

# The M. A. C. Record.

VOLUME I.

AGRICULTURAL COLLEGE, MICHIGAN, TUESDAY, JANUARY 14, 1896.

NUMBER 1.

**AT THE COLLEGE.**

Term opens Monday, February 24.

Dr. Frank E. Weil of North Andover, Mass., brother of Prof. Weil, died suddenly January 6.

A good deal of repair work has been done in the shops this winter, besides putting in the wiring for the new 200 light dynamo.

Wells Hall has been thoroughly cleaned, painted and papered throughout. The students' rooms in all the dormitories are as good as new.

For the first time in three years water began to run from the under drains in the experimental plots during the heavy rains of Christmas week.

Prof. A. G. Gulley, '68, of Storrs Agricultural College, Conn., is on the M. A. C. institute force this winter. He is on the Alpena trip this week.

officers of this M. A. C. Association are: President, C. L. Bemis, '74, Ionia; vice president, W. V. Sage, '84, Decatur; secretary and treasurer, D. J. Crosby, '93, Agricultural College. C. L. Bemis, '74, superintendent of Ionia schools, and Charles McKenney, '81, professor of history and English at Olivet College, are both mentioned by their friends as suitable candidates for Superintendent of Public Instruction.

Prof. Vedder and Messrs. Pashby and Newell attended the meeting of the Michigan Engineering Society in Saginaw, Wednesday and Thursday. Prof. Vedder read a paper on "The Mechanics of a Cream Separator." Among other M. A. C. men who were in attendance were Frank Hodgman, '62, secretary and treasurer of the society; Frank F. Rogers, '83, who is a civil engineer in Port Huron, and is one of the nominees for president of the society, and A. J. Beese, with '94, m., a resident of Saginaw.

supervision of the horticultural work on Mr. Walker's other farm, in the vicinity of Walkerville, Ont.

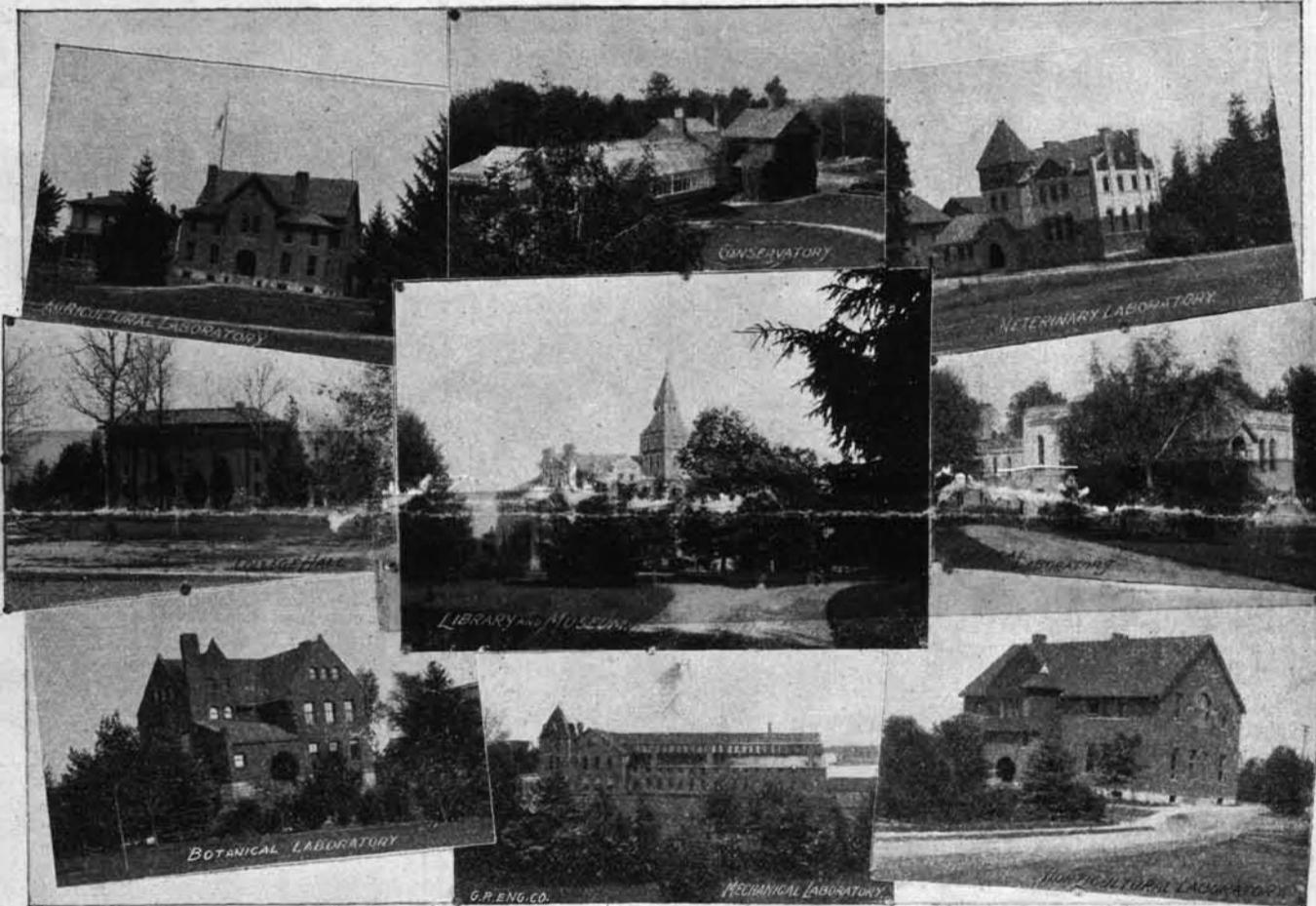
Prof. and Mrs. Noble returned Tuesday evening from Wayland, Ia., where they have been visiting relatives and friends.

