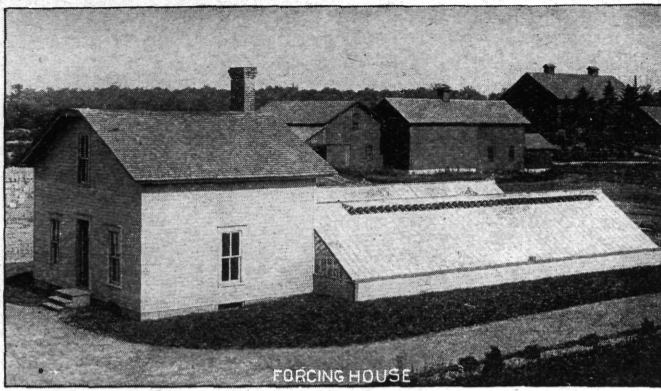


The M. A. C. Record.

VOLUME I.

LANSING, MICHIGAN, TUESDAY, MARCH 31, 1896.

NUMBER 12.



THE FORCING HOUSES.

PROF. L. R. TAFT.

The College forcing houses, illustrated in this issue, were erected in 1889. They are two in number, each 50 by 20 feet, and are built with an even span roof. The work room at the north end of the houses is provided with tables for sixteen students. In the basement are two heaters, one steam and the other hot water, and bins for the storage of coal and potting soil.

In the construction of the houses an attempt was made to illustrate the methods in vogue at the time and to test various others. The walls were built of grout (cobble stones, gravel and cement) to a height of two and one-half feet, and above this wooden walls two feet high were constructed. The outside soil was graded to the top of the grout wall, and thus we secured a substantial wall underground that is not likely to decay. Various methods of laying the glass and several forms of glazing points and brads were tested. Four different machines for lifting the ventilating sash have been tried, and for three winters we have carried on a comparative test of the merits of steam and hot water for heating houses of this size. The results have uniformly been in favor of hot water, both in the economy of fuel and in the regularity of the temperature secured.

Although called "forcing houses," they are not primarily intended for the forcing of winter flowers or vegetables, but rather for the starting of vegetable plants for the garden, and for affording opportunities for practical work in this line to the students. While not adapted for growing vegetables in the winter we have each year used them for this purpose, and at different times have forced lettuce, radishes, beans, beets, parsley, cucumbers, rhubarb and mushrooms, besides such flowers as roses, carnations, chrysanthemums, violets and smilax.

During the past winter the following use has been made of the houses: The benches were early in October filled with green tomatoes that had not ripened when the vines were killed by the frost; after these were removed some of the beds were filled with lettuce plants that had been growing in boxes, while radish seeds were sown in others. The variety used of the former was the Grand Rapids, while several forcing sorts of radishes were used in a comparative test. Several of the turnip varieties were found earlier and with smaller tops than the French Breakfast which for a long time was a favorite. Up to Christmas one of the beds was used for a collection of chrysanthemums, which were planted out in June and which flowered from the first of November until the last of December. As soon as one crop matured it was replaced by another, the third being now upon several of the benches. In January strong stools of pie plant were set out under several of the benches. These were dug in the autumn and were placed in the cellar where they were allowed to rest for two months.

The products have been disposed of upon the grounds or to the hotels or groceries in Lansing.

Among the tests made the past winter was that of sub-irrigation in raised benches in the greenhouse. Two and one-half inch drain tiles were laid upon the bottom of the tables and covered with four inches of soil. The bottom boards were laid close and most of the cracks were filled with cement. The water was carried into the tiles through hose and, passing out through the cracks between the tiles, was quite evenly distributed through the soil. Not only was less water required, but it was a quicker way to apply it and less care and experience was necessary. It is particularly desirable where

heavy soil is used, as a gain of from ten to thirty per cent can be secured in the time required for the ripening of a crop.

Since the opening of the spring term it has not only been an object lesson upon the methods of forcing vegetables, but the agricultural juniors have received practical instruction in the sowing of seeds of various flowers and vegetables, and in transplanting the seedlings. Along with this they have had work at the large greenhouses under Mr. Gunson in the making of cuttings and in greenhouse methods. Hot-bed making has also been taken up and as the season advances the various operations performed in greenhouses will have attention.

It is hoped that next year we shall have a house especially adapted to the forcing of vegetables, which will serve to illustrate in a more satisfactory manner the methods employed in this important industry.

Horticultural Department.

STUDENT EXPERIMENTS.

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

Beans.—Varieties and Culture.

BY ELMER SHAW.

