

# The M. A. C. Record.

VOL. 4.

LANSING, MICHIGAN, TUESDAY, DECEMBER 6, 1898.

No. 13

## The Cheese Course in Full Operation.

The cheese course began last Tuesday, with 12 people in attendance. Mr. Aderhold arrived the previous Saturday. The milk supply is received from patrons of the Condensed Milk Co., and is delivered at the College between 10 and 11 each morning. The time of the students is taken up prior to that hour by work in chemistry and bacteriology. Before the close of the term experiments will be carried on by the class in methods of treating milk that tends to produce gassy curd, on the use of starters and on other phases of the work.

## Mechanical Department Notes.

The department is engaged in building a rattler for the foundry.

Mr. Westcott is preparing plates for the elementary machine design class next term.

The seniors are contemplating a visit to the School for the Blind next Friday, to look over the engine and boilers at that place.

The large sophomore class has made it necessary to run two sections in the foundry work for the remainder of the term.

The department has not been able to make arrangements for the proposed trip to Chicago, owing to the fact that reduced rates could not be secured outside of the state.

The blacksmith shop has an excellent brick floor. The brick used is of the same kind as that which has recently been used for paving the streets of Lansing.

Any person desiring one of those useful engineering reference cards may procure the same by sending his name and address to the department.

Prof. Aderhold, instructor in cheese making, is stopping with L. F. Jennison.

Mr. Jennison, clerk of the mechanical department, is at work on a design of a time record book, in which may be seen at a glance the standing of any student in the shops. It will undoubtedly be a convenient aid in the work here.

## Farm Notes.

Three members of the Department are away at Institutes this week. Prof. Mumford is in the Upper Peninsula, Prof. Towar in the western part of the State, and Prof. Smith, after attending the annual meeting of the State Horticultural Society at Ann Arbor to-day, goes to St. Clair county.

Much of the corn cut into the new silo at the grade dairy barn was nipped by a frost before it was cut. A hose was connected with a hydrant and the corn was sprayed as it was elevated into the silo. This silage is now being fed. Its condition is most excellent. It is not quite as solid in the silo as silage from greener corn would be but its odor and palatability leave little to be desired.

The agricultural freshmen to the number of 83 take lectures in soils at four o'clock. One section of 14

## SPECIAL WINTER COURSES

AT THE

## Michigan Agricultural College.

Winter of 1898-1899.

There are many young men unable to give the time required for a full college course, who are glad to have the opportunity to gain further information along lines of practical farming and fruit growing. These special courses afford precisely the desired opportunity. The following are the courses offered for the coming winter:

Course 1.—Cheese Making. Four Week's Course.

This course began Nov. 28 with good attendance.

The following courses are each six weeks in length, and will begin Monday, January 2d:

Course 2.—Creamery Management and Butter Making.

Course 3.—Home Dairying.

Course 4.—Live Stock Husbandry.

Course 5.—Fruit Culture.

Course 6.—Floriculture and Winter Vegetable Growing.



The entire expense for one of these courses, aside from railroad fare, will be less than \$25.

Sixty-five young men took advantage of these courses last winter. We advise you to apply early, as room is limited.

We have illustrated circulars giving full details in regard to the courses. If you wish to obtain these circulars or any other advertising material that we may issue in connection with the special courses, write immediately to the President,

J. L. SNYDER,  
Agricultural College, Mich.

has the mechanical analysis of soil with Mr. M. H. Lapham, from eight to ten and another section of 17 from ten to twelve, daily.

Prof. Woodworth delivers lectures to the freshmen on Tuesdays on the physics of the water in the soil. He meets one section of the class at eight and the other at ten. The class highly appreciates the kindness of the Professor in burdening himself with this extra work but the boys are getting, at the very commencement of their course, a very clear understanding of the principles that underlie plowing, harrowing and tillage generally.

The quantity of sugar beets harvested from the six acres grown on the College farm was too large to be stored in the root cellar of the barn. The surplus was put in a long pile in No. 5. This pile was covered with straw through the first cold "spell" with no dirt over it. The snow and straw were removed as the weather warmed and the heap was covered with dry straw and earth while the beets were still very cold. The stock is now fed silage and the beets are reserved for the late winter. This will give an opportunity to see which keeps the

beets the better the cellar or the pit.

