

The M. A. C. Record.

VOLUME I.

LANSING, MICHIGAN, TUESDAY, FEBRUARY 18, 1896.

NUMBER 6.

DR. JONATHAN LE MOYNE SNYDER,

President of the Michigan Agricultural College.

A practical farmer and one of Pennsylvania's leading educators.

Elected President of the M. A. C. by the State Board of Agriculture at its meeting in Grand Rapids, February 11, 1896.

Jonathan Le Moyne Snyder was born Oct. 29, 1859, on a farm in Butler county, Western Pennsylvania. Until nearly 19 years of age he worked on the farm and attended the country school. After three years spent in the preparatory department of Grove City College and in teaching country schools he entered the freshman class of Westminster College, graduating in the class of '86. During his junior year he won the inter-society contest debate which is considered the highest literary honor attainable at this College.

After graduation he was principal of a village school for one year, when he was elected superintendent of the schools of his native county. This placed him in direct command of an army of over 300 teachers and 15,000 pupils. His first act of note in this office was the introduction into the country schools of a graded course of study. This proved to be of so much merit that it has been followed by a majority of the counties of his state. The next move was to improve the teaching force, and mainly to accomplish this end he with others established in his native village the Slippery Rock State Normal School. This school has been very successful, and has now an enrollment of over 500 students.

Before completing the term of three years for which he had been elected he was called to take charge of the fifth ward school of Allegheny City. This is the largest school, with perhaps one exception, in Pennsylvania, and one of the very largest in the country. It has over 30 teachers and 1,500 pupils. He has been successful in having added to this school the kindergarten, and an industrial department which includes sewing and cookery for the girls, and the different lines of manual training for the boys. This department was brought into existence as the result of his firm belief in the educational value of manual labor. It is said to be the finest and best equipped industrial department in connection with any grammar school in the United States.

He did not cease his studies when he became a graduate but diligently pursued a post-graduate course in psychology and philosophy. On the completion of this course in 1891 the degree of doctor of philosophy was conferred upon him by his alma mater. He has taken an active part in the educational affairs of Pennsylvania and is frequently on the program of the state meetings.

The greater part of his life has been spent on the farm and among country people. He owns a large farm to which he gives his personal attention two months each summer. He has been through all phases of the work over and over again, and understands thoroughly the conditions and needs of those engaged in this occupation. He has traveled extensively both in this country and abroad. Dr. Snyder is married and has a boy three years of age.

Dr. Snyder will assume the duties of his office on Thursday of this week, when he meets with the Board at the College. The report of the special faculty committee appointed to investigate the needs of the College has been made a special order of business for this meeting, and it seems highly proper that our new president should meet with the Board at this time in order that he may bring his influence to bear upon the future policy of the College.

RECOLLECTIONS OF THE INSTITUTES.

PROF. C. D. SMITH.

One of the most significant features of the institutes held in those sections of the State where some special branch of agriculture is being pursued, was the enthusiasm and hopefulness of the audience. As an instance it is but necessary to refer to the long institute at South Haven. It is safe to estimate that fully two-thirds of the audience on the last day were directly or indirectly interested in peach growing, and when Mr. Morrill trimmed a peach tree on the stage it was impossible to repress the continued comment from all over the large hall. Every move was watched with the closest scru-

tiny, and the whole audience was in a ferment of excitement.

Many growers present would not have trimmed the tree exactly as Mr. Morrill did and they were ready to give their reasons for this difference of view. This interchange of ideas was most helpful. Throughout the entire program at South Haven the same intensity of interest was manifest. No listlessness, no crankiness. In other parts of the State where the dairy occupies the principal place in the agricultural practice, the same hopeful enthusiasm was patent.

It was much less so where general farming was practiced.

It is not safe to argue, therefore, that each section of the State ought to adopt some special line of farming, to the exclusion of a diversity of crops, but it does argue in favor of laying especial emphasis on the kind of farming to which the section is particularly adapted and, making this the chief consideration, subordinating the other features of the farm work to it.

Every community ought to do some one thing better than other communities not so favorably situated for that particular line of work can be expected to do it.

So every farmer should be, in connection with his general farm work, a specialist in some one line. It is true that we cannot all be peach growers or dairy-men, but the world is wide and there is some one or more lines of products for which every farmer and every farm is peculiarly well adapted. The problem is to seek out this line and pursue it with zeal and enthusiasm.

A second suggestion from the institutes attended this winter was the evidence of the steady decline of superstition and ignorance in farm methods. Wherever a Grange or Farmers' Club was alive in a community, there we found men not only well acquainted with modern ideas and practices, but men and women capable of clearly and concisely stating their opinion to the audience.

All honor, then, to the Grange and the Farmers' Club for the good work they are doing in suppressing superstitions and extending both knowledge and the ability to use it!

A third impression came from the intelligent interest farmers are taking in the economic questions of the day. While politics rightfully have no place in institutes it augurs well for the future of our country where every man is king, that the "Bold Yeomanry, the Country's Pride," take an active and intelligent interest in the solution of the perplexing problems that confront the government today. Let us welcome these discussions and keep them above the plane of partisanship.

