Committee.

XIX. COMMITTEE ON LIBRARY AND CABINETS.

The Committee on Library and Cabinets, of which the Regent shall be one, shall consider and report upon all matters relating to the care and arrangement of the

library and cabinets. They shall have charge of the purchase and exchange, under the direction of the Board, of all cabinet materials, books, pamphlets, periodicals or specimens. They shall report, from time to time, the condition of the library and cabinets, and their future wants.

XX. COMMITTEE ON RULES AND BY-LAWS.

The Committee on Rules and By-Laws shall prepare and recommend, from time to time, by-laws for the government of the Board in its business, and rules for the management of all the departments of the University.

XXI. AMENDMENTS OF BY-LAWS.

These by-laws may be repealed or amended, at any meeting of the Board, by a vote of two-thirds of all the members of the Board.

[Signed]

I. S. MAHAN,
H. C. BURCHARD,
A. M. BROWN.

After the adoption of the by-laws, the Board adjourned to to-morrow morning at nine o'clock.

MORNING SESSION.

November 27, 1867.

The meeting was called to order by the Regent, at 9 o'clock.

Rev. Mr. LAWRENCE conducted the opening exercises.

The minutes of yesterday's proceedings were read by the Secretary, and approved by vote of the Board.

REPORT OF COMMITTEE ON MILITARY DEPARTMENT.

Gen. BRAYMAN, Chairman of the Committee on Military Department, presented the following report, viz:

The United States and the State of Illinois have, by appropriate laws, endowed and established an Industrial University, wherein shall be maintained, prominent in its course of studies, the instruction of a portion of the youth of the State in military science and practice.

Your committee recognize the wisdom and necessity of these enactments, as well as the duty of giving them full force. From the war of Independence to the present time, the successes and glories which crowned our arms have been due to natural courage, ready genius, and love of country, on the part of an intelligent and virtuous people, rather than to their knowledge of the art and practice of war.

The Military Academy at West Point, founded in the early days of the Republic, has furnished graduates barely sufficient, in number, to officer our meagre regular establishment in times of peace. The universal dearth of military knowledge, and the want of competent leadership, remained unobserved during the long period of repose which our country happily enjoyed. But when, only a few years since, the whole nation was, almost

in a day, plunged into the midst of a terrible war—when treason had infected our little army, and seduced from honor and allegiance, many, even, whose power to make crime formidable, was the gift of the beneficent government they would destroy, the value of thoroughly trained leadership became apparent. The true men whom the nation had educated in her great military school, stood out in grand relief, and though few in number, became conspicuous in organizing and training our armies and leading them to victory.

But of the hundreds of thousands who came from the peaceful walks of life to the camp and field, in response to the call of patriotism, there were not enough educated military men to furnish one to each regiment. Thousands were commissioned and sent to the field, who had never before worn a sword, nor even learned enough of tactics to instruct a squad in the simplest exercises. Ignorance of all that related to military life and duties was profound and almost universal. But the rebound was prodigious. Officers and men, as if by intuition, learned the most difficult and complicated duties in the very act of performing them. Our citizens became soldiers—our awkward recruits became veterans—our volunteer armies saved the country—our volunteer officers performed their parts in the terrible drama, with such courage, skill and success, that future ages will believe that the science and practice of war had been the only study of their lives.

But the picture has a darker shade. The present generation cannot comprehend, and history will never tell, how many terrible disasters befell the armies of the Union—how many gallant men have died—how many live, broken and mutilated—what millions of treasure have been wasted—how often the flag went down in dishonor, while the nation was learning the rudiments of war. We now confess, that though rare natural gifts and persistence may achieve much, each occasional success is overshadowed by many failures. A schoolmaster, whose rod of correction we yet feel, has taught us that he who would perform a duty well, must first learn how to do it—that true greatness consists in reaching the highest results at the least expense of time, labor, life and material. We do not officer and man our ships with land lubbers, and send them out into ocean storms, to take their first lessons in navigation. Neither do we propose to await, in willful ignorance, the shock of future wars, to learn how wars should be met, and conducted, and prevented, too; for the experience of all nations proves, that preparation for war is often the surest pledge of peace.

We justly claim that our republican form of government has its basis upon the intelligent consent and patriotic support of an educated people, thus enabling us to dispense with standing armies. A wise body of constitutional and statute law, universal education and suffrage, toleration in religion, and a free press, secure us against the disorders and calamities felt by nations wanting those blessings.

That people, however, cannot be said to be well educated who remain untaught in a department of knowledge, on which, despite all that casuists and moralists may say, the peace and security of society, nay, the existence of nations, must ultimately depend.

Nothing will supply this demand but a uniform system of military education, having its origin in governmental authority and support, and sustained by the several states, in such manner as to diffuse military knowledge, and foster a martial spirit, throughout the great body of the people. The Military Academy at West Point, as now organized, cannot, after supplying the scientific corps, furnish each regiment of the regular army with one officer every two years. No possible enlargement of that institution—no increase in the number of like establishments, can supply the growing wants of the country. Neither will institutions founded for the sole purpose of furnishing officers for the army, predestined to a military life, suffice. It is desired to send into all communities, and all employments, men of sufficient military training, engrafted upon the common stock of knowledge, to fit them for transfer to the camp and the field, as instructors and leaders, whenever the exigencies of war may demand their services.

Recent events have shown that the stability of our government and the honor of our flag are safe in the popular support. The great need now is positive uniformity, to be found only in the recognition of a national standard of military education, maintained by

the government, and diffused throughout the nation, so that citizens of all the states and graduates from all the schools may fall into line, and prove it true that "in union there is strength."

The donation of lands made by Congress was in furtherance of this general design. Attention is now called to a plan, set on foot under orders from the War Department, and about to be submitted for the action of Congress, so grandly national in design, so comprehensive in scope, so minute in detail, as to invite at once the approval and the co-operation of this institution in carrying it into effect.

Under special orders of the War Department, No. 167, issued April 4, 1867, Major J. H. Whittlesey, of the United States army, (retired from active service,) an officer of great merit and ability, was detailed to proceed to West Point, New York, and to such of the principal colleges of the United States, as will enable him, after consultation with the college authorities, to report a method of introducing a suitable system of military instruction into such of the colleges of the United States as shall desire it.

In a personal interview with the Acting Secretary of War, in October, the chairman of your committee found that officer deeply interested in the subject of popular military education, and was, by him, referred to Major Whittlesey, for consultation. Correspondence with him has brought to the hands of the committee full reports and explanations, accompanied by a draft of a bill to be submitted by Gen. Grant for the action of Congress.

Under such auspices, and urged by a public sentiment so fully instructed by recent events, it cannot be doubted that the National Legislature, at its approaching session, will adopt this plan substantially as presented, as the basis of an enlarged and truly national military establishment.

The Illinois Industrial University, having been created and designated by the Legislature for the purpose of applying the land grant to a course of education, of which military science and practice shall form a part, comes within the provisions of the bill. It is proposed—

1. To establish a bureau of the War Department, in charge of a director-general of military education, whose duty shall be to inspect and supervise military academies, secure uniformity of instruction, and enforce faithful compliance with the laws and regulations on those subjects.
2. That when any institution designated shall have capacity sufficient to educate, at one time, one hundred male students in a complete course of liberal studies, with grounds for military exercises, there shall be detailed a competent officer of the army, to act as military professor, with an assistant; the military professor to supervise the prescribed course of military studies and exercises to be taught, and enforce general regulations for the government of the officers so detailed, but without infringement of the rights of self government of the institution.
3. That each college which shall have established a course of instruction in military studies and exercises, in conformity to the act, shall receive the necessary text books, ordnance and ordnance stores, and camp and garrison equipage, with a detail of one ordnance sergeant and two musicians, at the expense of the United States.
4. That the Faculty of Arts of such college may, each year, recommend to the President of the United States a list of one-tenth of the graduates distinguished for general proficiency in the collegiate course, special attainments in military science, and skill in military exercises, of good moral character, and sound health, whose names shall be published in the army register, and of whom one from each college shall be commissioned in the army, as in the case of graduates from West Point.
5. That each college thus comprising military studies and exercises in its course of instruction, shall receive from the U. S. treasury two thousand dollars, to be expended under the charge of the Director of Military Education in the purchase of the necessary books of reference, maps, models and text books; also, ten thousand dollars, to be expended in constructing a suitable building for the purpose of an armory, and for use as a drill hall, in inclement weather.

The foregoing brief outline indicates, with sufficient clearness, the general plan. The government assumes the necessary expenses, and provides all the means of efficient military instruction, so as to make it an absolute gratuity to students. Your Committee suggest the same general plan of military education, whether the bill proposed by the War Department be adopted by Congress, or whether the University is left to carry existing laws into effect with its present means.

The course of military studies should comprise the theory of ordnance and gunnery, military engineering, including the attack and defense of works; the art of war, illustrated from military history; military law, with the practice of courts martial; and the theory of military discipline, police, and administration. The method of illustration will be by recitation and lecture, with suitable text books for study and reference, corresponding, in all chief features, to the theoretical course of military science at West Point, during the last year of study—modifying and reducing the full course, when expedient, so far as consistent with the mastery of the fundamental principles of military science; thus accomplishing all that the limited time will allow in obtaining sound general views, and an ample foundation for future study and improvement. This course will require a recitation or lecture of one hour daily, on four or five days of the week.

The equipment of the lecture room will not be costly. The maps and drawings can be easily purchased or copied, and will serve all the essential purposes of instruction. It will be desirable to collect, as opportunity offers, models of the most important instruments, engines and appliances of war, to include matters of ordnance, fortifications, devices for attack and defense, mines, bridges, etc. They will greatly aid the lecturer in imparting instruction, and the student in obtaining clear views on these subjects; and will be more necessary in consequence of the modification of this course to a university standard.

The course of military exercises would comprise practical instruction in infantry tactics, through the school of the soldier, company and battalion, with skirmishing, the forms of parade, and the duties of guards, and, when practicable and desired, in fencing, and the sabre and bayonet exercise.

The attainment of a uniform course of study and exercise throughout all military schools, being a leading object, the general plan pursued at West Point should be followed, as nearly as practicable. As the military professor will, of necessity, be a graduate of that institution, and our text books and methods of instruction the same as there employed, this object will be accomplished, as a matter of course. The corps of students will be organized into companies of moderate size, from fifty to sixty strong, so as to give an even number of companies for the University battalion. This will be the habitua organization for infantry drills and general parades. The battalion staff, and the company officers, will be taken from the senior class; the staff sergeants, and the company sergeants, from the junior class; the corporals, from the sophomores; with such modifications as may suit the case of students on shorter or longer courses. All these grades should be taken by detail for limited periods, so as to give to all, as far as practicable, the advantage of practice in all positions. Students, not on duty as officers, and all the freshman class, will do duty as privates, the classes being intermixed in companies in definite proportions. Details for duty as officers should be based, not only on proficiency in this particular department, but have reference to superior excellence in all others, and to general deportment. For this and other reasons, the details, if made by the military professor, should be approved by the University faculty, or by the Regent, as might be expedient. Whenever possible, in the course of practical instruction, expert members of the superior classes should be employed in drilling the lower, as well from the necessity for such assistance, as for the benefits to students so employed. In this way, military habits and routine will be transmitted from class to class, with each succeeding year.

The studies and recitations of classes will proceed, uninterrupted by changing seasons; but exercise and drill will require the drill room during inclement weather. This will insure steady progress in military practice, and also afford to all students a due degree

of physical exercise. The experience of other institutions shows that, in thus cultivating a martial spirit among our young men, and affording proper means for its development, we supply, in a great degree, the place of the gymnasium, and withdraw students from a class of amusements scarcely beneficial, sometimes injurious. The drill room will serve for an armory for the deposit of arms and accoutrements, when not in use.

The necessity for field music, the drum, fife and bugle, is obvious. It is indispensable to discipline, and will lend a cheerful and inspiring influence to the routine of college life. Whether furnished by the government, under the proposed bill, or provided by employment in the usual way, a volunteer band, composed of students, could soon be organized, fully competent to the service.

It is recommended that there be adopted a uniform, to be worn by students, a style or fashion of dress which will be genteel, comfortable and economical for all occasions, of suitable material—that for summer use being of a lighter texture. A University button, with appropriate devices, should be manufactured expressly for the purpose. Economy would dictate that the uniform be the habitual costume of students, since it would save the expense incident to variety and change of fashion. It would secure personal neatness, and place all students upon a footing of republican equality—the sons of the rich and the poor meeting upon a common level, with nothing in their apparel to stimulate the pride of the one, or wound the self-respect of the other. The experience of all institutions which have adopted the uniform shows that the distinction which is thus conferred awakens an honorable ambition to excel, refines the manners, gives a manly tone to the character, and, in some sort, makes each individual student feel that the reputation of his class and the honor of the institution are in his keeping.

It is recommended that the course of military study, in classes, etc., and the required drill, field exercises and parades, be established by University authority, and enforced by the usual marks of merit and demerit, which shall stand to the credit or discredit of the student, and be taken into consideration, as in other departments, in fixing his grade as a scholar, on examinations for advancement and graduation.

The term and extent of theoretical studies should be subject to modification and abatement, at the pleasure of the Faculty, in deference to the time which students expect to remain in the institution and to their chosen occupations in life. The daily martial exercises should, however, be rigidly enforced, except when remitted by the Regent, by reason of conscientious scruples or physical debility. The reason for this is found not only in the necessity for uniformity in hours of practice and the value of the discipline which military drill imparts, but that every student may, at proper intervals, be drawn from his dormitory and his overwork of brain, and put through a course of physical effort, healthful and invigorating, which will rescue him from the rust of inaction, and secure the “erect carriage, the firm, graceful, manly bearing, the expansion of chest, the harmonious action of every limb and muscle; in fine, that perfect physical development, without which mental vigor, in its highest type, can never be long maintained.” The race of wretched dyspeptics, consumptives and hypochondriacs, which crowd the learned professions and go trembling to their graves before the work of their lives is half done, are eloquent witnesses against that system in which the education of the mind is sought in violation of the laws of health. It is time that this glaring defect in academic education is remedied. Athletic and gymnastic sports have, in many institutions, been resorted to with success. By substituting military exercises, we accomplish the same end, aid college government, and furnish the militia of our State with men of their own households, able to make soldiers of them when the country calls them to rally round the flag.

It may be already inferred, that it is intended to place the institution so far upon a military footing, as to bring all the students under the care of the professor of the military department, whose duties and authority shall be that of military commandant—this authority not to include the time devoted to classes, nor to come in collision with other departments of study. Its recognized subordination to the authority of the Regent, and its subjection to proper rules, will make the workings of this department easy. The usual regulations of the camp, as to exercise, recreation and sleep, the reveille, the

roll call, the call to and from duty, the tattoo—all in their regular order, can come into place, without disturbing, but rather aiding and directing the observance of college duties and discipline.

It is due to the dignity of this institution, and to the expectations of the people, that in this, as in all other departments, we fix a high standard in the outset, and work up to it as we can. The committee would include in the general plan, artillery and cavalry, as well as infantry study and drill; but have, for the present, purposely omitted the two first named, until success in the last, and sufficient resources, shall justify attention to them.

Your committee, cordially approving the plan prepared by Major Whittlesey, recommend that a proper expression be made by the Board of Trustees, and our Senators and Representatives in Congress requested to aid in its passage into a law, and that we stand prepared to avail ourselves of its benefits, by entering upon the organization of the military department, according to its provisions.

It is deemed good policy, however, to put the students in uniform, and inaugurate a system of military government, instruction and drill, on opening the University in March, or at all events at the fall term of 1868.

The office of Military Professor can be temporarily filled by the incumbent of another chair, and, if necessary, a competent drill officer employed to organize the first company and commence with the usual simple exercises. Brigadier General Haynie, Adjutant General of Illinois, has given encouragement that the necessary arms and accoutrements may be obtained from the State Arsenal. Indeed, we can, by organizing as volunteer companies under State laws, become entitled to arms, as well as to the commissioning of officers.

In this way a beginning can be made, almost without cost to the Institution, and we can go forward in compliance with the law, prepared to adopt the great national plan, when enacted, or to proceed independently under existing laws. It is proper to say here, that in either case, the military department will fall quietly into place with other branches in no wise interfering with them; it being particularly provided in the Congressional bill referred to, and in the lucid explanation of Major Whittlesey, that officers detailed by the War Department shall act in subordination to the Regent and observe the regulations established for the government of the University, not departing, of course, from the plans prescribed by Congress. It is designed, and eminently desirable, that the connection be perpetual; but the officers and aid of the government will be withdrawn whenever the authorities of the University so determine.

In preparing this report, resort has been freely had to the text of the very able communication, made to the Secretary of War, by Major Whittlesey, who with great courtesy, promptly supplied the committee with valuable information on all the points here presented.

To give effect to the foregoing views, the following resolutions are respectfully reported for the consideration of the Board.

Respectfully submitted,

M. BRAYMAN, *Chairman.*
THOMAS QUICK,
LUTHER LAWRENCE,
LEMUEL ALLEN,

Committee.

November 26, 1867.

RESOLUTIONS.

1. *Resolved*, That in compliance with the laws on that subject, the military department of this University shall be established as part of the regular and necessary means of education.

2. *Resolved*, That there shall be appointed, as soon as the same shall be needful and proper, a Professor of Military Tactics and Engineering, and such assistants as shall be necessary in his department.

3. *Resolved*, That all students shall be taught in the branches appropriate to this department, to such extent, and with such modifications and exceptions, as shall be provided in the code in force for the regulation of studies.

4. *Resolved*, That in order to secure neatness and economy, and to distinguish the students of this University, a uniform shall be prescribed and worn, of material known as cadet gray, appropriately made, and furnished with a University button, having apt devices, and a University cap, in such form as shall be prescribed.

5. *Resolved*, That the Military Professor, or the officer or person having, for the time being, charge of the military department, shall have the authority and perform the duties of military commandant, and shall, under authority of the Regent and Faculty, enforce such rules and orders as are usual at West Point and other military schools, comprising the regulation of hours, personal deportment and intercourse, and in such manner as shall insure order, obedience and discipline, and promote the general objects contemplated; and that suitable music, consisting at least of the drum and fife, be provided. These duties to be so arranged in rules and regulations as to comprehend the entire police and administration of the University, and subject to such control and supervision as will promote harmony and efficiency.

6. *Resolved*, That the Regent, the Chairman of the Military Committee, and the Treasurer, be instructed to procure from the proper authorities of this State such arms and accoutrements as shall be necessary for use of students in drill, and such books of tactics as may be required to begin instruction in military exercises.

7. *Resolved*, That these regulations be put in force as far as feasible on the opening of the institution in March next; but that the University uniform may not be required to be worn by students until the fall term, when it shall be worn by all.

8. *Resolved*, That this Board cordially approve, and respectfully recommend to the favorable action of Congress, at its coming session, the bill and general plan reported to the War Department by Major J. H. Whittlesey, U. S. A., for providing a system of National Military Education in colleges, and earnestly request the Senators and Representatives from this State, to support the same.

9. *Resolved*, That this University will hold itself in readiness to adopt fully the proposed national plan, and make the same a part of the permanent system of instruction in this institution, as the best means of securing to the people the benefit of military education, and for establishing upon an enduring foundation the cherished institutions of our State and common country.

Mr. DUNLAP moved to accept the report.

Which motion was approved.

Mr. DUNLAP moved the adoption of the resolutions contained in the report.

Mr. GALUSHA moved to amend the resolution requiring "all students" to wear a uniform dress, by inserting the word "male;" so that it shall read "male students."

The ayes and noes were called for on the proposed amendment, and taken, as follows:

Members voting Aye, were Messrs. Cunningham, Dunlap, Edwards, Galusha, Harding, McMurray—6 votes.

Members voting No, were Messrs. Allen, Bateman, Blackburn, Brayman, A. M. Brown, Burchard, Burroughs, Cobb, Flagg, Goltz, Hayes, Johnson, Lawrence, Mahan, McConnell, Quick, Scroggs, Topping and the Regent—19 votes.

The amendment was declared lost.
 The resolutions were adopted, and the report
 Ordered, by vote of the Board, to be recorded and published
 with the minutes.

VACANCY IN COMMITTEE ON BUILDINGS AND GROUNDS FILLED.

Mr. McCONNELL was appointed to fill the vacancy in the Committee on Buildings and Grounds.

Which appointment was confirmed by the Board.

REPORT OF COMMITTEE ON FACULTY AND COURSE OF STUDY.

The REGENT called Mr. BURCHARD to the Chair, and presented a report as Chairman of the Committee on Faculty and Course of Study.

The Committee on Courses of Study and Faculty, respectfully submit the following report:

Without pausing to detail the several reasons for their conclusions, they offer the following distinct recommendations:

I. SPRING TERM.

They recommend that the Spring Term shall open on the 2d day of March, and close on the 13th day of June, giving a term of fifteen weeks.

II. THE COLLEGE YEAR.

They recommend that the College Year shall, hereafter, begin with the opening of the Autumn Term, and shall embrace thirty-six full weeks, divided into three terms, of twelve weeks each.

III. CALENDAR FOR 1868-9.

The Autumn Term shall commence September 14th, and close December 5th.

The Winter Term shall commence December 7th, and close March 6th, 18 9

The Spring Term shall commence March 15th, and close June 6th.

A recess shall be taken, embracing the holidays.

A vacation of one week shall occur between the Winter and Spring Terms.

IV. AGRICULTURAL AND HORTICULTURAL COURSES.

The committee present the accompanying conspectus and course of studies in Agricultural and Horticultural science, and respectfully ask its adoption:

THE FARM.

CHOICE OF FARM.	{	With reference to Markets.		}			
		With reference to Climate and its local modifications.					
		With reference to Soil and Subsoil and Slopes.					
		Sub-divisions into Fields, or Farms of different cultures.					
		Sites of Farm buildings.					
		ARRANGEMENT.	{				}
		FARM STRUCTURES.	{		Fences.	{ Live; as Hedges. Wood; Boards; Rails; Paling. Stone; Wire.	}
					Buildings.	{ Farm House; Dairy House. Barns; Ricks; Cribs, etc., for grain, hay, etc. Cellars; Fruit Houses, etc. Cattle Barns; Stables, etc. Pens; Styes, etc., for sheep and swine. Hennery; Bee House, etc.	
		FARM IMPLEMENTS. ROADS AND BRIDGES.					
SOILS.	{	Elements.	{ Mineral. Vegetable. Animal.	}			
		Classification.	{ Argillaceous or Clayey. Silicious or Sandy. Peaty.				
		Cultivation and Improvement.	By Chemical Agents. ...		{ Mineral manures. Organic.—Animal; Vegetable. Manurial green crops.		
			By Mechanical Agents. ...		{ Draining. Subsoiling. Plowing; Dragging; Rolling.		
		By Fallowing. By Rotation of Crops.					
SUBSOILS.	{	Elements, Classification, Treatment.	}				
FERTILIZERS.	{	Chemical Composition.		}			
		Manufacture, Compost.					
		Preservation.					
		Modes of Application.					

RURAL ARCHITECTURE.

PLANT CULTURE.

USEFUL.....	Grass Crops	{ Pastures Pasture grasses. { Meadows..... { Cutting grass. { Handling and Pressing.	{ Structure, Physiology. { Chemical Composition. { Vegetable tissues. { Varieties. { Habits and Diseases. { Insects.	
	Grain Crops.....	{ Corn..... { Varieties. { Planting and Cultivating. { Harvesting and Preserving. { Wheat; Rye. { Varieties. { Barley; Oats. { Sowing and Cultivation. { Buckwheat. { Harvesting, Threshing and Preserving		
	Root Crops.	{ Potatoes. { Sweet Potatoes. { Turnips, Beets, Carrots, etc.		{ PRODUCTS. { { Starch, { Sugar, etc., { Flour, etc., { Cider, { Wine, etc., { Dyes, Acids, { Essences, { Medicines.
	Textile or Fibrile Crops.	{ Flax; Hemp; Cotton.		
	Cucurbitaceous Crops ..	{ Pumpkins; Melons, etc.		
	Trees	{ Forest and Fruit.		
	Broom Corn; Willow Bushes, Vines, etc.			
WEEDS.....	{ Classes; Habits. { Uses; Products. { Modes of Extermination.			
PROPAGATION AND IMPROVEMENT.....	{ Seeding. { Hybridizing. { Transplanting. { Cuttings; Layering. { Pruning. { Inoculating; Grafting.			

ANIMAL HUSBANDRY.	DOMESTIC.....	Horses, Mules, etc.	Breeds and Varieties.
		Working Cattle.		Structure and Physiology.
	NOXIOUS.	Milch Cows.	Animal Tissues, Chemistry.
		Sheep, Swine.	Qualities; Speed; Strength; Fattening; Milking, etc.
		Poultry, Bees.	Habits and Diseases.
STOCK RAISING.....	Insects.	Products.	
	Reptiles.	Classes.	
	Birds.	Values.	
VETERINARY SURGERY AND MEDICINE.	Mammals.	Habits.	
	Breeding and its Principles.	Extermination.	
	Care of Young.		
STOCK RAISING.....		Feeding for fat, milk, work.	
STOCK RAISING.....		Training.	
RURAL LAWS, HISTORY, LITERATURE AND ECONOMY OF AGRICULTURE.			

These studies will be arranged in a course occupying three years, as follows:

FIRST YEAR.

THE FARM—Its measurements and mapping; subdivisions—meadows, pastures, orchards, wood lands, gardens, etc. Fences, hedges, farm buildings. Soils—classification and mechanical treatment of soils, plowing, etc. Drainage. **PLANT CULTURE**—Structure and physiology of plants; classes of the useful plants, their characteristics, varieties, habits and values. Wheat culture, maize culture, grass culture, root culture, fruit culture begun, apples, pears, peaches, etc.

COLLATERAL STUDIES—English language and composition, surveying, drawing, botany, French language and literature.

SECOND YEAR.

THE FARM—Chemical elements and chemical treatment of soils. Fertilizers—their composition, manufacture, preservation and application. Climate, influence of light, heat and electricity on soils and vegetable growth. **FARM IMPLEMENTS**—principles of structure and use. Road making.

FRUIT CULTURE—Modes of propagation, production of new varieties, diseases of fruit trees. Insects injurious to vegetation.

ANIMAL HUSBANDRY—Breeds and varieties of neat cattle, horses, sheep and swine. Principles of breeding, rearing, training, fattening, etc. Chemical composition of food, and preparation of the several varieties. Sheep husbandry; poultry; bees.

COLLATERAL STUDIES—Mechanics, chemistry, zoology, entomology, mineralogy, German language and literature.

THIRD YEAR.

AGRICULTURAL ECONOMY—Relation of Agriculture to the other industries, and to commerce. The several branches of Agriculture. Agricultural book-keeping, the farm book, herd book, etc. **RURAL LAW**—of tenures and conveyances of land, of highways, of cattle, of fences, of noxious weeds, etc. Veterinary surgery and medicine. Landscape gardening, and laying out of large farming estates. Rural Architecture and Engineering, Foreign Agriculture, History and literature of Agriculture.

COLLATERAL STUDIES—Geology, Meteorology, Physical Geography, Inductive Logic, Political Economy, History and Civil Polity, English Literature.

V. PREPARATIONS FOR ADMISSION TO THIS COURSE.

Candidates for the course in Agriculture and Horticulture, shall pass a thorough and satisfactory examination in penmanship, orthography, its practice and rules, reading and its principles, English grammar, geography, arithmetic, and history of the United States. It is also recommended that they be prepared in algebra, geometry, natural philosophy, and physiology; though these latter studies are not required.

VI. GENERAL EDUCATIONAL COURSE.

The committee also present the accompanying course of studies in science, literature, and art, and recommend its adoption. This is the general University or educational course, and it is so planned that while it affords a sound and liberal education, it provides for the students of the various industrial courses, the scientific knowledge they may need for a thorough mastery of those courses. It will occupy four years, but a diligent student, of good ability, will often be able to master one of the industrial courses, while pursuing this. The studies of the course will be arranged as follows:

REGULAR STUDIES.

OPTIONAL AND EXTRA.

FIRST, OR FRESHMAN YEAR.

1ST TERM—Trigonometry and Surveying. Structural Botany. Cicero de Senectute. French.	Greek.
2D TERM—Analytical Geometry. Systematic Botany. Odes of Horace. French.	Greek.
3D TERM—Systematic Botany, Descriptive Geometry and Geometrical Drawing. Satires of Horace. French Literature.	Greek.

SECOND, OR SOPHOMORE YEAR.

1ST TERM—Calculus. Chemistry. Zoology. German.	Tacitus—Annals. Greek.
2D TERM—Chemistry. Entomology, etc. Physics—Mechanics. German.	Tacitus. Greek.
3D TERM—Mineralogy. Physics. Rhetoric. German Literature.	Chemistry. Cicero de Oratore.

THIRD, OR JUNIOR YEAR.

1ST TERM—Astronomy. Geology. English Literature.	Ancient History.
2D TERM—Geology. Modern History. Meteorology.	Astronomy. English Literature
3D TERM—Logic. Physical Geography. Modern History.	English Literature. Butler's Analogy.

FOURTH, OR SENIOR YEAR.

1ST TERM—Mental Philosophy.	
Political Economy.	Science of Education.
Elements of Criticism.	
2D TERM—Moral Philosophy.	
History of Civilization.	Social science.
Civil Polity, Const. of United States.	Evidences of Christianity.
3D TERM—History of Philosophy.	
Modern Philology.	
Constitutional Law.	
History of Inductive Sciences.	

VII. PREPARATION FOR THIS COURSE.

Candidates for the general course in science, literature and art, shall pass thorough examinations in the studies ordinarily required for admission to good colleges or universities, with the exception of the Greek language, and the addition of algebra and geometry.

VIII. PREPARATORY CLASSES.

Special classes for instruction of such candidates for the general course, as may not be fully prepared to enter said course, may be organized from time to time by the Faculty; but the instruction in these classes shall not comprehend the studies ordinarily taught in the common schools.

IX. CANDIDATES FOR ADVANCED STANDING.

Candidates for advanced standing, shall pass examinations in all the previous studies of the course; but may be admitted to take any selected study for which they may be qualified, in any part of the course.

X. TUITION AND OTHER FEES.

Tuition to students from other States, per annum.....	\$20 00
Matriculation fee, on entering the University.....	10 00
Incidental fee, for warming and care of public rooms, per term.....	4 00
Room rent, in University building, per term.....	4 00

There shall be no other charge for tuition to students from this State. Honorary and prize scholars shall have the preference in admission. [See substitute for this article, page 93.]

XI. PROFESSORS.

The committee recommend the appointment, at an early day, of at least three Professors; and are prepared to nominate to the Board, at any suitable time, two men for such Professorships. They have before them several other prominent names, but desire to take all the time that may be properly allowed, to make assurance doubly sure, that the best men are obtained. If the Board shall see fit to lodge with the committee the power to employ, temporarily, such additional teachers as may be needed for the spring term, it will allow nearly three-fourths of a year more to prosecute such inquiries as may help to fill, much more safely, these important places in the Institution; and the trial of some men in the spring term, will permit us to test their qualifications, before any permanent appointment.

XII. BOARDING HALL.

The committee recommend that a suitable person be employed to take the rooms designed for the boarding department, and maintain in the same a boarding hall, for such officers, students, and employees, as may desire board. They recommend that a suitable stove or cooking range, and tables and chairs for the dining room, be furnished, and that these articles be granted, free of charge for rent, to such person, and that he shall receive the amounts paid for board, as his compensation. He shall be required to keep the rooms and furniture in good repair, and restore them, when called for, in as good order and condition, ordinary wear excepted, as when he received them. The rates of board shall be as low as practicable, and shall be subject to revision by the Board and the Executive Committee.

XIII. ADDITIONAL COURSES.

Other courses of study will be organized as soon as the circumstances of the University will permit. The Military Department ought to partly develop at the outset.

Mr. McCONNELL moved to adopt the report.

Mr. BLACKBURN moved to so amend the report that "no matriculation fee" shall be demanded from honorary and prize pupils.

Adopted.

Mr. HAYES moved to further amend by adding, "but all other pupils shall be charged at the rate of fifteen dollars per annum for tuition; provided, however, that the Executive Committee shall have power to reduce or abate said charge, and to increase the number of honorary scholarships.

The yeas and nays were called for on Mr. HAYES' amendment, and taken, as follows:

Members voting yea were Messrs. Blackburn, Brown of Pulaski, Burchard, Burroughs, Dunlap, Edwards, Galusha, Harding, Hayes, Johnson, Lawrence, Mahan, Quick, Scroggs—14.

Members voting nay were Messrs. Allen, Bateman, Brayman, Cobb, Cunningham, Flagg, McConnell, McMurry and the Regent—10.

The amendment to the amendment was declared adopted.

Mr. COBB offered the following as a substitute for the amendments of Mr. BLACKBURN and Mr. HAYES, and moved its adoption: "A matriculation fee of ten dollars each shall be charged all pupils in attendance; and all, except the honorary and prize pupils, shall be charged a tuition fee of fifteen dollars each, per annum."

The substitute was adopted.

Mr. FLAGG moved to amend the substitute so as to charge twenty dollars per annum as tuition for pupils from other states.

On motion, the Board voted to lay the report upon the table until two o'clock this P. M.

Mr. FLAGG moved that the Board meet in private session, at three o'clock this P. M., to receive nominations and consider the appointment of persons as head farmer and professors in the University.

It was so voted.

On motion, the Board took a recess until two o'clock this P. M.

AFTERNOON SESSION.

Board convened at 2 o'clock. Regent in the chair.

The report of the Committee on Faculty and Course of Study was called up for the action of the Board.

RATES OF TUITION ADOPTED.

Mr. CUNNINGHAM offered the following substitute for Section 10 of the report, viz :

SEC. 10. TUITION AND OTHER FEES.

Tuition of students from other states.....	\$20 00 per annum.
“ “ from Illinois	15 00 “
Matriculation fee of all students.....	10 00 “
Incidental fees for care and warming of public rooms, etc	2 50 per term.
Room rent in University building	4 00 “

Honorary and prize scholars shall be admitted without any charge for tuition.

It is the desire and intention of the Board of Trustees to make tuition free to all students from this State, at the earliest moment that the finances of the University will permit.

The section and accompanying declaration were adopted.

The report of the Committee, thus amended, was adopted.

Mr. QUICK, Chairman of Committee on Agricultural Department, offered an additional report. Inasmuch as this report included the appointment of the head farmer, it was, by vote of the Board, laid upon the table, to be made the special order for 3 o'clock.

Mr. COBB, Chairman of the Finance Committee, reported a list of estimates of the expenses of the University from this time until the March meeting of the Board, amounting to \$24,424 06.

He also reported available funds to meet these expenses, as follows:

Due Jan. 1st, coupons upon \$125,000 of Illinois 6 per cent. bonds.....	\$3,750 00
Rents from farms.....	500 00
Leaving the probable expenses unprovided for.....	<u>\$20,174 00</u>

The Committee recommended the sale of \$20,000 of Champaign county bonds, to meet these expenses.

The Committee also recommend the sale of 100,000 acres of the land scrip, at 90 cents per acre.

The report was accepted by vote of the Board.

SALE OF SCRIP VOTED.

On motion of Mr. BURROUGHS, that portion of the report which related to the sale of land scrip was adopted.

Mr. BROWN moved that the Treasurer be directed to sell the one hundred thousand acres of scrip at ninety cents per acre, as recommended by the Committee.

Carried.

SALE OF BONDS ORDERED.

Mr. JOHNSON moved that the Treasurer be authorized to sell twenty thousand dollars of Champaign county bonds, as recommended in report of the Finance Committee, at a price not less than par.

The motion prevailed.

LOCATION OF SCRIP AUTHORIZED.

Mr. FLAGG moved that the Treasurer and Finance Committee be authorized to locate not to exceed twenty-five thousand additional acres of the scrip.

Carried.

Mr. HARDING asked to be excused from farther attendance at this meeting; which was granted.

PRIVATE SESSION--3 P. M.

The Board went into private session, at 3 o'clock, agreeably to vote of the morning.

The report of the Committee on Agricultural Department was called up and presented, as follows, viz :

The Committee on Agriculture have had under consideration the subject of head farmer and salary, referred back to them, and have instructed me to report :

That they recommend filling the blanks in the eighth (8th) proposition of the report with the name of Jonathan Periam, and that his salary be fixed at fifteen hundred dollars (\$1,500) per annum; and that he have, in addition, the use of the house on the Busey farm; and that his term of service commence on the first day of January next.

The Committee further suggest that there will be needed, to carry out the recommendations contained in the report, appropriations as follows :

For cost of two teams.....	\$800 00
For harness for same.....	80 00
For two wagons.....	220 00
For feed for teams.....	100 00
	<hr/>
Making a total of.....	<u>\$1,200 00</u>

For this purpose the Committee recommend that one-half of this amount be set apart immediately to pay for one team, wagon and harness, and the balance by the first of March, 1868.

In regard to the fences around said farms, the committee are of opinion that the fencing already ordered for the Institution will be sufficient for present purposes.

The committee, however, recommend that the head farmer be instructed to make a hedge fence of Osage Orange, at as early a period as is practicable, around the lands designed to be kept by the Institution.

The committee also suggest and recommend that provision be made to pay the wages of at least two laborers on the farm, as soon as the head farmer shall deem their services necessary.

AGRICULTURAL IMPLEMENTS.

The committee are of the opinion, that upon proper application to the manufacturers of agricultural implements, one at least of each kind, may be secured to the Institution, free of charge. It will be manifestly to the interest of manufacturers to send their machines of different kinds here to be tested, as an indorsement by the officers of the Institution would be highly beneficial to the manufacturers, in making sales. The committee recommend the passage of the following resolution :

Resolved, That — be instructed to correspond with the various manufacturers of agricultural implements, inviting them to donate to the University one at least of the various implements or machines, to be tested and used by the Institution, or placed in an exhibition hall, as the Board may elect, to form a permanent museum of agricultural implements.

HEAD FARMER CHOSEN.

On motion of Mr. DUNLAP, that portion of the report which recommended Mr. PERIAM as head farmer, was adopted.

Mr. FLAGG moved that the Chairman of the Agricultural Committee be instructed to contract with Mr. Periam according to the terms of this vote.

This motion prevailed.

On motion of Mr. DUNLAP, the blank in the resolution offered by the committee, was filled with the name of THOMAS QUICK.

The report was then submitted for vote of the Board, and adopted.

Mr. BURCHARD presented the following, viz :

Resolved, That the sum of twelve hundred dollars be appropriated for the purposes indicated in the report of the Committee on Agricultural Department, and that the Regent be authorized to draw, from time to time, warrants for such parts thereof as may be needed. The whole amount so drawn not to exceed the sum hereby appropriated.

Adopted.

The REGENT called Mr. CUNNINGHAM to the Chair, and presented the names of gentlemen as suitable persons to fill chairs as Professors in the University, and read testimonials in their favor, viz : William Baker, of Springfield, Illinois, and George W. Atherton.

PROFESSORS ELECTED.

Mr. CUNNINGHAM presented the following resolutions, and moved their adoption :

Resolved, That Professor William M. Baker be and he is hereby elected to a chair, hereafter to be named ; his term to commence March 1, 1868, at a salary of two thousand dollars per annum.

Resolved, That Professor G. W. Atherton be and he is hereby elected to a chair hereafter to be named ; his term to commence on the first day of March, 1868, at a salary of two thousand dollars per annum.

Each resolution was unanimously adopted.

Mr. McCONNELL moved to instruct the Regent to notify the gentlemen chosen as Professors, of their election.

Carried.

The private session was then closed, by vote of the Board.

OPEN SESSION—4 P. M.

Mr. GOLTRA, Chairman of Committee on Buildings and Grounds, presented the following report, which was adopted, viz :

1. We recommend that the work on the building, already begun, be finished, and the fence completed.

2. That this Committee be authorized to adopt a plan for laying out and ornamenting the University grounds, and that the work, whenever done, on the grounds, shall be in pursuance of this plan.

3. That the necessary black-boards, desks and seats for the recitation rooms, chapel and other public rooms of the University, be authorized to be made or procured.

(Signed),

M. C. GOLTRA, *Chairman.*

Mr. LAWRENCE, Chairman of the Auditing Committee, reported bills of expenses of members, which the Committee had allowed.

On motion of Mr. HAYES, the report was adopted, and warrants ordered to be drawn for the several sums named.

EXPENSES OF MEMBERS—HOW PAID.

Mr. LAWRENCE moved that the bills of expenses of members of the Board, incurred in attending its meetings, with the items named therein, be forwarded to the Regent, who shall draw orders on the Treasurer for the same.

Carried.

APPROPRIATION FOR THE PURCHASE OF CABINET.

Mr. COBB submitted the following resolution :

Resolved, That the Regent be authorized to draw warrants on the Treasurer, in favor of the Chairman of Committee on Library and Cabinets, to the amount of four thousand dollars, to be used according to the previous vote of the Board.

Adopted.

APPROPRIATION FOR FENCES.

Mr. JOHNSON presented the following, and moved its passage :

Ordered by this Board, that warrants to the amount of fifteen hundred dollars, (\$1500), be drawn, by the Regent, on the Treasurer, to finish the fencing of the grounds and buildings.

The resolution was adopted.

APPROPRIATION FOR PURCHASE OF LOTS.

Mr. CUNNINGHAM read the following resolution, moving its adoption :

Resolved, That the Regent be authorized to draw his warrants upon the Treasurer, in favor of the owners of the lots on the west side of the University grounds, in payment for the same, as per the report of the Executive Committee, in amount not exceeding two thousand four hundred and fifty dollars, (\$2450).

It was adopted.

Mr. DUNLAP offered the following :

Resolved, That the office of Superintendent of Buildings and Grounds, as appointed by the Executive Committee, be continued until the next meeting of this Board.

On motion of Mr. BRAYMAN, this resolution was referred to the Committee on Buildings and Grounds, with instructions to report this evening.

SECRETARY AUTHORIZED TO PUBLISH.

Mr. BRAYMAN presented the following preamble and resolutions:

WHEREAS, this University was established for the benefit of the whole people of this State, whose intelligent support is necessary to its success; and,

WHEREAS, a diffusion of all such information as relates to the management and government of the University, is equally necessary to that support; and;

WHEREAS, the newspaper press is the proper and recognized means of communicating intelligence; be it, therefore,

Resolved, That the Recording Secretary of this Board, and Secretary of the Executive Committee, may furnish to such newspapers of this State as shall desire to publish the same for public information, such proceedings, orders and reports of this Board, or said Committee, as the Board or Committee shall at each meeting authorize, and that said Secretaries may, under authority of the Regent, in like manner furnish such matter while the Board and the Committee are not in session.

Resolved, That matters so furnished, shall not in any case include reports of discussions, nor relate to criticisms upon the Board or Committee, nor members thereof; but only such as shall be deemed useful for public information and beneficial to the University.

The preamble and resolutions were adopted.

Mr. ——— moved to take up, for consideration, the paper relating to lectures, which was read by the Regent this A. M., (in connection with the report of Committee on Faculty and Study).

Mr. McCONNELL moved that the lecture course be postponed until a year from next January. Carried.

Mr. FLAGG moved that the consideration of this paper be postponed indefinitely.

Which motion prevailed.

LABOR SYSTEM.

Mr. HAYES moved that the Regent and Committee on Faculty and Study be authorized to provide for carrying out the labor system recommended in their report. Carried.

Mr. HAYES moved that the Regent be authorized to issue the necessary circulars preparatory to the opening of the University. Carried.

OFFICE OF SUPERINTENDENT OF BUILDINGS AND GROUNDS DISCONTINUED.

Mr. GOLTRA, Chairman of the Committee on Buildings and Grounds, to which the resolution of Mr. Dunlap was referred, relating to the continuation of the office of Superintendent of Buildings and Grounds, reported verbally, recommending that the resolution be not passed.

This report was adopted.

BILLS AND ACCOUNTS AGAINST THE UNIVERSITY—HOW TO BE MADE.

Mr. DUNLAP presented the following:

Resolved, That, hereafter, all accounts and vouchers made to the Illinois Industrial University, shall be made to the Illinois Industrial University, and not to any officer or employee of the Institution; and no other accounts or vouchers shall be received or paid by the Regent: *Provided*, that memoranda and receipts for traveling expenses may be made to the person traveling on business of the University, to be filed with the regular vouchers.

Adopted.

CIRCULARS ON EXAMINATION OF STUDENTS.

Mr. BURCHARD moved that the Regent be directed to embody the instructions relating to the examination of students, in the circulars which he has been ordered to issue.

Carried.

RESOLUTION RESPECTING RAILROADS.

Mr. HAYES presented the following, and moved its adoption by the Board:

Resolved, That this Board disavow and disapprove of any attempt on the part of the Executive Committee, or any other Committee of this Board, to grant or allow to the Danville, Urbana, Bloomington and Pekin Railroad Company, or any other Railroad Company, the right of way over any of the property of this Institution; and that none of the real estate of this Institution, nor any easement or right of way upon the same, shall be given, granted or sold, without the direct authority of a vote of the Board.

The resolution was adopted.

Mr. HAYES moved that the Regent, in his discretion, be instructed to serve a copy of this resolution upon the proper officers of the said Railroad Company; and, if necessary, to take legal counsel and other steps necessary to defend the lands of this Board, as contemplated in this resolution.

The motion was carried.

On motion, the Board adjourned until seven o'clock this evening.

EVENING SESSION.

November 27th, 1867.

The Board met at appointed time. REGENT in the chair.

ADOPTION OF REPORT OF COMMITTEE ON HORTICULTURAL DEPARTMENT.

Mr. BRAYMAN moved that the report of the Committee on Horticultural Department be taken up.

It was so voted by the Board, and the Secretary read the report.

On motion of Mr. FLAGG, the report of the Committee was adopted.

Mr. GOLTRA, Chairman of Committee on Buildings and Grounds, stated to the Board that the collision between the provisions of this report and the instructions given to said Committee, in reference to the laying out of the grounds, would be obviated by the mutual co-operation of the two Committees charged with this work.

Mr. BRAYMAN moved that the Chairmen of the Committees on Agriculture, Horticulture and Buildings and Grounds constitute a Committee, with power to carry out the provisions of this report, and that the Regent be instructed to draw upon the Treasurer orders for expenses incurred in said work.

Carried.

Mr. HAYES moved that the Regent and Mr. Dunlap constitute a Committee, with instructions to complete the arrangement with Mr. Busey for delivering to this Board possession of the "Busey farm" upon the first day of January next.

This motion prevailed.

INSURANCE OF UNIVERSITY BUILDING.

The following resolution, presented by Mr. COBB, was adopted by the Board:

Resolved, That the Regent and Mr. Cunningham effect such insurance on the University building as they may deem proper, and that the Regent draw a warrant to cover the premium.

Mr. BRAYMAN moved that the minutes of the last meeting of the Executive Committee be approved, except such as relate to the right of way of railroad, and such as is modified by the motion of Mr. HAYES, relating to the possession of the "Busey farm."

The motion prevailed.

APPROPRIATIONS FOR LIBRARY, APPARATUS, ETC.

Mr. COBB presented the following resolution, moving that the Regent be authorized to draw warrants for the several sums named, viz:

Resolved, That in addition to the sums heretofore appropriated, warrants be drawn for the following purposes, not exceeding the amounts specified for each, as per estimates of the Finance Committee:

For the completion of improvements on buildings and grounds.....	\$2000
For furnishing chapel, recitation rooms, library and cabinet cases.....	1950
For library, to be expended under the direction of Library Committee.....	1000
For chemical and philosophical apparatus.....	500
For lumber for fences and repairs.....	500
For furniture for kitchen and dining room.....	650

The resolution, with the motion, was submitted to vote and adopted.

Mr. CUNNINGHAM presented the following resolution, which, on motion of Mr. HAYES, was laid upon the table, viz:

Resolved, That no motions or resolutions brought before this Board be entered upon the record of its proceedings, except such motions and resolutions as prevail: *Provided*, That any motion or resolution shall, at the request of any member, be entered upon the minutes with the vote thereon.

Mr. COBB offered the following resolution and moved its adoption:

Resolved, That J. C. Cunningham be authorized to sell the "Griggs farm," or any portion thereof, at not less than sixty dollars per acre. Terms, twenty per cent. down, and the balance on ten years time, at eight per cent. interest, payable annually.

The resolution was put to vote and lost.

PRIZE SCHOLARSHIPS.

The REGENT made a verbal report to the Board of the measures which he had adopted to bring the aims and plans of the University before the people of the State.

He had attended the State Fair and County Fairs and other gatherings, giving public addresses at each.

He had proposed to the people of the several counties addressed to raise a fund of one thousand dollars in each, by subscription; which fund should be safely invested, and the interest thereon used to aid in defraying the expenses of one student from the county, while attending the University—said student to be the most successful

competitor at an impartial examination to be conducted in such manner as the officers of the County Agricultural Society and Regent of the University may provide.

Several counties had already thus provided for "prize scholarships" in the University, and had also contributed the sum of thirty dollars in each, to assist their students during the spring term of 1868.

Mr. FLAGG moved that this Board warmly approve the plan of the Regent in regard to prize scholarships.

Carried.

INAUGURAL EXERCISES VOTED.

Mr. BURROUGHS presented the following preamble and resolutions, moving their adoption by the Board:

WHEREAS, the opening of this State University is an event of much importance and public interest, and as such, deserves to be signalized by fitting solemnities; therefore,

Resolved, That the eleventh day of March, 1868, be appointed for the formal opening of the University.

Resolved, That the Regent be requested to deliver the Inaugural Address upon that occasion.

Resolved, That his Excellency, Richard J. Oglesby, and the Hon. Newton Bateman, the respected State Superintendent of Public Instruction, be requested to make suitable addresses on the occasion.

Resolved, That a Committee of five be appointed to make the necessary arrangements for the proper celebration of this inauguration of the work of the University.

The motion to adopt the preamble and resolutions prevailed.

Messrs. Burroughs, Cobb, Brayman, Cunningham and Hayes were appointed said Committee.

VOTE ON SALE OF SCRIP.

Mr. CUNNINGHAM presented a resolution, as follows:

Resolved, That the Regent prepare a report of the names of members of this Board who gave consent, in writing, to the sale of one hundred thousand acres of land scrip, sold in pursuance of the suggestions of the Executive Committee, at their June meeting, and that such report be entered upon the record by the Secretary, or submitted at this meeting.

Adopted.

The REGENT reported the names as follows: Messrs. Dunlap, Scroggs, Cunningham, Cobb, Van Osdel, Pickrell, Quick, Mahan, Lawrence, Topping, A. M. Brown, Galusha, Burroughs, Burchard,

Brayman, Bateman, E. S. Brown, Flagg, Goltra, Allen, Blackburn and Gregory, (22).

The REGENT exhibited to the Board a collection of imitations of various fruits and roots, presented to the Board by the manufacturers, Messrs. Hovey & Nichols, of Chicago, to be placed in the museum of the University.

On motion of Mr. HAYES, it was

Resolved, That a vote of thanks be tendered to Messrs. Hovey and Nichols, for the imitations of fruits presented to us; and, further, that we express our admiration of the skill displayed in their construction.

The vote passed unanimously.

On motion of Mr. DUNLAP, the Secretary was instructed to furnish Gen. MASON BRAYMAN a certified copy of his report as Chairman of Committee on Military Department.

The Board then adjourned.

O. B. GALUSHA, *Recording Secretary*.

SECOND ANNUAL MEETING—MARCH 10, 1868.

The Board met in the University building, March 10th, 1868, at ten o'clock, A. M.

The meeting was called to order by the Regent, who conducted the devotional exercises.

Upon the call of the roll, the following members were present, and answered to their names, viz: Messrs. Allen, Blackburn, Brayman, Burchard, Cunningham, Galusha, Goltra, Johnson, Mahan, McMurray, Pickrell, Pullen, Quick, Scroggs, and the Regent—15.

As seventeen members are required for a quorum, for the transaction of business,

Mr. ALLEN moved that the Board take a recess until three o'clock, this afternoon; which was agreed to.

THREE O'CLOCK, P. M.—MARCH 10.

The Board re-assembled, and was called to order by the Regent.

The roll was called, and the following members responded, viz: Messrs. Allen, Blackburn, Brayman, Burchard, Burroughs, Cunningham, Dunlap, Galusha, Goltra, Johnson, Mahan, McMurray, Pickrell, Pullen, Quick, Scroggs, and the Regent—17.

The REGENT announced that a quorum was present.

On motion of Mr. GOLTRA, the reading of the minutes of the last meeting was deferred.

The CHAIRMAN announced that the reception of communications was in order, when Mr. CUNNINGHAM presented the following:

PETITION FOR SITE OF SCHOOL HOUSE.

To the Board of Trustees of the Illinois Industrial University :

The undersigned, Board of Directors of School District No. 1, Township No. 19, Range No. 9, would respectfully represent that the farm owned by the University, known as the "Busey Farm," occupies a position near the center of said district, and that the legal voters therein have, by unanimous vote, selected as a site for a school house about to be built for the use of said school district, a point near the southwest corner of the northwest quarter of the northwest quarter of section 19, township 19, range 9, being a part of said Busey farm: *Provided*, the permission of your Board to such location be granted.

We, therefore, respectfully ask that your permission to such location, and the use of one acre of land, be given, upon such terms as may seem right and just.

(Signed)

S. P. PERCIVAL,
JESSE BURT,
THOMAS LINDSEY.

On motion of Mr. CUNNINGHAM, this petition was referred to the Committee on Agricultural Department

TREASURER'S REPORT.

The Treasurer presented his report, as follows :

ILLINOIS INDUSTRIAL UNIVERSITY,

In account with JOHN W. BUNN, Treasurer.

DR.

To amount paid for lands and lots.....	\$15,511 00
" " locating scrip.....	2,544 33
" " postage and expenses selling.....	411 12
" " Regent's salary	3,666 66
" " Powell's Scientific Expedition	500 00
" " library.....	1,000 00
" " insurance	286 68
" " cut stone	1,280 00
" " lumber, etc	1,570 62
" " labor and materials.....	3,715 08
" " furniture and carpets	898 05
" " grading	722 32
" paid on account of farm.....	716 60
" " for expenses	1,891 24

\$34,713 70

CR.

By \$40,000 Champaign county Bonds.....	\$40,000
By interest on \$125,000 Ill. bonds.....	3,750
By rent for farm.....	1,500

\$45,250 00

\$10,536 30

By balance\$10,536 30

SPRINGFIELD, ILL., March 11, 1868.

The Treasurer also presented a statement of sales of scrip, and of the investment of funds derived therefrom.

Mr. JOHNSON moved that the report of Treasurer be referred to the Auditing Committee.

It was so referred.

Mr. DUNLAP offered the following resolution—moving its adoption :

Resolved, That the Recording Secretary be directed to make an annual detailed statement of all warrants drawn on the Treasurer, the date of each warrant, the name of the person to whom payable, on what account drawn, and whether by the Board of Trustees or by the Executive Committee, with page of the record authorizing the same.

On motion of Mr. BRAYMAN, the resolution was referred to the Finance Committee.

DR. GEO. VASEY'S PROPOSITION.

Mr. MAHAN asked leave to read a communication from Dr. Geo. Vasey ; which being granted, he read as follows :

There are in the State of Illinois about 1500 species of plants, including the Mosses and higher forms of Cryptogams.

Of this number there are 106 species of true grasses, 105 species of Cyperaceæ or Sedge grasses, and 12 species Irmcææ or rush grasses—making in all 223 species of grasses and grass-like plants, or nearly one-sixth the whole number of species in the State.

There are also about 80 species of Forest Trees in the State, besides a large number of shrubs, which do not attain the magnitude of trees.

It would seem that persons seeking to attain the position of *educated* Farmers, especially, ought to have a practical acquaintance with the trees of the forest, to be able to distinguish the different kinds and to understand the various uses to which they are applicable. It also seems especially desirable that such persons should obtain an acquaintance with the native grasses and grass-like vegetation of the country in which they reside, as by such an acquaintance they might learn what kinds are best adapted to the various kinds of soil, what species it would be advantageous to cultivate and what to eradicate.

Every teacher in the department of botany, especially of practical and economic botany, will appreciate the great importance of a good Herbarium. It is the best possible substitute for a collection of the living plants, and a few minutes study of a well prepared specimen will give a better idea of a plant or tree than hours of description alone. Besides, a collection put up under the hands of a competent person possesses an *authority*, and is in a measure *decisive* as to the name and character of species, and is therefore of the greatest value as a *reference*, in cases of doubt. The specimens here presented * are designed to illustrate the general character of my specimens, and the style in which they should be arranged in the Herbarium.

* This paper was accompanied by a collection of grasses, plants and forest trees' put up in a tasteful manner.—*Rec. Secretary.*

I propose to furnish a collection, after the style of the specimens presented, to the number of about 2000 species, comprising the principal part of the plants of this and the adjoining States. The cost will be twenty dollars per hundred species. It would be much better if all the labels were printed, but I can not furnish printed labels for a smaller order than 2000 species. The specimens are fastened by glued strips to sheets of heavy lithographic paper. The specimens of forest trees are attached to light paste-board sheets. Each species has a label attached to the right hand lower corner of the sheet. All the species of a genus are inclosed in a sheet or wrapper of heavy brown manilla paper, and the name of the genus given at the left hand upper corner. The whole to be put into boxes of paste-board or binders' board.

It will probably require six months to complete the collection.

(Signed)

GEORGE VASEY.

Richview, Washington Co., Ill.

On motion of Mr. MAHAN, the communication was referred to the Committee on Library and Cabinets.

REPORT OF CORRESPONDING SECRETARY.

Mr. FLAGG having arrived, the Regent called for his report as Corresponding Secretary.

Mr. FLAGG stated that he had in course of preparation (and hoped soon to complete) his annual report, required by the act of the General Assembly of this State, creating this Board. He also gave his views in respect to the duties of his office, as prescribed by law.

On motion of Mr. BLACKBURN, the Board adopted the following resolution :

Resolved, That the verbal report of the Corresponding Secretary be accepted ; and that he be directed, in his discretion, with the approval of the Regent, to publish a printed report for the last year, as required by law.

On motion of Mr. BURCHARD, the Regent was instructed to draw a warrant on the Treasurer, in favor of Mr. FLAGG, to the amount of \$39 80, for expenses incurred in prosecuting the duties of his office during the past year.

The REGENT presented a report from Mr. PERIAM, "Head Farmer," which, on motion of Mr. BRAYMAN, was referred, without reading, to the Committee on Agricultural Department.

EMPLOYMENT OF A MECHANIC.

On motion of Mr. JOHNSON, it was

Resolved, That inasmuch as this Board, at a former meeting, had authorized the Committee on Buildings and Grounds to employ a mechanic for the Institution, and since the said committee has contracted with J. S. Scarfoss, at a salary of \$1000

per year—that they be instructed to notify the said Scarfoss that his term of service will commence at the discretion of the Regent.

REPORT ON AGRICULTURAL IMPLEMENTS.

Mr. QUICK, Chairman of the Committee appointed to solicit donations of Agricultural Implements, etc., presented the following

REPORT:

The undersigned, committee appointed to solicit donations of Agricultural implements and machines from the various manufacturers of this State, respectfully reports as follows:

That he caused application to be made to the various manufacturers to make donations in accordance with the resolution of the last meeting of this Board. That, believing but little could be accomplished by writing letters, he procured the services of Jonathan Periam, Superintendent of the University farm, who, by his residence in Chicago, had become personally acquainted with many of the leading manufacturers, to call, in person, and lay the matter before them and solicit donations, and to write to such as he failed to see. In pursuance of that arrangement, Mr. Periam waited upon a large number of the manufacturers, and wrote over two hundred letters soliciting donations. The following is the result of his labors, as furnished by himself:

Donations procured by letter to the amount of \$114; donations by personal solicitation, \$282; at an expense, for traveling expenses, hotel bills, correspondence, etc., of \$51 15—making the amount of donations equivalent to three hundred and forty-four dollars and eighty five cents (\$344 85), up to the present time, after deducting expenses in procuring the same.

The value of machines received, up to this time, is \$264 50, and machines promised to the value of \$132. The names of the donors, the kinds of implements, and their value, we give as follows:

One set of Mats, donated by L. Vandesyde, of Calumet ..	\$5 00
One Subsoil Attachment, donated by R. P. Wheatly, DuQuoin.....	10 00
One Vandevire Corn Planter donated by Barlow, Wood & Co., Quincy.....	85 00
One Walking Cultivator, donated by Furst and Bradly, Chicago.....	30 00
One Jones' Corn Planter, donated by Emerson & Co., Rockford.....	12 00
Fifty small Sash, donated by Fuller, Palmer & Co., Chicago.....	12 50
One Gorham Seeder and Cultivator, donated by Clark & Utler, Rockford..	75 00
One Farm Pump, donated by Wm. Lintner & Co., Decatur.....	12 00
One Rotary Harrow, donated by I. I. Inglehart, Matteson.....	16 00
Garden seeds, donated by S. Wilber, Momence.....	7 00
	<hr/>
	\$264 50

The following implements are promised, but not received:

One Cast-Steel Plow, H. H. Taylor, & Co., Chicago.....	\$30 00
One Walking Cultivator, and set of Plows, Hapgood, Young & Co., Chicago	102 00

In the aggregate.....

\$132 00

Which, added to donations received, makes a total of.....	396 50
From which deduct expenses.....	51 15

And there remains

\$345 50

[A slight discrepancy in the estimates—*Rec. Sec.*]

Your committee further report, by the same authority, that many of the leading manufacturers have signified their willingness to furnish any of the more expensive implements, manufactured by them, at half price: and several agents at two-thirds of their value. Believing it to be due to the gentlemen who have made donations, and signified their willingness to furnish additional implements at reduced prices, that the Board should give an expression of their feelings in relation thereto, your committee offer, for the consideration of the Board, the following resolution:

Resolved, That the thanks of this Board, and of the friends of Industrial education throughout the State, are due to the honorable gentlemen, whose names are herein given, for the liberality and public spirit manifested by them in furnishing to the University implements for the institution, and to illustrate Agricultural and Mechanical science.

All of which is respectfully submitted.

(Signed)

T. QUICK, *Chairman*.

The report was adopted.

Mr. JOHNSON moved that the accounts now in the hands of the Regent, be referred to the Auditing Committee for settlement; which was agreed to.

INVITATION TO REPORTERS FOR THE PRESS.

On motion of Mr. BURROUGHS, it was

Resolved, That this Board appreciates the interest taken in its proceedings by the newspaper press of the State, and cordially invites the representatives of the different papers to all meetings of the Board, and to make full reports of all proceedings, excepting such as the Board may indicate or wish to withhold.

ADJOURNMENT.

On motion of Mr. JOHNSON, the Board adjourned until half-past seven this evening.

EVENING SESSION—MARCH 10.

Board re-assembled at 7½ o'clock.

The REGENT presiding.

The roll was called, and nineteen members responded.

The REGENT called Mr. BURROUGHS to the chair, and reported, verbally, the steps which he had taken in regard to ornamenting the college grounds.

COMMITTEE TO RECEIVE TREES FROM MR. DUNLAP.

On motion of Mr. PULLEN, Messrs. Regent and Cunningham were appointed a committee, who were instructed to associate with them Mr. Periam, and receive so many of the trees which are due to this Board, from Mr. M. L. Dunlap, as may be needed for this spring's planting.

MR. PICKRELL'S RESOLUTION ON PRINTING.

Mr. PICKRELL read the following preamble and resolution, moving its adoption :

WHEREAS there seems to be vague conceptions, on the part of the public, of the official acts and doings of the Board of Trustees of the Illinois Industrial University ; and,

WHEREAS, there have been grounds of complaint on account of the non-publishing of the proceedings of the Board in some public journal ; and,

WHEREAS, we deem it but just to ourselves, as a Board of Trustees, that the public should see our *entire proceedings*, in order to judge correctly of our motives and doings—therefore,

Resolved, That the Recording Secretary shall prepare and publish the entire proceedings of the Board and Executive Committee in the ———, at this and all subsequent meetings, as soon as practicable after the adjournment of said meetings.

The resolution was discussed by Messrs. Pickrell, Quick, Flagg, McMurry and Dunlap.

Mr. GOLTRA moved that the preambles and resolution be laid upon the table ; which motion prevailed.

RESOLUTION ON THE NON-ATTENDANCE OF EDWIN LEE BROWN.

Mr. JOHNSON presented the following and moved its adoption, viz :

WHEREAS, Mr. Edwin Lee Brown, of Chicago, has been appointed one of the members of this Board, and has never attended its meetings—therefore,

Resolved, That the Governor be informed, by the Regent, of said non-attendance, and that he be requested to recall said appointment, and make a new one, of some man who will feel called upon to attend the meetings of said Board.

Mr. SCROGGS moved to lay the resolution on the table. Lost.

Mr. MAHAN moved to postpone the consideration of the resolution until to-morrow ; which motion prevailed.

Mr. CUNNINGHAM, from Committee on preparation for Inauguration, presented a partial report, asking privilege of completing and printing the same ; which was granted.

ADJOURNMENT.

The Board then adjourned until eight o'clock to-morrow morning.

INDUSTRIAL UNIVERSITY, MARCH 11, 1868.

The Board of Trustees met, as per adjournment, and was called to order, at 8½ o'clock, by the Regent.

Devotional exercises were conducted by Rev. Mr. Riley, of Urbana.

Mr. QUICK was called to the chair.

On the call of the roll, the following members responded, viz :

Messrs. Allen, Blackburn, Brayman, Burchard, Burroughs, Cobb, Cunningham, Dunlap, Flagg, Galusha, Goltra, Harding, Hayes, Johnson, Mahan, McMurry, Pickrell, Pullen, Quick, Scroggs, VanOsdel and the Regent—22.

Mr. QUICK, Chairman of Committee on Agricultural Department, reported, viz :

The Committee on Agriculture, to whom was referred the Head Farmer's communication to the Regent, respectfully report, that they have had the same under consideration, and find the suggestions therein contained, in the main, practical, and recommend that the same be referred back to the Regent and Professor of Agriculture, to be carried into effect, as far as, in their discretion, the same can be done advantageously to the Institution.

Your Committee further recommend that the sum of ten hundred and forty-five dollars (\$1045) be placed at the disposal of the Head Farmer, for the purchase of two teams, and the necessary plows, cultivator, mower, rake, etc.

(Signed)

T. QUICK, *Chairman.*

This report was approved.

ANNUAL REPORT OF REGENT.

The REGENT presented his annual report, as follows :

The by-laws of the University make it the duty of the Regent to "make an annual report to the Board, exhibiting the progress and condition of the several departments of the University, with such suggestions as he may deem needful for their improvement."

The work of the year just closed has been preparatory in character, and its history is simply the record of the several steps taken for the organization of the depart-

ments and the preparations of grounds, buildings and apparatus for the proper work of the institution. Immediately after the Board meeting held the 7th day of May, 1867, at which the location of the University was finally fixed, contracts were made for stone and other materials for the necessary alterations and improvements of the University buildings. A contract was also made for grading the grounds, as directed by the Board. While these contracts were being fulfilled, the necessary measures were taken for the sale of the scrip, ordered by the Board to be sold, and for the location of such as was ordered to be located.

In August, the grading being nearly completed, and the cut stone being ready, the work was begun in earnest upon the building, and it has been steadily pushed forward with vigor, several men having been employed all the winter. After the Board meeting in November, I held a conference with the mechanics, and arranged with them to prosecute the work with such speed that all should be fully completed before the time set for the opening of the term. The work on the interior was fully completed as proposed, though much more was found to be done than was anticipated, and the materials are prepared for the completion of the portico; but the continued cold weather and the subsequent almost continuous rains have, till the present, prevented the work from being put in place. Two or three days of fine weather will serve to finish it. It ought to be stated that Mr. VanOsdel of Chicago, was requested by the Executive Committee to prepare plans for the portico, but his drawings having been in some way detained in the Express Office, the then acting Superintendent procured other plans from a master builder in Champaign, and the work was commenced upon these latter plans. But after the last Board meeting, finding Mr. VanOsdel's plans lying in the Express Office, I directed that these plans should be followed.

The winter set in so soon after the meeting of the Board that nothing could be done towards completing the fences around the grounds, except to procure the additional materials. As soon as the ground is sufficiently settled to set the posts, this work will be finished at once. The fact that with all this effort the work is not entirely done, evidences the wisdom of the policy of the Board of delaying the opening of the Institution till this spring. It is now clear to every reasonable man that it would have been impracticable to get the building in readiness to open in the fall; even if the more difficult work of ripening the plans, securing a faculty, and sufficiently advertising the opening could have been effected.

The delay has given time to make the institution known. Had the opening been delayed till the coming autumn, even greater advantages would have been gained.

While the mechanical work on the building and grounds was going forward, strenuous efforts were put forth to awaken public interest in the University—to secure an understanding of its plans, and to secure students. A system of prize scholarships was proposed to raise the endowment of, at least, one such scholarship in each county of the State. A competitive examination was provided for throughout the several counties for honorary and prize scholars, and examination papers were received from a majority of the counties, showing that thus, at the outset, the interest in this examination had extended very widely, and affording great encouragement that in the future it may become an element of great power and usefulness both to the Public School interests of the State and to the University itself.

It is certain that this examination has brought into the University several students who would never have come but for this influence, and we may reasonably conclude that if the plan shall be hereafter prosecuted efficiently, it will lead hundreds into

courses of liberal education who would otherwise remain in ignorance. It is worth our most earnest efforts to give permanency to these examinations.

On the second day of March, as ordered by you, the building being in readiness in all its interior arrangements, the University was opened for students and the work of instruction was at once begun. About fifty students appeared the first morning, and the number has been daily increasing through the week which has now elapsed till we have now in attendance sixty-eight students, two others having been called home, one by sickness and one by business. Several applicants have delayed their entrance till other engagements are fulfilled, while a large number have notified us of their intention to be present in the autumn.

Considering the season, our attendance is large—much larger indeed than is often seen in the opening of such Institutions. Considering the untried character of many of our plans, the number is full large enough for the most successful economical inauguration and trial of these plans.

FINANCES,

The finances of the University will demand a close and constant attention. Our safety and ultimate success will depend on the financial soundness of the enterprise. The reports of the Treasurer and Finance Committee will furnish you the more material facts in regard to the present condition of the finances. I must refer to them for a statement also of the amount of our permanent funds, and the character and productiveness of the same. The entire expenditures for the year, for all purposes, have been \$34,742 63. The several items of this expenditure will be shown by the warrant statement accompanying this report. A classified statement will also be handed in with this report exhibiting the expenditures under the proper heads

The necessity of making a considerable addition to the working Faculty at the opening of the next academic year will compel a close inquiry into the probable income for the year. I suggest also the inquiry whether \$5000 of the proceeds of Champaign County Bonds, converted, may not and ought not to be at once reinvested. The receipts from students, and the interest due the 1st of May from the \$100,000 of Champaign County Bonds will furnish all the funds necessary to meet the current expenditures of the Institution till the next installment of interest is received.

THE FARM AND GARDEN.

The Head Farmer appointed by you, Jonathan Periam, Esq., of Chicago, entered upon service the first of January, and has been actively employed, and with great fidelity, in the preliminary work and other preparations for the season. His report, which I herewith communicate, will furnish you with a statement of the present condition and proposed treatment of the lands. The attention of the Board should be given early to devising plans for the necessary barns, tool-houses and other farm and garden buildings. These buildings when erected should be model structures, and therefore the most careful and extensive inquiry will be needed to secure this result.

MECHANICAL DEPARTMENT.

The proper development of the Mechanical Department will demand some suitable buildings, with perhaps a supply of motive power in the shape of a steam engine. Parts of the buildings erected for this department may be rented, with some portions of the motive power, to representatives of several of the more prom-

inent branches of the mechanic arts, as workers in iron, in brass, in wood, and in the typographic arts, who may furnish ready illustrations of these arts, and allow such students as desire it an opportunity to acquire some practical knowledge of these several trades and their tools.

Rooms may be reserved for such shops as may be needed for the work of the University, and its several departments.

The possession of a good steam engine will not only furnish the students of mechanical science an opportunity to become familiar with the management of this great motor, but will also provide opportunities, when occasion arises, for experiments in the manufacture of sugar from the beet and sorghum, of cheese, and other products from the garden and farms.