It is reported that L. O'Neil, with '93, has purchased a farm near Ada, Mich., and will engage extensively in fruit raising.

W. J. Goodenough, '95, m., is now in the employ of the Cleveland Ship Building Company. His address is 98 Duane street.

W. A. Rider, '96, m., is draughting for the Leland Faulconer Co., Detroit. D. S. Cole, '93, m., is with the same firm as designer.

W. F. Ross, with '84, of Niles, Mich., has turned inventor. He has been at the college several times recently, having some patterns for a new wind engine.



Walter L. Hazen, '99, has entered the employ of James A. Adams & Co., shoe dealers, Saginaw, Michigan. His ability as a shoe salesman is well known to College people.

Prof. and Mrs. Babcock and Prof. W. O. Hedrick made a holiday trip to Atlanta, stopping over a day at Chattanooga on their return. Prof. Hedrick then spent a week at M. A. C.

Since the fall term closed the interior of College Hall has been entirely rejuvenated. All the class rooms have been papered, the halls painted and papered and the chapel looks like new.

F. L. Reynolds, with '95, m., made a short holiday visit to Lansing and the College. He is responsible for the statement that a party of Houghton mining school students returning from a surveying trip, upon being overtaken by an empty hearse, piled their instruments into the hearse and themselves got up outside and rode into town.

M. A. C. was well represented at the State Teachers' Association which was held at Lansing the last week in December. Over sixty were in attendance, and of these about forty-five met in the parlors of the Congregational church on Friday evening and enjoyed a good, old-fashioned love feast. The old and the young were there from '74 to '99, and so well did they enjoy each other's company that they made a permanent organization and elected officers to arrange for another meeting, a supper and other agreeable diversions for next winter. The

**NEWS FROM GRADUATES AND FORMER STUDENTS.**

H. R. Breck, with '93, is an insurance agent in Jackson, Mich.

Geo. A. Farr, '70, has been appointed a regent of the University.

Guy Stewart, '95, is teaching at Onekema, near Pierport, Mich.

C. P. Close, '95, has obtained a position in the Geneva, N. Y. experiment station.

Frank Crosthwaite, with '73, is an attorney, 1320 F. St., N. W., Washington, D. C.

J. T. Berry, '96, began work as assistant principal in the Cass City schools last week.

A. C. Himebaugh, with '86, is Secretary of the Sheffield Cornplanter Mfg. Co., Burr Oak.

C. S. Whitmore, '87, is dealer in produce and agricultural implements, Dimondale, Mich.

D. A. Seeley, '98, read a paper on "The Millennium" before the Lansing Science Club Tuesday evening.

O. H. Reed, '96, will probably remain in the State Board of Health office and not return to College next term.

R. J. Coryell, '84, in a letter to Prof. Taft reviews the work of a busy season on Peche Island. He is foreman of Hiram Walker's Peche Island farm and has general

made. Will Anderson, with '96, m., has been doing the work for him.

Guy Mitchell, with '94, is farming at Herndon, Va. He is especially remembered as the first expert bicyclist who appeared at M. A. C.

At the organization of the Political Science Club, of Lansing, last Monday evening, S. B. Young, '96, was elected one of the two vice presidents.

J. R. Sayler and Wahey Matsura, both '96 men, are in the employ of Frazer & Chandler of Chicago, Sayler as a machinist and Matsura as a draughtsman.

Miss Alice Coats, '98, will make her home with her sister, Mrs. Prof. Davenport. She has entered the Illinois Industrial University at Champaign, Ill.

E. D. Partridge, '96, after spending a couple of weeks with relatives in northern Ohio, and a few days with friends from Utah, at the U. of M. is again at the college.

Perry G. Holden, '89, is Professor of Natural Sciences in Benzonia College, besides running a farm and looking after the interests of Benzie Co. schools as Commissioner.

E. A. Burnett, '87, recently elected Professor of Agriculture, S. D. Agricultural College, will leave his farm at Bancroft and report for duty at Brookings next week.

W. L. Snyder, '82, besides being chemist for the Michigan Carbon Works, has purchased the hardware business of Chas. A. Bush, and will continue with it at 1119 Third Ave., Detroit.

# The M. A. C. Record.

PUBLISHED WEEKLY BY THE

MICHIGAN AGRICULTURAL COLLEGE

EDITED BY THE FACULTY.

SUBSCRIPTION, 50 CENTS PER YEAR.

PRESS OF ROBERT SMITH &amp; CO., LANSING, MICH.

## INTRODUCTORY.

The Michigan Agricultural College recognizes the importance of being in touch with the farmers of the State in whose interest it was organized. It desires to be a leading factor in lifting the agriculture of the State to a higher plane of excellence. Through the medium of the Mechanical course it offers thorough training for those who have a taste for mechanical pursuits. Its efforts are centered in these objects.