The large grain barn at the corner of the lane now contains several pens of lambs being fed on experiments.

There are seven bulletins now in the printers' hands. Bulletin No. 162 is a forestry bulletin, containing articles by Dr. Kedzie, Dr. Beal, Prof. Wheeler, Mr. F. E. Skeels, and Prof. Smith. It will be out this week, ready for distribution. Bulletin 163 is from the Horticultural Department and relates to strawberry culture and test of varieties. Bulletins 164 and 165 are by M. W. Fulton. The first relates to the conservation of soil moisture by tillage, and the second to the draft of farm implements, especially wagons with wide and narrow tires. Two nature study bulletins by Dr. Beal will also be out this week, one relating to the winter appearance of branches of beech and maple, and the other to potatoes, ruta bagas and onions. A special bulletin on farm accounts is issued for distribution at the farmers institutes.

Prof. Taft is in Missouri this week, attending a meeting of the Missouri State Horticultural Society.

## At the College.

The Hesperians entertained ladies Friday evening.

The Eclectic Society gave a dancing party Saturday night.

Mr. and Mrs. Pettit entertained three tables at progressive whist Thursday evening.

Mr. Dean left Saturday for a week in the northern part of the state on institute work.

Mrs. Smith entertained the Misses Harrison, Cimmer, Garfield and O'Dell at tea Wednesday.

The union meeting of the Y. M. C. A. and Y. W. C. A. Sunday, December 11, will be led by Prof. Smith.

The Natural History Society will meet Wednesday evening, December 7, at 6:30, in the Zoological lecture room. All are invited.

Prof. Barrows will give an illustrated talk on Plant Lice and Scale Insects today, before the State Horticultural Society, at Ann Arbor.

Miss Margaret Fuller, of Ithaca, N. Y., leading lady in "The Prisoner of Zenda" company, was the guest of Prof. and Mrs. Vedder, Friday afternoon.

Miss Keller gave a very interesting talk in Chapel last Sunday morning on the work being done in Boston, New York, Philadelphia and Chicago by the College Settlements Association.

The freshmen members of the Columbian Literary Society entertained the society Saturday evening with a declamation contest, in which W. K. Wonders received first honors and W. A. Whitney second.

Mrs. Smith gave one of her pleasant evenings to a number of friends Tuesday. The guests were Messrs and Mesdames—Taft, Newell, Towar, Brooks, Marshall, Dean, Skeels, Longyear, Hedrick, Wood, Kenyon Butterfield, Pettit, Waterman and Miss Ronan. Dainty refreshments were served at small tables which were artistically strewn with jasmine and carnations.

The Horticultural department is duplicating the experiments of last year on compost vs. commercial fertilizers for chrysanthemums. Those grown with commercial fertilizers develop stronger stems and firmer blooms and keep longer as cut flowers. There are perfect specimens of these now in the cold storage that were cut four weeks ago.

Three deer and two elk from Belle Isle now occupy our new park. The deer seem perfectly at home, and are so tame that they will eat from the hand, but the elk are shy and for a time seemed homesick. For several days they went about the park crying plaintively, but now are becoming better accustomed to their new surroundings. The principle food of both deer and elk is hay, but they are also fed carrots, beets, and other roots and have an appetite for bread, cake and other table viands, an appetite probably acquired from their association with picnickers at Belle Isle.



# THE M. A. C. RECORD.

PUBLISHED WEEKLY BY THE  
MICHIGAN AGRICULTURAL COLLEGE.

EDITED BY THE FACULTY,  
ASSISTED BY THE STUDENTS.

SUBSCRIPTIONS SHOULD BE SENT TO THE SEC-  
RETARY, AGRICULTURAL COLLEGE, MICH.

SUBSCRIPTION, . . 50 CENTS PER YEAR.

Send money by P. O. Money Order, Draft, or  
Registered Letter. Do not send stamps.

Business Office with LAWRENCE & VAN BUREN  
Printing Co., 122 Ottawa Street  
East, Lansing, Mich.

Entered as second-class matter at Lansing, Mich.