I call this early attention to this subject, that the Board may secure wise and well digested plans for the future development of this important department of our work.

APPROPRIATIONS.

Appropriations will be needed soon for the following objects, viz: A bell of sufficient power to be heard over the farm. A good eight-day clock, and perhaps for three or four other clocks to furnish the recitation rooms. These latter are not asked for at present. An additional number of garden tools, for the garden and grounds.

The Committee on Buildings and Grounds will bring before you the further expenditures necessary to preserve the buildings; and the Library Committee will explain to you the necessity of further appropriations for books and apparatus.

It is especially important that an appropriation should be made to fit up, at once, a chemical laboratory.

In this connection, I would ask that the Regent be authorized to employ such clerical aid as may be necessary from time to time, to write up the accounts of the several departments, and to take some care of the library. I have already employed Mr. A. Potter for several days to assist in labeling and putting up the books, and in preparing the warrant statements which accompany this report. The crowd of labor which fell upon me in connection with the examinations for scholarships, and the preparations for the opening, compelled me to solicit the aid of Prof. Atherton, and I ask, accordingly, that his term of service be counted from the first day of February, and that a warrant be issued for his salary for that month.

HONORARY SCHOLARSHIPS.

The law authorizes the Board to make additional honorary scholarships, and provides that these need not be confined to the children of soldiers and sailors. The report of the Committee on Courses of Study recommended that the Regent be authorized to award the unclaimed scholarship of any county to some worthy student from some other county.

I would suggest, also, that a rule be established, that upon the failure of applications from sons of soldiers and sailors, the honorary scholarships may be awarded to other worthy young men by the Faculty, in their discretion.

This would be, in effect, simply to establish other honorary scholarships, as the Board has authority to do, the additional scholarships being contingent upon failure of applicants for those provided by law.

THE LAND SCRIP AND LANDS.

The attention of the Board is also respectfully asked to the questions concerning the lands already located, and the policy of making further locations. A prudent

regard for the interests of the University, and justice to the States in which our lands are located, seem to demand that the earliest practicable measures shall be taken to bring these lands into market, and to induce actual settlers to purchase them. If the lands should be properly catalogued and described, and some order be made for their sale at stipulated prices, doubtless we might soon begin to realize something from them.

An order is now on your records for the location of 25,000 acres additional to those before located. This, you will recollect, leaves you 50,000 acres of scrip undisposed of. Ought not some power to be lodged in the Finance or Executive Committee to take advantage of the market, if a sale is to be made, or to locate if they find it desirable to make further locations? I offer this suggestion with much diffidence, because of the importance of the interests involved, and the difficulty of devising any policy against which serious objections do not lie.

In closing this hastily prepared report, I cannot but congratulate you, gentlemen, on the success that has thus far attended your labors. Your plans have received the warm commendation of many of the best and wisest men, both in our own and other States. The few hostile criticisms which have found their way to the public eye or ear, have been based either upon an innocent misunderstanding or an intentional misrepresentation of our course and purposes. They have shown on their face that they were the productions of minds too narrow to comprehend the real aims of the University, or too prejudiced to judge it fairly. Such criticism will not seriously harm us. It may catch, for a moment, the unsuspecting, and may serve to feed a little the rancor of the unfriendly; but our triumphant success will more than vindicate us, and our noontide sun will shine all the brighter for the clouds which obscured its dawning. Invoking the blessing of a beneficent Heaven upon our work, and commending it to the wise charities of our fellow citizens, it remains only for us to move steadily forward, with unflinching purpose and humble trust, to the great ends set before us.

[Signed]

J. M. GREGORY.

The Regent presented his statement of warrants, in the words and figures following, viz :

STATEMENT OF WARRANTS DRAWN BY REGENT.

Date.	No.	To whom.	Objects.	Amount
May 9, 1867..	1	Congregational Church..	Services of Sexton.....	\$5 00
"	2	I. S. Mahan.....	Expense at first Board meeting.....	23 00
"	3	J. C. Burroughs.....	" " " ".....	25 00
May 31, 1867.	4	Lemuel Allen.....	" " " ".....	25 20
"	5	Alex. Blackburn.....	" " " ".....	18 10
"	6	A. M. Brown.....	" " " ".....	32 10
"	7	H. C. Burchard.....	" " " ".....	28 10
"	8	Emory Cobb.....	" " " ".....	14 65
"	9	J. O. Cunningham.....	" " " ".....	15 00
"	10	M. L. Dunlap.....	" " " ".....	16 10
"	11	Samuel Edwards.....	" " " ".....	22 85
"	12	W. C. Flagg.....	" " " ".....	15 00
"	13	George Harding.....	" " " ".....	31 75
"	14	O. B. Galusha.....	" " " ".....	11 50
"	15	M. C. Goltra.....	" " " ".....	9 00
"	16	J. P. Hingate.....	" " " ".....	28 65
"	17	John S. Johnson.....	" " " ".....	22 50
"	18	A. B. McConnell.....	" " " ".....	6 50
"	19	J. H. Pickrell.....	" " " ".....	6 70
"	20	Thomas Quick.....	" " " ".....	22 15
"	21	J. W. Scroggs.....	" " " ".....	16 10
"	22	C. H. Topping.....	" " " ".....	29 75
"	23	John M. VanOsdel.....	" " " ".....	20 00
"	24	B. Pullen.....	" " " ".....	30 90
June 11, 1867.	25	James Rea.....	Services as Recording Secretary.....	125 00
June 14, 1867.	27	Thomas Quick.....	Expenses for meeting of Board and Com.	35 35
"	28	I. S. Mahan.....	" " " ".....	40 45
"	29	J. M. VanOsdel.....	" " " ".....	41 00
June 15, 1867.	30	A. O. Woodworth.....	Land—block 52, in Urbana.....	250 00
"	31	A. O. Woodworth.....	Land—Lot 4.....	100 00
"	32	A. O. Woodworth.....	Land.....	100 00
"	33	A. O. Woodworth.....	Lot 4.....	100 00
"	34	A. O. Woodworth.....	Land—Lot 4.....	200 00
"	35	Smith & Kinney.....	Grading.....	150 00
"	36	J. M. Gregory.....	Salary for May.....	333 33
June 17, 1867.	37	Ermantout & Alexander.....	Lots of Champaign county.....	4,972 50
June 18, 1867.	38	William W. Strong.....	Furniture.....	464 60
July 2, 1867..	39	Smith & Kinney.....	Grading.....	150 00
July 5, 1867..	40	J. M. Gregory.....	Salary for June.....	333 34
"	41	J. M. Gregory.....	Stationery for Regent's office and Treasurer's expenses.....	84 15
July 6, 1867..	42	O. O. Alexander.....	Recording deeds.....	18 85
July 10, 1867.	43	J. O. Cunningham.....	Purchase of lands for University.....	7,278 50
July 18, 1867.	44	J. H. Pickrell.....	Expense at two meetings.....	21 45
July 20, 1867.	45	S. Edwards.....	Expense at meeting of Board.....	25 75
"	46	Smith & Kinney.....	Grading on contract.....	250 00
July 22, 1867.	47	B. Pullen.....	Expense at May meeting.....	22 45
"	48	H. C. Burchard.....	" " " ".....	24 50
"	49	L. W. Lawrence.....	" " " ".....	16 30
"	50	A. M. Brown.....	" " " ".....	29 65
"	51	Lemuel Allen.....	" " " ".....	25 00
"	52	O. B. Galusha.....	" " " ".....	21 60
July 24, 1867.	53	J. M. Gregory.....	Locating land scrip, by M. C. Goltra.....	250 00
Aug. 2, 1867..	54	J. M. Gregory.....	Expenses and fees for locating land scrip.....	500 00
Aug. 22, 1867.	55	M. C. Goltra.....	Expenses and fees allowed for locating land scrip.....	700 00
Aug. 23, 1867.	56	W. C. Flagg.....	Expenses at May meeting.....	20 46
"	57	I. S. Mahan.....	Expenses at meeting of Executive Committee.....	17 80
"	58	J. M. VanOsdel.....	Expenses at Board meeting.....	12 50
Aug. 24, 1867.	59	J. W. Bunn, Treasurer....	Payment of bills for advertising sales of scrip.....	222 75
"	60	Journal Co., Springfield..	Printing and blank books for Industrial University.....	35 00
"	61	J. M. Gregory.....	Salary for July.....	333 33
"	62	Sherfy & Sweet.....	Insurance on University, and stamps..	132 18
Sept. 9, 1867..	63	J. M. Gregory.....	Payment of Laborers.....	150 00
"	64	Joseph Nash.....	Cartage of furniture.....	1 50

Date.	No.	To whom.	Objects.	Amount
Sept. 9, 1867.	65	Henry Swannell	Blank record for Executive Committee.	\$8 00
Sept. 9, 1867..	66	Dr. J. W. Scroggs	Expense to Chicago, on University business	21 00
"	67	J. H. Pickrell	Expense committee meetings	9 65
"	68	Harris & Co.	For 396 feet fencing	9 10
"	69	J. O. Cunningham	Surveying and moving fence, and expenses	63 00
"	70	O. O. Alexander	Recording deeds	2 50
Sept. 11, 1867	71	J. M. Gregory	Expense attending sale of scrip, and other expenses	72 30
"	72	G. H. Anderson, A. Ex. Co.	Charges on 8 boxes of books from Washington	61 85
Sept. 13, 1867	73	W. A. Pennell	Money advanced, for University, to Maj. Powell	500 00
Sept. 18, 1867	74	Charles Kavanaugh	Cut stone for University steps	1,280 00
Sept. 20, 1867	75	M. C. Goltra	Expenses at May meeting	15 00
"	76	J. S. Johnson	" " " " " " " " " " " "	32 75
"	77	J. M. Gregory	Payment for labor and materials for building	1,000 00
Sept. 21, 1867	78	William Smith	Cartage of stone to University	75 50
Sept. 28, 1867	79	Edwin Pierce	For lot 7, block 52. Seminary addition.	560 00
Oct. 9, 1867..	80	Adams, Blackman & Lyon	Seal, blanks, and letter press	43 00
"	81	Chas. H. Topping	Expenses at May meeting	27 15
"	82	M. C. Goltra	Locating land scrip, entry fees and expenses	1,000 00
Oct. 18, 1867.	83	Thomas Quick	Expenses at Executive Committee meeting	12 30
Oct. 19, 1867.	84	J. M. Gregory	Salary for August and September	666 67
"	85	Chas. G. Larned & Co.	Stove, hardware and labor	35 40
Oct. 26, 1867.	85½	J. M. Gregory	Salary for October	333 33
"	86	W. H. Somers	Lots 206 and 207	500 00
Oct. 31, 1867	87	Robert Peacock	Lumber and posts, on contract	633 97
"	88	J. W. Bunn	Payment for advertising sale of scrip	111 00
Nov. 1, 1867..	89	Smith & Kinney	Grading contract, in full	172 32
Nov. 27, 1867.	90	Allen McClain	Lot	150 00
"	91	J. C. Kirkpatrick	Lot	300 00
"	92	Chas. H. Topping	Expenses at meeting	24 70
"	93	Thos. Quick	" " " " " " " " " " " "	19 30
"	94	L. R. McMurray	" " " " " " " " " " " "	27 25
"	95	J. C. Burroughs	" " " " " " " " " " " "	12 00
"	96	Canceled	" " " " " " " " " " " "	
Nov. 23, 1867.	97	A. M. Brown	Expenses	25 90
Nov. 29, 1867.	98	J. M. Gregory	Payment for labor and materials for University	1,500 00
Dec. 5, 1867..	99	J. M. Gregory	Salary for November	333 33
"	100	J. W. Bunn	Postage, express charges and expenses on scrip	77 37
"	101	Gen. M. Brayman	Expenses	18 75
"	102	George Harding	" " " " " " " " " " " "	31 00
"	103	I. S. Mahan	" " " " " " " " " " " "	16 50
"	104	J. O. Cunningham	" " " " " " " " " " " "	5 50
"	105	J. M. Healy	Surveying and leveling College grounds	42 00
"	106	Dudson & Hodges	Hardware	39 31
"	107	H. Swannell	Glass, paints, oils, etc.	55 31
"	108	O. B. Galusha	Expenses and stationery	68 56
Dec. 6, 1867..	108*	Walker, Lapham & Co.	Lumber, lime, stones, etc.	623 29
"	109	W. C. Flagg	Expenses	15 85
"	110	Samuel Edwards	" " " " " " " " " " " "	23 70
"	111	J. H. Pickrell	Expenses on Board and Executive committee	15 40
"	112	Pleasant Smith	Making sidewalk on contract	53 75
"	113	Hall & Frost	Doors	203 60
Dec. 10, 1867.	113*	J. M. Gregory	Balance of expenses locating scrip and traveling expenses	94 23
"	114	Fuller, Finch & Fuller	Oil and white lead	63 10
Dec. 13, 1867.	114*	Lemuel Allen	Expenses	22 70
Dec. 14, 1867	115	J. S. Wright	Lots 105 and 106—sub-division lot No. 1, S. W. qr. sec. 7, T. 19, R. 9	600 00
"	116	McKinly & Burnham, Ag'ts	Lot No. 139	300 00
Without date.	117	A. Blackburn	Expenses	11 00
Dec. 14, 1867.	118	L. W. Lawrence	" " " " " " " " " " " "	17 80
Dec. 15, 1867.	119	G. W. Flynn	Posters and blanks	16 00
"	120	Elisha Eldred	5000 feet fencing	75 00
Dec. 16, 1867.	121	Jas. McCorkle	1 post augur	3 50
Dec. 17, 1867.	122	Weeks & Bro.	Drayage	7 00

Date.	No.	To whom.	Objects.	Amount
Dec. 17, 1867.	123	Walker Brothers.....	Surfacing lumber.....	\$40 10
Dec. 18, 1867.	124	Chas. G. Larned.....	1 stone.....	30 60
Dec. 20, 1867.	125	Walker, Lapham & Co.....	Lumber, lime, etc.....	48 33
"	126	Elisha Eldred.....	9995 feet lumber at \$15.....	149 93
"	127	T. B. Sweet.....	Insurance on University building, pre- mium and policy.....	154 50
"	127*	Fuller, Finch & Fuller.....	Glass and Varnish.....	41 37
Dec. 21, 1867.	128	J. M. Gregory.....	Salary for December.....	333 33
Dec. 24, 1867	129	J. M. Gregory.....	Purchase of library.....	1,000 00
Jan. 31, 1868.	130	J. M. Gregory.....	Salary for January.....	333 33
"	131	Jones, Ellenwood & Brad- ley.....	Tools for farm and garden.....	113 75
"	132	J. Periam.....	Wagon for farm.....	110 00
"	133	J. Periam.....	Tools for farm and garden.....	58 05
"	134	Furst & Bradley.....	" " ".....	92 00
"	135	Edwin Hunt & Sons.....	" " ".....	31 45
"	136	W. J. Ralph.....	1 set harness for farm.....	45 00
"	137	Wm. Cox & Co.....	1 span mules.....	280 00
Feb. 1, 1868.	137*	J. Bruckshaw.....	1 car-load of coal.....	17 00
Feb. 3, 1868.	138	C. F. Spepny.....	Lot No. 173.....	300 00
Feb. 4, 1868.	139	S. Richner.....	Balance on labor.....	289 50
Feb. 5, 1868.	140	Hubbard, Herrick & Co.....	Hardware—locks.....	36 29
Feb. 6, 1868.	141	Porter, Thayer & Co.....	25 dozen chairs, for chapel.....	227 00
Feb. 8, 1868.	142	American Express Co.....	Charges on boxes of books.....	17 25
"	143	Ill. Cen. R. R. Co.....	Advanced charges on books.....	13 38
Feb. 17, 1868.	144	Union County Mining Co.....	1 car-load of coal.....	15 50
"	145	J. P. Hungate.....	Expense at May meeting.....	25 50
Feb. 20, 1868.	146	Hollister & Phelps.....	Carpet.....	123 80
"	147	Allen & Mackey.....	111 yards cocoa matting.....	83 25
Feb. 22, 1868.	148	Jno. Periam.....	1 lumber wagon.....	75 00
"	149	J. M. Gregory.....	Salary for February.....	333 34
Feb. 29, 1868.	150	A. J. Gilliland.....	251 posts.....	25 10
March 4, 1868	151	L. Vandesyde.....	Straw mats.....	8 20
"	152	Palmer, Fuller & Co.....	Glass, putty and sash, for garden.....	51 10
March 7, 1868	153	Ill. Cen. R. R. Co.....	Back charges on freight.....	45 35

REGENT'S ACCOUNT OF WARRANTS.

Whole amount of warrants drawn.....		\$35,076 90
Amount paid out by Treasurer.....	\$34,713 70	
Check No. 10, not paid.....	28 65	
Check No. 34, ".....	200 00	
Check No. 53, ".....	13 50	
Check No. 105, ".....	42 00	
Check No. 145, ".....	25 50	
Check No. 151, ".....	8 20	
Check No. 153, ".....	45 35	
	\$35,076 90	\$35,076 90

CLASSIFIED STATEMENT OF EXPENDITURES.

Expense of Board and Committee meetings.....	\$1,491 91
Paid for salaries.....	8,666 66
For purchases of additional grounds, and improvements in buildings and grounds..	22,693 83
Expended for furniture, fuel and other current expenses.....	1,311 27
Expenses of sale and location of Land Scrip.....	2,951 80
Paid for library.....	1,146 33
Paid for cabinets.....	500 00
Expense of the Farm and Garden.....	888 65
Unexpended balance of warrant No. 98.....	426 55
Total.....	\$35,076 90

* Numbers repeated by mistake.

Mr. SCROGGS moved, that, owing to the uncertainty of the continuance of the Inauguration exercises, which are to take place to-day, when the Board take a recess, it shall be to meet at the call of the Chairman, this P. M.; which was agreed to.

The Committee on Inauguration reported their printed programme; which was approved.

[See Programme of Inaugural Exercises in Cor. Sec. Report.—*Rec. Sec.*]

On motion of Mr. PICKRELL, the consideration of the subjects recommended in the Regent's report was deferred until this evening.

The Board then voted to take a recess—the time having arrived for the commencement of the Inaugural exercises.

The Board of Trustees was called together again, by the Regent, at five P. M.

MAJOR POWELL'S REPORT.

Maj. Powell, of Normal, was present, and, at the request of the Board, gave an interesting account of his "Rocky Mountain Expedition"—stating, also, that the collections made for this Institution were being classified and prepared for presentation to the Board, and would soon be ready. He also stated a plan for another expedition, during the coming season, and made a proposition to furnish the Board a collection of birds, etc., from those to be gathered during his projected tour.

On motion of Mr. BURCHARD, the proposition of Maj. Powell was referred to the Committee on Library and Cabinets.

MR. DUNLAP'S RESOLUTIONS ON SCHOLARSHIPS AND EXAMINATIONS.

Mr. DUNLAP read the following resolution; which, upon his motion, was referred to the Committee on Library and Cabinets:

Resolved, That the Regent report to this Board the names of all honorary students, the name of the county from whence they came, the name of the father of each student, and the number of the Regiment or Corps in which he served, in the army or navy of the United States, during the late rebellion.

Also, the names of all other students, the counties from whence they came, stating whether they were examined by the County Board of Examiners or by others.

If by the County Board, the per centage of correct answers given, as reported by said Boards.

If examined by other parties, the mode of examination, and the per centage of correct answers given by each.

Mr. DUNLAP also read the following, moving its reference to same committee ; which was agreed to—viz :

Resolved, That hereafter and until otherwise ordered the Superintendent in each county shall select two assistants, one of whom shall be an operating agriculturist, and the other an operating mechanic ; that these shall constitute a board of examiners to examine all applicants for scholarships in the Illinois Industrial University, whether honorary or otherwise : *Provided*, that they shall examine no applicant unless such applicant is a resident of said county.

In case of the applications of the descendants of soldiers and seamen who served in the army or navy of the United States during the late rebellion (preference being given to the children of such soldiers or seamen as are diseased or disabled) for admission to said University, the said Board shall issue to the applicant, who shall be decided to have attained the greatest proficiency in those branches of learning usually taught in the common schools, a certificate setting forth such fact ; and also in said certificate to give the name of the father of said applicant, and the Regiment or Corps in which he served during the said rebellion.

That the said applicant is not less than fifteen years of age, and of good moral character. That said certificate shall entitle the holder to receive, without charge for tuition, instruction in any or all the departments of the University, for a term of three consecutive years, as provided by section 9 of the act of incorporation.

That in case of a vacancy in said scholarship, the Regent shall direct the Corresponding Secretary to notify the Superintendent of Public Instruction in said county where the vacancy occurs of said fact, and it shall be the duty of said Superintendent to give public notice, at least twenty days, of such vacancy, and of the time and place where a public examination will be held for the filling of the same.

That said Board shall, from time to time, hold public examinations of all applicants for scholarships in said University, and shall give a certificate to each applicant who shall undergo a satisfactory examination in each of the branches ordinarily taught in the common schools of the State. They shall certify that said applicant is a resident of said county, not more than fifteen years of age, and of a good moral character. That all applicants holding such certificates shall be admitted to any or all departments of the University : *Provided*, that the Board of Trustees shall have made arrangements for their accomodation. That in case of an excess of students, the Regent shall direct the Recording Secretary to call a special meeting of the Executive Committee, who shall take such action as the case demands,

REGENT'S REPORT REFERRED TO COMMITTEES.

Mr. BURCHARD moved that so much of the Regent's report as relates to warrants, be referred to the Auditing Committee ; which was agreed to.

Also, on motion of Mr. BURCHARD, so much of the report as relates to estimates of expenditures was referred to the Finance Committee.

Mr. BLACKBURN moved that so much of this report as relates to the Faculty and courses of study of this Institution, be referred to the Committee on Faculty and Courses of Study; which was done.

COMMITTEE ON SALARIES.

Mr. BURCHARD moved that the subjects of the salaries of the Secretaries and Treasurer, for the past year, be referred to a committee of three; which was agreed to, and

Messrs. Burchard, Blackburn, and Allen were appointed said committee.

REPORT OF HORTICULTURAL COMMITTEE.

Mr. PULLEN, Chairman of Committee on Horticultural Department, reported as follows:

The Committee on Horticultural Department would respectfully submit that, owing to the fact that no one has, as yet, been chosen to occupy the position of Professor of Horticulture in the Institution, no permanent plans could be matured for the development of this department. Also, that the season has not arrived for the carrying out of the plans *already* adopted in this department, which plans, we judge, embrace sufficient work for the coming season.

(Signed)

B. PULLEN,
O. B. GALUSHA.

Committee.

The following resolution, presented by Mr. DUNLAP, was adopted:

Resolved, That the Committee on Library and Cabinets be directed to procure the necessary cases for the State Entomologist, in which to place the collection of insects that he is to provide for the University, and that a warrant be drawn for the payment of the same, when procured.

REPORT OF COMMITTEE ON LIBRARY AND CABINETS.

The Committee on Library and Cabinets presented their report through Mr. BURROUGHS, its Chairman, as follows:

The Committee on Library and Cabinets ask leave to report:

Under the instructions of the Board at its last meeting, that the Committee should proceed to purchase the cabinet of Prof. Bromby, in amount not to exceed \$6,000, the Committee met immediately after the adjournment of the Board and instructed the Chairman to contract with Messrs. Iglehart & Co., of Chicago, who had control of the cabinet, for the purchase, on *two conditions*:

First.—That the cabinet should be opened to full and free inspection by the Committee or some competent person acting for them, and should be approved by the

Committee as answering fully to the catalogues and accompanying descriptions, before final purchase.

Secondly.—If the \$3,000 demanded by Messrs. Bangs & Merwin, of New York, should be advanced, a bond should be taken for the refunding of the money in case the cabinet should be found not to answer the descriptions, with such securities as should be approved by the Trustees resident in Chicago.

Under these instructions the Chairman of the Committee proceeded to make a contract with Messrs. Iglehart & Co., as follows. (Mr. B. here read the contract.—*SEC.*)

To the contract an agreement was afterward added, that \$2,000 of the amount proposed to be paid should not be payable until the first of next May.

As it was found that the Regent of the University was to visit New York about the first of January, and could make the required examination in person, it was arranged with Messrs. Iglehart & Co., that the time for the examination should be extended till after that date.

During the month of January the Regent, associating with himself Mr. Hall, of New York, and Prof. P. H. McChesney, of the University of Chicago, made an examination at least of enough of it to judge of its general character, and of the manner in which it had been packed and preserved.

It will be understood by the Trustees that the value of collections in Natural History depends quite as much on the proper classification, labeling and preservation of the specimens, as on their original character; and it will be remembered that the proprietors of this collection, in the description which accompanied the catalogue, took pains to guarantee that the specimens had been carefully packed, and would be found uninjured by transportation, and in every respect in the best condition.

Much to the disappointment of the Regent, the examination of the first box which was opened gave evidence of extreme carelessness in packing.

The specimens, instead of being wrapped in cotton, as the description of Major Vail had represented, were found with a single wrapping of newspaper, and consequently many of them almost totally ruined in transportation, fine groups of crystals being literally crushed, and others seriously defaced and broken.

Other boxes showed the same conditions, and after thus examining three or four boxes the Regent, and the scientific gentlemen who accompanied him, agreed in the opinion that it was useless to pursue the examination, since the cabinet, as found in the boxes, could in no sense be claimed or accepted as that called for by the contract with the proprietors.

Notice to this effect was accordingly served on Messrs. Iglehart & Co., and that the contract with them was held to be void.

The fortune of the negotiation leaves the University without other means for the illustration of any department of Natural History than what is to accrue from the expedition of Major Powell. The results of that expedition have not yet been reported to this Committee.

The Committee have examined with interest the proposition of Dr. George Vasey, which was referred to them by the Trustees, and would earnestly recommend its acceptance, as by far the cheapest and best means within reach for acquiring a reliable collection of the flora of the State.

THE LIBRARY.

With the appropriation of \$1,000 made by the Board at its last meeting, the Committee, through Dr. Gregory, purchased in New York, during the winter, 644 volumes, the titles of which are herewith submitted. This beginning of a library is distributed among different subjects, about as follows:

Modern History and Biography, 180 volumes.

Ancient History, 30 volumes.

Science, 113 volumes.

Including a fine set of the Natural History of New York in 29 volumes, purchased at a low price.

Philosophy, etc., 60 volumes.

Poetry, 14 volumes.

Works on English Literature, 10 volumes.

Historical Romances, 20 volumes.

Travels and Geography, 10 volumes.

Three Encyclopedias, the principal of which is Appleton's New American Encyclopedia, in 21 volumes.

Miscellany, 178 volumes, including a good set of the London Quarterly, from the beginning, costing only \$53 50.

In addition to these purchases, donations of 283 volumes of valuable public documents have been received from the United States Government, and also 116 volumes from private sources, a catalogue of which the Committee have not yet been able to see.

The attention of the Board is called to the necessity of the appointment, at this meeting, of some suitable person to act as Librarian.

[Signed]

J. C. BURROUGHS,

I. S. MAHAN,

W. C. FLAGG.

This report was adopted by vote of the Board.

THIS VOTE RE-CONSIDERED.

Mr. BURCHARD moved that the vote by which the report of Committee on Library and Cabinets was adopted, be re-considered; which was agreed to.

Mr. BURCHARD then moved to adopt all this report except that relating to the proposition of Dr. VASEY; which was done.

He also moved to postpone the consideration of Dr. VASEY's paper until the next meeting of this Board. Carried.

The REGENT read a letter from SAMUEL EDWARDS, member of the Board. Also, a communication from Hon. Mr. LAWRENCE.

COMMITTEE ON NOMINATIONS.

Mr. CUNNINGHAM moved that a committee of three be appointed to nominate the officers who are to be elected at this meeting.

The motion prevailed, and Messrs. CUNNINGHAM, HARDING and BURCHARD were appointed said committee.

On motion of Mr. HAYES, it was

Resolved, That the Regent be required to make an actual test of all the oil to be used in this building, and that none be used which is less than one hundred and ten degrees, fire test.

At seven o'clock the Board took a recess until eight.

EVENING SESSION.

Board re-assembled at eight o'clock, REGENT in the chair.

On motion of Mr. QUICK, the Corresponding Secretary was instructed to embrace in his annual report an account of the Inauguration ceremonies.

REPORT OF COMMITTEE ON LIBRARY AND CABINETS.

Mr. BURROUGHS, Chairman of Committee on Library and Cabinets, made a special report, as follows:

1st. The committee recommend that the subject of further appropriation to the exploring expedition of Major Powell, be referred to the Committee on Library and Cabinets, with power.

2d. That the initiation fees of students, for the present term, be appropriated to supply the immediate wants of the library.

The report was adopted.

CHANGE OF SEAL OF THE UNIVERSITY.

Mr. FLAGG moved that the words "Farmers and Mechanics" be stricken out from the outer circle of the seal of the Board; which was so voted.

Mr. HAYES moved that the seal be so amended that the words "Illinois Industrial University" be put into the outer circle *above*, with the inscription "Chartered in 1867," placed in the outer circle *below*; which was agreed to.

Mr. McMURRAY moved that the motto upon the seal be changed from the words "Onward and Upward," to the words "Learning and Labor." This motion prevailed.

The Board voted to instruct the Treasurer to have a new seal prepared, in accordance with the plan just adopted.

Mr. FLAGG moved that the present seal continue to be the seal of the University until the new one is prepared. Carried.

IMPROVEMENTS TO COLLEGE BUILDING.

Mr. GOLTRA, Chairman of Committee on Buildings and Grounds, reported the following :

Your Committee on Buildings and Grounds, to whom was referred that part of the Regent's report relating to front portico, beg leave to report, that they recommend that the Regent cause the portico to be finished in accordance with the design furnished by J. M. VanOsdel, and adopted at a former meeting of the Board.

They also recommend that approved jacks be placed on all the chimneys of the rear extension of the College building; also, that the roof of the said rear extension be covered in the best manner with the best quality of roofing tin.

They also recommend that a sufficient number of lamps be obtained and arranged in the halls and passages of the College building, to properly light the halls, passages and stairways, when required.

We also recommend that a bell be placed in the cupola, suitable for the use of the Institution.

The expense of such improvements, exclusive of portico and bell, will be about \$800.

Respectfully submitted,

(Signed)

M. C. GOLTRA.

The report was adopted.

On motion of Mr. JOHNSON, the REGENT was instructed to purchase a suitable eight-day clock for the use of the University.

ELECTION OF PROFESSORS.

The REGENT called Mr. MAHAN to the Chair, and, as Chairman of the Committee on Faculty and Courses of Study, reported verbally, presenting the name of Willard F. Bliss, of Nokomis, Ill., as a suitable person to fill the Chair of Professor of Agriculture—moving the passage of the following resolution :

Resolved, That Willard F. Bliss be and he hereby is elected for one year to the Chair of Professor of Agriculture, his term of office to commence with the fall term of this Institution, at a salary of \$2000 per annum.

Mr. BLISS was unanimously elected.

The REGENT yielded the floor temporarily to Mr. BURCHARD, Chairman of the Committee on Salaries of Secretaries and Treasurer, who reported as follows :

SALARIES OF SECRETARIES AND TREASURER.

The Special Committee, to whom was referred the matter of compensation for the services of Secretaries and Treasurer of the Board, recommend that, for services to this date, there be allowed

To the Treasurer, the sum of.....	..\$600 00
To the Recording Secretary.....	325 00
To the Corresponding Secretary	100 00
To Mr Scroggs, as Secretary of the Executive Committee	15 00

And that warrants be drawn in their favor for the several amounts.

(Signed)

H. C. BURCHARD.

The report was adopted.

REGENTS REPORT RESUMED.

The REGENT then offered the following resolution :

Resolved, That John A. Warder, of Cincinnati, be and hereby is appointed as Lecturer upon the subject of Pomology. His term of service to commence with the college year in September next.

Dr. Warder was elected unanimously.

By a similar resolution, Mr. Edward Eggleston, of Evanston, was elected unanimously as Lecturer on English Literature. His term of service to commence with the College year.

Professor John W. Powell, of Normal, Ill., was also unanimously elected to the Professorship of Natural History, his term of service to commence at such time as may be agreed upon between himself and the Committee on Faculty and Courses of Study.

REGENT offered the following recommendations, viz:

Prof. J. B. Turner, of Jacksonville, Ill., as Lecturer upon such subjects connected with Agriculture as he may select. Also, Dr. J. A. Sewall, of Normal, Ill., as Professor of Chemistry, and S. A. Peabody, of Chicago, as Professor of Mechanical Science and Engineering.

The names of Prof. Turner, Sewall and Peabody were referred back to the committee, with power to act.

REPORT OF AUDITING COMMITTEE.

The Auditing Committee, to whom was referred the report and accounts of the Treasurer and Regent; also, certain unpaid bills and accounts, respectfully represent that they have examined the books of the Treasurer and the accounts of warrants paid by him, and find that he has paid the warrants drawn by the Regent and Recording Secretary, to the amount of \$34,713 70, being warrants from No. 1 to No. 153, inclusive, except warrants Nos. 16, 34, 58, 105, 145, 151 and 153, which

have been issued, but have not been, as yet presented, amounting to \$363 20; which, added to the amount of the warrants paid by him, makes a total of \$35,076 90, and agrees with the detailed statement of warrants issued and submitted to the Board by the Regent.

The Committee further report, that they have examined the list of warrants issued by the Regent since the last meeting of the Board, and find the same to have been authorized by the Board for the objects specified, and that the accounts of the Regent are correct.

There has been expended of the \$1500 drawn by the Regent, pursuant to the order of the Board, with warrant No. 98, the sum of \$1073 45, as per vouchers and detailed statement furnished by the Regent, leaving a balance in his hands of \$426 55; which will be needed for general incidental expenses and liabilities already incurred.

Your Committee further report, that they have examined, and recommend the allowance of the following bills and accounts against the University, submitted to them, and that warrants be issued on the Treasurer for the several amounts of the same.

J. M. Gregory, for balance of expenses in procuring the Library.....	\$18 67
M. C. Goltra, for services in locating scrip.....	200 00
J. C. Larned & Co., furniture.....	63 60
Robert Peacock, lumber.....	126 84
Bradler & Brother.....	182 73
Porter, Thayer & Co.....	136 00
Walker, Lepman & Co.....	23 44
Joseph McCorkle.....	29 21
Dopan & Hodges.....	79 29
George K. Hosford.....	6 85
Flynn & Scroggs.....	48 50
Walker & Bro's.....	218 32
Prairie Farmer Co.....	107 25
J. C. Cunningham, insurance and incidentals.....	177 00

(Signéd)

H. C. BURCHARD,
O. B. GALUSHA.

The report was adopted.

The REGENT stated that Prof. Atherton's term of service commenced with the month of February last, and that there was no provision, as yet, for his payment for said month, whereupon;

Mr. HAYES moved that the Regent be authorized to draw a warrant on the Treasurer, in favor of Prof. Atherton, for the month of February last.

Which was agreed to.

ANNUAL REPORT OF FINANCE COMMITTEE.

Mr. COBB, Chairman of the Finance Committee, presented his annual report, as follows, viz :

To the Board of Trustees of the Illinois Industrial University:

GENTLEMEN—The Finance Committee, in accordance with our by-laws, would submit the following report:

At our November meeting we gave a detailed statement of the expenses up to that time, which appears fully in the published proceedings of that meeting.

In making up our exhibit for the past year, we give the gross expenditures according to the November statement\$25,622 35
 Warrants drawn since that time..... 9,454 55

Making the total of expenditures.....\$35,076 90

The Treasurer's report shows the receipts, as follows :

Sale of Champaign county Bonds, as per order of the Board\$40,000 00
 Interest on Illinois Bonds..... 3,750 00
 Rents of farm 1,500 00
\$45,250 00

Making the balance in Treasurer's hands \$10,173 10.

LAND SCRIP.

Prior to our November meeting we had disposed of 280,000 acres of scrip, realizing therefor \$162,192 41.

At our November meeting we made a further sale of 100,000 acres, at 90 cents, or for \$90,000. Making the total amount received for land scrip \$250,192 41.

The Treasurer, according to the terms of the last sale, does not get the total proceeds until about the first of May, there being about \$50,000 back at the present time.

Your Committee, in conjunction with the Treasurer, have deemed it wise to put the proceeds of the land scrip in Illinois bonds, as fast as they could be obtained, at par and interest, thereby having our funds in such form that we could, from time to time, re-invest in securities bearing a larger rate of interest, when good and safe investments of that kind presented themselves.

We hope to put the most of the fund in such securities in a very short time.

By referring to the minutes of the November meeting you will also see that under various resolutions, this Committee had located 25,000 acres of land scrip. We passed a resolution at that meeting to locate 25,000 additional acres. This has not been done as yet. We would ask further instructions in regard to this.

We now have on hand 50,000 acres of scrip unprovided for by entry or sale.

ESTIMATES FOR THE COMING YEAR.

Receipts :

Interest on Champaign County Bonds..... \$10,000 00
 Interest on Land Scrip Fund 10,500 00
 Tuition and Matriculation fees, Spring Term..... 1,200 00
 Tuition and Matriculation fees, Fall Term 1,500 00
 Balance on hand, as per Treasurer's report 10,173 10
\$33,373 10

Expenses :

Salaries of Regent, Professors, Head Farmer, Lecturers, etc.....	\$17,600 00
For farm.....	1,500 00
Board meetings.....	1,000 00
Use of Corresponding Secretary.....	500 00
Library.....	2,700 00
Unpaid bills.....	1,500 00
Portico, roof, bell, etc.....	950 00
Landscape gardening.....	500 00
Salaries unpaid—Secretary, etc.....	1,045 00
Other salaries and incidentals, which cannot be enumerated or foreseen.....	1,000 00
	<u>\$28,295 00</u>

Recapitulation :

Receipts.....	\$33,373 10
Expenses.....	28,295 00
Leaving a balance of.....	<u>\$5,078 10</u>

It would seem prudent by your Committee, that said sum should remain in the hands of the Treasurer, subject to the order of this Board, or of the Executive Committee, to meet demands that it is now quite impossible for us to anticipate.

We feel that under the present economical administration of our affairs, as evinced and insisted upon by one and all, that we shall not have to further disturb our Champaign County Bonds, and that by pursuing this course we shall be able to go to our next Legislature and confidently ask sufficient aid to construct our necessary farm buildings.

All of which is respectfully submitted.

[Signed]

EMORY COBB,
J. O. CUNNINGHAM,
GEORGE HARDING,
O. B. GALUSHA.

Mr. BLACKBURN moved to so amend the report that the unexpended balance of funds shall be invested by the Finance Committee. Carried.

ORDER FOR WARRANTS.

Mr. BURCHARD moved that the REGENT be instructed to draw warrants on the Treasurer, in favor of the several persons, for the several amounts due to them, as reported by the Auditing Committee. The motion prevailed.

Mr. BURROUGHS presented the following resolution, moving its adoption, viz :

Resolved, That the Finance Committee be instructed to employ a competent accountant, and to see that a set of books is opened in double entry, including distinct accounts of the leading sources of income and expenditure; and the said accountant to present a proper balance sheet at each meeting of the Board, and the books to be at all times open to the inspection of the Trustees of the University. And the said accountant also to be subject to the call of the Regent for any clerical services he (the Regent) may find necessary.

Mr. BLACKBURN offered the following as a substitute for the resolution of Mr. BURROUGHS :

Resolved, That the Regent be authorized to employ such clerical aid as he may need, to keep the accounts of this Board and the University.

This resolution was adopted.

REPORT OF COMMITTEE ON NOMINATIONS.

Mr. CUNNINGHAM, Chairman of the Committee on Nominations, reported as follows :

For Recording Secretary.—Jonathan Periam.

Executive Committee.—Messrs. Hayes, Pullen, Harding, Goltra, Cobb, VanOsdel, Mahan and Quick.

Auditing Committee.—Messrs. Lawrence, Edwards, Galusha, Burchard and A. M. Brown.

Finance Committee.—Messrs. Cobb, Pickrell, Cunningham, Burchard and Harding.

Faculty and Course of Study.—Messrs. the Regent, Brayman, Hayes, Flag and Bateman.

Buildings and Grounds.—Messrs. Goltra, Cunningham, VanOsdel, Johnson and McConnell.

Agricultural Department.—Messrs. Quick, Pickrell, Allen, Blackburn and McMurray.

Horticultural Department.—Messrs. Pullen, Dunlap, Flag and Galusha.

Mechanical Department.—Messrs. Scroggs, Goltra, Brown of Chicago, and VanOsdel.

Military Department.—Messrs. Brayman, Quick, Lawrence and Dunlap.

Library and Cabinets.—The Regent, W. C. Flag, N. Bateman, A. M. Brown, J. S. Johnson.

By-Laws.—Mahan, Blackburn and A. M. Brown.

Mr. HAYES was, at his request, excused from nomination as a member of the Executive Committee, and Mr. CUNNINGHAM was substituted.

Mr. BURROUGHS was also excused, at his own request, from nomination on the Committee on Library and Cabinets, and the REGENT substituted.

Thus altered, the report was adopted.

Mr. BURCHARD moved that the bill of Mr. T. P. Bonfield, for services as Attorney for the Board, be allowed, and the Regent instructed to draw a warrant on the Treasurer for the same, to the amount of \$100.

It was so ordered.

Mr. BURCHARD moved that the following bills be allowed, and warrants drawn for their payment, viz :

C. Scribner & Co., for maps.....	\$135 65
M. S. Hall & Co.....	56 62

Which was agreed to.

IMPROVEMENTS ON COLLEGE BUILDING.

Mr. BURROUGHS offered the following resolution; which was adopted :

Resolved, That the Committee on Buildings and Grounds be instructed to immediately examine the condition of this building, with special reference to its safety on occasions when large numbers of people are collected in it; and also to devise and carry out, within the shortest possible time, such means of egress from the Chapel and other public rooms, as would allow the more expeditious exit of large audiences, in case of fire or other alarms.

TESTIMONIAL TO THE REGENT.

Mr. HAYES offered the following resolution, asking for the yeas and nays upon it:

Resolved, That this Board of Trustees have undiminished confidence in the integrity, ability and fitness of the Regent, and pledge him a firm support in the performance of his duties.

The vote was unanimous—all the members present voting yea, as follows: Messrs. Allen, Blackburn, Brayman, Burchard, Burroughs, Cobb, Cunningham, Dunlap, Flagg, Galusha, Goltra, Harding, Hayes, Johnson, Mahan, McMurray, Pickrell, Pullen, Quick, Scroggs and VanOsdel.

Mr. BLACKBURN moved that the terms of admission to this Institution be so amended, that no fees for matriculation or for incidentals, shall be demanded, and the room rent be reduced one half.

On motion of Mr. BURCHARD, this subject was referred to the Executive Committee.

THE GRIGGS FARM.

Mr. COBB moved the adoption of the following resolution :

Resolved, That J. O. Cunningham be authorized to sell the Griggs farm, or any portion thereof, at not less than sixty dollars per acre. Terms: Twenty per cent. down, and balance on ten years' time, at eight per cent. interest, payable annually.

The yeas and nays being called on this resolution, were taken, resulting as follows :

Members voting yea, were : Messrs. Burchard, Cobb, Dunlap, Galusha, McMurray, Pickrell, Quick and Scroggs—8.

Members voting nay, were : Messrs. Allen, Blackburn, Brayman, Burroughs, Cunningham, Flagg, Goltra, Harding, Hayes, Johnson, Mahan, Pullen, VanOsdel and the Regent—14.

The resolution was declared lost.

FREE TUITION TO INDIGENT STUDENTS.

On motion of Mr. CUNNINGHAM, it was voted that indigent students be admitted free, at the discretion of the Faculty.

SCHOOL HOUSE SITE DONATED.

Mr. BLACKBURN moved that the petition for a school house site upon the Busey farm, as per report of the Committee on Agricultural Department, be granted, and the acre of ground asked for be leased, rent free, for school purposes only, upon condition that a good fence is kept up around said lot.

Carried unanimously.

RESOLUTIONS OF THANKS.

The thanks of the Board were unanimously tendered to Prof. George F. Root, and all who assisted him, for the most excellent music rendered at the Inauguration exercises ; also, to the ladies and citizens of the two cities of Urbana and Champaign and their vicinities, for the sumptuous collation provided to-day for this Board and its guests.

On motion of Mr. CUNNINGHAM, the thanks of the Board were unanimously tendered to the Recording Secretary, for the able manner in which he has discharged the duties of his office during the year.

ORDER FOR PUBLISHING MINUTES.

On motion of Mr. PICKRELL, it was ordered that the Corresponding Secretary publish the minutes of this meeting in his first Annual Report.

ADJOURNMENT.

On motion of Mr. GOLTRA, the Board adjourned at two o'clock A. M., of March 12th, to meet at the call of the Regent.

O. B. GALUSHA,
Recording Secretary.

MINUTES OF MEETINGS OF EXECUTIVE COMMITTEE,
DURING 1867.

DOANE HOUSE, CHAMPAIGN, ILLINOIS, *May 9th*, 1867.

Pursuant to announcement, the Executive Committee of the Illinois Industrial University met at the Doane House, in Champaign, Illinois, May 9th, 1867.

Present—John M. Gregory, J. O. Cunningham, J. W. Scroggs, J. M. VanOsdel, and T. Quick.

JOHN M. GREGORY was elected Chairman, and J. W. SCROGGS, Secretary.

On motion, J. W. Scroggs, and J. O. Cunningham were appointed a Committee on grading the ground around the University building, with power to make contracts for necessary work in said grading.

On motion, John M. Gregory, the Regent, was authorized to obtain plans for the improvements of the University building, erection of front steps, etc.; also, to make contracts for material and work on said Industrial University for front entrance on the north, and such other improvements as the Executive Committee may deem necessary.

On motion,

Resolved, That J. W. Scroggs and J. O. Cunningham, be a Committee to obtain a survey and to have the grounds staked and otherwise prepared for the grading, by some good and competent engineer.

Also, resolved, That the Regent, John M. Gregory, be authorized to obtain the necessary amount of stationery for the University.

On motion, the Committee adjourned.

JOHN M. GREGORY,
Chairman Executive Committee.

J. W. SCROGGS, *Secretary Executive Committee.*

June 14, 1867.

Pursuant to the call of the Regent, the Executive Committee of Illinois Industrial University met at nine o'clock, A. M., in the University building.

Present—John M. Gregory, J. M. VanOsdel, M. L. Dunlap, J. O. Cunningham, I. S. Mahan, Emery Cobb, J. H. Pickrell, and J. W. Scroggs.

The REGENT assumed the chair and called the members to order, after which he presented an order of business.

On motion, J. W. SCROGGS was elected permanent Secretary of the Executive Committee.

On motion of J. O. CUNNINGHAM, a committee from the county Board of Supervisors, consisting of A. B. Condit, S. K. Koogler and Mr. Morgan, were invited to communicate with the Executive Committee, in relation to the business pertaining to the proposed purchase of certain lots from the county.

On motion,

Resolved, That J. W. Scroggs be a Committee to obtain the refusal, in writing, for lots 4 and 7, in block 52, in the town plat of Urbana, from the parties to whom they belong.

J. O. CUNNINGHAM offered the following resolutions, which, on motion, were adopted.

Resolved, That it is desirable that the University enlarge its grounds by the purchase, or otherwise, of all the lots in blocks 52 and 53, and of lots 5, 6, 4 and 7 in blocks 41, 42, 51, and 57.

Resolved, That it is the opinion of this Committee that Champaign county should make good its offer to the State, by conveying sufficient ground contiguous to the University, to make up the size of the ground to ten acres.

By motion of the Committee, an order was drawn on the Treasurer, in favor of the Recorder of Champaign county, for \$18 85 to pay for recording eight deeds, \$7 75, ten patents, \$7 50, and four copies of patents, \$3 60.

On motion of M. L. DUNLAP, an order was drawn on the Treasurer for \$61 25, for the purpose of paying express charges upon books from Washington, D. C.

A resolution was passed instructing the Regent to draw orders for the payment of expenses of the Trustees for the May meeting, when their bills should be received and approved by the Auditing Committee.

A resolution was passed, on motion of J. W. Scroggs, appointing Messrs. Cobb, Pickrell and VanOsdel a Committee to arrange with the Illinois Central Railroad Company a commutation of freight for passengers' fare, for benefit of members of the Board of Trustees and the different Committees attending to the business of the University; and that the Committee be further instructed to obtain passes for the members of the Board from such other roads as they may deem necessary.

On motion of M. L. DUNLAP, J. W. Scroggs, and J. M. VanOsdel, together with the Regent, were appointed a Committee on lumber and material for building purposes, with power to purchase by the cargo, or otherwise, provided they do not purchase to exceed 150,000 feet of lumber; also, to purchase such number of posts as may be necessary for the use of the grounds and lands.

On motion of J. H. PICKRELL, it was

Resolved, That a competent survey of the 160 acres of land lying *adjacent* to the University building be made before any fences are built on said land, and that the Regent be authorized and requested to employ a surveyor to make the survey and to establish permanent corners.

On motion of M. L. DUNLAP,

Resolved, That the Regent, Treasurer, and Chairman of the Finance Committee be authorized to sell, at their discretion, 100,000 acres of the land scrip: *Provided*, that said scrip shall not be sold for less than 56 cents per acre: *And, provided, further*, that the consent of a majority of the Trustees be first had, in writing, to such sale.

After the adoption of the above, the following members gave their consent, in writing, to the proposed sale of scrip: M. L. Dunlap, Emory Cobb, J. W. Scroggs, J. H. Pickrell, J. M. VanOsdel, J. O. Cunningham, I. S. Mahan, and John M. Gregory.

A copy of said agreement is on file with the Secretary of the Executive Committee.

On motion of J. W. SCROGGS, a Committee was appointed to confer with a committee from the County Board of Supervisors, said Committee to consist of Messrs. Cobb, Pickrell, and Cunningham.

On motion, adjourned till 2 o'clock, P. M.

AFTERNOON SESSION—JUNE 14, 1867.

The Committee met at 2 o'clock, P. M., pursuant to adjournment.
REGENT in the chair.

Mr. QUICK, a member of the Executive Committee arrived and took a seat with the others.

Mr. VANOSDEL, from the Finance Committee, reported bill of Mr. W. Strong, for furniture, for \$464, and recommended its payment, and that an order be drawn on the Treasurer.

Report was adopted, and the order drawn.

On motion of Mr. COBB,

Resolved, That the bill for advertising and other expenses incurred in selling land scrip be sent to the proper State officers for payment, and that a committee, composed of the Regent, the Treasurer, and Gen. Brayman, be appointed, with power to act in the premises.

Resolved, That in the event of delay in the payment of the above bill by the State, that the Regent draw an order for the amount just paid, and that it be collected from the State, as provided by the act of Congress making grant of land for college purposes.

Adopted.

On motion, the bill of the REGENT for stationery and postage, was allowed, and ordered paid. Amount \$26.

Mr COBB moved that the contract for grading the grounds be approved, and that the Regent be authorized to draw an order for payment of said work, in accordance with said contract. Adopted.

Mr. CUNNINGHAM offered a resolution to the effect that the Regent be authorized to make all necessary contracts for carrying out all improvements ordered by the Board of Trustees or Executive Committee. Carried.

Mr. COBB moved that J. O. Cunningham be appointed a committee to ask the city of Urbana to vacate the alleys and streets, or so much of them as divide the University grounds, running east and west through blocks 52 and 53, viz: Stoughton and ——— streets. Carried.

Mr. VANOSDEL offered the following :

Resolved, That Dr. Scroggs and the Regent be Committee to purchase the two lots, 4 and 7, in block 52, on the best terms they can obtain from the parties owning them, and that the Regent draw the necessary order on the Treasurer for the payment of the same.

Adopted.

Mr. CUNNINGHAM offered the following ; which was adopted :

Resolved, That sidewalks eight feet wide, made of two-inch pine plank, properly supported, be constructed in front of the University building, and also on the streets east and west of the building, as far south as the street intercepted by the University ground; also, such walks in the grounds as the Regent may deem necessary.

REPORT OF SUPERVISORS OF CHAMPAIGN COUNTY.

The Committee of the Board of Supervisors hereby present their report, in response to the resolution of the Executive Committee of the Illinois Industrial University.

Said Committee of Board of Supervisors do, by the powers conferred upon them, donate to the Illinois Industrial University, in block 53, belonging to Champaign county, all of lots 6, 5, 4, 3, 2, 7, 8, 9, 10 and 11, in consideration of which it is understood that in the conveyance of said lots to said University, the deeds shall be drawn in such form that in case said University should be, by any event, removed from its present location, said lots above designated shall revert to Champaign county.

The Committee of the board of Supervisors, hereby agree to sell to the Illinois Industrial University, the following lots, at the prices marked in the list below, as follows, to-wit:

Lot 1, Block 52.....	\$500 00
“ 2 “ 52.....	450 00
“ 3 “ 52.....	450 00
“ 4 “ 52.....	450 00
“ 5 “ 52.....	450 00
“ 6 “ 52.....	500 00
	<hr/> \$2,550 00
“ 8 “ 52.....	400 00
“ 9 “ 52.....	400 00
“ 10 “ 52.....	400 00
“ 11 “ 52.....	400 00
“ 12 “ 52.....	450 00
	<hr/> \$2,050 00
“ 1 “ 53.....	\$350 00
“ 2 “ 53.....	350 00
	<hr/> \$700 00
	<hr/> <u>\$5,100 00</u>

And they further consent to the wish of the Committee from the Executive Committee of the Illinois Industrial University, and give the University, in its corporate capacity, the refusal of the tier of lots east of the building (at the market price) until the next meeting of the Board of Supervisors, which takes place on Friday, Aug. 23, 1867.

Said lots, on the east side of the building, are numbered and marked as follows, to-wit:

Lot 6, Block 41.....	\$500 00
“ 7 “ 41.....	450 00
“ 5 “ 42.....	500 00
“ 4 “ 42.....	450 00

Lot 6, Block 42.....	500 00
“ 7 “ 42.....	450 00
“ 4 “ 51.....	450 00
“ 5 “ 51.....	500 00
“ 6 “ 51.....	450 00
“ 7 “ 51.....	400 00
	\$4,650 00

(Signed)

SAMUEL KOOGLER,
A. B. CONDIT,
WOODSON MORGAN,
Committee.

On motion of Mr. VAN OSDEL, the report of the Committee from the Board of Supervisors was accepted.

Mr. MAHAN offered the following :

Resolved, That the action of the Board of Supervisors of Champaign county, in donating valuable city lots to the University, to enlarge the grounds surrounding the University building, making up the amount to ten acres, entitles that Board and the people of the county, to the gratitude of all the friends of the Institution, and to the appreciation of all the citizens of the State.

Adopted.

Mr. QUICK moved that the Regent be authorized to issue a circular, giving information touching the terms of admission of students to the University. Carried.

Mr. CUNNINGHAM moved that the Secretary of this Committee be authorized to procure a suitable book, in which the minutes of the proceedings of the Committee may be kept.

The motion was carried.

The Committee adjourned until 7½ o'clock, P. M., to meet at the Houston House.

EVENING SESSION.

Met at the Houston House at 7½ o'clock, P. M., pursuant to adjournment. REGENT in the Chair. Quorum of members of the Committee present. Proceeded to business.

Mr. COBB moved that the Regent and Dr. Scroggs be a committee, to negotiate with McKinley & Burnham for forty acres of land lying between the horse railroad and the 160 acre tract, at a

price not exceeding \$180 per acre; also, to negotiate for the two lots lying between the Springfield road and the horse railroad; also, to obtain offers for the Griggs farm, or some part thereof, and report at the next meeting of the Executive Committee. Motion carried.

Mr. VANOSDEL offered the following; which was unanimously adopted:

Resolved, That owing to the condition of the farm, also of the finances of the Institution, that it is deemed inexpedient to employ any person as Farm Superintendent, or Practical Farmer and Horticulturist, at the present time.

The following bills were reported, examined and allowed:

T. Quick, expenses at May meeting.	\$19 05
T. Quick, expenses at June meeting.	16 30
I. S. Mahan, expenses at May meeting.	22 52
I. S. Mahan, expenses at June meeting.	17 95
J. M. VanOsdel, expenses at May meeting	23 50
J. M. VanOsdel, expenses at June meeting	17 50
	\$116 82

Moved and adopted, that when this Committee adjourns it shall adjourn to meet on Friday, the 23d of August next, at the University building, at 8 o'clock A. M.

The Committee then adjourned.

JOHN M. GREGORY,
Chairman Executive Committee.

J. W. SCROGGS,
Secretary Executive Committee.

August 23d, 1867—9 A. M.

Pursuant to adjournment, the Executive Committee of the Illinois Industrial University met at the College building.

Committee called to order by JOHN M. GREGORY, Regent.

Present, John M. Gregory, J. M. VanOsdel, J. Emory Cobb, J. H. Pickrell, I. S. Mahan, J. W. Scroggs, M. L. Dunlap and J. O. Cunningham.

Mr. FLAGG, being present, was invited to take a seat with the committee.

Upon the adoption of the proper motions, the following bills were allowed, and the Regent ordered to draw the necessary orders upon the Treasurer for their payment.

Illinois State Journal Company.....	\$35 00
J. W. Scroggs, com. on lumber—expenses to Chicago.....	21 00
O. O. Alexander, County Recorder.....	2 50
H. Seranned, Druggist.....	8 00
Harris & Co., Lumber merchants.....	9 10
J. O. Cunningham, for surveying farm and moving fence.....	62 00
Stone contractor, for stone for front entrance.....	12 80

Mr. COBB moved that the matter of insurance be referred to a committee of three—Messrs. Gregory, Scroggs and Cunningham, with power to act. Carried.

A motion was made and adopted, making Dr. Gregory a committee on repairing roof of the University.

Moved, that when this Committee does adjourn, it adjourns to meet at the call of the Regent. Carried.

The Committee on Farms, together with the Executive Committee, made a tour of observation to the several farms belonging to the University.

It was

Resolved, That the permission of this Executive Committee is given to the authorities of Urbana, to extend Green street across the west half, northeast quarter section 18, township 19, range 9 east, third principal meridian.

The resolution was adopted.

It was moved by Mr. COBB, that the Treasurer of the University be instructed to pay all expenses attending the sale or location of the land scrip, on warrant of the Regent, and that he keep and render a separate account of such expenses. Adopted.

EVENING SESSION.

Dr. GREGORY in the Chair. Committee called to order. Members all present.

Moved and adopted, that Dr. Gregory's bill of expenses to — be allowed, and an order drawn on the Treasurer for the amount, viz: \$20 50. Carried.

Resolved, That a committee of three be appointed, to procure from the proper parties the best terms upon which the ground east and west of the University building, can be purchased, and report at the next meeting of the Executive Committee.

Carried.

(Report of the Committee was referred to the Finance Committee, with instructions to report at the annual meeting of the Board, in 1868.—*Rec. Sec.*)

Moved, that J. O. Cunningham be authorized to rent the Griggs farm. Carried.

Resolved, That J. O. Cunningham be authorized to have the Busey buildings insured, and that the Regent be authorized to draw a warrant upon the Treasurer for the payment of the same.

Adopted.

Resolved, That J. O. Cunningham be instructed to confer with the Board of Supervisors, or the Committee from said Board, upon the further sale of lots to the University.

Adopted.

On motion, Mr. Flagg's account was allowed. Amount, \$20 45.

On motion, Mr. VanOsdel's bill was allowed. Amount, \$13 50.

The Committee, on motion, adjourned.

J. M. GREGORY.

Chairman Executive Committee.

J. W. SCROGGS,

Secretary Executive Committee.

UNIVERSITY BUILDING, *Oct. 18th, 1867.*

Pursuant to call the Executive Committee of the Illinois Industrial University, met at the University building, on Friday, Oct. 18th, at 9 o'clock A. M.

Present—John M. Gregory, J. O. Cunningham, J. H. Pickrell, T. Quick, J. M. VanOsdel, M. L. Dunlap and J. W. Scroggs.

Moved by J. O. CUNNINGHAM, that the report of Mr. VanOsdel on portico for the front entrance of the University buildings be adopted, and the work pushed forward to completion.

Mr. Cunningham's motion was adopted.

Mr. M. L. DUNLAP then offered the following :

WHEREAS, By section 4, of the Act of Congress donating lands to the several States, approved July, 1861, it is provided that "in order to promote the liberal

and practical education of the industrial class, in the several pursuits and professions in life;" and that section 7, of the act to provide for the Illinois Industrial University, says the Trustees "shall, so far as practicable, arrange all the regular more important courses of study and lectures in the University, so that the students may pass through and attend upon them, during the six Autumn and Winter months, and be left free to return to their several practical arts and industries during the six Spring and Summer months."

Section 8 provides that, "students shall have attained the age of fifteen years, and shall have passed a satisfactory examination in each of the branches ordinarily taught in common schools of the State." Section 9, in regard to honorary scholarships, says, that "all such shall be selected from the common schools of the State, and shall be those who have attained the greatest proficiency in the branches of learning usually taught in the common schools of the State; and,

WHEREAS, it is no doubt the intention not only of Congress, but of the State Legislature, that this University should be for the benefit of the industrial classes attending the common schools of the State, and that said University should be in session during the winter.

Therefore be it ordered, that without opening the school in the regular course, that there be a winter session of twelve weeks, commencing the first Monday in December, 1867; that there be admitted to said school one honorary scholar from each county, as provided by section 9, of said act, and that the County Superintendent of schools of each county be authorized to select two persons who shall act with him in the examination, and who shall form a board of examination for the purpose to determine who of said applicants shall be entitled to said honorary scholarships; and that the said board shall examine all the applicants, students from the common schools of the State of Illinois, and if they pass a satisfactory examination in all the branches ordinarily taught in the common schools of the State, and shall be of the age of fifteen years, and shall bear a good moral character, the said Board shall give to each of said students a certificate of the same, setting fourth their age, place of residence, and the school district from which they are to be transferred. These examinations should be made as early as November 15th, and a report made to the Regent of the University, and by him to be reported to the Executive Committee, who will meet at the University on Thursday, Nov. 20th, 1867, to consider how many of said applicants can be accommodated in said schools. That if there are more applicants than can be provided for in said University, that they be admitted from each county in proportion to population as determined at the last census, and that these be determined by lot. That the course of study at said session, shall, in all cases, be a thorough review of all the branches ordinarily taught in the common schools of the State. This is quite necessary and proper, for the single reason that a student of fifteen years of age, who shall pass a satisfactory examination in the branches before stated, are to be admitted into the University, and as these have not fully mastered all of these branches of learning, it is but just that they be thoroughly instructed in them by a careful review. Beyond a review of the elementary branches, the student shall select one or more branches allied to Agriculture or the mechanic arts, viz: Chemistry (elementary), Botany, Mathematics, Entomology, Veterinary Science, Book-Keeping or Natural Philosophy.

To carry on this session of school, teachers of well known ability shall be employed, with the view of being appointed as professors at the opening of the regular course of the University in March, should they give full satisfaction.

COURSE OF LECTURES.

In addition, and for the purpose of complying with the spirit and letter of the law, there shall be a course of lectures. The first one to be delivered on Tuesday evening, December 10th, 1867, and the others shall be directed hereafter by the Executive Committee, a programme of which shall be published, and which lectures shall be free to all who may wish to attend. The course of lectures shall embrace Practical Agriculture, Horticulture, Practical Mechanics, Engineering, both civil and military, Botany and Vegetable Physiology, Chemistry, as applied to Agriculture and the Arts, Geology in its relation to the soil and to minerals, Natural Philosophy, Veterinary Science, and Law as applied to agriculture and mechanics.

That the Corresponding Secretary, ——, and ——, be a committee to arrange said course of lectures, and to engage the lecturers; provided that most of these shall be residents of the State of Illinois and that the maximum compensation for each lecture, including expenses, shall not exceed —— dollars.

On motion of J. O. CUNNINGHAM, Mr. DUNLAP's communication was laid upon the table until 3 o'clock, P. M.

Moved by J. O. CUNNINGHAM, that all the inside painting to be done upon the University shall be grained, in imitation of oak, and that the Regent shall designate such rooms as in his judgment shall be so grained this fall.

Adopted.

Mr. CUNNINGHAM further moved that J. W. SCROGGS be authorized to procure such cases for specimens of natural history and for books, as the Regent may direct, and that the Regent draw an order for the bills of the same.

Adopted.

Mr. QUICK offered the following:

WHEREAS it was ordered by the Board of Trustees, that five hundred dollars be appropriated to defray, in part, the Powell expedition, which order was omitted in making up the records of the May meeting of the Board. And whereas, the Regent, in pursuance of such action of the Board, did issue a warrant for the amount; therefore,

Resolved, That his action in the premises be approved.

Carried.

The report of the Committee on additional lots was then offered:

To the Executive Committee of the Illinois Industrial University:

The Committee to whom was referred the purchasing of lots east and west of the University grounds, would beg leave to report that they have seen the parties owning the lots on the west side, and that the whole can be purchased for \$2300; and in consideration of the fact that, by so doing, that an avenue can be made straight with the west line of the recent purchase, connecting the main lands with the College grounds, would recommend that said purchase be made, and that the Committee have further power to carry out such suggestions, and complete the purchas-

ing of said lots represented in the plat here presented (which is made a part of this report); and that the Regent be authorized to draw warrants for the payment of the same; also, that the Committee be instructed to procure a road, of the width of eighty feet, on the west side of the purchase of Os Well's tract, at contemplated in said plat. Also, that the matter of the purchasing of the lots on the east side be left for further consideration.

[Signed]

J. W. SCROGGS,
J. H. PICKRELL,
M. L. DUNLAP,
Committee.

AFTERNOON SESSION.

Oct. 18, 1867, 2 o'clock P. M.

A quorum being present, and the Regent in the Chair, the Committee proceeded to business.

The REGENT presented a bill for a seal and letter-press, which was allowed; amount \$45.

The following resolutions were offered by J. O. CUNNINGHAM, and, after reading, unanimously adopted.

Resolved, That neither the Board of Trustees, the Executive Committee, nor any of the officers of the Board, have in any way authorized the publication of a paper, to be called the "*Saturday Courier*," as under the patronage of the Illinois Industrial University, or in any way connected with the University, as used in printed reports, to give character to said proposed paper or to the scheme of premiums connected therewith.

Resolved, That the papers in Chicago and elsewhere, be requested to copy the foregoing.

On motion of Mr. J. H. PICKRELL, Mr. DUNLAP's communication relative to the course of study to be pursued in the University was taken from the table. After a full and free discussion of the same, the following resolutions were offered, in relation to the matter, by Mr. PICKRELL, and adopted by the Committee:

WHEREAS, The Board of Trustees of the Illinois Industrial University fixed the time of opening the school in March, 1868; therefore,

Resolved, That the communication of M. L. Dunlap be referred to the whole Board for further consideration.

Resolved, That the Regent request the Standing Committees to be ready to report to the whole Board when convened.

Resolved, That the interests of the University demand that there should be a called meeting of the Board, on the 26th of November next.

Adopted.

Mr. DUNLAP offered the following resolution, which was adopted :

Resolved, That the Regent be requested to report to the Committee the amount of orders drawn on the Treasurer, and for what purpose they were drawn ; also, that the Finance Committee be requested to report their action in regard to locating the land scrip, and also that these reports be prepared in time for the next meeting of this Committee.

Mr. DUNLAP's report on rent of farm was placed on file.

Mr. QUICK offered the following resolution, which was adopted :

Resolved That we consent to the opening of the Cemetery road, running along the west line of the 160 acre farm of the University, to the width of five rods, by equal additions from each side.

On motion of J. O. CUNNINGHAM,

Resolved, That we give the right of way to the D. U. B. & P. R. R. Co., across the west half of west half northeast quarter section 18; T. 19, R. 9, provided said company erect and keep in repair the fences along that portion of said road passing through said land.

[This resolution was disavowed by the Board of Trustees, at the meeting held Nov. 27, 1867.—O. B. GALUSHA, *Rec. Sec.*]

On motion of M. L. DUNLAP, it was

Resolved, That Dr. J. W. Scroggs be appointed a Committee to have charge of the buildings and grounds immediately about the University, to superintend the repairs, alterations and structures that may be required, and shall hold his office until the next meeting of the Board of Trustees.

[This Committee was discharged by vote of the Trustees, Nov. 27, 1867.—*Rec. Sec.*]

Mr. CUNNINGHAM moved that permission be given to the road Commissioners of Urbana township to lay out a road on the south side of the 160 acres known as the Model Farm.

Referred to Committee on Farm.

The account of C. G. Larned, for a stove and hardware, was allowed, and the Regent ordered to draw a warrant for the payment of the same. Amount \$35.

Mr. DUNLAP offered the following resolution :

Resolved, That Emory Cobb be appointed a Committee to purchase (25,000) twenty-five thousand feet of lumber at Chicago, and that five or ten thousand (5000 or 10,000) feet of common boards, to be included in the amount, be stuck up for drying, and that the Regent draw an order for the payment of the same.

The following report was made by Mr. DUNLAP :

To the Executive Committee of the Illinois Industrial University :

The undersigned having been appointed a Special Committee to-inquire in regard to the removal of buildings and shade trees from the Busey farm, also in regard to the rental of the same, begs leave to report :

The house reported to have been removed was sold and removed prior to the purchase of said farm, or the contract made by the authorities of Champaign county. Several Red-Cedar trees, of little value, were taken by Mr. Busey, after the sale, out of a small cluster of trees standing on the ground sold.

It would appear that by the agreement with the Board of Supervisors, that Mr. Busey proposed to pay, as rent for the said farm, the sum of two thousand dollars (\$2000), with the understanding that the farm should be paid for March 1st, 1867, at which time the rent would commence, and terminate March 1st, 1868; but this agreement was not consummated, and the payments were made May 1st, 1867. He therefore claims the right to use said farm until May 1st, 1868, and pay the sum of two thousand (2000) dollars; or he will give possession of all the meadows, pastures and cultivated lands this fall, retaining one feed lot, with the stable, to enable him to feed the stock now on the farm, March 1st, 1868.

That he will give up the house, if desired, by the 1st of January next, or that in case he remains in full possession, that he will not allow any stock on the meadows, pastures, stock-field or orchard, and take good care of the house until the said first day of March, 1868, and pay rent for the same, fifteen hundred (1500) dollars, and at that time give peaceable possession. In the mean time the said trustees can go on and use any part of the said farm at any time hereafter, except to interfere with the feeding of said stock, and the securing of his said crop. Your Committee would therefore recommend that the Secretary of the Executive Committee make a contract with the said J. S. Busey, on the terms proposed, to terminate possession March 1st, 1868, and that he advise the Chairman of the Farm Committee of his action in the premises.

Respectfully submitted.

[Signed]

M. L. DUNLAP,
Committee.

Mr. J. CUNNINGHAM, Committee upon Farm Rents, submitted the following report:

To the Executive Committee of the Board of Trustees of the Illinois Industrial University:

The undersigned would report that, as the agent of the University, he has collected rents for the current year as follows:

From Ennis, on Griggs farm.....	\$49 05
From Ennis, on Clements farm ...	47 45
	<hr/>
	\$196 50

Sept. 23d, 1867.

[Signed]

J. C. CUNNINGHAM,
Committee.

On motion Mr. CUNNINGHAM's report was received by the Committee.

The Committee then adjourned, subject to the call of the Regent.

JOHN M. GREGORY, REGENT.
Chairman.

J. W. SCROGGS, *Secretary.*

INAUGURATION OF THE UNIVERSITY.

MARCH 11, 1868.

The inaugural ceremonies of the University took place in the University hall, commencing at 9 o'clock. A large attendance of the citizens of Champaign and Urbana, besides the Board of Trustees, and distinguished guests from other parts of the State, filled the hall to overflowing. The platform and walls were suitably draped with the national flag. The wall, in the rear of the platform, was decorated with a picture of Washington, the great Farmer of the Revolutionary period, supported on either hand by the American eagle, and crowned above, in letters of evergreen, with the University motto, of "Learning and Labor."

The Hon. S. W. Moulton, of Shelbyville, in compliance with the invitation extended by the Board of Trustees, presided. A choir of fifty singers, under the direction of George F. Root, of Chicago, assisted by R. M. Eppstein, of Champaign, with two pianos, furnished the music for the occasion.