While through the experiment station and the farmer's institute the College can increase its usefulness, its main effort must be expended upon the men it turns out. Its recruits must come largely from the farm and its greatest influence must arise from the men it educates, who will make their impress upon the farms of the State.

The College equipment is ample to do the best of work, and Michigan farmers with children to educate should understand the advantages it offers in giving an education that will be the most helpful to them if they are to engage in the pursuit of agriculture.

It is with the purpose before us of making the acquaintance of the College and the farmers, the College and its graduates, the College and the parents of its present students, a more intimate and cordial one that this journal is started. The good that will arise from this closer relationship we believe will be reciprocal, and, on the side of the College, we ask for your confidence and kindly criticism.

We shall endeavor first of all to give the College news, a running account of what we are trying to accomplish with such results as will be interesting and instructive. This paper will be the medium of communication between the faculty and the student body at home or at the College, the parents of the students and the farming community generally. We shall expect to make this paper the organ of the alumni of the College, and through it to maintain the College spirit and enthusiasm among those who have gone out from us. We invite the earnest cooperation of all our old students in this new enterprise and shall be grateful to receive communications from the farmers of the State that shall be helpful along the lines of our endeavor. The entire management of the College, including the Board of Control and the faculty are in hearty accord with regard to the helpfulness of this new feature of our College life.

It shall be our aim to familiarize all whom we may reach with the details of College progress and bring about a cordial feeling that will give pleasure while it emphasizes a plan of education in which there is a larger hope for those who enjoy rural life and the occupations of the farm.

With this purpose in view there is certainly a reasonable excuse for our existence and there will be no lack in the spirit to accomplish our aim.

## MARKETING FRUIT.

[Read at the Mason County Institute, Ludington, Jan. 7, by T. C. Walker, of Wesley.]

Choose such fruits only as will grow to perfection in this section of the country.

Train your trees so that the heads will be open and the fruit will color evenly as it ripens.

Thin all fruit trees so far that the fruit will have plenty of room and the trees will not be overloaded. Proper thinning insures even size and at the same time gives as many bushels, if not more; moreover it saves time at picking when we most need it.

The fruit should be just the right color when picked. It requires experience to know just when to pick peaches. It depends among other things how far the peaches are to be shipped. Better to go over the same tree three or four times and take each time only those peaches that are ready to ship than attempt to pick all the peaches on the tree at one operation.

Use only new, clean and tasty packages. The neater the package the better it sells. The package must be an honest one as to size. If it purports to be a fifth bushel it should contain a fifth of a bushel and not a less amount. There are all together too many different sized packages in use.

When you put up a package of fruit put your name and address on it and guarantee that the fruit is all alike and all up to standard. Do not scrape up the culls and put them in the bottom and trim the top with

nice looking fruit as it not only hurts you but it makes the consumer suspicious of all fruit coming from your neighborhood.

When a farmer is loading potatoes or even corn for market he sorts out all small and inferior specimens and keeps these culls to feed his stock, but a good many fruit growers seem to think that fruit will sell no matter how it is jumbled into the basket.

The sooner we get down to business in the packing of fruit, good fruit and nothing but good fruit, the sooner we will get a reputation and a market.

Another thing the fruit growers should look after is the way fruit is handled and loaded on the boats. A large number of the peaches arrive in Milwaukee in baskets without handles. Peach and berry packages are packed so close and in such bulk that the fruit is sure to sweat and when it is unloaded in Milwaukee or Chicago you can see the steam rise from the packages.

If the weather is warm the fruit is sure to spoil and the commission man is blamed for it or accused of misrepresentation.

The county horticultural societies should appoint committees to look into this matter when the fruit season opens next summer.

In the discussion following Mr. App. M. Smith of Ludington, said that he believed that Mr. Walker had struck the key note of the situation, but fruit growers must not expect the advanced returns from the first shipment of selected fruit. The consumers must learn that a certain brand means good fruit before they will pay extra prices for it. It requires continuity of well doing to reap the reward.

## PROCEEDINGS OF BOARD OF AGRICULTURE.

BY SECRETARY I. H. BUTTERFIELD.

The State Board of Agriculture held a meeting at the college January 3. Lieut. Henry H. Bandholtz was the choice for military instructor at the college to succeed Lieut. Lewis whose detail expires in June next. The detail of Lieut Bandholtz will be asked of the war department.

Lieut. Bandholtz graduated from West Point in 1890 and is now Second Lieutenant of Co. C. 6th Infantry and stationed at Newport barracks, Kentucky. He is recommended as a splendid officer.

The war department at Washington will be requested to extend the detail of Lieut. Lewis to the end of the school year, or August 15, so as to avoid a break in military work in the middle of the summer term.

Thorn Smith, '95, was appointed first assistant chemist in the experiment station to succeed H. E. Harrison, '88, resigned.

M. L. Dean, of Napoleon, was appointed second assistant in horticulture to succeed U. P. Hedrick, '93. Mr. Dean has been on Hon. C. W. Garfield's farm for a year and comes highly recommended.

Another important action of the Board was the adoption of the following report of the professor of horticulture:

*President C. J. Monroe:*

DEAR SIR—At a meeting of the State Board Agriculture last spring, I was requested to present a plan for the ornamentation of the school grounds in Michigan, by the cooperation of the college and the teachers and pupils of the public schools.