This experiment was designed to be carried on in triplicate on sand, loam and muck. The plots on muck, however, gave results of but little value, as the beans were frosted from time to time during the summer and were killed entirely by frost early in September before any of them had ripened, so that none were harvested. The experiment included variety tests and methods of planting and culture. The varieties used were Schofield or Pea, Prolific Tree, Navy or Medium, White Marrow, and White Kidney. The variety used for the cultural experiment was unknown but was apparently the Navy. The methods of planting tried were (1) rows 28 inches apart, hills 18 inches apart in the row and six beans in the hill; (2) rows the same distance apart but hills six inches apart and one or two beans in a hill; (3) rows 14 inches apart, the planting being done with an ordinary grain drill, stopping each alternate hoe; (4) broadcast, the ground having been kept well cultivated and free from weeds up to the time of sowing. The plots planted by the last two methods were to receive no cultivation. The drilled plot on sand, however, received one hoeing, as noted in the table below. In all the plots which were not cultivated weeds, mainly red-root (*Amarantus*), came up thickly.

The beans for the test of varieties were planted by hand with a corn planter in rows 28 inches apart, hills about 18 inches apart, five to six beans in a hill. The variety plots each contained $\frac{1}{8}$ of an acre and were planted on the three kinds of soil June 11. The plots planted to test different methods of growing, each contained $\frac{1}{8}$ of an acre and were all planted June 15. These last plots were rolled immediately after planting and, the soil being in a more moist condition, they came up rather better than those planted on the 11th, which no doubt partly accounts for their better yield as noted in the table.

Notes were taken on the growing crop from time to time. The beans on the sand came up first, those on the muck next, and those on the loam last. In a short time, however, those on the muck became more vigorous than those on either the sand or loam. Owing to the injury by frost already mentioned, accurate comparison of the muck plots with the others could not be continued through the season, but at the end, when all

were killed, an inspection placed the apparent yield of the different varieties on the muck in about the following order and proportion, ten being the highest: Schofield 10, Navy 8, Prolific Tree 7, Marrow 5, Kidney 2. On the sand and loam the beans came to full maturity and were harvested in good condition before frost. At the time of ripening the varieties on the sand were nearly one week in advance of the corresponding varieties on the loam. The first variety to mature was Schofield, which ripened its first pods on the sand Aug. 27, the plot being most of it harvested September 2. The other varieties ripened in the following order: Navy and Prolific Tree nearly together, Marrow next and Kidney last. The yields are given in the following tables:

Yield of Beans from one-sixth acre plots of different varieties.

	Pounds Produced.		Bushels per Acre.	
	Sand.	Loam.	Sand.	Loam.
Schofield or Pea.....	58.25	60.5	5.82	6.05
White Marrow.....	52.	66.	5.20	6.60
Navy or Medium.....	56.	55.	5.60	5.50
Prolific Tree.....	65.	53.	6.50	5.30
White Kidney.....	62.	54.	6.20	5.40

Yield of Beans from one-eighth acre plots under Different Treatments.

	Pounds Produced.		Bushels per Acre.	
	Sand.	Loam.	Sand.	Loam.
Sown broadcast.....	18.5	28.5	2.46	3.80
Sown with grain drill 14 inches apart.....	102.5*	76.	13.66	10.13
Rows 28 in. apart, hills 18 in., 6 beans in a place.....	129.5	163.	17.26	21.73
Rows 28 in. apart, hills 6 in., 1 or 2 beans in a place.....	112.	112.	14.93	14.93

*This plot was hoed once.

The varieties above mentioned are all standard market sorts and may be briefly described as follows:

Schofield or Pea.—This is the smallest and earliest of the five varieties tested and brings the highest price in market. The beans in our samples were of a brighter color than any of the others.

Navy or Medium.—Decidedly later than the Schofield. A very productive standard variety. The beans are a little larger than in the above sort but of about the same shape.

Prolific Tree.—A new variety, differing but slightly from the above. Apparently a little later and the beans possibly a trifle larger. It has nothing in its habit of growth to suggest the name "Tree" more than other bush sorts.

White Marrow.—A large, oval bean, ripening late, with tall, stout vines and comparatively few pods. Its beans split more than those of other varieties.

White Kidney.—Still later than the above. Beans oblong, more than twice as long as wide. An old and excellent variety, still popular in some markets.

A Weed Experiment.

BY H. A. DIBBLE.

Two plots of corn, of 110 hills each, were treated alike except as to cultivation. One plot was given good cultivation in both directions and kept entirely free from weeds, using the hoe when necessary. The other plot was cultivated in but one direction and not hoed, leaving the weeds to grow in the row one way. The weeds which appeared were pigeon grass and a few pig-weeds. During July there was a marked difference in the growth of the corn on the two plots, that containing the weeds being the smaller and curling badly from the effect of drouth, while the corn on the other plot remained fresh and vigorous. Later in the season, after the August rains came, there was less apparent difference between the plots. In October the stalks and corn on each plot were weighed, and also the weeds on the weedy plot, with the following result:

	Weedy Plot.	Clean Plot.
Pounds of ears.....	167	218
Pounds of stalks.....	135	143
Pounds of weeds.....	28	
Total.....	330	361

Here is a gain of nearly a third more corn as a result of clean cultivation.