Farm Department.

THE PREVENTION OF PEACH YELLOWS.

PROF. L. R. TAFT.

This disease has proven very destructive to the orchards of New Jersey, Delaware and Maryland, and for a time seemed likely to wipe out the peach-growing industry in Michigan.

In the latter state, the growers soon found that if the trees were removed as soon as the first trace of the disease appeared, its spread would be restricted. This is a drastic remedy, but was so effective that where from ten to fifty per cent of the trees in an orchard were attacked in a year, the number was reduced to considerably less than one per cent., and in sections where prompt removal is practiced, the disease has lost its terrors, although its ravages are as marked as ever in sections where this is not done.

The Department of Agriculture at Washington, and the experiment stations of several states, have devoted considerable attention to this disease, but have not been able to ascertain its exact nature. While there can no longer be any doubt that it is contagious, or that it can be conveyed by budding from diseased trees, the investigations resulted in little that was of value to peach growers, except as they disproved many of the theories as to the nature of the disease, and supposed causes and remedies. They, however, brought out the dangerous character of the disease, and the bulletins were of value in pointing out the appearance of the disease in its various stages, and the efficacy of the immediate removal of diseased trees in preventing its spread.

During the last three years many growers have prac-

ticed spraying of their peach trees with Bordeaux mixture, for the prevention of the curl-leaf and rot, and in addition to the benefits secured against these diseases, it has been observed that there has been a marked decrease in the number of trees attacked by yellows. In orchards where in previous years the disease had never failed to appear, it has not shown itself for two seasons, although in the surrounding orchards it has continued its ravages.

The possibility that the freedom from yellows might be due to the use of Bordeaux mixture, was suggested by several fruit growers near Benton Harbor to Roland Morrill, President of the State Horticultural society, who investigated the matter and found the facts as given above. Mr. Morrill spoke upon "Peach Culture" at Farmers' Institutes at Fennville, St. Joseph and South Haven, and at each place there were persons present who reported a similar experience.

While it is not established that the disease can be prevented by the use of fungicides, the indications certainly favor that view, and when we consider the highly contagious nature of the disease, indicating that it spreads by means of germs of some kind, it seems possible that, if the trees are kept covered with copper sulphate, it may be kept from spreading.

As a rule one application of strong copper sulphate solution (1 lb. to 25 gals. of water) was made before the buds started, and Bordeaux mixture was used from one to three times after the blossoms fell. While this has been found profitable against the curl-leaf and rot, if it also proves to be a preventive of yellows, the use of fungicides by peach growers will be greatly increased, and it will save thousands of dollars annually in Michigan alone.

Arrangements have been made by the Experiment Station for a thorough test of Bordeaux mixture as a preventive of peach yellows the coming season, but in sections where the disease prevails, every peach grower will do well to thoroughly spray his peach trees the coming spring, as it will pay as a preventive of rot and curl-leaf, even if it does not prove of value against the yellows.

Horticultural Department.

DEATH OF DR. WILLIAM E. FRASER.

From Fernandina, Fla., comes the sad news of the death of an esteemed alumnus, Dr. William E. Fraser, '70, on the sixth of October, 1895. The following is clipped from a Fernandina paper:

"Death is at all times regretted, but when a community is robbed of a valuable member the blow is all the more severe, for the sorrow is then not confined to the members of a family and a few friends, but the hearts of all are touched.

"Such a calamity is that which befell this city early last Sunday evening, when Dr. William Everett Fraser passed from this life to the life eternal. Courteous, kind and charitable, he wove a garland of love about the hearts of all who knew him, and many a tear flowed at the announcement of his death.

"This sorrow was not confined to the inhabitant of the pretentious mansion, but from the hovel in which dwell the poor and needy, the persons who had learned from experience the true worth of the man, came the same wail.

"About three weeks ago Dr. Fraser had an attack of fever, but getting better, he was seen on the streets. A relapse, however, again confined him to his bed, from which he never arose.

"Dr. Fraser was born in New York State, but moved to Florida fourteen years ago. About 1886 he came to Fernandina and began the practice of his profession—homeopathy. By strict attention to his patients and a desire to relieve human suffering he had built up a large practice.

"He was a member of Fernandina Lodge of Odd Fellows, and during his illness was tenderly watched over by the members of his order.

"The funeral services were held in the Methodist church at 3:30 o'clock yesterday afternoon, Rev. L. M. Moore, the pastor, officiating, and the remains were laid to rest beneath the cedars in Bosco Bello cemetery.

"Dr. Fraser leaves a devoted wife to mourn his death. During his illness she was constantly by his side, and nursed and cheered him to the last. She has the sympathy of the community in her sad bereavement."

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PUBLISHED WEEKLY BY THE
MICHIGAN AGRICULTURAL COLLEGE

EDITED BY THE FACULTY.

ADDRESS ALL MAIL TO AGRICULTURAL COLLEGE, MICH.

SUBSCRIPTION, 50 CENTS PER YEAR.