The success of a similar undertaking by the State Horticultural Society in 1881 would indicate that much good can be done along this line. Not only can we hope to improve the appearance of the grounds, which are for the most part notoriously bare and unsightly, but it will aid in the cultivation of a love for the beautiful and will tend to give the children a knowledge of the methods of planting and caring for trees, shrubs and plants.

I would suggest that an endeavor be made to interest the patrons and teachers of the schools in the matter by means of short articles and circulars sent to the newspapers of the state, which they would be urged to present to their readers; these could also be issued as a bulletin, together with suggestions as to the grading, making and caring for a lawn, the planting of trees and shrubs, and the making, planting and caring for flower beds.

In this could be included an offer to send a collection of flower seeds to any school of which the teacher would agree to plant and care for them and report the results at the end of the season. We might also promise to send shrubs and vines in 1897 to the schools that have by the improvements in the school grounds and the care given to the flowers shown a satisfactory interest.

With this step in mind we have saved seeds of such of the common flowers as seemed desirable for this purpose, but many of the kinds that it will be desirable to

distribute did not fruit freely. We have also a considerable number of small shrubs that have been grown by the students, and have a large number of cuttings made for starting next year.

In addition to the seeds we have on hand, it will be necessary to purchase perhaps fifty dollars worth, the amount depending upon the interest that is taken in the matter and whether any limit is placed upon the number of the collections that is sent to any county.

I have been assured of the cooperation of the Department of Public Instruction, and of the Michigan School Moderator which goes into the hands of one-half of the teachers of the State.

Respectfully submitted,

L. R. TAFT.

Prof. Taft was instructed to take steps to carry out the plan as proposed and he would like to hear from school teachers on the subject.

## FARMERS' INSTITUTES.

Fifty-one farmers' institutes are held this month in the State. These are all two day meetings, and attended each by five or six workers sent by the Board of Agriculture. A long institute will be held at South Haven, Feb. 3, 4, 5 and 6. This is a fruit meeting almost entirely, and will be attended by Dr. Kedzie, Prof. Smith, Prof. Taft, Prof. Barrows and Prof. Woodworth of the College, and Roland Morrill of Benton Harbor. Each lecturer will lecture at the same hour each day all four days, and will present consecutive topics.

The great meeting of the year is the round-up at Grand Rapids, Feb. 12, 13 and 14. It will open the evening of Tuesday, Feb. 11. Gov. Rich will make the opening address and it is expected that ex-Governor Luce will close the sessions. At this meeting nearly all of the lecturers who have been employed by the Board during this winter will present a topic at those meetings. Wednesday will be a fruit day, Thursday will be a general stock and dairy day, and Friday will be miscellaneous and general crops. The evening sessions will be devoted to general lectures. Full program will appear later. Reduced rates at hotels have been secured, and it is expected that the railroads will make concessions. A special effort will be made to get as many representative farmers from the different portions of the State as possible, and to make it not only the largest institute, but the most enthusiastic and profitable farmers' gathering of the year.

### Michigan Institutes for January and February.

COUNTY.	PLACE.	DATES.
Alcona	Harrisville	January 8, 9.
Allegan	Pennville	" 15, 16.
Alpena	Alpena	7, 8.
Antrim	Mancelona	16, 17.
Barry	Hastings	21, 22.
Bay	Bay City	13, 14.
Benzie	Frankfort	7, 8.
Berrien	St. Joseph	16, 17.
Branch	Coldwater	28, 29.
Calhoun	Battle Creek	23, 24.
Cass	Cassopolis	24, 25.
Charlevoix	Charlevoix	15, 16.
Chippewa	Sault Ste. Marie	10, 11.
Clinton	St. Johns	21, 22.
Eaton	Charlotte	February 19, 20.
Emmet	Harbor Springs	January 13, 14.
Genesee	Grand Blanc	27, 28.
Gratiot	Alma	28, 30.
Hillsdale	Jonesville	29, 30.
Huron	Bad Axe	21, 22.
Ingham	Dansville	30, 31.
Ionia	Ionia	22, 25.
Iosco	Tawas City	9, 10.
Isabella	Mt. Pleasant	30, 31.
Jackson	Parma	21, 22.
Kalamazoo	Cooper	22, 23.
Kent	Grand Rapids	Feb. 12, 13, 14, Round-up.
Lapeer	Lapeer	January 24, 25.
Lenawee	Adrian	22, 23.
Livingston	Howell	30, 31.
Macomb	Mt. Clemens	24, 25.
Manistee	Bear Lake	9, 10.
Marquette	Marquette	8, 9.
Mason	Ludington	7, 8.
Midland	Midland	14, 15.
Monroe	Petersburg	23, 24.
Montcalm	Stanton	23, 24.
Muskegon	Muskegon	14, 15.
Newaygo	Fremont	9, 10.
Oakland	Pontiac	27, 28.
Oceana	Hart	13, 14.
Ogemaw	Rose City	10, 11.
Saginaw	Saginaw, E. S.	15, 16.
Sanilac	Sanilac Centre	22, 23.
Shiawassee	Corunna	28, 29.
St. Clair	Port Huron	23, 24.
St. Joseph	Centerville	27, 28.
Tuscola	Caro	16, 17.
Van Buren	South Haven	Feb. 4, 5, 6, 7; long institute.
Washtenaw	Ypsilanti	January 29, 30.
Wayne	Wayne	28, 29.