The M. A. C. Record.

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We desire to call attention to a proposed new feature for the library. It has been suggested, and the idea is a good one, that an effort be made to secure copies of all books and pamphlets written by graduates of this institution, the collection to be appropriately named, placed in the library in a special case made to receive it, and to be for all time kept together—a monument, as it were, to the old students.

How much interest would center around such a collection? It would be a source of inspiration to the young men now in college and to those who may come in future years; while to the many strangers who visit us, it would be a silent testimonial of good results, to which the college would point with pride.

We trust this idea will meet with the hearty approval of all, and that before the next triennial reunion shall occur, we may have a copy of everything published by our graduates; a free will offering to M. A. C. And for the future, we would be glad to receive a copy of books as they are published, that our special collection may be a growing one.

HOW THE FARMERS REGARD THE INSTITUTES.

The following letter just received tells its own story: "I have had it in my mind ever since the Institute at South Haven to write you to tell yourself and the others of the Faculty how well I (and others of my neighbors) was pleased. I considered it a real feast and a rare treat, and we hope they may be continued. It would be better attended the next time, for the people were not awake to it. After they had come one day and saw what they were missing they came regularly afterward."
"Very respectfully, J. C. J."

REGULATIONS FOR COMMENCEMENT EXERCISES.

The following regulations adopted by the board last year are important just at this time:

1. On the fourth Monday of the spring term, the faculty shall proceed to elect speakers for commencement day. These shall consist of some person of national reputation, and two members of the senior class, one from the agricultural course and the other from the mechanical course. Said students shall be chosen on the basis of proficiency along the lines of education emphasized by the work of the respective courses.

2. The speaker for 1895 shall be some man whose work is more or less closely connected with agriculture or horticulture. For 1896 the choice shall be limited to men whose work bears on some one or more of the mechanic arts; and thereafter the choice shall alternate in regular succession between the two classes of men named above.

3. The two students shall, each for his department, prepare and read papers, not to exceed fifteen minutes in length, treating on some great agricultural or mechanical achievement of the year, or commemorating the life and work of some man to whom one or the other of the two departments owes much.

4. As a part of the commencement exercises, one night, within five or six days before commencement day, shall be set apart for a joint celebration of the College societies and fraternities.

5. The exercises of said celebration shall consist of orations, declamations, or a debate, or two or all of those features, as the participants, to be selected as hereinafter provided, shall determine.

6. Each society and fraternity in the College shall be invited to elect one representative to participate in said exercises, and the program of the evening shall name the society or fraternity of each participant. Said election must not be held later than the middle of the spring term, and the name of the representative chosen shall immediately be transmitted to the faculty for approval or disapproval. An average standing of eight on the English studies of the first two years of the college courses shall be required for eligibility to said election.

7. Each year at said celebration, the College shall offer a gold medal of the value of \$25.00 for the best orator, a gold medal of the value of \$25.00 for the best

debater, and a silver medal of the value of \$15.00 for the best declaimer, provided, that if at any celebration there be less than two contestants for one of the medals herein provided for, said medal shall not be offered for that year. No student shall be eligible to compete for the same medal twice.

8. Three disinterested judges, selected by the faculty and not connected with the College, shall determine the awarding of the medals.

9. Minor details of said celebration shall be regulated by the professor of English literature, and the work done by students at commencement shall count as part of the oration work of the College courses; provided, that declamations must be supplemented by essay work, to be reckoned as equivalent to orations.

AT THE COLLEGE.

The plow was started in No. 7 last week.

J. T. Berry, '96, returned from Cass City last Thursday.

Miss Pearl Kedzie is home from Olivet for a week's vacation.

Mrs. F. D. Phillips is visiting her uncle and aunt Mr. and Mrs. H. B. Elderkin.

B. F. Simons, Jr., '90, furnishes the carpets and rugs for the President's house.

The Sophomores in the machine shop have been making some fine surface gauges.

Prof. and Mrs. Wheeler and Prof. Weil each had a tussle with the grip last week.

H. W. Mumford, assistant in agriculture, spent Sunday at his home, Moscow, Mich.

Prof. and Mrs. Chamberlain are at home to faculty and students every Friday evening.

Mrs. C. C. Williams, a sister of Mrs. Edgerton, left for her home in Grand Rapids last Saturday.

James Conway, stenographer to Director Smith, spent several days of last week at his home in Decatur.

Gerritt Masselink, '95, principal of Cass City schools, called last week on his way home for a week's vacation.

The latest additions to our freshman class are James Shanks of Clarksville and George N. Gould of Saranac.

The Eclectic Society celebrated the completion of repairs on their rooms by giving a party last Friday evening.

Quite a large class of volunteers are taking physical training in the evening under Mr. Foreman, assistant librarian.