The exercises were introduced by a voluntary, from Root's Cantata of the Haymakers, entitled, "How good is He the Giver." Selections of Scripture were then read, by Rev. C. D. Nott, of Urbana, after which, prayer was offered by Rev. J. H. Noble, of Champaign.

The Hon. S. M. Moulton made a few appropriate remarks on taking his place as presiding officer. He returned thanks for the honor done him; an honor conferred, he felt, in consideration of his long continued connection with the educational interests of the State, rather than to any personal merit of his own. For

twenty years he had been identified with the educational improvements of the State; and in everything concerning its advancement he had been, and should remain, a radical.

The progress of the State had been marvelous. There were still old fogies, but they were passing away, and men with larger culture and more deeply imbued with the spirit of the age were taking their places. As an instance, twelve years before some of the most eminent men of Illinois had undertaken to lay before the Legislature a bill providing for the erection of an Industrial University. But the prejudices of the legislators were such that only two entertained it at all, and it was not introduced. Now we met under the sanction of the law, backed up by the public opinion of all the people, determined to carry out the great enterprise before us.

He, too, having a stake among them, had met to aid in inaugurating the Illinois Industrial University. When they reflected that four-fifths of the people were engaged in agriculture, and nine-tenths were interested in the results, and that every art was brought in to the aid of agriculture, ought they not to have an institution specially devoted to it?

It ought to be founded on the broadest principles, embracing all arts and sciences that might enable their sons the better to succeed in agriculture or mechanics. If the trustees did not do that, they would fail, and ought to fail. But he did not fear this. The University would succeed. We wanted men of education, and it would give them. He, for one, would stand by the Institution. The people of his section of the State were determined to sustain it. It was what they wanted; and he was sure it would be appreciated by all the people of the great State of Illinois.

A quartette—"Lord, forever at Thy Side," was then sung by Mrs. Ingersoll, Mrs. Hollister, Mr. Sawyer and Mr. Sweet.

The following letters, from invited guests, who were not able to be present, were then read:

STATE OF ILLINOIS, EXECUTIVE DEPARTMENT.

SPRINGFIELD, *March 10th*, 1868.

To the Board of Trustees of the Illinois Industrial University:

GENTLEMEN:—Until to day I had hoped to join you to-morrow, at Urbana, in the services of the formal inauguration of the Illinois Industrial University. The importance of this occasion can not be too highly appreciated. You are about to give practical effect to a natural idea, and to start into existence a new method of

education, under the sanction of State legislation, the paramount and well defined object of which is to open to the practical students of the industries of the State a plain road to the acquisition of all attainable knowledge, through consecutive scientific channels, pertaining to and bearing upon the productive interests of our entire farming and mechanical population. The world progresses, and without this noble agency would continue to progress in the discovery of the means to improve, advance and elevate the occupation of labor; but you are the Trustees of a system which, carefully watched and appropriately managed, it is confidently hoped by all is to add a new impulse to labor, to turn the key which is to unlock and distribute what has been hidden or imperfectly understood in past times.

Our broad and fertile prairies, our indomitable and industrious population, invite the experiment, and offer the finest opportunity for the development of a new system. Nevertheless, we are a purely practical people, and will not be slow, may be even hasty, to expect results.

The law of Congress is very plain. The College is to teach such branches of learning, as are related to the agricultural and mechanic arts, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life, not, however, excluding the scientific and classical studies and military tactics.

The University is suitably located, in one of the best portions of the State, and is surrounded by an agricultural population, and encouraged by the wishes of all who desire the success of any scheme to promote human happiness. Doubtless you are to be subject to criticism, for this is the proper privilege of all; but, may I venture to hope, it is not to be unrelenting or unreasonable. It ought not to be forgotten, that, actuated by a commendable desire to serve the cause of education, as well as the cause of honest industry, you have voluntarily, and without compensation, given your time and intelligence to the organization and management of this experiment. For myself, thanking you for all that has been done, and commending your labors to the favorable recognition and approval of the people of our State; with the ardent hope that all, and more than has been expected, is to be realized from this University, I remain, most respectfully,

Your obedient servant,

R. J. OGLESBY.

WASHINGTON, D. C., *March 2, 1868.*

DEAR SIR:—I have the honor to acknowledge your kind invitation to attend the inauguration ceremonies, upon the opening of the Illinois Industrial University.

With much regret I am compelled to forego the great pleasure which it would afford me to be with you on an occasion of so much interest. The extraordinary condition of public affairs compels me to remain here, and the continual demands upon my time and strength must be my excuse for not writing at greater length.

My appreciation of the vast interests involved in a successful administration of the affairs of the University demands a more particular statement of the origin, history, objects and prospects than I can find time to write. My great hope is that this Institution shall prove the crowning achievement of this age, among all the grand works in behalf of popular education which illustrates the splendid history of our State, and that to the latest generation our young men shall have cause to bless the wise forethought of the men of this age, who have, amidst gigantic war, not only vindicated the free institutions and ideas of self-government, but also

founded this splendid nursery of freemen and enlightened patriotism. An educated man may become unpatriotic, a patriot may become perverted, through ignorance; but wisdom and patriotism, hand in hand, are invincible. Enlightened patriotism is the steadfast palladium of human liberty.

May the institution over which you are called to preside be enabled to illustrate and enforce this vital truth through all the years of glorious and prosperous peace which await our State and nation, is the sincere wish of Illinois' grateful son,

HON. J. M. GREGORY,
Champaign, Ills.

RICHARD YATES.

GALESBURG, ILL., *February 29, 1868.*

J. M. GREGORY, D. D.

MY DEAR SIR:—I have received yours of the 24th inst., inviting me to be present at the inauguration exercises of the Industrial University. I am much obliged to you for the invitation, and regret not to be able to accept it. The official duties of the members of our court make an almost unceasing demand upon their time, and hardly less when the court is not in session than during term.

Allow me, however, to express my very deep interest in your noble undertaking, and my most earnest wishes for its success. Every citizen of Illinois who would promote the future greatness of the State, and secure the well being of his own children, should lend you a hearty co-operation.

Illinois can hardly fail of a merely material prosperity. God has so endowed us with the means of wealth, that we can not but attain it, if the country remain at peace. But we need more than that, and must accomplish more, if not false to our duties. We should reach, on these prairies, the highest standard of modern civilization, by the most complete development of the individual man in every class of society. The means of the highest mental and moral culture should be furnished to every youth. To this end we shall have, in my opinion, no agency equal to the institution you are about inaugurating, if you are able to build it up in accordance with your plans. From an examination of your published report and schedule of studies, and from what I have learned of your views in conversation, I am satisfied you will, if you are properly sustained, create, in the largest and best sense of the word, a *University*, where the youth of our State can be taught, according to their respective tastes, talents and plans in life, in every department of human knowledge, while the highest practical training will, at the same time, be given in agriculture and the mechanic arts—an institution resting on a broader basis, aiming at a wider usefulness, and furnishing a culture at once more generous and more practical than any other in the country. I wish you God speed, and am,

Very truly yours,

C. B. LAWRENCE.

TISKILWA, *March 10, 1868.*

HON. J. M. GREGORY,
Regent of Industrial University.

DEAR SIR:—Permit me to acknowledge the receipt of your invitation to attend the inaugural exercises, to take place to-morrow, at Champaign, and to express my sorrow that severe illness forbids me the enjoyment of the pleasure I had anticipated in visiting Champaign on this interesting occasion.

In my opinion, the inauguration of the Industrial University will ever be regarded as an important incident in the educational progress of our State. The character of the institution to be inaugurated is a true and just response to the demands of the *cultivators* of the grand and fertile prairies of our State. Let a generous and elevated spirit control the management of the University. Let the baleful influences of partisanship and sectarianism be excluded from its halls. Let an eye single to the physical, intellectual and moral advancement of the sons of the prairie State watch over and direct its operations. The affections and just State pride of our citizens will cluster around it; the patronage of our State Legislators will sustain it, and endow it still more liberally; the industrious and worthy of our sons will throng its halls. Its usefulness and destiny will be *Excelsior*. Man will be blest, and glory given to the Sovereign Ruler of the Universe.

I shall await with much interest the published proceedings of the inauguration.

You will please accept, as an apology for this pencil note, the fact that confinement to a sick bed prevents my participation in the pleasures of the occasion.

Yours very truly,

B. N. STEVENS.

WASHINGTON, *March 6th*, 1868.

J. M. GREGORY, ESQ.

DEAR SIR:—Your kind favor, with card of invitation to the inauguration of the "Illinois Industrial University, is received." Nothing would give me more pleasure than to comply with your invitation; but I fear that duties more arduous than pleasant will prevent.

Yours truly,

JOHN A. LOGAN.

WASHINGTON, D. C., *March 3*, 1868.

HON. J. M. GREGORY,

Regent Illinois Industrial University.

MY DEAR SIR:—Your letter, inviting me to be present on the occasion of the inauguration of the Illinois Industrial University, on the 11th inst., has been received. I shall not be able, consistent with public duty here, to be with you.

I wish I could attend. I look forward to the day when that institution will be a great benefit to the people of our prosperous State. Education and labor, joined together, is the great need of the people. Honest, intelligent work is what makes a people worthy and powerful.

Your Institution, properly fostered by the State, and managed well by those in immediate charge, is destined, in a few years, to wield a powerful influence for good in the country.

Hoping you may have a pleasant time at your inauguration ceremonies, and that the University may meet with great success,

I am, in haste, yours very truly,

S. M. CULLOM.

WASHINGTON CITY, D. C., March 1, 1868.

DEAR SIR:—Your favor of the 27th ult., inclosing an invitation to the Inauguration of the Illinois Industrial University, is just received. It would afford me great pleasure to be with you on that interesting occasion, but my engagements here will render it impossible for me to leave Washington at the time indicated.

Thanking you for the courtesy in extending to me the invitation,
I have the honor to be, very respectfully, etc.,

S. S. MARSHALL.

J. M. GREGORY, Esq.,
Champaign, Illinois.

WASHINGTON, D. C., *March 4, 1868.*

J. M. GREGORY, Esq.,
Illinois Industrial University, Champaign, Ills.:

DEAR SIR:—Yours of the 26th ult., inclosing a card of invitation to attend the inauguration of the Illinois Industrial University, on the 11th inst., was duly received.

Feeling a deep interest in the complete success of the enterprise, it would afford me great pleasure to be present and witness the ceremonies of the occasion, and I regret that my duties here will necessarily prevent my attendance.

In every country, labor is the foundation of wealth, prosperity and happiness. In this country of free government and equal rights, where agriculture enjoys the attention of the great masses of the people, how important it is to cultivate a taste for farming and farm labors, by elevating the business to a science, and by this means simplify the processes and increase the ratio of production.

Your University, devoted in the main to the encouragement of all the industries of the age, will, I have no doubt, effect great good for our people.

Trusting that the occasion of the inauguration of the University will be one long to be remembered with interest, I subscribe myself,

Truly and respectfully, yours,

GREEN B. RAUM.

The University anthem, written for the occasion by Dr. Gregory, and set to music by George F. Root, was then sung.

I.

We hail thee! Great Fountain of learning and light;
There's life in thy radiance, there's hope in thy might;
We greet now thy dawning, but what singer's rhyme,
Shall follow thy course down the ages of time?

II.

O'er homes of the millions, o'er fields of rich toil,
Thy science shall shine as the Sun shines on soil,
And Learning and Labor—fit head for fit hand—
Shall crown with twin glories our broad prairie land.

III.

And as generations, in the grand march of time,
Shall fill the long ages with numbers sublime,

Thy portals shall throng with the lowly and great,
Thy Science-crowned children shall bless all the State.

IV.

Then hail thee! blest fountain of learning and light,
Shine on in thy glory, rise ever in might;
We greet now thy dawning; but ages to come
Must tell of thy grandeur, and shout Harvest Home.

Dr. NEWTON BATEMAN, State Superintendent of Public Instruction, then delivered the following

ADDRESS:

A great State has just embarked in a great enterprise, and here, at the very threshold, it is fit that we pause a moment to consider the history of that enterprise, its nature, and how we may hope to conduct it to a successful issue.

What, then, is the Illinois Industrial University, which we to-day inaugurate—for what ends has it been established—and by what means shall we seek to achieve those ends?

The practical realization of nearly every grand movement of the forces of civilization, is the sequence—usually the long-delayed, long waited-for sequence—of many silently-working, far-distant causes—the final embodiment of the struggling thoughts, aspirations and yearnings of the public mind.

To this historical fact the Institution, which we to day place in the grand column of the educational forces of this commonwealth and of the nation, is no exception. It is not a thing of yesterday; it is born of no transient impulse of the public mind—of no meteoric flash of popular enthusiasm—no sudden faith in the royalty of labor, and the exaltation of the laborer. The ideas which underlie and have at length fashioned it into being, have long been before the American people, and are indeed, in some sense, co-eval with the existence of the Republic itself. Washington and Jefferson, and many others of that day, were practical agriculturists, and did much to foster a love of industrial pursuits among their countrymen, and to lay under contribution the treasures of science, to enhance the productiveness of soils, and ennoble the employments of husbandry. And from that period to the present, there have been those who, from time to time, have directed public attention to the transcendent importance of this great department of our national industries, and to the need of institutions of learning devised and conducted with more direct reference thereto.

But the era of great combined movements, in this country, in behalf of the better education of the masses for the manual industries of life, may be said to have commenced about twenty years ago. And, whether considered in the light of the magnitude of the interests involved; the millions of people concerned in the issue; the grandeur of the thoughts and conceptions advanced; the number, eminence and power of the men engaged; or the undaunted persistency and faith with which the contest has been carried on—whether viewed in one or all of these aspects, this era of effort and conflict for industrial education deserves to be called *sublime*.

Convention after convention was held; league after league was formed; society after society was organized; pamphlets, appeals and addresses were written and published by tens of thousands of copies; petitions and memorials went up from

the lakes to the sea; the law-making power was invoked, and earnest, determined men thundered again and again at the doors of General Assemblies and Congressional Halls, demanding to be heard on this great question. At times, in some of the States, the issue went to the hustings, and even the tumultuous roar of rival political parties was awed and hushed for a time by the great voice of the toiling masses, demanding an education suited to their needs. Repeated disappointments and defeats only resulted in fresh combinations, more determined efforts, and large accessions of strength. Able and gifted men from every pursuit in life, from every class of society, and from every quarter of the Union poured into the swelling tide the contributions of their learning, experience and genius.

In the West, the man whose voice rang out earliest, loudest and clearest, in this great movement—whose words pealed and thundered through the minds and hearts of the people, and the round shot of whose tremendous broadsides of irrefragable facts and logic, and fiery rhetoric, plowed and plunged and ricocheted through these prairies, with an energy and vehemence that no bulwarks of ignorance or apathy could withstand, and which brought nearly every farmer and artisan hurrying to his standard, from far and near, and put in motion the imperial columns of our free-born yeomanry—the man who threw into the struggle not only the best energies of his mind, but the unwavering faith of his soul and the deepest longings of his heart, and who plead for the uplifting and regeneration of the masses and for the “millennium of labor,” as the patriot pleads for his country and the christian for the salvation of God—the man whose able reports, instructive addresses, and thrillingly eloquent speeches were caught up and re-echoed by the enlightened press of the whole country, without regard to sect or party, and which furnished at once the material and the inspiration of auxiliary and co-operative movements and organizations in many other States—and the man who, as I believe, through all these multiplied and overwhelming labors, was animated not by considerations of self-aggrandizement or sordid gain, but by the loftier purpose of serving his race and honoring God by uplifting and blessing the toiling millions of His children—that man was JONATHAN BALDWIN TURNER, of Illinois.

This is not blind adulation nor fulsome eulogy. I know whereof I affirm; I am familiar with the procession of events to which I have referred, and the connection of that great and good man therewith; and I could not suffer this glad day to pass without a few words in vindication of the truth of history, and a grateful recognition of his services. I speak in this matter only for myself, and at the promptings of my own feelings and judgment—no other person is in any manner responsible for what I have said, or may say, in this regard.

And if I speak warmly of Prof. Turner as a man, it is because I have known him over thirty years, during twenty of which he was my near neighbor, during four of which he was my teacher, and during all of which he has been my friend, ever kind and true. If his right to the place to which I have assigned him as the western pioneer and leader in this great educational movement, is challenged, I refer to the printed records and documentary history of the whole agitation, from the convention at Granville, in November, 1851, down to the passage of the bill creating this Institution, in February 28th, 1867. Through all those sixteen years of struggle and effort, you will find him towering up as the central figure, the very Ajax of the fight; closely identified with every phase of the controversy, and with all its vicissitudes of fortune. His reports, addresses, memorials and other papers, are

scattered through all the earlier published Transactions of the State Agricultural Society: the record of his personal labors is in fact, in epitome, a record of the whole movement.

But I have also referred to the commanding ability and power with which he led the forces of the people, and championed their cause in the grand march to the gates of Washington, and the final achievement of the supreme purpose—*national recognition* and aid by acts of Congress. None who have heard him will dissent: let those who have not, read his ringing oration on the "Millenium of Labor," delivered in 1853; or his Plea in behalf of "Industrial Universities for the people," published in 1854; or his Essay on "Industrial University Education," prepared by special request of the Commissioner of the National Bureau of Agriculture, and scores of other papers written and published during that period. The recognition, too, of the signal energy and grasp with which he handled the profound themes involved in the discussion, was general and hearty, not only from the rural and metropolitan press of the country, both East and West, but also from the solid columns of some of the oldest and stateliest Reviews, and even from Presidents and Faculties of existing Colleges and Universities, although utterly dissenting from and vehemently protesting against his views and opinions upon many points.

And this leads me to observe, that although I believe that Mr. Turner is justly entitled to the high honor of being called the *Father* of Industrial Education in the West, and that he should be (and sooner or later will be) held in grateful remembrance for having done more than any other one man in the United States to *arouse*, *inspire* and *vitalize* the public mind on this subject, impelling to investigation, thought and action, and thus hastening by many years, if not by a whole generation, the results already attained—yet I doubt if there is a man in the State, or even in the Union, who accepts, in detail, his theories, views, opinions and methods in respect to Industrial Universities, or to the practical education of farmers and mechanics, or even his theories of educational philosophy—certainly I do not. I regard not a few of his opinions and schemes on these subjects, as at war with both fact and reason—belonging to the realms of Utopia, and not to those of reason or history.

But then, Prof. Turner does not *expect* any body to think and believe and act precisely as he does—he would rather they would not—it would savor too much of a blind faith, which is the especial horror of his soul. He would a thousand times rather a man would *fight* him from honest conviction, than *indorse* him from stupid servility. I think that, upon the whole, he rather relished the criticism of the man who, after listening to an address from him on a certain occasion, remarked, "that was a magnificent thing, *but I don't believe a word of it.*" He cares nothing for the *ipsissima verba*, in speaking or writing. So that he can get his harpoon well into the heart of the ugly whales of error that prowl God's great ocean of truth, he is not particular how it is done, or who drags the dead monsters to the shore. So that he effectually breaches the walls behind which cheats and humbugs are entrenched, he cares little what people think of his engineering. When pitted against an antagonist, his sole purpose is to knock him down, in the speediest and most effectual manner possible, and so that everybody can see that he *is* down, regardless of the rules of pugilistic science.

A sample or two will best illustrate his way of "moving upon the enemy's works:"

Speaking of the causes of failure in previous attempts to establish Industrial Colleges, he pulverizes one of them in the following style:

"One capital and fatal error has been the idea that we should send a boy to school to learn to *work*, and not simply to learn to *think*; thus absurdly attempting to teach, by public endowment and munificence, the little arts of *personal manipulation*, instead of the magnificent *science* of UNIVERSAL SUCCESS. Nothing could be more fatal. When I have taught a boy merely to hold a plow, I have only taught him to be a two-legged jackass, twin brother to the four-legged team in front of him. But when I have taught him truly and *scientifically* all the mighty mysteries of seas, stars, oceans, lands and ages that are concerned in that act of plowing, I have made a man of him—had we not better say, an angel? Art, in the sense of mere labor, mere servile imitation alone, is only animal; the common property of asses, dogs and monkeys. But true labor, inspired by universal science and intelligence, is not only characteristically human, but also Divine. What could be more absurd than to take a hundred boys, in their teens, away from their parents, the year round, and set them to dabbling with a hundred teams for a few hours per diem, half of which break their traces and run away the first hour, under the absurd pretext of teaching these boys how to plow? When Almighty God created the heavens and the earth, and ordered man to 'eat his bread by the sweat of his brow,' he created and most liberally endowed the best possible University for learning all such mere manual arts; and if we expect to supersede Omnipotence by grants of land for endowments in this line, it will prove worse than a Bull Run defeat; for no institution for teaching the arts and the habits of bare manipulation and industrial skill, can ever be endowed at all comparable with those which the great Father of All has most munificently spread abroad over every household, every shop, and every field, throughout the civilized globe. The *principles of science*, therefore, and not the bare manipulations of art, should form the *sole end* of Industrial Universities."

So wrote Prof. Turner, four years ago, demolishing a great fallacy and enunciating a great truth, in a manner not to be resisted or forgotten, whatever may be said of his zoological illustrations.

But I was briefly tracing the antecedent steps, the grand co-operative movements, which have culminated in the gift to us and to our children of this noble school of the people. When I turned aside, at the promptings alike of strong personal regard and a sense of justice, to speak of the labors of Prof. Turner, I intended to say but a very few words—merely to record my sense of the gratitude we owe for his long and powerful advocacy of the principles upon which this University is founded; the close and unquestionable connection of his services with the success that has been achieved, and my regret that he is here not to-day to mingle with us in congratulations for progress made, and in prayers for the continued blessing of God upon the school which we here consecrate to the reduplication of the products of labor, by subordinating thereto the forces of science, and to the exaltation of the toiling masses by putting them into closer and more intelligent communion with Nature, and Truth and God. I trust that I shall not, herein, be deemed to have been unmindful of the proprieties of the occasion.

Resuming the antecedent historical thread whose sinuous but unbroken course will be seen to have led straight on to the noble University which we to-day inaugurate, I observe that the first tangible result of the wide-spread and extraordinary agitation of the subject of industrial university education, which began with the Granville convention in 1851, and soon pervaded the whole State, and in behalf of which three more great Industrial State Conventions had already been held—was a Memorial to the General Assembly of Illinois, praying that body to invoke the pow-

erful aid and resources of the National Government itself, in furtherance of the object.

This memorial was drawn up and presented in January, 1853, and sets forth in cogent and eloquent terms the claims of the enterprise upon State and National regard. As a condensed and forcible statement of the argument, from the stand point of the farmers and agriculturists of the country, I do not think it has been surpassed.

Its conclusion, showing the comprehensive views, and advanced position taken in this State more than fifteen years ago, is as follows :

“ We, therefore, respectfully petition the Honorable Senate and House of Representatives of the State of Illinois, that they present a united Memorial to the Congress now assembled at Washington, to appropriate to each State in the Union, an amount of public lands, not less in value than *five hundred thousand dollars*, for the liberal endowment of a system of Industrial Universities, one in each State in the Union, for the more liberal and practical education of our industrial classes, in their various pursuits, for the production of knowledge and literature needful in those pursuits, and developing, to the fullest and most perfect extent, the resources of our soil and our arts, the virtue and intelligence of our people, and the true glory of our common country. We further petition that the Executives and Legislatures of our sister States be invited to co-operate with us in this enterprise, and that a copy of the Memorial of this Legislature be forwarded by the Governor to the Governors and Senates of the several States.”

Note the magnificent conception, the patriotic and continental sweep of that Memorial—*five hundred thousand dollars'* worth of the public domain, for the endowment of a system of Industrial Universities, one in each State of the Union! And this, I believe, was the initial step, the original suggestion, the first formal call ever made upon the National Government to endow these schools of the people—the first banner uplifted on the continent to lead the millions, through the puissant arm of the Republic itself, onward towards the millennium of labor. The simple grandeur of the conception, its startling munificence and universality, the majestic visions of the future which it invited, educated and inspired the whole American people, in this direction, more than a thousand elaborate orations could have done, and evoked a spirit that rested not till the prayer of that great petition was substantially answered by acts of Congress in conformity therewith. Is there not truth as well as boasting in the remark of one, that “the American people instinctively *hate little things?*” The author of that Memorial, and hence the first man in the United States, so far as I know, who ever advanced the great idea of the *National endowment* of Industrial Universities, an idea which has since ripened into such glorious fruitage, was an Illinoisian—the same of whom I have already spoken.

Scarcely was the ink of that Memorial dry, when it was presented, in due form, to the Legislature of the State, then in session. The reception it there met with was worthy alike of its commanding importance, and of the forecast and statesmanship of a great Commonwealth. Instead of being “laughed down the wind,” as the wild fancy of some dreaming enthusiast; or shuffled off to some unsympathising committee, there to sleep the sleep that knows no waking; or bartered away, by intrigue, for some wretched mess of local or political pottage—instead of this, that General Assembly *made way* for that grand message from the People, as the Lords and Commons *make way* for the King! acknowledging the majesty of its presence, and the exceeding glory of which it was prophetic.

Without unnecessary delay it came before the House, able and eloquent advocates sprang to its defense, opposition quickly yielded, and in due time, to their everlasting honor, that body unanimously passed the following resolutions. Though not strictly necessary to my present purpose, they are not irrelevant, and standing as they do at the very gateway of the great national movements that followed, I cannot resist the desire to cite them :

“ WHEREAS, the spirit and progress of this age and country demand the culture of the highest order of intellectual attainment in theoretic and industrial science : *And, whereas*, it is impossible that our commerce and prosperity will continue to increase without calling into requisition all the elements of internal thrift arising from the labors of the farmer, the mechanic, and the manufacturer, by every fostering effort within the reach of the Government : *And, whereas*, a system of Industrial Universities, liberally endowed, in each State of the Union, co-operative with each other, and the Smithsonian Institution at Washington, would develop a more liberal and practical education among the people, tend the more to intellectualize the rising generation, and eminently conduce to the virtue, intelligence, and true glory of our common country : therefore be it

“ *Resolved by the House of Representatives, the Senate concurring herein*, That our Senators in Congress be instructed, and our Representatives be requested, to use their best exertions to procure the passage of a law by Congress donating to each State in the Union an amount of public lands, not less in value than *five hundred thousand dollars*, for the liberal endowment of a system of Industrial Universities, one in each State of the Union, to co-operate with each other, and with the Smithsonian Institution at Washington, for the more liberal and practical education of our industrial classes and their teachers ; a *liberal and varied* education, adapted to the manifold wants of a practical and enterprising people, and a provision for such educational facilities, being in manifest concurrence with the intimations of the popular will, it urgently demands the united efforts of our national strength.

“ *Resolved*, That the Governor is hereby authorized to forward a copy of the foregoing resolutions to our Senators and Representatives in Congress, and to the Executive and Legislature of each of our sister States, inviting them to co-operate with us in this meritorious enterprise.”

These resolutions were promptly, heartily, and as the records show, *unanimously* concurred in by the Senate, and, on the 8th day of February, 1853, received the approval of the Governor, who lost no time in forwarding authenticated copies, as requested in the last resolution ; thus completing the glorious and unbroken record of Illinois, more than fifteen years ago, upon this great public measure.

The past at least is secure, and I will not disguise the pride I feel in thus adducing the irrefragable testimony of history to the fact that this Empire State of the West has the high and unchallenged honor of being the first to conceive and advance this idea and form of Industrial Education by national appropriation, and the first also to petition Congress, by a formal and unanimous vote of her Legislature, to grant the endowment.

Those ringing resolutions of our General Assembly not only elicited approving responses from all quarters, but seemed also to kindle the slumbering thoughts and sympathies of the people into a blaze of enthusiasm, and to inaugurate, at once and with resistless power, that decade of splendid efforts throughout the Union, which received their triumphant culmination in the Act of Congress of July 2, 1862.

A leading paper of New York City, Feb. 26, 1853, in an eloquent editorial upon our joint resolutions, declared: "Here is the principle contended for by the friends of practical education abundantly confirmed, with a plan for its immediate realization. And it is worthy of note, that one of the most extensive of public land States (Illinois), proposes a magnificent donation of public lands to each of the States, in furtherance of this idea. The Legislature of Illinois has taken a noble step forward, in a most liberal and patriotic spirit, for which its members will be heartily thanked by thousands throughout the Union. We feel that this step has materially hastened the coming of scientific and practical education for all who desire and are willing to work for it. It cannot come too soon."

Similar opinions were expressed by the leading newspapers of the whole North and East, and by all the principal agricultural journals and periodicals then extant, (as I could prove by copious extracts did time permit), while from the far South responses no less emphatic and cordial, swelled the accumulating volume of public opinion. The key-note struck by Illinois, was echoed by the Governors of other States in quick succession, in their annual messages—while orators, statesmen, authors, with College Presidents and Professors, the ablest and most gifted and honored men of the nation, entered the lists and mightily contributed to arouse, instruct and guide the public mind. Edward Everett, Marshal P. Wilder, Henry W. Cushman, John W. Lincoln, and others of like eminence, headed a movement in behalf of the liberal education of the industrial masses, in Massachusetts; while upon a single committee appointed by a convention held in the State of New York, in furtherance of the same cause, appear the illustrious names of Francis Wayland, Bishop Potter, Washington Irving, President Hitchcock, and Professors Pierce, Henry, Bache, Mitchell, Dewey, and others.

But enough; the columns of the people were in motion, their Representatives were already in Congress, the great battle was fought and won, and it only remained to embody the popular will in the forms of law.

Accordingly, the Congress of the United States recognized and gave effect to these great principles by the passage of an act entitled,

"An Act donating Public Lands to the several States and Territories which may provide colleges for the benefit of Agriculture and the Mechanic Arts."

This act was approved on the 2d day of July, 1862. Its most important sections are the *first*, which makes the endowment, and the *fourth*, which declares to what objects and uses the fund shall be devoted. The first section reads as follows:

"That there be granted to the several States, for the purpose hereinafter mentioned, an amount of public land, to be apportioned to each State, in quantity equal to *thirty thousand* acres for each Senator and Representative in Congress, to which the States are respectively entitled by the apportionment under the census of 1860."

The fourth section reads as follows:

"That all moneys derived from the sale of lands aforesaid, by the States to which the lands are apportioned, and from the sales of land scrip hereinbefore provided for, shall be invested in stocks of the United States, or of the States, or some other safe stocks, yielding not less than five per cent. upon the par value of said stocks; and that the money so invested shall constitute a perpetual fund, the capital of which shall remain forever undiminished, and the interest of which shall be inviolably appropriated by each State, which may take and claim the benefit of this act, to the endowment, support and maintenance of at least one college, where *the lead-*

ing object 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, in such manner as the legislatures of the States may respectively provide, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life."

The Legislature of Illinois promptly signified its acceptance of the grant, upon the conditions imposed by the act of Congress, and, at its last session, consummated the whole transaction by passing, 1st, "AN ACT in relation to the location of the Industrial University," approved January 25th, 1867. 2d. "AN ACT to provide for the organization and maintenance of the Illinois Industrial University," approved February 28, 1867. 3d. AN ACT supplemental to the before-mentioned act, approved March 8, 1867.

In obedience to the requirements of the first section of the act, the Governor appointed twenty-eight trustees, who, with the members *ex-officio*, thirty-two in all, met on Tuesday, the 12th day of March, 1867, in compliance with the law, and the summons of the Governor, and, after being solemnly sworn into office, proceeded in due form, to organize as "The Board of Trustees of the Illinois Industrial University."

Having thus briefly traced the history of this Institution from its dim foreshadowing in 1851, through the successive periods of its individual, organized, legislative, and congressional struggles, down to its formal organization, just one year ago, it is fit now to examine for a moment the essential nature and objects of the Institution which has thus been created. This I shall endeavor to do in the blended light both of law and of reason—of statutory provisions and common sense; for we cannot presume that these, in any of the acts concerned, are contrary the one to the other.

The act of Congress of July 2, 1862, is the fundamental law, the *magna charta* from which the whole system of Universities not only derives its life, but in which its essential objects are defined, and the sphere of its legitimate operations clearly and comprehensively marked out. To the provisions of that act we must therefore look, primarily, to ascertain the province within which this University may legally and appropriately act. And since each State, in accepting the proffered endowment, did so with a full knowledge of all its accompanying conditions, and a solemn covenant with the National Government to stand to, abide by, and in good faith carry them out, it might be safely presumed that the legislation of each State on the subject would be in strict accord with the fundamental law. And this, upon examination and comparison, we find to be the fact. Indeed, the language of the two acts in relation to the fundamental purpose and scope of the University, is nearly identical. In section four of the act of July 2, 1862, Congress declares that "the leading object 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, in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life." While in section 7, of the act of February 28, 1867, our State Legislature declares that the Board of Trustees shall have power to do whatever "may be required to teach in the most thorough manner such branches of learning as are related to agriculture and the mechanic arts, and military tactics, without excluding other scientific and classical studies." The two sections are identical in meaning, upon these points, and nearly so in language—the only difference worthy of note being that

our State law emphasizes the broad terms of the Congressional act, by the significant phrase—"in the *most thorough manner*."

The purposes for which this University was established, the work which it must do and may do, are here stated and defined, by the supreme and authoritative laws of Congress and of Illinois, in a manner so plain that only the most hopeless ignorance or willful perversity can misconstrue or misunderstand them.

It will be seen that the law in respect to the instruction to be given in the University is two-fold, *mandatory* and *permissive*—certain things must be taught, certain other things are *not excluded*. Respecting the latter the Trustees seem to have discretion; they may provide for them or not, as they see fit; in respect to the former, they have no choice or discretion whatever, they must provide for them, or violate their oaths and the laws.

The departments of instruction for which the Trustees are positively and peremptorily required to provide, and that "in the most thorough manner," are two:

1. "Such branches of learning as are related to agriculture and the mechanic arts," and

2. "Military tactics."

Instruction in these is a *sine qua non*, a condition precedent, default in which would work the forfeiture of the endowment.

Those branches of learning which are "not excluded," and for which the Trustees *may*, therefore, provide, at their discretion, are embraced in the comprehensive phrase, "other scientific and classical studies."

The boundaries of the present inquiry are thus sharply defined, both inclusively and exclusively. If the Trustees have arranged a course of study embracing "such branches of learning as are related to agriculture and the mechanic arts," and also, "military tactics," they have strictly complied with the law; and if in addition to these they have also provided for *some* "other scientific and classical studies," they have therein done precisely what the law, in so many words, allows and empowers them to do. Indeed, a much stronger interpretation of the clause, "*without excluding* other scientific and classical studies," is held by many eminent lawyers and jurists to be legitimate, if not even obligatory. In their view it would be by no means an unwarrantable construction to regard the italicized words in the above quotation as but another form of *requirement*—as coupling the duty of not excluding certain studies, with that of including certain other studies, and embracing both alike in the positive injunctions of the statute. But while this view is not without much force, and is strenuously maintained by many, I have preferred to adopt the permissive or optional theory, because it is the one about which there cannot be the semblance of cloud or doubt.

What then, are those "branches of learning which are related to agriculture and the mechanic arts," and which are necessary in order to teach the same "in the *most thorough manner*?"

The answer to this question involves answers to two others, viz: What is agriculture? What are the mechanic arts?

I shall not consume the precious time of this occasion by any attempt at mere definitions—to do so would be alike idle and unnecessary. Suffice it to say that no man can take the terms, elements and ideas commonly and necessarily embraced in any tolerably complete definitions of those words, and undertake to trace their logical and necessary connections and relations, without finding the courses of study prescribed by the Trustees in those departments, utterly exhausted long before even

the beginning of the end is reached. In comparison with the heights and depths of research and investigation—the immensities and infinitudes of thought and study into the realms of Nature, comprehended in “those branches of learning” which are closely and inseparably related to “agriculture and the mechanic arts”—in comparison with these, the scheme of study and culture proposed in this University, comprehensive and excellent as it is, seems meagre indeed.

Agriculture and the mechanic arts! Whither do they *not* reach? Into what corner of the physical universe do they not lead us? What law of the terrestrial, solar, or sidereal worlds, do they not lay under contribution? What principle of life, or growth, or matter, or force, is not grasped by their ubiquitous hands? It is no rhetorical extravagance, but an undoubted and easily demonstrated truth, that there is naught of material life, or form, or being, force or motion, in the heavens above, the earth beneath, or the waters under the earth, into which, and through which, and around which, the laws and principles of those two sciences, in their myriad ramifications, relations and dependencies, do not pour and penetrate with an all-pervading, divine universality, even as the atmospheric ocean envelops the globe.

The student of agricultural science encounters, at the very threshold of his investigations, problems among the nicest and most abstruse that can engage the scrutiny of the human intellect. He may indeed handle the implements of husbandry, and stir the clods of his ancestral acres, with as little sense of the tremendous forces and eternal harmonies that slumber beneath and about him, ready to spring into quick, responsive, co-operative action, re-enforcing and completing his labors—as the savage who stares at the rings of Saturn through a telescope has of the immutable laws and everlasting symphonies of the spheres.

But let him attempt to leave the beaten track—let him, leaving his mere handicraft, undertake to interrogate Nature herself—let him endeavor to “make two blades of grass grow where but one grew before”—let him try to improve the quality or increase the productiveness of his fruits and vegetables and soils and animals—let him essay to produce new varieties of trees, plants, or flowers—or to revitalize exhausted soils; or to reclaim barren and worthless lands; or to discover the hidden manna upon which each plant delights to feed, with its peculiar and almost spiritual affinities for certain elements of atmosphere and soil—let him try to add one new flush of beauty to the queenly rose, or a daintier aroma to its fragrance—or an additional tint to the brilliant verbena—or another grace to the bending beauty of the elm, or the dark majesty of the pine: let him attempt to do any one of these, or a thousand other similar things, and he finds himself at once confronted by the *jasper walls of science*, through not one of whose beautiful gates can he pass without the *countersign*, known only to the polished children of meditation and culture. He finds Nature a sealed book, her oracles dumb, and her shrines guarded by inexorable sentinels, who pitilessly reply to his entreaties: “*We know you not.*”

There is no recourse for him but to begin with the *a, b, c*, of scientific principles, and laboriously work his way up to the sun-lit heights of Universal truths, as all have done who have gone before; or dismiss forever his new-born inspirations, and be content merely to hold the plow and swing the scythe till he dies. He can no more deal with the profound questionings that assail him on every side, without a knowledge of the subtle principles and exact scientific facts and truths upon which the problems of animal and vegetable life and growth and change depend, than he can make a book without an alphabet, or a house without tools and materials. And if he is really intent upon being a thinker, as well as a plowman, an explorer of

truth as well as a sower of seed, a scientific agriculturist as well as a sturdy, practical farmer; it will not be long till he appreciates the utter absurdity of the popular outcry against the study of abstract principles and pure science. Here, as elsewhere, it will be found that there is nothing like a little wholesome experience to take the conceit out of a man—provided always that he has sense enough to know when that operation has actually been performed upon him—for incorrigible fools are not confined to the ranks of school-masters and theorists, as some affirm; there may be farmers, perchance, worthy to divide with them the honors!

Let the farmer who points to his own life-long and successful husbandry without the benefit of books and theories and so-called useless abstractions, as a justification of his contempt for the thorough and systematic training of youth for agricultural pursuits—let such an one be called upon to conduct any original investigation, to analyze a soil; detect the presence of the insidious foes to vegetable life which lurk in earth, air, water and food; in a word, to advance the boundaries of agricultural science in any direction, and he will invoke the aid of his boasted skill in mere handicraft, as vainly as the false prophets of old, in their utter helplessness, cried aloud to Baal to help them. The divine fire will only descend at the summons of the true Elijahs of science.

It is no disgrace to be ignorant of abstruse knowledge, or of the subtle laws which pervade the universe of matter, from the atom to the continent—such knowledge can never, perhaps, be the inheritance of all. But to deride the study of abstract laws and principles, while boasting of the success which those very investigations have alone made possible, is the opposite of reasonable or honorable; and if to derision be added active and wanton hostility, what was before only stupidity and folly, becomes a crime against the interests of humanity.

I have spoken of the debt which successful husbandry, viewed only as a practical manual art, owes to scientific thinkers and pure philosophy. Go to your model farmer of this class, and inspect his estates, his methods of tillage, his selections and preparations of soils, the manures and fertilizers he uses, the rotation of crops that he practices, the breeds of animals he prefers, and how he rears and nurtures them—look at his machines and tools and implements of all sorts; his barns and other out-houses, his fences, gates, wagons and carts; his orchards, gardens, hot-beds and green-houses—and see what you will find. The latest and best improvements will characterize his outfit and equipments in every department. He will not have an old and defective machine or implement upon his place at any price, if a new and better one can be had. Every new and successful method and invention is eagerly sought for and applied. And yet, too often, after this unconscious homage to science, he will join in the chorus of disparagement of those very studies to the products of which he owes all of his pre-eminence; and of the men, it may be, who seek to place these priceless treasures in the hands of the people. Oh, men of Illinois, these things ought not so to be.

Thought rules the world, doubt it or deny it who may, and it will continue to do so to the end of time. Each and all of those marvelous machines, whose fingers of wood and iron spare those of flesh and bone, are the offspring of science—born of the patient vigils of the student, begotten of those same despised abstractions which lead down to the solemn laboratories of nature, and upward to the high cabinet of heaven where the Supreme Architect of the Universe presides. Those amazing displays of productive energy, which have quadrupled the value of the estate, are but the grand victories of Agricultural Chemistry. Those lordly herds that

sweep down to greet you, seeming the very incarnation of health and power and beauty, and as unlike their lean, ungainly progenitors as Darwin's hideous antetypes of man are to the imperial Caucasian, are the magnificent result of the applied principles of Animal Physiology. Those new and gorgeous varieties of flowers and shrubs, native and exotic, and those reduplicated specimens of choice fruits and vegetables, which have quintupled the market value of that orchard, garden and conservatory, are as certainly the radiant children of Botany, through Hybridization, as the day is the child of sunrise. Those peculiar soils of which our model farmer is the fortunate possessor, and of which he is so justly proud, are the gift of ages and epochs of strange and grand mutations, the thrilling story of which can only be told by Geology. He knows how to protect his favorite grape, or pear, or plum, from the invisible parasite that had for years doomed it to blight and death; or his wheat from the ravages of the terrible midge; or other fruits and grains from the deadly invasions of countless armies of atomic Goths and Huns—but gives no thanks to Entomology, to which, re-enforced by the microscope, he owes his deliverance and his wealth.

It might also be shown that he is equally a pensioner upon the munificent bounty of many other disregarded or despised, but life-giving, treasure-discovering, and wealth-bestowing sciences—such as Mineralogy, Meteorology, Natural History, etc. But the field is too wide, and enough for our purpose has already been said in this direction.

If we turn now for a moment to the other great department of instruction for which provision is required to be made in this University, viz: Those branches of learning related to the "Mechanic Arts," we shall find the views already presented to be not only sustained, but if possible, still more strikingly illustrated and confirmed.

If the student of agricultural science can not advance without a systematic and thorough training in the principles of pure philosophy and abstract science, it is vain for him who would be master of the mechanic arts to hope to do so.

And here it may be properly remarked that I am not now considering these scientific studies as instruments of *mental discipline*, at all—with that subject, upon which so much, wise and otherwise, has been said and written of late, I have now no concern. My present purpose is to show the absolute necessity of the mastery of principles in order to the highest success in the practical industries of life—that the material elements and resources with which we have to deal, can not be utilized without them; that a great many practical problems can not be solved at all without them, while a still larger number can not be advantageously or economically solved without them.

The student of Mechanics finds himself environed at once by those absolute and immutable laws of matter, of motion and rest, of momentum and force, by which the whole stupendous fabric of the material universe is sustained, directed and controlled. Go where he will he can not escape their presence, their inexorable conditions, or their resistless power. From the shape of the tiniest cog in the wheels of a watch, to the configuration of the earth and planets—from the whirl of a child's top, to the sweep of Neptune through his illimitable orbit—from the force that moves the index of the torsion balance, to that which upheaves oceans and continents—in all things and everywhere he finds himself in the grasp of God's everlasting and uncompromising code of dynamics and statics. And he finds, too, that the rock-built buttresses upon which all these laws rest down eternally, are derived from the science of *Mathematics*—without which he can do nothing; with

which, in mechanical philosophy at least, he can do all things. Nor will a smattering of the rudiments, a little algebra and less geometry, avail, as many affect to believe—(for among the studies which it has become popular to decry as useless abstractions, nearly all of the pure mathematics, and many of the applied, are included) nothing short of the whole iron series, from arithmetic to the calculus, will or can unfetter the feet of progress in mechanical philosophy.

I know that many a young mechanic will repudiate all this as idle fancy, and for reasons similar to those given by the model farmer to whom allusion has been made—he has succeeded, he thinks, without this knowledge and culture. Yes, but I am not speaking of what he means by success. It is not merely or chiefly to teach the student to construct wheels, that this school is founded, but to enable him to know the *spirit that is within* the wheels—to put him in possession of the elements of universal success.

“The difficulty in positive rules prepared for uneducated men is, that they can never bend to circumstances; and the workmen go on in a fixed track, in cases where they might have changed it without a variation of principle, but with the greatest economy of time and money.

“The calculation of the strength and stress of timber, though very simple in itself, is notwithstanding, an analytical problem, which one unacquainted with algebra could not solve. In the construction of groined arches, the principles of descriptive geometry are equally applicable and necessary. The catenary and elliptical curves, which are their best form, can not be understood without the higher geometry. The arch can not be built without the greatest extravagance in the use of materials, unless the precise form of every stone is known before it is cut from the rock. If the quantity of timber, stone, and other material wasted in building, from the want of a very little knowledge of mathematics, could be calculated, I have no doubt its price would educate all the young mechanics of the land. *Science is economical*—it repays the people a hundred-fold for what is expended in its cultivation. The surveyor must have at least some knowledge of trigonometry. All the section lines in these Northwestern States are based upon meridian-lines, and these were fixed by the nicest mathematical and astronomical calculations. In hydraulics we find the principles of mathematics equally necessary. All the calculations of the velocity, power and quantity of moving fluids depend upon these principles. How can a millwright be master of his business without understanding them? The very shapes of the cogs in his wheels are determined by them. In the construction of canals, railroads, bridges, and in all the operations of civil engineering, mathematics are the essential element.”

Let any young mechanic who has fallen under the delusion that he can make his way to the highest success without a thorough acquaintance with mathematics, try the experiment. He begins with the common mechanical powers. He takes a *Lever*, and understands that a weight will move it; but the principle upon which different weights, at different distances move, he knows not, for this depends upon *ratios and proportions*. He passes to the *Inclined Plane*, but quits it in disgust when he finds its action depends upon the relations of *angles and triangles*. The *Screw* is still worse; and when he comes to the *Wheel and Axle*, he gives them up—they are *all mathematical*. He would investigate the laws of falling bodies and moving fluids, but instantly roots, lines, squares, angles and curves float before him in the mazy dance of a disturbed intellect. The very first proposition is a mystery, and he soon discovers that mechanical philosophy is little better than mathematics itself.

But he still has his senses, and surely will not be indebted to diagrams and equations for their enjoyment. He gazes with admiration upon the phenomena of light; the rainbow upon the bosom of the clouds; the clouds themselves reflected from the surface of the waters. Whence this beautiful imagery? He soon finds that every hue in the rainbow is made by a different *angle of refraction*; that each ray from the mirror has its angle of incidence equal to its angle of reflection; and as he pursues the subject in the construction of lenses and telescopes, the whole family of triangles, ratios, proportions and conclusions arise to alarm his excited vision.

He turns to the Heavens, with its shining host, moving in solemn procession through the "Halls of the Sky," and would know the structure of this beautiful system, and the laws which regulate those distant lights. But *Astronomy* forever banishes him from her presence—she will have none near her to whom mathematics is not a familiar friend. What can he know of parallaxes, anomalies, and precessions, who has never studied the conic sections or the higher orders of analysis? She sends him to some wooden orrery, from which he may gather as much knowledge of the heavenly bodies as a child does of armies, from the gilded troopers of the toy shop.

But surely there *are* sciences which have better taste and less austerity of manners. He flies to *Chemistry*, and her gorgeous robes float loosely about him. For awhile he goes gloriously on, illuminated by the *red lights* and *blue lights* of crucibles and retorts. But soon he comes to compound bodies—to the composition of the elements around him, and finds them all in fixed relations—that gases and fluids will combine with each other and with solids only in a certain *ratio*, and that all possible compounds are formed by nature in *immutable proportions*. Then starts up the whole doctrine of chemical equivalents, and mathematics again stares him in the face.

Aghast, he flies to *Mineralogy*; stones he *may* pick up, jewels he may draw from the bosom of the earth, and be no longer alarmed at the stern visage of this terrible science; but even here he is not safe. He picks up a quartz, it contains a *crystal*, and that crystal takes the dreaded form of *Geometry*. Crystallization lures him on, but as he goes, cubes and hexagons, pyramids and dodecagons arise before him in splendid array. He would know more about them, but must *wait* at the portal of the temple, till introduced by that honored of time and science, our friendly Euclid.

And now, where shall this student of nature, without the aid of mathematics, go for his knowledge or his enjoyments? To Natural History? The very birds cleave the air in the form of the *cycloid*, and mathematics prove it the best. Their feathers are formed upon calculated mechanical principles; the muscles of their frames are moved by them—the little bee has constructed his cell in the very geometrical figure and with the precise angles which mathematicians, after ages of investigation, have demonstrated to be that which contains the greatest economy of space and strength.

In the realms of chaos there may perhaps be found some spot visited by no figure of geometry, and no harmony of proportion; but nature, this beautiful creation of God, has no resting place for him who would shun mathematics. All its construction is mathematical. It has no elements mixed without regulated law; no broken chord to make a false note in the music of the spheres. [E. D. MANSFIELD, in "American Education," pp. 124–127.]

The Illinois Industrial University is established in no spirit of rivalry, much less of hostility or antagonism, to the other Colleges and Universities of the country; nor in any spirit of disparagement or even criticism of their objects, management, courses of study or practical results. Nor was it in any manner or sense the intention of Congress, in the munificent endowment of these Universities, or of the State Legislatures in accepting the grant with its conditions, to undervalue or discriminate against the old order of liberal culture.

The American College system has an illustrious history, and sits crowned to-day with imperishable lustre and beauty. Beginning at a period coeval with that of the Republic itself, it has done a work of blessedness and power the magnitude of which can never be recorded. It gave us the common school, and, with the common school it has, beyond a doubt, also given us the Industrial University itself. It needs no eulogium: there stand Harvard, and Yale, and Dartmouth, and Brown, and Amherst, and Bowdoin, and Princeton, and Union, and their compeers in the North and West, and there I trust they will stand forever. Peerless mothers of the nation's intellectual *Gracchi*, whose names and deeds and genius are interwoven with all that is noblest and best in our history and achievements, well may they exclaim, "See, *these* are our jewels!"

What, then, is the grand distinguishing feature, purpose, hope, of this University?

In my view it is to form a closer alliance between Labor and Learning; between Science and the Manual Arts; between Man and Nature; between the Human Soul and God, as seen in and revealed through His works. It is to endeavor to so wed the intellect and heart of the students we educate, to the matchless attractions of rural and industrial life, that they will, with their whole soul, *prefer* and *choose* that life, and consecrate to it the resources of skill and culture and power that may here be gained. These I hold to be the aims and hopes of this University. And we hope to attain them, not by a less extensive and thorough course of instruction than is given in other Universities, but by a somewhat *different* course, and more especially by *emphasizing*, from the beginning to the end of it, those studies and sciences which look *away* from literary and professional life, and *towards* the pursuits of the agriculturist and the artisan—by holding the student to a closer *communion with Nature* in her forms of living grace and beauty; her protean changes; her sweet, profound and pure inspirations; and thus forming in his soul a purified *relish* for rural employments and pleasures, and a sincere longing for a life-long fellowship with them—by making as it were the very atmosphere of the University redolent of meadows and flowers, vocal with bird-notes and instinct with the love and spirit of the beautiful outer world—by demonstrating that the pursuits to which this Institution invites the young and ardent, are inferior in no element of dignity and honor to the so-called learned professions; requiring a scholarship no less varied and profound; equally fitting men for the most exalted positions in the State and Nation, while pointing to a life of purest enjoyments and sweetest tranquility—by proving, too, that in addition to these high advantages, the *rewards* of rural and mechanical industry, when vitalized by intelligence and re-enforced by the treasures of science, are equal to those of any other legitimate human vocation; and hence that none need turn from them in the hope of a speedier acquisition of wealth—and finally, by the sincere convictions and loving enthusiasm of the Regent and Instructors, inspiring and quickening all minds and hearts, and arousing that "*esprit du corps*," which is the precursor of success in every department of human activities.

These are some of the modes by which we hope and believe that the great ends of this University will not fail of achievement. We all know the peculiar and subtle power of a fore-known and determined purpose, a well-defined and publicly announced generic aim, to create an intellectual and moral *atmosphere* that *itself* leads, assists and educates in the desired direction. There are influences under which men unconsciously *gravitate* towards this or that pursuit, impelled thereto by a law of mental assimilation, whereby all things are made tributary to the dominant spirit of the place. At West Point *war* is the genius of the place, the objective point towards which every thing tends. Books, lectures, sciences, though in themselves the same there as elsewhere, all stand in some way connected, by this law of association, with military engineering, the movements of armies, or the conflicts of the battle-field. Because this is what West Point *is for*. No one can stay there long enough to catch the spirit of the place, without feeling that this is so.

In seminaries for clergymen, *theology* is the controlling theme, the centripetal force that reaches and modifies the whole life of the place, the currents of thought, the hopes and aspirations of the students.

Now a West Point Cadet is not *obliged* to assume, for life, the profession of arms, nor a student of theology to enter the sacred office; but all can see that each will be infinitely more *likely* to do so by reason of the peculiar purposes, affinities and surroundings of their respective places of culture; and that it is morally certain that *neither* will choose the profession of *the other*.

It is the powerful aid of this familiar principle, in connection with special courses of study, that is brought to bear and utilized by the establishment of separate Universities, the distinct and avowed object of which is to train young men for rural and mechanical pursuits. The exact sciences, and many other branches of learning taught here, are, of course, precisely the same, and taught in precisely the same manner, as at Yale, Dartmouth, or West Point—for all mathematics and pure philosophy belong to the realms of universal truth, which know no latitude or longitude, and which no institution, or class of institutions, or of men or professions, can exclusively appropriate, any more than light and air, fire and water, can be monopolized. But, under the influence of the spirit and tendencies here dominant, the culture and power *derived* from these studies will be *constantly deflected* from other pursuits, towards the grand aim of the University. The problems to which the principles of mathematics and other sciences will be most applied by our students, will be taken from the fields of investigation here most prominent—from the domain of agriculture and the mechanic arts—because these will here be the most familiar themes of thought and conversation—just as questions relating to the science of war are uppermost at the Military Academy, or those pertaining to christian philosophy and faith, at Princeton or Andover. The same laws of association and affinity will operate here as elsewhere. And this is a matter of the highest importance, for the one great practical question in these Institutions will be, how to hold the young men to the farm and the workshops, *after* they are educated.

There is one proposition of fundamental importance in this whole matter of industrial education: If the pursuits of agriculture and the mechanic arts are ever to take, in the estimation of men, the commanding position to which they are justly entitled, those who are educated for them must be *as thoroughly and completely educated*, as those who are trained for other pursuits and professions. I consider this truth, and the recognition of it, as absolutely vital to success. If a farmer or an

artisan is as *well educated* as a lawyer, a physician, or a senator—if he has, I mean, as much knowledge, as profound a mastery of scientific and philosophical principles, as much self-knowledge and self-dependence, as much varied attainment, as much *brain power, thought power, and heart power*, he will be the *peer* of the latter, in influence and honor and usefulness and force, anywhere and every where and always—but if not, he will be inferior to the other in power and influence, and no device, or pretense, or declamation, or protest, or sophistry can make it otherwise. The difference will exist precisely as long as the causes that produced it; it is simply the difference between weakness and strength. I have nothing whatever to do here with the means and instrumentalities of education, but only with the *fact, the product, the finished work* of culture. And I affirm again, that the cause, and the only cause, of the immensely superior power heretofore wielded in the affairs of men, by the professional classes over the industrial classes is, that the one have thus far been better educated than the other. And now, if these Universities of the people expect successfully to compete, in their appropriate spheres, with those which are already hoary with age and venerable with honors; which are completely equipped and manned, and impregably intrenched among the very foundation stones of our whole educational and social system, and interwoven with all of our ideas of intellectual culture and progress as a nation—if this is expected, (and to expect less would be to invite contempt and defeat, at the outset), the one palpable, essential and indispensable condition is, that the education for which they provide must be *equal in all essential points*, in extent, in comprehensiveness, in thoroughness, and in inspiration and power, with that afforded by the old colleges and universities of the country. Our courses of study must be as broad; our apparatus, libraries, cabinets, and other auxiliaries and appliances, must be as ample and as good; our professors, lecturers, and teachers, must be as able and earnest, as learned, adapted, and devoted, as theirs.

With these conditions fulfilled, and super-added to the matchless value and beauty of the pursuits whose ranks we seek to fill, and with the benisons of waiting millions upon our efforts, and praying for our success, we shall not fail. But if we aim at anything less than this, failure is already inscribed upon these walls. In the language of another, such Industrial Universities as we have had, and as some people still talk about, mere elementary schools, where boys are sent to learn to work instead of to learn to think, “stand before the public mind, as contrasted with the compactly organized, and ubiquitous power and presence of older Institutions, much like an unarmed mob of a few hundred men, in presence of armed legions of veterans—or like a wheelbarrow along-side of a locomotive—or a scow along-side of a well-armed navy—a thing not to be resisted, or even competed with, but simply to be laughed at.”

There are some errors and fallacies and lies about this matter of education, which have befooled and cursed mankind long enough; it is high time for them to die and be buried. One of them is the absurd and “contemptible idea that the highest degree of education cannot be employed in one calling as well as another”—that a few men, or classes of men, have a divine right to monopolize and devour all but the crumbs that fall from the groaning tables of science. To sweep such abominable falsehoods from the precincts of truth, and from the minds of the people, “rhetoric may well become a whirlwind, and logic fire.”

If one proposing to himself the life of a farmer or a mechanic, or any other industrial pursuit, *wants* to study languages, ancient or modern, or metaphysics, or belles-

lettres, or *anything else* out of the direct line of preparation for his chosen employment, it is his right to do so, and the province of no man to say he should not, or to sneer at the idea that *he* can make use of such things. If he *does not* want them, he need not have them—no man, or institution, or system, or corporation on earth has the right to force them upon him. All that I claim is, that no institution can, with a decent regard to truth or sense, be called a *University*, which does not provide something more than merely special, or professional, courses; which does not place the amenities of literature, the treasures of intellectual and ethical philosophy, and the world's wealth of genius, art, and taste, within the reach of all *who choose to have them*. And I utterly deny that the industrial classes may of right be excluded from *any* department of learning to which any other class has access. “*Every art and every science may conspire to increase the enjoyments and profits, and to confer dignity, grace, and honor upon the tiller of the soil. It is the art of arts, the science of sciences, where physical and intellectual capacity, judgment, taste and learning, may aid to produce the most triumphant success. I can conceive of no other life that, followed in its comprehensive spirit and grasp, calls into action more varied powers and acquisitions, or inspires more of the faculties and energies and ingenuities of man.*”

May the God of light and knowledge and love smile upon the transactions of this day—may He accept and bless the offering we here lay upon the altar of truth and liberty. We have waited long for this Institution and for this hour—both have come at last. With beaming garments and glorious prophecies of good to all the people of this Commonwealth, the Illinois Industrial University, escorted and upborne, I trust, by the heartiest benedictions of all, to-day moves grandly to the front, and assumes her position at the head of the imperial line of forces by which the State would draw the whole people up to light and knowledge. Well may every mind be impressed as we stand at the head-springs of this new fountain, and pray that its streams may be *pure, copious and perennial*.

My memory as an Illinoisan ante-dates the free school, the railroad, the canal, the city, all that constitutes the glory and hope of the Illinois of to-day. First pressing the soil of the State when Chicago numbered less than one hundred souls; when all this region, for leagues in every direction, was a silent wilderness, and St. Louis, then an inconsiderable village, was our nearest market and only source of supplies; having devoted my whole life to educational work, and organized, in the midst of opposition and doubt, the first free school ever established in the State—it would be strange if I could stand here this day, without emotion—a day so full of crowding memories of the past, of thankful joy for the present, and thrilling visions of the future.

Thank God, monopolies of learning, by privileged classes, are among the dis-crowned shadows of the past. A new element is henceforth to bear sway in the destinies of these States and of the nation. To the dust must go, and will go, whatever schemes, devices or systems, refuse to affiliate with or set themselves in opposition to, the Lord's redeemed and anointed—the *People*. This is the sublime spirit of the age, and its victories will be brighter and grander, as the generations come and go.

I believe this University is founded in, and pervaded by, this spirit, and that it therefore has a great work to do—a work full of beauty and glory, of beneficence and power. But it is not for a sect, or class, or clan. The people have borne the proscription through historic ages, and an end has come. Henceforth the inscrip-

tion upon the temples of highest learning, as well as of the common school, is to be: " *Whosoever will, let him come.*" Let this University catch here, and feel forever, the inspiration of this unobscured conception of the surely coming American democracy—let it join with the ten thousand public schools of the State, and with the ten times ten thousand public schools of the Union, in voicing down to coming generations the incarnate truth of the age and of God, that culture, as well as liberty, is the everlasting heritage of the race, and that whoso would restrict to the few what belongs to all, is a traitor to the people. Glory be to God in the highest, and on earth, peace, good will to men.

The following original ode, written by a lady, was then sung by the choir and audience:

God of wisdom! with thy favor,
 Bless this fane, by human hand
 Reared to Science, Art, Industry,
 For the sons of our great land.

Thanks we give for institutions
 Shedding light, benign and strong,
 Beaming forth like suns, dispelling
 Mists of ignorance and wrong.

Bless this sun, in hope arising,
 O'er the plains of Illinois;
 Arm its splendors with thy power,
 Make its fame our pride and joy.

Clear and bright, for aye, its shining,
 Far and wide its beams extend,
 Making love of useful labor
 With the love of learning blend.

Give to science grander power
 Truth from every field to glean;
 Till its light and warmth and beauty
 O'er the earth are felt and seen.

General S. A. HURLBUT, on behalf of the Board of Trustees, and in the absence of the Governor, presented the keys of the University to the Regent. He said, that, as one who had some responsibility for the location, he had come innocently to take part in the general rejoicing; but, having fallen into the hands of the Trustees, he had been sandwiched between two good addresses to fill the place of the Governor, who should have made the presentation, and whose absence all regretted. One idea he would like to enforce. The American Republic rested on the education of all. It was its theory and salvation. Every man in it belonged to the governing class. The education of the loyal people saved the Republic. By their duty to their country, and in memory of what they had suffered, they should join in welcoming with glad

shouts the incomming of the new day, when every man, everywhere, could seek just the sort of education he required.

Then, addressing Dr. Gregory, he said that no grander scheme of education had ever been inaugurated, than that of to day. He was sure that he would be found equal to the responsibility, and resting assured of that, would present him, on behalf of the State, with the symbols of authority.

JOHN M. GREGORY, LL. D., Regent of the University, then delivered the

INAUGURAL ADDRESS.

Gentlemen of the Board of Trustees, and Fellow Citizens of Illinois:

I should be something more or less than human not to feel the solemn pressure of this hour. From the outset, I comprehended both the greatness and the difficulty of the undertaking in which we are engaged. But, neither ought the greatness to appal, nor the difficulties to discourage us. Let them, rather, inspire to a nobler ardor, and urge to wiser and more determined efforts. The great enterprises of human civilization are not carried forward to their triumphant end by the play of children. They at once rouse and require the full-grown energies of strong men.

It is no ordinary work which we are set to do, and it comes to us under no ordinary conditions. We are not here to reproduce, in this new locality, some old and well known style of college or university. Nor are we permitted to sit down in quiet to invent, at our leisure, some new scheme of education, which, when settled to our own tastes, we may offer for public patronage, as a manufacturer offers a new fashioned piano or plough. No such easy task of leisure hours is allowed us. Hosts of earnest men are impatiently waiting to see how we will meet the great duty which the country has entrusted to us. The veteran advocates of industrial education are ready to scan, with keen vision, both our plans and our performances. The hungry eyes of toiling millions are turned, with mingled hope and fear, upon us, to see what new and better solution we can possibly offer of the great problems on which their well-being and destiny depend. We have good need to act wisely as well as earnestly, in the presence of this great host of interested spectators.

But it is not merely the voice of our fellow citizens which has called us to this work. The Age itself, invites us. Slowly, a great want has struggled into definite shape in the hearts of mankind. The demand has arisen for deliverance from the evils of ignorance and for a more fit and practical education for the industrial classes. It is labor lifting its Ajax cry for light to guide its toil, and illuminate its life. Daily the feeling grows stronger, that the old courses of classical study do not meet the new and increasing wants of the working world. The industries are steadily and rapidly becoming more scientific. They are no longer the rude, manual arts of the olden times. They have brought the mighty powers of nature to their aid, and seek to conform their labors to the great laws of matter and life. Agriculturist and artisan find themselves working amid great and significant phenomena, which only science can explain; and they have caught glimpses of possible triumphs in their arts which they may win, if they can be educated to the mastery of better processes and more scientific combinations. Hence the cry for the liberal education of the industrial classes. This demand, as we have heard to-day, (see Dr. Bateman's address) was rung by the eloquent voice of Prof. Turner and his colleagues throughout this State. I remember to have heard it echoing over the border, in a neighboring State. Agricultural Colleges, People's Colleges and Polytechnic Schools have sprung into existence in answer to this popular want, and even the old colleges

have yielded so far to the pressure as to admit scientific courses of study. The demand at length, made itself heard in the halls of Congress, and gained from the national representatives a munificent grant of public lands to found colleges for the industrial classes. A new era dawned. New institutions were to be organized, devoted to the industries, and having for their chief object, "the liberal and practical education of the industrial classes." The eyes of the nation have been turned towards the rising light, and vague, but mighty, hopes have gathered in the public mind. To us it is committed, here in Illinois, to realize these hopes. Rarely has a grander duty, nor, perhaps, a more difficult one, fallen to the lot of any body of men. We are the servitors of the age itself.

The great movements of the world are not the results of agitation; the agitation is, rather, the effect and evidence of the rising movement. Not the invention of any reformer, but the logical outcome of the progress of science and art, is this new demand for a higher and better education of the industrial classes. The rising light of a new era of science has stolen over the world. A wakeful few, standing on some favored eminence, caught, before their fellows, the illuminating rays, but no human hand could much hasten its dawning, nor hinder its progress. The earth itself, obedient to the celestial attractions, was slowly, but steadily and with resistless force, rolling its inhabitants into the light. Sleepy eyes may refuse to see it, or foggy stupidity may obscure its progress, but the day never goes backward. The sun of the new era will rise to the zenith. Its light and heat will re-vitalize the world. The institutions which it brings forth will live and flourish in spite of all storms which may greet their birth or oppose their beginnings. The great demand which created them will insure their continuance, and urge them forward to their triumph. Should they fail, at first, the public voice will demand *reconstruction*, not destruction. The people, once aroused, will not endure to be cheated of their hopes. Industrial education—education devoted to the improvement of the great industries of the world, and to the enlightenment of the industrial classes, which is, in its fullest and best sense, the education of the people—this is the logical end to which all popular movement marches. Thus, gentlemen, we ride the crest of a great tidal wave of popular want and popular will, and this wave must bear us resistlessly forward to our destiny and our crown.

Let me not, in this, be the least unjust to other and older institutions of learning. They, too, have felt, deep within their venerable halls, the rising pressure of this popular want, and they are responding to its cry, by attempting such modifications in their courses of study as may adapt them to meet the wants of practical men. It has become fashionable for men to decry the old colleges, as though they were wholly antiquated and useless in this swift and practical age, but no true men will thus decry them. All over the land, their graduates lead the van in the struggle to elevate and bless the race of man. In the war for the Union, their professors and students enlisted among the earliest and fought with the bravest for the salvation of their country. Even this movement for industrial education found its earliest, strongest and most ardent advocates among the men who had been trained to think and speak at the old altars of learning, and the movement would never have come to this hour but for the able advocacy and the determined efforts of men whom these very colleges reared up to power. We do not need to tear down others in order that we may take their places. Let these grand old institutions still go on with their work. Humanity owes them a great debt of gratitude for the light of learning shed by them o'er the homes and walks of men. But it is ours to organize a University wholly on this new and grand idea of education devoted to the practical industries of the world.

But though this University is thus the child of a great popular movement and is borne forward by the very tide of popular progress, it is not wholly without difficulties and dangers. Nay, let us not shut our eyes to the fact, more than ordinary perils surround it and obstacles of unwonted magnitude lie on its path. The very might of that great popular movement which bears us forward, threatens us always with catastrophe. He who navigates a torrent, will find abundant perils, however rapidly it may carry him on

to his purposed end. It is no unfit service, and certainly is a prudent one, for this opening hour of the public career of the University, to note some of the chief difficulties which lie in its way. Caution will arm itself with new prudence, and courage will rise to a loftier energy and determination, from a nearer and clearer view of the obstacles to be encountered and overcome. And, perhaps, thoughtless and impatient criticism may abate some of its arrogance, and captious fault finding, when it sees how beset with difficulties is your way, as Trustees, and how mighty is the problem with which you are called to grapple.

The difficulties which lie in the way of a successful inauguration and operation of an Industrial University are chiefly of two classes:

1st. Those which are found in the internal organization and working of the institution; and,

2d. Those which lie in its external relations and surroundings.

Those of the first class consist mainly in the difficulty of combining the theoretical and the practical in education, and in the further difficulty of uniting the several departments of practical instruction in the same institution. These difficulties are much greater than a casual or careless observer will suspect.

To secure a familiar knowledge and mastery of the sciences is a work both toilsome and time-consuming. To accomplish this in the weakness and imperfection of youth necessarily so absorbs the strength and occupies the time, that the most practical teacher is puzzled to find leisure, either for himself or his pupils, sufficient to allow him to train them in those quick and accurate perceptions, those prompt and familiar judgments, and that ready and skillful grasp and mastery of facts, formulas and forces which the practical applications of the sciences require. It is comparatively easy to load the youthful memory with the knowledge which has been wrought out by other minds, and to send our students forth to the encounters of life burdened, rather than armed, with the ponderous armor of some Saul of science. Education, under careless or unskillful teachers, always tends strongly towards this excessive use of mere verbal memory. It is much easier to learn and remember, than to investigate and think. But to link the scholarly study of truths and theories, the reasoning upon general laws, and the comprehension of sciences, in their completeness, with a practical mastery of their applications in the arts, is a work of double difficulty. Shall we simply teach the sciences without attempting to teach their practical applications, then we fall again into the error of the old schoolmen. Our science will be bookish learning. We have failed to forge the golden fetter which binds learning to labor. The industries will look in vain for skilled leaders from among our graduates. Shall we neglect all of science except its results, and grasping these by mere force of memory, give our whole attention to the processes of art? What is this more than the old apprenticeship? For science thus learned neither educates nor enlightens. Its possession would be an evanescent dream, and its influence a mere passing shadow.

Our problem requires us to unite scientific and art education—to make true scholars, while we make practical artisans, and to do this, not in one or two arts, but in the whole round of human industries.

But, great as are these internal difficulties, they are not insuperable. They may be met by a due union of patience and power. All the practical arts rest down on the great natural sciences, and every process of art is a scientific experiment. What we have to do is to combine, in some central and fundamental course of liberal education, these sciences in such measure and position that they may properly synchronize with and support the several art studies. And such is our plan. Our course in "Science, Literature and Art," is richly charged with the knowledges which underlie all the industrial arts, and these are so placed that all the special courses of instruction may grow from the central course, as branches grow from a supporting and nourishing trunk. We shall thus educate and teach at the same time. While we develop, we shall also direct; and the applications of science will help to give zest and power to the study of science.

The propriety and utility of an educational course in an institution designed to teach the practical arts has been severely questioned. As well question the value of the trunk and roots to the tree. It is the branches, indeed, that bear the desired fruit, but branches and fruit must alike wither if the trunk be girdled or the roots decay. Our only hope for a successful solution of our problem lies in this possible union of sound education and the practical study of the arts. To make educated farmers and mechanics, we must both educate and teach farming and mechanics. Let either factor be wanting and the product will never be attained.