George Rosen, with '79, is employed in the Post Office department at Washington, D. C. Together with W. H. Coffron, '82, he seeks recreation by playing in an amateur orchestra.

## SPRING TERM ANNOUNCEMENTS.

## Farm Department.

BY PROF. C. D. SMITH.

As the agricultural sophomore looks over the catalogue to note what he is to do next term he can hardly fail to dwell on that significant phrase "Labor in farm department except as in note." The note tells him that of the first six weeks of the term he will spend one-third in the blacksmith shop, one-third in the tool room, and one-third in the Agricultural laboratory.

The work in the blacksmith shop is both interesting and valuable, and every man in the class will thoroughly enjoy it.

Last term the sophomores had practice in farm machinery, hence the work in the tool room will be omitted and the time occupied by other important matters.

Beginning at the opening of the term the class will keep posted on the events occurring on the college farm. They will study the season's work as it progresses on the farm as a whole, will know how each operation is performed, why it is done, and its relation to the general plan of the season's campaign.

In the winter the time of the farmer is chiefly occupied in stock feeding. At the College, therefore, it is the logical time to give practical instruction in this phase of farm work. Sections of the class will feed in succession, cattle, sheep, swine, and poultry, and an insight into the mystery of this most difficult and most important feature of farming operation will be acquired. The stable management of cattle and sheep will receive especial attention.

At the same time other sections of the class will be studying the vitality and other qualities of the seeds to be sown in the spring. The different varieties of corn, oats, barley, and other farm crops will be provided, and each student will test them in exactly the same way and with exactly the same simple apparatus that the progressive farmer would use.

The seed oats will be treated to kill smut, and the different varieties compared. The clover seed will be purchased and carefully examined for foul seed, and its vitality and per cent of germination tested.

The soils of the different fields will next be studied and the reasons for the arrangements of the crops for the year explained.

From the opening of spring, through the summer and fall, each student will care for some portion of each crop, will direct and be responsible for his definite share of each field, and his pay as far as practicable will be made contingent on the skill and success with which he does his share of the work.

It is unnecessary here to go into the details of the scheme. Its success will depend in great measure on the enthusiasm we are able to arouse in the young men themselves. We hope for much.

## Horticultural Department.

BY PROF. L. R. TAFT.

The agricultural seniors who elect horticulture during the spring term will be given lectures embracing such topics as greenhouse construction, commercial floriculture, parasitic diseases of plants, injurious insects and remedies, irrigation, fertilizers for the orchard and garden and their use, with such other horticultural topics as may seem of general interest to the class.

Laboratory work will be required of seniors electing horticulture, but the lines that are taken up will depend largely upon the wishes of the individual students.

The agricultural juniors will receive instruction in horticulture each day during the spring term. The subjects taught will be plant propagation, the construction and care of greenhouses and other glass structures, floriculture, and kitchen and market gardening. The instruction will be almost entirely by lectures, but students will be required to provide themselves with a reference book in vegetable gardening, and frequent references will be given to various books in the library.

The afternoon work will be for the most part in the nature of laboratory exercises along the same lines as have been treated in the morning in the class room. Particular attention will be given to practice work in grafting and the making of cuttings, the other methods of propagating plants being taken up at the proper time during the summer; the class will be required to give considerable time to studying the various methods of building and heating greenhouses, including the drawing of plans, arranging the heating apparatus and preparing specifications for the materials required in constructing the houses; there will also be practice work in the various operations connected with the growing of flowers and vegetables under glass.

As the season advances the class will be assigned to

such work as pruning, transplanting, spraying, and planting the various garden crops.

Except when occupied with work that is purely educational in its character, each student will be assigned to the care of some crop, or will be placed in charge of some experiment. If this does not require all of his time he will assist some one else with his work and thus obtain experience in other lines.

During the last six weeks of the spring term the freshmen who are assigned to this department will be used in the routine work upon the gardens and grounds or in the orchards. This work will all be paid for.

## DEATH OF PROFESSOR INGERSOLL.

Prof. Chas. L. Ingersoll, '74, died at the home of his brother, Dr. L. F. Ingersoll, Grand Junction, Col., Dec. 8, 1895, after a lingering illness caused by creeping paralysis.

To those of us who knew him he needs no word of commendation nor of reference to the perfect character denoted by the term "christian gentleman."

Of the graduates from M. A. C. who have taken high position as educators in the field of agricultural science, none stood above him.

At the age of 18 he enlisted from Commerce, Oakland Co., as private in the 9th Mich. cavalry, March 7, 1863, and was mustered out July 21, 1865. His regiment took part in the battles of Burnside's advance in East Tennessee, leading up to the Gettysburg campaign, and it was a part of General Sherman's army in its march towards the sea.

At the close of the war Mr. Ingersoll married and was farmer and teacher for a few years, when he then entered M. A. C. in 1872 and graduated with the class of 1874, being considered one of the best scholars in that class. Immediately on graduation he was appointed foreman of the farm under Prof. Gulley, whom he succeeded as professor of agriculture and superintendent of the farm a year later.

In 1879 he accepted a similar position at increased salary at Purdue University, Ind., and from there went to Colorado in 1881 as director of the experiment station, professor of agriculture, and for a time was also President of that College.