Business Office with ROBERT SMITH & Co., State Printers and Binders,
406 Michigan Ave., East, Lansing, Mich.

To be entered as second class matter at Lansing, Mich.

In behalf of the members of the faculty and the students of the College, the RECORD extends to the new president, Dr. Snyder, a hearty greeting and cordial welcome. The position he is about to fill is one of great honor and dignity, as well as of great care and responsibility. It offers large opportunity for usefulness, and to a man of Dr. Snyder's energy of purpose and originality of mind, as shown in his previous history, the prospect must stir the blood and give him the joy of the "strong man to run a race." The presidency of an Agricultural College is no sinecure; it frowns with heavy demands on tact and patience, it bristles with unsolved problems, beside which the duties of the average literary college presidency look tame and commonplace, but it is here that the great educational work of the world is still before us; it is here that the "new education" is to be moulded anew and its forces harnessed to the car of human progress, with truer knowledge of their dynamics and a better appreciation of the "lines of least resistance." It is often forgotten that the Agricultural College problem is primarily an educational one. For its solution it demands thorough knowledge of the farm and of farm life, full and hearty appreciation of, and accord with, the farmer, entire sympathy with his purposes and ambitions; but it no less imperatively demands thorough knowledge of the principles and processes of education, thorough sympathy with youth and long experience in the actual work of training brain and hand and eye. All these qualities we believe Dr. Snyder's career proves that he possesses; and the exceptional combination guarantees his success.

We pledge him our thorough loyalty and hearty support and cooperation in his arduous duties. Into the social life on the campus he and his accomplished wife will be right loyally welcomed, and we hope to make them feel at home from the start. We hereby give the college yell for the new president and his wife.

We wish to call attention to the article in this issue on "Farming in Scotland," by A. R. Locke, '91, who was for two years private secretary to Hon. Ben. Morse, consul at Glasgow. It is especially interesting as it gives a good opportunity to compare the home life and farm methods and productions of the native Scotchman with those of the American.

We are unable at this time to present a complete report of the Round Up Institute at Grand Rapids, so we have reserved the material we have on hand for next week.

In this last issue before the opening of the spring term the RECORD wishes to extend a hearty greeting to the students who will shortly fill our now silent dormitories and class rooms with the life of vigorous young manhood. During the winter a number of workmen have been almost constantly employed in repairing students' rooms, corridors, club rooms, and class rooms, in order that your surroundings may be comfortable and pleasant. Better than all this, however, is the news that nearly all of your college companions have signified their intention of returning, and that every indication points to the entrance of a large addition to the Freshman class. The outlook for the coming season's work is most promising, and we look to you to help us make this the most prosperous year in the history of our College.

PROCEEDINGS OF THE BOARD.

Grand Rapids, Feb. 10-11, 1896.

Dr. J. L. Snyder was elected President of the Michigan Agricultural College.

A proposition from the Farm Department to plant a row of trees along the west side of the farm was referred to the committee on Botany and Horticulture.

It was resolved that hereafter, when Agricultural College lands are sold at least one-fourth of the purchase money be paid at the time of sale, and in case of lands valuable for timber, all of purchase money shall be paid before any timber is cut.

The next meeting of the Board will be held at the College Thursday evening, February 20.

NEWS FROM GRADUATES AND STUDENTS.

Students in Mechanical Course designated by "m." and specials by "sp." after name.

V. J. Hooper, with '93, is a student at Detroit Medical college.

F. W. Schwaderer, with '96, will return to M. A. C. this spring.

L. W. Brown, with '93, is one of Ypsilanti's attorneys. —*Hesperian Star*.

C. H. Perrin, with '91, m., is pastor of Asbury M. E. church, Detroit, Mich.

We are indebted to the *Hesperian Star* for the material for several personals this week.

W. P. Hawley, '92, m., is with the Troy Laundry Machinery Co., address, 1015 Park Ave., Chicago.

Henry F. Lake Jr., '95 m., is teaching mathematics in the Central Business College, Denver, Colorado.

Dorr N. Stowell, '92, Woodland, Mich., employs his winter vacations from the farm in the school room.

Of the Gobleville (Mich.) Exchange Bank S. B. Monroe, with '88, is proprietor and A. B. Chase, '93, cashier.

We are glad to learn that Wm. F. Howland, with '91, who was obliged to leave college in the spring of '91 on account of sickness, will return in the spring and finish with '96.

H. E. Harrison, '88, Trenton, Mich., is a prize winner. We learn from the *Trenton Visitor* that he and Miss Nellie Dewey recently captured booby prizes at a progressive euchre party.

A. J. Chappell, '82, is a member of the Antrim Co. Board of School Examiners, and has been for six years principal of the Alba schools. He is married and has a daughter of four years.

Geo. W. Davis, '92, Tekonsha, Mich., writes: "Nothing very thrilling has happened to me since I graduated in 1892. I have been farming ever since and expect to continue in that business."

Wm. L. Chase, '99, whom we remember as an excellent first baseman and a good student, as well, is teaching a successful school near Woodland, Mich. Our boys have a standing reputation for teaching good schools.