For various reasons THE M. A. C. RECORD is  
occasionally sent to those who have not sub-  
scribed for the paper. Such persons need have  
no hesitation about taking the paper from the  
postoffice, for no charge will be made for it.  
The only way, however, to secure THE RECORD  
regularly is to subscribe.

## Official Directory.

Y. M. C. A.—Regular meetings Sunday evenings  
at 6:00 and Thursday evenings at 6:30. F. N.  
Lowry, President. C. H. Parker, Cor. Secretary.

Y. W. C. A.—Weekly meetings for all ladies on  
the campus, Tuesday evenings at 8:00, in Abbot  
Hall. Sunday meetings with the Y. M. C. A.  
Edith A. Smith, President; Elizabeth Johns, Cor.  
Secretary.

KING'S DAUGHTERS—Meet alternate Wed-  
nesdays. Mrs. C. L. Weil, Leader. Mrs. M. L.  
Dean, Secretary.

NATURAL HISTORY SOCIETY—Meets  
alternate Wednesday evening at 6:30 P. M., in  
the Zoological Lecture Room. W. B. Barrows,  
President. A. J. Cook, Secretary.

BOTANICAL CLUB—Meets Monday evenings  
at 6:30 in the Botanical Laboratory. H. C. Skeels,  
President. Miss Marie Belliss, Secretary.

SHAKESPEARE CLUB—Meets Wednesday  
evenings at 7:30. Dr. Howard Edwards, Presi-  
dent.

COLUMBIAN LITERARY SOCIETY—  
Meetings every Saturday evening at 7:00. Fourth  
floor, Williams Hall. F. E. West, President.  
George Severance, Secretary.

ECLECTIC SOCIETY—Meetings every Satur-  
day evening at 7:00, Fourth Floor, Williams Hall.  
J. Bulkeley, President. F. L. Radford, Secretary.

FERONIAN SOCIETY—Meetings every Fri-  
day afternoon at 1:00. West Ward, Wells Hall.  
S. Gertrude Lowe, President. E. Winifred Can-  
nell, Secretary.

HESPERIAN SOCIETY—Meetings every Sat-  
urday evening at 7:00, West Ward, Wells Hall.  
W. D. Hurd, President. C. H. Smith, Secretary.

OLYMPIC SOCIETY—Meetings every Satur-  
day evening at 7:00, Fourth Floor, Williams Hall.  
F. R. Crane, President. W. R. Wright, Secretary.

PHI DELTA THETA FRATERNITY—  
Meetings every Friday evening at 7:30, East Ward,  
Wells Hall. H. B. Clark, President. A. B.  
Krentel, Secretary.

THEMIAN SOCIETY—Meetings every Tues-  
day afternoon at 4:00, Phi Delta Theta Rooms,  
East Ward, Wells Hall. Irma Thompson, Presi-  
dent. Coral Havens, Secretary.

UNION LITERARY SOCIETY—Meetings  
every Saturday evening at 7:00, U. L. S. Hall.  
John Severance, President. G. E. Towar, Secre-  
tary.

TAU BETA PI FRATERNITY—Meetings on  
alternate Thursday evenings, Tower Room, Me-  
chanical Laboratory. W. H. Flynn, President.  
P. S. Rose, Secretary.

CLUB BOARDING ASSOCIATION—John  
Severance, President. H. S. Putney, Secretary.

M. A. C. ATHLETIC ASSOCIATION—E. W.  
Ranney, President. R. M. Norton, Secretary.

## The Gas Engine.

WILLIAM BALL, UNION LITERARY  
SOCIETY.

The gas engine is at the present  
time receiving a great deal of atten-  
tion from engineers and power users.  
Its field of usefulness is rapidly in-  
creasing. A short time since it was  
used only in furnishing small  
amounts of power; now, however, it  
is made in sizes ranging from one-  
quarter to several hundred horse-  
power. It can replace the steam  
engine to good advantage in almost  
every case.

The principle of the gas engine  
was conceived about two hundred  
years ago and experiments were  
made, using gunpowder as the ex-  
plosive, but the first engine that did  
real work was made about 1826. In  
this engine the products of combus-  
tion were condensed by a jet of

water and a partial vacuum formed.  
From this time on to about 1860  
practical improvements were few.  
Since 1860 the progress has been  
quite rapid and over 800 patents  
have been issued in the United  
States during the last thirty years  
for improvements on gas engines.  
The widespread need of small  
power has had a most stimulating  
effect in urging manufacturers to  
make this machine, applicable for so  
many uses.