But it is to the external difficulties which surround our work that I wish to give the chief consideration of this hour. These difficulties lie mainly in the crude, vague, and often contradictory and impracticable opinions which occupy, to some extent, the public mind in regard to these industrial schools.

In a country like ours, where the people are the repositories of power, and where the will of the people is the real constitution of the State, where the public opinion is so often the standard of right, and where the popular feeling is the "power behind the throne" to which all rulers and institutions must alike bow, the public approval is the guarantor of success, and the prevalence of hostile or even of dissentient opinions becomes a real, if not an insuperable obstacle to the triumph of new plans. The vague and unconsidered judgment which simply criticises and objects is often as fatal as the settled and intelligent opposing convictions of those who hold another theory, especially in matters in which the public mind has not been fully enlightened.

The Industrial University is peculiarly a child of the popular will. Designed to promote, by education, the industrial interests of the largest classes of the people, and challenging, on this very ground, popular sympathy and support, it is on these accounts more liable to be affected by the fluctuations of public sentiment regarding it than institutions of a less popular constitution. A thousand noble but vague hopes and aspirations will look here to find the help they crave; a thousand deeply felt needs of skill or power will turn to this University for their supply without knowing precisely how it is to be gained. Evils long endured will send up here their appeal for remedies. Fierce resentments against old wrongs or fancied wrongs, and still fiercer resolves in favor of cherished reforms or fancied reforms, will demand that these halls shall feed their hate or battle in their cause. Urged by such a variety of motives, and viewing the matter from such a diversity of standpoints, it will not be wonderful if an almost endless variety of plans shall be presented for our guidance.

Each theorizer will have some one or more favorite notions concerning education, and each will count his notion as of central value and importance, and will demand that the University shall be constructed on his idea as its chief corner stone. Unfortunately only one plan can be adopted, and its adoption will be the signal for a hundred men, of dogmatic turn, to shout that "a great mistake has been made." "The institution has failed of its great aim and purpose, and nothing but disaster can be expected till revolution shall come to right the wrong." The "mistake" is simply the failure to take their advice. The "purpose" lost sight of is their purpose, and the "disaster" is the loss of their approbation and patronage. They never seem to reflect that the adoption of their plans would have equally disappointed many others, perhaps, whose interest in the enterprise is equally great, and whose knowledge of its conditions may possibly be vastly greater.

This difficulty of conflicting views is one which is confined mainly to the outset of the enterprise. The success of the plans adopted will soon justify the wisdom of the Trustees, if it does not convert all friends of the University to their opinion. Success is its own argument and ends all debate.

A brief notice of two or three of the popular fallacies concerning these industrial schools founded by Congress, may help to enlighten honest inquiry, and to remove more speedily, hurtful errors.

1st. It is assumed by some that these institutions are specially designed for the education of the children of the industrial classes—the sons of farmers, mechanics, etc. If these sons are designing to follow the business of their fathers, then this conception is true; but if the farmer's sons are fitting themselves for doctors or lawyers, as is often their choice, then the University is not especially designed for them. If, on the other hand, the son of the lawyer, merchant, or preacher aims to become a scientific farmer, fruit-grower or mechanic, he will find here the precise instruction he needs. The University looks not to the parentage but to the purposed pursuits of its students. Its doors are open, indeed, to all, and the education it offers will be valuable in any pursuit or profession; but its great purpose is to give educated men to the industries.

Some have added to this mistake the notion that, since the University is designed, as they assume, to provide education for the farmer's children from the rural districts, it should give them the mere high school instruction which their district schools fail to give at home. I have been astonished to learn that one of the ablest and most prominent advocates of industrial education takes this view, and severely criticises the proposed courses of instruction because they do not come down to the capacity of common school children. Does he not see that public high schools are already provided in every county and in every village, even, at which these boys from the rural districts can find instruction of this sort much more conveniently and at much cheaper rates than the University can afford it? And does he not reflect that if the University should exhaust its teaching force in the attempt to provide instruction of this sort, it would prove but as a drop in the bucket for the hosts of this class, and that, while doing this, it must almost utterly fail to do the higher work required of it? Instead of a University devoted to the broad industries of a great State, it would become a mere academy or high school for one or two of the nearest counties.

2d. The more common and more troublesome forms of false opinion are those which relate to "practical education." The age is intensely practical. Its great triumphs in the practical arts have filled all minds and fired all imaginations. It scouts all knowledge and every form of education which does not promise immediate practical results. With Carlyle, it shouts, "the truth which holds good in working, cleave thou to that! All nature says, 'Yea, to that.'" Men, accustomed to quick and striking results, have grown impatient of the long periods of seed sowing and culture necessary to bring great mental harvests to ripeness.

And, certainly, when we remember the ages of wild and unproductive theorizings—the centuries which the intellect spent in dreams without results—we may well excuse the earnestness of the demand for practical tests of utility, and practical fruits of science. Not one whit too soon has this cry arisen, and none too earnestly is it pressed. The science which sheds no light on human pursuits, and the education which fits man for none of the great duties of his life are scarcely worth the attention of earnest men. The world has seen enough of the mere book learning which left the mind without power and the hand without skill. The age is too earnest, and the work men have to do is too real for such education as that which the old schoolmen gave their disciples. But what is practical? By what test shall we try it? To what products must it minister? Let us look more narrowly at these questions.

There are three great spheres of human industry:

First.—There is the work of the Discoverer. It is his to withdraw himself from active pursuits and to give himself to a close and patient study of the phenomena of nature. By powerful and searching analysis he penetrates to the bottom and roots of nature's facts; by high and sustained reflection he mounts to the summit and compass of her great kingdoms, and lays his grasp, at length, upon her statute books of universal and unchanging laws. He seizes upon the long coveted secret of her works and, like Prometheus of old, brings the stolen spark of celestial fire down to earth to warm and light the homes of men. Thus Newton discovered the law of gravitation; Galvani, the force we call galvanism; Harvey, the circulation of the blood; Cuvier, the types in the animal

kingdom; Franklin, the fact of aerial electricity; and Liebig, the chemical values of food. And thus many others are annually pressing into the great storehouses of nature's secrets, and bringing out its treasures to the aid of human arts.

The *second* sphere of industry is that of the Inventors. These workers take the great natural law, fact or force, revealed by the toil of the discoverer, and harness it into some labor saving machine, or deduce from it some new process of production. More numerous than the workers of the first class, these inventors are filling the world with their triumphs of art. The steamship, the sewing machine, the reaper and mower, and all the ten thousand implements and processes of useful art are the results of their toil. Often the discoverer is also an inventor, and not unfrequently the inventor has to take up the work of discovery, and develop or demonstrate the principle on which his machinery depends; but the two spheres must still remain forever distinct industries.

After the discoverers and inventors come the third great class of workers, the millions who, with stout hands and brave hearts, fill all the fields of productive toil with their practical power and skill. It is under their touch the soil yields its harvests, cities grow, shop and manufactory teem with rich products, commerce freights its ships and loads its cars, and world-transforming art puts forth all its power.

Now, of these three, which is the practical? or, rather, which is not practical? Without the Discoverer's work the Inventor would grope in darkness. Annually, hundreds of ingenious contrivances prove useless, because the law or principle they involve is misunderstood; and so art stands baffled at many a point waiting for the progress of scientific discovery to reveal some new and needed principle or force. And labor, stripped of the aids that invention has given it, would lose all its grand and wealth-producing power. The laborer would sink back into the ill-paid, ill-fed drudge of the barbarian age. To pronounce, then, that alone practical which lies next the last product, and which results in some material fruit, is to commit the blindest of follies. As well count the hand as the only practical member of the body, and cut off the head as a mere idle dreamer in the physical household.

Let us advance to a still higher stand and take a yet broader view of human effort. Besides the workers in physical things, there are those who work in the great realms of social and spiritual life—who culture the soul to higher power and arm it with finer sentiments, nobler purposes or higher and stronger resolves; who add to life new joys, to society new blessedness, and new values to all the forms of material wealth. Are not these, also, practical? Are not ideas possessions, as well as corn fields? Is not beauty a marketable quality, even in a horse? Is not the power to enjoy property as essential as the power to produce it? And is not an increase of motive power an essential condition to the increase of industry?

We repeat, then, to those who are so earnestly demanding that education shall be made practical, What is practical? Let us answer. Brains are practical. The most practical thing on earth is brain power—the power to see, reason and understand. In shop and field, in day labor or driving oxen, brain is better than brute force. As some writer has said, "brains are the best manure ever put on land." In peace or war it is not the heaviest battalions but the heaviest brains that win. And so that education is most practical which most develops brain power—power to perceive, judge and act.

It is true that knowledge is useful, and some knowledge is much more useful than others. If one desires to fish, it is desirable to know how to bait a hook. The knowledge of navigation is of great value to him who wishes to sail the seas. If it were possible to confine our sons to some one place and employment for life, then it might be practicable to select for them a course of the most useful knowledge. But life is so free in its movements, the avenues to business are so open and attractive, that no one can predict the career of a single youth. Trained as a physician, he becomes a farmer, an editor, a schoolmaster, and a Congressman, by turns. Oscillating from wealth to poverty and from poverty to wealth, he leaves his smoking firesides in a dozen States to mark his migrations across the continent. Even if he adheres to agriculture, how wide the diver-

sity of departments in which he may successively engage. Who then can foretell what knowledges he may require to guide him, and what will prove useless to him.

We do not mean to deny all differences in the practical values of knowledge, but we count that the most valuable which most stimulates and exercises the intellect. General principles are of more value than particular facts, and knowledge knit to practical applications arouses and interests more than analytical statements.

The main difficulty, however, which assails the University from this direction is the demand that one or another theorist will make, that studies which are favorites with them shall be admitted to prominent place, and studies which they dislike shall be scouted. It is fashionable with such men, in this age, to scoff at all linguistic studies, save some very simple study of the mother tongue. All attention given to foreign languages, and especially to ancient languages, is a waste of time. They would have our youths study things and facts, not mere words, forgetting that the mind admits nothing within it but ideas, and that words may express ideas as well, and often more clearly than things; and forgetting, likewise, that, while the study of things may train the eye to perception, the study of words is necessary to train the tongue to expression; and, finally, that languages and books must forever remain to us the chief avenue of knowledge, that in these art and science are constantly repositing and putting forth all their treasures of fact and thought.

But a more serious objection lies against these sticklers for their so-called useful knowledges. They are not the only parties to be consulted in the case. The young men who come here for education will have opinions of their own as to what they wish to study. Many of them will be men grown, and the youngest will have reached that period of opening manhood when the shadows of coming destinies and duties will have fallen upon them; and they will have begun to cherish aspirations and aims for themselves and to value studies in proportion as they regard them useful to their purposes. By what right shall any of us step in between these young men and their choice and say to them you shall not study this, or, you shall study that. The homely old saw might be found true here, "One man can lead a horse to the pond, but ten men can not make him drink." While we justly revolt against the old tyranny which compelled every seeker of liberal learning to study the classics, let us not establish a counter tyranny to decree that no one shall study the classics. Let our University offer to the ardent and aspiring young men of the State a full table spread with every form of human knowledge, and bid them freely to the feast. Courses of studies should be offered but as hints and guides to the undecided and inexperienced. The student who has clearly discerned his wants, and settled his course, ought to be left free to pursue his own chosen paths of learning.

And the success of our special courses will be best secured by such a plan. Years may elapse before the love of agriculture and other arts, or the faith in agricultural science will induce any large number of earnest and aspiring young men to resort hither for the purpose of studying for industrial pursuits, but let us open freely to them all the fountains of learning, and we may tinge these fountains as we will with industrial science and sentiments.

And it is but just to agriculture itself and to the industrial arts, that their students should be aided by all that refines or strengthens the mind, and that their educated representatives shall be the peers of the most soundly cultured men, in the scope and value of their learning. We have an ambition to send forth to the great industries of the world, not men who are puffed up by some little smatterings of science, but clear-headed, broad-breasted scholars, men of fully developed minds—fit leaders of those great productive arts by which the world's civilization is fed and furnished.

Time forbids the mention of all the forms of false opinion which lie across the path of our progress. Our best answer to them will be our success in the plans we have adopted. If these succeed, no opposition can harm us. If we fail, no silence of enemy or critic can help us.

Nor shall I detain you to notice now all the hindrances from popular zeal, which will demand fruit ere our tree can be grown; or popular distrust, which will ask us to prove our power before it will allow us any of its sons to educate; from partisan or sectarian hostility or prejudices; from the old-time pride which will recoil from the very name of an industrial school; and from the apathy which applauds but continues to neglect what it applauds. If our difficulties are confessedly great, our triumphs, when won, will be correspondingly great and momentous. A brief glance at the results which must follow our success will help to arm us for the fray and inspire us for our task.

1st. We shall effect the more formal and more perfect union of labor and learning. These two will be married in indissoluble bonds at our altars. The skilled hand and the thinking brain will be found compatible members of the same body. Science, leaving its seat in the clouds and coming down to work with men in shop and field, will find not only a new stimulus for its studies, but better and clearer light for its investigations and surer tests for its truths. And labor, grown scientific, will mount to richer products as well as easier processes. Thus, these two, Thought and Work, which God designed to go together, will no longer remain assunder.

2d. Labor itself will be elevated to honor. Lifted from under degradation and re-deemed from unnecessary drudgery; lighted by science to its useful triumphs, and grown artistic in its tastes and power, it will no longer remain the mere mindless forth-putting of muscular movement, but mount to the higher ideal of human activities, over-mastering brute matter, and compelling it to give up of its beauty, uses and strength for the comfort of the family of man.

3d. Labor will be made more productive. Not only will learning aid it to new inventions and teach it more productive processes, but educated leaders of labor will go forth from these halls to organize its scattered and wasted forces, and to teach it the great secret of co-operative power. And thus, though we can educate but a few of the great numbers of the industrial class, these few will scatter the benefits of the University to all. The West Point for the working world, its trained cadets will lead the bannered march of the millions as they climb the ascents of honor, wealth and higher life. The hard and unskillful toil of the world is thrice as much as is needed to produce its present results. Give this toil fit leaders and guides, and it may be greatly diminished in amount and yet doubled in product.

4th. Our national power and perpetuity will be greatly promoted. How often in the late war were we told that, "in national conflicts, the longest purse wins." And certainly that nation will be richest which has the most of skilled labor among its people. The toil of the ignorant slave is as poor in product as in price.

But the influence of educated labor on the perpetuity of national life may not be so obvious. History shows that the sure sign of national decadence and the certain prelude to national destruction is the growth of a spirit of idleness and luxury which relegates its labor to slaves and hirelings, and learns too late that muscular decay is the sure forerunner to mental imbecility. Nor need we go to effete or extinct nations to learn this serious truth. Among ourselves there is a constant revolution in progress. Individuals and families, energized and enriched by toil, are steadily rising from the lower ranks of society to take the place of those whose active brains, having exhausted the unrenewed muscular vigor of the stock, sink into effeminacy and so go down again to the bottom. "In the sweat of thy face shalt thou eat thy bread," is as true of nations as of individuals, and the nation that permits the industries to fall into contempt is next door to the ruin it deserves. A nobler and stronger nation will soon come to claim its place.

5th. But there remains a grander and broader triumph than all these. If we succeed, we shall demonstrate the practicability and point out the path of universal education. By the stern necessities of life, the great majorities of mankind must forever be found among the industrial classes. These constitute the great army corps—the heavy columns—the millions of the race. If now, labor is necessarily a drudgery and a degradation, it, as some economists of a Satanic school have affirmed, the elevation and ennobling of a

few will be at the expense of the many who must be content to remain in humble subordination, then the education of the masses is an idle dream. For to teach them simply to read and write is not education. Those whom labor perpetually degrades, learning can never successfully lift up. Our schools can only now and then stimulate one to escape at once from ignorance and from industry that he may attain education and idleness. "These must have perished, or I myself must have been lost," said an old Greek philosopher, as he gazed upon the ruined fields which he had neglected for the sake of his mind. "I myself am saved, and, therefore, these can not perish," will be the reply of the educated farmer. Let us but demonstrate that the highest culture is compatible with the active pursuit of industry, and that the richest learning will pay in a corn field or a carpenter's shop, and we have made universal education not only a possible possession, but a fated necessity of the race. Prove that education, in its highest form, will "pay" and you have made for it the market of the world. The light which has heretofore fallen through occasional rifts, and on scattered hill tops, will henceforward flood field and valley with the splendors of a noontime sun, and the quickened intellect of the race will bloom with new beauty and burst into a richer fruitage of industrial arts.

Such, gentlemen, are the prospects that should cheer us. Such are the ends for which we labor. Let the University you to-day inaugurate but fulfill its office, and the State itself will feel the benign influence of its work.

The choir and the audience then joined in singing "America," and the Rev. Mr. Riley, of Urbana, pronounced the benediction.

After the close of the exercises most of the audience repaired to the University dining hall below, where a plentiful and elegant repast had been provided by the ladies of Champaign and Urbana. The dinner was succeeded by toasts, sentiments and speeches, and the assemblage dispersed in great good humor.

CIRCULAR AND CATALOGUE
OF THE
OFFICERS AND STUDENTS
OF THE
ILLINOIS INDUSTRIAL UNIVERSITY,
URBANA, CHAMPAIGN COUNTY.

ILLINOIS INDUSTRIAL UNIVERSITY.

THE ILLINOIS INDUSTRIAL UNIVERSITY is located between the contiguous cities of Urbana and Champaign, Champaign County, Illinois, 128 miles from Chicago, on the Chicago branch of the Illinois Central Railroad.

It was first opened for the reception of students on Monday, the 2d day of March, 1868.

The Industrial University was founded by an act of the Legislature, approved February 28, 1867, and endowed by the Congressional grant of *four hundred and eighty thousand* acres of land scrip, under the law providing for Agricultural Colleges. It was further enriched by the donation of Champaign county, of farms, buildings, and bonds, valued at \$400,000.

The main University building is of brick, one hundred and twenty-five feet in length, and five stories in height. Its public rooms are sufficient for the accommodation of over four hundred students, and it has private study and sleeping rooms for one hundred and thirty. The cities of Champaign and Urbana, which are connected by a street railroad running past the University grounds, are well supplied with churches and schools, and will afford abundant facilities for boarding and rooming a large body of students.

The University domain, including ornamental and parade grounds, experimental and model farms, gardens, etc., comprises over one thousand acres of land.

AIMS OF THE UNIVERSITY.

The chief aim of the Industrial University, as expressed in the law of Congress, is "THE LIBERAL AND PRACTICAL EDUCATION OF THE INDUSTRIAL CLASSES in the several pursuits and professions in life." In order to this, it is required, under the Statute of Incor-

poration, “to teach, in the most thorough manner, such branches of learning as are related to Agriculture and the Mechanic Arts, and Military Tactics, without excluding other scientific and classical studies.” The hope of the Trustees and Faculty is that the Institution will produce scholars of sound learning, but also of practical sense and skill—men abreast with their times—men of christian culture, trained to affairs, and able and willing to lend a helping hand in all the great practical enterprises of this most practical age; and to be leaders, if need be, in those mighty industrial interests on which the social well-being and civilization of our country so much depend. It is also their aim and hope that the University shall contribute to the increase and diffusion of real science, and especially of that science which bears upon and promotes the useful arts.

STUDIES, AND COURSES OF INSTRUCTION.

Instruction will be provided in the following branches of knowledge and arts: In the English, French, German, Latin and Greek languages and literatures; in the several branches of Mathematical science, pure and applied, except common Arithmetic; in the physical sciences, Chemistry, Natural Philosophy, Botany, Zoology, Entomology, Physiology—animal and vegetable, Comparative Anatomy, Mineralogy, Meteorology, Geology, Astronomy, History—ancient and modern, Political Economy, Civil Polity, Rural Economy and Law, Rhetoric, Philology, Logic, Mental Science, Ethics, History of Science and Philosophy; also in Penmanship, Drawing, Composition, Elocution, and Vocal Music; in Agriculture, Horticulture, Fruit Growing, Landscape Gardening, Architecture, Military Tactics, Civil and Military Engineering, Mechanics, Mining and Metallurgy, Analytical Chemistry, and in some of the Mechanic Arts.

In order to systematize the instruction, and to guide students in their course, the following schools or departments of instruction are organized, or will be as soon as required:

- I. The Department of Science, Literature, and Arts.
- II. “ “ Agriculture.
- III. “ “ Mechanical Science and Art.
- IV. “ “ Military Tactics and Engineering.
- V. “ “ Mining and Metallurgy.
- VI. “ “ Civil Engineering.

- VII. The Department of Analytical and Applied Chemistry.
 VIII. “ “ Natural History, Practical Geology, etc.
 IX. “ “ Commercial Science and Art.

Students, regularly admitted, will be allowed to take such studies as they may choose, *provided* they are prepared to pursue the same successfully with the regular classes; and, *provided* that each student, unless specially excused, shall have at least fifteen regular lessons or lectures per week.

REQUIREMENTS FOR ADMISSION.

1st. Each student is required by law to be at least *fifteen years* of age, but it is believed that few will be found mature enough at this age to enter with the highest profit upon the studies of the University, and it is recommended, as a general rule, that students be at least eighteen years old before entering.

2d. The law also prescribes that “no student shall be admitted to instruction in any of the departments of the University who shall not previously undergo a satisfactory examination in each of the branches ordinarily taught in the common schools of the State.” In addition to these, candidates for any particular department will be examined in such studies as may be necessary to fit them to pursue successfully the course in that department.

For admission to the regular course in Science, Literature, and Arts, the student should be prepared to sustain an examination in Natural Philosophy, Physiology, Algebra, (Davies’ Bourdon or equivalent), Geometry (Davies’ Legendre or equivalent), Latin Grammar, Cæsar, Cicero’s Orations, Virgil’s Georgics, and Æneid.

These additional studies, though not positively required for admission to the other departments, are strongly recommended.

The chief aim of all examinations for admission to the University is to ascertain the student’s preparation to pursue successfully the studies of the course. Hence, thoroughness, and a general knowledge of the subject, will be accounted as of more importance than the amount studied. A student of earnest purpose and well disciplined mind will often pursue a new study more successfully than one of much more extensive preparation, but of less discipline and diligence. We are much more solicitous about the progress of the student after he enters, than about the preparation made before he enters, the University. Frequent and searching examinations will be held to test the progress made, and to deter-

mine each student's fitness to remain in the classes. The University cannot be held responsible for the lack of thoroughness in the common school studies of its students.

PREPARATORY CLASSES.

It is incompatible with the more appropriate and important work of the University to maintain a preparatory department; but to meet the exigencies of students not fully prepared, the Faculty will organize and instruct, during this first college year, classes in the preparatory studies, except the common school branches. When the higher classes shall be filled it will be impracticable to continue this preparatory work.

DEPARTMENT OF SCIENCE, LITERATURE, AND ARTS.

The studies in this department embrace those scientific and literary branches required for a liberal education, and which are important for the most successful study of the various industrial courses. The studies of the course have been arranged to come within four years, as follows :

FIRST, OR FRESHMAN YEAR.

REGULAR STUDIES.	OPTIONAL AND EXTRA.
1ST TERM—Trigonometry and Surveying.	
Structural Botany.	
Cicero de Senectute.	
French.	Greek.
2D TERM—Analytical Geometry.	
Systematic Botany.	
Odes of Horace. French.	Greek.
3D TERM—Systematic Botany.	
Descriptive Geometry and	Greek.
Geometrical Drawing.	
Satires of Horace. French Literature.	

SECOND, OR SOPHOMORE YEAR.

1ST TERM—Calculus.	
Chemistry. Zoology.	Tacitus—Annals.
German.	Greek.
2D TERM—Chemistry.	
Entomology, etc.	Tacitus.
Physics—Mechanics.	Greek.
German.	
3D TERM—Mineralogy.	
Physics—Rhetoric.	Chemistry.
German Literature.	Cicero de Oratore.

THIRD, OR JUNIOR YEAR.

	REGULAR STUDIES.	OPTIONAL AND EXTRA.
1st TERM—	Astronomy.	
	Geology.	Ancient History.
	English Literature.	
2d TERM—	Geology.	
	Modern History.	Astronomy.
	Meteorology.	English Literature.
3d TERM—	Logic.	
	Physical Geography.	English Literature.
	Modern History.	Butler's Analogy.

FOURTH, OR SENIOR YEAR.

1st TERM—	Mental Philosophy.	
	Political Economy.	Science of Education.
	Elements of Criticism.	
2d TERM—	Moral Philosophy.	
	History of Civilization.	Social Science.
	Civil Polity. Constitution of U. S.	Evidences of Christianity.
3d TERM—	History of Philosophy.	
	Modern Philology.	
	Constitutional Law.	
	History of Inductive Sciences.	

DEPARTMENT OF AGRICULTURE.

The studies in this department will be arranged ultimately in two courses :

1. The course in General Agriculture.
2. The course in Horticulture, Fruit Growing, and Landscape Gardening.

The aim of these courses will be to fit Students to manage successfully, for themselves or others, agricultural and horticultural estates and enterprises. The studies will be pursued partly by lectures, accompanied by courses of reading and examinations, and partly by the regular study of text books. Practical exercises and experiments on the farm, and in the gardens, nurseries, and fruit plantations, will constitute a part of the course.

The following conspectus of Agricultural and Horticultural science and art, exhibits a general view of the field designed to be covered by the instruction in these two courses :

CHOICE OF FARM.	}	With reference to Markets.	
		With reference to Climate and its local modifications.	
ARRANGEMENT.	}	With reference to Soil and Subsoil and Slopes.	
		Sub-divisions into Fields, or Farms of different cultures.	
	}	Sites of Farm buildings.	
FARM STRUCTURES.		{	Fences. ....	Live; as Hedges. Wood; Boards; Rails; Paling. Stone; Wire.
	}	{	Farm House; Dairy House. Barns; Ricks; Cribs, etc., for grain, hay, etc. Cellars; Fruit Houses, etc. Cattle Barns; Stables, etc. Conservatories, Green Houses, Hot Houses, etc. Pens; Styes, etc., for sheep and swine. Hennery; Bee House, etc.
		}	Buildings.
FARM IMPLEMENTS. ROADS AND BRIDGES.			
SOILS.	}	{	Elements. Classification Peaty.
		{	Mineral. Vegetable. Animal. Argillaceous or Clayey. Silicious or Sandy.
		{	Cultivation and Improvement. By Chemical Agents. ... By Mechanical Agents. ... By Fallowing. By Rotation of Crops.
			(Mineral manures. Organic.—Animal; Vegetable. Manurial green crops. Draining. Subsoiling. Plowing; Dragging; Rolling.
SUBSOIL.	Elements, Classification, Treatment.		
FERTILIZERS.	}	Chemical Composition.	
		Manufacture, Compost.	
		Preservation.	
		Modes of Application.	

PLANT CULTURE.

USEFUL.....	{	Grass Crops	{ Pastures	Pasture grasses.	}	Structure, Physiologi. Chemical Composition. Vegetable tissues. Varieties. Habits and Diseases. Insects.		
			{ Meadows.....	{ Cutting grass. Curing. Handling and Pressing.				
		Grain Crops.....	{ Corn.....	{ Varieties. Planting and Cultivating. Harvesting and Preserving.				
			{ Wheat; Rye. Barley; Oats. Buckwheat.	{ Varieties. Sowing and Cultivation. Harvesting, Threshing and Preserving				
			Root Crops.	{ Potatoes. Sweet Potatoes. Turnips, Beets, Carrots, etc.			}	PRODUCTS. Starch, Sugar, etc., Flour, etc., Cider, Wine, etc., Dyes, Acids, Essences, Medicines.
				Textile or Fibrile Crops.					{ Flax; Hemp; Cotton.
Cucurbitaceous Crops ..	{ Pumpkins; Melons, etc.							
Trees	{ Forest and Fruit.							
Broom Corn; Willow Bushes, Vines, etc.								
WEEDS.....	{	{ Classes; Habits. Uses; Products. Modes of Extermination.		}				
PROPAGATION AND IMPROVEMENT.....	{	{ Seeding. Hybridizing. Transplanting. Cutting; Layering. Pruning. Inoculating; Grafting.		}				

ANIMAL HUSBANDRY.	{	DOMESTIC.....	{ Horses, Mules, etc. Working Cattle. Milch Cows. Sheep, Swine. Poultry, Bees.	} { Breeds and Varieties. Structure and Physiology. Animal Tissues, Chemistry. Qualities; Speed; Strength; Fattening; Milking, etc Habits and Diseases. Products.
		NOXIOUS.	{ Insects. Reptiles. Birds. Mammals.	} { Classes. Values. Habits. Extermination.
		STOCK RAISING.....	{ Breeding and its Principles. Care of Young. Feeding for fat, milk, work. Training.	
VETERINARY SURGERY AND MEDICINE.				
RURAL LAWS, HISTORY, LITERATURE AND ECONOMY OF AGRICULTURE.				

These studies will be arranged in a course occupying three years, as follows :

FIRST YEAR.

THE FARM—Its measurements and mapping ; sub-divisions—meadows, pastures, orchards, woodlands, gardens, etc. Fences, hedges, farm buildings. Soils—classification and mechanical treatment of soils, plowing, etc. Drainage. **PLANT CULTURE**.—Structure and Physiology of plants ; classes of the useful plants, their characteristics, varieties, habits, and values. Wheat culture, maize culture, grass culture, root culture, fruit culture begun, apples, pears, peaches, etc.

COLLATERAL STUDIES.—English language and composition, surveying, drawing, botany, French language and literature.

SECOND YEAR.

THE FARM.—Chemical elements and chemical treatment of soils. Fertilizers—their composition, manufacture, preservation and application. Climate, influence of light, heat, and electricity, on soils and vegetable growth. **FARM IMPLEMENTS**.—Principles of structure and use. Road making.

FRUIT CULTURE.—Modes of propagation, production of new varieties, diseases of fruit trees. Insects injurious to vegetation.

ANIMAL HUSBANDRY.—Breeds and varieties of neat cattle, horses, sheep, and swine. Principles of breeding, rearing, training, fattening, etc. Chemical composition of food, and preparation of the several varieties. Sheep husbandry ; poultry ; bees.

COLLATERAL STUDIES.—Mechanics, chemistry, zoology, entomology, mineralogy, German language and literature.

THIRD YEAR.

AGRICULTURAL ECONOMY—Relation of Agriculture to the other industries and to commerce. The several branches of Agriculture. Agricultural book-keeping, the farm book, herd book, etc. **RURAL LAW**—of tenures and conveyances of land, of highways, of cattle, of fences, of noxious weeds, etc. Veterinary surgery and medicine. Landscape gardening, and laying out of large farming estates. Rural Architecture and Engineering, Foreign Agriculture, History and Literature of Agriculture.

COLLATERAL STUDIES.—Geology, Meteorology, Physical Geography, Inductive Logic, Political Economy, History and Civil Polity, English Literature.

DEPARTMENT OF MECHANICAL SCIENCE AND ENGINEERING.

The studies of this course will also occupy three years, and will embrace the following branches and topics :

MATHEMATICS—Trigonometry, plain and spherical. Descriptive Geometry and geometrical drawing. Analytical Geometry, Conic Sections, and Differential Calculus.

PHYSICS—Properties of Matter, Laws of Motion, Forces, Mechanics of Solids, Liquids, and Gases. Laws of sound, of light, of heat.

ANALYTIC AND APPLIED MECHANICS.—Strength of materials. Theory of machines, and principles of Mechanism. Estimates of rigidity and friction, and of the useful

effect of Machines. Construction and Calculation of Strength and Proportion of Parts of Machines, Hand Machinery, Hydraulic Motors, Steam Engines, Horse powers, Hot Air and Gas Engines. Construction and arrangement of machinery in Mills for various manufactures.

CHEMISTRY—Elementary, and applied.

Botany, Zoology, Geology, Mineralogy, Meteorology.

English, French and German languages. History, Philosophy, etc.

DRAWING.—Elementary, geometrical, and free hand. Drawing of Machines. Principles of Perspective. Lights and Shadows. Coloring and Theory of Colors. Architectural drawing, plans, elevations, perspective views, working plans, etc.

ARCHITECTURE.—Its principles and styles. Principles and modes of warming, ventilation, etc.

Carpentry, and principles involved in the several trades.

The University already has one shop; and students, during the past term, have been employed to some extent in practical mechanics. It is hoped that other buildings and facilities for practical instruction will soon be added, so that students may be enabled to acquire some skill in the use of tools, in the construction of models, and in the management of motor powers.

The candidates for this course must be prepared to sustain an examination in the branches required by law, and in Algebra and Geometry.

THE DEPARTMENT OF MILITARY SCIENCE.

The course of instruction in this department will embrace the study of Tactics in the various arms, both of the Company and Battalion, Grand Tactics, and Military Engineering, including principles of fortifications, siege works, and gunnery. The studies of the course, and the collateral studies, will be arranged as fast as the wants of the department shall require it.

All of the students wear a uniform, and a military drill is held three times a week, or oftener.

Candidates for the course in Military Engineering must sustain the same examinations as those required in the Mechanical Department.

The Departments of Mining and Metallurgy, and of Civil Engineering, will embrace the studies usual in such departments, and these studies will be arranged in courses as soon as they shall be required. The instruction will comprehend a full set of field exercises with instruments, and excursions to mines, public works, etc.

The Department of Analytical and Applied Chemistry will embrace a full course of instruction in Analytical Chemistry, both qualitative and quantitative, analysis of soils, of animal and vegetable substances, and of minerals, together with the study of chemistry applied to the arts. It will include also a full course of laboratory practice, and such collateral branches of knowledge as may be important or useful.

The Department of Natural History and Practical Geology will embrace such courses of instruction as will fit students to become explorers, and collectors or curators of scientific collections, to conduct geological explorations and surveys, or to serve as teachers, or experts, in these departments of knowledge. The course will include practical excursions and surveys, the collection and preservation of specimens, the practical work in the laboratory and cabinets, and the drawing, sketching, etc., necessary for illustrations.

THE COMMERCIAL DEPARTMENT.

The course in this department is designed to fit students to become practical accountants, and successful agents and managers of commercial enterprises. It will embrace a full course of instruction in Book-keeping in its various books and most improved forms, equal in every respect to that given in the best Commercial Colleges. It will also include a thorough study of all such branches of knowledge as will cast light upon the great phenomena and laws of business and traffic, domestic and foreign; upon the laws of production, exchange, markets, and currency; and commercial law, commercial usages and history, together with such other scientific, literary, and philosophical studies as may be useful to develop the mind and practical talent. It is hoped that at an early day this Department of the University may be fully developed, and an institution of solid worth, rather than of mere splendid pretension, may be opened to young men who wish to fit themselves for the arduous and riskful responsibilities of the merchant and business man.

The course in Book-keeping will be opened at once, and the full course will be developed as soon as the wants of students shall demand it.

LECTURE COURSES.

It is a part of the plan of the University to provide courses of lectures in special departments of knowledge and art. These lectures will be given by regular members of the Faculty, or by eminent scholars and authors whose services may be secured for this purpose. Dr. John A. Warder, the eminent American pomologist, has already accepted an appointment, and will deliver, during the winter term, a course of lectures on fruit growing, etc. Rev. Edward Eggleston, an eminent writer and editor, is also under appointment as lecturer on English Literature, and negotiations are in progress to secure other lecturers.

A weekly lecture is delivered to all the students, on manners, formation of habits and character; on the conditions of health, happiness, and success in life; on the general duties and affairs of life; on methods of study, courses of reading, etc.

AGRICULTURAL LECTURE SESSION.

It is also in contemplation to hold at the University, during the winter, a lecture session of two weeks, for several courses of lectures on the several branches of Agricultural and Horticultural science, to be delivered by gentlemen of eminent acquirements and experience in these departments. Due notice of the time of this course will be given. It is hoped and expected that these lectures will bring together a large number of the practical farmers and fruit growers of this and adjoining States, and that discussions of great value will follow the several lectures. Arrangements will be made to provide board at reasonable rates, and comfortable quarters, for as many as may attend.

APPARATUS OF INSTRUCTION.

A costly set of philosophical and chemical apparatus has just been received from the celebrated manufactory of E. S. Richie & Son, Boston, and large additions will be made at an early day. Rooms are set apart for a good working laboratory for the students in analytical chemistry, which will be fitted up under the direction of the Professor in Chemistry.

Valuable collections have already been secured for cabinets, in Mineralogy, Botany, Conchology, Geology, Palæontology, and in

several departments in Zoology ; and Prof. Powell, of the Chair of Natural History, is now absent in charge of a scientific expedition to the region of the Colorado of the North, making additional collections.

The illustrative apparatus in the Departments of Agriculture is designed to be very full and complete. The University owns over one thousand acres of improved farming lands, equal to any in the State. Forty acres are set apart for gardens, nurseries, and specimen orchards. The remainder are to be used for experimental and stock farms, orchards, arboretums, etc. Through the liberality of manufacturers, the University is rapidly accumulating a collection of agricultural implements ; and cabinets and drawings of specimen fruits, vegetables, etc., will be added as fast as practicable. The ornamental grounds around the building already contain a large variety of evergreens and flowering plants.

A collection of maps, charts, models, and engravings, is also begun, and is being steadily increased by donation or purchase.

THE LABOR SYSTEM.

Practice in some form, and to some extent, is indispensable to a practical education. It is the divorcement of the theoretical and practical which renders so much of education mere "book learning." To guard against this fatal defect, the trustees have directed that the manual labor system shall be thoroughly tried, and all students who are not excused on account of physical inability are required to labor from *one to three* hours each day, except Saturday and Sunday. During the Spring term the labor occupied two hours each day. During the Autumn it will occupy less rather than more time.

The students go out in squads, under their military officers, and under the general supervision of members of the Faculty.

The labor is designed to be educational, and to exhibit the practical applications of the theories taught by the text books and in the lecture room. Thus far it has been popular among the students, several attributing to it the preservation of their health through a long term of severe study. They accomplished, altogether, a large amount of valuable work, and were proud to point to the grounds, fenced, planted with trees, and ornamented by their own labor. It was found to facilitate, rather than hinder

study, and afforded a much more valuable means of physical culture than any system of gymnastics.

The labor is compensated in proportion to the ability and fidelity of each laborer, the maximum compensation being eight cents an hour. Many students voluntarily worked over hours, and received for such overwork twelve and a half cents an hour. The experience of the term tended to confirm the belief that this union and alternation of mental and muscular effort will not only give the "sound mind in a sound body," but will help to produce educated men who will be strong, practical, and self-reliant, full of resource, and practical in judgment, the physical equals of the strongest, and the mental peers of the wisest; redeeming higher education from the odium of puny forms and pallid faces, and restoring the long lost and much needed sympathy between educated men and the great industrial and business classes.

It is not expected that all prejudice against work will disappear at once, or that labor will at once assume for all, its position of native dignity and honor; but we may confidently hope, if our increasing numbers do not render it impracticable to furnish profitable employment, finally to overcome the strongest prejudices, and render the labor system one of the most popular features of the University, with the public as well as with the students themselves.

THE UNIVERSITY UNIFORM.

Under the authority of the act of incorporation the Trustees have prescribed that all the students shall wear the University uniform. This uniform consists of a suit of cadet-gray mixed cloth, of the same color and quality as that worn at West Point, and manufactured by the same establishment.

The coat is a single-breasted frock, buttoned to chin, with standing collar, and a trimming of black mohair cord on shoulders, in loops. The vest is also single-breasted, buttoned to chin, with standing collar. Buttons for coat and vest are manufactured purposely for the University. They are gilt, of medalion style, the design being a sheaf of wheat surrounded with the words, "Illinois Industrial University." The pants have a welt of dark blue in the outside seams. The suit is a very tasteful dress, and is substantial and enduring. An arrangement has been made with responsible parties to furnish the suits to students at twenty-seven

dollars each. Students can procure them ready made on their arrival here.

The University cap is of dark blue cloth, and ornamented with the initials I. I. U., surrounded by a silver wreath in front.

The arms and equipments used in the drill are furnished by the State.

Students will wear their uniform always on parade, but in their rooms, and at recitation, may wear other clothing. An army blouse, or fatigue dress, will be furnished at low rates to those that want it.

HONORARY SCHOLARSHIPS.

The Legislature prescribed that one Honorary Scholar shall be admitted from each county in the State. These scholarships, which are designed "for the benefit of the descendants of soldiers and seamen who served in the armies and navies of the United States during the late rebellion," entitle the incumbents to free tuition. The Trustees have also authorized the Faculty of the University to remit the tuition of worthy young men whose circumstances are such as to require this aid.

PRIZE SCHOLARSHIPS.

A movement has been started to secure in each county of the State the endowment of a Prize Scholarship, with a permanent fund of \$1,000 for each. The plan contemplates that the income of this fund shall be annually awarded to the best scholar from the public schools of the county, who shall present himself as a candidate for the University. The scholarship shall be determined by a competitive examination, to be held in each county, under the direction of the Regent of the University and the State Superintendent of Public Instruction. The examinations will be held the first Friday in September, or at such time and place as the County Superintendent of Schools may appoint. Honorary scholars will be examined at the same time. Only a few of the counties have as yet provided for the prize scholarship, but it is hoped that a prize of greater or less amount will be provided in each county in which a worthy candidate shall be selected.

STUDENTS' DORMITORIES AND BOARD.

There are in the University building about sixty-five private rooms for students, which are rented to the students who first apply. Each room is designed for the accommodation of two students. These rooms are fourteen feet long and ten feet wide. They are without any furniture, it being deemed best that students shall furnish their own rooms. It is earnestly recommended for health's sake that each student have a separate bed. A narrow bedstead and mattress, with suitable clothing, should be provided by each. A study table, chairs, and a small coal stove, may be provided in common by the occupants of a room.

There is a boarding hall in the University building, where good board is provided at the lowest practicable rates. These rates will not exceed \$3 50 per week. Good private boarding houses are already springing up around the University, where either day board, or board and rooms can be obtained, with the advantages of the family circle. Several students have provided themselves with meals in their rooms at an expense varying from \$1 to \$1 50 per week.

To avoid unnecessary litter about the grounds, coal is purchased by the University at wholesale, and furnished to students at cost.

TERMS AND VACATIONS.

The college year is divided into three terms of twelve weeks each. The work of the term will in all cases commence on Monday morning, and students who fail to be present at the opening will be expected to make up, by private study, every lesson which may have been passed over by their classes. Examination of new students will be held the Saturday preceding the opening of the term.

The only vacations are, the holiday recess, including Christmas and New Year's, a vacation of one week between the winter and spring term, and the long vacation at the close of the third term.

The calendar for 1868-9 will be as follows :

First term opens Monday, Sept. 14; closes Friday, Dec. 4.

Second term opens Monday, Dec. 7; closes Friday, March 5, 1869.

Third term opens Monday, March 15; closes Friday, June 4.

Holiday recess from December 24 to January 2, 1869.

Spring vacation from March 6 to March 15.

EXPENSES.

Tuition to Illinois students.....	\$15 00 per annum.
Tuition to foreign students.....	20 00 “
Fee for incidentals.....	2 50 per term.
Room rent for each student.....	4 00 “

Room rent is only charged to students who room in the University building.

Each student is required to pay a Matriculation fee of \$10 on first entering the Institution. This entitles him to membership till he completes his studies.

Honorary and Prize Scholars pay no tuition fee, but pay all other fees.

All bills due the University must be paid, and the Treasurer's receipt be shown to the Regent, before the student can enter the classes. Students boarding in University Hall will be required to deposit with the Steward \$10 each, to apply on their board bills at the close of the term.

The annual expense of a residence at the University, exclusive of books and clothing, will be nearly as follows:

Tuition, room rent, and incidentals, from.....	\$34 50 to \$39 50
Board in Hall.....	108 00 to 126 00
Fuel and lights.....	10 50 to 15 50
Washing, 75c. per dozen.....	10 00 to 15 00
Total.....	\$163 00 \$195 00

Many young men reduce the expense to within \$100 a year, and pay this by their labor during the year. It ought to be known that *any young man can pay his way through college* who is willing, for the sake of an education, to practice steadily the virtues of industry and economy.

GOVERNMENT.

The University is designed for *men*, not *children*, and its government rests in an appeal to the manly feeling and sense of honor of its students. It has but one law, and that is, "Do RIGHT." If any student shall show himself so weak or corrupt that he can not, when thus treated, refrain from vicious conduct, he will receive permission to leave the institution, where his presence can only injure others, without being of any benefit to himself. But no

pains will be spared to counsel the inexperienced, to admonish the careless, and to save the tempted. Especially will it be an object to establish and maintain that high toned, refined, and honorable public sentiment, which is at once the best safeguard against meanness and vice, and a constant inspiration to nobleness and virtue.

LITERARY SOCIETIES.

Two Literary societies have already been organized by the students—the Philomathean, and the Adelpic—and measures are being taken by each to secure libraries.

DONATIONS.

Acknowledgements are due to the following gentlemen for valuable donations to the University :

- L. Vandesyde, Calumet, 1 set reed mats.
- Emerson & Co., Rockford, 1 Jones' hand corn planter.
- Fuller, Palmer & Co., Chicago, 50 sash, for garden use.
- R. S. Wheatley, DuQuoin, 1 subsoil and garden plow.
- Barlow, Wood & Co., Quincy, 1 Vandiver's corn planter, with drill attachment.
- Furst & Bradley, Chicago, 1 walking cultivator.
- Clark & Utter, Rockford, 1 Gorham seeder and cultivator combined.
- Wm. Lintner, Decatur, 1 farm pump.
- J. J. Inglehart, Matteson, 1 Granger patent rotating harrow.
- Hibbard & Finch, Champaign, 1 two-horse cultivator, Frazier's patent, and 1 Kalamazoo three-horse clevis.
- Robert Douglas, Waukegan, collection evergreen seeds.
- S. Wilbur, Momence, duplicate collection flower seeds.
- D. M. Ferry & Co , Detroit, Mich., collection flower and garden seeds, also 1 package Behr wheat, imported from Egypt.
- T. W. Lachore, Blue Island, 2 wheel hoes.
- B. Dornblazer, Joliet, 1 Hoosier riding or walking cultivator, and 1 double shovel plough.
- J. C. Wilson. Crete, 1 patent rotary harrow.
- Phoenix, Bloomington, 100 rose bushes, and collection of flowering shrubs and bedding plants.
- Edgar Sanders, Chicago, 100 select bedding plants.
- P. S. Merevale, Chicago, 1 Allen's Weeder, 1 hexamer pronged hoe.
- Joseph Mainhofer, Ottawa, 1 Messenger, or Gopher cultivator, with extra shares.
- John Deere, Moline, 1 improved P. P. plow.
- O. M. Railsback, Champaign, 300 select green-house and bedding plants.
- Jacob Strayer & Co., South Bend, Ind., 1 Statesman force feeding grain drill, grass sower and surveyor.

- Fairbanks, Greenleaf & Co., Chicago, 1 set of grocer scales, 1 set counter scales discount on hay scales, \$75.
- H. C. Rector, Champaign, 1 Blum's patent plow and cultivator.
- M. A. & J. M. Cravath, Bloomington, 1 revolving cultivator and hilling machine.
- M. Dorsett, Chicago, 1 model straw rick, with ventilating tube for preserving hay or grain, and movable roof.
- M. Cochrane, Architect, 1 fine colored lithograph of new State Capitol.

APPENDIX.

BOARD OF TRUSTEES.

MEMBERS EX-OFFICIO.

HON. RICHARD J. OGLESBY, *Governor.*

HON. NEWTON BATEMAN, LL. D., *Sup't of Public Instruction.*

HON. A. B. MCCONNELL, *President State Agricultural Society.*

JOHN M. GREGORY, LL. D., *Regent of University.*

MEMBERS APPOINTED BY THE GOVERNOR AND SENATE.

Name.	District.	Post Office.	County.
Lemuel Allen.....	8th Congressional.....	Pekin.....	Tazewell.....
Alexander Blackburn.....	9th Congressional.....	Macomb.....	McDonough.....
Mason Brayman.....	2d Grand Judicial.....	Springfield.....	Sangamon.....
A. M. Brown.....	13th Congressional.....	Villa Ridge.....	Pulaski.....
Edwin Lee Brown.....	3d Grand Judicial.....	Chicago.....	Cook.....
Horatio C. Burchard.....	5th Congressional.....	Freeport.....	Stephenson.....
J. C. Burroughs.....	3d Grand Judicial.....	Chicago.....	Cook.....
Emery Cobb.....	3d Grand Judicial.....	Kankakee.....	Kankakee.....
J. O. Cunningham.....	2d Grand Judicial.....	Urbana.....	Champaign.....
M. L. Dunlap.....	7th Congressional.....	Champaign.....	Champaign.....
Samuel Edwards.....	5th Congressional.....	LaMoille.....	Bureau.....
Willard C. Flagg.....	12th Congressional.....	Alton.....	Madison.....
O. B. Galusha.....	6th Congressional.....	Morris.....	Grundy.....
M. C. Goltra.....	10th Congressional.....	Jacksonville.....	Morgan.....
David S. Hammond.....	1st Congressional.....	Elgin.....	Kane.....
*George Harding.....	2d Grand Judicial.....	Paris.....	Edgar.....
S. S. Hayes.....	3d Grand Judicial.....	Chicago.....	Cook.....
J. P. Hingate.....	11th Congressional.....	Louisville.....	Clay.....
John S. Johnson.....	4th Congressional.....	Warsaw.....	Hancock.....
Luther Lawrence.....	2d Congressional.....	Mt. Sterling.....	Brown.....
Isaac W. Mahan.....	1st Grand Judicial.....	Centralia.....	Marion.....
L. B. McMurray.....	1st Grand Judicial.....	Effingham.....	Effingham.....
J. H. Pickrell.....	2d Grand Judicial.....	Harristown.....	Macon.....
Burden Pullen.....	1st Grand Judicial.....	Centralia.....	Marion.....
Thomas Quick.....	1st Grand Judicial.....	Irrington.....	Washington.....
J. W. Scroggs.....	2d Grand Judicial.....	Champaign.....	Champaign.....
†Charles H. Topping.....	1st Grand Judicial.....	Anna.....	Union.....
John M. VanOsdel.....	3d Grand Judicial.....	Chicago.....	Cook.....

*Deceased.

†Resigned.

OFFICERS AND COMMITTEES OF BOARD OF TRUSTEES.

PRESIDENT.—JOHN M. GREGORY, LL. D.

CORRESPONDING SECRETARY.—WILLARD C. FLAGG.

RECORDING SECRETARY.—JONATHAN PERIAM.

TREASURER.—JOHN W. BUNN, Springfield.

Executive Committee.—J. M. Gregory, *ex officio*, E. Cobb, J. O. Cunningham, M. C. Goltra, I. S. Mahan, B. Pullen, Thos. Quick, J. M. VanOsdell, *Geo. Harding.

Finance Committee.—Emery Cobb, J. O. Cunningham, J. H. Pickrell, H. C. Burchard, *Geo. Harding, and the Regent.

Committee on Faculty and Studies.—The Regent, N. Bateman, M. Brayman, W. C. Flagg, S. S. Hayes.

Auditing Committee.—L. W. Lawrence, S. Edwards, O. B. Galusha, H. C. Burchard A. M. Brown.

Committee on Building and Grounds.—M. C. Goltra, J. O. Cunningham, J. M. Van Osdell, J. S. Johnson, A. B. McConnell, and the Regent.

Committee on Agricultural Department.—Thomas Quick, J. H. Pickrell, L. Allen, A. Blackburn, L. B. McMurray.

Committee on Horticultural Department.—B. Pullen, M. L. Dunlap, W. C. Flagg, O. B. Galusha, Samuel Edwards.

Committee on Mechanical Department.—J. W. Scroggs, M. C. Goltra, E. L. Brown, J. M. VanOsdell.

Committee on Military Department.—M. Brayman, T. Quick, L. W. Lawrence, M. L. Dunlap.

Committee on Library and Cabinet.—The Regent, W. C. Flagg, N. Bateman, A. M. Brown, J. S. Johnson.

*Deceased.

OFFICERS AND INSTRUCTORS.

JOHN M. GREGORY, LL. D.,
REGENT AND PROFESSOR OF PHILOSOPHY.

WILLIAM M. BAKER, A. M.,
PROFESSOR OF ENGLISH LANGUAGE AND LITERATURE, AND INSTRUCTOR IN NATURAL
PHILOSOPHY.

GEORGE W. ATHERTON, M. A.,
PROFESSOR OF HISTORY AND SOCIAL SCIENCE, AND INSTRUCTOR IN LATIN.

J. W. POWELL, M. A.,
PROFESSOR OF NATURAL HISTORY AND GEOLOGY.

WILLARD F. BLISS, M. A.,
PROFESSOR OF AGRICULTURE, AND INSTRUCTOR IN FRENCH.

A. P. S. STUART, M. A.,
PROFESSOR OF THEORETICAL AND APPLIED CHEMISTRY.

*PROFESSOR OF MATHEMATICS.

THOMAS J BURRILL,
ASSISTANT PROFESSOR OF NATURAL SCIENCE.

COL. S. W. SHATTUCK, M. A.,
ASSISTANT PROFESSOR OF MATHEMATICS, AND INSTRUCTOR IN MILITARY TACTICS.

JONATHAN PERIAM,
HEAD FARMER AND SUPERINTENDENT OF PRACTICAL AGRICULTURE.

CAPT. EDWARD SCHNEIDER,
INSTRUCTOR IN BOOK KEEPING AND IN GERMAN.

NON-RESIDENT PROFESSORS.

JOHN A. WARDER, M. D., CINCINNATI,
LECTURER ON VEGETABLE PHYSIOLOGY AND FRUIT GROWING.

EDWARD EGGLESTON, M. A., CHICAGO,
LECTURER ON ENGLISH LITERATURE.

*This Professorship is expected to be filled immediately.

CATALOGUE OF STUDENTS.

SPRING TERM OF 1868.

Names.	Residence.		Nativity.
	City.	County.	
Edwin Fletcher Abbott	Centralia	Marion	Wisconsin
Benton Alfred	Urbana	Champaign	Illinois
Charles Edward Allard	Roseclare	Hardin	Indiana
Wilbur Clinton Alwood	Bement	Piatt	Mass.
David Bailey	Champaign	Champaign	Illinois
Herbert Ozias Barber	Rantoul	Champaign	Canada E.
Delenson Elroy Barnard	Kankakee	Kankakee	Indiana
Joseph T. Beasley	Champaign	Champaign	Indiana
Louis Henry Beidler	Champaign	Champaign	Illinois
George W. Brewer	Champaign	Champaign	Ohio
James William Buel	Golconda	Pope	Illinois
Frank Morgan Burroughs	Champaign	Champaign	New York
Milo Benedict Burwash	Champaign Tp	Champaign	Canada E.
Thomas Nathaniel Burwash	Champaign Tp	Champaign	Canada E.
John Wilbur Busey	Urbana	Champaign	Illinois
Oscar Frederick Cady	Champaign	Champaign	Ohio
Thomas Benton Columbia	Champaign	Champaign	Illinois
William Harrison Crayne	Urbana	Champaign	Indiana
Joseph Buchanan Dare	Urbana	Champaign	Illinois
John Jefferson Davis	Freeport	Stephenson	Illinois
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ILLINOIS AGRICULTURE.

In view of the limited means at the disposal of the Trustees, upon their first organization, the Corresponding Secretary undertook to gather together, by circulars, such an amount of scientific and practical information as might give to this first report a direct economical value to farmers and others into whose hands it might come. With this intent the following circular was issued :

ILLINOIS INDUSTRIAL UNIVERSITY.

OFFICE CORRESPONDING SECRETARY, BOARD OF TRUSTEES,

Alton, Dec. 1, 1867.

DEAR SIR :

In order to obtain for the Annual Report of the Board of Trustees of the Illinois Industrial University reliable statements of the results of the experience and observation of practical *farmers* in all parts of this State, the following queries are addressed to yourself and others, in the hope that you will find it convenient to communicate any information you may possess upon one or more of the topics named, as well as concerning any other subjects that you may deem of value to the agricultural interests of our State.

Five thousand copies of the Report, in which we wish to embody your suggestions, will be printed and distributed at the expense of the State ; and we hope that you and others will avail yourselves of this opportunity to improve the methods of agriculture by a wide distribution of the practices of our best farmers.

Address, W. C. FLAGG, *Cor. Sec.*, Alton.

J. M. GREGORY, *Regent.*

1. What is the location of your farm by section, township and range ; its distance from market town or shipping point ?

2. Character of surface soil, as to depth, color and consistency ; of subsoil, whether clay, sandy, or gravelly : natural growth, whether prairie or forest, with varieties of plants and trees growing spontaneously.

3. Number of acres in your farm : number in cultivation : number in woodland or wild pasture : division of fields : rotation of crops ?

4. When was your farm first put in cultivation : kind of crops taken off : to what extent does the soil seem exhausted by cultivation : have you used manures, and, if

so, with what results: your experience in deep ploughing, and its effect on soil and crops: best plows or other implements for breaking up ground.

5. GRASSES, CLOVERS, ETC.—What do you find most suitable varieties for pastures and meadows: mode of seeding and quantity sown per acre: largest and average yields of meadow lands: average number of live stock of different sorts pastured per acre: experience in top-dressing meadows and its effects: stage of growth at which grasses, etc., are best cut for hay: implements preferred for hay-making.

6. GRAINS.—Best varieties of corn, wheat (fall or spring), oats, rye, barley, buckwheat, etc., that have been tried in your neighborhood: the best time and method of preparing ground for each of the small grains: time and method of planting or sowing: drills, sowing machines or planters that you have tried and found best: best harrows and rollers: cultivation of corn, with the kind of implements used: experience, if any, in cultivating wheat by horse-hoe, or otherwise: time of cutting up corn: method and implements: time of cutting small grains: reaper or header employed: practice in shocking, stacking or putting small grains in barn: largest and average yield: insects and diseases, and methods of subduing them.

7. ROOT CROPS.—Best varieties of Irish and sweet potatoes, turnips, beets, and carrots: time and method of preparing ground: mode of planting, method and means of cultivation: largest and average yield: methods of digging and keeping: cost and value as compared with grain crops for feeding: insects and diseases.

8. LEGUMES.—Best varieties of peas and beans: their management: cost and value as feed crops.

9. TEXTILE PLANTS.—Your experience with flax, hemp and cotton: best varieties, method of planting, cultivating, etc.: value as a farm crop.

10. GROUND PLANTS.—Pumpkins, squashes, watermelons, etc.: management, cost and value as a field crop: insects and diseases.

11. MISCELLANEOUS.—Hops, tobacco, broom corn, sorghum, onions, chiccory: growth, management and value as farm crop.

12. ORCHARD FRUITS.—Apples, pears, peaches, cherries: preferred varieties for various purposes: preparation of ground: planting, cultivation and pruning: gathering and keeping of fruit: packing for market: fruit houses and cellars: value of orchard products as a farm crop: insects and diseases.

13. SMALL FRUITS.—Grapes, currants, gooseberries, blackberries, raspberries, strawberries: varieties preferred: mode of preparing ground: planting, cultivation, pruning, draining and gathering: value as a farm crop: insects and diseases.

14. WOODLANDS AND TIMBER PLANTATIONS.—Experience in forestry: in management of woodlands, or in growing timber trees from seeds or young trees: value as a crop and as shelter for crops and animals.

15. LIVE STOCK.—Cattle, horses, mules, sheep, swine; breeds preferred: breeding of each: rearing and training: dairy management: fattening of animals: wool growing: management of manures: diseases.

16. OTHER DOMESTIC ANIMALS.—Poultry, bees, silkworms, etc.: best breeds: rearing and management: diseases.

17. RURAL ARCHITECTURE, ETC.—Houses, barns, (for hay and grain and different kinds of stock,) root and fruit houses, etc.: the materials preferred; best arrangement for economy of labor and comfort.

18. FENCES.—Material preferred: cost per rod, and cost of keeping up hedge, board and rail fences: value of hedges for protection: is it cheaper to fence out stock than to keep them up?

19. Capital per acre required for good farming?

Thirty-four answers were received, which are arranged according to latitude, beginning with the northernmost counties, for facility in comparing the opinions of those in the same latitude.

Answers were received from the following persons:

E. Moss, Belvidere, Boone county; Geo. Chaffee, Belvidere, Boone county; M. A. McConnel, Richmond, McHenry county; Asa Baley, Lindenwood, Ogle county; Silas Reynolds, Aurora, Kane county; D. C. Scofield, Elgin, Kane county; Joseph Tefft, Elgin, Kane county; H. Pierce, Moline, Rock Island county; Jacob Schoenleber, Allen, LaSalle county; Charles E. Barney, Providence, Bureau county; Verry Aldrich, Tiskilwa, Bureau county; Adam Rankin, Monmouth, Warren county; George W. Minier, Mackinaw, Tazewell county; James Robinson, Tremont, Tazewell county; John R. Tull, Pontoosuc, Hancock county; Thos. Gregg, Hamilton, Hancock county; A. C. Hammond, Warsaw, Hancock county; Harvey Sodowsky, Indianola, Vermilion county; William M. Allen, Mt. Pulaski, Logan county; Samuel P. Boardman, Lincoln, Logan county; B. Sweet, Tuscola; George Harding, Bloomfield, Edgar county; G. W. Vaughan, Sullivan, Moultrie county; Sylvester Butler, Majority Point, Cumberland county; W. F. Bliss, Nokomis, Montgomery county; D. Gove, Carlinville, Macoupin county; J. G. Swann, Elsah, Jersey county; E. A. Riehl, Alton, Madison county; John Balsiger, Highland, Madison county; J. Y. Bothwell, Clay City, Clay county; Theodore Engelman, Mascoutah, St. Clair county; George C. Eisenmeyer, Mascoutah, St. Clair county; Joseph Barber, Richview, Washington county; Joseph Warder, Vienna, Johnson county.

The following statements, in answer to the first and second queries, show the conditions of farming which call out the differing opinions.

1. What is the location of your farm by section, township and range: its distance from market town, or shipping point?

E. Moss.—One mile south of Belvidere.

G. Chaffee.—Two and one-half miles from depot at Belvidere.

M. A. McConnell.—One-half mile from Richmond Station.

Asa Baley.—Six miles from Rochelle, fourteen from Rockford.

H. Pierce.—One-half mile from Moline, three from Rock Island, four from Davenport.

Joseph Tefft.—Five miles west from Aurora on the C. B. and Q. R. R.

J. Schoenleber.—Location of farm: section 9, township 31, range 5, southeast quarter, eleven miles from canal and railroad in Seneca.

V. Aldrich.—Location of farm: section 23, township 15 north, range 1 east, 4th principal meridian. Distance from shipping points: from Hennepin, on Illinois river, five miles; Henry, on Illinois river, thirteen miles; Tiskilwa, on Chicago, Rock

Island and Pacific railroad, five miles ; Bureau Junction, three miles ; Princeton, on Chicago, Burlington and Quincy railroad, nine miles.

A. Rankin.—Location of farm ; section 31, range 2 west of 4th principal meridian, Monmouth township, one mile and a half from the depot.

G. W. Menier.—My farm is northeast quarter of section 3, town 23 north, range 2 west of the third principal meridian ; three and a half miles due north of Minier Station, on the St. Louis, Jacksonville and Chicago railroad.

J. Robinson.—My farm is located in section 10, township 24 north, range 4 west of the third principal meridian, in Tazewell county, Illinois, and is distant seven miles from Pekin, on the Illinois river.

J. R. Tull.—My farm is located in south half of section 7, township 7 north, of range 7 west of the fourth principal meridian, Hancock county, Illinois. It is two miles from a shipping point, and four miles from a market town.

Th. Gregg.—My farm or fruit lot is located in the city limits of Hamilton, on section 29, township 5 north, range 8 west of the fourth principal meridian, in Hancock county, at the foot of the Lower Rapids, and opposite Keokuk, Iowa, from which it is distant one and a half miles, including the river. Keokuk and Warsaw, five miles below, are our shipping points by river, Hamilton by rail.

A. C. Hammond.—My farm is situated in township 4 north, ranges 8 and 9 west, four miles from Warsaw.

Harvey Sodowsky.—My farm is situated on the Little Vermilion river, being in sections 17 and 18, township 17, range 12 west. I am half a mile north of Chillicothe and ten miles south of the Great Western railroad. Fairmount and Catlin are my nearest shipping points. I am some twenty miles west of the Wabash river.

Wm. M. Allen.—Section 8, township 18 north, 1 west. Shipping point Lincoln, distant twelve miles.

S. P. Boardman.—That my farm consists of the west half of section 29, the east half of section 30, the southwest quarter of section 20, and the southeast quarter of section nineteen, all the tracts being in town 20, range 1 west of third principal meridian. It is six miles and a half from Lincoln, the county seat of Logan county, and my market town.

G. Harding.—Farm located in township 15 north, range 12 west, twelve miles from Paris.

G. W. Vaughan.—Part of my farm is in section 3, township 13, range 5, and the rest in sections 27 and 34, 14 south east, third principal meridian. Its distance from a shipping point by rail is twelve miles, but the best shipping point, and that to which we usually take our grain, is Mattoon, 18 or 20 miles distant. My farm is one and a half miles from Sullivan, the county seat of our county.

S. Butler.—My farm lays lengthwise, east and west, section 9, township 10, range 9, E.

W. F. Bliss.—Montgomery county ; section 21, in township 10 north, range 2 west, one mile west of Nokomis, which is its shipping point, and 81 miles from St. Louis on the St. Louis and Indianapolis railway.

D. Gove.—My farm is located in sections 9 and 10, in township 10, range 7, Macoupin county ; is two miles and a half north of Carlinville, the county seat of Macoupin county.

J. G. Swann.—Township 6, range 11, two miles from Elsay, on the Mississippi river.

E. A. Riehl.—Northeast fr. quarter section 25, township 6, range 11, and the east half of the northwest fr. quarter section 25, township 6, range 11 west, third meridian, eight miles from Alton by road.

J. Balsiger.—My farm lies in Madison county, sections 35 and 36, township 4, range 6. It is two and one-half miles from Highland, our market town, which will also be our shipping point, a railroad being built from there to St. Louis, as well as eastward.

J. Y. Bothwell.—My farm lies in sections 13, 14, 23 and 24, township No. 3 north, range No. 7 east, on the Ohio and Mississippi railroad, two miles from Clay city.

T. Engleman.—My farm is in sections 19 and 20, township 1 south, range 6 west of third principal meridian. It is four miles south of Mascoutah, a town of about 4,000 inhabitants and with five steam flouring mills to which the wheat, the only product of the farm raised for market in this section of the country, is sold. Prices of wheat at Mascoutah average ten or fifteen cents per bushel below St. Louis market prices; competition and jealousy between the mills keeps the prices up at times equal to those in St. Louis.

J. Barber.—The location of the farm is section 10, township 2 south, range 1 west of the third principal meridian, in Washington county. Shipping point, Richview Station, one mile distant.

J. Warder.—My farm is located in that part of Illinois known as the White and Black Oak Ridges, south of the prairie region. Our nearest shipping point is Metropolis, on the Ohio river, twenty miles distant. Our nearest market town is Vienna, Johnson county, six miles west of us. Douglass on the Illinois Central railroad, twenty-five miles distant, is our nearest railway station.

2. Character of surface soil, as to depth, color and consistency; of subsoil, whether clay, sandy, or gravelly; natural growth, whether prairie or forest, with varieties of plants and trees growing spontaneously?

E. Moss.—Common prairie, black color, mixture of black sand; subsoil gravelly.

G. Chaffee.—Prairie, with clay subsoil.

M. A. McConnell.—Surface somewhat rolling; soil varies, some clay and gravel; prairie, openings and timber; the timber is hickory, red and white oak; openings, burr oak.

A. Baley.—Surface soil black, one foot deep, light prairie; subsoil open yellow loam; can be worked at all times, when no frost is in it.

H. Pierce.—Surface soil, dark, yellowish clay loam, 8 to 18 inches deep; natural growth, oak, hickory, walnut, soft maple and a few butternuts.

J. Tefft.—Upland soil, clay with some portion gravelly; bottom, black, deep clay soil, full of alluvial deposits.

S. Reynolds.—Surface soil, dark loam; subsoil, various. Prairie, covered with common prairie grass.

J. Schoenleber.—Surface soil, black loam, 12 to 30 inches deep; rolling prairie; subsoil, yellow clay from 3 to 6 feet; below this, blue clay to the depth of 38 feet dug and 44 feet bored.

C. E. Barney.—Prairie; a deep black, sandy loam; clay and gravel subsoil.

V. Aldrich.—Surface soil, clayey loam to the depth of 10 or 12 inches; color, brownish black, or between black and light cold clay soil, mixed with just sand enough to render it pliable and easy to work; it takes in water freely and stands drouth well. This description includes south half of farm, formerly prairie. The natural growth of north half is hazel brush and barren timber, black and white oaks; soil becomes lighter color and more clayey. Subsoil of south half, mostly red or brick cold clay to the depth of 15 feet; below this, to the depth of 15 feet or more, a layer of coarse gravel, and then river sand as far as I have penetrated, about 61 feet.

A. Rankin.—Surface soil, black loam, average depth, 20 inches; subsoil, clay. Prairie, spontaneous growth grasses, blue stem prairie grass, blue grass, and white clover.

G. W. Minier.—The surface is slightly undulating, a very little of it may be said to rise to the dignity (?) of a roll, passing off into gentle slopes.

The soil is the common dark mould of the prairies of this part of the State; depth of soil is usually said to be from one to two feet, but I am satisfied it is nearer from one to two hundred feet, as it is all an immense drift, and any depth to which I have yet penetrated, when exposed to the action of the elements, produces well. The subsoil is generally yellow clay. It was nearly all prairie, producing in its natural state, when I first saw it, an immense crop of wild grass and rosin weeds. About ten acres of it was a copse, now a beautiful grove of burr oak, red elm, white hickory, sassafras, blue ash, hackberry, and wild cherry, with here and there a mulberry and one honey locust.

J. Robinson.—The character of the surface soil is black loam mainly, with some black sand near the surface, and yellowish or reddish clay mixed with it; this extends from one and a half to three feet in depth. The subsoil consists of a yellowish and reddish clay, with sand and gravel, sometimes mingled and sometimes in veins or layers; sometimes clear beds of sand or gravel are found from ten to twenty-five feet from the surface, in which usually is found pure hard water; below this is the blue clay, which extends to an unknown depth.

The natural growth on this land, before cultivation, was the wild herbage of the prairie, and since being cultivated, if let alone, would be the various weeds that infest our prairie farms; these would soon be followed by thistles and briars, and they, if the land was not pasture, by our various timbers, such as cottonwood, red and white elm, ash, wild cherry, maples, locusts and box elder; if the land be pasture it would soon be blue grass and white clover.

J. R. Tull.—The soil is mostly thin; sut soil is a clayey loam, underlaid with limestone, and is what might be termed a limestone soil. My farm is partly timber and part prairie. The natural growth of timber is mostly black oak, some hickory, white oak, ash, black walnut, sugar maple and linden.

T. Gregg.—Our surface soil is a vegetable mould overlying a clay subsoil; beneath which is, first, a deposit of sand some fifteen feet thick, and, second, a tenacious bluish clay, beneath which, again, is limestone rock. Most of the bluffs in this vicinity contain valuable quarries of a beautiful building stone, specimens of which, together with samples of soils, I send for the museum of the Industrial University.

The natural growth of timber on these bluffs consists of the following, viz: white and black oak, hickory, white and sugar maple, wild cherry, elm, honey locust, mulberry, ash, sassafras, hazel, and blackberry and raspberry.

A. C. Hammond.—Soil, a dark clay loam, from ten to twenty inches deep; subsoil a tenacious yellow clay. Natural growth, hazel, crab apple, and wild plum.

The surface, rolling and well drained by several streams. The soil varies from one to three feet in depth and is bedded on a very strong yellow clay; it is slightly sandy with very little gravel. The natural growth is part forest and part prairie; about 130 acres forest and the rest prairie. The forest trees are the black walnut, sugar maple, wild cherry, blue ash, hickory, elm, mulberry, coffee nut, paw-paw, and some honey locust plants.