From the *Hesperian Star* we learn that H. L. Becker, '98, is canvassing, Leroy King, '98, is studying in a Detroit law office, Geo. W. Corey, '98, m., is working in an architect's office and studying French, and Willis I. Herron, with '92, is assistant in the Boyne City schools.

Married, at the residence of Mr. and Mrs. H. H. Ladd, 192 Eighteenth street, Detroit, Mich., on Tuesday, Jan. 21, 1896, Dr. Percy A. Barlow, with '93, m., to Miss Bessie Ladd. The groom's father, Rev. George W. Barlow of Caro, officiated, assisted by Rev. W. H. Shields of Calvary church, Detroit. Roy C. Bristol, '93, acted as best man. Dr. and Mrs. Barlow are at home at 192 Eighteenth street.

B. F. Bain, '93 m., left the employ of the Russell Engine Co., Massillon, Ohio, last spring and engaged with the American Stoker Co., Dayton, Ohio. He says, "My work alternates between the drawing room and traveling for the purpose of making boiler trials and installations of the stoker. I find the work quite pleasant. I would consider it a most pleasant treat to have any of my M. A. C. friends call on me whenever passing through this part of the state."

W. A. Dohany, '84, pharmaceutical chemist, 693 Michigan Ave., Detroit, says: "If you ever see fit to call on me I will show you the greatest money making drug store in the city, in connection with which I operate a full steam printing office and electric light plant which lights nearly every store in the block. I also have branch offices of the American Express and Western Union telegraph; and, to cap the climax, I have a nickle-in-the-slot phonograph with the loudest talking diaphragm in the state."

At the meeting of the State Horticultural Society held in Adrian Dec. 5, 1895, the following alumni and students of M. A. C. were present, all but one of them taking active part in the presentation of papers or in the discussion: C. J. Monroe, with '61; W. W. Tracy, '67, Detroit; George D. Moore, '71, Medina; E. H. Hunt, '77, Saranac; L. H. Bailey, '82, Ithaca, N. Y.; E. H. Dresser, with '84, Jonesville, and G. C. Humphrey, '97, Adrian. There were also present three of our professors, Dr. W. J. Beal, Prof. L. R. Taft and Prof. W. B. Barrows.

C. H. Piper, with '92 m., Hart, Mich., writes to the *Hesperian Star*: "During the summer season I till the soil on the old farm, an occupation which I enjoy very much since I attended the M. A. C., and which I equally disliked before. This winter I am building a house in the village, doing the carpentry work myself, with no other experience than that obtained in the mechanical

shops of the M. A. C., and on the farm repairing hay racks, rail fences, etc. And what may seem to some a little surprising, I am actually accumulating some property during "these good old Democratic times." I must not forget to mention that I am still single.

AT THE COLLEGE.

At the library building next Friday evening (February 21,) an informal reception will be given to President Snyder by the faculty. Everybody connected with the College is invited to be present to welcome our new executive.

Mrs. Woodworth visited in Grand Rapids last week.

Ralph Millis, '99, returned to college last week—to stay.

F. B. Ainger, '93, took dinner at college Sunday, Feb. 2.

A heavy fall of snow at college last Wednesday and Thursday.

Board in the Bachelor Club has been fixed at \$2.45 for the winter.

C. C. Pashby, instructor in Mathematics, is recovering from an attack of the grip.

Dr. Beal spent last Sunday (Feb. 9), in Chicago with his daughter, Mrs. R. S. Baker.

V. J. Willey, '93, principal of the School for the Blind, made the college a call last Friday.

Prof. Wheeler and family left Saturday for a visit to relatives and friends at Carson City and Hubbardston.

Prof. and Mrs. Chamberlain returned last week from Chicago, where they had been spending their vacation.

Mr. Edward Kramer, agent for the DeLavel Separator Co., spent Sunday with Prof. and Mrs. Woodworth.

Thorn Smith, assistant chemist in the experiment station, will occupy the room in Station Terrace vacated by Mr. Kenney.

Next term Freshmen will use Beman and Smith's geometry; Sophomores in rhetoricals, will use Burke's speech on "Conciliation with America."

The vacation French class finished reading Victor Hugo's "Bug Jargal" last Wednesday evening and will now take up Moliere's "Bourgeois Gentilhomme."

Prof. W. O. Hedrick, of the department of History and Political Economy, stopped off a couple of hours at M. A. C. on his way to Grand Rapids last Friday.

R. J. Cleland, '89, has purchased the Lamphere jewelry establishment in Lansing and will continue the business under the supervision of a competent jeweler.

There are rumors that three or four more of the Bachelor members of the teaching force will marry within a few weeks. It must be that the faculty ladies have had another afternoon tea.

Another gone from the Bachelor fraternity. Wednesday, February 12, at the residence of the bride's parents in Coldwater, Mr. F. C. Kenney, assistant secretary at M. A. C., was united in marriage to Miss Eva B. Shaw. Mr. and Mrs. Kenney will be at home in the new hospital building at M. A. C. after the first of March.