The way in which the gas engine  
is operated is really very simple,  
although complicated devices are  
sometimes used. In what is known  
as the four cycle engine, a charge of  
the explosive gas is drawn into the  
cylinder by the first outward stroke  
of the piston; this is compressed on  
the return stroke and as the crank  
passes the center the charge is  
ignited and expansion takes place  
on the next forward or working  
stroke. During the succeeding re-  
turn stroke the burnt gases are ex-  
pelled, leaving the cylinder ready to  
repeat in regular order the same  
series of operations. The piston  
receives only one impulse during  
four strokes. For this reason this  
type is called four cycle, each stroke  
being called a cycle. In the two  
cycle engine all this is done during  
one revolution, the piston receiv-  
ing one impulse for each two strokes.  
Heavy fly-wheels are supplied to  
keep the engine in motion between  
impulses. The four cycle engine is  
necessarily much heavier than the  
two cycle. Often, however, two or  
more cylinders are put together and  
operated on the same crank shaft.  
In this way the required weight of  
fly-wheel and of entire engine per  
horse-power is reduced and a steadier  
motion obtained.

There are different ways of ignit-  
ing the charge in the cylinder. It  
may be done by a red-hot tube, a  
flame, an electric spark, or by com-  
pressing the gas in a heated cham-  
ber.

Small engines are usually started  
by giving the crank a few turns by  
hand. Some, however, are started  
by simply pulling a lever. The  
larger sizes are sometimes put in  
operation by a small engine, some-  
times by a match, which lights the  
charge, and sometimes by compress-  
ed air.

The fuels used in the gas engine  
are natural and artificial gases, the  
waste gas of the blast furnace, crude  
oil, petroleum and gasoline. The  
blast furnace gas has not been satis-  
factorily used for this purpose until  
very recently; but now large  
amounts of power are readily obtain-  
ed from this source, which was be-  
fore almost an entire loss.

The applications of the gas en-  
gines are almost unlimited. It is  
used in running mill and factory  
machinery, agricultural machinery,  
elevators, pumps, dynamos, launches,  
printing presses, horseless carriages,  
bicycles, and in fact it can be used  
almost anywhere that power is re-  
quired.

When the engine is needed it is not  
necessary to light a fire an hour or so  
before, but it is ready for work at  
any time, and when stopped the ex-  
pense stops, as there is no fire to be  
kept going. Since there is no boiler  
used there are no fuels or ashes  
to be handled. The space occupied  
by the gas engine is much smaller  
than that needed for the steam en-  
gine and its necessary accompani-  
ments.

It has been shown that the econ-  
omy of a fairly constructed gas en-

gine is greater than that of the most  
elaborate triple-expansion steam en-  
gine; also that in practice a given  
volume of illuminating gas used in  
a gas engine to generate electricity  
will furnish nearly twice as much  
light as if burnt in the ordinary way.

The gas engine has already  
proved itself superior to the steam  
engine both in point of economy and  
convenience, and promises still bet-  
ter results in the future. Although  
it has been greatly improved during  
the last few years it still presents  
ample opportunity for the engineer  
to exercise his ingenuity and skill in  
making still more improvements.

## Meeting of the State Board of Agriculture, November 29, 1898.

Present, President Wells, Messrs.  
Monroe, Garfield, Moore, Bird,  
Marston, President Snyder and Sec-  
retary Butterfield.

Minutes of last meeting read and  
approved.

President Snyder reported prog-  
ress in matter of well, also in re-  
gard to change of furnace in Prof.  
Vedder's house.

President Snyder presented mat-  
ter of alumni catalog.

On motion, the Faculty was  
authorized to publish an alumni  
catalog.

A request was received for an of-  
fer from the College to remit fees  
to two students who might come to  
the institution from Cuba.

It was *Resolved*, That the matter  
of remission of fees to students  
from Cuba be referred to the Pres-  
ident of the College and the Presi-  
dent of the Board.