In 1890 he was called to Nebraska State University at Lincoln, as dean of the Industrial College and director of the experiment station. Here the disease which finally caused his death seized him while in the midst of his active work during the summer of 1895.

E. C. McKee, '81, will read a paper on "Education for the Farmer" at the Clinton Co. Farmers' Institute Jan. 21. Jay Sessions, '74, of Maple Rapids will read a paper on "Little Things" at the same institute.

Recent advices from Australia gives information of the birth of a son at the home of E. M. Shelton, '71, at Brisbane. Mr. Shelton's oldest son, Frank, is now a student in Kansas Ag'l College. Mrs. Shelton (Miss Sessions, '71) has five daughters to assist her in the cares of the household.

## THE MICHIGAN AGRICULTURAL COLLEGE

## Is the Place to Obtain a Substantial Education at a Moderate Expense.

It offers a course in agriculture which comprises all subjects in agriculture and horticulture, English language and literature, botany, chemistry, zoology, veterinary science, physical science and political economy.

Also a mechanical course, comprising the general work in mathematics, language, etc., with special training in mechanics and electricity. In both courses study is supplemented by practical application, in manual labor, of the principles taught in the class room.

Each department is well equipped with all necessary appliances for study, investigation, and labor. There are eight laboratories, twenty-six professors and instructors, a farm fully equipped with modern machinery, improved breeds of live stock, complete shops for mechanical work.

## The Farm Department.

The College farm consists of 676 acres of which 350 acres are under systematic cultivation, 80 acres in campus, 40 acres in gardens and fruit, and the remainder in pasture and woodland.

The woodland is used to illustrate the methods of preservation of virgin forests in the State.

The main part of the farm is devoted to ordinary farm crops, to illustrate the better methods of farm management.

Forty acres are devoted to experiment work.

On the farm are four stock barns, one grain barn, piggery, hen house, tool barn, and a barn used exclusively for experimental feeding.

Two large and three small silos supply storage room for about thirty acres of corn.

In the stock barns are representative animals of the leading breeds of cattle, sheep, and swine. Typical

specimens of the best strains of the leading breeds are kept for illustration to the classes of students. Some of the animals are worthy of special notice as they are prize takers or are making records closely approaching the best ever made.

The breeds of cattle represented are Shorthorn, Holstein, Jersey, Hereford, Guernsey, Brown Swiss, and Aberdeen Angus.

The breeds of sheep are Shropshire, Hampshire, Oxford, Dorset-horned Lincoln, Cotswold, Leicester, and various types of Merino.

Among the breeds of Swine we have Duroc Jerseys, Essex and Poland China.

At the poultry house will be found selected specimens of the leading breeds of chickens.

Experiments in stock feeding are in progress during the greater part of the year, especially in the winter, with dairy cows, pigs, and sheep.

In the basement of the agricultural laboratory are the dairy rooms, equipped for instruction in butter making, with Babcock testers, separators, creamers, cream va's, churning, butter workers, and other apparatus needed in the manufacture of butter. An electric motor furnishes the power.

## Horticultural Department.

The horticultural building contains offices, class room, laboratory, seed room, tool room, and other rooms for repairing tools, grafting fruit and vegetables and preparing them for market. The equipment for class room illustration is very complete in the way of models, charts, and drawings, together with a large assortment of the various hand tools, apparatus, and supplies used by the gardener and florist.

The department is also well supplied with greenhouses of approved construction, where may be found not only various interesting forms of tropical plants, many of which are of economic value, but the more common plants of the florist, including such as are used for cut flowers, decoration, and out door planting, besides such vegetables as are commonly grown under glass.

In the class room the elementary principles of horticulture are taught, and lectures are given upon the best methods of growing and handling the various crops; while the students are required by the labor system of the college to put this instruction into practice.

## The Zoological Laboratory

consists of a lecture room for eighty students, rooms for anatomical study and histological work, and a private study containing a good zoological library. In connection with the laboratory is the large McMillan collection, which, with specimens added at the College and by exchanges, forms one of the finest insect cabinets of the West.

In the general museum will be found skeletons and preserved specimens of typical mammals and birds from all parts of the world, reptiles, batrachians; the fauna of Michigan is specially well represented; a large collection of shells, native and exotic; a collection of invertebrates from the Smithsonian institution; three collections of insects, a faunal, a scientific, and an economic; a manikin, skeletons of man and of the lower animals; alcoholic and microscopic preparations of animal organs and tissues; fossils from all the groups of rocks; rock specimens illustrating the divisions in lithologic geology; and a small but growing collection in ethnography.

## In the Botanical Department

the agricultural students are taught by specimens in hand the names and uses of the different parts of plants; the names of different plants and their relationships, especially those useful or detrimental in agriculture and horticulture; the minute anatomy of plants as seen by using compound microscopes; the physiology of plants; the botany of trees and shrubs for horticulture, landscape gardening, and forestry; grasses and weeds of the farm and garden; fungi injurious to farm, garden and orchard crops.

The mechanical students are taught the structure of woods and their adaptation for certain purposes.