R. J. Coryell, '84, Walkerville, Ont., stopped off on his way to the Round Up Institute to visit college friends. He finds Peche Island, with no neighbors and only an occasional opportunity to visit the mainland in winter, quite different from the narrow quarters in Howard Terrace, but has to admit that he rather enjoys the change. He can make all the noise he wants to without disturbing either the eagle or the lion.

A few of the experiment people had dinner all by themselves at Director Smith's recently. The *piece de resistance* consisted of five varieties of beans which were grown by the station last season and which Mrs. Smith had kindly prepared for a test as to quality. The varieties were Kidney, Marrow, Schofield, Navy, and Tree. A majority voted in favor of the "kidney" as the best in flavor. This variety cooked the soonest of any and the "tree" required the longest time.

GOOD ROADS CONVENTION.

The Good Roads Convention to be held in Lansing on March 3, was called by Governor Rich at the request of several thousands of petitioners in different parts of the state. The chief purpose of the meeting as suggested by the petitions is the organization of a State League for Good Roads. It is hoped that all who favor good roads and who can afford the time and expense will be present and take part in the direction of the movement. No formal program has been adopted but it is expected that some of those who have been foremost in desiring the meeting will be on hand to direct matters to some profitable end. Principal among these are the Michigan delegates to the Road Parliament held in Atlanta

last October, Messrs. B. A. Joy, W. H. Wallace and W. L. Webber.

There were present at the Atlanta Parliament representatives from nearly all the states in the Union. Notes were compared on the condition of the laws and the progress of road building in the several states. Part of the report made to Gov. Rich by the Michigan delegation is as follows:

"As to New Jersey (a pioneer in good roads) it was said that although some of the roads earliest built in that state had cost from \$5,000 to \$8,000 per mile, yet even with that expenditure, the advance in the price of real estate upon the assessment roll was such that the rate on the dollar of taxation had actually decreased. But they have adopted there a cheaper method, and now build good stone roads for the country highways at a cost varying from \$900 to \$1,200 per mile.

"The states of Massachusetts, New York, Pennsylvania, as well as New Jersey, have taken steps in the interest of good roads by state appropriations, and some other states have given state aid to a greater or less extent in that direction. But as yet it would seem that there has been no uniform system. All the reports were unanimous, however, that wherever good roads had been made, by whatever system or at whatever cost, the people were satisfied with them and wanted more, the added value to the real estate in consequence of such construction, in every case reported, demonstrated the investment to be a wise one.

"We regret that there is a clause in the Michigan constitution which prohibits the state from aiding directly from its treasury in the construction of good roads. In some of the states the policy has been adopted of allowing counties to build these roads, and whenever the proper state officers have examined the roads as constructed, and approved the same, one-third of the cost of the road is paid from the state treasury, a certain percentage is paid by assessment upon the property benefited, and the remainder paid by the county at large. In some states the good roads have been paid for wholly by local assessment, on what is called the two-mile or the one-mile plan, assessing in proportion to benefits, in some cases a strip of land four miles wide, of which the road is the middle, and in other cases a strip of land two miles wide, but usually this is done by special legislation."

The report concludes with a recommendation that there be called such a convention as is to be held next month, to discuss the subject and to advance the cause of good roads.

STUDENT EXPERIMENTS.

[Under this head will be given from time to time brief reports of experimental work done by students of the College on the farm, the garden, or in the laboratory.]

Ever since the organization of the College, instruction by the experimental method has been a prominent feature of its work. In chemistry the student handles his own reagents, makes his own tests, and burns his fingers if he makes a mistake. In botany he studies plants as they grow in the field to learn their habit, and in the laboratory with the aid of microscopes examines their structure for himself; on the farm, tillage, drainage, and harvesting are learned by doing them, and in the garden, grafting, spraying, and the care of the greenhouse are studied in the same way. Sometimes new or doubtful methods are tested and the results are of general and permanent interest. We shall give in this and subsequent issues of the RECORD the results of some of these experiments.

HOW MANY KERNELS FOR A HILL?

This experiment, begun by Herman L. Hoffman, of Dansville, Mich., was to determine how many kernels of corn should be planted in a hill for the best results. The variety used was Hathaway Yellow Dent, a kind largely grown in this state. The corn was planted during the last week in May, in hills three and one-half feet apart each way, and received ordinary field culture. Eight tests were made, ranging from one to eight kernels in a hill, the number of hills for each test being 110. The ears and stalks were hauled from the field and weighed as soon as husked, during the second week in October. The results appear in the following table and show less variation in yield than might be expected. The weight of stalks gradually, though somewhat irregularly, increased with the number of kernels planted, while the yield of corn increased in like manner up to four kernels in a hill and then diminished.

Stalks in a Hill.	Pounds of Ears.	Pounds of Stalks.
1	106.5	156.5
2	152.	159.
3	174.75	148.
4	184.25	161.
5	169.	152.5
6	133.75	198.75
7	134.	187.
8	140.	178.75

CORN SMUT.