The Union Lit. Seniors a few of the Co-eds and Prof. and Mrs. Holdsworth were given a candy pull by Prof. and Mrs. Woodworth last Friday evening.

Fred Small, with '92, made us a visit last week. Since leaving college he has been in the livery business at Benzonia, but will take up fruit farming this spring.

Among the visitors at College last week were J. R. Simms of Milwaukee, F. D. Helmer of Chicago, E. C. Baker of the Lansing Iron Works, and W. M. Smith of the Lansing Telephone Exchange.

Mr. Crozier has been planting a lot of chinkapin, hickory nuts, walnuts, butternuts, and several kinds of acorns in the woods east of No. 7. The nuts were gathered and stored last fall by Dr. Beal.

Vadim Sobennikoff, '96 m., has purchased and brought to M. A. C. for testing, a Priestman four horse power petroleum engine with which he will run an electric light plant at his home in Siberia. Petroleum is the fuel of the Siberians.

Prof. A. Knechtel, sp. in '93, is spending a week's vacation at M. A. C. constructing physical apparatus for use in his school at Leslie. He will take with him as a result of his week's labor a delicate galvanometer, a rheostat, a Wheatstone's bridge, a potentiometer, and a tangent galvanometer.

William W. Diehl, '87, pastor of the Ashland Boulevard M. E. church, Chicago, and Jason E. Hammond, '86, deputy superintendent of public instruction, called at the College last Thursday. The Rev. Diehl has been recuperating his health at the home of his father, Milford, Mich., and is now on his way back to Chicago.

Last Friday morning word came to us that an escaped prisoner was making his way eastward from Lansing. A person answering the description had been seen passing through the grounds but a short time before, and Messrs. Kenney and Edgerton mounted wheels and took after him. Just east of the orchard they overhauled the wayfarer, surrounded, captured, and led him back—

a small boy of about twelve summers, from the Industrial School.

Y. M. C. A. ANNOUNCEMENTS.

Arrangements have been made for the following half hour talks at the Sunday evening prayer meetings of the Young Men's Christian Association:

March 29, "The Bible from a historical standpoint," Prof. W. O. Hedrick.

April 5, "The Bible from the legal standpoint," S. L. Kilbourne of Lansing.

April 12, Missionary meeting in charge of F. Yebina. "Turkey, its history, people, and present condition," by members of the faculty.

April 19, "The Bible the book of thinking men," Hon. C. A. Gower, Lansing.

On the 22d inst. Dr. Edwards spoke of "The Bible from the ethical standpoint." The preceding Sunday Prof. Barrows spoke of "God in the rocks" and showed a few curious and wonderful specimens of rock formation.

Subjects for the Thursday evening half hour prayer meeting may be found in the hand book, which can be had at the president's office or from any officer of the association.

Every one on or near the campus is invited to be present and take part in these meetings.

The following Bible classes are organized for special study:

The Gospel of John, leader, L. D. Sees.

The Psalms, leader, C. W. Loomis.

The Acts, leader, W. J. McGee.

For Seniors and Juniors not interested in these lines of work Dr. Edwards has a class in chapel at 8:30 Sunday morning. Immediately after church in the afternoon Prof. Smith has a class of Sophomores and Freshmen.

J. H. Brodenax of Chicago, member of the international committee of the Students Volunteer movement, spoke in the Association room Friday evening.

A FARMERS' INSTITUTE TRIP.

BY K. L. BUTTERFIELD.

(Concluded.)

The round-up meeting in Wisconsin was a success; the attendance was larger than our own at Grand Rapids, but was not so representative of the State. While we had 220 railroad certificates besides those of our workers, they had only 40 or 50. This simply shows that we were fortunate in getting a large representation from counties outside of the one in which the institute was held. In general plan the round-up meetings in the two states do not differ materially. The thorough training of institute workers was shown at its best at the round-up. Taken on the whole, I think the Wisconsin system is the strongest and most thoroughly organized of any. I am not familiar with the New York system, though I understand that is very complete.

The closing feature of my trip was a meeting to organize an international association of institute workers. Representatives were present from Ohio, Illinois, Nebraska, Minnesota, Wisconsin, and Michigan, and an association of said character was formed, with O. C. Gregg, Superintendent of Minnesota institutes, President, and Prof. F. W. Taylor, Superintendent of Nebraska institutes, Secretary. It is likely that a more formal meeting of this association will be held some time in the fall in Chicago, when a thorough organization will take place, and when it is hoped that representatives from at least a dozen states will be present. At this meeting at Watertown, the methods in vogue in the various states were set forth by representatives from those states. There was not time for large discussion, although plenty of questions were asked, thus bringing out the details of plans and methods. In discussion the point most talked about was the matter of utilizing local talent. Supt. Gregg of Minnesota, where institute work is even more concentrated than by the Wisconsin plan, said that it was entirely impracticable in Minnesota. In Wisconsin they would like to have local help but do not seem able to get it to large extent, although they have developed most of their workers out of men discovered among local speakers at the various meetings. Reports from Illinois, Ohio, Michigan, and Nebraska indicated that the principle of local aid is thoroughly established in all of these states.