H. Sadowsky.—Surface, black mould two feet in depth; subsoil, clay; farming land, prairie.

S. P. Boardman.—The surface soil is a warm, light-colored soil—as compared with the blackest soil of this part of the State—having sufficient sand in it to show a little on the surface after a rain. It is about fifteen to seventeen inches in depth. Deer creek, a small branch of Salt creek, runs across the farm diagonally, entering at the northeast corner and passing out on the west line of the farm, within less than a half mile of the southwest corner. High, rolling prairie wholly on the east side, and level bottom land on the west side of the creek. This “Deer Creek Bottom” is a mile in width, and differs from creek bottoms generally, in that, instead of the soil being of great depth, it is comparatively shallow, being mixed with small pebbles from the size of a pea to an ounce ball.

The subsoil of the high prairie, as well as of the bottom prairie, is clay, but the subsoil of the creek bottom is whiter, and of a firmer consistency than that of the upland.

The natural growth of the entire farm, with the exception of a small fringe of willows along the creek, is prairie grass.

G. Harding.—Surface soil, a rich black loam 18 inches deep; subsoil, yellow clay. A great deal of rosin weed growing spontaneously before breaking the sod; afterwards cottonwood trees.

G. W. Vaughan.—A very dark loam, from 12 to 18 inches deep. The soil of the flat land is much deeper and darker colored than that of the rolling land, which is more mixed with gravel and sand. The level land, of which most of my farm consists, lasts much better than that which is rolling, but is not so agreeable to till in a wet season, like that just passed. My farm is all prairie, and its natural growths are various kinds of weeds, grasses and the cottonwood tree.

S. Butler.—Prairie; surface soil of a dark color, to a tolerable depth; subsoil of a sandy clay.

D. Gove.—The soil is a vegetable loam, slightly mixed with sand, and is from 1½ to 3 feet deep; the subsoil is clay, with some gravel. The natural growth of the prairie is the same as is common in Central Illinois, and as soon as fed heavily by stock it kills out, and blue grass makes its appearance spontaneously. The timber land is covered with black walnut, elm, hickory, and the different species of oaks, cherry, etc.

J. G. Swann.—Yellowish clay, 12 inches in depth; forest growth, common sedge grass, hickory, black and white oak.

E. A. Riehl.—Character of soil, varied; surface broken, as the bluffs on the Mississippi river usually are. Soil rather sandy than otherwise, though in spots it is clayey. Part is bottom land. Natural growth, timber—hickory, oak, sassafras, mulberry, ash, sumac, red-bud, etc.

J. Balsiger.—The surface soil is a black or brown loam, consisting of humus more or less mixed with clay and some little sand; this layer is of unequal depth, in some places in the lower parts of the farm two feet and more, and on the higher parts less deep. The subsoil is a red, and in some places a white or gray clay. The natural growth is timber, although Looking Glass Prairie is not far off, consists of oaks—white, black, overcup, burr, spanish, red, laurel, black-jack, post-oak—hickory, black-walnut, honey-locust, sycamore, red and white elm, mulberry, wild cherry, crab-apple, cottonwood, wild plum, red-bud, sassafras, white ash, willow, hackberry, liquid amber, red maple, persimmon, white thorn, hazel and grape vine.

J. Y. Bothwell.—Surface soil, dark gray from 8 to 10 inches deep; subsoil, yellow clay. Mostly prairie; some brush land brought into cultivation; growth on brush land consists of pin oak, cherry, mulberry and elm; hazel and blackberry under growth.

T. Engelmann.—My farm is situated on an elevation near the southern end of Looking Glass Prairie. The slopes of the elevation were originally covered with forest, and are so yet, to a small extent. The prairie, which stretched from the foot of the elevation north and south for many miles, has entirely disappeared, and has made room for large fields; not one square foot of original prairie is to be found within many miles. The slopes of the elevation were overgrown with a great variety of trees and plants; principal among which were hazel, blackberries, sumac, sassafras, wild grapes, plums, persimmons and wild cherry, also several varieties of oak and elm. The surface soil is a dark mould, from 10 to 20 inches deep. The subsoil on the slopes of the hill is heavy red clay, sparsely mixed with sand. In what formerly was prairie the subsoil is gray clay, well mixed with sand.

J. Barber.—The soil is a dark loam, somewhat sandy, and about 12 inches in depth. The subsoil is a hard clay and greatly inclined to wash. Natural growth, what is usually found on the prairies of our State.

J. Warder.—The principal geological formation in our section is a very heavy body of sand-stone, with occasional changes to limestone. The face of the country is roughly broken, the slopes are steep and rocky, with precipitous cliffs near the streams. The tillable soil is mostly confined to the ridges, which may be compared to small plains or table-lands. These are in many places level and beautiful. The soil is light brown in color, slightly sandy and warm. At a depth of some inches it becomes more loamy, and at a greater depth is underlaid with yellow clay or loam, and below that sand and gravel. These lands have a perfect surface drainage. They may be plowed very soon after a rain, or they may be cultivated early in the spring. They are well adapted to sustaining severe drouths. This is owing, I think, to the fact that the plant roots reach that deep, moist substratum which underlies the surface soil.

That this deep, open and moist substratum does exist, is proven by the magnificent growth of timber, mostly of deep-rooting species, as follows: Yellow poplar, black walnut, white oak, black oak, hickory, sugar maple, black gum, hazel, etc.

The labor of clearing has been immense, and much good timber has been wasted by girdling trees and leaving them for time to do its work. These stand in the

fields from five to ten years, are ploughed around and hoed around, their great roots stretching out on all sides, proving a great draw on time and temper, yet there they stand—those giants of the forest—stretching out their naked arms in a solemn, threatening manner, till some boisterous day they come down with a terrible crash. It is clear then that in this region we will not need many reapers and mowers, at least for some time to come. Wheat we do not consider a paying crop; however, the most of farmers raise for home consumption, with some surplus. Corn is our great staple; next to that, tobacco. Cotton was planted extensively during the war, but is now almost given up. I have also raised oats, rye and buckwheat, with different degrees of success. Our soil seems to be more peculiarly adapted to the culture of fruit, and also of vegetables—those of a bulbous nature in particular—as sweet potatoes, onions, beets and turnips. This is owing to the warm, sandy soil, with the open and moist substrata, to which is ascribed, as before mentioned, the growth of deep-rooted forest trees. This physical constitution of the soil causes that adaptation for the vigorous growth not only of fruit, but for all other species of trees.

3. Number of acres in your farm: number in cultivation; number in woodland or wild pasture: division of fields: rotation of crops?

E. Moss.—120 acres.

G. Chaffee.—160 acres; 60 to 80 in corn and oats annually; remainder in pastures and meadow; sow oats after corn.

M. A. McConnell.—690 acres; 500 in cultivation; 100 in openings, all grown up. White clover in pasture, and has been for 30 years. Farm is divided into fields of from 25 to 40 acres, *except* where cattle run.

Asa Baley.—40 acres in four fields; two years in grain, two in grass. First after grass is corn; second crop is small grain with grass seed.

H. Pierce.—16 acres in cultivation (Nurseryman); corn, sorghum, or potatoes for first crop, followed by barley. Usually corn is planted for a number of years, and then wheat to seed down with.

J. Tefft.—242 acres, all under fence; only about 15 under the plow; woodland and wild pasture, 100 acres.

J. Schoenleber.—160 acres; 96 acres under cultivation; 50 acres timothy meadow; the remainder wild prairie and slough grass. Farm is equally divided by fence; 15 acres enclosed for pasture, horses and cows; 40 acres in clover and timothy, for hogs; 6 acres for orchard and vineyard.

C. E. Barney.—160 acres.

V. Aldrich.—160 acres; 120 acres under cultivation; 40 in woods pasture. Divided into 6 fields. Rotation of crops, wheat, corn, sometimes rye or oats, and then corn. Small grain never does as well the second year on the same field, or after a crop of corn, as it does the first.

A. Rankin.—Farm of 80 acres; plow land 61 acres; pasture 13 acres; orchard and vineyard 16 acres. Sow clover with wheat and oats, and plow it under the next spring for corn. Sow timothy and clover for meadow and pasture; cut it two or three years, and plow under for wheat or corn. Plow in September with second crop on.

G. W. Minier.—I have 160 acres; enough for any man; wouldn't have any more. All in cultivation except the woodland, which is in pasture. My farm is divided

into seven fields; this does not include house and barn lots. No one can possibly farm to profit and keep his land in good tilth, without a rotation of crops; and by rotation of crops is not meant what politicians mean by rotation of office, *i. e.* a rolling out of one office into another; but so adapting the various crops that the land shall either have rest, or so as to foster and restore the elements which the former crop had taken from the soil.

J. Robinson.—The number of acres in my home farm is 130 acres. I have under cultivation, by plow, forty acres; in meadow, timothy and red clover, 25 acres; in timothy and blue grass pasture, 10 acres; in apple orchard, 40 acres; in peach orchard, 12 acres; in small fruits, vegetable garden, ornamental trees and house yard, 3 acres. My farm is divided in fields, as follows: two under plow, one in meadow, two in pasture, one in orchard, and one house, garden and ornamental trees.

J. R. Tull.—There are 320 acres in my farm; 135 in cultivation, the balance in timber or woods pasture. The farming land is fenced into six fields, the largest of which contains 35 acres. My crops have been mostly corn; some wheat, oats and buckwheat.

T. Gregg.—Number of acres, 10.

A. C. Hammond.—Number of acres in farm, 150; 50 devoted to horticulture; 50 to grass; 30 to grain, and twenty to woodland.

H. Sadowsky.—I have two farms, containing together 960 acres, in eighteen divisions.

W. M. Allen.—240 acres woodland; 50 acres prairie and timber lying together; 190 acres under cultivation. Land is divided into five fields, besides orchards, etc. Rotation, corn on wheat stubble, wheat on corn, oats stubble or clover.

S. P. Boardman.—My farm proper (not including my timber land, which is separated from it) consists of about 950 acres, of which 640 acres are in tame grass—pasture and meadow—and the remainder under cultivation. I am, however, sowing 160 acres of this latter amount to tame grass, at the time of this writing. My farm is divided into one field of 310, one of 160, one of 150, two of about 120 acres each, and four small fields of from 30 acres to 5 each, used for feed lots. I expect to divide into two fields of equal dimensions, my 310-acre field, which will make as many sub-divisions as I care about, in my present business.

My rotation of crops, in so far as I may be said to have one on a farm which has been "made" from the prairie in ten years, may be called this: to raise not to exceed five crops of grain—of which four shall be corn—on any piece of land, until it is laid down to grass; the grass to be mown a few years, pastured a few more, and then to be broken up for corn.

G. W. Vaughan.—520 acres; 400 in cultivation; 40 in wild pasture, and 80 in wild grass. Part of my lands are divided into 40, 80 and 160 acre lots, and the rest in a large inclosure. This is a common practice among farmers here, yet its only recommendation is that it permits the farmer to make his inside fences of hedge. I generally put my land in corn for a few years, then in oats and then in wheat, breaking up the stubble after each crop is taken off; then I put in corn again.

S. Butler.—Farm of 80 acres; 40 acres in cultivation, and 40 acres in wild pasture. Each 40 is in one field. I have also 40 acres timber, distant one mile and a half.

W. F. Bliss.—320 acres in farm; 175 in cultivation; 40 in wild prairie pasture. To be divided into 8 forty-acre fields, with the following rotation of crops, only partially tried: 1st, wheat; 2d, corn; 3d, oats; 4th, meadow; 5th, meadow; 6th, meadow; 7th, pasture; 8th, pasture; 9th, wheat; 10th, corn; 11th, oats; 12th, meadow; etc.

D. Gove.—My farm contains 650 acres, 570 of which is in the prairie, and in cultivation; 80 acres in timber, which I am having fenced for pasture. The prairie part of the farm is divided into five fields, besides the orchard and timber belts, feed lots, etc. The buildings are very near the centre of the farm, and the arrangement of the fields are such that I can turn stock from the feed lots directly into any one of them, or from one field to another, with convenience. My practice has been not to grow more than two crops of wheat or corn, and only one of oats, without a change; but when in grass I let it lie longer; and especially if it is pastured, as it seems to improve every year as the turf becomes stronger.

J. G. Swann.—225 acres; in cultivation, 175; woodland pasture, 50 acres. Five fields. Corn, wheat and clover.

E. A. Reihl.—155 acres; about 40 in cultivation.

J. Balsiger.—My farm consists of 160 acres; half of which are under cultivation; the balance in timber land. The rotation, although not always regularly followed, is: corn, oats, wheat, and timothy or clover. I cultivate the first three crops till I think the land needs rest, and then put in the grass for several years. About one-third of my cultivated land is timothy or clover.

J. Y. Bothwell.—Farm of 400 acres; 375 of which is in cultivation; 200 acres timber. Farm divided into 8 fields. Most of the improvements made since 1851.

T. Engelmann.—My farm embraces 380 acres; 300 acres of which are in cultivation; about 60 in woodland are used as a wild pasture. There is no permanent division of fields, and no rotation in crops. All suitable land is put in wheat, and many fields have yielded ten or more crops of wheat in succession, without any perceptible deterioration in fertility. Corn is raised only for home consumption.

J. Barber.—I have 100 acres, 60 of which are in fruit, the remainder in pasture, meadow, etc.

4. When was your farm first put in cultivation: kind of crops taken off: to what extent does the soil seem exhausted by cultivation: have you used manures, and if so with what results: your experience in deep plowing and its effect on soil and crops: best plows or other implements for breaking up ground?

E. Moss.—1852. Wheat, oats, corn, barley, etc. Soil is strong; have used manure to good effect; consider it valuable. Deep plowing is beneficial.

G. Chaffee.—About 1845.

M. A. McConnell.—Came on the farm in 1837. Have raised all kinds of crops. My farm is as good as when I came on it. I have always used manure and plaster with the best of results. Deep plowing is essential and cannot be dispensed with on a farm.

Asa Baley.—Farm has been under cultivation nine years. Wheat is the principal crop. I have been on the place five years, and have pursued the two years' rotation course, as I have done for thirty years. Under this treatment land will increase in productiveness at the rate of 100 per cent. in fifteen years, if all is done in the best manner—the hay and straw all returned to the land in the form of manure. So far as my observation goes, land will be reduced 100 per cent. if seven crops of wheat are grown in succession. I consider it of great importance to the farm to keep so

much stock on the farm as will consume all the pasture, hay and straw that is grown on the farm.

H. Pierce.—In cultivation two years in potatoes, corn, beans and garden vegetables. Deep plowing is by all means the best. Fields partially subsoiled will show up to the last furrow. We use the Moline plow of Candie, Swan & Co., with subsoil attachment, when we go below 10 inches in depth. Use three cornered or butterfly harrow.

J. Tefft.—In 1842. Corn was the crop mostly raised. The soil does not appear to be exhausted, as it is well manured every year. No experience in deep plowing. Manure pays well for labor.

S. Reynolds.—The farm was first put under cultivation in 1845. The principal crops taken off have been corn, wheat and oats. The first crops were much better than they have been of late years. Have tried deep plowing with poor success. Have used annually manure made from 200 sheep, 20 or 30 horned cattle, 10 or 12 horses, and about 25 hogs, with marked success.

J. Schoenleber.—Farm put in cultivation in 1856. Crops mostly corn, some wheat and oats, once rye and barley. Wheat and oats are not as profitable crops as corn; wheat yields best on new ground; corn does just as well grown on land used before for small grains. I only raise wheat and oats sufficient for home consumption. Corn does not do as well in a dry season. I use the manure produced in stable and yard; on rolling land the result is a double yield of corn. By top-dressing the grass I also procure a double yield. I prefer deep plowing, either in a wet or dry season.

C. E. Barney.—Have sometimes made the mistake of plowing too deep, turning up cold and unproductive dirt 12 to 14 inches deep; do not think any soil would be injured by disturbing the subsoil, if not turned up. In naming manure in order of excellence—sheep, hog, cattle, horse. My experience is that horses and colts make the least return, in value to the soil, for the amount of grass they consume. I consider manure most valuable when used as a top dressing; in September for big grass next year, and big corn the second year.

V. Aldrich.—Farm first put in cultivation in 1846, except 40 acres southwest quarter, which was in cultivation when I came here in 1844, and had been several years before. The first crops, for six or eight years, were corn; then wheat, oats, and rye; sometimes rye two or three years in succession, with good results. Rye seems to exhaust the soil least of any small grain. The soil is becoming gradually exhausted, so that now we do not get over three-fourths the amount of grain per acre we did at first.

I have always saved all my manure from yarding stock nights, constantly through the winter season, and feeding in the yard. In so doing, I make from 100 to 150 loads manure annually, which I generally cart out in the fall; October is the best month. The fall rains soak the strength out of it and carry it into the ground, making it more productive of good results than when applied in the spring, and more especially on meadow land. The hay crop can be nearly doubled by using about 20 loads to the acre. If applied too abundantly the grass will lodge or fall down before time to cut. The same effect is produced on small grain. But for corn no one need to fear; it will grow strong and produce in proportion to the quantity of manure. Even the best black prairie soil is wonderfully benefited by manuring for corn crop. I have never practiced deep plowing any more than can be done with a single furrow. I always plow my land as deep as a good team can do it, by taking

a narrower furrow than most persons use. This pulverizes the soil much finer, rendering it capable of better results for any crops. By plowing a little deeper year after year, I believe the soil will wear much longer, with equal productiveness.

The Moline plow has ranked best in this vicinity heretofore, but now others are considered equally good. Some plows will work well run 3 to 4 inches deep; when we come to put them down 6 to 9 inches they will not scour, and are worthless for that use. For plowing 6 or 9 inches deep the furrow should not be cut over 10 inches wide; then it will break fine by turning, and pulverize much better than with a wide furrow.

A. Rankin.—My farm was first cultivated in 1858. Have raised corn, wheat, rye and oats. Perceive no deterioration of ground upon which there has been a proper rotation of crops; but where there has not been rotation, or manure applied, the ground has been exhausted fifty per cent. I have applied barn-yard manure with good results both to stalk, ground and meadow. But I think the best way to improve the land is to manure the meadow by producing a heavy growth of roots, then plow it up. Deep plowing I find very beneficial by subsoiling in the spring, or trench plowing in the fall.

For rough and soddy ground I prefer the Moline plow—John Deere's; but for stubble growth, I prefer the Canton plow.

G. W. Minier.—My farm was put into cultivation, or began to be, sixteen years ago, in the summer of 1852. I have taken from it wheat, corn, hay, oats, potatoes, flax and barley. "Exhaust the soil in Illinois by cultivation!" That's a good one. You may spoil your lands, by a system of land piracy—everlastingly taking away and never restoring—or by a course of always cropping and never letting your land rest. But by true cultivation the land grows better. Ananias and Sapphira were killed for a less crime than some farmers commit every year with impunity. Of course I use manures; and here I would like to write an essay, but have not time. No lands will pay better results from manures than ours in Illinois. No one ever need be afraid of plowing too deeply. "Best plows!" Excuse me, please, from advertising any one's plow. But give me a good plowman, and him I can't just now describe. Permit me to say, however, that in our "learned Institutions!" (Lord have mercy!) after a toil of four years, we dub our young men A. B.; sometimes A. M.; on a little further, M. D. or D. D.; and when the head has become sufficiently bald, then comes L.L. D. And yet, it requires more skill and better training to plow an acre of land, tell its component parts, and the crops best adapted to it, than all the above flummery which we miscall learning.

J. Robinson.—This farm was partly put in cultivation in 1842. The crops taken off have been corn, wheat, oats, rye, barley, fruit, and one or two acres of potatoes annually. The soil, where it has been continually in cultivation, appears to be about one-fourth exhausted; but where it has been in pasture or meadow lately, it is about as good as when new. Very little manure has been applied to the soil, but where it has, with good results. I have plowed to the depth of twelve inches to the advantage of both soil and crops. I have used the Michigan subsoil plow to break meadows and blue grass pasture; one man and four horses or mules breaking two acres or more per day. The Peoria plows and a clipper plow manufactured by T. & H. Smith, of Pekin, work very well in all our soils.

J. R. Tull.—I commenced my first improvement in 1837, and was some fifteen years in opening my farm to its present dimensions. My crops have been mostly

wheat and corn. The soil, where the land is considerably rolling, is very much exhausted; and the best of it is more or less so. I have found that manure, properly applied, is a great benefit. I use all the manure of every description, that I am able to make on the land, and I find that it pays largely. I find that very deep plowing is injurious to my land. A common depth, say 6 to 8 inches, is deep enough.

T. Gregg.—My first clearing was done in the winter of 1858–59, and two acres planted, chiefly to apples and peaches, the following spring. Since then the whole ten acre block has been brought into cultivation, and chiefly planted to those and other fruits. My mode of planting was to clear the ground, as is usually done in the west, and after as good a plowing as I could give it for the roots and stumps, planted the trees without any deeper cultivation. This slovenly mode I have had great reason to regret, however, and were it to do over again, I would find economy in expending fifty dollars per acre in cultivating twenty inches deep, in preference. Garden vegetables, consisting chiefly of Irish and sweet potatoes, beans, peas, beets, cabbages and sugar cane, have been grown each year among the trees, with good results. Little manure has yet been applied, but can be used to great advantage.

A. C. Hammond.—My farm was first put in cultivation about 1845. Hay has been the principal crop taken off. The soil seems to be but little exhausted. I have used manure with the very best results. The effect of a few loads spread on a plowed field or meadow can be seen for several years. Have experimented both with the subsoil and trench plow; cannot discover any good resulting from subsoiling, but consider trench-plowing of great benefit. It can be accomplished to the depth of 12 inches, with two strong teams and common plows, one following directly after the other in the bottom of the furrow. It is hard work for both men and teams, and requires considerable patience. I find that the first crop is not usually as good as upon land prepared the ordinary way, but the second and third years the crops are greatly superior.

H. Sadowsky.—My farm was entered about 1822. I came here in 1840. The crops raised have been corn, wheat, oats, rye, potatoes, buckwheat, etc. When one field needs rest we sow it down in timothy and clover, and turn up some other pasture. We haul all the manure and rubbish from about the barns and cow houses onto the fields, and by so doing, not only keep up our lands, but improve them. My experience is in favor of deep plowing. It enlivens the soil, leaves it in a healthy condition, causing it to retain moisture in a dry season, and in a wet season letting the water below the surface.

W. M. Allen.—The first 40 in 1836. I bought in 1839. The balance by parcels until 1856. Crops have been corn, wheat, oats and Hungarian. Exhaustion not perceivable. Have used manure for corn and grass with good results. Best plow, Munn & Ellsworth's, Bloomington. Deep plowing indispensable.

S. P. Boardman.—My farm has been put in cultivation, in different amounts, in different years, from 1858 up to the last year. Corn has been the principal crop taken off, although some land has been put in wheat, oats, Hungarian, flax and potatoes, from year to year. The greater part of the 150-acre field was broke in June, sowed to wheat in September, and the following year, after harvest, the stubble turned under and sown to timothy by itself, with clover added the following spring. The object in view in stocking new ground thus soon, being to get into tame pasture as soon as possible. This stocking does as well, apparently, as if the land had been cropped a few years previous to seeding with tame grass. Of the 640 acres in

tame grass, but little of it has had over four grain crops taken off previous to seeding. In so short a period of cultivation no exhaustion of the soil can be perceived; the only difference in the cultivation being that the fourth crop requires more attention and labor on account of weeds. On one field, at present in grass, I applied a hundred or more loads of stable manure, when it had been cropped but two years, and could discern but little difference in the corn on the manured or the unmanured portion. I don't wish to be understood as saying that our land is so rich as to need no manure, but that, *for corn*, ordinary quantities of manure scattered on our new prairie soils, will make not much perceptible difference. When manure is applied to grass lands—no matter how new the ground—and put on in the fall, or right after mowing, its good effects are as perceptible in the increased amount of hay the next year as in any country I ever saw.

About the only sample of deep plowing seen in Illinois is when a tame-grass sod is trench-plowed. Although it is more than double the labor of common plowing, yet it more than pays in the increase of the corn crop and the labor of tending it. For trench plowing, I prefer two teams rigged to separate plows, rather than the same teams attached to any trench plow which I have yet seen. I have seen two or three different makes of the Michigan double plow, but none with which I thought four horses could do the work as easily as when attached to two separate plows.

Allow me, right here, to express the opinion, that by *stock-farming* Central Illinois (further I know not) will grow richer and richer. By stock-farming I mean that the principal returns from a farm shall be the income derived from some sort of live stock. I mean, too, that all the manure which shall ever be applied to such farm, shall be the manure dropped on its pastures by the stock, and the collections about the stables and sheds. I have seen examples of the sort in the case of "sheep farms," in the last sixteen years, and I *know* that such are richer than the day the plow was first "stuck in them." Now, I have not altogether a western man's undoubting faith in western soils, but I read everything I can get hold of in regard to keeping up the fertility of the soil. In looking over my eastern—extreme eastern—agricultural papers, I find that almost the entire amount of their space is taken up with talking about manures, and much of it about *made, commercial* manures. I can't conceive of any circumstances whereby Illinois prairie soils—if properly managed—will ever require anything but grass seed (particularly clover seed) and the accumulations of our stables, barns and sheds. I keep constantly in mind, too, the fact, that the early (or even later) settlers of more eastern States might once have talked of their localities as I do of Illinois, but I bear in mind that *they* had not, as we have, the experience of some older country to show that no soil, however rich, is inexhaustible. What I say is this: The soil of Central Illinois—cropped by any stock sufficient to employ three-fourths or more of its acres in tame grass, (to be mowed or pastured) and the balance to not remain in cultivation over five years before being "laid down" to grass again—will never "wear-out" as long as the world stands.

Take testimony of the oldest and best farmers in Central Illinois, and unless I am much mistaken they will all say "that there is no wear out to a stock farm in Central Illinois."

I don't wish to foolishly cry down the value of manures, or indorse the too common western notion that it is of no use to put manures on our lands. What I intend to say more strongly than anything else is, that western farmers—using the common sense and experience of three or four generations of more eastern farmers—need

not let their soils deteriorate the least bit, and, at the same time, it need cost them but little to "keep their lands up."

The State of Illinois will be a *stock State* for about ten years yet, after which time the sceptre will most probably depart from Judah. When the time comes that it pays better to sell the products of our soil in the raw state of so much grain, I think we will need the teachings of two or three Agricultural Colleges to keep up the fertility of our soil. So long, however, as it pays us to keep stock enough to eat up our grain and hay, so long we will need only common sense to enable us not to wear our farms out.

In the future (when it pays Illinois to sell grain) we shall then learn (like England, where land rents for as much as the cost in fee simple of the most of our western lands) that we *must* keep a certain amount of stock, "wille, nille."

G. Harding —My farm has been in cultivation 15 years, or part of it; and that portion of it sown to grass has not diminished but materially improved in productiveness, while that portion planted with different grains has shown material exhaustion. I renew the soil by sowing it down to different kinds of grasses for pasturing. I have used manures to great advantage and practice deep plowing under all circumstances. Plowing in the fall is always the best for all kinds of crops to be grown the next season. The two-horse plow I consider the best in all cases for breaking up ground to be tilled. In trench plowing I use two independent teams and plows.

G. W. Vaughan.—Part of my farm was put in cultivation in 1848, part in 1855, part in 1860, 1861, 1864 and 1865. On the old part of the farm, corn, oats, wheat and grass have been taken off; from the newer lands corn has been taken. I can hardly say to what extent the soil is exhausted, since too much ground is undertaken by one hand, and consequently becomes poisoned by weeds, thereby lessening its vitality. I think if the ground were well tilled it would show no evidence of exhaustion for several years. I have never used stable or barn manure on my corn lands, but have applied it to meadows. I have practiced deep plowing but not sub-soiling, though I am of opinion that it is very useful; I think ground should be sub-soiled but once in 4 or 5 years. Had we a good shipping point near here, I would prefer deep plowing and tending in corn, then changing to small grains clover and timothy to recuperate the soil, which can be kept lively in this way quite as well as by sub-soiling. We find difficulty here in making meadows profitable, therefore the need of sub-soiling. I always plow deep for corn and have plowed both deep and shallow for small grains. I find, in deep plowing for corn and small grains, that the early growth of the plant is slower than in shallow plowing, but when once well set and fairly growing, its growth is faster. I know not why this is, but suppose that when the roots start to shoot downward they reach the hard surface in shallow plowing and get their set, and the top grows fast, sooner than if the roots were still growing downward in loose soil. From my experience in raising grain, I think deep plowing best for corn and early sown fall wheat, and shallow plowing for oats and late sown fall wheat. My reasons are these: corn planted in deep plowed soil grows slowly for a while, but the crop is generally double that of the shallow plowed soil. Wheat, when sown early in the fall, has time to get rooted and is harder to winter-kill when plowed deep, but if sown late does not seem to spread on the ground sufficiently. Oats generally grow too tall and rank anyway, and if the ground is plowed deep, they grow slowly for a while, then fast, and become so rank and late

that they fall down and spoil, when by shallow plowing they grow much faster at the start, then are checked in their growth, thereby hastening their maturity. I have seen splendid crops of oats raised without plowing at all, just harrowed in, in the spring, on corn ground of the previous year. They ripened quicker than those sown on plowed land. Oats do not seem to need much root to make the stalk and head. For spring wheat, I think it immaterial whether the ground be plowed deep or shallow, as it should in all cases be plowed late in the previous fall, and the wheat harrowed in as early in the spring as is admissible. I have never been successful with spring wheat when breaking the ground in the spring. Much difference of opinion exists about deep plowing. Some contend that deep plowing once in three years and shallow plowing for two is better than deep plowing all the time, as that turns up the new soil every third year, and it is but little exhausted in the intervening time. I, however, prefer deep plowing all the time, and if the ground seems exhausted, to recuperate it with some kind of manure. Deep plowing exhausts the soil in the same proportion that shallow plowing does, I think. The effect of deep plowing is on the crop produced. We have tried but few kinds of breaking plows; I have used the Peoria and Rock river plows for breaking up ground and find them excellent. I do not know that the gang and subsoil plows have been used in the county. In common with my neighbors I prefer the improved Rock river, made at Grand Detour, Ill., to any I have tried.

S. Butler.—Farm put in cultivation six years ago. The crops have been corn, wheat and buckwheat, broom corn and Hungarian corn. The crops in the consecutive years have been equally good. Manure helps the soil fully one-third.

W. F. Bliss.—Smith's cast steel plows, C pattern, answer a good purpose in breaking prairie.

D. Gove.—I improved my farm myself, commencing seven years ago; my crops have been wheat, corn, oats and the grasses. I cannot perceive that the soil is exhausted in the least, in fact the wet spots seem to get better as they are drained and opened up to the sun and air; and on the thinner portions of the farm, I have spread all the manure that accumulates annually, mostly on the meadows, during the fall and winter, and the effect is very great and more than pays for hauling out the manure the first crop. I have always been in favor of deep plowing, and my experience every year more fully confirms me of both its immediate and lasting results. Deep plowing is the best for either wet or dry seasons. And the land after once being deeply and thoroughly plowed is ever after less liable to run together or to become baked, as is the case where shallow plowing is practised. My own practice is this: put three heavy horses abreast to a plow that turns about 13 or 14 inches, which I have had made to order, of a shape that will run deep and at the same time have a curve that will pulverize the soil as much as possible; and for corn the depth of furrow is governed by the strength and endurance of the team, but usually from 10 to 12 inches; then thoroughly harrow, and, if dry, roll and then plant, and, in addition to all other good results from deep plowing, the seeds of noxious weeds are buried so deeply that if they come up at all, it will not be until after the corn is ready to cultivate.

J. G. Swann.—In 1835. Crops have been corn, wheat, clover and broom corn. Soil very little exhausted. Have used manures with good results. Deep plowing always. Moline plows; for cultivation, double shovels.

E. A. Riehl.—Some in cultivation perhaps 20 or more years, some more recently. Crops, corn and wheat. The old land seemed to be exhausted when I came in possession, 4 years ago, but deep plowing and turning under a crop of clover has made it as good as any new on the place; have used all the manure made on the premises with the usual satisfactory results. Deep plowing insures good crops. There are many good plows, and can not designate all; the Mellen plow, made at Alton, is as good as any and made of good material, the Peoria and Moline are also good, the Mapes is the best subsoil I have tried. Prefer a double triangular harrow with 48 teeth, and, better than all harrows and rollers, the Cumberland clod crusher, cut and description in No. 7, Vol. 2, *Farmers' Advertiser*.

J. Balsiger.—Part of my farm has been put in cultivation, I believe, about 40 years ago, long before I came in this country; the rest I cleared myself or had it cleared, and broken from 7 to 10 years since. Before the land was mine, it was nearly all and every year planted in corn, no meadow; in consequence of this, in some rather steep places the good soil has been washed off by the rains, and these places need manure to produce crops. Where this was not the case the soil has not considerably lost of its former richness, especially the land which has been put in cultivation more recently. Deep plowing has a very good effect on the crops where the subsoil is not too near the surface or not of poor quality.

J. Y. Bothwell.—Kind of crops raised, wheat, corn, oats and grass. Improvements made from 1851 to 1856. The soil seems but slightly exhausted, producing almost as much as at first. Have used manures with the best results. I use a double sod plow for breaking up, made by John Gill, of Columbus, Ohio; work three large mules; plow ten inches deep, follow it with subsoil plow, the Rooster, made by G. C. Miller, Cincinnati, Ohio; use two mules to run it from 5 to 6 inches deep in the same furrow, with the best result to land and crops. In 1866 my wheat averaged 27 bushels to the acre, and sold for \$2 per bushel; I could have had \$3 by waiting till spring. This township did not average 5 bushels per acre that year. Last year the result was nearly as good, and my growing crop looks fine, notwithstanding last fall was so very dry. 1866 was when I commenced deep ploughing. The longer land has been in cultivation the deeper it should be plowed.

T. Engelmann.—The first ground on my farm was broken in 1850, and the work of breaking up continued in the next following years; the land on the slopes of the elevation, being rich and dry, has since that time been in wheat from year to year; and the land in the flat prairie, being low and wet, has as regularly been in corn every year; manure has never been used, the soil showing no signs of exhaustion. Deep plowing has not been tried; the plows used for breaking ground are made by the blacksmiths of the neighborhood; plows manufactured at other places and brought here for sale are generally discarded, not because they are considered inferior, but because our blacksmiths can not or do not like to do the necessary sharpening and repairing properly.

G. C. Eisenmeyer.—Deep tillage is always beneficial, hence the old adage, "Plow deep while sluggards sleep, and you shall have corn to sell and to keep." However, ground prepared for wheat should not be plowed deeper than the previous year. Wheat is of so fine a nature that when the *unairified* soil, in other words, soil that has never been exposed to the beneficial effects of air, rain, sun and dew, proves very injurious to the kernel or grain of the wheat, you will obtain plenty of straw but poor wheat. The common steel mould board plow, and the so-called gang plows,

made by Jacob Hage, of Shiloh, Ill., and another by parties in Monroe and Washington counties, are in general use here.

J. Barber.—I have 100 acres, 60 of which are in fruit, the remainder in pasture, meadow, etc. A small part of the farm has been in cultivation since 1850, mostly corn and oats for the first few years, and subsequently put in orchards. Has been exhausted but little. Have used all the manures made on the farm, with a considerable increase in the amount of products.

Find deep plowing not only beneficial to crops in seasonable years, but a great preventive of the evil effects of drouth; also find fall plowing better than spring. The best plows are made of steel. I use those made by John Deere, of Moline, Illinois.

5. GRASSES, CLOVERS, ETC.—What do you find most suitable varieties for pastures and meadows: mode of seeding and quantity sown per acre: largest and average yields of meadow lands: average number of live stock of different sorts pastured per acre: experience in top-dressing meadows, and its effects: stage of growth at which grasses, etc., are best cut for hay: implements preferred for hay-making?

E. Moss.—Clover and timothy; sow principally with wheat or rye, and in spring about 12 quarts of mixture per acre. Yield $1\frac{1}{2}$ to $2\frac{1}{2}$ tons. Top-dressing meadows is good.

G. Chaffee.—Clover and timothy. In seeding to grass have no established rule, but use not less than eight quarts of clover and four to eight of timothy per acre. In a few cases, have sown timothy in September upon oat stubble and harrowed it, then sowed the clover early in spring, and with success. More frequently I sow grass seed after oats, and give it a light harrowing and roll. Clover is a great renovator of the soil. Would mow one to three seasons, then plow. Cultivate not to exceed three crops without seeding, unless manured.

M. A. McConnell.—Clover, timothy and red top are the best varieties for pasture. My pasture, that has been used for 30 years, is the best I have, and affords the richest feed. Cattle want large range and plenty of water and shade trees. The under-brush is all taken out of my pasture.

Top-dressing is very fine for meadows but not for pasture. We always prefer to mow our grass just after the bloom falls. We use Manny and Kirby combined machines, and McCormick's mower. We have three machines, and they all work well. For getting up the hay we have Hollowworth's sulky horse rake—the best in all the land.

A. Baley.—Sow two parts timothy to one part clover, one peck to the acre.

H. Pierce.—Timothy for meadows; for pasture have plenty of prairie as yet. Three tons is the largest yield per acre—usually from 2 to $1\frac{1}{2}$ and 1. Timothy is best when the bloom is just about to fall off. Manny's reaper and mower is the principal cutting machine, although all have their representatives in the hands of different farmers. Revolving wooden horse rake is the leading article, yet others are used.

J. Tefft.—Clover, timothy and red-top. Not much experience in feeding, as farm is rented on shares.

S. Reynolds.—I like timothy and red-top best for pasture, and also for hay; but usually sow clover and timothy together. The more clover the better for the land, and the less the better hay and pasture, except for hogs, and they do best on clover. I like my hay cut with a Buckeye; rake with the Ohio revolver. Have used the horse fork some, but prefer the Batchelder pitchfork.

J. Schoenleber.—Timothy and red clover for pasture; for seed I prefer either alone; prefer seeding wheat or oats on wet ground. Have the ground plowed in the fall, and sow as early in the spring as the ground will admit. Sow the seed after the wheat is harrowed, then roll; or if a heavy rain falls it will answer the purpose of rolling.

Have raised timothy mostly for seed—half peck of seed to the acre; for pasture or hay I would prefer one peck of timothy and two quarts red clover. Largest yield six bushels of timothy seed to the acre; lowest yield three bushels. By top-dressing one can always calculate on six bushels. At \$3 per bushel this pays better than wheat, as the straw and pasture will pay for harvesting and threshing. One seeding will do for 20 years or more.

C. E. Barney.—For pasture, as many kinds of grass as will grow on one piece of land at once. For hay, red-top cut early. Timothy, cut just after the blossoms fall. For mowing, a compact machine without a reel; should not cut more than 5 or 4½ feet, and have two driving wheels

A steel wire adjustable tooth sulky rake I find very convenient, and a horse fork with short handle.

V. Aldrich.—For early pasture, blue grass or June grass is best, as it starts much earlier and will bear tramping early, when the ground is soft, with less injury than other kind. Clover and timothy, with a mixture of red-top, is preferable after it gets a good start—say six to eight inches high. It never should be fed off close, but given rest and a chance to keep in good bite for the stock. Timothy mixed with one-eighth clover I prefer to anything else for meadow.

The best success I ever had resulted from sowing my grass seed right on the stubble ground from which had been taken crops of oats or wheat. I sow the grass seed the last of August or first of September. The first rains will bring it right up, and if the fall is wet and warm it will get a good start. The stubble keeps the cold winds from it and holds the snow, which protects it through the winter. The next summer we may expect a good crop of hay. I sow one-half bushel timothy seed with two to four quarts of clover, well mixed before sowing, so that one scattering completes the work.

Average yield of hay per acre, 2 to 3 tons; two tons without manure would be full average. I have a five acre meadow that has had nine crops of hay taken from it in nine consecutive years, and never yielded less than two tons, and several years three, when it was wet and favorable to the growth of hay. This meadow has been manured twice in the time, completely covering it. Each time the manure was applied in the fall—October or November. I prefer to cut my hay when it is in full blossom, or just as the blossom is ready to fall from the timothy. At this stage the stalk contains all the sap and the blades are all green. If not cut now the sap goes into the seed, the stalk becomes hard and woody at the bottom, and the leaves begin to turn yellow and die. The longer it remains the more worthless it becomes as fodder.

I have used a two-horse mower—Ball's patent. It cuts close and easy. The Buck-eye is about as good. No combined mower and reaper will cut anything but timothy, when standing well, close enough. A single mower will cut lodged grass as well as it can be done by hand with a scythe. A one-horse revolving rake does the work well and expeditiously.

I never practice mowing more in the forenoon than we can rake and put into the cocks the same evening. The next day the cocks are opened and the hay cured suffi-

ciently and carted into the barn, without being wet or bleached by the dew. When my barn is full I stack hay under a shed roof. This is nearly equal to a barn. Make a double roof—span twenty-four feet—and as long as needed; cover with sixteen feet boards, and batten with fence board. If the boards are sound this will make a tight roof.

Timothy and clover are the only grasses sowed here for pasture; but the natural pastures, after blue grass and white clover get in, are much the best.

Sow eight quarts of timothy and four of clover, per acre, in the spring, either with wheat or oats, or in the fall by itself, minus the clover, which is sowed the next spring. Average yield, two tons per acre; greatest yield, three tons per acre. I pasture one horse or cow per acre, and from five to ten hogs per a.c.e. I think we can double the yield of our meadows for hay and pastures by manure. The best time to cut hay is just after the blossom drops. The Buckeye mower and the sulky rake are considered best here.

G. W. Minier.—For meadows, timothy, or clover mixed with it; and same for hay. Sow moist ground, red-top is preferable. Generally seed with wheat, oats or barley; have seeded after burning off stubble in the fall. I wish to speak this in an undertone, for whoever burns his stubble is, in so far, a spendthrift. We usually get about two tons of hay to the acre. We can keep one ox or cow to the acre, or about five sheep. The best top-dressing for meadows is the folding of sheep, the penning of swine, or herding and feeding cattle. Stable manure should *not* pass through fermentation before being spread on meadow, or elsewhere. But this contradicts custom, and therefore will provoke controversy, and most men will still carry a stone in one end of the bag, and a peck of corn in the other.

The *time* to cut grass for hay is after the bloom has fallen, or rather as it falls. Mower—Buckeye, or any other as good; horse-rake; good hand pitch-forks. A large amount of hay will warrant other implements.

J. Robinson.—For summer pasture I prefer timothy and clover; for early spring, fall and winter, Kentucky blue grass. I have made very good pastures by sowing one and a quarter bushels of rye per acre, early in September, among the standing corn, covering with a one-horse double shovel plow, by passing on each side of the rows as near the standing corn as possible; then before a rain falls on the ground thus passed over, sow timothy seed at the rate of one bushel to six acres; the seed will be covered by the first rain; the rye and corn stalks afford good protection to the young grass during the fall and winter. On the ground thus treated I sow clover late in the winter, being governed as to the amount of clover seed to be sown by the condition and stand of timothy and the amount of clover I want on such pasture—one bushel on twelve or fifteen acres being a very good mixture. Land thus sown is sure to catch well the first year, and produce as much feed the first summer as a good, well set clover and timothy pasture. It is best not to pasture when very wet. Land seeded in this manner is too uneven and the stalks interfere too much for mowing.

For meadows I succeed best seeding a mixture of one-fourth clover and three-fourths timothy; sow early in the spring on land well plowed, and with wheat or barley, well harrowed; and if the ground is rough, roll before sowing the grass seed, cover the seed with a light harrow or brush; one bushel on six acres being a fair quantity. It is very desirable to set a meadow with the ground as loose as possible, as a hard bottom never yields a heavy crop of hay. My average crop is generally about two tons per acre.

Two acres is usually required to pasture a grown horse or cow the entire summer; a less area will do until the dry and warm weather after harvest, when I add meadows to my pasture when very close, lest my succeeding crop of hay be diminished, and my land fails to be renovated as it should be. The grass should be cut for hay as soon as the timothy seed is in the dough, and cured as well as the weather will admit.

If my hay is well cured when I put it in mow or stack, I sprinkle ten pounds of salt to the ton; if a little green, fifteen; and if very green, twenty pounds. A good mowing machine, hay rake, and stacking machine, or, if in a barn, a horse fork and some light steel spring, but strong, pitchforks, are all the machinery required for hay harvest.

J. R. Tull.—Red clover is best for improving the land, and is valuable as hog pasture, as well as food for cattle. It is the best crop known in this country when used as a fertilizer; which is done by plowing the seed crop under when the seed is sufficiently ripe to seed the ground. Land that is very much exhausted may in a few years be restored to its original fertility without any other fertilizer.

I consider timothy our main grass for the hay crop. Our yield is from one to one and a half tons per acre; very rarely we get two tons. I find a top-dressing of good stable manure greatly increases the yield per acre.

My experience in cutting timothy for hay has taught me not to cut it until the seed is ripe enough to grow. Some say, cut it when in blossom; but if cut at that time there is a heavy loss in weight and substance.

For cutting timothy, I find Ball's large combined reaper and mower to do excellent work.

T. Gregg.—In meadow I have no experience; but can report that timothy, and clover and timothy mixed, are mostly grown for meadows on the prairie farms hereabouts. In mode of culture and amount of production I am not well enough posted to report.

A. C. Hammond.—Timothy produces the best results as a forage grass. In seeding I use from one fourth to one-fifth of a bushel per acre. Usually sow on wheat in the fall or winter. I find that top-dressing with stable manure will increase the yield from twenty-five to fifty per cent.

H. Sadowsky.—For meadow grasses I prefer red clover and timothy—one-eighth of clover and seven-eighths timothy. For pasture I would add a portion of blue grass. My mode of seeding varies; I have sowed timothy the last of August and it did well, and I have sowed it in March and April and it did well also. Cloverseed should be sown about the last snow in March. I usually sow broad-cast, and about one bushel of timothy and one-eighth of clover to 6 or 7 acres. Meadows differ so much in wet and dry seasons that it is difficult to estimate the average yield, but I would place it at $1\frac{1}{2}$ tons per acre, in a favorable season, and one ton per acre in a dry season. In this section of the country we calculate $2\frac{1}{4}$ acres to the head for grown cattle. We think that a three-year old steer requires the same amount of grass that it takes to pasture six sheep.

My experience in top-dressing is limited. I find it advantageous to roll meadows in the spring, when the land is thawed about two inches deep. This process levels the land, and presses back the grass roots that have been drawn out of the ground by freezing. The time of cutting hay varies with the amount to be cut. If I have a long harvest, I commence as soon as the seed is in the dough. I find that hay

cured at this stage is better for stock than at any other, being small, soft and full of nourishment. When riper it is hard and stiff, with more wood in the stalk. Stock cannot cut so much of it, and it does not do them the same amount of good.

W. M. Allen.—Timothy and clover. Have tried all modes of seeding; each sometime fails. Quantity, 8 quarts timothy, 4 quarts clover; yield, 2 tons to the acre. The best time to cut timothy is when the bloom is off.

S. P. Boardman.—Either for meadow or pasture, I find it best to sow quite a variety of grasses. Our prairie soil is so light, loamy and *grainy*, that it heaves grass roots out of the ground terribly in the spring of the year. To obviate this heaving process there is nothing like having *the ground well covered* and the soil well *tied together with grass roots*. Any one who has ever had any experience in sowing grass knows that timothy can be made to cover the ground only about so close, no matter how much seed may have been sowed to the acre. Another fact with regard to sowing timothy is, that, no matter what the "stand" which may have been obtained from an original sowing, no subsequent sowing seems to help the matter a bit. Timothy will "take the ground" to a certain extent—no more, no less—leaving space which can be occupied by other grasses. In a less degree the rule holds good with all other of the most common grasses sown, except blue grass and red top, which spread from the root.

I have been sowing grass for the last sixteen years in Illinois, and I am satisfied that the worst mistake men make in general, is in not putting on seed enough. I am now sowing about 160 acres to grass, and I am putting on 11 quarts to the acre—being a mixture of timothy, clover, orchard grass, and red-top—a peck of the first, a quart of the second, and the two last by the "grab."

My largest yield of hay (*season* makes everything with the hay crop) has been two tons to the acre. In a general way we get a little over a ton, perhaps, as an average crop.

My farm is stocked almost wholly with sheep, and I am trying to stock light; five sheep to the acre is as many as I wish on my pastures. "Big grass under stock makes a profit; short grass, short everything."

The best time to top-dress meadows is immediately after the hay crop is taken off, and will make a difference of an increase in the hay crop of from one-fourth to one-half. No way so good, that ever I have found, to apply manure in Illinois.

G. Harding.—For pasturing I sow a mixture of grass seeds—timothy, red clover, English blue grass, native blue grass; white clover comes up itself. This mixture makes the best pasturing that can be made in any soil; the native or Kentucky blue grass, with some timothy, being the best for fall and winter pasture. Sow a peck of the blue grass seed, with a little timothy mixed with it, to the acre.

For summer pasture the English blue grass will yield twice the amount of any other. Sow one-half bushel seed, with a little timothy to the acre.

This mixture of seeds does well on most all kinds of land, sown in January or February, and should not be pastured the first season. Timothy, with some red clover mixed, is best for meadows that you intend mowing for hay, sowing about one-sixth of a bushel per acre. Sow from the first to the tenth of September. Average yield per acre is two tons.

Two acres of mixed pasture will take a three-year old steer through the grazing season, and make him gain 300 to 400 pounds in an ordinary season.

Timothy makes the best hay when cut just after the bloom drops.

The Excelsior or Buckeye mower, common revolving horse rake, and Fowler's hay derrick, are among the best hay-making implements.

G. W. Vaughan.—For meadows I prefer timothy and clover mixed. For pastures, I want different kinds. Blue grass is the best for early; then red-top, timothy and clover. Blue grass is hardly fit for summer pasture, as it dries up and has but little substance, while red-top, timothy and clover keep greener and have more substance. Timothy and clover meadows make splendid fall pasture, and blue grass early winter, and if not pastured too much in the spring will keep green nearly all winter, and sheep will need little if any other feed except while snow is on the ground. Timothy and clover pastures do not last like blue grass and red top; the timothy is easier killed by close pasturing, and the clover, if not allowed to seed, will die in two years, as the plant lives but that length of time from the seed. Clover is splendid for pasturing hogs during the spring and summer. I think red-top fully equal to any kind of grass for pastures. English blue grass not so good as the common kind.

My plan for sowing grass seed is, to put the ground in wheat in the fall, and then sow the seed in February or March, on snow if possible. Clover seed, however, should be sown later, as the young plant is more easily killed by freezing than that of other kinds. I usually sow one peck of timothy and one-half gallon clover seed, per acre. If sown together, less of either is required. When wanting a red-top or blue grass pasture, I mix the seed with timothy and sow together. The timothy makes a good pasture until the other gets sufficient hold, and is then rooted out by either blue grass or red-top. Red-top yields less per acre than any kind we have, as it is very light. Timothy alone seldom yields more than two tons per acre, while timothy and clover often yields from three to four tons. The average yield is about two tons per acre. Clover is very essential to meadows for producing a good yield of hay.

I have tried top-dressing meadows enough to satisfy myself that nothing pays the farmer so well as that mode of recuperating meadows. Manure for that purpose should be well rotted, if possible, but if not, will answer well if put on in the fall, so that the freezing, thawing, and rains of winter and spring will dissolve it, thereby washing the strength into and around the roots of the grass. Manure should in all cases be put on the meadows in the fall or early winter, if one expects to secure the benefit of its full strength. I hauled out a lot of manure last winter and put on my meadow. I did the same in the spring, and the difference in result was very perceptible. The winter dressed meadow was a great deal better than the spring dressed, and that better than the meadow where no manure was applied. One load of manure, put on the meadow in the fall, will pay a large percentage to the farmer.

I prefer cutting grass when the seed is just ripe or in the dough. I never want it cut too green or too ripe, as it moulds when too green, and the seed falls off when over ripe, making it disagreeable to handle. Stock will eat hay cut when the seed is nearly all off better than when cut green. I have seen this tried.

My father cut a piece of meadow just after the bloom fell off, and then cut some after the seeds were nearly all fallen, this last being left to seed the ground; both were put up without any rain; the former was as nice bright hay as I ever saw, while the latter was brittle and seemed of little account. We stacked them and fed them together, and the stock would hardly touch the bright hay when they could get the

other. I have since repeated the experiment several times and with the same result. Clover should be cut when the bloom begins to change color or begins to die.

The machines preferred here for cutting grass are the Excelsior and Buckeye. There is little difference between them. They do splendid work and are easy on the team. We generally use rakes made by a man in our own neighborhood, named Hampton. They are not patented and are, consequently, not known in agricultural works. They do splendid work; they have but one handle and are much more easily used than the patent revolving rakes formerly in use here. These revolve like the others, but there is a different mode of stopping the revolution. So little hay has been made in this part of the county, that the derrick has not been used. Our hay is stacked with "Armstrong's Machines." I prefer the derrick to stacking by hand, and think it will be used here next summer, as meadows are more extensive now than formerly.

S. Butler.—Timothy is used mostly for hay and pasture. From thirty to forty head of stock may be pastured on 40 acres.

D. Gove.—For pasturage, I think a mixture of timothy, red clover and blue grass the best; for hay alone, timothy and red clover are the best. I have had good luck in sowing grass seed on fall wheat about the first of March, in the proportion of about one-eighth clover mixed well together, and sow about one bushel of the mixed seed on five or six acres of ground. An average yield of hay per acre is about three thousand pounds, in an average season. I think three acres of our grass will keep a horse or cow in good condition, and an acre of good red clover with twenty ears of corn per day, will keep ten head of ordinary sized hogs through the pasturing season. My experience is that top-dressing of meadows with barn yard manure in the fall or winter is the best disposition we can make of the manure. I think the best time to cut hay is when, if it be timothy and clover mixed, about half the clover heads are ripe; and for the good of the meadows afterwards, I do not cut so near the ground as some, in as much as I think that portion of the growth near the ground worth more to the meadow as a mulching than it would be in the mow for feed. As regards implements for making hay, I am a little partial to the Buckeye mower, the revolving rake for gathering and the horse fork for elevating into the mow.

J. G. Swann.—Clover. McSherry's drill. One gallon per acre. Two tons. When blossom is fading. McCormick's mower.

J. Balsiger.—Clover does very well with me, particularly on upland. I can cut mine three times in one season. For pasture, blue grass is to be preferred as more lasting and hardy; it grows here spontaneously. For meadow, I prefer timothy and red-top; the latter brings very rich crops on bottom land which is sometimes overflowed. Red top hay is, as far as I can judge, of very good quality; cattle and horses like it, but it is lighter than timothy. I sow one gallon clover, and about three gallons timothy seed, per acre. I never sow any red-top; it comes up by itself on meadows or bottom land, and crowds out the timothy growth. Top-dressing meadows has a very good effect and stimulates the growth of the grass; but I prefer plowing in the manure before seeding with grass. I believe its effect is more lasting. I feed my hay out mostly on the farm, and therefore do not weigh it, so that I cannot tell how large the yield is per acre. I think two tons are a good average crop. For cutting the hay I use a Manny's mower, and rake it up the same day with a common revolving horse rake, if the weather be fine so that it dries quick; afterwards it is put in shocks or cocks and stacked as soon as possible. The best

time for cutting clover is when it is well in blossom; for timothy and red-top, soon after blossoming is over, when the seed commences forming.

J. Y. Bothwell.—Grasses: I prefer timothy and red-top mixed. Sow in February or March on growing wheat; one bushel on five acres; about two tons per acre is an average crop. Top-dressing will pay well. Cut grass when the earliest heads are brown. I use the Buckeye mower, and a wooden horse rake; this rake gathers no dirt with the hay as a steel-toothed rake does.

T. Engelmann.—Grasses and clover are not much grown, although they succeed well in our soil; and live stock is raised and kept only for family use, and not for market.

G. C. Eisenmeyer.—Blue grass for pastures, and timothy for hay. The time of seeding is about the first of September, on ground well pulverized. Summer fallow on wet ground is always preferable. I will sow on no other ground. The ground cannot be too well prepared. If the season proves unfavorable—if too dry after sowing and you do not obtain a good stand, sow again on or about the first of March following. The yield of timothy is from one to three and a half tons; one and one half tons is about the average crop. I always sow five acres of timothy with one bushel of seed; of clover, from 8 to 10 acres with one bushel. I sow with the thumb and next two fingers; always let the middle finger scatter the seed.

No kind of stock should be allowed to run on your meadow land after the frost is out of the ground in the spring; while in the fall, pasturing is of three-fold advantage: 1st, to your stock; 2d, to your meadow, by eating out the weeds and rank grass; and, 3d, the enriching of your meadow by the droppings of your stock. Top-dressing with barnyard manure should never be neglected; not an ounce of manure should be wasted, but all that can be obtained be put on your meadow.

Grass should be cut as soon as the seed is perfected and before fully ripe. Use any of the many valuable two-horse mowers. I always cut in the forenoon, and rake and cock up in 100 lb. cocks in the afternoon. Grass should never be exposed to the very injurious nightly dews, or too long a time to the hot and scorching rays of a July and August sun. Much hay is made burning it up by too long an exposure to the sun's rays, and the balance of the saccharine matter (the only nutrition in hay) is extracted by heavy injuries which make it more worthless than good oat straw.

Making of clover hay is of a more particular nature still than timothy, yet my experience is such that good clover hay can be made almost any season. We generally have rainy days about the time that clover ripens and is ready for the sickle, which is about the first of June.

I always cut clover when I am ready, regardless of the weather. I leave it on the ground without turning it till full three-fourths cured; rain won't hurt it much if it remains on its first swath. I always aim to house it up when I turn it; it had better rain on it a week on its first side than once after it is turned over. Clover is one of the great essentials in good farming; it makes the finest pasture; it drives worms from horses as well as hogs; fattens everything that will eat it; it will increase as well as improve the milk of cows; is more nutritious for farm horses than timothy; young stock will fatten on it, and work horses will need but little grain if they get plenty of good clover hay; last and not least of all it improves your land. I always sow about the first to the fifteenth of March, on wheat land. It hardly ever does well when sowed with oats. I always judge of a farmer's common, practical sense by the size of his clover fields, and find it a good criterion.

J. Barber.—For pastures, I use red-top, timothy and clover. Red-top is sown on the low ground. Sow timothy and clover together; about one-eighth as much clover as timothy. Close pasturing soon kills out the clover. If not pastured in the fall it will remain for many years.

J. Warder.—We use clover, timothy and red-top successfully.

6. GRAINS.—Best varieties of corn, wheat (fall or spring), oats, rye, barley, buckwheat, etc., that have been tried in your neighborhood: the best time and method of preparing ground for each of the small grains: time and method of planting or sowing: drills, sowing machines or planters that you have tried and found best: best harrows and rollers: cultivation of corn, with the kind of implements used: experience, if any, in cultivating wheat by horse-hoe or otherwise: time of cutting up corn: method and implements: time of cutting small grains: reaper or header employed: practice in shocking, stacking or putting small grains in barn: largest and average yield: insects and diseases and methods of subduing them?

E. Moss.—Corn, Yellow Dent; spring wheat. Fall plowing is considered almost a necessity. Stack grain; put hay in barns.

Geo. Chaffee.—As we almost invariably husk the corn on the hill, and allow the stock to feed upon the stalks during the winter, we have the land to plow in the spring, if plowed at all. When the land is dry and light in the spring, as it usually is after a dry fall, I put on the cultivator, use it thoroughly, then sow the seed, harrow and roll, and in some experiments, side by side with that which was plowed; that sowed without plowing took the preference. When the land is clammy I would by all means plow, then harrow lightly, before seeding, and thoroughly after, and roll. Sow not less than five bushels per acre, and for the last eight years have, on the average, harvested 60 bushels per acre.

In a few cases I have planted corn after corn for 4 years in succession, and a few acres highly manured, but usually plant after oats and clover and timothy sod, applying manure as much as possible to corn land, and, if sufficiently fine to mix with the soil, apply it upon the surface of fall plowed land; if coarse, turn it under with the oat stubble. I choose to have all my corn land plowed in the fall so as not to be obliged to meddle with it in the spring until it is dry. Then put on the cultivator and harrow, roll as necessity requires. Plant from the 25th of April to the 15th of May in rows $3\frac{1}{2}$ feet apart. Formerly planted in check rows, but for the last 3 seasons have planted in drills. When the corn is about making its appearance above the surface of the ground, harrow it by driving the team astride each row and use the hinge harrow with teeth of cast steel $\frac{1}{2}$ inch square (48 teeth). When planted in check rows, thin to three spears in a hill; when drilled allow a spear to every 10 or 12 inches.

1862.—Corn, fair growth; fall favorable; yield 40 bushels per acre. 1863: good growth of stalks, but hard frost August 30th; yield, 20 bushels per acre. 1864: good growth; chinch bugs attacked it in July, and white grubs in August; yield, 35 bushels per acre. 1865: heavy growth, and fine fall; yield, 75 bushels per acre. 1866: heavy growth; August and September very wet with frost about the 20th of September; yield, 25 bushels per acre. 1867: average growth; but that planted on tame grass sod injured by the white grub; yield, 40 bushels per acre.

M. A. McConnell.—The best variety of corn for this latitude is Yellow Dent. Spring wheat is the only crop, and the best kinds are Club and Scotch Fife. Fall plowing is best for all kinds of grains and best for the ground. The spring grains want to be put into the ground as soon as possible after the frost comes out and the ground settles. We use the broadcast sower and have a cultivator that follows

the sower. The best harrow is a 32 tooth drag, with the hinges running through the drag, and a cast roller is very much the best. All grain wants to be cut early.

H. Pierce.—Both White and Yellow Dent corn. Club wheat has the most admirers; common white oats; no rye; very little barley; don't sow buckwheat, it is so hard to kill out. Fall plowing, with heavy harrowing, is best for all crops. Sow as early as we can work the ground for wheat and barley. Plant corn from 15th of April to 15th of May. Cultivate corn with wheeled cultivator. Riding is preferred by some, but both are about equally used here. Lay by with common plow. Pull all corn here. Reaping machines alone are used. Shock of 10 bundles, capped by 2 more. Stacks are put up with from 150 to 300 bushels in each. Average yield of wheat, about 15 bushels per acre.

J. Tefft.—Corn is small, Dent; plant as early in the spring as frost will admit; cultivate early with small plow by turning away from hill as close as can run plow without disturbing it, for the purpose of letting in sun to warm the land. Then, in a few days, turn furrow back and cultivate afterwards with cultivator. This, with buckwheat, which we raise in orchards, is all the grain usually raised on the farm.

S. Reynolds.—Ground for wheat is best plowed in the fall, not very deep; and sowed very early in the spring. I use Brown's drill, made in Ohio. Sow from one and a half to two bushels per acre; oats, three bushels. Like the A harrow or double A best. Have seen very good corn raised with the drag, double shovel plow; and the best way to shock grain is as follows: set ten sheaves on the ground, then lay one or two on top. Largest yield, 90 bushels; average 35, oats. Wheat, largest yield, 30 bushels; average 15.

J. Schoenleber.—The best variety of corn here is the flesh colored; it gives the most abundant yield. For five years I raised the Velvet Winter Wheat; two years since 13 acres produced 100 bushels of wheat and 200 bushels of chess. Last year I sowed 12 bushels and my crop was but 6 bushels; part of that ground I covered in the fall with prairie hay to keep it from freezing out in the spring, but it did no better than the rest. That was the last winter wheat seen in this township.

Of spring wheat, the soft Siberian has been used longest but is now run out. The Rio Grande, Canada Club, Scotch Fife, Bull, Tea and Rhode Island are used. The last two kinds are used most at present, but seem to run out like the Siberian.

Last spring I sent to Wisconsin for White Fife. I sowed 45 bushels on 30 acres, on an 80 acre lot, cornering on the north west of the above described farm. The yield was 410 bushels, about 30 bushels to the acre. The ground was broken with a Rod plow in July; in the Fall it was plowed again; in the Spring harrowed, then sowed, and then harrowed double, both ways.

Last Summer, I broke again 25 acres, plowed it again, and shall sow it in wheat and keep account.

In 1857, I had 31 bushels to the acre, on four acres, and on 16 acres the yield was 25 bushels to the acre, but since that the yield has never been over 18 bushels to the acre, and sometimes only 7 bushels, owing to injury from the chintz bug and wet, sultry weather about ripening time.

In the cultivation of corn, I have used the Brown Planter, the D— Planter and Cultivator combined, and at present I use the Union Planter, which I like the best. The D— Planter I used two seasons, and it was at least one thousand dollars damage to me, as I could not raise more than two-thirds of a crop. The Planter and Cultivator is a nuisance; as for a cultivator, if labor was only cheaper, I should

prefer the one-horse double shovel plow. I use a two-horse cultivator that one can either walk or ride on. Corn should be cultivated when small.

C. E. Barney.—Yellow corn will feed more than white, will make more alcohol, will not be so much discolored if slightly damaged.

The best seed wheat is that brought from a distance, from different soil and more northern climate

The best varieties of oats are those that stand up the best; as far as I have observed, the barley oats do that.

I believe in doing most of the work on a corn crop, just before and after planting; plow well, then roll, and your corn will be an even depth; then harrow before the corn comes up, then roll again, then harrow each side the row, then roll again; continue to roll, after harrowing or plowing, as long as the corn will bear it without breaking, which may be done till the corn is about 10 inches high.

Fall plowing, sharp harrows and heavy rollers for any crop.

In harvesting, use the header if you only want grain; if you want the straw, also, use a reaper; after the straw dries, pitch on wagons with barley forks, unload with horse fork. *Never* bind or shock wheat, oats or barley; it costs more, wastes more, requires more labor to make and stack bundles.

V. Aldrich.—I have had but little experience in the cultivation of any grain, except corn. I have found the best time for harvesting corn to be when the best or ripest ears begin to turn their husks; at this stage the blades are green; the corn is all hard and glazed, and it cures quick and makes excellent fodder. Implements for cutting are corn cutters, generally with straight blade; clasp a hill with the left hand and cut it with the other. To shock round, I use a scantling or 3 inch pole, with two legs in one end, long enough to raise it about 3 feet from the ground; back mid way from the legs to the back end, about 12 feet, that lays on the ground, I bore a $1\frac{1}{4}$ in. hole, and put in a stick, 5 feet long or more; this stick is horizontal, Setting the corn in the four corners until there is enough for the shock, I then have another stick, with crank at one end, and pin about one foot from the crank; fasten the rope to the pin, stick the long end through the shock, and carry the rope round the shock, and make fast again to the pin; turn the crank until the rope has drawn the shock as close and tight as you want it; put round your band and then loosen the rope and take it away; pull out the stick from the scantling; take hold of the end the legs are in, and pull it out of the shock; then go ahead with it for the next shock.

A. Rankin.—The large White and Yellow Dent corn are the best varieties. The best oats are the Surprise.

The best time to sow wheat and oats is as early in the Spring as the ground will admit; fall wheat is uncertain. Rye does well; sow any time in September. Average yield of corn in the country is, I think, about 35 bushels per acre. One of my neighbors and myself raised over 87 bushels per acre. I did not have a very good stand or should have raised more. Average of wheat, per acre, 10 bushels; average of oats, common oats 35 bushels, the Surprise oats 125 bushels.

Fall plowing is considered by many as the best to sow wheat or oats on, but I have found it just as well to sow on stalk ground, by putting it in with the cultivator, harrow and rolling smooth, without plowing, where the corn was thoroughly cultivated, the year before.

The best harrow is the hinge harrow, made nearly square and joined together in the middle by long, strap hinges. The best roller is the cast iron section roller.

Corn is cultivated here mostly with the two-horse walking cultivator, of which there are more different patents manufactured here than any town in the United States. The best time to cut up corn is just after the first light frost, though if the corn is thoroughly ripe it may be cut before frost; but if cut green, while the weather is warm, it will invariably heat and spoil the fodder. The common straight knife is used for cutting; your hills are tied together at the top, the corn is then set up all around and tied near the top. The time for cutting small grain varies according to the kind of grain. All kinds of reapers are used; can't say which is the best. Those with droppers attached are preferred.

Shock and set up ten or twelve sheaves firmly, according to the size, cap them with two sheaves, well broken and spread over the whole.

G. W. Munier.—Yellow corn is usually preferred for feeding, and white for culinary purposes. Italian Spring wheat is about all we need here. Winter wheat will do in our woodlands, but is a failure on the prairie soil latterly. We have a large white or light yellow oats, much admired; rye, barley, and buckwheat are little raised, and less cared for. Prepare all lands in the Fall for Spring grain, except corn, and even for that, it often does well. Sow wheat and oats early as possible. Drills for wheat are out of use in our neighborhood, but it is thought they would do better than the ordinary broadcast method. We have corn planters, of course, but I must be excused from advertising any one's unless I'm paid for it; if some one will make me a present of a planter, why, I'll give him my best wind. Diamond shaped harrows and log rollers; I know some one will call me "foggy;" no matter. Small rollers, with equal weight, for crushing clods. Never saw any wheat hoed in any way. Cutting up corn belongs to by-gone days and dark corners of the earth. Cut small grains as soon as the kernels are plump; don't wait for them to grow hard and shrivel. Cut with a reaper, shock and stack out-doors; putting in barns invites all the rats and mice in the whole land. Yield—wheat, about twelve bushels to the acre; oats, forty. Not much troubled with insects in our small grains; army worm sometimes takes off blades, but his visits are at long intervals.

J. Robinson.—Our corn is of the common western varieties, the Dent corn chiefly, white and yellow. I think the large yellow, with deep grains, that fit completely together nearly the whole length of the grains, will usually average the most bushels per acre on our soil. To prepare the ground for corn, I would recommend 12 inches deep, if the teams are strong enough, from the 1st to the 15th of May usually, sometimes earlier or later, according to the dryness of the ground; it is useless to put corn into cold, wet soil. After plowing, I cross mark with a cheap and effective marker, constructed as follows: Pin three or more pieces of joist, 2 by 8 inches, two feet long, shaped like a sleigh runner, to a strong plank, the pieces being as far apart as you design the rows of corn to be; then pin or bolt on a piece of scantling or pole on top for a tongue; when ready for use, the cost will not exceed two dollars. A man and team can cross-mark from twenty to forty acres per day, better than he can mark eight or ten with a horse and plow; the furrows it makes are narrow and shallow, but distinct, the planter crossing them with much more ease than the furrows made with a plow. On ground free from weeds, I prefer to plant in drills four feet apart, and have the stalks stand one foot apart in the rows. Corn planted in this manner, on good clean land, will produce more corn per acre, with less labor, than in check-rows; but if the weeds get a start, it takes a great amount of labor to clean it. I have used the planters manufactured by G. W. Brown, of Galesburg, and another by Smith, of Peoria, and find both to do good

work. Care is required not to plant too deep, from two to three inches being sufficient depth. To till the crop, I first use a harrow, made in the shape of the letter A, with the foremost teeth twelve or sixteen inches apart, and six or eight teeth in each side; it can be used before the corn is large enough to use the cultivator; it serves to pulverize the lumps, and kill many young weeds, leaving the ground in good condition to follow with the cultivator. I use the cultivator manufactured by T. & H. Smith, Pekin, Ill. The operator walks. This implement can be used either with shovels or mould-boards, adjustable to throw the earth either to or from the corn; I find it to do good work, and costs about \$20 each.

H. Sodowsky.—The best variety of winter wheat tried in this country is the Genesee; it ripens early and is not so apt to rust as varieties that ripen later. The Mediterranean succeeds well here; so does the Blue Stem, when the season is favorable. The best mode of sowing wheat is with the drill, when the ground will admit of it. Wheat is injured most by the winter freezing and thawing which spreads the surface, drawing the wheat out of the ground, and leaving the roots bare, which are killed by the dry weather and winds which blow the dirt from about the roots. Wheat that is sowed with a drill is in the bottom of the furrow; as it thaws and freezes, the loose soil rolls into the furrow, covering and protecting the roots from the wind. The best time to cut wheat is when the grain is in the dough; the grain is then plumper, fuller and yields more flour, whiter and better than at any other time.

W. M. Allen.—Best varieties of spring wheat, Club and Italian. Plow in the fall, and plow deep; sow as early as the ground permits. If the ground is clear of trash, the best method of sowing is by drill; if not, by hand. Brown's is the best planter. Use all kinds of implements for corn; all are imperfect. Cut corn as soon as there is no danger of its moulding, which depends, in great measure, on the weather. Cut wheat with reaper as soon as the younger heads are in the dough. Largest yield of wheat, 40 bushels; smallest, 6 bushels.