In 1894 Mr. W. J. McGee, of Chicago, performed an experiment to determine how smut attacks the corn plant, whether in the seed at the time of germination, or after the plant appears above ground. The seed and soil were both subjected to treatment designed to kill any smut spores they might contain. The corn was grown in the treated soil until it was well started then transplanted to the open ground. If it afterward became affected by smut that would indicate that the infection took place above ground after the corn had started. Following is Mr. McGee's statement:

"I took soil and baked it five hours at a temperature above 150° F., then broke it up fine and put it in paste-board boxes, moistened it with water which had been boiled, then planted in it some Flint corn which had been soaked for five minutes in water at 135° F. I then covered the boxes with pieces of glass and set them where the corn would grow well. The corn was planted on the 25th of April and was transplanted to the open ground the first day of June, at which time it was from five to twelve inches high. It grew slowly at first, and some corn which was planted in the field on the same day almost overtook it. These transplanted plants were set one in a hill in two rows of 36 hills each. In due time smut appeared on these rows as on other parts of the field, in amount as shown in the following table:

Date.	Pieces of Smut.	Date.	Pieces of Smut.
July 18	1	September 5	13
July 20	1	September 5	4
August 22	55	September 10	5
August 22	35	September 10	3
August 30	11	September 12	1
August 30	18	September 12	8

The conclusion arrived at is that "corn may be infected with smut after it has reached a considerable growth and is not necessarily infected in the root."

FARMING IN SCOTLAND.

[Read at Ionia Co., Institute, Ionia, Jan. 23, '96, by Alfred Locke, '91, Belding.]

Although I was in Scotland for a period of over two years, my duties were in no way connected with the agricultural industries of that country, and my knowledge of their farming is in no way definite and particular, but rather a general knowledge, which I was enabled to obtain by various journeys through the country, and visits to several farms within Lanarkshire in the neighborhood of Glasgow.

Scotland as you all know is not a great agricultural country. The area of its good farming lands is small. The greater portion of the country is adapted only to sheep and cattle raising. It is divided into the highlands in the north, and the lowlands in the south and east.

Within the highlands sheep and cattle are the only sources of profit to the farmer. In the south and east although not free from hills and untillable soil, there are raised, besides many sheep, cattle and horses, oats, barley, wheat, hay, turnips, cabbages and cauliflowers.

The land is owned almost entirely in large estates, by the nobility and the wealthy land owners, and is rented in parcels of from ten to one thousand acres to tenants. The large farms of from five hundred to one thousand acres are such as are valuable for grazing only. The rents are high, although in the depression in farming in the last four years, they have fallen about twenty per cent. There is still a cry for reduced rents, but under their system, there being more farmers than farms to rent, competition of the applicants for the farms keeps the rents higher than the profits of farming will warrant.

Each land owner employs a factor who manages the renting and collects the rents. You will see that the factor is the hardest taskmaster that the farmer has to deal with, for he is persevering in the performance of his duties and on failure to pay the rent no mercy is shown; and there where a levy for rent takes precedence to a levy for taxes, there is little possibility of escape.

We will consider only the farmers in the lowlands. Their buildings are of stone, and generally of but one story in height. Their stables are built attached to the house so that in passing from the back door of the kitchen or hallway one passes directly into the cow-stable, or "byre", as it is there called. The horse stable may be separate but is generally adjoining. The front door yard is the front barn yard, but although a barnyard it is neat and clean. The American farmer might learn a great many things relative to cleanliness of stables and yards from the Scotchman. The floors of the stables are either of earth, cement, or stone; and at one farm which I visited the stable floor was flooded with

water each day, conducted by a pipe from a spring near by, washing the floor clean, and the manure conducted thence to a cistern where, being allowed to decay, it would be dipped and hauled in tanks to the fields and there put upon the growing crops. Great economy is practiced in saving all manures and making use of them. The coarse compost of nearly every farm yard is dumped on low ground where water stands or where water can be run upon it. This hastens the process of decay, and economizes the evaporation of the elements of fertility.

The favorite cattle for the dairy farms are those of the Ayrshire Shorthorn breed. These cattle receive their name from the county of Ayr, which contains the finest dairy farms in Scotland. Great care is taken of the cattle in all seasons of the year, and their coats are often kept as well groomed as is a favorite horse in this country. Great care is taken in the selection of breeding stock, and no where upon the dairy farms do you find the "scrubs", if I may use the expression, that you may see upon so many of the farms in this country. Upon one farm which I visited the farmer owned thirty cows of the Ayrshire Shorthorn breed, and any of them would have done credit to any cattle exhibition that I have ever seen. The farmer quoted me prices of different cows which he pointed out to me, and the values ranged from one hundred and twenty-five dollars to five hundred dollars a head.

This particular farmer leased a farm of one hundred and twenty acres at an annual rental of over nine hundred dollars. With the exception of a few hundred bushels of potatoes which he might sell each year, he paid his rent, lived, and made a small profit out of the milk, butter, cheese and the stock that he sold off the farm. To a Michigan farmer this will sound like an exaggerated statement, but I believe it nevertheless true, for I lived long enough among the Scotch people to learn that a Scotchman's statement could be relied upon.