It would be somewhat difficult to make an adequate comparison of the institute systems in the three states named with that of Michigan other than I have done. After a careful study of their methods and plans, I can, however, see no good reason for materially changing our work. There are certain features which I think might be strengthened, and I will enumerate four. I think

that first, we need a larger number of institutes; second, that we should send smaller corps of workers; third, that our conductors should be men who conduct continuously and are especially trained for it; and fourth, that we should concentrate more upon special sessions. The idea of organizing county institute societies was borrowed from Ohio, but I discovered that we have organized much more thoroughly and completely than they have thought of doing there, and I am satisfied that we are the gainers thereby. We borrowed the conductor system from Wisconsin, but by compromising and allowing local presidents to preside, I think we have struck the golden mean which develops local talent without deposing the state from all control. The round-up of course we stole bodily from Wisconsin. Our woman's work, as conducted by Mrs. Mayo, is distinctly a Michigan production. No other state, so far as I know, has it, and has not thought of it. The long institute is also a Michigan invention and is, I believe, destined to larger growth and usefulness. I notice that in the other states, especially in Indiana and Wisconsin, college men are but little used. Of course this is partly due to the fact that the college men are busy in the winter, but it strikes me as being a misfortune that such speakers cannot be immediately utilized. The comparison of workers in other states with those in Michigan would hardly be fair; yet I think I am not boasting in saying that no state possesses better, especially among the fruit growers. Wisconsin however has a larger number of practical dairymen who are strong institute workers.

I visited the Ohio State University, Purdue University, and the University of Wisconsin, and noted especially the work done in agriculture. I was surprised and pleased with the advance of the work at the first institution. There are about 100 students in agriculture, some 20 or 25 of them being in the long course, and seven graduating from the long course this year. The course is so arranged that a short course, which is a two year course, leads on to the long course; students can enter in the short course and then get credit for their work in the long course. I was informed that this is being done very freely. Most of those who finish the short course go back to the farm, and I was told that five out of the seven that graduate this year go to the farm. Prof. Hunt is bringing his department to the front, and is apparently winning the favor of the farmers. At Purdue Prof. Latta is handicapped by the overpowering demand for technical instruction in mechanical lines, yet they have a special winter course of about 40 students, and there are a few in the long course. At Madison Prof. Henry has succeeded in building up a special course to good advantage. This year there are nearly 200 students in the special course, although only three or four in the long course. The special course consists of two winters of three months each. Quite a proportion of the students come for the second year's work. The remaining special course students are dairy students. After visiting these institutions, I was impressed with the fact that Michigan has an enormous advantage in regard to agricultural education. As one professor remarked to me, "We are looking to the Michigan Agricultural College to solve the problem of agricultural education." We have the plant and we have the record. When we were discussing at the international gathering the matter of local talent, I made the assertion that we had 100 men, who with a little practice, would make first class workers. This seemed to startle many present, but I do not think I exaggerated. Indeed, I believe I could name 25 or 30 off hand who are graduates of the Agricultural College and on Michigan farms who would come under this category. But in any of the three states visited I found no such record. In Wisconsin a good many of the special course men are making good records, showing the value of even a little leaven. On the other hand I was impressed with the fact that our college must look to its laurels; the impression seemed to be that for a few years past it has been resting on its oars. Men at other institutions are doing their best to push agricultural education to the front, and if we are to retain the position so proudly held for many years, I am free to say it will require advanced steps. I was favorably impressed with the special course work done at these institutions, but I can easily see how such work can be overdone. I hope to see special courses at our institution, but I trust that they will be undertaken cautiously.

One of the pleasantest and most profitable results of my trip was the forming of acquaintances of splendid men. In Ohio I met Mr. A. T. McKelvey, one of their most eloquent speakers; Prof. Gibbs, assistant to Prof. Hunt; Mr. Burkett, superintendent of the University farm; Prof. Webster, entomologist of the experiment station, and Waldo F. Brown. In Indiana I met Prof. Latta, M. A. C. '77, and Troop, '78; also T. B. Terry whom everybody knows and whose acquaintance I enjoyed exceedingly, and Mr. Cal Husselman, a practical

and successful dairyman of northeastern Indiana. In Wisconsin Supt. McKerrow; Mr. True; Mr. C. P. Goodrich, the veteran dairyman; Mr. H. C. Taylor, the owner of Brown Bessie, the Jersey cow that made the record at the world's fair; and the whole list of institute workers employed in Wisconsin—all of them pleasant men to meet. Also Professors Henry and King, and Mr. John J. Shawver of Ohio, horticultural editor of the *Grange Bulletin*. Also at the international gathering were Supt. Gregg of Minnesota, and three of his workers, Dr. Currier, Mr. Carlyle, and Theodore Lewis; also Prof. F. W. Taylor of Nebraska.