Request of Dr. Marshall for ap-  
paratus for Bacteriological Depart-  
ment was referred to Committee on  
Experiment Station.

The matter of steamheat for farm  
house was referred to Committee on  
Buildings and Property.

Request of C. S. Brooks and E.  
J. Rugg for electric lights was re-  
ferred to same committee.

The resignation of M. W. Ful-  
ton, Assistant in Agriculture, was  
received and accepted.

A communication was received  
from Director Smith relating to  
South Haven Station, which was re-  
ferred to Committee on Experiment  
Station.

President Snyder reported matter  
of increase of salary for G. H. True.

It was resolved, That the Com-  
mittee on Apportionment be re-  
quested to consider the matter of  
purchase of 10 microscopes for Bot-  
anical Department.

President Snyder was authorized  
to arrange for a series of lectures to  
be given by Prof. R. G. Moulton,  
of Chicago University.

The matter of employment of  
additional help at Boiler House was  
referred to Committee on Em-  
ployes.

It was resolved that a former  
resolution of the Board requiring  
that the band instruments be kept in  
the armory, be rescinded.

President Snyder was requested  
to present an apportionment of  
funds for the next six months.

A communication was received  
from Prof. Barrows relating to  
Deer Park.

A letter was read from Otto  
Hatzenbuehler of Detroit, relating to  
Exhibition of State Poultry Asso-  
ciation.

A request from the Secretary of  
State Dairy Association for assis-

tance of speakers at the annual  
meeting of the Association, Febru-  
ary 1, 2 and 3, was referred to the  
Committee on Institutes.

A recess was taken to Wednesday  
morning at 8 o'clock.

WEDNESDAY, NOV. 30, 1898, 8  
O'CLOCK A. M.

Same members present.

The committee on Buildings and  
Property reported that in accordance  
with resolutions of the Board passed  
April 28, 1898, they were ready to  
submit plans for Women's Dorma-  
tory. The plans were submitted  
without name or distinguishing  
mark and after being opened were  
referred to the committee and the  
President of the College to report on  
choice of plans to the Board at its  
earliest convenience.

Committee on Buildings and  
Property reported on steam heat of  
the farm house, to put in steam with  
a deduction of \$50 per annum salary  
of foreman of farm, giving him the  
choice.

The same Committee reported  
adversely on electric lights for C. S.  
Brooks and E. J. Rugg.

The Committee on College Ex-  
tension reported progress and asked  
further time.

The Director of the Station was  
authorized to exhibit poultry at the  
State Poultry Association show at  
Detroit.

The President was authorized in  
his discretion to publish report, let-  
ters and papers presented by Beta  
Chapter of the Phi Delta Theta  
Fraternity to the Grand Chapter, in  
defense of the College, and on the  
proposal before the Grand Chapter  
to annul the charter of Beta Chap-  
ter, M. A. C.

President Snyder reported appor-  
tionment of funds for next six  
months as follows:

APPORTIONMENT, JANUARY 1ST TO JUNE 30TH 1899.	
Salaries . . . . .	\$22,000.00
Farm Department . . . . .	3,500.00
Hort. . . . .	1,800.00
Mech. . . . .	1,800.00
Heating . . . . .	5,000.00
Academic:	
English . . . . .	25.00
History . . . . .	25.00
Chemistry . . . . .	600.00
Botany . . . . .	400.00
Botany for 10 microscopes . .	350.00
Mathematics . . . . .	75.00
" deficiency present 6 months . . . . .	45.30
Physics . . . . .	250.00
Veterinary . . . . .	100.00
Military . . . . .	150.00
Athletic . . . . .	100.00
Women's . . . . .	600.00
Library . . . . .	600.00
Drawing . . . . .	150.00
Zoology . . . . .	300.00
Office . . . . .	1,000.00
Advertising and Catalog . . .	1,500.00
Miscellaneous . . . . .	1,800.00
Total,	\$42,170.30

Report was adopted.

A recess was taken to 1:30 p. m.  
1:30 p. m. Board met, same mem-  
bers present.

The Committee on Employes re-  
ported recommending that the salary  
of G. H. True be increased to \$800  
per annum, beginning with Decem-  
ber 1, 1898. Adopted.