Geo. Harding.—Best varieties of corn are the clear white, and yellow; of wheat, Mediterranean and white winter wheat; white rye best; oats, English or black. Break your ground and harrow it well the first of September, for wheat and rye; first of April, for oats; for corn, plow deep and pulverize finely, as circumstances will permit. Plant from the 10th to 25th of May, with Dickey's drill or Brown's planter, and tend with some good two-horse cultivator, followed by a V, as long as possible, and lay by with a mould-board plow. One of the most valuable implements is the roller, which should be used whenever the condition of the ground will permit.

G. W. Vaughan.—The kinds of corn generally preferred here, are the large white and large yellow, for early planting; and the little yellow, for late. The large white was brought from Indiana, some years ago, by a man named Titus, and is called by that name. For fall wheat, the Genesee or West, and Mediterranean are preferred. The Genesee is between a white and red quality, and is better than the Mediterranean for flour. The large white is preferable to any other for flour, but is so uncertain that farmers sow but little of it. For spring wheat, the Mediterranean is preferred, though many like the Canada Club very well. In oats, the common white is preferred to other kinds, as they are not so apt to blow down, and are much better to handle and feed. Rye, the large white, or blue stem. Spring barley preferred. For oats, the ground should be broken up as soon as possible in the

spring, and the oats sown and harrowed in; the same preparation of the ground is requisite for barley; rye the same as fall wheat, of which I have before spoken; both should be sown early in September, by harrowing in or drilling. The ground for fall wheat should be prepared as soon as the oats are taken off, if sown on stubble. If on new or meadow lands, should be broken in the month of June, and the wheat harrowed in. I like the drill, if the land is rolling, but if flat, I do not, as the water stands in the drill furrows. I have never tried the broadcast drill. For planting corn, the ground should be broken up as soon as dry enough; it should never be broken up wet, as it becomes hard and seems to lose its vitality for the season. If the ground becomes very dry before getting it all broken up for corn, I roll it before planting; if not, I plant and roll it after the corn comes up. Brown's Illinois corn planter is preferred. I use my own make of rollers and harrows. I do not know of any patent rollers in the county. I think rolling is one of the most essential modes of cultivating corn that we can adopt; it is also splendid for wheat. I use the double shovel for plowing corn. I generally harrow my corn, or plow once and then harrow; I first use the roller, which pulverizes clods and makes ready for the plow. I have never used any of the riding plows; the Sucker State and Stafford have been used, and are very well liked—the Sucker State preferred. I have never cultivated wheat by the horse-hoe, or any mode but rolling. Corn should be cut when ripe, unless the frost comes before that time—in that case, it should be cut as soon as possible. We use only the hand knife for cutting corn. Wheat, rye and barley should be cut while in the dough. Oats, for feeding, should be cut in the dough; for threshing, when ripe. The Ruggs, Kirby and McCormick reapers are all used—the Buckeye and Excelsior are preferred by me. Wheat I shock after the machine, and if the weather is dry, stand a week or two. Oats I let cure after they are cut, then bind and shock, and let them remain in that condition for some time, as they cure slowly, and are apt to heat in the stack if not very dry. I never put wheat in my barn, and but a small portion of oats at a time, as they draw rats and mice, who destroy a large portion of each, if put in for all winter. The largest yield of wheat on my farm was 28 or 29 bushels; average yield, not over 15 bushels. The largest of oats that I have thrashed, was 55 bushels; the average, about 40 bushels. The only insects injuring our wheat are the grasshopper and the fly. I know no mode of subduing either. The grasshopper injures the wheat in the early part of the season, and many farmers sow late on that account. I would always risk the grasshopper or fly to the winter freezing. The fly gets in the root in the fall, I think, and lays the eggs and they hatch in the spring, the young sucking the sap from the stalk.

S. Butler.—The speckled corn yields best; and fall wheat. Manny's machine has proved best here.

W. F. Bliss.—For oats, I prefer to plow in the fall, and drill in the oats as soon as possible in the spring, at the rate of about 2 bushels to the acre. For fall wheat, I would, if the ground were new, turn it over in May and June as shallow as possible, let it lie until September, then harrow, say four times, and sow with a drill, from three-fourths to one bushel per acre. I sow the May wheats, which are small grained, as near between the 20th and 25th of September as possible. I use the Hoosier drill, and find it good—perhaps it is the best; but I know the Sherwood, Buckeye, Belleville, President, and some other drills to be good. All drills with the so-called "slide" feed, I think, are to be avoided. If the ground were not new,

I would either "summer fallow" it or break it up as soon after harvest as possible ; let it be until as near the 20th of September as you may, harrow twice, roll, harrow again once, roll again, and then drill from three-fourths to one and one-fourth bushels per acre, between the 20th and 25th of September. The more thoroughly the ground is prepared, the less seed is required. I begin cutting wheat as soon as it has gone into the dough. I use the Marsh harvester, which, with a driver and two binders standing on the machine, will cut from 6 to 12 acres per day, averaging, perhaps, 7 or 8 with moderate work. It will require, say, a man and a boy to shock it up. I put about 15 sheaves in a shock, including two cap sheaves, which are prepared by breaking down and spreading heads and butts, and laying on the shock. If winter wheat is well shocked it will go through a long rain without damage, provided the caps which blow off are occasionally replaced. I have usually stacked my wheat after it had stood in shock a couple of weeks, but the last two years have threshed directly from the shock with very favorable results—one year, one hundred acres, the next year, seventy-five.

D. Gove—Grains—the best varieties of corn that I have tried are known among farmers as large white, with a small seed cob, kernel very broad and deep, ripens well of a good season ; I also grow a medium-sized yellow variety, which I like for feeding cattle better, as it is very productive and is not so hard for stock to masticate as the white. Of wheat, I like the white May best ; it stands up well, ripens from the 15th to the 20th of June, and yields well and brings the best price in market. The black oats seem to do best with us, in as much as they do not grow so tall, and are less liable to fall. Our experience has taught us that the all-important thing about raising a wheat crop with us, is the preparation of the ground. I do not deem it essentially necessary to plow quite so deep as for corn, but it should be done thoroughly, and in August, if possible ; then harrow and roll until we have all the soil *thoroughly* pulverized and *packed*, so that the roots of the young plant has a good chance to throw out its roots in all directions, and obtain a good *hold* on mother earth, so that the cold of winter can not kill it, nor the freezing and thawing of March can not release its hold upon the soil. I have no experience with spring varieties of wheat.

I like the Brown corn planter best of any that I have tried, and the McSherry wheat drill suits me best for putting in wheat ; drilling wheat is much the best, and our best time for seeding is generally from the 15th to the 25th of September, and our best time for planting corn is about the first of May. I like what is known as the Scotch harrow best, and the best roller that I have used is one of my own constructing, the heads or ends are of cast iron, with wrought iron spindles, the drum is framed of 8x4-inch plank, mitred together and bolted to the ends, and dressed round and smooth ; the frame is made strong, and is so constructed that it can be loaded to any desired weight ; it also has a seat for the driver ; the drum is 21 inches in diameter, a small roller of the same draft does much better work than a large one, in consequence of less surface on the ground at the same time. I have tried the different kinds of riding and other corn cultivators, but the cheapest and best are the double plows and double shovel. Our time for harvesting small grain is, for wheat, the last half of June, and for oats and hay, the first half of July. For harvesting, I have used both header and reaper ; the header is the more speedy of the two, and the cheapest per acre ; but when we consider the loss in *weight* and *quality* in the berry when it gets dead ripe, as it must do to be safe to head, it is a *question*, and a *question* of great importance, too, whether it is really cheaper in the end to head or

reap; my own opinion is, that, when labor can be had at reasonable rates, it is the soundest policy to reap, and to do it when it will yield the greatest amount of No. 1 flour. My average yield of wheat for 20 years, has been about 20 bushels per acre, and the largest yield, about 30 bushels.

J. G. Swann.—Large, yellow and flint white corn; red and white early May wheat; beardless. For fall wheat, double breaking fallow ground; harrowing, rolling and drilled. McSherry's drill; A harrow; wooden rollers. Corn planted four feet square and cultivated with double shovel plows five times; three stalks in a hill; cutting corn, 20 hills with sword knife. September. Wheat and oats stacked. Yield of wheat, 20 bushels; of oats, 40 bushels.

J. Balsiger.—I plant the common white and yellow Dent corn; have tried other kinds but found these best and most productive. No spring wheat is sowed here, as it is too uncertain. The kind of winter wheat we mostly sow up to this time, is what is called the "May wheat," a red, early kind, with a small kernel; but new kinds are introduced now, which are growing much in favor. The Tappahannock white is an excellent kind, doing well and selling better than May wheat because of its color, its greater weight and larger grain. Another kind, the Walker or Zimmermann wheat, amber color, presents about the same advantages, except that it is later. The oats we raise are the common white oats. Rye, barley and buckwheat are hardly ever sown in this neighborhood, wheat and oats bringing surer crops and greater profits. For corn and oats (except if corn stubble) the ground is plowed, if possible, once late in fall or through winter and then again in spring for oats as early as possible. The seed is then sowed broadcast at the rate of about 1½ bushels per acre, and then well harrowed in. Corn land when plowed is harrowed also, then laid off both ways at four feet distance, with a corn-marker—a kind of sled with 2, 3 or 4 runners, drawn by a pair of horses—then the corn is planted where the lines made by the marker cross each other, 4 to 5 grains to the hill. Some plant it by hand in the old way, and some with hand corn planters. Brown's two-horse corn planter is much used also, particularly by large farmers. For this the land is laid off but one way. There is much time and work saved by these corn planters, but if the seed is carefully dropped by hand, the number of kernels in each hill can be more exactly regulated, and it will often, in wet springs, especially, come up better. This is the cause why small farmers, and some large ones, have not yet abandoned hand-planting. Some use an implement for covering the corn planted by hand, with a horse, which does the work of 2 or 3 hoes.

It resembles, somewhat, a small harrow, and runs astride on the row. On the forward part are two harrow teeth for pushing aside cornstalks and other trash that might be in the way, behind these are two cultivator teeth, somewhat turned toward the row, and running close to it, covering it up, and at the hind part is adapted a small wooden roller, which crushes the clods that might have rolled on the corn. This corn coverer works very well with a steady horse and on clean land. When the corn is up it is cultivated commonly with a one-horse corn plow, or the single or double shovel plow. The two-horse cultivators are not much used yet. The corn is commonly cultivated four times, crossing each time the furrows previously made. The first two times the soil is turned from the rows, and the two last times they are hilled. Corn is cut up for fodder when the ears are ripe, but the stalks and leaves yet green, or if an early frost kills it too soon, then without delay after the frost, before the leaves have had time to dry and be blown off by the wind. Some think

the corn fodder in this case to be of as good quality as that cut before frost. I do not see any great difference myself. As soon as cut up (with common corn knife) it is set upright in large shocks or stooks, which are tied with a band of some kind in order that the wind may not blow the stalks off. Each farmer cuts up as much corn for fodder as he thinks he will want for feeding, corn fodder being rarely sold; the rest of his corn is left in the field till dry, and then, commonly in December, the ears are gathered in wagons and hauled home into the crib. Some farmers then drive their cattle in the fields for the purpose of letting them glean whatever food there is left for them, consisting of a few ears and nubbins that may have been left over, the dry leaves and smaller parts of the stalks, or rather the tops. The dead cornstalks left are broken down some cold day in winter, when the ground is bare, by dragging a heavy pole, to which a pair of horses are hitched by long chains, cross-ways over the rows. Before plowing (corn stubble is commonly plowed but once before planting) some rake the stalks together and burn them; some plow them under.

For wheat, the ground, if oat or wheat stubble, is plowed shallow as soon as the crop is hauled off, and then again early in September, rather deep, say 7 or 8 inches or deeper if the strength of the team permits it. Then the field is harrowed and the seed drilled in at the rate of one and one-fourth to one and three-fourth bushels per acre. I have not observed any considerable difference in the several drills I have used or seen. They all do their work about equally well. Last fall, when the soil was so dry and cloddy, some rolled their land after harrowing and before drilling. The rollers used here are common wooden ones, single or double. The harrow used by some is the old triangular one; others have quadrangular ones—the hind part a little wider than the fore part, with cross bars. They possess a greater number of teeth and make the ground finer. Wheat is ripe here commonly towards the end of June or first of July. Many—and I believe they are right—prefer cutting their wheat before it is dead ripe, *i. e.* before the grain is hardened and while the straw is still a little green, it will be of better quality. Also for oats, the straw of which makes it better fodder for cattle or horses. Oats are ripe from one to two weeks after wheat, the latest about the middle of July. Some of my neighbors, though very few, use headers. They do more work than reapers, but there is greater risk of loss in case of sudden showers while the stacks are building—barns or sheds for grain not being much in use yet. Sometimes there is also considerable loss if the stacks are not well finished or covered, if wet weather sets in before they are threshed. On the field there is also more wheat lost if it is of unequal height or some of it lodged. They need the same number of hands as reapers. Many farmers here use Kirby's reaper and are well satisfied with it; it is also a good mower. Others prefer McCormick's.

As soon as the wheat or oats are bound they are set up in round shocks of from 15 to 20 bundles or sheaves, and covered with two other ones as caps. These are commonly placed crosswise on the shocks, breaking them in the middle and spreading out the butts and ears well, so that the shock be well covered and the wind can not catch them so easily and blow them off. These shocks are left in the field for a few days until the farmer finds time to haul them to the stack yard, where they are put in the common way in round, square, oblong, or oval stacks, laying the outer rows of sheaves slanting, so that they will shed off the rain to the outside.

The largest average yield of wheat is from 20 to 25, rarely 30, bushels, and oats from 40 to 50. The insects which injure the grain are the chinch bug and the

Hessian fly. The former does not hurt wheat much because when the insect appears in great numbers wheat is commonly nearly ripe and out of its reach; but in oats, and still more in corn, it often causes considerable loss, sucking up the sap of the stalk, and making the plants die before they have perfected their grain. There is no remedy known here for them, except when corn is near a wheat field infested with bugs, to sow a strip of land between the two fields in oats, which will attract and stop them at least for a time. The Hessian fly seldom does much harm, except in wheat sown too early. If sown about the last week in September it will escape the fly.

J. Y. Botwell.—I prefer what is called the Strawberry corn. Plow deep as possible in April and May. Plant a bushel on six acres. Use Brown's Illinois corn planter. Cultivate with double shovel plow and Stafford's sulky plow. Plow three or four times. Wheat: Mediterranean is the surest crop. Break land in June for wheat, as above. Do not *re-break*. About the last of August, or sooner if the season is wet and the land gets "foul," I give it a thorough harrowing with a joint harrow, with teeth two and one-fourth inches apart, made of steel and sharp. Commence seeding the first week in September, previous to which give a thorough harrowing. Use a drill. Drill both ways, the first time drill the way I plowed. One-half bushel per acre. Roll the ground with a large frame roller, then drill the other way. Three-fourths bushel per acre. Let this be the last thing, except cleaning out the furrows between the lands. I use the Buckeye reaper for cutting wheat, and cut when it is in stiff dough. Shock in the field, let it stand a few days, then haul and stack where I want the straw for stock to go to in the winter.

T. Engelmann.—Inasmuch as corn is not raised for market, but for home consumption only, not much care is taken in the selection of seed corn; yet the pure white corn is most generally planted, although the yellow is considered to yield a heavier crop.

Spring wheat is not raised in this neighborhood; experiments made some years ago turned out failures.

The fall wheat most generally sown is May wheat, or Genesee May wheat, white wheat, and Mediterranean, commonly called Bull wheat. The wheat harvest commences about the middle of June; the grain is cut with the reaper or self-raker; headers have been tried but failed to give satisfaction, and are discarded. The grain is stacked or put up in ricks in the field or yard, and threshed by horse or steam power. Barns of sufficient capacity are not in use.

As soon as the crop is removed from the field the stubble is broken and the ground is again plowed, harrowed and rolled, before it is re-seeded—which is always done with the drill—in wheat. In former years this was done in September; of late, since the Hessian fly has made its appearance, it is done later in the season—in the latter part of October and beginning of November. The best yield of wheat is about 33 bushels to the acre; average yield about 22 bushels. Rust and Hessian fly are the drawbacks on the cultivation of wheat; early sowing is considered the best preventive of the former, and late sowing the best remedy against the latter. A dilemma!

G. C. Eisenmeyer.—Not much can be said on corn. It requires good rich land and very good tillage; the large white corn is here generally cultivated. We have a little red corn which ripens in 90 days and makes excellent fodder.

Wheat is the great staple, and so far has proved very remunerative, especially during the last few years. Tennessee May wheat, Tappahannock, and Mediterranean, are the kinds which are generally cultivated. The two first named on rich land, the latter on thin and poor land.

The time of sowing is from the 15th of September to the 15th of October. It is invariably sowed with drills, of which there are a great many different kinds, all equally good. It is supposed, and advocated by some, that harrowing wheat in the spring is an advantage to it, but I never see it practiced. The horse hoe for cultivating wheat is not known

used here. Manny's, McCormick's and Geis & Brosius' reapers are in general use. Headers are not much used here, and perhaps will never be a popular machine. The largest yield of wheat is 40 to 45 bushels per acre; the average yield 15 to 20 bushels. Wheat is generally cut here between the 15th of June and 4th of July. It is tied in small bundles, set on end in shocks of from 20 to 25 bundles, and stacked or hauled into barns as soon as cured, which is in 8 or 10 days.

Insects are the Hessian fly, grasshoppers and chinch bugs. We know of no remedy as yet, neither are they very injurious.

7. Root Crops.—Best varieties of Irish and sweet potatoes, turnips, beets and carrots: time and method of preparing ground: mode of planting, method and means of cultivation: largest and average yield: methods of digging and keeping: cost and value as compared with grain crops for feeding: insects and diseases?

E. Moss.—Irish potatoes, turnips, beets, carrots, with manuring, raised in moderate quantities.

M. A. McConnell.—We grow all Irish potatoes. The best is the cracker and peach blows. We think rutabagas, carrots and sugar beets the best for stock, especially for sheep and milch cows. The yield is generally good, and the expense is very small.

H. Pierce.—Early York and peach blow potatoes are the best. Have not tried early Goodrich or Harrison. Yellow and red Nansemond sweet potatoes. White flat Dutch turnip. Sugar and blood beets. No carrots raised in quantity I believe. Potatoes are planted in hills. Do best in fall-plowed land, cross-plowed in spring and harrowed deep. Cultivate with horse. Use common plow the last two times, and hill up well as early as possible. Plow out and dig with fork. Ten-lined bug was very bad in 1865, not so bad in 1866, and nearly gone in 1867.

J. Tefft.—Of Irish potatoes, the peach blow is considered best with us. Taking one year with another they succeed well on new land, or land that has not been long under the plow without rest. Plow deep; plant in hills; cultivate with small plow and hoe.

S. Ryan.—The best variety of potatoes is the long, flat pinkeye. The surest crop is from the Michigan peach blow. The vines are so tough the bugs cannot kill them, and so large and numerous they endure drouth well.

C. E. Barney.—Lay potatoes on well-prepared ground early in the spring, cover them with 10 inches old straw, pitch off the straw after the vines are dead, and pick up the potatoes.

Do not know enough about roots as compared with corn, for feed, to venture an opinion. Shall try turnips for sheep as a sanitary measure.

A. Rankin.—The white peach blow potato is considered the best here. Plow deep, harrow well, and plant from the first to the fifteenth of May.

The long orange carrot is the best for a field crop; they are a sure crop here. I am the only one in the country that raises them as a field. I think every farmer ought to raise them, as I consider them the best possible feed, when used with oats, in the early spring, particularly for cows and all young stock. They can be raised for about 10 cents per bushel; yield 400 bushels per acre. Preparation of ground, same as for potatoes.

Average yield of potatoes, 150 bushels per acre. I raised last year 241 bushels per acre, at a cost of \$41 per acre. The presence of bugs added largely to the cost of production, but they never have injured my crop, nor do I think they ever will while I have my health. I shall plant quite a variety this spring. Potatoes and carrots should be kept perfectly clean. I dig both with the potato fork.

G. W. Minier.—Peach bloom and early Goodrich, best of Irish potatoes, and Nansemond for the sweet. Other root crops raised but sparsely. Sometimes get large crops of potatoes. Average yield about 100 bushels. More valuable than any grain crop. Not so valuable as corn for feeding. The Colorado potato bug is our great enemy. I think he has come to stay. He is now snug in the ground, ready to come. Set the boys to pick

them off. One little fellow told me it was no use; he said they ate up an acre before breakfast, and then got on the fence and asked every passer by if he had any potatoes. Don't vouch for the lad's story.

J. R. Tull.—I have had considerable experience with potatoes, especially sweet ones; which I find the most profitable root crop that I can raise. My average yield per acre is about 200 bushels; the market value of which is from \$1 50 to \$2 per bushel in the fall, at digging time, and in the spring from \$3 to \$5 per bushel, for seed. The small potatoes, not saleable in the fall for family use, are what I reserve for seed. This makes the land clear me, over all expenses, more than \$100 per acre. I find the yellow and red Nansemond the best varieties for this latitude. They are of easy cultivation, requiring little more labor than Irish potatoes.

The land wants to be plowed deep, early in the spring as possible, then let it lay until the plants are ready for setting out; before putting them out, give it a second plowing and pulverize it well; then with two horses and large plow throw two or three furrows together for a ridge to set the plants on; making the ridges four feet apart from top to top. Do not make a large ridge, nor a broad one, but rather sharp; about 6 or 8 inches flat on top. Set the plants out in the afternoon, pouring a little water round each one. Throw a little dry soil over when the water is soaked away. Set the plants 16 inches apart on the ridges.

The ground being clean when the plants are set out, twice working will generally be sufficient; but if not, they must be kept clean until the ground is sufficiently covered with the vines to prevent any weeds or grass from growing. The main difficulty with the sweet potato is keeping them through the winter, which cannot be done in this climate without a building made for the purpose, where the temperature can be kept at about 55 degrees Fahrenheit. The difficulty in procuring seed and plants discourages many from engaging in the culture of the sweet potato.

Of Irish potatoes, the Neshannock, pinkeye, Baltimore blue, peach blow, and a few others, have been grown. The last mentioned has given the best results, while the Neshannock and others of the older sorts seem to be deteriorating. The very new sorts I have not tested. Of sweet potatoes, the yellow Nansemond takes the lead; though last year the red Bermuda was tried with good success. It will ripen a month earlier than the Nansemond, and is prized as an early sort.

The Colorado bug made its appearance here in 1864, and was very destructive. Since that year it has annually made its mark in the potato fields, but is gradually becoming less troublesome—partly owing, perhaps, to its insect enemies, and partly to the fact that its habits have become better understood.

H. Sodovsky.—The best variety of Irish potato for general use is the peach blow. For early potatoes I would plant the early York. It yields a good crop and comes early. We have had plenty by the middle of June for three years past, which is as long as I have tried them,

G. W. Vaughan.—The Neshannock is preferred for an early Irish potato; the peach blow for a late, and the large red for a sweet potato. Ground for potatoes should be well manured and plowed deep. The Irish should be planted in hills, or drilled in rows; the sweet in hills, mounds, or in ridges 12 to 15 inches apart. Turnips should be sown in July or August. The ground should be plowed in the spring and again when the seed is sown. Beets and carrots are little raised here, only for table use. I tend Irish potatoes with hoe and double shovel plow; sweet potatoes with hoe. The potato bug often destroys the tops of the plants, injuring them badly. I know no way of destroying them. They are sometimes driven from the vines by brushes, commencing at one side of the patch and following each row up and down until they leave. Potatoes keep best where there are no cellars, in old chip piles, or covered with earth and then with stable or barn yard manure.

J. G. Swann.—Neshannock and peach blow in drills 18 inches apart. Two hoeings and one plowing. Sweet potatoes, large ridges 18 inches apart. Hoeing and plowing. Largest yield of sweet potatoes, 100 bushels; of Irish potatoes, 200 bushels. With plow and harrow. In long rows, covered well.

E. A. Riehl.—Best sorts of Irish potatoes are early Goodrich, Harrison and peach blow; the latter rotting badly and almost discarded. Plow deep. Plant as early as possible in spring, in rows three and one-half feet, and 18 inches in the rows. Cultivate with cultivator and shovel plow. Sweet potatoes: Yellow Nansemond and Bermuda, best in order named; have had Brazilian one year and do not like it. Nansemond best in quality and earliest ripe. Bermuda is at least twice as productive, producing nearly all large potatoes, and of medium quality. Plants grown in hot-beds in spring, and planted 14 inches apart on ridges. The ridges made by horse power with a machine made for this purpose (cut and design in Nos. 10 and 2, Farmer's Advertiser), cultivate well and harvest just before frost. Find it most profitable to store and keep over winter, selling them during winter and spring, for from \$2 50 to \$3 per bushel; and the small ones for seed bring from \$8 to \$15 per bushel in the spring. To keep them successfully they must be ripe, dug in dry weather, handled as carefully as eggs, so as not to bruise them, packed in small quantities in dry sand, and kept at a uniform temperature of from 45 to 60 degrees Fahrenheit.

J. Pulsiger.—I possess very little experience in root crops, excepting the common potato. I have tried some beets and carrots on a very small scale. In seasons not too dry they did tolerably well, but it takes much time to keep them clear of weeds when small. Cattle like them, and I am led to think that they make excellent feed for them, particularly for milch cows. My intention is not to give up these trials; and I will report in future time on them, if I am able. Sweet potatoes did not do well with me, and I have given up their culture. Irish potatoes bring better crops on well prepared and deeply plowed land, and well cultivated. We also found covering the land after they are planted, at least six inches deep with straw, a very good method. In ordinary seasons they will bring good crops in that way, and they need not be cultivated. But I prefer to plow the land three or four times; the last to a depth of 12 to 15 inches, planting them deep, without any straw, but cultivating them well, and keeping the ground clear by hoe and shovel plow. I had, last season a very good crop on a small piece of ground which I had prepared from 15 to 18 inches deep for planting grape vines, the great drouth notwithstanding. Others covered with straw, on land of the same quality, and plowed at least eight inches deep, brought not so good a crop. The best time for planting is very early in spring, in March if possible, and then about first of June. If there is an early frost in fall the latter may perhaps not get ripe; but if there is no early frost, they bring me commonly a very good crop of good potatoes. They are dug with hoe, spades, or forks; if plowed up a great many are lost. They are kept in the cellar, or, where there is no cellar, left in the field on a dry spot, well covered up with straw and earth, at least 18 inches deep. A good average crop is 20 bushels from one of seed. I have raised 39 bushels from one. The best varieties for quantity and quality are the peach blow and the early Goodrich, and the Cusco for quantity only—its quality being inferior to the others. The pinkeye rusty-coat—a Goodrich seedling—is also a good kind, bringing good crops.

We have nearly every year in our plantations the common potato bugs (cantharides), and now, for a year or two, the Colorado potato bug. The former can be driven off by striking the vines with brush; for the latter I tried several means without avail, except hand-picking.

T. Engelmann.—Root crops are not raised for marketing. Every farmer plants a patch of potatoes for his own use. In the spring, generally in April or beginning of May, the ground is plowed and harrowed, and the potatoes are planted in shallow furrows, about 18 inches apart each way, and covered about 2 or 3 inches deep with soil, and then about

8 or 10 inches deep with straw. This is all the labor which the potato requires until digging time; and in this way good crops have regularly been obtained, and potatoes of superior quality. Flukes, peach blows and pinkeys are generally selected for seed, but not much care is taken to keep them pure.

J. Barber.—The Irish potatoes which succeed with me are the Peach Blows and Early Yorks. Of sweet potatoes, the common Southern, Nansemond and Bermuda, all do well. The ground is deeply plowed in the fall, and the Irish potatoes are planted early in the spring. Late planting does not often succeed, on account of the hot, and often dry months of July and August. Sweet potato plants are raised in a hot bed and put out as early as the season will permit, in order to start their growth before the hot months come on. The digging is done with a fork. Irish potatoes are kept very easily, by putting them in heaps on the ground, covering with straw and earth deep enough to prevent freezing. Sweet potatoes are much more difficult to keep; I have succeeded very well by keeping in a dry cellar, covering with flax straw, and never allowing the temperature to fall below 40°.

8. LEGUMES.—Best varieties of peas and beans: their management: cost and value as feed crops?

M. A. McConnell.—Pea and bean crops don't pay, for feed.

H. Pierce.—Peas are not sowed as a field crop. Tom. Thumb, for early, and Champion of England, for late, are the best varieties. The small navy bean is preferred.

J. Trift.—Small navy bean, plant in hills, 16 inches apart. Use cultivator and hoe. It is never raised for feed.

T. Gregg.—Peas are never grown here as field crops; beans not often. The white navy bean is usually planted for that purpose. For garden culture, I have had good success with the early Mohawk, early six week, Valentine, and Lima.

G. W. Vaughn.—Sometimes raise a large quantity of beans, by sowing like oats or wheat, in the month of June. This is the cheapest way of raising the navy bean; it keeps down the weeds and bears abundantly, and if the fall is dry we save all; if not, many rot before they are ready to gather.

J. Balsiger.—Peas and beans we raise only in the garden, for our own consumption. We like best the Tom. Thumb, Eugenic and English pea; and the yellow dwarf, six weeks, and Lima bean. All these, except the latter, are badly infested with the bug every year.

9. TEXTILE PLANTS.—Your experience with flax, hemp and cotton: best varieties, method of planting, cultivating, etc.: value as a farm crop?

E. Moss.—Some flax raised; is valuable both for the lint and seed.

M. A. McConnell.—We have grown flax and hemp, but they don't pay as a farm crop.

T. Gregg.—Flax, hemp and cotton are seldom seen growing in this county, though all have been. The first is grown less rarely than the others.

S. Butler.—Flax is a good crop here.

J. Balsiger.—With flax, hemp and cotton I have had very little experience. I have seen hemp growing spontaneously in the neighborhood, to a fine size. Flax and cotton I did cultivate for one year; they did well, as far as I could judge; but as I had no machinery to prepare those products for the market, or work them up, I discontinued their culture.

10. GROUND PLANTS.—Pumpkins, squashes, watermelons, etc.: management, cost and value as a field crop: insects and diseases?

E. Moss.—Raised in moderate quantities.

M. A. McConnell.—We think pumpkins pay big for cattle. I feed them cut in the fall to milch cows improves the quality and increases the quantity of milk in all cases.

H. Pierce.—The common sort of pumpkin is planted sometimes with corn, and is fed to cattle and hogs in fall, preparatory to feeding corn, and sometimes as alternate feed. Hubbard squash is the favorite. Watermelons, on a sandy soil, 6 miles east, are raised as a field crop.

J. Tiff.—Only raised amongst corn. Have no idea of cost or value of crop. (Striped bug.

A. Rankin.—I think pumpkins and squashes, when fed to stock in the fall, are about equal to good grass pasture, and would recommend farmers to raise them for feed, just before winter sets in, as they can be raised at very little cost.

T. Gregg.—The Hubbard and Boston marrow squashes, I have found to be the best for garden cultivation.

G. W. Vaughan.—Ground plants are generally of little value, as a field crop, and few raise them, save for their own use. Pumpkins and squashes are generally planted with corn, but not extensively. Small striped and black bugs often destroy the young plants.

E. A. Riehl.—Of squashes, I consider the Hubbard and American Turban the best; of watermelons, the Ice Cream is superior to all others; Ward's Nectar, the best of the musk varieties.

J. Balsiger.—Pumpkins, squashes and watermelons do well on rich land; the former are commonly planted with the corn, and fed out to cattle and hogs; but as far as I could see, neither were very fond of them. Squashes we raise for our own use, but with great trouble defend them from the ravages of the big black bugs which destroy the plants. We know of no other means of destroying these pests than by hand-picking the insects and their eggs, and crushing them.

J. Barber.—Pumpkins, squashes and melons succeed well by planting on newly turned sod, fresh timber land, or by manuring in the hill, when planted on old land. The greatest enemy is a small striped bug, which attacks the plants when quite young; it will even eat the young and tender squash.

J. Warder.—I have paid some special attention to growing watermelons. I break my ground deep, plant about 10 feet apart, manure in the hills, and thin to one vine; keep the ground well stirred with shovel plow until the vines begin to run, then smooth the surface with a harrow, and keep clean with the hoe. I sold, last year, fifty dollars' worth, raised on a piece of ground 35 yards square (just one-fourth of an acre), besides what were eaten by my family of six, and goers and comers. Average price, 15 cents; commenced ripening the first of August.

11. MISCELLANEOUS.—Hops, tobacco, broom corn, sorghum, onions, chiccory: growth, management and value as a farm crop?

M. A. McConnell.—Hops are a good crop, but we don't grow them; they will, with care, pay as a farm crop.

H. Pierce.—Hops and tobacco are not grown except for home use in gardens. Broom corn, 8 miles south, is raised in large quantities, and is the most paying crop. The Otaheite sorghum is best, producing from 50 to 200 gallons per acre. Not much sorghum will be planted this coming summer (1863) as there is but little sale for the molasses.

C. E. Barney.—No experience with sorghum; I think the venders of the machinery make the most money.

V. Allrich.—My experience with sorghum is limited, having raised only enough for home consumption. I have always done that, not using any other sirup, and but very little sugar. The largest yield I have ever had, was 120 gallons, from one-half acre; raised on high dry prairie land, that you might call rich. The last of April, I planted

without soaking the seed; it came up well, was plowed three or four times, and hoed once, and kept clean from weeds. It matured the first of October, and was then worked; seeds being all black and stalk giving a yellowish cast. Kept no account of cost of crop. I sold 70 gallons, at \$1 per gallon, reserving the remainder for my own use; at the same price, I would have made \$120. Expenses did not exceed \$50, and probably, not more than \$35 or \$40. We then had war prices, now they are nearly one-half less. The cane was run through a cast iron mill, with three rollers and one sweep; used one horse, or a span. Evaporate in plain pans six and one-half feet in length by three wide; one and one-half inch wood sides; eight inches deep, with sheet iron bottom. I have a brick furnace, just large enough to take on the pans; these pans hold 85 or 90 gallons. At first we filled the pans full, and had to boil slow to prevent their running over; this rendered the process of evaporation so long that the sirup became very dark. By filling the pan half full, we found we could boil with full force and evaporate very quickly, making clear, light sirup. It is important to stir it constantly when nearly done. When done, set or slide the pan off the furnace to one side, putting another pan of juice in its place, so there will be no loss of heat from fire. At the same time, continue stirring the sirup just off, as this makes it of a much lighter and handsome yellow color. When it is partly cool, it can be put into the cask, or some vessel to entirely cool. Keep the pans washed clean, ready for use again by the time the sirup over the fire is ready to come off. Press out the juice just as fast as wanted and no faster, for the sooner it is evaporated after pressing, the better the sirup. My mill cost \$44; the flue took about 1,000 bricks, costing \$10; the work I did myself; the pans cost \$10 more; the whole expense need not exceed \$75, for farm or family use. I rent my mill out to neighbors, at \$2 for 24 hours use, and in this way it has paid for itself. But without renting a mill, it will pay any farmer to raise sorghum enough for his own use. It should always be planted just before corn planting, and not left, as is usual, until everything else is planted. Should be plowed well and hoed, and put on good ground to realize a profit.

A. Rankin.—I consider sorghum a very profitable crop. Decidedly the best ground for sorghum is new prairie, high ground; it also does well on clay soil. Avoid all coarse manure. Yield of molasses per acre, 200 gallons. I have raised onions, but did not always find them profitable. Yield, from 50 to 400 bushels per acre.

G. W. Minier.—Nothing but onions; these pay well.

T. Gregg.—Hops and chicory have not been grown here; tobacco and broom corn, seldom; onions, never, as a field crop. Sorghum is produced to a more limited extent than formerly. Such soil as mine will yield 200 to 250 gallons per acre of sirup, with good culture; though the amount usually reached does not exceed 150 gallons. My soil has produced sirup of a very fine quality. Two-horse iron cylinder mills are in most common use, with home made, sheet iron and zinc evaporators.

G. W. Vaughan.—I have no experience in hops, none in tobacco, and do not use it in any way. Onions I raise for table use only. Sorghum and broom corn look much alike, and are weakly when young, but grow fast if tended well. They need faithful hoeing to thrive.

S. Butler.—Broom corn a good crop here.

J. G. Swann.—Tobacco, broom corn and sorghum pay well.

J. Barber.—Sorghum succeeds in the same soil, and is cultivated similarly to corn. It is not cultivated to the same extent, in this vicinity, as formerly.

J. Warder.—I know but little about the cultivation of hops, but should judge they would do well on our soil, as I have found them here frequently growing wild. About ten years ago, I grubbed up a vine in a clearing, brought it home and planted it near the porch; it bore hops in the greatest profusion, and formed in summer a grateful shade, without cultivation.

12. ORCHARD FRUITS.—Apples, pears, peaches, cherries: preferred varieties for various purposes: preparation of ground: planting, cultivation and pruning: gathering and keeping of fruit: packing for market: fruit houses and cellars: value of orchard products as a farm crop: insects and diseases.

E. Moss.—Many varieties of apples, as well as pears and cherries. Cultivate ground deep.

M. A. McConnell.—Apples are the only sort of orchard fruits that can be grown.

H. Pierce.—Apples for market—early harvest, Carolina Red June, Benoni, maiden's blush, Jonathan, willow twig, Ben Davis, Rawle's Janet, yellow bellflower, and winesap. Pears—Doyenne d' Ete, Rostiezer, Tyson, Bartlett, Buffam, Louise, Bonne de Jersey, Beurre Diel, Duchesse d' Angouleme; all blighted last year (1867), but these are the best. Cherries—early Richmond, late Kentish or pie cherry of N. J., English Morello, May Duke and late Duke are about all that do well here, except the common Morello.

Prepare the ground as for corn; open a furrow or dig a hole about 12 inches deep, 2 to 3 feet across; set from 18 to 80 feet apart; cultivate first and second year in corn, and frequently longer, and then in small grain for a year or two; then seed to clover—is the common practice. Gather by hand, put in barrels or open boxes, but generally market in the fall; pays best of all.

The bark louse is our worst enemy on apple trees.

J. Telfr.—Summer apples—early harvest, Carolina Red June, Lowell, Keswick, Codlin, sweet bough. Fall—Cooper's early, Colvert, Dowse or Hawley. Autumn—strawberry, maiden's blush, porter, snow. Winter—golden russet, Baldwin, Dominic, Eng. russet, Esopus Spitzenberg, fall pippin, wine sap, green sweeting, limber twig, northern spy, R. I. Greening, Roxbury russet, Janet, Swaar, W. W. Pearmain. The Hawley and R. I. Greening grow very fast, if manured, and are consequently tender; but if grown slow and headed low, succeed well. I have my pruning done any time between the first of November and the first of March, when the wood is not frozen.

Pears—Bartlett, Flemish beauty, Madeline, Swan's orange, Easter, Buerre, and Seckel.

Cherries—Yellow Spanish, Elton, Kentish and early Richmond. There are other varieties that it does not pay to raise.

No peaches raised.

The apple worm (*Carpocopsa Pomonana*) causes many of our apples to fall, and renders many more almost worthless. The Borer (*Saperida Bivittata*) does much injury to our apple trees, unless watched and removed early. The caterpillar (*Clisioacampa Americana*) at times is troublesome. The bark louse (a species of coccus), injures our trees more perhaps, than anything else in this section.

The winters are too severe for peaches. I had 800 trees, they bore a large crop when six or seven years old, and the next winter, some twelve or thirteen years ago, they all froze, and every tree died; at that time, I had an apple orchard of 900 trees; the same cold winter destroyed nearly one-half of them; the best varieties suffered most. I find the best trees for an orchard are those budded the second year from the seed; reject the very largest and all the little, stunted ones. I will here remark that all fruit and forest trees, corn, and many vegetables, as well as pigs, calves and other animals, that are stunted when young, never fully recover.

The object of the seedling is that it has a finer and firmer wood and bark than many of the grafted kinds; and I have observed that the finer and harder the bark, the better the tree will bear.

I have a number of trees the barks of which are so soft and thrifty that they never bear. Last June I took a section of the bark, $1\frac{1}{2}$ inches long, from round the body of the tree, and inserted a corresponding section of bark from the crab apple tree, tied it on; it grew fast. I tried this on several with like success. According to my philosophy, they will bear every season; if so, you will hear from me again. I do my trimming in February in order that the wound may season before the sap starts. Small limbs, less than half

an inch, I cut off close; but larger than that, I cut from one inch to two feet, according to size of limb. I cultivate the orchard when young; mulch with straw after seeding. The bark louse is very injurious to orchards here. The caterpillar is quite a pest on the prairies, but near the timber, the bluejay eats the eggs before they hatch.

C. E. Barney.—The variety of apples that will bear most on a given farm, are best for that farm. An indifferent apple that will *grow* is better than a delicious one that will not, for profit.

V. Aldrich.—Apples preferred for family use, are early harvest, red June, and red Astrachan. These three varieties are earliest, and the fruit is of the best quality. The early harvest bears only on alternate years, and then not more than half the quantity that trees of the same size do, of the two other kinds. The golden sweet for baking, and eaten with bread and milk and a slice of new milk cheese, will relish first rate—I was going to say it would make a man fat. It is one of the best dishes that can be used for supper, creating a sweet, sound sleep, so desirable after a day's hard toil.

For late summer apples, I consider the Lowell, Porter, maiden's blush, and early Pen-nock, best. The St. Lawrence is a fine apple, but decays very soon.

The fall Dyer, which I send out from the nursery as Tompkins, is the best of all fall apples. The tree is hardy and a great bearer every other year. I have four trees, all set out at the same time, and of the same age; two of them bear one year, and the other two the next, so that I always have plenty. This apple sells better for eating than any other variety I know of, in fact, it is better than most pears, having the pear bloom and being more juicy and fine grained. Another good quality is its gradual ripening, lasting in season for a long time.

All the above varieties are as good for market as for the family at home.

The snow or Famuse is a good late fall variety, and keeps very well into mid-winter, with careful handling; its liability to drop is against it.

For winter family use, I prefer the Jonathan, Wagner, Dominie, R. I. Greening and red Canada. These are all of the first quality, or near enough. None of them are long keepers. The Jonathan, Wagner and R. I. Greening are all liable to drop early, and just as soon as they begin to grow ripe and drop, they must be picked and kept in a cool, dry place. Apples that have dropped and lain on the ground a few days, and been warmed by the sun, will not keep, as that sends them into the ripening process, and can not be arrested. No matter how sound they may look, they should never be mixed with those picked off the tree, unless they are all soon to be used up.

The above are my favorite varieties for eating, and are equally good for culinary purposes.

The ladies' sweet, for winter, is the first best for eating, and keeps very well. Smith's cider is also a fine apple for keeping and eating.

The New York pippin or Ben. Davis, and willow twig, are good bearers and long keepers, but third rate quality; good for cooking, and will eat very well when other better sorts are gone. In fact, these two varieties are almost invariably used before reaching maturity, and then condemned as to quality, when if left until April, May and June, they become ripe and relish well. These two sorts are the most productive varieties I know about. The Ben Davis bears often at four years from the graft, and continues to bear almost every year invariably, though not always in the same proportion. The willow twig does not come into bearing so young by two or three years, and is not quite so likely as the other to produce a full crop every year, but is among the best bearing sorts. So far as I know, these two kinds are the most profitable for market on the whole list; always fair, large size, never scabby, and very showy.

But for market purposes, one must have a good assortment of varieties, to please the various tastes and fancies of customers, especially for the early winter trade, as people will not buy these long keepers to use in the late fall and early winter; and to retain customers, you must have what they demand. Customers will always take the largest

share of any sort of long keepers; this remark applies to those who buy their supply of apples at the time of gathering in the fall. For late spring sales, we must rely solely on the best long-keeping varieties.

Pears and peaches, as yet, have not proved profitable, but should be on every farm, in limited quantities. The pear has but one serious drawback, the fire blight. Our cold winter destroys the peach crop in this vicinity, three years out of four.

Of cherries, the most profitable is the early Richmond or May. English Morello is very good for preserving. These two sorts are both hardy and profuse bearers. The Belle Magnifique ripens late and is desirable. The only drawback I find in raising cherries, is that birds are so numerous as to destroy large quantities. The only way I find to save the cherries is to shoot the birds as fast as they come. The cat bird, robin, brown thrasher, and black and white red headed woodpecker are the most destructive. Gov. Wood cherry has fruited very well about every other year, ripening earlier than any other sort, and sweeter; the best variety I have: but it is not hardy enough to stand the severe changes of some of our winters without some shelter.

In preparing orchard ground, I prefer to have it planted in corn, or some other hoed crop, a few years previous to setting the trees, so it may be well subdued and friable. Before setting, it should be fresh plowed, and to save labor, plow in lands of the width the trees are to be set, having the dead furrow come where you want the tree. By plowing several times back and forth, in the dead furrow, it gets mellowed nearly deep enough. Stake off the ground, leaving a stake where every tree is to be set; then take a board, 6 inches wide, 6 feet long, with an inch and a half hole near each end. Exactly in the center, between the holes, bore, on one edge, a two-inch hole, and cut it out open on the edge; this is the guide to set the tree to. Put the opening on the edge of the board against the stake where the tree is to stand, then have two pins or short stakes even thickness; put one in each hole at the end, and push them into the ground firmly. Lift up the board, lay it one side; then dig or make the hole for the tree where the stake stands, leaving the stakes at each end standing. When the hole is ready for the tree, place the board on the stakes, taking care that the edge that has the opening in it is the same way as before it was lifted up; then place the tree in the hole, and into the opening on the edge of the board, and it will stand exactly where wanted.

In setting trees, I have found by experience that it is best to set from 4 to 6 inches deeper than they stood in the nursery. They stand better, are not near so liable to lean over by high winds, and the roots are less liable to be drawn out of place. This, too, prevents sprouting at surface of the ground, where the graft unites with the stock or root. In a very dry season, it is more likely to insure life to the trees, as the roots are below ordinary dry spells. This applies more particularly to apple trees; other trees are not injured by it. Every one should exercise judgment; in wet, moist land it might be injurious, in fact such land is not suitable for any fruit trees. After an orchard is planted, it should be cultivated into some crop every year; I prefer corn, for the reason that it prevents weeds from growing in the latter part of the season, and is some protection to the young trees for a few years against summer winds. Always give four or five feet on all sides of the tree for light and air; and always cut and shock the corn, leaving the ground clear through the winter. This prevents, in a measure, the damage caused from rabbits and mice.

Never allow any brute in the orchard, until the trees are sufficiently grown to be in no danger of being rubbed over. Then nothing should run among them unless colts; they will do no harm to trees of bearing size.

Pruning should be attended to, so as to keep out all surplus sprouts and limbs that cross each other. Some varieties need much more pruning than others. Any man of common observation, can soon see what is needed. It is better to prune too little rather than too much; for oftentimes in the blossoming season we have high winds, that take off the blossoms before they become fructified; a tree with quite a thick top will escape, on the side from the wind, and be full of apples.

I have found from experience that, in order to have apples keep well, they must be carefully picked just before they begin to ripen. For instance, the Wagner, Greening, red seek-no-farther, Milam and other varieties, begin to drop quite early, particularly after frost, usually followed by wind. Those varieties I begin to gather in the latter half of September, and endeavor to gather all before they fall much. They can be put into barrels, headed up and kept in a cool place, away from the sun, or put into the fruit house. The cooler they can be kept, and not freeze, and as dry and not shrivel, the better.

So far as my experience goes, I am satisfied that, as a general rule, there can be the most realized by selling at gathering; then there is but one handling. By keeping through the winter, the extra labor, shrinkage, etc., will balance the extra price obtained in spring.

In packing for market, apples must be placed in the barrel carefully with the blossom end next the lower head, one course at a time; then the barrel filled carefully with good sound apples. Occasionally jolt the barrel back and forward lightly, to settle them tight, as the barrel is filled. When full, place the top layer all stem up, and have them as level as possible, and a little higher than the top of the chime; put on the head and press it down until it comes into its place. Start the hoops down, so as to hold it and take it out of the press, then finish driving the hoops, nail and head up secure. Packed in this way, they may be sent to a great distance without getting loose. In carting the barrels, they should always be loaded with the head up, the same as when filled, and never on sides of the barrel.

As to profit of an orchard, compared with other farm crops, I have no statistical data to refer to, but think it safe to say that, with judicious selection of varieties, the same amount of ground will produce four times as much clean profit in orchard as the same ground in any other crop, provided the ground be suitable for an orchard. But still I would not be understood to recommend or advise every one to go into fruit raising, no more than I would advise the exclusive cultivation of any one particular farm product, as that would prove ruinous, by glutting the market.

The apple tree borer is a great pest, and unless well looked after and cut out, will soon destroy an orchard, especially young ones.

The apple moth was very injurious last year, destroying nearly or quite one-half the crop of some varieties, by working into the apple through the blossom end and coming out near the stem, causing the fruit to fall from the size of a hickory nut until grown. The fruit was almost worthless until the apples were matured enough to be fit for making cider to work into vinegar. This worm, I had always been taught to believe, left the apple when it dropped to the ground, and burrowed in the ground through the winter; but from the great number that come out of the apples after being put in barrels, and wind themselves up in their web, under the hoops and in other places, remaining until very cold weather without any perceptible

change in form, leads me to believe they never winter under ground. How to prevent their ravages, is yet a mystery; no doubt by keeping the apples picked up as fast as they drop, and fed to swine or ground into pumace, would diminish them. I have thought sometimes of placing lights or lanterns in different places in the orchard, with a vessel of water directly under them, during nights in the summer. The light would attract the millers, they would flutter round, and finally fall into the water and drown. I expect to try this plan this season.

A. Rankin.—I consider the best varieties of summer apples to be the early harvest, red June, sweet June, summer queen, America, summer, Pearmain, sops of wine.

Fall apples—autumn, strawberry, fall wine, Fameuse.

Winter apples—Jonathan, yellow bellflower, Fulton, Rawle's Janet, and Northern spy.

The Newark pippin, white pippin, white pearmain, and some other varieties, also do well.

The ground should be trench plowed to prepare it for an orchard; plow very deep. The holes for the trees should not be any deeper than the ground was plowed. I set trees from 18 to 25 feet apart in the rows; prefer low heads. Prune to keep them open, so as to admit light, heat and air.

G. W. Minier—I really can't write an essay on this question. Fruits pay better than almost any other crop, are more healthy as food, and so easily produced that no one who owns a rood of land is excusable for not having them in abundance. Ground should be prepared by deep tillage, and all over the field alike; no holes or pits should be dug for water to stand in and keep their roots wet. Gather by careful picking with the hands; and for winter keeping, roll each in a paper like oranges are put up, and you will be well paid.

For insects, I refer you to Dr. Walsh.

J. R. Tull—My experience in the cultivation of fruit in this country reaches back about 25 years, during which time I have made it a specialty. I have found it a pleasant as well as a profitable business. I will give you a list of fruits which I consider the best, commencing with apples:

Summer apples: Early harvest, red June, red Astrachan, summer pearmain, summer queen, sweet June.

Fall apples: Drap d'or Dradar, fall pippin, fall wine, maiden's blush, porter, rambo, seek-no-farther.

Winter apples: American golden russet, Hubbardston nonesuch, Jonathan, ladies' sweeting, winter sweet, paradise, red Canada, Rawle's janet, Roman stem, New York pippin or Ben. Davis wine sap, white winter pearmain, Rome beauty, Roman sweet pippin, white bellflower, yellow bellflower.

Summer pears: Bartlett, bloodgood, Doyenne d'Ete, Osband's summer.

Autumn pears. Beurre Diel, Doyenne white, Duchesse d'Angouleme, Louise Bonne 'd Jersey, seckel, Stevens' Genesee.

Winter pears: Glout morceau, Vicar of Winkfield, winter Nelis.

Cherries: Heart cherries, black eagle, early white heart, Gov. Wood, yellow Spanish, Napoleon Bigarreau, white ox heart, duke cherries, early Richmond or pie cherry, early May, May duke.

Plums: Coe's golden drop, green gage, Jefferson, magnum bonum, Smith's Orleans, Washington, golden drop, Pond's seedling.

The above list of fruits does not embrace all the varieties worthy of cultivation ; only those best in all respects for this locality. Nor will it hold good in other sections of the country, for I have found by experience that what is No. 1 in the east in quite a number of varieties, is very inferior here in the west, and some entirely worthless. And very many of these sorts are sent west by eastern nurserymen. The best locality for an orchard in this State, so far as my experience goes, is near the timber where the land is sufficiently rolling to drain itself, with a yellow porous clay subsoil ; or if in the prairie, the dry rolling land should be selected. Trees on flat, hard prairie will not do well. The ground in which to set an orchard should be plowed deep and well pulverized, and from the time the trees are set out until they come into full bearing, they should be cultivated every year in some kind of a crop, such as beans, potatoes, pumpkins, corn or anything, so that the ground is well cultivated. But if, after setting out your trees, you sow the ground in oats and then seed down to timothy, you had better not purchase them, but give the amount which they would cost to some charitable object, and save your labor.

T. Gregg.—Our soil is peculiarly adapted to fruits—we think especially to apples and grapes—although all do well, excepting the tender sorts of stone fruits. For fruit planting, our soils should certainly be underdrained, or at least subsoiled. Most orchards are, however, planted without this necessary pre-requisite. Vineyards are mostly subsoiled or trenched.

The dozen varieties of apples I should select, from my own experience and that of my neighbors, as being most suited to this section, for their hardiness and productiveness, as well as for their market value, are as follows, viz :

Summer, 3.—Early harvest, red June, sweet June.

Autumn, 3.—Fall wine, rambo, maiden's blush.

Winter, 6.—Ben. Davis, wine sap, Rawles' Janet, Westfield seek-no-farther, Rome beauty, Hubbardston nonesuch.

To which add another dozen: Benoni, red Astrachan, golden sweeting, red bell-flower, snow, fall pippin, Jonathan, Peck's pleasant, white winter pearmain, Ortlely, ladies' sweeting, Pryor's red.

Several other sorts do well also in this vicinity, viz: American golden russet, Esopus Spitzenberg, Tallman sweeting, Stannard, Newtown pippin, Tulpehocken, Autumn, Swaar, Roman stem, Wagner, Dominic, etc.

In peaches—the best results are obtained from seedlings, most of the budded sorts failing badly of producing crops. There are some fine seedlings here, among which is one known as Felt's rareripe, which has been propagated for near thirty years from the seed. It is a fine yellow freestone, of large, but not largest size, and very productive. Much attention is lately being paid to the selection and propagation of best seedlings, and I am convinced that very fine peaches can be annually produced in this way.

The peach is short-lived; fifteen years being about the limit. This fruit is usually very much neglected; but with proper care and due attention to cutting back, doubtless five to ten years longer may be added to its life.

Pear culture is comparatively in its infancy—though it is believed that both standards and dwarfs will succeed; the former is most planted. Bartlett's and Seckel's as standards, and Bonne de Jersey and Duchesse d'Angouleme, as dwarfs, are the most popular varieties.

Many of the finer sorts of cherry have been planted here with poor success, so that few are now planted, excepting the old Morello and the early Richmond. The

English Morello is comparatively hardy, and will be planted as a late sort. The mooted question: whether the early Richmond is best on its own roots, or top worked on the Morello, will find no solution here—as both are doing remarkably well in certain instances.

The insect enemies of our orchards are chiefly the codling moth, borer, curculio, and peach grub. The first of these is becoming very destructive—infecting almost all the apple orchards in this region. The hog, sheep, chicken, ashes and lime, and soap-wash remedies, are all being tried with varied success. Against the other insect enemies a moderate share of vigilance is generally effectual.

Pear blight is frequent, both in the standard and dwarf, and so far our cultivators are at a loss for the cause or a remedy.

The leaf curl in the peach often occurs; but I have found little damage to result. Budded and seedling sorts are equally liable.

A. C. Hammond.—The following varieties of apples succeed well in this county, and give a succession from the 1st of July to the 1st of June:

Early harvest, red June, American summer pearmain, fall wine, maiden blush, rambo, Peck's pleasant, Rome beauty, Rawle's Janet, wine sap and Ben. Davis

These varieties are all productive, and are extensively grown for market. There are other varieties of better quality, but less productive, which every farmer should grow for his own use. Among them are the early Joe, Benoni, Fulton strawberry, Jonathan, King of Tompkins county, American golden russet, yellow bellflower, white winter pearmain and Newtown pippin.

Among pears, the Bartlett, Seckel, Duchess, Louise Bonne, white Doyenne, Beurre Diel, Flemish beauty, Lawrence and Vicar of Wakefield, are the most desirable. The blight is the only drawback to successful pear culture.

The early May is our only valuable market cherry. Some of the finer kinds are grown for family use, but the birds generally get most of the fruit. I prepare my ground for tree planting by trench-plowing, as heretofore described. Plant shallow and plow towards the trees for several years. I cultivate in corn seven or eight years, and then seed to meadow. It can scarcely be expected that the product of the orchard will ever be of any great value to the farmer as a market crop, as few can give their orchards the attention requisite to protect from diseases and insects that are so rapidly increasing.

H. Sadowsky.—For early fruit, I like best the early harvest and red June. For fall apples, would select the rambo, fall pippin, Baltimore sweet, sweet bough, maiden blush, Rome beauty, sweet bellflower. I think the Baltimore sweet the best. It is very large, with red streaks on yellow ground, and capital when fully ripe.

For winter apples, I would say the Thompson cooking, bellflower, white winter pearmain, black gilliflower, Hubbardson's nonesuch, Newtown pippin, Vandeverer pippin, northern spy, Pryor's red, Rhode Island greening, Esopus Spitzenburg.

Early pears: The Bartlett and Seckel. Fall pears: White Doyenne, Duchesse d'Angouleme, Flemish beauty, Louise Bonne d'Jersey, Swan's orange.

Winter pears: Buerre, Bachelier, Columbia, Doyenne, Joubert, Glout Morceau, Lawrence, Soldat, Vicar of Winkfield.

For cherries, would recommend the early May, May duke, black eagle, black heart, black Tartarian, Elton, early white heart, Governor Wood, great bigarreau, Belle de Choisey, early Richmond, English Morello, Kirtland's large Morello, Kirtland's mammoth.

The best peaches we have seen are: Stump the world, Heath, early Crawford, late old Mixon.

W. A. Allen.—Have preferred for winter varieties, bellflower, jeneting, pennock and English russet. Pruning time—whenever your saw or hatchet is sharpest.

S. P. Boardman.—All *reading* farmers who do not make the growing of fruits a specialty, go to the Transactions of our Illinois Horticultural Society for lists and varieties of the different fruits which are best adapted to their latitude and soil. In no other state in the Union, perhaps, does it make so much difference—from north to south, and on different soils—what selection of fruits is planted.

With our various live local horticultural societies, so ably seconding our State Society, few of our farmers, even those not professionally fruit growers, can miss it much in varieties of fruits, or their cultivation. I think, from making frequent visits to the eastern States, that Illinois farmers, generally, take a greater interest in, and are better informed on fruit matters generally, than the farmers of any eastern State. I account for it principally from the fact that nearly all of them have had to plant their own orchards.

B. Sweet.—A reformation in orchards and fruit growing is indispensable to success. As a fruit grower and reformer I exclude all but one variety of apple. What variety is that, for profit? The winter wine. The next best is a variety that bears a crop annually, is healthy, and does well either by neglect or care; for it is well known that orchards are usually much neglected.

We yet hope for some variety to take undisputed lead, and to that end every pomologist should direct his attention. Plant seed, and from the seedlings select the best; subjecting them to trial as soon as possible, by cutting out buds of seedlings in August or September, and inserting them in the center of bearing trees, where the sap can be driven against them for two years. At the end of this time, they should be bent down in a pendant form to stay the fast rush of sap which will throw it in a slow condition, and favor the formation of fruit buds.

Planting: This is of no little importance. To make a healthy orchard of any kind the trees should be selected when not over two years old; seeing to it that you get all the roots; then set out where the ground is in working order, cut back and crowd the culture of said trees. Keep the ground clean by raising a crop of vegetables, which pay their way and are a good substitute until you have fruit. In this way you reap the benefit of your labor, should your trees all be killed.

As to locality, the country is generally too flat; so let every one set on his highest ground; and if it is all low and wet, let him ditch and head up.

Pruning: Here volumes might be written, but let it suffice for me to say to the young orchardist, *don't prune.*

Fruit houses: The cheapest and best we have tried are made in this way: Wall two feet thick and filled in with forest leaves raked up in the fall; taking old leaves if necessary and tramping them. It is better to have box doors inside, filled with the same; the outside, common battening. It is all the better, if convenient, to have a long building, and doors at each end, to be opened if necessary. Potatoes are kept in this way better than any other; and both apples and potatoes, mixed with leaves and kept dry, are better.

G. W. Vaughan.—I have had but little experience in orchard fruits, but my neighbor, Mr. Freeland, has given his attention exclusively to fruit; and placing

great reliance upon his judgment, will present a list of the varieties which he recommends.

Summer apples: Early harvest, Carolina red June, red Astrachan, Keswick Codlin, yellow Horse and American Summer pearmain.

Fall apples: Lowell, fall pippin, rambo and maiden's blush.

Winter apples: Jonathan, Swaar, Domine, Milam, Waggoner and Janet.

Summer pears: Madeline, bloodgood, Lysan's, or Bartlett.

Fall pears: Stevens, Genesee, Flemish beauty, Louise Bonne d' Jersey.

Winter pears: Glout Morceau.

Peaches: Early York, large York, early Crawford, and Mixon free.

Cherries: Early May and Knight's early black.

The fruits here given are named in succession from the time they begin to ripen until winter, and after trying them one can hardly dispense with a single variety. The Milam, though classed with winter apples, is useful for all general purposes as a fall fruit also. I have a young orchard of small trees of various kinds of fruit, and I set them out in this way: I dug large holes 20 feet apart, placed a tree in a hole the same depth which it stood in the nursery, put in a lot of loose earth around the roots, then put in corn or oats to keep the roots and earth moist; then more earth, and when the hole was filled I put wet straw around the tree as a mulch. I find mulching excellent in preserving the life of the young tree, and believe that where it is adopted not one sound tree will die, be the season what it may. The corn or oats sprouting keep the ground moist about the roots, while the mulch keeps it moist above. I have set out trees four inches in diameter in this way, and they lived. I always mulch in setting out any kind of young trees. I think young fruit trees of any kind should be plowed and tilled like grain or root plants, if we desire a thrifty growth. I have tried the experiment on my young orchard. I had often heard that orchards should be sown in clover, and it would keep the ground moist and soft, and no plowing would be necessary.

I sowed it to clover, but afterwards made a part of it into a potato patch and plowed the trees with the potatoes, and those trees are three times as large as the ones not plowed. They are four years old. I am going to cultivate all this summer. I think trees should be pruned in the spring and before the limbs are large, as they heal more quickly, and before the sap rises much. Winter fruit should be gathered as late as is possible and escape being frosted, and kept in some place not too warm, until time to bury them for winter; then should be put in the cellar or buried in the ground by placing them in a box, and the box on pieces of timber, to keep them off the ground; then covered well with earth.

If the cellar is not too warm they might be put there when gathered. There are but few underground cellars here—indeed, few of any kind. They are being built above the ground, owing to the level nature of the country; building the walls very thick, and ventilating well for summer use. They are cool in summer, warm in winter, and are used for fruit houses in the latter season.

Various insects infest the apple tree, yet I can name but few. The caterpillar and a worm of much the same size, work on the leaves, and the latter strips the tree entirely before leaving. The former is not so destructive. Smaller worms, too, infest orchards, but not in this neighborhood. The borer is most destructive. It bores the limbs and lays its eggs, which hatch, producing worms by thousands. The limbs become scrubby and the tree looks almost dead. I know of no remedy for the borer.

D. Gove.—I have set out several orchards in the past 20 years, having been improving all the time. At first I took such varieties as nurserymen would recommend, but when they began to bear I found I had made a mistake. Latterly I have ascertained, from observation, the varieties that were good growers, good bearers, and of good quality, and that have given entire satisfaction in the vicinity where I was planting; as I find that soil, climate, and many other causes that make some varieties good in some places, will not prove good every where. In my present orchard I have early harvest, red June, summer pearmain, Pennsylvania red streak, rambo, Pryor's red, janet, yellow bellflower, wine sap, limber twig large and small Romanite, that all do well. As to other fruits I have quite a variety, but as I think others can and will give better information in regard to their merits, I will confine myself to such matters as I think may be of service.

J. G. Swann.—Best varieties winter apples; Janeting, sops of wine, Romanites, Newtown pippin.

Best summer varieties: Early harvest, Carolina June, summer queen.

Best fall varieties: Rambo, Pennsylvania red streak.

Pears: Bartlett, Belle Lucrative, L. B. Jersey, Vicar of Winkfield, Seckel. All do well sowed in clover.

Peaches: Seven to eight leading budded varieties, not old enough to bear well yet.

Cherries: Morellos bears well.

Prune when sap is down any time. Gather in baskets, handling carefully. Pack in barrels. Preserve by pressing the best and putting the others in cellars and bins. Value of my orchard crop this year, \$2,500.

Borers: Knife the best remedy.

My orchard consists of the following number of trees: Janets, 2,000; Romanites, 1,100; N. pippin, 500; summer fruit, 500; wine saps, 200; rambo, 75; red streak, 50; bellflower, 200; large red, 50; other kinds, 200. All the above fruit from 5 to 15 years old. 100 pear trees 7 years old. 500 budded peach; 1,000 seedling peach. 50 gooseberries. 75 grapes. 50 cherries.

E. A. Reihl.—Apples: sorts preferred, the very early and winter most profitable. Prefer early harvest, red June, red Astrachan, Hubbardson, Rome beauty, wine sap, Gilpin, Janet.

Grapes: Concord and Norton's Virginia, so far the most reliable and profitable.

Blackberries: Kittatinny considered best; strong grower, hardy, and much better quality than the Lawton.

Strawberries: Wilson's Albany is the best for market.

J. Balsiger.—Apples do very well here, and the orchard bears more or less every year. Those kinds which are very productive, such as Rawle's Janet, the little Romanite, the white and red June, the rambo, and others, bring full crops only once in two years. The kinds which my experience shows me to be the most profitable are the above named, and the white winter pearmain, the American golden russet, Esopus Spitzenburgh, the Pennsylvania red streak and the yellow bellflower. No doubt there are others as valuable, in which I have had no experience. I have a nice orchard and a fine selection of apples, but most of my trees are yet too young to bear. As far as I know, the wine sap and Pryor's red must be among the best apples for our latitude, but they have not yet fruited with me. For cider, I am planting Hewes' Virginia crab, Harrison and Campfield.

Pears seem to do very well with me. The trees are healthy and vigorous, but as yet I have very few of them in bearing, and possess but little experience concern-

ing them. Of those I know I like the Bartlett best. My peach trees bring me regularly a good crop every two years; when they do not bear it is because the winter's cold has killed the fruit buds, of which they are full every year. Peach trees demand a high and dry location; the higher the better, so has experience taught me. I first planted my peach orchard on the hillside, but not on the highest place of my farm, though only a few feet below it, and it never brought any fruit, so that I had to dig up the trees again. I then planted other trees on the top of the hill, which is but little above the general level of Looking-glass prairie, and there they bear now once every two years regularly.

I have seen in my neighborhood that on the highest places along Silver creek peaches bring the most regular crops. I am not experienced enough to make out a list of the best kinds for our region, though my trees are all budded and raised by myself.

Of cherries, I have only the acid kinds, the Morellos and Lowell. I tried the Bigarreus also, but without success; they are too tender. I think the early May or early Richmond to be the most advantageous. I am trying the Duke also.

For orchards, it is necessary to choose a dry location, or else drain it by under, or at least by surface, drains. The land must be plowed very deep, the deeper the better, and subsoiled if possible.

Apple and peach orchards need to be cultivated at least till the trees bear well. Till then I had my orchard planted every year in corn, potatoes or other hoed crops. When the trees are growing large it is rather difficult to plow and cultivate the land, for the roots are broken by the plow; and as the trees ought to be grown with very low heads, there will soon be too little room left for plowing. I am planting apple trees at a distance of 25 to 30 feet, according to the kinds and the habits of the trees. Peach trees I plant from 16 to 20 feet apart.

When I cease cultivating the land I sow it in clover. I have never seen that the trees suffer by it. They will perhaps not grow so vigorously as when they were younger, but they become more productive. The clover I cut for soiling cattle and hogs, and also for hay. Cherries and pears I plant in the sod, in clover and timothy, making large sized holes for them before planting; they grow vigorously enough without cultivating the land. Only while they are yet small I keep a little space around the trunks and above the roots clean by the hoe, and mulch them with straw or chip manure, or any such material.

We gather our winter apples in dry weather, and put them in a dry and cool cellar on shelves, where they keep very well. We have often kept some till the following summer, when the earliest summer apples commenced ripening. The little Romanite we find the best keeper. Sometimes when the weather is favorable, we leave them for several days in heaps under the trees, for sweating, before putting them in the cellar. This is a good method.

My fruit trees do not often suffer from disease. Sometimes the borer will attack those which are not vigorous, but I cut him out and cover the wound with grafting wax, and commonly save the tree in this way. Last season the apples were much attacked by the codling moth, and the great drouth in connection, caused many to fall off before ripe.

To prevent this in future, as much as possible, we shall have to gather up the fallen fruit every day and feed it to the hogs, or when ripe enough make cider vinegar of it. The green pippin, and most all other pippins I am acquainted with, rot badly on the tree, stung or not; of the former there were hardly any sound ones left to be gathered.

T. Engelmann.—The attention of the farmer being directed exclusively to the raising of wheat, little care only is bestowed upon orchards, although apples and peaches succeed to great perfection. Large numbers of trees have been planted of late years, but most of them have failed to grow or have been destroyed again by cattle or on account of neglect. Some old orchards in the neighborhood bring almost yearly good crops of apples, mostly seedlings or of inferior quality, which are turned into cider. To the Gilpin (little Romanite) and the Janeting preference is given for that purpose.

My own orchard covers seven acres of ground on the northern slope of the hill. It was planted in 1850, partly in 1859, with select varieties of apples, some pear and some peach trees. The apple orchard brings full crops of fruit only every alternate year. Without a market of easy access and without railroad connection, summer and early fall apples are of but little value. The late fall and winter apples sell readily for cider-making.

Pear trees do not succeed with me; most of them are already dead, and those that remain have all exhibited signs of disease.

Peaches succeed to great perfection, equally well on the northern as on the southern slope of the hill.

The borer has made its appearance within the last four or five years, and is very destructive to young trees. Wood ashes, which I have applied, appear to delay, but not to cure, its destructive work.

G. C. Eisenmeyer.—Apples, pears, peaches, cherries, etc: The cultivation of these fruits is only to be recommended for family use; the land being better adapted to cereals than to fruit. Of apples, the little Romanite, Pennsylvania red streak, limber twig, big hill and Shiloh pippin, are the best and most profitable varieties. The ground should be plowed 15 inches deep before planting, and trees set on the ridges 20 or 40 feet apart. If they are planted 20 feet apart they will have to be thinned out when they become too thick. They should be planted as shallow as possible and pruned very low. The stem should not be more than 3 to 4 feet high. The old practice of deep planting and long or high stem pruning, is now considered, and really known, to be destructive to successful fruit culture. A great many orchards are ruined by cultivating small grain, such as wheat, oats and barley, which is very ruinous to an orchard; hoe crops and corn are the only things that should be planted among trees for at least the first 5 or 6 years; afterwards you may sow it down in clover for a few years.

The best insect destroyers are a number of hogs turned in your orchard as soon as the trees are large enough to admit of it without injury to the trees.

J. Barber.—Of the summer apples which have succeeded best with me, are the red Astracan, red and yellow June, and summer queen.

Fall varieties are principally Rambo and bellflower.

Winter varieties—wine sap, limber twig, Janeting, Ben Davis, Milam, Rhenish May, etc.

Pears have not succeeded on my high land, on account of the blight, but, near me others have succeeded in obtaining a few good crops on heavy clay subsoil.