NEWS FROM GRADUATES AND STUDENTS.

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

W. C. Stryker, '84, is now a dental student in Chicago.

J. J. Jakways, with '86, is farming near Benton Harbor.

Pearl H. French, with '92, is now in the drug business at Mulliken.

Harry Pinney with '94, is cashier of the Cass City Exchange Bank.

Frank W. Bullen, with '89, is a senior in the Rush Medical College, Chicago.

F. N. Clark, '89, Milford, Mich., says he is very busy caring for 600 hens and gathering eggs.

G. Masselink, '95, is president of the Cass City Pingree Club of over one hundred members.

C. R. Winegar, '92, now travels for the firm of Holmes & Burr, paper and stationery, Grand Rapids.

Miss Faye Wheeler, M. A. C., has been visiting Miss Marie Kilpatrick the past week.—*Olivet Echo*.

Dr. Snyder with his family now occupies the President's house, having moved in the last of last week.

M. P. Thompson, with '97, m., puts in fourteen hours work daily for the Fox Machine Co. at Grand Rapids.

L. C. Slayton, with '93, agent for the New Jersey Mutual Life Insurance Co., visited the College last week.

Homer A. Frost and Fred Schwarzer, both with '96, have been in attendance at the Cass City school under G. Masselink '95.

Pres. Oscar Clute, '62, writes from Lake City, Fla., of the excellent work and prospects of the Florida Agr'l College and Exp't Station.

The Farm and Fireside, issue of March 15, gives a portrait and sketch of the life of E. G. Lodeman, '89, assistant horticulturist at Cornell University.

Cecil J. Barnum, '94, principal of Goodrich schools is spending a week's vacation at his home in Charlotte. He called at the College on his way home last Saturday.

Supt. D. D. McArthur, '94, of the Omaha Indian Agency School promises an article on "The Aims and Accomplishments of the U. S. Govt. in the Education of the Indian."

W. L. Cummings, '93, returned to M. A. C. for post graduate work Saturday. He has been spending the past year in surveying work associated with W. D. Barry, '84, at Clarksdale, Miss.

At the meeting of the Michigan Political Science Association in Grand Rapids next Saturday, Prof. W. O. Hedrick will read a paper on "The Farmers' Criticism of the Michigan Taxing System."

To-morrow L. Colfax Gibbs, with '92, will be married to Miss Lizzie O'Connor, with '93. They will leave at once for Atlanta, Ga., where Mr. Gibbs will assume the state agency for the Cumberland Building and Loan Association.

The Fort Wayne Medical Magazine, of which Dr. A. E. Bulson, '88, is managing editor and Dr. F. J. Hodges, '84, is associate editor, gives an account of a complimentary dinner given by Dr. Hodges to Prof. Ludvig Hektoen of Chicago.

E. R. Lake, '85, Corvallis, Oregon, is Secretary-Treasurer of the Oregon State Horticultural Society. He will shortly favor us with an article on the Fruit Interests of Oregon. He says: "The older I grow the dearer is old M. A. C. and its corps of teachers."

The following explains itself:

HOWELL, MICH., March 18, '96.

Editor M. A. C. Record:

DEAR SIR—In a recent issue of your paper I saw it stated that R. C. Hardy was doing yeoman work on his father's farm. Now that ought to be changed somewhat, for since March 5th he hasn't done a thing but sing: "Hush! be still as any mouse—There's a baby in

my house—Not a dolly, not a toy—But a laughing 'leven pound boy."

Very truly yours,

W. G. SMITH, '93.

At a special meeting of the stockholders of the Practical Farmer Company, publishers of the Practical Farmer and Fruit Grower, yesterday, the following directors were elected: Charles W. Garfield, Colon C. Lillie, George M. Zellner, Mrs. C. A. French and C. A. French. The directors then elected Charles W. Garfield, president; Colon C. Lillie, vice president; and C. A. French, secretary, treasurer and manager.

M. A. C. is well represented among the officers of the Association of American Colleges and Experiment Stations which meets in Washington, D. C., next November. Prof. C. C. Georgeson, of Kansas Agricultural College is chairman of the section on agriculture and chemistry; Prof. Eugene Davenport, of Illinois University, is secretary of the section on college work; and G. C. Davis, M. A. C., is secretary of the section on entomology.

HORTICULTURE AT CORNELL.

Ithaca, N. Y., March 17.