Also that five hours additional  
labor per day at the boiler house be  
allowed; to terminate at the discre-  
tion of the President.

The committee to report on choice  
of plans for Women's Building in  
competition for prizes, reported as  
follows:

The choice of the committee for  
first prize is the plan marked num-



# Of Special Interest to all Friends of the College.

I. We desire to announce to all who have aided us in advertising the special courses at the Agricultural College this winter, and especially to those who are thinking at all about coming here to take one of these courses, that many applications for enrollment have already been received, and this list is being added to at the rate of three or four a day.

II. If you have decided to enter one of these courses, or know of a young man who has so decided, it would be advisable to make application for enrollment immediately.

III. If you are still undecided about entering this year for one of the special courses, we trust you will take pains to read over the letters published below. These letters are from prominent farmers in Michigan—men who understand the value of education on the farm, and who know of the practical nature of the courses which the College offers. Surely the advice of these men is worth weighing. Do not hesitate longer. You will never regret the step if you decide to take one of these courses this coming winter. Do not delay, but send in your name at once.

IV. There are quite a good many of our friends, whom this issue of the RECORD will reach, who have been supplied with postal cards requesting them to send us the names and addresses of young men who might be induced to take one of these courses. Quite a few of those who had the cards have not yet responded. May we not ask you to do so at once? It will help us, but, more than all, it will be a favor to the young men whose names you may send.

I consider the special winter courses of great value.

There are many thousand young men in the state who have engaged, or soon will engage, in the lines of agriculture and horticulture covered by these courses. Where circumstances will permit, it is the best investment of time and money that can be made for such men to avail themselves of the instruction given at the College in these branches.

JASON WOODMAN.

Paw Paw.

I am more than pleased to know that at the Agricultural College you have given (in winter) special short courses in practical agriculture and its various branches, and the sciences appertaining thereto; thus giving to farmers' boys who intend to place themselves at the head of their profession, the solid foundation for future development of brain sinew, at the least possible expense and loss of time.

L. D. WATKINS.

Manchester.

In regard to the special courses at the College, will say that I can heartily endorse them.

If the farmers and business men of the state who desire to give their children a practical education, could visit the College and see the facilities for educating the young men and women, you certainly would have no trouble in keeping the College full during the whole school year. No young man or woman with means of their own can afford to miss these short courses.

I have frequent calls for butter and cheese makers and there is always a good demand in either line for those who are up to date. There is no place in the state where they can qualify themselves so well for these positions as by taking a short course at the College.

It would give me pleasure to recommend the graduates from these courses who desire a position.

S. J. WILSON.

Flint.

I am fully convinced that the short courses at the M. A. C. will be of inestimable value to the young people of this state by giving them an insight into the improved methods of conducting farm work, and placing them in a position to understand and appreciate the publications issued by the agricultural college experiment stations, and the agricultural department at Washington, better fitting them to sift the good from promiscuous writings in current literature, and not only inspiring them to a more useful life but putting them in a position to make much more rapid progress.

L. J. POST.

Lowell.

I do not know of any one thing in which a progressive young farmer could make a better investment than in taking your short course in dairying. By experience and observation and from my personal knowledge of the College methods, I know that a young dairyman who attends the College and takes the course will get more practical knowledge and instruction in six weeks than he could in any other way in years. When we consider that in these times of close competition in business, none but the progressive, wide awake, up-to-date farmers are making any money, how important it is that the young man just starting in, should have a thorough knowledge of all the different problems of his business. How easy it is for him to take up one of the short courses at the College in dairying or cheese-making, and thus put himself in the front line of his business.

I cannot see how any person should neglect to take up one of the short courses which are worth many times their cost to him.

J. W. HELME, JR.

Adrian.

Yours asking for my opinion of the special winter courses offered by your College to farmers' sons received, and in reply will say I am favorably impressed with the grand opportunity it affords to this class of

students to obtain most valuable information at small cost of time and money. From many years of experience on the farm and observation among farmers and fruitgrowers of this and other states, I am fully convinced that one of the great needs of this class has been and is at the present time a better knowledge of the details of their business such as the short course at your College undertakes to furnish.

D. W. WILEY.

Douglas.