The peach is my principal market fruit, and I have more of these than all others put together. The varieties which have proved successful are the Troth's early, early Crawford, royal Kensington, large early York, yellow rareripe, late Crawford, old Mixon, smock free, and heath cling. Serrate early York is one of the earliest, but it rots so badly on the tree just at ripening, more especially on old trees, that

it is not worth cultivating. I begin to market the Troth's early and early Crawford, about the 25th of July, closing with the heath cling, near the latter part of September. The three best varieties for market purposes, in the above list, I consider to be the early and late Crawford and heath cling. The best flavored are the royal Kensington, large early York and old Mixon.

I have had quite a number of varieties of the fine (?) cherries, but some of the trees are very tender, and are easily winter-killed, and most of the others which have lived through long enough to bear, rot their fruit at or near ripening. The only variety which has succeeded well is the early Richmond or May.

My ground is prepared for orchards by deep trench plowing and thoroughly pulverizing. Apple trees were planted 40 feet each way (too wide by 7 feet), and alternated with peach, making 20 feet from tree to tree. The peach trees die out by the time the apple trees are large enough to fill the space. Early spring is the best time for planting; if done in the fall, the trees are liable to be lifted by the frost during winter. The orchards are usually cultivated with corn the first two or three years. After the peach trees come into bearing, the only cultivation is by shallow plowing and harrowing twice each season.

The apple trees are pruned mostly in fall and early winter, by thinning out. Shortening in the branches is done in the latter part of July, in order to develop fruit buds. Peach trees are shortened in early September.

Winter apples are gathered just before cold weather, and kept in shallow bins or drawers in a dry cellar. Packing for market is done in barrels, excepting the very earliest, which are often packed in boxes similar to but larger than peach boxes. Peaches are laid in regular tiers in boxes made of slats. Size of box, in inches, 5x8x22. Cherries are sent to market in shallow berry drawers.

The caterpillar and apple tree borer are the greatest insect enemies to the apple tree. Rabbits are also very destructive, girdling whole orchards in the winter, when not protected. I have used soft soap as a preventive. This is also greatly beneficial in destroying larvæ of insects, and gives the bark a healthy and beautifully smooth appearance throughout the succeeding summer. It is not always infallible against the rabbits. Branches of late fall and winter pruning are left beneath the trees, thereby bribing these destructive pests against depredations upon the trunks.

The borer is the greatest enemy to the peach tree. They are cut out with the knife in the spring. There are some few curculio which attack the fruit. They are partially destroyed by turning hogs in the orchards, which eat the fallen fruit, and thereby preventing their propagation.

As to value of orchard products, I cannot give precisely the amount. Sometimes more and sometimes less, according to season, market prices, etc. It is unquestionably greater than grain crops. On one peach tree alone, of Heath cling, I realized \$30. This is an exception, not a rule.

J. Warder.—The cherry has not done well with us, but perhaps we have an indifferent variety. The quince grows here of superior size, also the damson plum. Our best apples for winter are the Spitzenberg and Pryor's red.

Our main fruit is the peach, but the rough roads and distance to market are discouraging. We dry most of the crop.

My plan of a dry house is cheap and may suit persons of small means. It is built of hewed logs, 12 feet square and 7 feet high, the cracks well pointed with lime and sand. Tight floor laid over head, dirt floor below. Stove standing near the center, with door opening towards the door of the dry house, so that wood can be put in

conveniently. The fruit is put on movable shelves, from 4 to 6 feet long, 18 or 20 inches wide, with strips on the bottom, $1\frac{1}{2}$ inches wide and $\frac{1}{4}$ of an inch apart; these are arranged all around the house on bearers, about 6 inches between them, and may be taken out to a shed to be filled with fruit and replaced in the dry house at pleasure. Moderate attention to the fire will dry them to a nice brown in twelve hours or less time. Peaches dried with the skin on should be placed skin downward; they will dry quicker and nicer. Apples and other fruits may be dried in the same manner.

13. SMALL FRUITS.—Grapes, currants, gooseberries, blackberries, raspberries, strawberries: varieties preferred: mode of preparing ground: planting, cultivation, pruning, draining and gathering; value as a farm crop: insects and diseases.

E. Moss.—Grapes, currants, gooseberries, blackberries and Wilson's strawberries all do quite well.

M. A. McConnell.—Grapes and currants can be cultivated very successfully. Blackberries, raspberries and strawberries can be grown very profitably in this climate.

H. Pierce.—Concord, Delaware and Hartford prolific are our best grapes. Red Dutch currant and Houghton seedling gooseberry. No blackberries have been tried here, since the Lawton has failed, long enough to speak with certainty. I have a few mammoth Missouri that are all right yet, and they are exposed to the winter. Doolittle's black cap is the best raspberry. Wilson's Albany strawberry for market, and Smith's buffalo and triomphe de gand for table.

J. Tefft.—Isabella, Clinton, Diana, Hartford prolific, Concord and Catawba are the grapes now under cultivation. The Catawba does not amount to much in this section, and the others need to be covered in winter. Prune any time after first of November to first of March. Currants—white and red and English black. Gooseberries—Houghton's seedling is the variety most in use. Raspberries—a black cap, called by some, Blue Antwerp. These are hardy and produce well. Strawberries—the variety most in use is Wilson's seedling, which succeeds well.

A. Rankin.—Have a number of varieties of grapes; but the Concord is the grape for everybody. However, the Hartford prolific, Delaware and Clinton do finely, and a great many others do well some seasons. Have a number of varieties not fruited yet.

Have the common red currant and the Houghton gooseberry. Both do well and are profitable with very little cultivation and care.

Have several varieties of raspberries. Doolittle's black cap is the best, and is very profitable.

I have a large variety of strawberries. Consider the Wilson the best market berry; but the Jenny Lind, early scarlet, Shaker's, Triomphe de Gand, and some others are good for the table. Do not think strawberries a paying crop for farmers, except for their own use.

In cultivating and pruning grapes I do not believe any general rules can be adopted; for, while some require high manuring and cultivation, others need the poorest ground to check an overgrowth of unripe wood, mildew, etc. Some bear pruning vere much, others not at all. Some varieties do well in some localities and not in others. I think, too, the soil and locality have their effect on the grapes, as to ripening and so on. The seasons also have their effect, some years one kind will ripen first, the next year some other kind. The same, also, can be said of their

diseases. A man should buy the kinds that generally do the best, and get instructions about planting and pruning from some nurseryman, and notice the effect. At the same time he should exercise his own judgment. All, or nearly all the ground for fruit of any kind should be thoroughly under-drained, as stagnant water soon rots the root.

J. R. Tull.—There is a great deal said about grapes and grape culture within the last few years, and of the great profit attending it, as well as of the great number of new varieties claiming superiority. But it is found some, at least, of the varieties for whom such high merit was claimed, prove for most purposes entirely worthless, while the older sorts are the ones to rely upon. My experience is that the Concord is the best grape, for all purposes, that is cultivated. But for profit, the currant is in advance of the grape. As much wine can be made from an acre of currants, taking one year with another, as from an acre of grapes, and with half the labor. Here, the best article of currant wine is worth \$4 per gallon, while the grape is only worth \$2. The currant is much the surest crop. It scarcely ever fails, and is not subject to disease like the grape, and its merits only need to be known to be appreciated.

T. Gregg.—Grapes: for market—Delaware, Concord, Hartford prolific and Catawba. For wine—Delaware, Concord, Catawba, Clinton, Norton's Virginia and Ives' seedling have the preference. But a number of other sorts—as Iona, Isabella, Anna, Diana, Rebecca, Cynthia, Crevelling and several of Roger's hybrids—have been tried with varied success, and many others are now on trial.

Currants—red and white Dutch predominate; cherry has also been planted; black Naples is hardy, prolific and valuable.

Gooseberries—Houghton seedling and American seedling; the former mostly planted.

Blackberries—Lawton does well with proper care.

Raspberries—Doolittle and an ever-bearing black cap (name not known) are much esteemed. All of the suckering varieties are generally discarded.

Strawberries—their name is legion; Wilson is most relied on. I have had good returns from McAvoy's superior, Longworth's prolific and necked pine. Have Triomphe, Agriculturist, and a dozen of the newer sorts on trial.

A. C. Hammond.—The Catawba, Concord, Hartford prolific, Delaware, Crevelling, Clinton, Norton's Virginia and Ives' seedling are our popular grapes. The white grape, red Dutch and cherry currant, and Houghton gooseberry are most valuable. The Lawton blackberry is losing its popularity, and will probably be superseded by some of the new varieties. Among raspberries, the Doolittle, and among strawberries, the Wilson take precedence. As a farm crop they are not valuable, on account of the attention required in cultivating and training; yet every farmer should have his fruit garden, from which to draw daily supplies for his own table.

H. Sodovsky.—About 19 years since I first gave attention to small fruits. I think the Catawba and Isabella are not grapes for this climate, they are too often killed by hard freezing. The Concord is very hardy and will hang on the stakes or trellis all winter, so will the Clinton, and both bear well. The Delaware is a very sweet, small grape. I have 8 or 10 varieties, but think the Concord and Clinton are the grapes for this climate.

In currants, I have the white, cherry, purple and red Dutch, but think the white the finest and sweetest I ever saw. The cherry is a fine large currant, but not so good a bearer as the red Dutch.

Among gooseberries, I can recommend the American and Houghton's seedling as the best bearers. They are free from mildew and blight, to which the white Smith, though a fine, large berry, is liable.

I suppose, from the best information, that the Missouri mammoth is the best blackberry.

The best raspberry I have tried is the perpetual. It is a large black berry, resembling the common wild raspberry in flavor.

As to strawberries, I find little difference between three varieties. Wilson's seedlings, triomphe de gand, and a variety received from Horace Greeley, but whose name I have forgotten.

G. W. Vaughan.—Grapes are not extensively cultivated here. The Concord, Isabella, Catawba and large English are among the best. Gooseberries, blackberries, raspberries, strawberries and currants are more cultivated. The English gooseberry, Lawton blackberry and Wilson strawberry are among the best.

J. G. Swann.—Gooseberries and currants—common kind. Produce well.

J. Balsiger.—Small fruits I have not yet planted largely, only for family use. They generally do very well with me. Grape vines grow vigorously. Catawba and Isabella rotting badly every season, but Hartford prolific, Concord, Delaware and Norton's Virginia doing well, as far as I can judge. I am trying other kinds, but cannot yet report about them.

Currants bring abundant crops every year, at least the red Dutch. I have commenced trying some new kinds also.

The Houghton seedling gooseberry, the only one I have cultivated with success, bears abundantly. The quality is not very high, but it is good for pies, hardy and healthy. Tried English kinds, but they never bore a single fruit, and died, killed by mildew.

I have planted the Lawton or New Rochelle blackberry; it promises well.

Of raspberries, I have the Kirtland, the Philadelphia and the Brinkle's orange, in bearing, and I am well satisfied with them; they, except the Brinkle, which needs covering in winter, being hardy, of good quality and productive. An objection to the Kirtland might be, that it suckers very much. I have also the Doolittle on trial.

Of strawberries, we planted the Wilson, the agriculturist and the triomphe de gand, all of good quality and productive, but the Wilson dying out after every full crop. All have suffered badly from the drought last summer.

All these small fruits prosper best if planted in deeply worked and rich land. For grapes I prepare the soil by several plowings from 15 to 18 inches deep, and manure, when not rich enough, with ashes, rotten sods, bones, leaf mould and such like. For the other fruits of this class, I dig trenches, 2 or 3 feet wide and 2 spades deep, and mix the earth, when throwing it in again, well with rotten manure, and set the young plants in this enriched soil, at a distance of 4 to 5 feet. The rows of small fruit are in my peach orchard, at about 10 feet from the trees, alternating with the rows of peach trees. They ought to be kept clean of weeds. Blackberries and raspberries pinched in summer, the old wood after bearing, and the superfluous shoots cut off, leaving only 3 or 4 of the strongest stalks. Currants and gooseberries ought also to be thinned, and the old wood of more than three years of age retrenched. I surface manure the plants nearly every fall or winter abundantly. They did not suffer perceptibly from any disease or from insects, excepting the rot in the Catawba and Isabella grapes. Some grape berries have been stung by some

kind of *curculio*, who laid his eggs in them, which produced a worm that spoiled the fruit. There were some leaf rollers on my grape vines which I destroyed; the so much dreaded thrips I have not yet observed. I have found, but rarely, the spotted *pelidnota* on the vines, but it had not injured them perceptibly. The currant leaves were attacked on the under side by a kind of black or gray aphid, which caused them to curl up more or less.

T. Engelmann.—I have 14 acres in grape vines, nine of them already in bearing. I selected the land of my farm with reference to raising grapes and making wine. The hill sites were covered with wild grapes, which fact seemed to encourage enterprise and promise success. In 1851 I had one acre of ground, with a southern aspect, trenched with the spade two feet deep, at a cost of \$130, and planted with Catawba vines 5 to 6 feet distant. The Catawba was at that time the only grape known or recommended as a wine grape. I enlarged my vineyard every year until in 1857 it embraced six acres. The rows ran east and west, and the vines were trained to stakes. The results of the first few years after the vines came in bearing more than realized my most sanguine expectations; the vines were thrifty and healthy, and the fruit, and the wine made from it, satisfactory in quantity and superior in quality, and found a ready sale to the wholesale wine merchant at \$3 per gallon. If we bear in mind that at that time wheat was \$1 per bushel, wages from \$8 to \$12 a month, and other commodities or necessaries of life in proportion, we can form a correct estimate of the profits realized from my vineyard. In 1858 the diseases to which the grape vines are liable, made their appearance and were very destructive, and remained so until 1865 unabated. In 1865 about half a crop of good grapes was obtained; the vintage of 1866 was still better, and that of 1867 was superior in quantity and quality. I obtained from my six acres of Catawba vineyard 1500 gallons select quality of wine, and 1200 gallons by the second picking, of very good quality. In 1864 I had changed the rows in my vineyard from east and west to north and south, and I do not know whether the better crops obtained in the three next following years is owing to this change or to unknown atmospheric influences.

In the meantime the market has also experienced a change. It is flooded with imported and imitation wines, and native wines are not in demand. My vintages of 1866 and 1867 remain unsold in my cellar, although I offer them freely at \$1 50 to \$2 per gallon. If we take in consideration that wheat at present is \$2 50 a bushel; wages, exclusive of board, from \$20 to \$40 a month, and almost all other commodities in proportion, we can make a correct estimate of the reduction in the price of wine.

My best vintages were in 1857 and 1867. They averaged 450 gallons to the acre. The average yield during the thirteen years that my vineyard has been in bearing, is not more than 110 gallons per acre; which, at \$1 75 per gallon, would make \$192 50 gross proceeds per acre.

The cost of production, according to present rates, would sum up as follows:

Interest on value of land, \$100 per acre.....	\$10 00
Interest on preparing land, (trenching) \$130.....	13 00
Vines and planting and cultivating first year, \$200	20 00
Stakes and trellises, \$150	15 00
Stakes and trellises, repairs for year.....	10 00
Three years' labor until bearing, \$50 per year.....	15 00
Labor for year, (wages)	100 00

\$183 00

This estimate, however, I do not consider as reliable. Its fallacy will be detected in the many failures which I have experienced, and which I hope shall in future be avoided. The grape diseases may disappear, or we may find a remedy or preventive for them; or we will plant varieties less subject to them than the Catawba, and in this way secure more regular and remunerating crops. The price of wine may also come up again to a higher figure in consequence of failures in the wine-growing countries of Europe, or in consequence of the imposition of a higher tariff, or increased costs of importation.

Of the many other varieties of grapes which of late years have been recommended for general cultivation, a few only have been extensively planted: The Norton, the Concord, Herbemont, and Clinton. Of these I consider the Norton as the most valuable; it is nearly free from disease, and its wine is of superior quality. It is a good bearer, yet the berries being small and not very juicy, 200 gallons per acre may be considered a very good yield; it is the largest yield which I have obtained from this grape. The Concord is not so healthy as the Norton, yet it soon recovers from the effects of the diseases, and ripens an abundant crop of large and showy fruit to perfection. It is very productive, and will make between 600 and 800 gallons of wine per acre. The wine is, however, of inferior quality, and the grape will soon be discarded in the list of wine grapes, while it may continue to be valued as a dessert or market grape. The Herbemont is, in my estimation, as a wine and dessert grape, superior to all others; but it is tender, requiring protection in winter, and is liable to disease, especially to mildew, and I am doubtful if extensive planting of this delicious fruit would be profitable. The Clinton, generally considered the healthiest of all grape vines, will not succeed here. Either the soil, the situation, or the local atmosphere, do not agree with it. In three successive seasons it has dropped its leaves prematurely, and ripened its fruit but imperfectly.

G. C. Eisenmeyer.—The Concord, Norton, Virginia seedling, Herbemont, Hartford prolific, and Clinton grapes are the only valuable varieties successfully cultivated. The *modus operandi* of planting and pruning is described in too many books and papers to admit of a description here. However, I will say that I plow about 15 to 18 inches deep, with a plow constructed for that purpose; plant in the fall if possible, 6 to 8 feet apart; use a small stake the first and second years to tie the young vines to; after that set posts in the ground 20 feet apart, and then stretch No. 10 or 11 wire 18 to 20 inches apart along said posts, to which two vines are tied, partly perpendicular and partly bowed, as the canes may be long or short. Pruning should be commenced as soon as the leaves drop off the vines in the fall, and continued through the winter and spring till completed.

J. Barber.—Of grapes, I find the Concord to be the best, so far as my experience has gone. The yield is enormous, and it is less liable to disease. The Catawba is good, but it rots badly. Hartford prolific and Delaware not yet in bearing. Concord and Hartford prolific are planted in rows six feet apart, and eight feet in the row. Pruning is done in fall and early winter, in order to save the wood for cuttings.

Currants: Mostly red Dutch. Gooseberries: Houghton's seedling. Currants have not yielded very heavy crops, but the gooseberries bear enormously. They are planted in rows four feet each way. Have not cultivated blackberries. Wild ones are numerous, of which I have marketed several hundred bushels, realizing remunerative prices. Have several varieties of strawberries. As yet the Wilson is the most profitable for market. Jucunda or Knox's, 700 fruited with me last year (1867)

and is very promising. For all the small fruits I trench plow deeply and set in spring. Marketing is mostly done in shallow drawers, holding a half bushel.

J. Warder.—The small fruits flourish well with us—the strawberry in particular. We have two varieties, the Albany and neck pine. The latter requires less sugar, and will bear neglect better than any variety we have tried. Have tried the Isabella and Catawba grapes; the Catawba is too apt to rot.

14. WOODLANDS AND TIMBER PLANTATIONS.—Experience in forestry: in management of woodlands, or in growing timber trees from seeds or young trees: value as a crop and as shelter for crops and animals?

E. Moss.—By keeping out fires our woodlands seem to extend. The soft maple is planted in groves, somewhat, to good acceptance.

M. A. McConnell.—Woodlands can be grown, and almost all kinds of timber, with care, and are very necessary for the protection of animals.

D. C. Scofield.—Woodlands: 1st. By woodlands, I mean all lands which have on them a growth of natural forest, either large or small; and I will embrace in this definition all lands from which the timber has been cut and taken away, and has not been subjected to the “grubbing and annihilating process.”

2d. Certain varieties of timber when cut away have a tendency to sprout and reproduce another forest. Such is especially the tendency of the oak and hickory, of which our prairie groves and forests are composed. A second forest may be secured, of great profit to the owner and the country, by fencing immediately on the removal of the timber, and protecting from cattle and fires a few years; when, without further care or expense, a valuable crop of young timber is the result. A considerable portion of the eastern States are supplied with fuel and timber from forests of second growth, and already thousands of cords of wood which have grown within the last thirty years in our prairie groves, are sold in our markets.

3d. These timber lands should be perpetuated. Inducements should be extended in the form of exemption from taxation, or some other way, to all who will thus protect and perpetuate timber land.

Timber plantations: By this we understand, timber planted and cultivated as any other farm crop. That this may be done with great success and profit is already demonstrated in Europe, and to some extent in America.

The pine and the larch, it is said, grow equally well on poor and rich soils. My experience is on rich prairie soil. In 1856 I broke new prairie, and in 1857–8 imported from European nurseries and set on the now well subdued grounds several varieties of tree plants. The evergreens consisted of Weymouth (or white) Scotch and black Austrian pines, Norway spruce and European silver fir. The deciduous trees were European mountain ash, *Tyrolese larch, and Scotch elm. About the same time I planted seeds of American white ash, white and red elm, silver or soft maple, black walnut, rock or sugar maple, and horse chestnut. The two latter grow exceedingly slow from seed on prairie soil, and should be planted on timber land in a high state of cultivation.

* There are two varieties of Larch cultivated in European nurseries: one known as “Tyrolese,” which was introduced into Scotland in the year 1738, and was found in the Tyrolese Mountains, a portion of the Alps. It is upright and beautifully symmetrical in its form, while that known as “European” is wild and irregular in its habit, resembling the American Larch (or Tamarack), a native of some of our swamps.

I also imported from American forests the American balsam and arbor vitæ. The European silver fir was too tender for the climate and proved nearly a total failure. All the rest have proved to be hardy here, and have made satisfactory growth. The larch, black walnut, silver maple, American white ash, Weymouth, Scotch and black Austrian pines, and Norway spruce, I planted in forest belts, and all have made satisfactory growth, except where the black walnut was planted among other trees. It should be planted in separate plantations.

Since the importations and planting of 1857-8, I have imported for trial, the Cembra (or Swiss Stone) Pine Corsican, Maritime, Mountain and Mungho Pines; none of which do I regard as valuable for forest culture, but only for ornamental plantations. Any of the American varieties of deciduous trees that I have mentioned, may be raised from the seed by the farmer, as readily as corn; but the larch and evergreen varieties require skill, which but few possess, to raise them from the seed in this climate, and then only on light, sandy soils, and partially shaded during the first year. The Tyrolese larch may be successfully transplanted from the seed-bed at two years old, into nursery rows, and should remain there under good culture two years, when it is suitable for the forest plantation. There they should be set three feet apart each way, in rows, and in five or six years one-half should be taken out for hop poles, grape stakes or trellises, etc. In twelve years one-half the residue may be taken for fence posts, leaving the rest to grow six feet apart. At twenty years old, one-half the balance may be taken for railroad ties, fence posts, and spars, leaving 605 trees to the acre, to grow on ten years more, or until the plantation is thirty years old. Then one-half of the balance is removed, leaving 302 trees per acre, many of which will be two feet in diameter and sixty feet in height.

This is the method of forest culture in Europe, which I learned from a private correspondence with one of the most intelligent nurserymen and foresters in Scotland. He also adds his testimony in reference to the strength and durability of the larch. He says it is the most durable timber in Europe, exceeding that of the red cedar, and has the greatest elastic strength of any known timber.

The Weymouth or White Pine, which exceeds in value all the known varieties of pine, for both civil and naval architecture, stands foremost in value of all the evergreen tribe, and is not excelled by any in beauty or rapid growth. It is among evergreens what the larch is among deciduous trees. These two varieties of timber compare, in commercial value, for forest culture in this country, above all other varieties, as five to one, and should be planted by acres on every farm, not only in the prairie, but in all the States of the Union. Both the Tyrolese larch and Weymouth pine will acquire a diameter of from two to three feet, and a height of from sixty to eighty feet in less than fifty years. The pine is not valuable until large enough for sawing timber, while the larch is valuable as soon as large enough for hop poles. It is asserted, on high authority, that small poles of the larch have stood for hops and grapes several generations, and yet show no signs of decay.

Pines should be set in the forest plantation twelve feet apart, and the rows filled up between, at three feet apart, with larch. These should be successively removed, as when the whole plantation is of larch, until the pine alone is left. It is necessary, in order to secure the most perfect forest, to follow as nearly as possible, nature's method, by planting closely, which tends to send the growth upward and divest the trunk of limbs.

Many of my larch and pine trees have grown only ten years from tiny plants, and now measure more than 20 feet in height, and more than two feet in circumference near the collar or base. Many of the larch will now make three fence posts each.

Forest tree plants: Although some planters in this country have succeeded in producing evergreen and larch plants from seed, yet it has been at such cost that I regard the European plants as cheapest, as the climate is such that they grow there about as readily as spires of timothy do here. Then, as labor is so much cheaper there than in this country, it gives the advantage to the European planter. The plants should be transplanted one year before they are imported, when they acquire a good stock of roots, and can be imported then, with safety, to this country.

Profits: The value of such forests can scarcely be computed. If half their value should be estimated and exhibited in figures, it would awaken skepticism. A plantation of a few acres for shelter for stock and crops, alone would abundantly pay any farmer for all the expenditure. The progressive and ultimate value of an acre of larch and pine, at the end of seventy five or eighty years, is no less than ten thousand dollars. The excess of larch timber from one acre alone, in thirty years, leaving on the ground 302 trees to grow to an ultimate forest, exceeds four thousand dollars. At the age of seventy-five years, each of the 302 remaining trees on the acre, whether of larch or pine, will exceed one hundred feet in height, and average more than three feet in diameter, and are worth in the aggregate more than six thousand dollars. To encourage the cultivation of forests State and National patronage should be secured by offering liberal premiums per acre for forests, planted and cared for, from a half acre to one hundred acres; also exemption from taxation for twenty years from planting. All county Agricultural organizations should offer liberal premiums for the best forest plantations.

J. Tefft.—I have about six acres in an artificial grove, mostly maples. They grow finely and look beautifully; but I cannot say that it will ever be of any value, except for sheltering stock. I should not want a field crop sheltered in that way. It might do for cucumbers, and perhaps blackberries.

C. E. Barney.—The white willow makes a good wind-break. Do not let any willow find out where your wells and cisterns are. I lost one of each by that means.

G. W. Minier.—The American people are bringing ruin upon their country by their wanton waste of timber. The people of Illinois, especially, owe it to themselves to foster natural groves and plant artificial ones. I wrote an essay on "The Cultivation of Forest Trees," for the State Agricultural Society, which the Secretary, Mr. Reynolds, writes me is now being published in the Transactions. Mr. Samuel Edwards also wrote one, which will likewise be published in the Transactions. For mature views you are respectfully referred. I also had the honor to offer before the "Northern Illinois Horticultural Society," at its first meeting in Freeport, on the 13th instant, two resolutions on this subject, which passed unanimously, and to which I would direct your especial attention.

J. R. Tull.—The growing of timber is greatly neglected in this State. Every man that has a quarter section of land in the prairie should put out 20 or 30 acres of it in some good, thrifty, growing timber, such as black walnut, soft and sugar maple, but never black locust. Soft maple is the easiest timber raised, and is of very rapid growth on our prairies. I have raised it 3 to 4 feet high from seed, of the same year's growth. The seed ripens the last of May, and can be gathered and

planted at once, and will come up nearly as quick as corn; and, if well cultivated, will obtain by fall a growth of from two to four feet. The ground should be put in good order before planting the seed. Sugar maple may be raised in the same way, but the seed is later in ripening, and the plants will make but little growth the first year. Black walnut may be raised by planting the walnuts in the fall and covering with chip manure, so that the ground may not bake when it dries off in the spring. But I would recommend to all who possibly can, to plant more or less evergreens for wind-breaks; such as red cedar, Scotch and Austrian pine, Norway spruce and hemlock; all of which do well on our prairies, and can be obtained of nurserymen cheap.

What a beautiful country we soon would have if every man owning and living on a prairie farm, would plant about his premises a few dozen evergreens every year, for five or six years in succession. It would soon look like the land of promise; the dreary waste would disappear, and coming generations "rise up and call us blessed." Evergreens may be grown in large quantities from seed. I have thousands on my farm now, from three to six feet in height, raised from seed a few years since. But the difficulty in procuring seed in this country would deter many from attempting to propagate them from seed. I sent to Germany for my seed, and obtained them at less cost than they can be purchased in this country. But red cedar is easily obtained here, and should be propagated and planted. The seeds of the pine should be planted early in the spring in beds, and covered with leaf mould. When they germinate and show signs of coming through the ground, they should be shaded, and the shade should be kept over them until the hot summer weather is passed, when it may be removed, and then they will do well if kept clean from grass and weeds. Cedar seed may be planted in the fall and covered with leaf mould, and when they begin to come up, shaded the same as the pine.

S. P. Eardman.—In forestry I have had but little experience; have a number of thousands of soft maples growing, now two years old. In this latitude we have to go to the creek bottoms and gather our seed, as near as may be, just about the 20th day of May, one year with another. Plant the seed in drills immediately; drills some eight or ten feet apart, the seed to be covered not to exceed an inch in depth. If kept well cultivated will make a growth of from eighteen inches to two and a half feet the first season.

I plant walnuts in the fall as soon as gathered; plow furrows and drop them in, then plow a furrow on them to cover the seed. I am also planting peach seeds in groves, for shelter, fuel and fruit. By having them quite thick we sometimes get peaches in such groves even when they may be all killed in the orchard.

I haul my wood seven miles, and I am satisfied that I can grow it cheaper than I can haul it that distance.

B. Sweet.—Forestry: One would think to advise anything relating to this would be absurd; but it is a stubborn fact that even so-called arborists commit unpardonable blunders. They will take no lessons from nature; nor even when passing through young groves will learn anything but this fact, patent: "These trees ought to be pruned." And this in the face of the truth of nature's teachings.

Examine the young grove which has been pruned two years, and you will find worms eating opposite the scars made by pruning; and as the tree grows in years it grows larger in bulk around the place abused, because the sap jets are eaten off, and the quantity of sap ascending and descending must go round that obstruction, and build you a hollow tree while the worms work it inside.

But suppose you suffer no pruning of a tree, except that of dead limbs, would you have a hollow tree? Impossible.

To get healthy groves it is indispensable to begin with the seed, and then do not prune. If you would have low-topped, bushy, spreading heads, set them at a distance, keeping them in open space.

If you would have tall trees, plant thick. The soft maple being adapted to any soil, hardy, and of rapid growth, is perhaps more profitable than any other. Hard maple, better known as the "sugar tree," is adapted to any drained soil.

Groves can be set to suit the taste for shelter. We would prefer every grove designed for shelter for stock, to be mixed or surrounded by the native white oak, which, while young, retains its leaves all winter, and by cropping some of them every year, say in winter, you can have a shelter as good as evergreens afford.

G. W. Vaughan.—I have not experimented much in raising timber from the seed. They can be raised to be good-sized trees in a few years by tilling them like fruit trees. I have seen walnut and other trees raised from seed, at ten years old six inches in diameter at the root. Cottonwood or Columbia poplars often measure 12 or 15 inches at the ground at ten years old, but they are too sappy to be valuable. They, however, make good summer wood if well dried. Trees of any kind are of great value for shelter from flies in summer.

D. Gove.—I have grown from seed a heavy belt of soft maple, black and white walnut, around my orchard. It has now been growing six years from seed, and is from 10 to 20 feet high, and very thick. I have so arranged the orchard and hedge and belts that they protect my house and feeding lots from the north and west winds, and at the same time afford shade for stock in fields on either side. The walnuts I planted in the fall, after thoroughly preparing and checking off the ground eight feet apart, each way, put one nut in a place, and covered about three inches deep, and there is not more than one in fifty missing. The soft maple seed I planted on the 16th of May, fresh from the trees, after a thorough preparation and marking off the ground each way with a corn marker. I set four feet apart, leaving out a row in the centre of the belt to drive through if necessary. I set the seed out like setting out cabbage plants, putting the bean end down about one inch deep, leaving the feather end sticking out of the ground. Nearly every one came up, but the cut-worms cut out a few, say about one in thirty. I cultivated them thoroughly with double shovel plow and hoe, for the first three years. The fourth year they had full possession, and since they have not had any cultivation, but have made a very rapid growth. I am satisfied that the planting and cultivating of those belts is the best investment I have made on my farm.

J. Balsiger.—Concerning the woodlands and timber growth, I have to refer to what I said about the natural growth in this neighborhood. The free range of cattle and hogs—not yet abolished in our precinct—have heretofore prevented any trial of timber planting. They destroy any young growth of timber coming up spontaneously, as well as the seeds of the older trees, that might produce a new growth. As long as people are not obliged to keep up stock of any kind, it would be useless to plant timber, except when fencing in the land. But as there are already too many fences to be built and kept in order, to protect the farm crop, this would hardly be practicable for most farmers.

15. **LIVE STOCK.**—Cattle, horses, mules, sheep, swine: breeds preferred: breeding of each: rearing and training: dairy management: fattening of animals: wool growing: management of manures: diseases.

M. A. McConnell.—We have always preferred large, heavy horses; they are the best for all kinds of work.

In the line of cattle, we prefer the Durhams for the butcher and stall feeding. For milk, we prefer the native cows, as we have always found them the hardiest; to keep on the least feed and to give the most milk; but this quality always runs in families.

Sheep we have kept on our farm for the last 28 years, and have always found them to pay well. The best for wool are the merinos; for mutton, we think, the Bakeswells, as they are large and fine sheep.

The hogs have always been a source of profit to the farmer. We have grown the Berkshire, Leicester and Chester Whites, and found them to pay, generally, though not always. But we can't get along on a farm without them; and so, in regard to sheep and cattle. No good farmer can dispense with that kind of stock, as they are necessary for making good manure, and without manure no man can keep his land in good condition.

H. Pierce.—Of swine, the Chester White is allowed to be the best.

J. Tefft.—Cattle: For milch cows we prefer a cross of the Durham with the native stock. As our farm is mostly used as a dairy farm, we have but little experience with other stock.

The food preferred for cows is good clover and timothy hay, or red top with corn meal and bran or oatmeal, or the three mixed, in the proportion of, corn meal, 4 quarts; bran, 8 quarts, and oatmeal, 6 quarts. About one peck of this mixture per day, for a cow, is the quantity required for winter feed.

J. Schoenleber.—As for my idea about stock—it is cheaper, and we get a better stock of cattle by keeping them up.

C. E. Barney.—Mules are better than horses, if well used and not abused.

No stock can be bred *up* or *down* so fast as hogs. Breed one litter in spring from old sows—let the sows be large and the boar fine—feed well all the time, so as to make *fatness a natural condition*.

4,000 bushels of corn cost as much or more than 4,000 pounds wool. Small flocks will yield more wool, in proportion, than large ones.

A. Rankin.—I have had some experience in raising horses and cattle. I do not think it advisable to breed a mare until she is four years old; the horse ought to be as old or older.

In raising cattle, I would not breed a heifer until she was two years old. Bulls will do to use at one year old, where they have been well fed and are good size.

The most important item, in raising both horses and cattle, is their care for the first winter. They should be supplied with an abundance of good hay and fodder; with oats and carrots fed twice per day, so as to keep them in a healthy and thriving condition. They should have free access to salt, also, with plenty of fresh water and a good shed for shelter in stormy weather.

In breeding hogs, I let my sows go to the boar when they are about eight or nine months old. I prefer a boar that is at least one year old. The sow should be liberally fed after she takes the boar, so as to keep her in good growing condition but not too fat. A fat sow is more apt to lay on her pigs, and her milk is not so good as one in moderate condition. About a week before pigging she should be

separated from the rest, and be furnished with a good dry place. She must be fed at this time with ground feed and bran. Give her a little sulphur and salt once a day in her food, as sows are apt to be costive at this time, which makes them feverish and restless. After pigging she should be fed on ground corn and oats mixed with the slop from the house. The food ought to be cooked or soured. Sows ought to have a good clover pasture to run in as soon as the pigs are old enough to follow. The ground corn and oats are also the best feed, mixed with a little oil, to fatten cattle and hogs; for hogs it ought to be cooked.

I put my manure in piles with dirt until after harvest, when I haul it to the meadows or stubble. Last fall I hauled out from town 1,000 loads, and put on my corn ground, after gathering my corn.

The only disease among the stock is what is commonly called the hog cholera. My opinion is that medicine never has done any good as a cure, for the reason that when a hog has it he is generally not noticed until past cure. But I will say that, if there is anything in the saying that "An ounce of prevention is worth a pound of cure," it certainly can be applied in this case; for I believe with a good warm, dry place for them to sleep in, and a good clover pasture to run in, with plenty of fresh water to drink and free access to salt, limestone, coal and charcoal, they will not take the cholera spontaneously.

I keep horses, cattle and swine.

Our horses are a mixed breed, generally too small for good farm horses. My idea of a good farm horse is an active, well formed horse, of not less than 1,200 pounds weight.

Our cattle are mostly grade and native; some few, full blooded Durhams. The grade cows are the best for milk and butter; and I think, at the present prices of Durhams, the grade cattle are the most profitable for beef.

We have all kinds of hogs, but the dark colored are altogether the best for the prairies of Illinois. I raise Berkshire, Poland and China, mixed, and Chester white. The Chester Whites and Suffolk are both very fine hogs, where they are kept perfectly clean, and will produce more lard than any other breeds. But hogs, to be profitable in Illinois at the present time, must go out in the fields, in the sloughs, and almost every other place on the farm at some time of the year, and take it rough and tumble, particularly when corn gets up as it is at present. I find that the white hogs will get mangy, and will not keep up with the black or spotted hog. I have my fences all hog proof. As soon as I stack my wheat and oats I turn my hogs into the stubble; also, after I gather my corn, I let them into the corn field. I mean my sows and young hogs.

H. Sadowsky.—I have been engaged in raising live stock for the past 40 years. I have been raising thorough bred Durham cattle more than 20 years, and I find that as our country grows in wealth and population, the demand exceeds the supply. I have had more inquiries for blooded stock during the past year than for several years back. I keep a number of cows, and give all the milk the cows give to the calves until they are from 6 to 8 weeks old; then we feed them threshed oats and shelled corn, or meal with a little oil cake. Sheaf oats, with plenty of good hay, is good feed also. If you raise calves for sale, the better you feed, the better it will pay, and the sooner you will find sale for your stock. Thorough-bred cattle pay better than scrub stock. Where land is worth little, it may pay to handle poor stock, but with land at \$50 or \$75 per acre, the farmer will find it to his advantage to keep the best of cattle, and on the best of pasture. A few thorough-bred cattle will pay

him better than a great number of ordinary kind, as it costs no more to keep a good animal than a poor one. My father sold 4 steers that averaged 2,940 pounds to the steer, for \$1,200, which was \$300 per head. One of my brothers sold a lot, of ten or twelve steers, the fall after they were three years of age, at \$220 per head.

I have raised a number of varieties of horses. The thorough-bred has more elasticity than any other, and is the best for the saddle and driving in light harness. It is, too, the fancy horse for the fast man, and brings fancy prices. But Illinois is a farming country, the soil is very rich and fertile, and we need a variety of horses. We want large, solid farm horses, which we can hitch to a plow and turn up the soil 8 or 10 inches deep, or pull a good heavy wagon load. I have tried some of the Norman horses, and I prefer a medium horse to these Conestoga breeds.

In sheep, I have tried the Southdown, Leicester, Cotswold, and French and Spanish merinos. I think to cross the Southdown and Cotswold, and Leicester and Southdown makes a better breed than either separate. The Spanish merino is the best for the prairie.

I have raised the Berkshire hog and the Chester White. I think crossing them together makes a better hog than either separate. The Berkshire hog is a smart, industrious fellow, and thinks it no hardship to work for a living. The Chester is inclined to fat early, and fattens well at any age. The Bedford is a good hog, not second to either I have mentioned.

S. P. Boardman.—I raise but little stock, except sheep. Aim to keep mules and horses enough merely for teams to do my work, cows enough to make the family milk and butter, and hogs sufficient for my pork, except a few pure-bred hogs, to sell for stock purposes.

Now that outside range is nearly gone, in my immediate vicinity, I intend to keep only about what sheep my farm can carry; shall sell down to about fifteen hundred.

There is a feeling quite common in Central Illinois, particularly among the old settlers, that it will never pay to keep sheep when range is all gone. The feeling exists in some measure in regard to other kinds of stock, but not in so great degree. Allied to this is the notion that a man is half ruined when he is compelled to put part of his land in grass. This notion is quite prevalent in this section, particularly with the owners of "eighty" and "quarter section" farms. I honestly believe, that if one-half the acres under cultivation in Central Illinois were in tame grass, and the same labor expended on the cultivation of the half that is now spread over the whole, there would be as many bushels of grain raised as at present. Ground would be plowed eight or ten inches deep instead of four or five; corn would be cultivated four and five times, instead of once or twice.

There was a large bulk of not very wise testimony gathered and printed in the State Agricultural Society's Volume of Transactions, a few years since, going to prove that our soils could be skimmed in corn twenty to forty years in succession, without applying any manure, and yet continue to raise large crops. I know the point sought to be established was the richness of our soil, still we came near proving too much.

In sheep husbandry, we will soon be compelled, in all sections of the State, to pasture sheep on our lands wholly. When this becomes the case, the only way to make a profit will be to stock light and keep only our best sheep. One thousand head, culled closely every year, and given a first rate chance, the year around, will pay better profit than fifteen hundred ordinary sheep kept in an ordinary manne

and which see two or three small backsets, it may be, in the course of the year. Breeding, feeding and *light stocking*—on these hang all the profits in sheep keeping.

The American merino is the best breed, I think, where large flocks are kept. The Cotswold, I judge, is the most profitable breed among mutton sheep.

G. W. Vaughan.—The Durham stock is preferable to any other among cattle, being larger and smoother than any other breeds, and more in favor with cattle raisers. Of horses, there are many kinds, some of which take the name of the owner of the first sire, as "The Dan," for Dan. Randolph. The Dan is among the best farm stock. The Morgan, Nigger Dick and others are among the best for general use. I never saw a better show of horses than was exhibited at our county fair, last fall.

The best mules are from descendants of the mammoth stock of Jacks.

Sheep are very much mixed. In this neighborhood there are a few French merino, also a few Southdown, which is a good sheep. Most of our sheep are the common, long-wooled, or merino mixed. Fine-wooled sheep are the best for fine cloth.

The Chester White is considered the best stock of swine.

I prefer breeding mares in May or June. I do not approve of breeding them in the fall.

Bucks should be kept from the ewes until November or December; the lambs are much more likely to live.

Hogs should not be allowed to propagate till they are a year old. This rule is not followed here, and one can see its result in the hogs we have. There is not the pains taken with swine that there should and would be were farmers more certain they would pay for the trouble. They die so often with cholera, that little effort is made here to get the best quality.

Farmers here rear their horses until they are three or four years old, and then break them as best they can. A few adopt Rarey's mode of training. Farmers generally have but little trouble breaking horses.

Our cattle are fed shock corn on the ground or in pens for the purpose. I know of no stalls for feeding and fattening cattle in our county. Hogs are turned in after the cattle have eaten, to pick up the scattered corn and offal. Hogs fatten better in this way than any other, unless in being fed swill and corn together.

Horses fatten best on chopped feed, rye, oats and shorts, with a little corn; but as it is troublesome to feed a lot of horses in this way, I generally feed horses hay, oats and corn, and I find they fatten well by having all they can eat.

Sheep are so injurious to pastures that I have kept few, and know little about them.

D. Gove.—There is one other matter that seems to me to be of very great importance to the farmers of this State, in a majority of localities, that is how we are to obtain plenty of pure stock water, and, as necessity is the mother of inventions, I will give my experience in this matter:

I found that it took a great deal of labor and expense to water stock from wells, even if the water in the wells hold out, which, in those dry seasons they will not. I then went to work and made artificial ponds, one of which, I dug very deep and wide, and it has held out through the past dry season, affording water for a large number of stock: but when winter comes, it freezes up, and it is a very cold, disagreeable job to cut the ice, and when that is done, there are always some cowardly animals that will not venture near enough to drink; and, again, the water from

under ice is so cold that it makes stock shiver, as though they had the ague, which certainly does not add anything to their comfort or well doing. The pond being a disagreeable thing for both man and beast in winter, I am now trying to make an artificial spring thus: Immediately south of my barn, there is a small ravine that empties into a large branch, 30 rods east. I have here made an excavation, sufficiently deep to put up troughs, with an open ditch for the waste water to pass off. I have here put in a stone wall, with a place arranged in it to receive the end of a trough; I here start, first, with gas pipe of inch and a half capacity, with a faucet of the same size over the end of the trough. I have run the gas pipe 166 feet, on a grade of 4 inches to the 100 feet, and here the pipe is five feet under ground; I here commence laying 2-inch pipe tile, after puddling substantially around the gas pipe, at the junction with the tile. I am laying the tile on the same grade, going off through higher ground for half a mile, and will put a great portion of the pipe from 7 to 12 feet under ground. I am running this pipe close by an artificial pond, so that if the surface water should give out, I can lay a switch of gas pipe into the bottom of the pond, and thus have a supply. The faucet at the outlet can be adjusted so as to let the water run at any desired rate. I have now laid 80 rods of pipe, and have a continual stream of water sufficient to water a large number of stock, and yet I am only half done. This is an experiment with me, having never seen nor heard of such a thing, and it may possibly fail, but I do not see how it can; and as I have a great deal of faith in it, I have thought fit to mention it, and place it at your disposal.

J. G. Swann.—Horses: mixed blood—Lion, Empire and Cub stock. Hog: Chester white preferred.

For fattening animals, plenty of good corn, hay and oats. Stable manure should be well spread on.

J. Balsiger.—Of live stock, I have kept, until now, only the common breeds. I will let those more experienced than I am, give their views, which might be the most profitable breeds, etc. I believe, for dairy purposes, our common kind of cattle, if kept well, to be about as good as any other.

J. Y. Bothwell.—I keep the Durhams, and in good growing order until I sell.

In sheep, the Southdown and Cotswold; think them the most profitable.

Hogs: Chester white.

I raise the largest mules, thinking them most profitable. Keep but few horses, work mules altogether.

My lambs come in April. My mutton sheep, two years ago, sold at \$10 and \$12 per head. They are the cheapest meat that can be raised on a farm.

My pigs come the last of March, and dress from 225 to 250 pounds the next winter. Do not keep any but breeders over.

I find shock corn to be the best and cheapest feed for cattle, mules and sheep.

J. Barber.—Manure is saved carefully, and scattered over the farm where most needed, and put in hills of vines, etc. I wish to call attention to the fact that earth thrown from cellars and wells, when spread upon the soil, and after receiving the action of frost, operates as an excellent manure. What elements it may contain beneficial to the soil, I can not tell, but have noticed it in repeated instances.

16. OTHER DOMESTIC ANIMALS.—Poultry, bees, silkworms, etc.: best breeds: rearing and management: diseases.

M. A. McConnell.—We have kept Shanghais and Bremens; these are the best for all purposes. They are large, and good layers; take good care of their brood, and are not mischievous about the yards.

H. Pierce.—A cross of Dorking, Shanghai and the common fowl is, I believe, preferred, although the black Spanish is being introduced with fine success.

A. Rankin.—The Domingo fowls are the most profitable to raise, as they are good layers and setters, and good for the table—I mean when left to hunt their own living. I consider Brahmas, with a little extra care and feed, a very superior fowl.

Rev. G. W. Minier.—Aye, sir! Did you ever know a preacher that did not like poultry and honey? But, let me whisper this in your ear: They prefer eating them to rearing them, and study their peculiarities on the table, rather than running at large, or roaming in quest of the "healing dew."

Although the earth was cursed for man's sake, yet a beneficent Creator has placed within his reach many comforts and blessings, that he may enjoy by making use of the means to obtain them, and of these, none, perhaps, repays with greater yield the labor bestowed, than the honey bee. Those that have taken proper care of them have not only enjoyed the liquid nectar of their rich storehouses, but have received large remunerative profits in return. But, like all other stock, they must have proper care and attention. First, they must have the right kind of a hive. The one I have found the best is a square box, containing from 1,800 to 2,000 cubic inches, with movable frames, and a cap on top, covering a box the same size as the inside of the hive, that will contain from 25 to 30 pounds of honey. But the box should not be put on when the bees are first put in the hive. There should be a thin board, the size of the top of the hive, which I call the honey-board. This should be put on top of the hive, to prevent the bees from coming up into the box. The honey may be set on the honey-board, and the cap put on; and when the bees have filled or nearly filled the frames in the hive, then take off the cap and honey-board, and put on the honey box with the frames. The honey-board may be laid on top of the honey-box, and then put the cap on, which is a covering for all the top. In a good season, a strong colony will fill two such boxes, which we call surplus honey. But, in order to have bees do well in this latitude, they should be housed in winter. A room that will not freeze is best. The idea of some, that bees freeze up in winter and thaw out all right in spring is very erroneous. If bees once freeze they never come to life again. The best place to winter bees is in a dry, side-hill cellar, made dark. But, as few people have such a place, a small room in the dwelling will answer, made perfectly dark. But if that cannot be had, set all the stands together and cover with straw. I would recommend those that have bees to get Quimby's work on bee-keeping.

T. Gregg.—Bees are beginning to attract attention, and are increasing rapidly. Italians are being introduced. The bee moth is very destructive in some instances. I am not cognizant of any very effectual remedy.

H. Sodowsky.—I have raised the Shanghai, Cochin China, Brahma Pootra, Hunter's Dominico and Black Spanish. The Hunter's Dominico is the largest chicken I have ever seen. The Black Spanish is the best layer, the liveliest and smartest fowl I ever tried. It is a very healthy fowl. When cholera prevailed among our fowls, killing most of our large fowls, it killed very few of the Black Spanish. It is, too, a handsome fowl. The cock is a dark, glossy green, while the hen is black, with white gills and face. They are medium size, not much at setting, but extra layers.

I have had common white geese; also, a much larger variety, called the Bremen. The goose and gander are both white. Last fall I was in the State of Ohio, and saw a species of geese, called the Hong Kong, the largest I ever saw. The goose and gander are of the same color, a blue, or rather a gray. I had four shipped to me in January. They have been laying since the middle of February. They say these geese will weigh 50 pounds to a pair. They are the largest I ever saw.

I have, also, a variety of turkey, called the Bronze turkey, that is the largest and finest I have ever seen.

As to bees, they are a sect I have nothing to do with. They do not like me, and there is no love lost on my side. I have a fine sugar orchard, and we have all the maple sugar and molasses we can use, besides other varieties of sugar and sweet things; so we can live independent of the bees.

G. W. Vaughan.—We raise no poultry but for our own use. The mixture of Shanghai with the common fowl is the best, not being so subject to disease as others.

J. G. Swann.—The common small breed is best for eggs.

J. Barber.—Bees have succeeded well. I use the square box hive, containing about a cubic foot. Place glass boxes upon the top, and cover with a cap.

17. RURAL ARCHITECTURE, ETC.—Houses, barns, (for hay and grain and different kinds of stock,) root and fruit houses, etc.: the materials preferred: best arrangement for economy of labor and comfort?

M. A. McConnell.—We have three houses on the farm, all made of wood, with a wing attached. We have 5 barns; 2 for grain, each 33 by 60 feet; 2 cow barns, one 28 by 44, and one 28 by 60, 7 feet in the first stories, and 9 in the second for hay. The cattle stand with their heads toward the centre, and are fed out of the alley. Then we have a sheep barn 22 by 60, with racks to feed the sheep in; a horse barn, wagon house, corn crib, and a shed to keep tools in; also, a cheese factory, 30 by 128 feet and two stories high, where we made, last year, 185,000 pounds of cheese for our neighbors and ourselves. We charged for making, $2\frac{1}{2}$ cents per pound, and found every thing. The factory is supplied with water that comes in at a temperature of 45 degrees.

C. E. Barney.—Vertical boarding for corn cribs is much the best. Generally speaking the best barn is the one in which the corners are farthest apart.

A. Rankin.—My buildings are common affairs. My barn is 48 by 24, and holds hay enough to feed the horses and cattle necessary on the farm, after they have eaten up the stalks. My hog sheds cannot be excelled for comfort to the hogs. The sheds all run east and west, and are twelve feet wide; made perfectly tight on the north and east and west. The shed is covered with slough grass, and topped off with bagasse fresh from the mill, which will never leak or blow off if well put on. The pens are all floored and kept clean. The hogs are bedded with wheat straw. When my sows have young pigs, I give each sow 8 by 12 feet under the shed. Each pen has a door opening into a yard on the south. After the pigs are weaned, I take out the partitions and let them all go together, still keeping it clean so as to prevent dust, as pigs will not thrive in dust. They all have good pasture in summer.

A. C. Hammond.—The introduction of the horse fork, by which hay can be elevated to any desired height, bids fair to revolutionize the whole system of barn building. Under many of the barns now built basements are constructed, to be used for stabling, storage, etc., and the whole upper portion used for hay. Under a portion of my own barn, built the past season, I have constructed a fruit cellar seven feet deep, and thirty feet span, with double doors and windows, and double floors over head. I shall remove eight inches of dirt from the bottom and replace it with pounded rock and cement both bottom

and sides with hydraulic cement. The cellar under my house, which was formerly wet and infested with rats, has been treated in this manner, and it is now perfectly dry and free from the encroachment of vermin.

S. P. Boardman.—In sheep-keeping there is not a doubt but sheds enough to shelter all the different divisions of a flock, pay a large interest on the investment. I have not as yet been able to form an opinion whether it would pay to build large hay barns or not. It is easy enough to figure up the difference in amount of hay saved by barns over stacking, but there are other considerations which complicate the problem. To put a large hay crop in barns takes much more time than to stack it in the meadow wherever most convenient. In "catching weather" it frequently is of great importance to put up large amounts of hay in a short time. I find that I can "rope up," or "slide up," and get into the stack nearly double the hay in the same length of time that I can put on a wagon and haul to a barn. It is also much easier loading from the stack, in feeding out, than from the mow. I think, perhaps, when one had all the other buildings and improvements generally, it might then pay to build hay barns—one of the things to come in just before tile draining. Only such "high farming" will be practiced in our State as will bring in money enough to pay the cost—that, too, in a year.

For sheep-barns (used merely as shelters) our flock-masters use, nearly altogether, low double-roofed sheds inclosed on all sides. They are usually from 100 to 200 feet in length, and from 26 to 30 feet in width.

J. G. Swann.—My house is 18 by 40. Cellar under all. Two stories high; five rooms; upper and lower halls 8 feet wide. An L kitchen, 16 by 24, one story, with hall 6 feet wide.

A common stable, 8 stalls, a corn crib and cow shed. Stable 36 by 36. 10 foot stable, on north side for hay and corn. 16 feet center cow shed, on south side 15 feet.

J. Balsiger.—My buildings are of the most common kinds, *i. e.* some of frame and some of logs. I think brick buildings for dwellings, as well as for stables, preferable, more durable, and both warmer in winter and cooler in summer.

18. FENCES.—Material preferred: cost per rod, and cost of keeping up hedge, board and rail fences: value of hedges for protection: is it cheaper to fence out stock than to keep them up?

E. Moss.—Osage for hedge is thought most desirable. Fence stock in. Not allowed at large.

M. A. McConnell.—We think pine boards and burr oak posts preferable to anything else, and the cost is about as follows, per rod:

2 burr oak posts, 15 cents each.....	.30
34 feet boards, at 2 cents per foot .....	.68
1 lb. nails.....	.06½
Making.....	.15½

Total per rod..... \$1.20

Hedges do not do well in this climate. The winters are too cold, and they freeze down; but if they could be grown as they can farther south, they would be a great protection to stock, and very much cheaper than any other fence.

H. Pierce.—Osage orange costs \$1 per rod for making a good stock fence. The cost of keeping up a post and board fence for 10 years averages 25 cents per rod, and then it must be renewed almost entirely.

Hedges are much used around orchards, and are valued highly as a protection. My opinion, after a careful calculation of the land that is occupied by fences around a farm, and cross fences, wear and waste, is, that it would be far cheaper to keep cattle up, though, as yet, we have a large lot of land unoccupied, upon which the large cattle owners pasture their stock, to the manifest injury of the poorer man, who must fence them out at a first cost of not less \$2 per rod, and then some fine morning wake up and find

his fields of wheat or corn destroyed by from 50 to 500 cattle filling themselves and trampling down the remainder; and no recourse left but to pocket the loss with as good a grace as he can.

J. Tefft.—For road fence we prefer wire, as it turns unruly stock better than board fence. Costs about 50 cents per rod when well made.

C. E. Barney.—Quaking asp poles, cut, split and peeled in summer, nailed on good, seasoned posts, make a light and very strong fence. Cut eight feet long.

I think, if no stock was allowed to roam in the roads and lanes, people would have better stock, take better care of it, and make more money on it.

V. Aldrich.—Fences here mostly made of rails, called the Virginia fence. The staked and ridged fence, where timber is plenty, is the best. In this locality the post fence, with rails or boards, is fast taking the place of the old worm fence. Either of them will cost from \$1 to 1 25 per rod.

Osage hedge, properly made, I prefer to all other fence. The plants cost from 62 1-2 to 75 cents per rod. It will require four or five years growth to make a substantial fence. I formerly cut it back each year, but now prefer to let it grow as fast as possible, until large as fork stobs—10 or 12 feet high, or more, then lop it by cutting each one about half off near the ground, laying it in an angle that will make the top high enough for the fence. It will sprout up through this and become very thick and still retain life in the main lopped stem.

When I desire wind-breaks I let them grow their own way after lopping; prune other places to suit. The cost of a hedge is less than keeping up other fences.

I am greatly in favor of keeping up stock. Which is cheapest, to fence in or out? I don't know, but believe least trouble to arise from fencing in.

A. Rankin.—I think Osage orange is the best material for fencing. The next best is made by using large, round cedar posts, with three boards and three wires; costing about \$1 60 per rod.

It is decidedly cheaper to put up stock than to fence them out.

G. W. Minier.—Osage orange hedge every time and all the time. Mine, completed, cost just twenty-five cents per rod. Board and rail fences will soon be obsolete. We can hardly estimate the value of hedge as a wind-break and modifier of our bleak climate.

“Is it cheaper to fence out stock than to keep them up?” Yes; by at least fifty per cent.

T. Gregg.—“All sorts” of fences abound. White oak posts and pine lumber are very extensively used as a first fence, both on the prairie and on the bluffs. The Osage orange succeeds well and is being planted in great quantity. It is believed to be the best material for live fences for this region, and will have to be generally resorted to. That earlier planted has, however, been much neglected; so that it is a rare thing to see a really good and beautiful live fence in the country. But the slovenly habits of our people are gradually yielding to the influence of better teachings, and there is a marked improvement taking place.

A. C. Hammond.—The Osage orange is the cheapest, best and most durable fence. It can be planted, cultivated and trained until it forms a perfect fence, for 50 cents per rod, and afterwards annually pruned for 5 cents per rod. A board fence cannot be built for less than \$1 25 per rod, and I find the expense of keeping it in repair greater than that of trimming the hedge. When properly pruned a hedge is of little value for protection.

If the farmers of Illinois were to keep their stock up, instead of fencing it out, it would undoubtedly add hundreds of thousands of dollars annually to their pockets.

W. A. Allen.—Hedges preferred for fencing. Cost now, \$1 per rod. Keeping hedge trimmed costs \$3 per mile per year. Keeping up a board fence costs nearly all your

time, besides boards and nails. Hedge for protection is very good, but does not equal the grey willow.

It is cheaper to fence stock in.

S. P. Boardman.—In the way of fencing, public interest in Central Illinois is now entirely concentrated on hedge. Since the discovery and practice of plashing has come about, there are but few doubters as to the complete efficiency of the Osage hedge. Many of the old hedges (rather attempts at hedges) which were considered not only failures but nuisances, have been made, by plashing, to turn all kinds of stock.

G. Harding.—My experience is in favor of a live hedge fence of the Osage orange. It gives shelter to stock; is a good wind-break, and an everlasting and effectual fence, at a cost of 60 cents per rod, when large enough to turn stock, and an annual cost of two cents per rod to keep the same in repair.

I consider it cheaper to fence out stock than to keep it up.

The Osage is best for a live fence. If managed rightly, it will turn any kind of stock in 3 or 4 years from re-setting in the hedge-row. We have no machines for cutting hedges. The plan I have followed for preparing ground, setting, tending and trimming plants, is this: Prepare the ground in the fall, then break deep in the spring by throwing together several furrows. Run one furrow in the centre, set the plants in it eight inches apart, then cover the root to the same depth as in the nursery. If the ground is rough or cloddy, roll or harrow, or both. Plow well with the double shovel and hoe them well for the first and second years, then use the turning plow. If good-sized plants the first year, they may be plowed the second by the turning plow. I find a ditch on either side the hedge essential, to make the roots strike downward and not spread when the plow runs near them. If there is no ditch the roots will be broken by the plow and then sprout and spread. If the land is not tilled the ditch is unnecessary. If made at all it should be finished by the third year. I do not trim hedges until the third year, when, if of sufficient size, I cut the plants half off and bend them down along the row. The young shoots will again start where the plant is cut off, and when cut form the height of the fence, while the ones bent down stop all holes. If not well trimmed the young shoots will shade those bent down so much as to cause decay. The cost of hedge fence varies according to its width and the manner in which it is tended. As I set them it takes 2,000 to 80 rods, costing near here \$2 50 per thousand, making \$5 to 80 rods. The labor of setting, etc., about \$6. Therefore it will cost about 20 cents per rod for setting hedge, including cost of plants. After being set it will cost 20 cents per rod to till and trim the hedge, which should be trimmed once or twice each year after the 3d or 4th year. With machines there would be little expense in keeping up the hedge once well started. I prefer rails for cross fences, as they are often moved. A rail fence costs at least \$1 25 per rod, if made out of good rails, such as oak, ash, walnut and red elm. A board fence costs \$1 35 or \$1 40 per rod, if of oak; more if of pine lumber. Where one is fencing against cattle and horses only, a three-board fence will answer, and will last until a hedge fence can be made. Hedge fences are the cheapest the farmer can have, and afford good protection to stock and fruit. Orchard trees are much less liable to blow down when a hedge protects them from the wind.

I think and am sure that in any part of the country where the land is not fenced, it would be much cheaper to fence for pasture to keep stock in, than to fence the whole of the land in order to keep stock out of the farms.

S. Butler.—Rail fence costs \$5 per hundred.

We, as a general thing, fence out stock, and keep it up if we choose.

D. Gove.—I have tried all kinds of wooden fences, and at best they require a great deal of repairing to make them safe. I have also had considerable experience in hedging; and it is just the fence for this prairie country. It will cost less to make it and keep it in repair than any other fence, and it bids defiance to high winds or any kind of stock. It can be made sufficiently strong to turn any kind of stock for 75 cents per rod, and can be

kept in order for 10 cents per rod per annum; and if the wind blows your fence is in no danger; which is quite an item.

"As to fencing stock out or in," my theory is, to fence them in. If I own stock is it not just that I should keep them where they cannot injure my neighbor, who has no stock?

J. G. Swann.—Eight rails high. Black and white oak. Staked and ridered. Costs 75 cents per rod. Stock kept up.

E. A. Reihl.—It is much cheaper to fence stock in than to fence out.

J. Balsiger.—My fences are the common rail fence. Having plenty of timber, and not so much capital at my disposal, these were more convenient for me than board fences. But I am now beginning to plant Osage orange hedges, believing them to be, when well raised and cared for, the most lasting and the cheapest fence; and requiring, when once grown, the least labor to keep it in order; and, moreover, serving as shelter belts against the blasting winds. We have in this neighborhood, many, I dare say, perfect hedges of Osage orange.

I think it more advantageous to keep up stock than to let it run at large; though I know that fences, and keeping them in order, are a heavy charge on the farmer, as well for the work they demand, as for the timber they consume, especially rail fences, while board fences are very expensive.

J. Y. Bothwell.—I have half a mile of Osage orange hedge. It is good. I set the plants 18 or 20 inches apart, and cultivate well until they are from an inch to an inch and a quarter in diameter; then lay them down close to the ground. In April, confine them there by laying rails or poles on them. In July, remove the rails or poles. In one year the fence will turn any decent animal, and in another year it will turn anything. I also have two miles of plank fence, made as follows: Split white oak posts, split square, 7 1-2 feet long; set them top end of timber down. Use post augur 8 inches in diameter. Set the posts 5 feet apart. Use white oak plank 15 feet long, 1 inch by 4; use one nail and six planks to the panel. It makes a good tight fence, and costs \$2 per rod here, where it is cheaper than a rail fence, as timber is cheap. The balance of my fencing, 5 1-2 miles, is made of rails, but I shall make no more such. The hedge is *the* fence; when it cannot be used, the style of plank fence I have described is the cheapest and best I have found. I do not trim my hedge at all, as I consider it time thrown away, and injurious to the health of the fence. Let it grow; it will not get very high, and if it should, 'twill make a good wind-break against the cold prairie winds. As for side trimming, it does not become very wide, the growth is chiefly upward.

T. Engelmann.—The old worm-fence is slowly disappearing and plank fence taking its place. The cost of constructing a plank fence in this locality is about \$1 85 per rod, to-wit:

Two white oak or overcup posts, 25 cents each.....	\$.50
Forty feet fencing at \$30 per 1,000 feet.	1.20
Nails and labor.....	.15
Total.....	\$1.85

Osage orange hedges have been tried to some extent. With proper care they may afford sufficient protection, but on an average they have failed to give satisfaction.

The land in St. Clair county being nearly all in cultivation—all, except comparatively small bodies of it in the river and creek bottoms—so that in a few localities only, the stock which was running at large was able to maintain a poor existence for a few months of the year, on the so-called common pasture. It has for many years back been a fact, well understood by all farmers, that the benefit derived from that pasture was insignificant in comparison to the costs of making and keeping up fences, and efforts have been made to compel the owners of stock, by legal enactment, to keep up the same; but they have always been defeated by the opposition of persons who own no land, or only small

tracts of it, principally by the residents of towns and villages, until last fall, when a law to that effect was again submitted to the vote of the people, with a proviso, that in any election precinct in which the law would receive a majority of votes, it should be in force. In this way some of the election precincts have adopted the law, which went in force on the first of March, 1868; while in other and adjoining precincts the law has been defeated. It is to be seen how it will operate.

19. Capital, per acre, required for good farming ?

H. Pierce.—About \$40 to \$50 at present rates of fencing. Without having to fence more than was required for his own stock, \$20 to \$30 per acre. Basis of calculation, a farm of 160 acres. One could farm with a much smaller capital, but I estimated the cost of stock, etc.

C. E. Barney.—As to the capital required for good farming, \$12 per acre would be very desirable—some brains, and the ability to apply them to the soil, would be indispensable.

A. Rankin.—It costs about \$10 per acre for good farming here; that is, for grain. Root crops cost more. I last year spent \$41 on an acre of potatoes, and got 241 bushels, which I sold for \$1 per bushel.

G. W. Minier.—\$10 per acre is none too much.

G. W. Vaughan.—It costs at least \$5 or \$6 per acre to farm land as it should be, exclusive of manures.

D. Gove.—With our mixed husbandry it takes about \$10 per acre per annum, to pay all expenses.

J. G. Swann.—\$6 per acre.

E. A. Riehl.—I have 160 acres; 40 cleared, and have \$10,000 invested (besides cost of land), and twice that amount would be more profitable.

J. Balsiger.—I think that for good farming an available capital of nearly the same amount as the value of the land, would not be too much, though this depends on whether the land is already in cultivation, good order, etc.

G. C. Eisenmeyer.—Good farming land in this section of St. Clair county, is worth from \$80 to \$115 per acre. I know of no farm cultivated by hired labor owners, who have not sufficient force within their own families to cultivate their farms, find it to their interest, since wages are so high, to lease out their farms to tenants, receiving one-third of the crop as rent. Land is in great demand at this rate, and hired labor is generally employed only in harvest time. For these reasons it is difficult to make an estimate of the capital required for good farming.

AGRICULTURE AND THE MECHANIC ARTS IN THE EARLY DAYS OF ILLINOIS.

It may be a matter of interest to review, so far as we can, the history and progress of Agriculture and the Mechanic Arts in Illinois, from its first discovery up to the year 1830, or about a generation since.

The value of the "Illinois country" as an agricultural district was early noted by the French missionaries. In the narrative of Father Marquette, who descended the Mississippi in 1673, we find it stated of the Indians at the mouth of the Des Moines, who were probably identical with those of our own State, at least in their agriculture: that "they live by game, which is abundant in this country, and on Indian corn, of which they always gather a good crop, so that they have never suffered by famine. They also sow beans and melons, which are excellent, especially those with a red seed. Their squashes are not of the best: they dry them in the sun, to eat in the winter and spring." Father Allouez, in 1676, says of the "Kach-kach-kia" Indians—"they live on Indian corn and other fruits of the earth, which they cultivate on the prairies, like other Indians. They eat fourteen kinds of roots, which they find in the prairies; they made me eat them: I found them good and very sweet. They gather, on trees or plants, fruits of forty-two different kinds, which are excellent. They catch twenty-five kinds of fish, including eels. They hunt cattle, deer, turkeys, cats, a kind of tiger, and other animals, of which they reckon twenty-two kinds, and forty kinds of game and birds." "It is the custom of these tribes," says Father Membre, 1679, "to put their Indian corn in caches, in order to keep it for summer, when meat easily spoils, and to go and pass the winter in hunting wild cattle and beaver, carrying very little grain." "The richness and

fertility of the country," he adds in another place, "gives them fields everywhere." In 1680, he informs us: "As wine failed us for the celebration of the divine mysteries, we found means, toward the close of August, to get wild grapes which began to ripen, and we made very good wine, which served us to say mass till the second disaster, which happened a few days later. The clusters of these grapes are of prodigious size, of very agreeable taste, and have seeds larger than those of Europe."

Charlevoix, who went down the Mississippi in 1721, has a few pertinent remarks to make upon the natural resources of Illinois. Being just below the present town of LaSalle, on the Illinois river, he says:

"The largest of these [rivers] is called *Pisticoni*, and proceeds from the fine country of the *Mascotins*. At its mouth is a fall, or a rapid stream, which is called *le Charboiniere*, or the *Coal-pit*, from the great quantity of sea coal found in the placers adjacent."

Writing from Kaskaskia, he adds:

"The soil is not only extremely proper for wheat, but besides, refuses nothing necessary or useful for human life. The climate is extremely temperate, lying in thirty-eight degrees thirty-nine minutes north latitude. Cattle and sheep would multiply here wonderfully. Even the wild buffaloes might be tamed, and great advantages drawn from a trade of their wool and hides, and from their supplying the inhabitants with food."

"The highlands, and other kinds of soil not liable to be overflowed by the river, are even already very well adapted for producing corn, and if the trials made in some places have not succeeded because the corn has been blasted or mildewed, it is owing to this circumstance, that the country not being cleared, the wind has not free access to disperse those noxious vapors which generate mildews. An evident proof of which may be drawn from this: that amongst the Illinois, where there is more meadow than woodland, wheat thrives and ripens as well as in France."

"The French in this place live pretty much at their ease. A Fleming who was a domestic of the Jesuits has taught them to sow wheat, which succeeds very well. They have black cattle and poultry. The Illinois, on their part, manure the ground after their fashion, and are very laborious. They likewise bring up poultry which they sell to the French. Their women are very neat-handed and industrious. They spin the wool of the buffalo, which they make as fine as that of the English sheep: nay, sometimes it might even be mistaken for silk. Of this they manufacture stuffs which are dyed black, yellow, or a deep red. Of these stuffs they make robes which they sew with thread made of the sinews of the roe-buck. The manner of making this thread is very simple. After stripping the flesh from the sinews of the roe-buck, they expose them to the sun for the space of two days; after they are dry they beat them, and then without difficulty draw out a thread as white and as fine as that of Mechlin, but much stronger."

Charlevoix notices, as productions of Illinois, white mulberries, *Pacane* (pecans), *Piakimine* (persimmon), and the cane.

Du Pratz, in 1758, wrote a description of Louisiana, from which I take the following extracts, following the translation of 1774 :

“The country of the Illinois is extremely good, and abounds with buffalo and other game. On the north of the Wabache we begin to see the Orignaux, a species of animals which are said to partake of the buffalo and the stag. They have indeed been described to me to be much more clumsy than the stag. Their horns have something of the stag, but are shorter and more massy. The meat of them, as they say, is pretty good. Swans and other water fowl are common in these countries.”

“The French post of the Illinois is, of all the colony, that in which, with the greatest ease, they grow wheat, rye and other like grain, for the sowing of which you need only to turn the earth in the slightest manner ; that slight culture is sufficient to make the earth produce as much as we can reasonably desire. I have been assured that in the last war, when the flour from France was scarce, the Illinois sent down to New Orleans upwards of eight hundred thousand weight thereof in one winter. Tobacco also thrives there, but comes to maturity with difficulty. All the plants transported thither from France succeed well, as do also the fruits.”