TO THE RECORD: The horticulture of Cornell does not differ so vastly from the horticulture of M. A. C. as perhaps some may suppose. Here, as there, there is the same thorough training in the details, together with the explanatory class work. At M. A. C., however, the class work spreads over only two terms in horticulture, and one in landscape gardening, while here it continues throughout the year. What is embraced in Junior horticulture at M. A. C., here is taught as Pomology, Olericulture and Floriculture each as a separate course. [A similar classification is now used at M. A. C.] Handicraft is the name given to "Educational Labor." It consists of pollinating in cucumber, melon and tomato houses; of various processes in plant management, besides the usual light work in connection with the establishment. Much the same, you see, as at M. A. C.

A course is given to propagation exclusively, from seed sowing in all its shapes, including ferns, beans and walnuts to hybridizing, through all the grades of layering, grafting, budding, cutting, etc.

Spraying is to be taken up in the spring term. It will include a study of the pests and the pesticides. So far the work is on the same lines as that of M. A. C. In addition to this we have a course in greenhouse construction. It is a "seminary" course which means that it is for advanced students who each take turn in leading the meetings, on some special topic. One had "Glass and Glazing," another had "Pots and Soils," another had "Watering," and so on. Besides these there was an afternoon each week given to drawing plans and discussing strong and weak points. As authority in these drawing classes we used Prof. Taft's book on "Greenhouse Construction."

The "Literature of Horticulture," is the name of another course here. It takes in all the books and writings known to exist on the subject since Noah fell, through love of the grape—not in the raw state. Roman, Grecian, German, French, English, American—each taken up in turn. Then the literature of certain subjects as the grape, vegetables, apples and pears. Then periodical literature of all lands, and so on. But the beauty of the course lies not in its lists and a catalogue description of the periodicals, etc., in order, but in the books themselves. There they are on the table to be looked over by the noodles of this prosaic generation. Some of them printed when the art of printing was only learning to toddle, thumbed and dog-eared by generations of men now lost to memory, and only recalled by the quaint, faded ink, declaring "John Smith, his booke," etc. This course was very interesting indeed.

"Evolution of Cultivated Plants"—a course given last fall, went into the Darwinian and Wisemanian theories of organic evolution and touched upon a host of other theories and scientific investigations. At the close of the term, in this course, we took up the evolution of various plants, as the plum, strawberry, etc.

This term there is a course in the Botany of Cultivated Plants which we find very useful in familiarizing ourselves with the herbarium of cultivated fruits, flowers, etc. It is complicated owing to the endless mixing of species by hybridization. As it is largely technical I will spare you an elaborate discussion.

Some of the advanced students have experimental work in the forcing house. I am among the favored ones. I have about thirty feet in one greenhouse and several smaller amounts in other houses. The greater part of this space is devoted to experiments in pollen bearing. There is also a portion given up to oxalis for a monograph later on. I may speak of these in some later letter.

Once a week Prof. Bailey has a social seminary for the

ten advanced students in horticulture at his house. We spend a couple of hours discussing freely some previously determined subject. For instance, we took up Thos. Andrew Knight, the Downings, John Lindley, Jethro Tull and several others. The company is very select in one sense at least. It consists of Prof. L. H. Bailey, M. S.; E. G. Lodeman, M. S., his assistant; Prof. W. M. Munson, M. S., of Maine; Mr. W. Paddock, B. S., all alumni of M. A. C. Mr. Irish, B. S., of Iowa, connected with Shaw Gardens at St. Louis, Mo.; Mr. G. H. Powell, B. S. A., of Cornell, holding the Cornell fellowship in Horticulture; Mr. E. W. Miller, B. A., of Ann Arbor; Mr. Keating A. B., of Leland Stanford University, California; Messrs. Walker, Blair and Wyman, seniors in horticulture, and the undersigned. We have very pleasant evenings together as may easily be supposed.

But I've already taken more of your time than I should. My principal object in coming here was to look at my chosen profession from another standpoint, for it is equally true in business as in art that the form of an object changes with the position one takes in regard to it. I remain

Yours truly,

MAURICE G. KAINS, '95.

CODLING MOTH KILLED BY PRINTERS' INK.

FLUSHING, MICH., March 16.—The destructive codling moth will now soon make its appearance in the orchards. To prevent this destructive pest girdle your trees with printers' ink, and as the pests go to crawl up the tree they get into the ink and die. Both C. D. and E. L. Beecher, who live near this village, tried it last year and it worked successfully. Tar injures the tree, and is not as good as the ink.—*Detroit Free Press*, March 17.

The correspondent from Flushing has evidently mistaken the cankerworms for the codling moth in the above brief statement. The codling moth is the parent of the caterpillar which makes our wormy apples and never stops to climb the trees, but flies from apple to apple depositing her eggs in the blow end. Spraying is the only satisfactory method we have found to combat this pest.

The cankerworm feeds on the young leaves and buds. The mother of the cankerworm is wingless and is forced to climb the trees to deposit her eggs, and a band of printers' ink prevents her ascent. A band of caterpillar lime or wool (see pages 32 and 24 of Bulletin 121) will be found as effectual and cheaper, as was proven by our experiments last spring. Spraying is quite as successful and generally preferable to a band of any kind.