It will be well, in this connection, to state that this farmer lived within ten miles of Glasgow, and that milk sold at the city at from six to seven cents per quart, butter at from thirty to forty cents per pound, and cheese at from twenty to thirty cents per pound. On this farm no sheep, horses, or hogs were raised. A few hens of a choice breed were kept, and when my friend who accompanied me and I took our leave from the farm at the termination of our visit, the good housewife presented each of us with a fresh hen's egg, saying, "Ye'll no ken what a fresh egg is in yon city." We appreciated her kindness, and had the eggs poached for our breakfast the next morning.

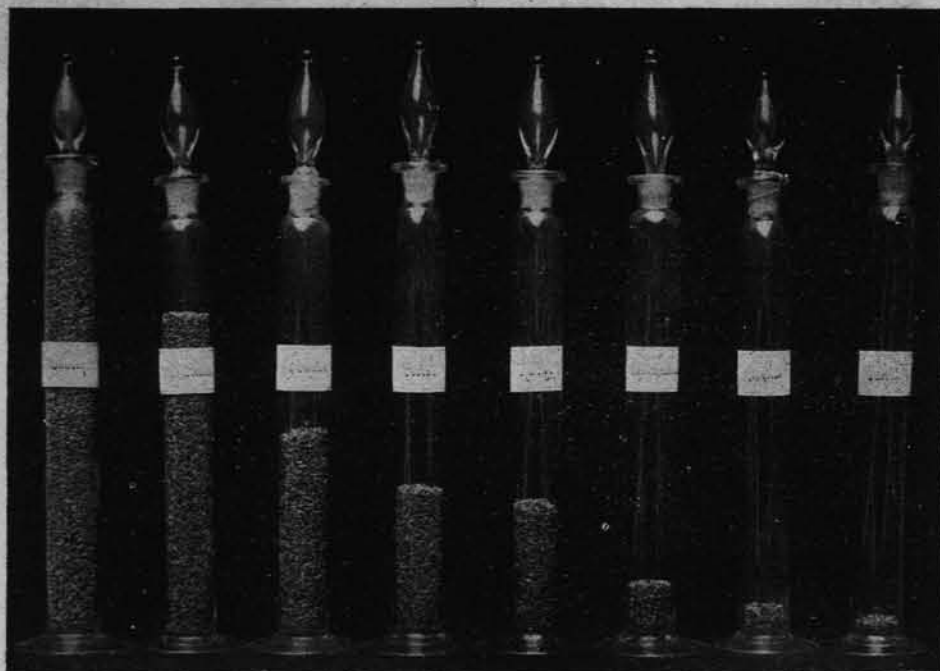
Upon other farms there may be made a specialty of horse raising but to no great extent, except among the wealthy classes. The Clydesdale is the pride of the country, and is used exclusively for heavy work in the cities. But upon the farms lighter horses are used.

I did not visit any sheep farms, and can tell you little about them, except that the only sheep raised are those of the coarse long wools like those of the Shropshire, Leicester, and Southdown breeds. They make remarkably good mutton, and their wool is chiefly used in the manufacture of carpets and tweeds.

Oats are an important crop, and they grow ranker and yield better than any that I have ever seen in this country. The principal variety grown is known as the Scotch Potato oat. This oat has a large berry, and would be likely to shell in our dry climate. It makes excellent oat meal, a staple article of food in Scotland. A great difference is noticed in its meal and that made from oats grown in the United States. Apparently the Scotch oat has a softer and a more oily consistency. Scotch dealers claim that even the Canadian oats make richer meal than those that we raise, and claim that the reason for this is that in our country we have too much dry and hot weather which ripens the grain too quickly. I sent home a sample of Scotch oats which were planted but the dry summer proved to be unsatisfactory to them and they refused to show their heads to the farmers of Ionia county.

Potatoes are planted and cultivated similarly as with us, except that in all cases the soil is well prepared, trenches dug, and in many cases the farmer fills the bottom of the trench with well rotted manure. The growth is rapid and the plant grows about twice as large as with us. This is due to their moist climate and frequent rains. The tuber is rich and of fine flavor. They have no potato bugs there to poison or to hunt, and the small Scotch boy never wakes from the nightmare, having dreamed that the tables were turned and that a potato bug had him and was about to smash him between two shingles. Scotland exports large quantities of potatoes to the United States, there being generally a good market for them in New York, Boston, Philadelphia, and Baltimore and the freight to these ports is much less than by rail from here to New York.

(To be continued.)



Golden Chaff. White Clawson. Red Clawson. Poole. Rudy. Diehl-Mediterranean. Egyptian. Currill.

WHEATS ON MUCK.

WHEAT ON MUCK LAND.