In the botanical laboratory is a fire proof room for 50,000 plants in dust proof cases; 200 or more kinds of grasses and weeds of full size sewn to cardboard; and tight cases for 100 large drawers of seeds of grasses, clovers, weeds, and other economic plants; a workroom; a storeroom containing our choice of the Michigan forestry exhibit at Chicago; four rooms for laboratory work with simple and compound microscopes, other apparatus, duplicate books of illustration, costly maps, charts, lantern views; large numbers of photographs illustrating the agriculture and forestry of Michigan, California, Jamaica, India, Singapore; one room for experiment station work, containing 1,500 kinds of seeds, and other apparatus to aid in identifying and testing seeds, etc. The students are much assisted by

an excellent grass garden, weed garden, botanic garden, arboretum, and a model forest.

#### The Chemical Laboratory

was erected at a cost of \$18,000. The south front is two stories, and is 40x70 feet, ground space. The upper story contains a lecture room with 150 seats, the study for the professors of chemistry, and two work rooms. The first floor contains a room and fixtures for quantitative analysis, a balance room with fourteen chemical and two assay balances, evaporating hoods, cases for apparatus, etc.

Connected with this is the qualitative analytical room with twelve tables and working room for forty-eight students, provided with Bonn self-ventilating hoods and furnished with water and gas for each student. Beneath this room on the first floor is the experiment station chemical laboratory and assay room, with complete fixtures for mineral assays.

#### The Veterinary

course of study embraces three terms in the senior year, the autumn term being devoted to anatomy, while the spring and summer terms are given up to the study of *materia medica*, and the accidents and diseases which affect domestic animals. Provision is now being made for the study of bacteriology with reference to its application to the contagious diseases of domestic animals. Operations are also performed before the class at convenient seasons.

their rooms, excepting works of reference and bound volumes of the leading serial publications.

Connected with the library is a reading room supplied with over two hundred of the leading English and American periodicals.

#### Physical Laboratory.

The department is well equipped with suitable apparatus to practically illustrate the modern industrial applications of heat, sound, light, mechanics and electricity.

The instruction is given by lectures illustrated by experiments.

The work in the class room is supplemented by laboratory work. The exercises are largely taken from the dairy, farm and shop. Special attention is given to working illustrations and explanations of such subjects as physics of soils, of fuels, cream separators, ice machines, hydraulic rams, condensation of milk, and heat motors; also the construction and management of dynamos, electric lights, electro platers, electric heaters, telephones, telegraphs, motors, and storage batteries.

The aim of the course is to prepare young men in such a practical way that they can be relied upon to build or operate the apparatus used in mechanical, electrical, and agricultural engineering.

#### Mechanical Course.

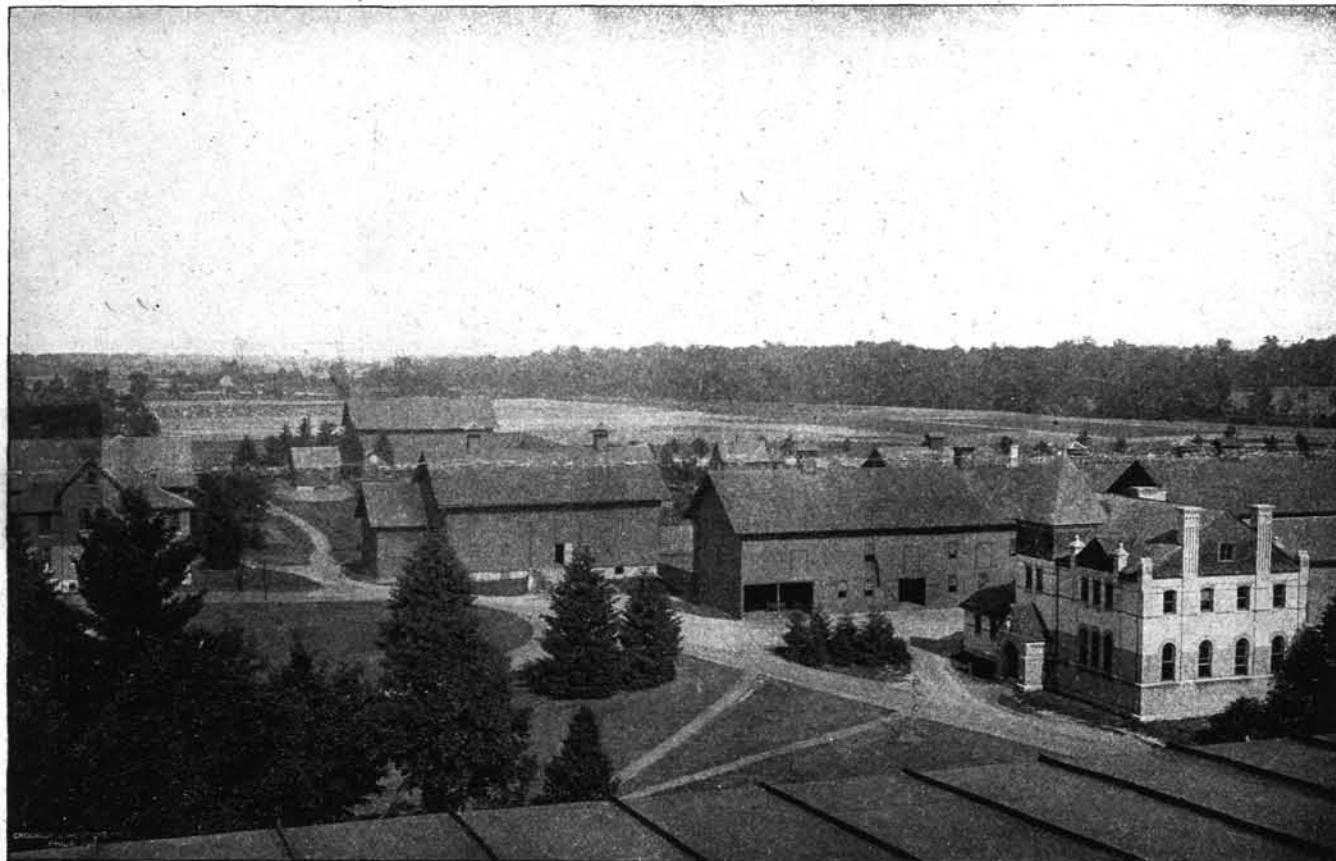
The aim of the instruction in Mechanical Engineering is to give the student a thorough training in the ele-