G. C. DAVIS.

Experiment Station.

GREENLAND AND LABRADOR.

Through the efforts of Prof. Wheeler and the Y. M. C. A., Mr. S. P. Orth, who accompanied the Cook Arctic Expedition as Botanist will, on Friday evening, April 3, at 7:30 o'clock in the College chapel, give his illustrated lecture upon Greenland and Labrador.

Mr. Orth entered this college with the class of '94, but after two years left to begin studying preparatory to entering the ministry. He is now a member of the senior class at Oberlin. While here, Mr. Orth is remembered as an enthusiastic botanist and it was mainly through his efforts that the present Botanical Club was organized.

We hope that both faculty and students will turn out and give Mr. Orth a rousing reception.

Admission 25 cents. Tickets can be obtained at the Secretary's office or from the officers of the Association.

PLANT BREEDING.

REVIEWED BY PROF. L. R. TAFT.

L. H. Bailey, '82, Professor of Horticulture in Cornell University, has recently published a little book upon "Plant Breeding" that cannot fail to interest botanists and horticulturists. It contains five lectures which were originally prepared for use with his classes, but they have been recently elaborated and now appear in book form.

The first lecture deals with the philosophy of variation, and the effects of environment, of struggle for existence and of crossing, in bringing it about. The work of nature and of man in selecting and fixing types is also discussed in this lecture.

In the second lecture, the philosophy of crossing receives notice, including paragraphs upon the limits and function of crossing, and the uncertainties of pollination. This has been previously published as "Cross Breeding and Hybridizing."

The methods by which domestic varieties of blackberries, apples, beans, and cannas have originated are explained in the third lecture. He also gives here a number of rules or directions for the breeding of plants

and the origination of new and improved varieties. The advice is based upon the principles outlined in the two previous lectures, and is clearly expressed and entirely practical.

Lecture IV is made up of "Borrowed Opinions." It includes extracts from the writings of Verlot, Carriere and Focke, upon the subjects of variation in plants, crossing, and hybridization.

The art of pollination is explained in the fifth lecture. It describes the structure of several of our common flowers and shows the manner in which they are prepared for pollination.

The book is published by Macmillan & Co. as one of the Garden-Craft Series. It is nicely illustrated and is in every way a credit to the publishers as well as to the author.

SCHEDULE OF BASE BALL GAMES.

Base ball manager, C. F. Herrmann, has scheduled the following games for the season of 1896:

April 4, M. A. C. with U. of M. at Ann Arbor.
 April 11, M. A. C. with Hillsdale at Hillsdale.
 April 18, M. A. C. with Albion at M. A. C.
 April 25, M. A. C. with Michigan Military Academy at M. A. C.
 April 27, M. A. C. with Olivet at M. A. C.
 May 2, M. A. C. with Kalamazoo at Kalamazoo.
 May 9, M. A. C. with Kalamazoo at M. A. C.
 May 11, M. A. C. with Hillsdale at M. A. C.
 May 16, M. A. C. with Albion at Albion.
 May 18, M. A. C. with Olivet at Olivet.
 May 19,
 May 20, M. A. C. with Mich. Military Academy at Orchard Lake.
 May 25, M. A. C. with Bay City at M. A. C.
 May 30,
 June 1, M. A. C. with Olivet at M. A. C.

It will be seen that there are but two open dates, May 19 and 30. There have been three games arranged for the May vacation, and there is one vacation date, May 19, yet to fill. A game is also wanted with some good college team for Decoration Day.

College Lands

There are some

Fine Timbered and Farming Lands

Belonging to the Agricultural College which have lately been put

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They are Located in the Counties of

*Manistee, Wexford, Benzie,
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And a fine tract in *Montmorency County* will also be on sale very soon. Many of these lands are covered with

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GOOD FARMING LANDS

Portions are within short distance of thriving towns and near railroad stations. They have lately been viewed by an agent of the board, and minute descriptions of timber, location and soil are on file in the office of the State Land Commissioner. People desiring to purchase such lands will find prices, terms and descriptions in the State Land Office.

Full descriptions of these Lands will be
Printed in Succeeding Issues of
The Record.

FOR SALE

2 Registered Shorthorn Bull Calves.

One roan, calved June 18, 1895, sired by the famous Cruickshank show and stock bull, Volunteer, 101205. Dam College Victoria C.

One red, calved April 3, 1895. Sire Volunteer; dam College Mysie 4th, tracing to Imported Mysie 36th.

1 Red Polled Bull Calf Sired by Jim Corbett, dam Cara, 8393. A deep red, calved July 7, 1895.

1 Holstein Bull Calf A white and black calf, sire Maurice Clothilde, 17638, dam College Pauline Wayne, 30900, calved Feb. 13, 1896.

ALSO 10 SHROPSHIRE RAM LAMBS

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