A. A. CROZIER.

In the fall of 1894 eight varieties of wheat were sown in quarter acre plots on muck land upon the station grounds. Six of these varieties, namely, White Clawson, Red Clawson, Rudy, Egyptian, Poole and Diehl-Mediterranean, were selected as being the most productive among the varieties grown by the station in previous years. Of the other two varieties, one called Currill was sent with high recommendations from the Kansas experiment station and another known as Golden Chaff was received through Dr. Kedzie from the originator, Mr. Robt. Dawson, of Paris, Ontario. The eight varieties as grown on the muck differed greatly in their ability to withstand the succeeding winter, although on upland in the adjoining field the same varieties all passed the winter with but slight injury. Only two of the kinds, the old White Clawson and the new variety called Golden Chaff, produced on the muck anything like a fair crop. The yields of grain in pounds per plot were as follows and compared closely with the success of the different varieties in passing the winter: Golden Chaff, 164½; White Clawson, 112½; Red Clawson, 72; Poole, 50; Rudy, 40½; Diehl-Mediterranean, 15; Egyptian, 7; Currill, 3½. The relative yields are shown in the accompanying illustration. The station has 30 acres of the Golden Chaff under cultivation and hopes to be able to distribute seed of it next season. Experiment Station.

BOTANY AT HARVARD.

PROF. C. F. WHEELER.

Cambridge, Mass., is the most famous university town in this country. To the botanist, the Gray Herbarium and the Botanic Garden possess the greatest attractions. Here is the largest and most valuable collection of plants in America, here also is the largest botanical library. Early in this century the overseers of Harvard set apart eight acres lying along Linnæan street between Garden and Raymond for a botanic garden. In 1805 Prof. Peck laid out the grounds and built a small greenhouse. In 1822 Thos. Nuttall, the botanist and ornithologist, followed Prof. Peck. Nuttall did little teaching but a good deal of valuable systematic work during the twelve years he remained at Harvard. From 1834 to 1842 there was no regular professor but instruction in botany was given by Dr. Harris and Dr. Gould. Up to this time the garden remained in charge of Wm. Carter, an eccentric Yorkshire man. Dr. Asa Gray was chosen professor of Natural History (Botany) in 1842. The chair had lately been endowed by Dr. Fisher, of Beverly, Mass.

The house occupied by Dr. Gray was built in 1810 and is still the residence of his widow. Dr. Gray entered with enthusiasm on his career and began giving instruction in botany regularly, with the greatest success. Soon it became necessary to enlarge the professor's house to make room for the rapidly growing herbarium. This room afterwards became Dr. Gray's study. In 1862 he gave his large collection of two hundred thousand plants and his excellent library of twenty-two hundred volumes of botanical works on condition that a fire-proof building be provided. In 1864 such a

building was erected at a cost of fifteen thousand dollars. A subscription of ten thousand dollars was then raised for its support. Here is now stored the great herbarium numbering at present over four hundred thousand specimens, all carefully arranged according to the system of Bentham and Hooker, with alphabetical indexes to each case and with a general key to the whole collection. Here are to be found the rare and valuable type specimens from which the descriptions of new species of plants have been made by Dr. Gray, Sereno Watson and other botanists.

Sereno Watson, after Dr. Gray, was the most distinguished American student of systematic botany. He was Dr. Gray's assistant from 1871 to 1888. After Dr. Gray's death in 1888 Mr. Watson was made Curator of the herbarium and library, which position he held at the time of his death in 1892, when Dr. B. L. Robinson, the present Curator, was appointed.

On the walls of this famous herbarium hang the portraits of all the distinguished botanists of the world. The marble busts of Sir Wm. Hooker, Robt. Brown and the elder De Candolle, with life sized medallions of Dr. Torrey and Dr. Gray, keep watch and guard in this sacred room. The library, now containing over seven thousand volumes, in a separate fire proof room, joins the herbarium and is indexed in a careful manner. Beyond the herbarium are rooms for special work and a small but well arranged lecture room. To the east are the well kept greenhouses in the various rooms of which are now growing over twenty-four hundred different plants from all parts of the world. In the botanic garden are growing twenty-eight hundred species and four hundred varieties of plants. Fifteen hundred of these are American and thirteen hundred foreign. The plants are well arranged for a show garden and at the same time the systematic arrangement for instruction of classes is not lost sight of.

Since the death of Dr. Gray, Dr. Geo. L. Goodale has filled the Fisher chair of Natural History. Dr. Goodale is now established in the new university museum where he is building up a grand economic botanical collection. His trip around the world a few years since enabled him to gather much interesting material and numerous excellent photographs which are shown to the best advantage. Dr. Goodale is especially interested in teaching physiological botany. Dr. Farlow is professor of cryptogamic botany, and, with his assistants, is doing a great work in this difficult branch of botanical study.

Nowhere in America are the opportunities for botanical study in all departments so great as at this great center of learning.

Botanical Department.

THE M. A. C. ALUMNI OF CHICAGO

On February 9, organized by electing W. R. Rummler, '86, rooms 709-710 Ogden building, Chicago, President; and R. S. Baker, '89, editorial rooms Chicago Record, secretary and treasurer. A considerable number of M. A. C. students find their way to Chicago and vicinity. They contemplate holding a banquet once a year and meeting at other times for acquaintance and talking over the numerous interests of their alma mater. They are gratified with the appearance of the RECORD. Dr. Beal and daughter, Jessie, '90, and Professor Chamberlain, '88, were present at the organization.

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