He describes the culture of maize, water melons, tobacco, potatoes, etc., but evidently with reference to the lower part of the valley of the Mississippi.

Pittman, an English captain, who came along the Mississippi about 1770, on a mission of the British government, which acquired this country from the French a little earlier, describes several of the French posts below St. Louis and along the American Bottom, in the following language :

“The inhabitants here [La Prairie de Rochér] are very industrious, and raise a great deal of corn and every kind of stock.”

[Saint Philippe.] “The captain of militia has about twenty slaves, a good stock of cattle and planks.”

[Kaoquias—Cahokia.] “The inhabitants of this place depend more on hunting and their Indian trade, than on agriculture, as they scarcely raise corn enough for their own consumption. They have a great deal of poultry and good stocks of horned cattle. “The Mission of St. Sulpice” disposed of thirty negroes and a good stock of cattle.”

“The soil of this country in general is very rich and luxuriant. It produces all sorts of European grains, hops, hemp, flax, cotton and tobacco, and European fruits come to great perfection. The inhabitants make wine of the wild grapes, which is very inebriating, and is in color and taste very like the red wine of Provence.”

“In the late war, New Orleans and the lower parts of Louisiana, were supplied with flour, beer, wines, hams, and other provisions from this country. At present its commerce is mostly confined to the peltry and furs, etc.

“The price of labor in general is very high, as most of the young men rather chuse to hunt and trade among the Indians, than apply to agriculture or become

handicrafts. At the Illinois a man may be boarded and lodged the year round, on condition of his working two months, one month in ploughing the land, and sowing the corn, and one month in the harvest."

"Mons. Paget was the first who introduced water-mills in this country, and he constructed a very fine one on the river Cascasquias, which was both for grinding corn and sawing boards. It lies about one mile from the village [of Notre Dame de Ca-casquias]. The mill proved fatal to him, being killed as he was working in it, with two negroes, by a party of the Cherokees, in the year 1764."

He farther mentions :

At Saint Phillipe, "a water-mill for corn and planks."

At Kaoquias, "a very good mill for corn and planks."

"The only trades they have amongst them are carpenters, smiths, masons, taylors, and mill-wrights."

"The air in general is pure, and the sky serene, except in the month of March and the latter part of September, when there are heavy rains and hard gales of wind. The months of May, June, July and August are excessive hot, and subject to sudden and violent storms. January and February are extremely cold. The other months of the year are moderate."

"The country abounds with buffalo, deer, and wild fowl, particularly ducks, geese, swans, turkies and pheasants. The rivers and lakes afford plenty of fish."

In the "Western Annals" we find a good description of the original method of laying out farm lands under French rule :

"The style of agriculture in all the French settlements was simple. Both the Spanish and French governments, in forming settlements on the Mississippi, had special regard to convenience of social intercourse, and protection from the Indians. All their settlements were required to be in the form of villages or towns, and lots of a convenient size for a door yard, garden and stable yard, were provided for each family. To each village were granted two tracts of land at convenient distances, for '*common fields*' and '*commons*.'"

"A common field is a tract of land of several hundred acres, inclosed in common by all the villagers, each person furnishing his proportion of labor, and each family possessing individual interest in a portion of the field, marked off and bounded from the rest. Ordinances were made to regulate the repairs of fences, the time of excluding cattle in the spring, and the time of gathering the crop and opening the field for the range of cattle in the fall. Each plat of ground in the common field was owned in fee simple by the person to whom granted, subject to sale and conveyance, the same as any landed property.

"A common, is a tract of land granted to the town for wood and pasturage, in which each owner of a village lot has a common, but not an individual, right. In some cases this tract embraced several thousand acres."

Gov. Reynolds, in his Life and Times, gives a more minute and graphic account, extending to a later period :

"The agriculture at this period (1800) was limited and inefficient. The citizens were generally poor, and raised not much surplus produce. At this period there

was neither barley, rye, nor oats, cultivated in the country. Corn, wheat, and potatoes were then, as they are now, staple articles.

"The Americans cultivated the same species of corn they do now, but the French almost entirely raised the hard, flinty corn, out of which hominy was manufactured. They also sowed spring wheat, as their common fields were occupied by the cattle all winter. The Americans mostly raised fall wheat, and at times some spring wheat also.

"In early times the French cultivated only a scanty supply of potatoes, or other vegetables, except articles pertaining to the gardens.

"In horticulture they excelled the Americans. The lettuce, peas, beans, carrots, and similar vegetables, were cultivated considerably in the French gardens. In this necessary branch of culture the pioneer Americans did not rival their French neighbors; but in a "truck patch" the Anglo-Saxons surpassed the other race. Cabbages were, to some extent, cultivated, but sweet potatoes then were not seen in the country. In early times flax and cotton were cultivated considerably. Large stocks of cattle, horses and hogs were raised in proportion to the number of inhabitants. The French cart was a primitive vehicle made entirely of wood, and not an atom of iron in its construction. Running it without grease it made a squeaking noise which could be heard at a great distance. At this early day the agricultural implements were defective. The old bar-share plough was used by the Americans, and sometimes the shovel plough, in the growing corn. The common hoe was the same then that is used at this day. [?]

"The French depended more on hunting and voyaging for a living than on agriculture, and therefore paid less attention to the cultivation of the earth. Their ploughs, and they had but one class of that instrument, was of French descent, I presume, as I saw the same species of plows in old France. The French plow was destitute of iron, except a small piece, and the same fastened to the point of the wood of the instrument, to cut the earth. The metal was tied with raw-hide to the wood of the plough, and also a kind of mortise was made in the fore part of the share, in which the front of the wood was inserted. The bar, as it is called, was constructed of wood. The handles were very short and crooked, so that the ploughman walked almost on his plough. The beam was straight, and laid on the axle of a low-wheeled carriage. The wheels of this vehicle were low and made without iron, similar to the wheels of a wheel-barrow. Holes in the beam of the plow permitted the instrument to be so regulated on the axle, that it would make the proper depth of furrow. The plow was dragged on generally by oxen. The cattle were tied to the plow by a straight yoke, which was tied to the horns of the oxen by straps of untanned leather.

"Some few grist mills were established in the country in 1800, and one saw mill. General Edgar had erected a fine flouring mill on a small stream passing through the Mississippi bluff, a short distance northeast of Kaskaskia, which did considerable business for two-thirds of the year. This mill manufactured flour for the New Orleans market, and frequently boats were freighted from this mill with the flour to the southern market.

"Henry Levens had in operation at this date the only saw mill in the country. It was built on Horse creek, a few miles from the mouth of the creek, in Randolph county.

"Judy owned a water mill situated a few miles south of Columbia, in the present county of Monroe. West of this mill and near the Mississippi bluff, Valentine

owned a small water mill for many years. In Prairie du Pont, Jean F. Perry owned a water mill for many years. This was the same site where the Jesuits had erected a mill some forty or fifty years previous. Joseph Kinney had a small water mill on a stream east of the New Design. In all the French villages, and in the New Design also, horse mills were erected, and some business done by them when the water mills were dry."

In his Pioneer History, Gov. Reynolds says :

The custom among the inhabitants of the Illinois villages in regard to making and keeping in repair the fence of this common field, was that each proprietor of land should make and keep in repair the fence passing over his land. And if a tract of land was abandoned by its owner, as was the case sometimes, the land was sold out at the church door to any one who would make the fence to enclose it. [These sales, I believe, took place on Sunday, after high mass.]

The French system required the grants to be adjacent to each other, and numbered; so that no intervening tracts could exist. The grants were generally made by so many *arpens* in front, and extending at right angles to the requisite quantity. The lines were not, like the lands of the United States, run on the cardinal points, but were run the same course and frequently the same length. Generally, the French grants in Illinois commenced at the river and extended to the bluff, or from river to river, as they are at Kaskaskia. A French acre or *arpent* is eleven rods and sixty-seven hundredths of a rod, English measure, being the square of the *arpent*. This system contemplated either large enclosures, embracing the lands of many farmers, or the fields cultivated without fencing. It would be too expensive for a farmer having a grant of one *arpent* in front, 11 67-100 rods, and running, perhaps, many miles the other way, as they do in the Cahokia common field, to fence his farm himself. And, in consequence of this system, the French of the villages had, in olden times, their whole common field enclosed together. The fence generally extended, near the villages, from either the Mississippi to the bluff, or from the Mississippi to the Kaskaskia, as it was at Kaskaskia. The common field was on one side of this fence, and the stock, cattle, horses, hogs, etc., were forced to range on the other side. This was the ancient manner of enclosing the common fields of Kaskaskia and Cahokia for nearly one hundred years, and the same system was adopted by all the other villages of Illinois. A large gate was erected in the fence near the village, and a keeper was stationed at it, to permit the farmers and others to enter the field and return at pleasure.

In the fall, when the corn and other crops were gathered, the gate was thrown open and the stock took possession of the field during the winter.

Grants of land were made for almost all, or entirely so, of the American bottom from the upper limits of the common field of St. Phillips to the lower line of the Kaskaskia common field, a distance of nearly thirty miles; and the traces of cultivation could be distinctly discerned in the greater portion of this tract of country down to the year 1800, and after.

In the early settlement of the country, the horned cattle came from Canada and the horses reached the country from the South and the West. The cattle were a hardy race, not large but of neat formation. The horses were of the Arabian strain. The Spaniards introduced them into their American possessions, and from this race originated the French horses. This blood of horses was brought into Spain from

Arabia, by the Moors. These French horses were small, but performed better, to their size, than any others.

The primitive French had no tanned leather for any purpose whatever. They made harness out of raw hide, which was strong but rough. They had the traces for their horses plaited of small strands of raw hide, so that they were round and neat. These traces were very strong, and such are used to this day in France.

In the fall of 1745, a destructive storm visited lower Louisiana, and destroyed almost all the crops. But the Illinois and Wabash settlements relieved them. Boats descended in the fall, and returned early in the spring. It is stated that four thousand sacks of flour were sent this fall to the lower Mississippi from Illinois alone. These sacks weighed 100 pounds each, and were made of deer skins.

Cotton was introduced into both Louisiana and Illinois about the year 1750. Tobacco was also cultivated at Baton Rouge, Natchez and Illinois. The French houses were generally one story high, and made of wood. Some few were built of stone. There was not a brick house in the country for one hundred or more years from the first settlement. These houses were formed of large posts or timbers; the posts being set three or four feet apart, in many of them. In others, the posts were closer together, and the intervals were filled up with mortar made of common clay and cut straw. The mortar filled up the cracks, so that the wall was even and regular. Over the whole wall, outside and inside, it was generally whitewashed with fine white lime, so that these houses presented a clean, neat appearance. The other class of houses, having the posts farther apart, the spaces were filled up with puncheons; the posts were guttered for the puncheons to fit in. These houses were used for barns, stables, etc., etc. Some dwelling houses and the stables and barns were made of longer posts set in the ground, instead of a sill, as was used in the other houses. These posts were of cedar or other durable wood. The small houses attached to the residence, were generally set with the posts in the ground. The covering of the houses, stables, etc., was generally of straw, or long grass cut in the prairie. These thatched roofs looked well and lasted longer than shingles. They were made steep and neat. All the houses, almost, had galleries all around them. The posts of the gallery were generally of cedar or mulberry.

The floors of the galleries, as well as the floors of the houses, were made of puncheons, as sawed boards were scarce. The roofs of the dwelling houses were uniform and peculiar. They were made of rafters and lath for sheeting. These roofs had no gable ends perpendicular, but were shingled on the ends as well as the sides. The end sloped considerably towards the center of the building, so that the shingles would lie on the lath. No nails were used to fasten the shingles to the lath. Holes were bored in the shingles and pegs put in them; with these pegs the shingles were hung on the lath, and the holes and pegs covered so completely that no one would know at a distance that the shingles were not nailed on. The outside course of shingles was generally nailed, and then one course bound another, until the whole roof was solid and good; never leaking one drop. The shingles were generally made of white oak, and lasted for many years. On the comb of the roof, a cross of wood was often placed, that also lasted a long time.

The doors were plain batten work, out of walnut, mostly. The windows had, generally, some glass in them, and the sash opened and shut on hinges, as the French fashion is generally. The houses were mostly raised from the earth, a foot or two, by a stone wall. The French, in these their happy days, had clean wells, nicely

walled with rock, and a windlass fixed to them ; so that water was convenient and clean.

In the first settlement of the country the inhabitants were in great distress for want of salt ; but they discovered, in the present county of Gallatin salt springs, which were much used by the Indians and French of Vincennes. From the first settlement of the Wabash by the French, for nearly one hundred years after, much salt was made out of the water of these springs and conveyed to Vincennes.

Salt water, in modern times, has been discovered in many places in Illinois. On Big Muddy river, quantities were manufactured by Conrad Will, and others. Judge Biggs made salt in Madison county, on Silver Creek ; and in Bond county, on Shoal Creek, salt was also manufactured.

General Edgar owned the works and manufactured salt many years at a saline in Monroe county, at the Mississippi bluff.

In Vermilion county, salt water was discovered, and salt manufactured by Mr. Vance. This gentleman bored into the rock, for salt water, to the depth of 400 or 500 feet.

In very early times, very little intoxicating liquor, if any at all, was introduced into the country. Indian traders may have had small quantities, but so small that it was scarcely noticed. In after times, a liquor from New Orleans, called "Taffia," was brought to Illinois. This was manufactured out of sugar or sugar cane, in the West India Islands, and resembled New England rum. Some considerable wine was manufactured out of the native grapes. This wine was made by the first settlers, but disappeared with the Europeans. The Creoles made little or none.

In the pioneer times of Illinois, the mechanic arts did not flourish ; mason work of that day was good, but of the rest I can say nothing in praise of them. The coo- perage of the country amounted to very little more than making well-buckets. The carpenters were unskillful in their profession. They framed houses and covered them with peg shingles ; made batten doors, etc., in a rough fashion. No shoemakers or tanners, but all dressed deer skins and mawkawsins. Almost every inhabitant manufactured his own cart and plow, and made his harness, traces and all, out of raw hides. * * There was neither spinning wheels or looms in the land.

At that day, the sickles or reap hooks were the only implements used to cut wheat.

There were no cradles in the country to cut the small grain, and the late improve- ments made their appearance, to harvest the grain, fifty years afterwards. [This must refer to the reaper and header. The grain cradle was introduced about 1830.] Reaping with the sickle was a severe labor. Wheat at that day sold for a dollar per bushel.

Mowing the prairie grass was, as well as reaping wheat, a hot, hard labor—but a short distance from the farms, in the prairie or in the timber, in places, good grass was selected and mowed. * * * * *

The Americans, at that day, generally stacked their hay and wheat out, but the French had barns in which they housed their wheat and hay.

The French barns were made of large cedar posts put in the ground some two feet, and set apart four or five feet ; the space between the posts was filled up with pun- chcons put in grooves in the posts, and the whole covered with a thatched roof.

It was a great trouble in olden times to thresh and clean the wheat. The Ameri- cans used horses, at times, to tread it out. About the hardest work I ever performed was winnowing the wheat with a sheet.

Considerable quantities of corn were shipped from Illinois in flat boats to New Orleans, before the purchase of Louisiana. It was an uncertain market and a more uncertain navigation of the river. Some considerable stock, cattle and hogs were raised for the market; some were shipped to New Orleans, and considerable live stock to the lead mines in Louisiana. The commerce on the river and the Indian trade consumed some of the small surplus products of the farms.

Irish potatoes were raised in abundance in pioneer times in Illinois, and the crops scarcely ever failed.

Only small quantities of cheese or butter were manufactured—scarcely enough for home consumption.

The French scarcely ever troubled themselves with milking cows, but turned the calves out with the other cattle, and made little or no butter. They scarcely ever used a churn, a loom or a wheel. At this early day, both the French and Americans possessed large apple orchards, in proportion to the number of people in the country. The French also cultivated considerable orchards of pears, but the peach tree was almost entirely neglected. In after days, peaches, apricots and other fruit were raised in abundance.

The band mill was so called because a raw hide band, twisted, was put on the large wheel in the place of cogs; it saved the gearing of the mill. They are the lowest and cheapest order of horse mills. Pins are put in the arms of the large wheel, and around them the band is placed. These pins may be changed into holes made for the purpose, so the band may be made tighter when necessary.

The next is the hand mill. The stones are smaller than those of the horse mill, and propelled by man or woman power. A hole is made in the upper stone and a staff of wood is put in it, and the other end of the staff is put through a hole in a plank above, so that the whole is free to act. One or two persons take hold of this staff and turn the upper stone with as much velocity as possible. An eye is made in the upper stone, through which the corn is put into the mill, with the hand in small quantities, to suit the mill, instead of a hopper. This is a hand mill. A mortar wherein corn is beat into meal, is made out of a large, round log, three or four feet long. One end is cut or burnt out so as to hold a peck of corn, more or less, according to circumstances. This mortar is set one end on the ground and the other up, to hold the corn. A sweep is prepared over the mortar, so that the spring of the pole raises the piston [pestle?] and the hands at it force it so hard down on the corn, that after much beating, meal is manufactured.

The last and lowest order of inventions to manufacture meal is a grater. A plate of tin is pierced with many holes, so that one side is made very rough. The tin is made oval, and then nailed to a board. An ear of corn is rubbed hard on this grater whereby the meal is forced through the holes, and falls down into a vessel prepared to receive it.

Agriculture assumed [1818] a better standing and efficiency than heretofore. The horse tracks were converted into corn fields, and the rifle exchanged for the plow; hunting was abandoned, and churches, school houses and civilization took their places. The farmer commenced to raise stock for exportation. Hogs and cattle grew in the river bottoms without much care or expense, and yielded a rich reward to the husbandman. Horses were also raised for exportation, and money flowed into the country through these various channels to repay many fold the farmer. The country was new, and the range was excellent; so that stock was raised, as above

stated, without much expense or trouble. The Ohio drovers expended considerable money in the country for cattle.

Colonel William Whiteside, in the year 1796, introduced into the country a fine blooded horse, of the Janus stock. It is supposed, by the best judges of horses, that a better horse was never since stood in Illinois. Many of his colts made turf nags that won races, not only in Illinois, but in many parts of the Union.

All along the Ohio river, and up the Mississippi to Muddy river, and sometimes higher, the cane grew so thick and strong that man or beast could scarcely penetrate it. These were called brakes, and were so thick and matted together, that deer, buffalo, horses and other animals were completely housed and sheltered from the storms. Hunters say they have often heard buffaloes, in the winter, bellowing in these cane brakes, as if it were summer in the prairies.

Above the cane regions, the rushes grew on the sandy margins of the Mississippi and on sandy islands, strong and thick. They are more nutritious and better on which to winter animals than cane.

Morris Biebeck, who wrote letters from Illinois in 1819, gives us some idea of farm matters over on the Wabash at that early day. He settled in Edwards county. Horses, he says, were worth sixty to one hundred dollars; cows, ten to twenty; sows, three to five dollars.

Mechanics' wages were one dollar to one dollar and a half per day; maple sugar twenty-five cents per pound; coffee forty cents; sugar twenty-two to twenty-four cents, and tea two dollars and fifty cents.

He gives us a little horticultural information also:

The wild grapes of this country are pleasant enough to invite us to introduce better, and denote a climate well adapted to the vine. The crab is inferior in size and flavor to ours in England; yet the cultivated apple exceeds anything I have seen. In proof of the perfection which this fruit attains here, I have taken sixteen full-grown plump pippins [seeds] from one apple. Pears also succeed very well. The peach bears fruit the third year from the stone; but the trees are short-lived, and liable to blight. We have gooseberries and currants in perfection; and in general, the vegetable productions of our old country that have been introduced here are improved by the change.

Woods, an Englishman who followed Biebeck to the Wabash wilderness, wrote a book on that part of the "Illinois country," which was published in 1822, and contains a good deal of curious information on the state of agriculture at that period:

Most of the horses are of Spanish origin. They are light and clean, but not very handsome. Their coats are fine, when kept up and well cleaned, but this is seldom the case; active, but not good in the collar, being too light for heavy draught. I have bought three since my arrival, for two hundred and ten dollars. * * *

Oxen and cows are now more plentiful, but hitherto they have been fetched from the States of Indiana and Kentucky. They are of various sorts, but on the whole

pretty good. Some of them are handsome, and with a little care and expense an excellent breed might be raised. The price of beef from four to six cents a pound.

* * * Beasts are much lighter here than in England, as their flesh is not so firm as in a colder country; the difference perhaps one-sixth or one-seventh part, in two beasts of the same size. * * * The present price of butter is twelve and a half cents, but during the winter it was twenty-five cents, and difficult to be procured. Cheese is now sixteen cents. * * * * *

The sheep of this country, and indeed of the whole of America, as far as I have seen, are mean, when compared to those of England. They are of different sorts, but much mixed. If I can judge of their origin, I think the Lincolnshire and Welsh sheep are the nearest to their original breeds; but many of them have had a little Merino blood mixed with them of late years. * * * Wool sells, on a small scale, for half a dollar a pound, without much regard to its fineness, which is the reason why sheep are higher than mutton; as a sheep of fifty pounds' weight will fetch from two dollars and fifty cents to three dollars, whereas, at five cents per pound, the very top price for mutton, the same sheep would only fetch two dollars and fifty cents. * * * * *

Pigs are numerous, being easily raised. They are of various sorts, but many of them are a sandy color, and some with wattles: that is, a piece of flesh about two inches long and half an inch thick, growing out on their cheeks. They are of middling size, but from very hard keep, they do not rise to much weight. * * *

The poultry are, fowls, geese and ducks; I have seen but few turkeys or Guinea fowls. Fowls are in very great abundance, and now sell for twelve and a half cents. A dozen of eggs is generally the price of one chicken. * * *

The woods and prairies contain the following wild animals, (but there are but few of these that are most dangerous,) viz: Bears, wolves, panthers, wild cats, foxes, opossums, raccoons, ground-hogs, ground-squirrels, tree or common squirrels, deer, buffaloes, elks, beavers, otters and rabbits. * * * * *

We have the following reptiles, namely: Rattle-snakes, copperheads, black, garter and water-snakes, and a great quantity of frogs in wet places, and they make a great noise in a warm evening, but in a dry season we see or hear but little of them. * * * * *

The birds are, turkeys, turkey-buzzards, prairie fowls, quails, pigeons, doves, wild geese, wild ducks, wood-cocks, snipes, black-birds, mocking-birds, red-birds, yellow-birds, humming-birds, whip-poor-wills, blue-jays, paroquets, larks, wood-peckers, black martins, and a few other small birds. But birds are not so numerous as in England. Some of them have very beautiful plumage, but not many of them are birds of song. * * * * *

Prairie grass—a very coarse, strong grass; cattle are fond of it, but feeding or mowing it soon destroys it. Nimble-will—a kind of florin grass, or running couch grass; it springs up in land that is fed bare of prairie grass; cattle do not much like it.

Crab grass comes on ground that is cultivated, (a soft kind of meadow grass;) likely to succeed as a meadow grass for hay.

Yard grass comes on land that has been much trodden. It is something like cock's foot grass, except the seed. Horses and cattle are fond of it, and I think it will answer as a cultivated grass, as it bears drought. Buffalo clover resembles white clover, but does not run on the ground; the leaf as large as red clover. Cattle will eat it if cut and given them, but they are not fond of it, as I have often

seen bunches of it left where the other wild grasses have been eaten bare; the seed like clover seed, but chiefly of a pale yellow. There are a few other sorts of wild grasses, but I do not know their names; I believe they are of no great value.

Red or white clover I have not seen, but I have heard there are some small patches of the latter in the prairies. Both sorts are said to be extremely pernicious to horses, cattle and pigs. I have not seen trefoil, rye grass, saintfoin and cock's-foot, or any English grass, with the exception of a little lucern, just come up, which I think likely to succeed. Saintfoin and cock's-foot are, in my opinion, most likely to answer, and bear the heat of the climate, of any English grasses.

The grass that is most commonly cultivated here is timothy grass. It belongs to the English meadow grass, but grows here to a larger size; it does not appear to be a good pasture grass.

Blue grass is highly prized, but, as a pasture grass, is, I believe, unknown in England. It resembles young rye grass more than any other English grass; the seed is much like florin seed. Cattle are fond of it; it comes early in the spring, and dies early in the fall. * * * * *

This year, perhaps two hundred acres of wheat have been harvested in the different prairies. That which was sown in good time, and with good seed, produced a productive crop, and of good quality; but as good seed wheat was difficult to be obtained last season, many were forced to put up with such as they could procure, and some from Vincennes and Indiana turned out very bad. Those who sowed it had but little come up, and the wheat at spring being very thin on the ground, it branched out in a very extraordinary manner. I heard from several persons, to whom I think credit might be given, that in cutting a piece of wheat, they found a root that had sixty-six ears of corn on it, and that forty and upward were very common. I went over the field after the wheat was cut, and saw many of the stems of an immense size; but I did not count any of them. The wheat was, however, much too thin; it was blighted with the black and red blight, and of little value. I have been much surprised with the smallness of the quantity of wheat and oats sown per acre, and yet found the corn, (or, as it is here called, grain,) thick enough on the ground. One bushel of wheat, or two of oats, is the quantity usually sown, and I have seen wheat thus sown too thick. I suppose the dryness of the seed, newness of the land, and its kindness in working, are the causes of so much less seed being required than I have been accustomed to.

Most of the wheat sown in 1819 by the Americans was after Indian corn. It was sown before the corn was gathered, and plowed in between the rows of corn. It was sowed in September, or early in October. They sowed some after oats or flax, and for some they made fallows. That they sowed after the three last was generally better than that after Indian corn, when sown in good time. Most of the backward wheat was touched with the blight, more or less—chiefly according to its thickness on the ground. I have not heard of any being threshed for sale near us; but seventy-five cents per bushel is expected to be the price for good wheat. Most of that sown by the English was after fallows—they having, in general, no other land to sow it on. The price given this year was about 11s 3d an acre, where paid in money; but some was cut to receive three bushels of wheat per acre, and some was cut by the day. The Americans usually help each other to cut their wheat, as they are fond of company when at work. This they return at some future time in the same way. * * * * *

But few oats sown, as seed was not to be procured for money for many miles; but I think sufficient to raise seed for another year. I did not try much to get any seed, as I wished to see how they succeeded, particularly on new prairie land. I have bespoke some seed for next year. The oats I have seen this year were but indifferent. They were much hurt by the dry weather, and the quality of them was bad. I think they will never be much cultivated in this country, except it be on new prairie land; and that for the sake of mellowing it, to prepare it for a crop of wheat or Indian corn another year.

The Americans reap and bind their oats the same as wheat, and stack them in very small stacks, without any covering. I have heard no price for oats lately, but thirty-seven and a half cents was the price per bushel some time ago. Wheat was begun cutting this year about the 20th of June, and oats the 26th of July. I believe no barley has yet been cultivated near us, nor have I seen any growing any where in America; but I saw some winter barley in a barn at Harmony, in Indiana, and I understood some was cultivated by the Harmony Society for the purpose of making malt. * * * I have seen no rye or peas near us, except garden peas, which do not grow so strong as in England, but yield well. I saw some fit to gather on the 10th of May; how early they were planted I do not know. Vegetation is much quicker here than in England. Some peas I planted on the 1st of April were quite ripe for seed by the middle of June; and French beans were also fit for seed in June. There was some snow and a smart frost, with scarce anything green on the 1st of April, yet on the 6th of May there were ripe strawberries in Birk's Prairie.

Flax is cultivated, on a small scale, by most of the Americans near us, for home use. It is sown in April; and after the flax is pulled, the land is often plowed and sowed with turnips, about the end of July or the beginning of August. This year the land was too dry to plow it at that time.

I have seen no buckwheat at the Prairies, with the exception of about twenty rods of my own. * * * * *

Cotton is planted in rows near four feet apart, about the end of April or the beginning of May. It soon comes up, and at first looks much like buckwheat, except that the leaves are larger, and it continues to grow much like it, only it has a larger blossom. * * * Here it seldom exceeds two feet in height. * * *

Some few Americans near us raise tobacco in small quantities for home consumption. * * * * *

Hemp is cultivated in this country, but I have not seen any in this neighborhood, with the exception of a few rods of my own. * * * * *

I now come to the most important article of this country's growth. I mean Indian corn, which, with the Americans, is cultivated on a far more extensive scale than anything else. * * * I have heard of one hundred and thirty-two bushels per acre, but from sixty to eighty is considered a good crop. The husks that cover the corn-ears, and the flags or leaves, are all good for fodder. Horses, cattle and sheep all seem as fond of it as of the best hay. Horses and cattle will eat part of the stalk after the corn is ripe; but in a green state, they and pigs will eat it all up. Horses and pigs will eat the corn, and leave the cob or inside of the ear; but cattle will eat inside and all. The time of planting is from April to the middle of June; the middle of May is considered the most proper season. It is planted in rows of about four feet in each direction; and after it is up they plow between the rows, first one way, and in a week or two in the other direction; a third plowing is sometimes given to it. An extremely light plow, drawn by one horse, is used. Between

the corn they hoe up the weeds left near the corners that escape the plow; so that the land is made very clean. Generally, two or three plants are left at each angle. Pompions are often planted at the angles with the corn, but only in every fifth or sixth row, and at some distance apart in the rows. They also plant a small kind of French bean with part of their corn, the stalks serving instead of sticks for the beans to run on.

There are several sorts of Indian corn, and of different colors, namely: white, red, yellow, mixed, etc. A small sort of yellow corn is ripe much sooner than most of the other sorts, but yields a smaller produce. White and yellow are the most common sorts, but there are several kinds of these. A good ear of corn contains from fourteen to twenty rows, and from forty to fifty grains of corn in each row. A hundred middling ears of corn will yield a bushel of clear corn. * *

The green ears are eaten boiled or roasted—the latter mostly by the Americans, who call all green ears roasting ears. The price of corn last fall was mostly fifty cents a bushel, delivered, and now fifty cents on the place; but near us there is very little to be procured at any price. On the Wabash, where the country has been longer settled, it is lower and plentiful. It is gathered in October and November, when they only take off the ears; but as the ears are covered with a large husk, they carry them as they are to the corn-crib, and then all the neighbors collect together to help to husk it, and put it into the corn-crib. This is a high day with the Americans, and is called a "husking frolic." Plenty of whisky is generally to be found at one of these frolics. * * * * *

Pompions, or pumpkins, is another highly prized production of this country. They often grow to an immense size, and weigh from forty to sixty pounds. I have heard of a single vine that, in 1818, grew a load of pumpkins. It grew in the Big Prairie, about thirty miles to the south of us, on some rotten chaff, where some wheat had been trodden out the year before. I find they do best where the ground is moved or very mellow to run on, as they strike root at every joint as they run.

* * * Cattle of all descriptions, pigs and poultry, are fond of them; but all prefer the inside and seeds to the outside. They make good sauce and excellent pies, and are much eaten here. They are sliced and dried for winter use, for pies and sauce. They will keep till the frosts come, but will soon rot when frozen. At Major Phillips', I once tasted some molasses made from them, and liked it very much—not being so sweet as the real molasses, but very pleasantly flavored.

Swede turnips are but little known here. A person who resides at Birk's Prairie sowed an acre in May, on a piece of land that had been in cultivation for two or three years; they are thin on the ground, but seem likely to be of a good size, notwithstanding the dryness of the season. They have been twice hoed, but were sown on one plowing only.

Common turnips are sometimes sown after a crop of flax—the time of sowing the beginning of August; but many of the Americans are very particular as to the age of the moon, in this and many other things; and if they should be put by in doing it, they will not do it that year, as many of them are very superstitious, having great faith with regard to the moon's age, etc. Hoing turnips is not practiced by them.

Broom-corn: the seed is much like the seed of crop-weed. It is planted in rows on the sides of corn-fields, and is frequently plowed between. It resembles Indian corn, but it is slighter. I have seen it upward of ten feet high. * * *

We have some uncommonly fine hops in the woods, and in some of the prairies. We found them very convenient for making yeast. * * *

I have seen sun-flowers near twelve feet high, and I have heard in Ohio they plant them for the seed, from which they extract oil; and there are some in the prairies, from which turpentine distills, in the same manner as from fir trees, [rosin weed.] I have also seen growing, in some gardens near us, a plant from which an oil may be extracted like castor oil. * * *

I have seen no sweet potatoes, but Irish or common potatoes grow tolerably in a wet season, but in a dry summer come to little. The early ones are planted in April, but those intended for winter use not till June. * * * They are not so good here as in England. Their present price is fifty-five cents a bushel, and not many to be procured for that. Last fall they were from thirty-three to fifty cents. * *

Small beans of the kidney kind are cultivated by the Americans. They are generally planted to climb on the corn, and are of many sorts and different colors. There are some dwarf ones, called bunch beans, and they all appear to do better than in England. * * * Beans and vegetables require to be planted thinner here than in England, that the earth may be moved between them, as they then receive much more benefit from the heavy dews of this country than when the ground is hard. Here are a few Indian peas, in growth, leaf and blossom much like a kidney bean. The pods are very long, and contain from nine to sixteen peas in each; but they resemble but little either peas or beans. * * *

Cabbages grow well; the Americans plant a large backward sort, and make but one sowing and planting out in a year. In the fall they dig them up and bury them in the ground, or rather, they plant them underneath it, as they dig a deep trench, and set a row of cabbages with their roots in it; then, bending the outward leaves over the top of the cabbage, cover them with earth, and thus preserve them in the most severe frosts of this country. * * *

Onions are two years coming to perfection. The first year they are sown very thick, and the next they are transplanted, at about eight inches apart, when they grow to a middling size. Prairie onions are common in moist situations, and are very good early in the spring, but soon get hard. The root is very small. As they come up early in the spring, before other vegetables, cows eat them with great avidity, and it gives their milk and butter a disagreeable flavor; this lasts for two or three weeks.

Shallots grow to great perfection, and are planted by the Americans in preference to onions.

I have a few asparagus plants that look well. I have heard they succeed admirably more to the eastward. Here the plants are all young.

Squashes are a sort of gourd, frequently boiled for sauce, and much relished by many. There are a variety of gourds, but I believe of little use, except one sort, which has a hard rind or shell, which serves for many uses, as bottles, pans, ladles and funnels. * * *

Cucumbers grow well, and, I believe, are more wholesome than in England, and far more productive.

Parsley and radishes thrive, and, I believe, lettuce; but I have seen but few of them. Horse-radish is very scarce. * * *

The woods round the prairies are not so thick, nor the timber so large, as on the river bottoms; but they contain a great variety of trees, viz: Oak of many sorts, as black, white, red, post, swamp, laurel, pin, Spanish, and black-jack, and some

others; three kinds of hickory; two of ash; two of elm; two of maple; black walnut, cherry, sycamore, persimmon, gum, hackberry, cotton-wood, mulberry, service-berry, honey locust, sassafras, dog-wood, crab, etc. On the creek bottoms, coffee-berry, poplar, pecan, white walnut, etc., etc. The under-growth in the woods is hazel, spice-wood, red-bud, haws, sumach, plum and brambles. Willows grow on the water-courses. * * * The grape-vines run over the tallest trees in a very extraordinary manner—sometimes reaching from the ground to the boughs of trees forty or fifty feet high, without touching the bodies of the trees. * * *

There are several sorts of grapes, but not in general very good. Soon after our arrival we found some, nearly dried to raisins, good eating, and we used some for tarts and sweet-sauce. I suppose they would make wine, with sugar; but I do not know that any one has tried the experiment. Pomegranates grow on a vine much like a cucumber, the size of an orange, or rather larger; a beautiful fruit of a yellow or orange color, of a most fragrant smell, but I have never tasted one. They are said to be most delicious when preserved. There are many sorts of sweet melons, and much difference of size in the various kinds. I have only noticed musk, of a large size, and nutmeg, a smaller one; and a small, pale-colored melon of a rich taste; but there are other sorts with which I am unacquainted. Water-melons are also in great plenty, of vast size; some, I suppose weigh twenty pounds. They are more like pumpkins in outward appearance than melons. They are round or oblong; generally green, or a green and whitish color on the outside, and white or pale on the inside, with many black seeds in them; very juicy; in flavor like a rich water; not sweet and mawkish, but cool and pleasant. After people are accustomed to them, they generally prefer them to sweet melons. They are considered extremely wholesome in warm climates, as they quench thirst and are not feverish. * * *

Persimmon is a fruit many people are fond of; it is something like a medlar. Papaws, or pawpaws, grow in clusters of three or four on a shrub twenty feet high. The fruit is three inches long and about an inch thick; in shape something like a cucumber; of a yellow color; in flavor something like a pine, but not so rich. Strawberries nearly the same as scarlets, excellent, and in some places in great abundance. We one day gathered more than a peck of beautiful strawberries in my orchard, and we got a great many at other times. They make excellent pies. Raspberries are small and dry. Cherries grow in bunches, the same as currants; very small and bitter. May-apple is a yearly plant, of only two leaves; the stalk one foot high; the fruit the size of a small apple, of a straw color, with some small seeds; very pleasant tasted. Plums are mostly small and sour, but there are some whose flavor resembles that of a gooseberry. I have before remarked on the excellence of the blackberries. The elderberries are fine, but generally eaten by the birds as soon as colored. Pecan is a sort of walnut, said to be the finest nut in this country. White walnut or butternut, and black walnut, are not so good as the English walnut. Hazel-nuts are in vast quantities; the shells hard, but the kernels good. I have some earth-nuts growing in my garden; the green of them something like clover, or rather lucern. They blow with a small yellow blossom. I planted them in rows, and earthed them up like potatoes. They have two kernels inclosed in a husk about one inch long, and as large round. * * *

Fruit and all other trees are of much more rapid growth here than in England. There are not many orchards yet planted, and none of them come to bear much, as the oldest settlement round the prairies has not been made more than four years.

* * * * *

The soil is a light vegetable mold, of no great depth in general. The under-soil is a fat loam or clay, of considerable depth, that retains moisture, and prevents the land from burning. The land is easy of culture—much more so than any I was ever accustomed to—and dry enough to plow in a day after heavy rain; this is the case with most of the land round the prairies. Prairie land is hard to break up the first time, and requires four horses to do it effectually, it being so full of strong roots—in particular, one called red-root, that runs a great deal; and in moist places there is a small shrub named white-root, which must be grubbed up before it can be plowed; and sometimes there is a little brush-wood of different sorts to clear off.

Ford, in his history of Illinois, throws some light on the social and industrial condition of the people of our State from the years 1818 to 1830:

In the year 1818 the whole people numbered about forty-five thousand souls. Some two thousand of these were the descendants of the old French settlers in the villages of Kaskaskia, Prairie du Rocher, Prairie du Pont, Cahokia, Peoria and Chicago. These people had fields in common for farming, and farmed, built houses, and lived in the style of the peasantry in old France a hundred and fifty years ago. They had made no improvements in anything, nor had they adopted any of the improvements made by others.

They were the descendants of those French people who had first settled the country, more than a hundred and fifty years before, under Lasalle, Iberville, and the priests Alvarez, Rasles, Gravier, Pinet, Marest and others, and such as subsequently joined them from New Orleans and Canada; and they now formed all that remained of the once proud empire which Louis XIV, King of France, and the Regent Duke of Orleans, had intended to plant in the Illinois country. The original settlers had, many of them, intermarried with the native Indians, and some of the descendants of these partook of the wild, roving disposition of the savage united to the politeness and courtesy of the Frenchman. In the year 1818, and for many years before, the crews of keel boats on the Ohio and Mississippi rivers were furnished from the Frenchmen of this stock. Many of them spent a great part of their time, in the spring and fall seasons, in paddling their canoes up and down the rivers and lakes in the river bottoms, on hunting excursions in pursuit of deer, fur and wild fowl, and generally returned home well loaded with skins, fur and feathers, which were, with them, the great staples of trade. Those who stayed at home contented themselves with cultivating a few acres of Indian corn in their common fields for bread, and providing a supply of prairie hay for their cattle and horses.

No genuine Frenchman, in those days, ever wore a hat, cap or coat. The heads of both men and women were covered with Madras cotton handkerchiefs, which were tied around in the fashion of night caps. For an upper covering of the body, the men wore a blanket, called a "capot," (pronounced cappo) with a cap to it at the back of the neck, to be drawn over the head for a protection in cold weather, or in warm weather to be thrown back upon the shoulders in the fashion of a cape. Notwithstanding this people had been so long separated by an immense wilderness from civilized society, they still retained all the suavity and politeness of their race. And it is a remarkable fact that the roughest hunter and boatman amongst them could, at any time, appear in a ball room or other polite and gay assembly with the carriage and behavior of a well bred gentleman.

The Frenchwomen were remarkable for the sprightliness of their conversation and the grace and elegance of their manners. And the whole population lived lives of alternate toil, pleasure, innocent amusement and gaiety.

Their horses and cattle, for want of proper food and care for many generations, had degenerated in size, but had acquired additional vigor and toughness, so that a French pony was a proverb for strength and endurance. These ponies were made to draw sometimes one alone, sometimes two together, one hitched before the other, to the plow or to carts made entirely of wood, the bodies of which held about double the contents of the body of a common large wheelbarrow. The oxen were yoked by the horns instead of the neck, and in this mode were made to draw the plow and cart. Nothing like reins were ever used in driving; the whip of the driver, with a handle about two feet and a lash two yards long, stopped or guided the horse as effectually as the strongest reins.

The French houses were mostly built of hewn timber set upright in the ground, or upon plates laid upon a wall, the intervals between the upright pieces being filled with stone and mortar. Scarcely any of them were more than one story high, with a porch on one or two sides and sometimes all around, with low roofs extending with slopes of different steepness from the comb in the center to the lowest part of the porch. These houses were generally placed in gardens, surrounded by fruit trees of apples, pears, cherries, and peaches; and in the villages each inclosure for a house and garden occupied a square or the greater part of one. Each village had its Catholic church and priest. The church was the great place of gay resort on Sundays and holidays, and the priest was the adviser and director and companion of all his flock. The people looked up to him with affection and reverence, and he upon them with compassion and tenderness. He was ever ready to sympathise with them in all their sorrows, enter into all their joys, and counsel them in all their perplexities. Many good Protestant ministers, who stoutly believe the Catholic priests to be the emissaries of Satan, would have done well to imitate their simple-hearted goodness to the members of their flocks. * * * * *

Commerce, from 1818 to 1830, made but a small progress. Steamboats commenced running the western waters in 1816, and by the year 1830 there were one or two small ones running on the Illinois river as far up as Peoria, and sometimes further. The old keel boat navigation had been disused; but as yet there was so little trade as not to call for many steamboats to supply their place. The merchants of the villages, few in number at first, were mere retailers of dry goods and groceries; they purchased and shipped abroad none of the productions of the country, except a few skins, hides and furs, and a little tallow and beeswax.

They were sustained in this kind of business by the influx of immigrants, whose money, being paid out in the country for grain, stock and labor, furnished the means of trade.

The merchant himself rarely attempted to barter business, and never paid cash for anything but his goods. There was no class of men who devoted themselves to the business of buying and selling, and of making the exchanges of the productions at home for those of other states and countries. The great majority, in fact nearly all the merchants, were mere blood suckers; men who with a very little capital, a small stock of goods, and with ideas of business not broader than their ribbons nor deeper than their colors, sold for money down, or on a credit for cash, which, when received they sent out of the country. Since their time, a race of traders and merchants has sprung up who use the money they receive for goods in purchasing the

wheat, corn, beef and pork of the farmers; and ship these articles to the eastern cities. Mather, Lamb & Co., late of Chester, in Randolph county, but now of Springfield, were the first to engage in this business, and they were led to it by the refusal of the United States Bank, at St. Louis, to grant them the usual facilities of trade. As they could get no accommodation from the bank, they fell upon this course to avoid going to St. Louis to purchase eastern exchange.

Peck's Guide for Emigrants, published in 1831, contains a large amount of matter relating to the condition and progress of agriculture and the useful arts at that period, as well as some information concerning the climate and natural productions of the country, from which I extract the following:

The soil of the American bottom is as rich as land can be made, and that to the average depth of twenty-five feet. About the French towns it has been cultivated and produced corn in succession, without manuring, for more than a century without exhausting its fertilizing powers. It is evident, however, that such an injudicious method as has been pursued by farmers in this country renders the soil more adhesive or clammy and exposes it to bake in the sun. * * *

These bottoms, especially the American, are the best regions in the United States for raising stock, particularly horses, cattle and swine. Seventy-five bushels of corn to the acre is an ordinary crop. The roots and worms of the soil, the acorns and other fruits from the trees, and the fish of the lakes, accelerate the growth of swine. Horses and cattle find exhaustless supplies of grass in the prairies, and pea vines, buffalo grass, wild oats and other herbage in the timber for summer range, and often throughout most of the winter. In all the rush bottoms they fatten during the severe weather on rushes. The bottom soil is not so well adapted to the production of small grain as of maize or Indian corn, on account of its rank growth, and being more subject to blast or fall down before harvest, than on the uplands. The upper part of the American bottom is somewhat subject to a disease in cattle, called the *milk sickness*, described under the head of diseases. * * *

The following graphical description is copied from the Illinois Monthly Magazine, conducted by James Hall, Esq., a gentleman well known abroad as a fine writer. It is from the pen of the editor, under the head of "Notes on Illinois," Vol. I, pp. 60—64:

"The most of the country which lies south of a line drawn from the mouth of the Wabash to the mouth of the Kaskaskia is covered with timber. A very few prairies, and those inconsiderable in point and size, may be found immediately south of this line. Crossing that line, the timber is found to decrease in quantity and the prairies to expand, yet the latter are still comparatively small, wholly unconnected with each other, and their outlines distinctly marked by the thick forests which surround and separate them. Advancing to the north, the prairie surface begins to predominate; the prairies now become large and communicate with each other like a chain of lakes, by means of numerous avenues or vistas; still, however, the traveler is surrounded by timber, his eye never losing sight of the deep green outline throwing out its capes and headlands, though he sees no more than dense forests and large trees, whose deep shade almost appalled him in the south.

Traveling on from the center of the State to its northern limits we find ourselves surrounded by one vast prairie. In the country over which we have passed, the

forest is interspersed with these interesting plains; *here*, the *prairie* is studded with groves and copses, and the streams fringed with strips of woodland. The eye sometimes wanders over immense plains covered with grass, discovering no other object on which to rest, and finding no limit to its vision but the distant horizon; while, more frequently, it wanders from grove to grove, and from one point of woodland to another, charmed and refreshed by an endless variety of scenic beauty.

The prairies afford a subject of curious inquiry to every traveler who visits these States. That these vast and fertile plains should be totally destitute of trees seems to be an anomaly in the economy of nature. Upon the mind of an American, especially, accustomed to see new lands clothed with timber, and to associate the idea of damp and silent forests with that of a new country, the appearance of sunny plains and a diversified landscape, untenanted by man and unimproved by art, is singular and striking. Perhaps, if our imaginations were divested of those associations, the subjects would present less difficulty; and if we could reason abstractly, it might be as easy to account for the existence of a prairie as a forest."

The growth of the bottom lands consists of black walnut, ash of several species, hackberry, elm, (white, red and slippery,) sugar maple, honey-locust, buckeye, catalpa, sycamore, cotton-wood, pecan, hickory, mulberry, several oaks, as overcup, bur-oak, swamp or water-oak, white, red or Spanish oak; and of the shrubbery are, red-bud, papaw, grape-vine, dog-wood, spice-bush, hazel, green-brier, etc. Along the margin of the streams, the sycamore and cotton-wood often predominate, and attain to an amazing size. The cotton-wood is of rapid growth—a light, white wood, sometimes used for rails, shingles and scantlings; not lasting, but of no great value. Its dry, light wood is much used in steamboats. It forms the chief proportion of the drift-wood that floats down our rivers, and is frequently converted into planters, snags and sawyers. The sycamore is the button-wood of New England; is frequently hollow, and in that state procured by the farmers, cut at suitable lengths, cleaned out, and used as depositories for grain. They answer the purpose of large casks. The size of the cavity of some of these trees appears incredible in the ears of a stranger to the luxuriant growth of the West. To say that twenty or thirty men could be comfortably lodged in one would seem a monstrous fiction to a New Englander; but to those accustomed to this species of tree on our bottoms, it is nothing marvelous.

The uplands are covered with various species of oak, among which is the post-oak, a valuable and lasting timber for posts; white oak, black oak of several varieties, and the black-jack, a dwarfish, gnarled looking tree, good for nothing but fuel, for which it is equal to any tree we have. Of hickory, we have both the shag-bark and smooth-bark; black walnut, in some parts, white walnut or butternut, lynn, (the bass-wood of New England,) cherry, and many of the species produced in the bottoms. The black walnut is much used for building materials and cabinet work, and sustains a fine polish. The different species of oaks, walnuts, hackberry, and occasionally hickory, are used for fencing.

In some parts of the State, the white and yellow poplar prevails. Beginning at the Mississippi, a few miles above the mouth of the Muddy River, * * * and extending a line across the State to the Little Wabash, leaves the poplar range south, interspersed with occasional clumps of beech.

Near the Ohio, on the low creek bottoms, the cypress is found. No poplar exists on the eastern borders of the State, till you arrive at or near Palestine; while on the opposite shore of the Wabash, in Indiana, the poplar and beech predominate.

Near Palestine, in Crawford county, the poplar again commences, intermixed with beech, and all the varieties of timber, and extends northward further than I have explored. A spur of it puts into the interior of the State on the Little Wabash, above Maysville. It is reported that in some of the northern portions of the State, some chestnut timber is found. I have never seen a tree in its natural growth, west of the middle of Indiana.

Occasional clumps of stunted cedar are to be seen on the cliffs that overhang the bottoms, but no pine, unless it exists in the wild regions of Lake Michigan.

Timber not only grows much more rapidly in this country than in the Northern States, but it decays sooner when put in buildings, fences, or in any way exposed to the weather. It is more porous, and will shrink or expand as the weather is wet or dry, to a much greater extent than the timber of New England. This may be owing partly to the atmosphere, but it is unquestionably owing in part to the quality of the timber. I have brought two wagons, or carriages, to this country, which were made in Litchfield, Conn., and they have lasted much longer than those made from the timber of Illinois. Our fences require to be new laid, and one-third of the rails provided anew, in a period of from seven to ten years. A shingled roof requires replacing in about twelve years. This, however, may not be a fair estimate, because most of our timber is prepared hastily, and in a green state. Doubtless with proper care in the seasoning and in the preservation it would last much longer.

Timber is ordinarily required for four purposes: fencing, building, fuel, and mechanical operations. I have already shown that rails are almost the only article used for fencing. In making a plantation in this mode requires a great waste of timber. Nor will a man, with a moderate capital, and with the burden of a constantly increasing family, stop to make experiments. He must have fields inclosed, and takes the quickest and cheapest method, by cutting down the most convenient timber and making rails. Ditching has been attempted in but a few instances, and without success. In the dry season, the turf withers on the embankment, the dry earth crumbles down, and the ditch offers no obstacle to the inroads of cattle, horses and swine, and these must run in droves over the prairies.

Some feeble attempts have been made to substitute a live hedge of crab-apple, and of honey locust, without success. So long as such extensive portions of the country lie uncultivated and waste, as a great common field for cattle, horses, swine and all other stock, it is not an easy matter to produce a hedge that will be impervious to these animals. The white thorn has not yet been tried, within my knowledge. It may succeed, especially if set within an inclosure for a few years, till its growth is matured.

A farm is to be inclosed, within a few miles from my residence, with plank, or, as a New Englander would say, *boards*, sawed at the mill, the cost of which will not exceed seventy-five cents per rod. But a great saving in fencing is made by making large fields, from forty to one hundred and fifty acres. I have no doubt but time will bring forth substitutes for fencing, and which will be a great saving of timber.

The first buildings put up are of logs, slightly hewn on two sides, and the corners notched together. The roof is made of clapboards, split like staves, four feet in length, and six or eight inches in width. Two layers of these are so adjusted as to cover the cracks, and on the whole are laid heavy poles to bind down and hold the roof. This description of building is called a "cabin." These are made single, or double with a space between, according to the enterprise, force, or taste of the owner.

Around it are usually put up a meat or smoke-house, a kitchen or cook-house, a stable and corn-crib, and perhaps a spring-house to keep milk cool in summer—all built in the same manner as the dwelling. Floors are usually made of timber split into slabs, called "punchoons," with the upper surface hewn level.

The next step in advance for a dwelling is a *log house*. This is made of logs hewn on two sides to an equal thickness, the ends notched together, apertures cut through for doors and windows, a framed and shingled roof, and a brick or stone chimney. The chimney of the cabin is invariably built of sticks of wood—the largest at the bottom, and the smallest at the top, and laid up with a supply of mud or clay mortar. The interstices between the logs of both the cabin and log house are chinked with strips of wood, and daubed with the same species of mortar, both outside and in, unless the convenience of lime is added. * * * *

Sink-holes are circular depressions in the surface, resembling a basin or a bowl. I have seen them of various sizes, from ten to fifty feet deep, with steep acclivities, and from ten to fifty yards in diameter at the surface of the ground. They usually are found near the bluffs, and in most cases contain an outlet at the bottom for the water received by the rains to descend into the earth, and find a subterranean passage among the rocks below. Trees and grasses are found growing within these cavities.

In all countries where the sub-stratum is of secondary limestone, caverns and subterranean passages exist. By the action of the water, the soil above these passages becomes loosened, and is gradually undermined till a *sinking* of the surface takes place. I have seen these sink-holes in all stages of existence, from that where the earth had just fallen in, to those which were partially filled up by the annual deposits, and sustaining large trees on the bottom and sides. * *

I have already mentioned that stone coal abounds in Illinois. It may be seen frequently in the ravines and gulleys, and in the points of bluffs. Exhaustless beds of this article exist in the bluffs of St. Clair county, bordering on the American bottom, of which large quantities are transported to St. Louis for fuel. It sells in St. Louis from ten to twelve and a half cents per bushel. From twelve to fifteen large ox-wagons are employed most of the year in hauling it to market, the distance of seven miles across the American bottom.

There is scarcely a county in the State but what can furnish coal in reasonable quantities. Large beds are said to exist near the junction of Fox River with the Illinois, and in the vicinity of the rapids of the latter. * * *

In most parts of the State, grape-vines indigenous to the country are abundant, which yield grapes which might advantageously be made into excellent wine. Foreign vines are susceptible of easy cultivation. These are cultivated to a considerable extent at Vevay, Switzerland county, Indiana, and at New Harmony, on the Wabash.

The indigenous vines are prolific, and produce excellent fruit. They are found in every variety of soil: interwoven in every thicket in the prairies and barrens, and climbing to the tops of the very highest trees on the bottoms.

The French in early times made so much wine as to export some to France; upon which, the proper authorities prohibited the introduction of wine from Illinois, lest it might injure the sale of that staple article of the kingdom. I have not the documents at hand that will attest this fact, but of its truth there is no doubt; and I think the act was passed by the board of trade in 1774.

The editor of the Illinois Magazine remarks: "We know one gentleman who made twenty-seven barrels of wine in a single season, from the grapes gathered with but little labor in his immediate neighborhood."

I have frequently drank of this domestic beverage. Almost any family, if they choose, can make a barrel or two for their use.

The wild plum is found in every part of the State; but in most instances the fruit is too sour for use, unless for preserves.

Crab apples are equally prolific, and make fine preserves, with about double their bulk of sugar. Wild cherries are equally productive. The persimmon is a delicious fruit, after the frost has destroyed its astringent properties. The black mulberry grows in most parts, and is used for the feeding of silk-worms with success. They appear to thrive and spin as well as on the Italian mulberry. The gooseberry, strawberry and blackberry grow wild, and in great profusion. Of our nuts, the hickory, black walnut and pecan deserve notice. The last is an oblong, thin-shelled, delicious nut, that grows on a large tree, a species of hickory. (The *Carya olivæformis* of Nuttall.)

The papaw grows in the bottoms, and rich, timbered uplands, and produces a large, pulpy and delicious fruit.

Of domestic fruits, the apple and peach are chiefly cultivated. Pears are tolerably plenty in the French settlements, and quinces are cultivated with success by some Americans. Apples are easily cultivated, and are very productive. I have seen a tree in Missouri, which bore apples the third year from the seed. Many varieties of fine flavor, and grow to a large size. I have measured apples, the growth of St. Clair county, that exceeded thirteen inches in circumference.

Some of the early American settlers provided orchards. They now reap the advantages. But a large proportion of the population of the frontiers are content without this indispensable article in the comforts of a Yankee farmer.

Cider is made in small quantities in the old settlements. In a few years, a supply of this beverage can be obtained in most parts of Illinois. Peach trees grow with great rapidity, and decay proportionably soon. From ten to fifteen years may be considered the life of this tree. Our peaches are delicious, but they sometimes fail, by being destroyed in the germ by winter frosts. The bud swells prematurely. In the severity of the past winter, most of the young buds, and in some instances the limbs of the tree, have been destroyed.

The following is a memorandum made in the spring of 1830, which will give some idea of the forwardness of our seasons:

- April 1. Peach trees in bloom.
- “ 2. Asparagus fit for the table.
- “ 3. Peas, beans and onions planted.
- “ 6. Heart's-ease and violets in bloom.
- “ 7. Beets, carrots, parsnips and other roots planted.
- “ 10. Spring had completely opened, and the prairies were green. Gooseberry and currant bushes in bloom.
- “ 15. Cabbage plants transplanted.
- “ 18. Lilac and strawberries in bloom.
- “ 19. A great variety of wild flowers in full bloom.
- “ 20. Nearly all our garden seeds had been planted.
- “ 25. Raspberries in bloom.
- “ 27. Lettuce, radishes and pepper-grass fit for use.
- “ 30. Roses and honey-suckles in full bloom.

A gentleman of Jacksonville, whose veracity may be depended upon, informed us that he saw a cabbage, which was raised on the farm of Major Simms, Diamond Grove, that measured thirteen feet and three inches in circumference. A cabbage head three feet in diameter, or nine feet in circumference, is no novelty in this soil. Beets often grow to the size of sixteen or eighteen inches in circumference.

The *cultivated vegetable productions in the field* are maize or Indian corn, wheat, oats, barley, buckwheat, Irish potatoes, sweet potatoes, turnips, rye for horse feed and distilleries, tobacco, cotton, hemp, flax, and every other production common to the middle States.

Maize is the staple production. No farmer can live without it, and thousands raise little else. This is chiefly owing to the ease with which it is cultivated. Its average yield is fifty bushels to the acre. We have oftentimes seen it produce seventy-five bushels to the acre, and in a few instances exceed one hundred.

Wheat produces a good and sure crop, especially in Morgan, Sangamon and other counties north. I have weighed the growth of St. Clair county repeatedly, and its average weight per bushel exceeded sixty pounds.

A gentleman of this county harvested a field of thirty acres in 1820. He gave a friend one measured acre, which he reaped, threshed it out on the ground (a usual mode), and cleaned up thirty-five bushels and eight quarts. Some, of course, was wasted. I purchased my wheat, in 1821, of this farmer, from the same field, and weighed several bushels, which averaged sixty-six pounds to the bushel.

A gentleman, and a large wheat grower, emigrated from the interior of New York the same season, with whom I had several disputes about the quality of Illinois wheat; he constantly affirming it could never equal the wheat of the lake country of New York. I took him to a yard in the vicinity, where were twelve or fifteen large stacks of wheat. He pulled out a number of handfuls from different stacks, examined them carefully, and his opinion yielded in a moment. Flour from the Illinois river and from the Boon's lick country, in Missouri, now has preference in the New Orleans market, before Ohio and Kentucky flour. A commission house in St. Louis showed me letters from New Orleans substantiating that fact.

A very common, but bad practice among our farmers, is to sow wheat in the corn-fields, amongst the standing corn, in September, and plow it in by running a few furrows between the roots. The dry stalks are cut down in the spring and left on the ground. Even by this imperfect and slovenly mode, fifteen or twenty bushels of wheat to the acre are produced. But where the ground is duly prepared by fallowing, and the seed put in at the proper time, a good wheat crop, averaging from thirty to thirty-five bushels to the acre, rarely fails. The ordinary price of wheat is fifty cents per bushel, and is rather on the rise. Flouring mills begin to be erected, which will create a demand for this article, and if the price of flour abroad should advance, wheat in Illinois will rise in proportion. Considering the cheapness of the land, the productiveness of the soil, and the ease with which a crop of wheat is cultivated, compared with the grain-growing States of the north, wheat is a profitable article for the Illinois farmer at fifty cents per bushel. Harvest ordinarily commences the last week in June, and is finished about the fourth of July. The richness of the soil brings the grain to its greatest perfection, while the dryness of the atmosphere protects it from those injuries which are produced by moisture.

Few of our farmers have barns or threshing floors; the grain is put up in stacks, exposed to the weather, and trod out with horses on the ground, with considerable loss and injury; and yet, with all these disadvantages—which time and industry

will overcome—the flour of Illinois and Missouri is superior to that of other western States, when properly manufactured.

Maize or Corn. I have already hinted that this species of grain is the staple of the country. An industrious man and one horse will cultivate twenty acres in a season. The product may be estimated, on an average, at one thousand bushels. The cultivation and harvesting of this crop, after deducting bad weather, and other hindrances, will occupy about four months. Corn often sells in the field, after gathering, in the fall at twelve and a half cents per bushel, in the ears—three half bushels of ears heaped, equals one bushel of shelled corn. The value of the crop, then, before it is cribbed, is \$125.

One shilling per bushel, New England currency, is a common price after being stored in the crib. In St. Louis, it rarely sells for less than twenty-five cents.

The method of raising a crop of corn, after the prairie sward is broken up, and cultivated a season or two, is extremely simple and cheap. It is a bad practice but a common one, to grow corn on the same ground for years in succession.

In producing a crop of corn, the dry stalks are chopped down in the spring with a hoe, collected in heaps with a horse rake, and burned. A much better practice is to let them rot in the soil, and unless very large, they do not impede the plough. The ground is then plowed up smooth usually with two horses; but if light, one horse will often do this plowing. Good managers then harrow the ground, but thousands do not. The next process is to "list" it; that is, to strike straight furrows through the field, in the proportion of four to a rod, and cross these at right angles. This is usually done with a single horse and a light plow. The corn is then dropped with the hand in the intersection of the furrows, five or six grains in each hill, and covered with the hoe—sometimes with the plow, by passing a light furrow over it. Soon as the corn is of a suitable height, the horse and plow must be in the field at an early hour in the morning. An industrious farmer sees the sun rise in his cornfield.

This is now the most busy season of the whole year for the farmer. Then comes the "tug of war" between industry and the weeds. The astonishing rapidity with which every species of vegetation puts forward at this season and in this climate, makes it indispensable for the farmer to be active. Even the class of frontier men who spend one-half of the year in indolence or in hunting excursions, will not neglect the corn-field. I have repeatedly observed that the corn-fields of our plodding Yankees, before they become sufficiently acquainted with the country and its habits, look worse for weeds than those of the otherwise careless backwoodsman. After the corn is planted, the hoe is thrown aside, unless casually used to chop down a few large weeds in the hills, and the whole process of cultivation is conducted by the plow. The unphilosophical notion of a New England farmer in *hilling* corn, is unknown here; and it is a very useless expedient anywhere. Nature has so organized the corn stalk that it will grow out a set of roots, two or three inches above the ground, which strike the earth at a proper distance from the stalk, and serve as supporters. Raising a hill round the plant does a positive injury by preventing these shoots. Corn ordinarily requires three plowings, the last of which is usually performed after wheat harvest, from the 4th to the 12th of July. In luxurious fields it is necessary for the process of suckering to be performed. The sprouts that start out near the roots of the plant are pulled off, and the smaller stalks from the hill thinned out, so as to leave only four healthy stalks. To use the phrase of the country, the corn is then "laid by," and the leisure and lazy season of the farmer commences.

About the middle of September, the corn-fields are again entered to gather the "blades"—the leaves—which are stripped from the stalks below the ears, properly dried, bound in bundles, and saved for fodder. This is the common, rough food, in addition to corn, given to horses, calves, etc. The stalks are sometimes topped and saved.

Corn is frequently planted late in June, and even the first week in July, and cut up before frost for winter food for cattle; and it furnishes a cheap and nutritious diet for stock. The husks are appropriated to a similar purpose.

In breaking up prairie after the grass starts in the spring, which is the best time to subdue the tough sward, corn is sometimes dropped in every fourth furrow, or planted in the newly turned up soil, by striking an axe into the sod and dropping the grain, where it is left to grow spontaneously. Sometimes large quantities of fodder are thus obtained.

Hemp is an indigenous plant in the southern part of this State, as it is in Missouri. It has not been extensively cultivated, but whenever tried is found very productive, and of an excellent quality. It might be made a staple of the country.

Tobacco, though a filthy and noxious weed which no human being ought ever to use, can be produced in any quantity, and of the first quality, in Illinois.

From the county of Wayne a good many hogsheads have been annually exported, for some years past, and the result of the experiment has been altogether satisfactory. It has been raised to some extent throughout the southern counties. A few hogsheads, which were sent from Randolph county to New Orleans, some years since, was pronounced by the inspector to be the best ever brought to that market. We could not adduce a stronger proof than this in favor of our soil and climate. The tobacco plant, although coarse in its appearance, is one of the most delicate in the vegetable kingdom. It thrives only in a rich, light and warm soil. It requires to be planted early in the spring, and gathered late in autumn.

Cotton, for many years, has been successfully cultivated in this State for domestic use, and some for exportation. Two or three spinning factories are in operation, and produce cotton yarn from the growth of the country with promising success.

Flax is produced, and of a tolerable quality, but not equal to that of the northern States. It is said to be productive and good in the northern counties.

Barley is raised in St. Clair county for the St. Louis breweries. It yields well, is a sure crop, and sells in St. Louis from thirty-seven and a half to fifty cents per bushel.

The *Palma Christi*, or castor oil bean, is produced in considerable quantities in Madison, Randolph and other counties, and large quantities of oil are expressed and sent abroad. About twelve thousand gallons will be made in Edwardsville the present season. The bean is a more profitable crop to the farmer than corn, finds a ready market, and sells from seventy-five cents to one dollar per bushel.

Sweet potatoes are a delicious root and yield abundantly, especially on the American bottom, and rich, sandy prairies.

But little has been done to introduce cultivated grasses. The prairie grass looks coarse and unsavory, and yet our horses and cattle will leave the best timothy for it. It is already known to the reader that this grass disappears when the settlements extend round a prairie, and the cattle eat off the young growth in the spring. Consequently, in a few years the natural grass no longer exists. This, however, can be preserved by fencing in a tract of fresh prairie and mowing it regularly every season, or burning it over in the fall. In this way excellent meadows can be kept forever.

It is thought by some that the seed might be gathered in the fall, sown on land that had been kept free from weeds, and by these means meadows of the natural grass of the country might be formed.

Timothy grass begins to be cultivated with success. For the first three or four years of my residence in this country, it was doubtful whether clover, timothy or any other cultivated grasses could be made profitable for meadows in this rich soil and dry climate. I observed that, in attempts to make meadows, the weeds soon overrun the grass. But this notion was entirely incorrect. To produce timothy with success, the ground must be well cultivated in the summer, either by an early crop or by fallowing, and the seed sown about the 20th of September at the rate of *ten or twelve quarts of clean seed to the acre*, and lightly brushed in. If the season is in any way favorable, it will get a rapid start before winter. By the last week in June, it will produce from a ton and a half to two tons per acre of the finest of hay. It then requires an annual dressing of stable manure, and occasionally the turf may be scratched with a harrow, to prevent the roots from binding too hard. By this process timothy meadows may be made and preserved. There are meadows in St. Clair county which have yielded heavy crops of hay in succession for seven years, and bid fair to continue for an indefinite period.

Cattle, and especially horses, should never be permitted to run in meadows in Illinois. The fall grass may be cropped down by calves and colts. There is but little more labor required to produce a crop of timothy than a crop of oats and as there is not a stone or a pebble to interrupt, the soil may be turned up every third or fourth year for corn, and afterwards laid down to grass again.

A species of blue grass is cultivated by some farmers for pastures. If well set and not eaten down in summer, blue grass pastures may be kept fresh and green till late in autumn or even in the winter. The English spire grass has been cultivated with success in the Wabash country.

Of the trefoil or clover, there is but little cultivated. A prejudice exists against it, as it is imagined to injure horses by affecting the glands of the mouth and causing them to slaver. It grows luxuriantly, and may be cut for hay early in June. The white clover comes in naturally where the ground has been cultivated and thrown by, or along the sides of old roads and paths.

The following outline of Gallatin saline and works has been politely furnished by Gen. Leonard White, clerk of the county :

There are nine furnaces containing on an average, sixty kettles each, holding from thirty-six to sixty gallons, and which make upwards of three thousand bushels per week, averaging about 120,000 bushels per annum, after deducting lost time. The works are carried on by Messrs. B. White, J. Davis, John Crenshaw, W. Weed and C. Guard. Salt sells at the works from thirty-seven and a half to fifty cents per bushel. A bushel of salt is fifty pounds. About one-half of the salt manufactured here is exchanged for corn, corn meal, flour, beef, pork, potatoes, onions and every article that can be raised in the country. The usual rates of exchange are two bushels of corn for one of salt, one and a half bushels of corn meal for one of salt. Four bushels of salt are given for one hundred pounds of beef, six bushels for one hundred pounds of pork, four bushels for one hundred pounds of flour, and the same in proportion for other articles of produce. Thus the farmers are supplied with salt at a cheap rate, and find a market for all their products at home.

As to the salt works at this place (Brownsville), there is one furnace with **fifty-five kettles**, that boil thirty-five gallons each, and which make one hundred bushels

of salt per week. In the present situation of the works, it takes three hundred gallons of water to make one bushel of salt. This is owing to the well being tubed, and the fresh water not being excluded, which will be effected during the present year. The well is two hundred and three feet deep, and the fountain is so strong that it gushes six feet above the surface of the ground, and in quantity sufficient to run five furnaces. Salt water can be had in many places in this county, and it is my opinion that much better water can be had by boring deeper, than in any other part of the State.

Mr. William H. Nielson has commenced boring for salt water one mile below Brownsville, on the banks of the Big Muddy river, and has gotten down one hundred and thirty-seven feet, at which distance he has plenty of water, fully as strong as mine. He intends boring three hundred feet deep, unless he gets water sufficiently strong at a less distance. He will erect this summer two furnaces of the following description: Two pans of twenty feet in length and five feet in width, which will hold about twelve hundred gallons of water, and thirty kettles in each furnace of sixty gallons, all of which, together with copper tubes for the well, and sundry other articles necessary for the furnaces have arrived at the place. The salt made here is superior to that made at the Ohio saline, near Shawneetown, and I have no doubt there will be large quantities made in a few years. Mr. Nielson has opened a very extensive coal bank about four miles above Brownsville. The mine is inexhaustible, as far as the experiment has been tried, and the coal equal to that at Pittsburg in quality.

He is preparing to send off ten boats loaded with coal this season, and contemplates sending sixty boats next season. Mr. Nielson's coal bank is immediately in the banks of the Big Muddy river, and is so convenient that the coal can be thrown from the bank into the boats. There are a number of beds of coal in this county, and equally good.

Castor oil.—Considerable quantities of this article are manufactured in Illinois. There is one castor oil press in Edwards county, three in Randolph county, and two at Edwardsville, in Madison county.

The manufacture of this article at Edwardsville was commenced by Mr. John Adams, in 1825; in which season he made five hundred gallons, which sold at the rate of \$2 50 per gallon. In 1826, he made eight hundred gallons, at the price of \$1 50; in 1827, one thousand gallons, at \$1 25; in 1828, eighteen hundred gallons, which sold for \$1 00; in 1829, he made five hundred and twenty-eight gallons, at the price of \$1 12½; in 1830, two presses were started and made ten thousand gallons, from 75 to 87 cents per gallon. The present season he will make about twelve thousand five hundred gallons, and the wholesale price is about seventy-five cents.

One bushel of the castor bean or *palma christi* will yield about seven quarts and a half pint of oil.

The beans are cleaned and well dried or heated in a furnace, put in a cylinder, and the screw, which is an immense one of wood, forces down a follower with great power. The screw is turned by a horse and a large lever, precisely similar to that of a cider mill, in New England called a nut mill.

Beans are purchased from the farmers for seventy-five cents per bushel.

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