marking corn ground, hay making, harvesting, etc., judging and handling all kinds of live stock including poultry; dairy practice, care and handling of milk, making of butter.

On the gardens great attention is paid to the methods by which plants are propagated, and each student is required to perform the work of sowing seeds, grafting, budding, layering, and making cuttings of various kinds, and is taught methods of pruning and training. Nearly all of the labor of the department is done by students, and thus they obtain practical insight into the methods employed by horticulturists.

#### How to Enter the College.

By an act passed by the last legislature the Superintendent of Public Instruction is required to send twice in each year to the County Commissioners of Schools, questions for candidates for entrance to this College. Those who intend entering the College can take the examination at the regular teachers' examinations, which is held in each county, and thus be sure of their entrance before coming here. At the College, examinations are held at the beginning of each term. The next entrance examination at the College will be held Tuesday, February 25, 1896. The subjects embraced in the examination are arithmetic, geography, grammar, reading, spelling, penmanship, and U. S. history. Students entering the mechanical course will be examined in algebra to quadratic equations in addition to the studies



VETERINARY LABORATORY AND BARNs.

#### Free Hand Drawing.

In all science schools drawing is freely used in such studies as botany, entomology, zoology, etc. It is considered the best possible training for the observation. Technicalities are avoided as much as possible. It is aimed to develop the observing power of the eye and a feeling for form, and to train the hand to represent in a certain measure in outline and light and shade what the eye sees. The plan is to advance the student as rapidly as consistent with thoroughness, and as much attention is given to individual instruction as the limited time and the large number of students will allow.

The requirements are 120 hours of class room work, but in this time must be done a specified number of drawings of a standard satisfactory to the instructor.

#### The Library

contains over eighteen thousand volumes. Besides a full collection of works on history and general literature, it is well supplied with scientific and technical works, and with the journals of agriculture and allied arts. Each of the departments of instruction is equipped with a serviceable collection of books of reference.

Current publications recording the results of investigations in the sciences and useful arts are being constantly added. Liberal appropriations have been made by the legislature for the maintenance and extension of the collection.

Students have access to the library eleven hours daily, and they are permitted to draw books for reading in

mentary work—both theoretical and practical—of his chosen profession.

In this course particular emphasis is placed upon the work in mathematics, study of the theoretical principles underlying the sciences of machines and mechanics, and the practical construction of machines.

Students in the mechanical course have laboratory practice of various kinds.

Among the more important subjects are steam engine, steam boilers, valve gears, machine design, strength of materials, kinematics, thermodynamics. Instruction is given in the testing of steam engines, boilers, pumps, and materials, also in the measurement of power, calibration of instruments, etc., etc.

The shop work is supplemented by a course of lectures on shop methods, and during the senior year a course of lectures is given on engineering practice. The student is also required to study English literature and modern languages.

#### Student Labor System.

All students taking the agricultural course are required to devote twelve and one-half hours per week to manual labor on the farm or garden. All kinds of labor are performed by the students, under the supervision of competent instructors. Students receive pay for labor that is of value to the College.

On the farm, student labor is devoted partly to the study of the details of farm operations, such as repairing tools, construction and operation of farm machinery, carpenter shop work, fence building, plowing, harrowing,

given above. Candidates for admission to College must bring references as to character, and should be not less than fifteen years of age.

Any young man over eighteen years of age will be conditionally admitted to College without examination. Persons holding third grade certificates as teachers, or who are graduates from high schools, are admitted to College without taking entrance examination.

The Spring term opens on Monday, Feb. 24, 1896, and the next College year begins Monday, Aug. 24.

For catalogues or further information write

SECRETARY,

Agricultural College, Mich.

#### TO NEW STUDENTS AND OTHERS

**Who Visit the College—What to do when you Arrive in Lansing.**

Take the MICHIGAN AVENUE car for the College.

At the HARRISON HOUSE just outside the grounds you can get comfortable rooms, and meals at regular hours.

If you arrive in Lansing late at night stop at the VAN DYNE HOUSE, 411 Washington Ave. S. The proprietor, Mr. Renner, is an old resident of the College and will cheerfully answer questions.

Trunks will be brought out by the COLLEGE BUS, which leaves the postoffice in Lansing at 10:30 a. m. and 4:30 p. m. each week day. Leave checks at the Secretary's office and your baggage will be attended to.

When you arrive on the grounds go to the PRESIDENT'S OFFICE for information.