I have a very high opinion of your College as a school of applied science.

Especially do I value efforts of the faculty to reach out and get in more direct relations to the agricultural interests by institutes held about the state, and by special courses of study at the College.

A few months in touch with the improved methods, with first class teachers and apparatus, cannot fail to improve and brighten any ambitious young farmer who has the time and money to devote to it.

Of course, it will be money well invested for profit and pleasure, and will, I trust, still further extend the wide usefulness of the Michigan Agricultural College.

A. S. DYCKMAN.

South Haven.

The announcement of the special winter courses offered by the Agricultural College for the coming winter has just been received. Upon looking it over I wish to express my appreciation of the plan of these winter courses, and especially for the very practical and useful work outlined for the present course. The needs and demands upon the young farmers and fruit growers are such at the present time, that it is simply impossible to do a satisfactory or profitable business without just this kind of instruction that the College is placing within their reach. It is knowledge of their business that the farmers of to-day need, and I take pleasure in recommending these special courses to all young farmers that have not had the advantage of a College course. Wishing you the success your work is worthy of, I remain yours very truly.

CHAS. B. WELCH.

Douglas.

I wish to commend the College management upon the vigorous efforts put forth to make the special winter short courses of so much practical value to parties unable for lack of time or money, or both, to avail themselves of the benefits of the regular courses. I refrain from comments upon the courses in Fruit Culture as well as Floriculture and Winter Vegetable Growing, although I presume them to be of great value. My opinions of questions arising along those lines would not be valuable. As to the other four courses, I have no hesitancy in saying that nowhere else in Michigan can the students of those topics acquire so much practical and valuable knowledge in six weeks by the expenditure of so little money.

H. H. HINDS.

Stanton.

I regard the special winter courses as a distinct advance in the work done by the College. These courses give an excellent opportunity for young men who cannot get the means to take a longer course. The short course will broaden the outlook and influence the life for the

better. The contact for a few weeks with the College atmosphere and student life, will stimulate some to put forth an *extra effort*, to come back for a longer time.

We cannot have too many bright, intelligent young men and young women on the farm, or in any of the industrial pursuits. The Michigan Agricultural College, with these added special courses, affords ample facilities for the very best agricultural and mechanical training, and in my judgment the addition of the short winter courses has done much to bring the College into more vital touch with the farming interests of the state.

JOHN K. CAMPBELL.

Ypsilanti.

It gives me pleasure to note that the short courses in agriculture are being continued at the Agricultural College again this winter. A young man or woman who has not the time or money to take a full course in agriculture may take advantage of these short courses. They are worth the consideration of all young men and women who wish to make agriculture their profession. The cost is very light, and six weeks at the college will repay them many times for their time and money.

E. A. CROMAN.

Grass Lake.

My acquaintance with the instructors in the short courses, a knowledge of their abilities, and the equipment of the College for thorough, practical work, leads me to heartily commend the opportunity to anyone interested in the different branches of study pursued.

Many of the students in the short courses have had one or more years of experience in their work, and go to the College with definite knowledge of what they wish to learn. To those the course is especially valuable.

A few weeks' study of dairy work at the farm and factory, the chemistry of milk and its products, the science and sense of breeding and feeding, the various lines of horticulture and floriculture, under such conditions as are found at the Michigan Agricultural College, will add an interest and enthusiasm to one's work that cannot be secured by any course of home study, however earnestly followed.

E. A. HAVEN.

Bloomington.

From my observation, I consider the short winter courses adopted at the College of the greatest value to the young men of the state. For this reason, that some who take the full course, take up some other profession; while the young man who attends the special course gets just enough of the science of agriculture or horticulture to make him eager for more, and I notice he wants the best papers and books on these subjects, so continues the study along the line of his work. This is the man that makes a success of his business.

The terms are so very reasonable I wonder the halls are not over-full with young men, and I believe they will be when they understand it.

J. N. STEARNS.

Kalamazoo.

Referring to your letter relative to the special courses as taught at the College, I have this to say: From a practical agricultural point of view I consider them of nearly as much value as a full course. As the great aim of education is to teach and train the mind of the pupil to



think and investigate in the right direction, these special courses, while necessarily somewhat superficial, do this admirably. The student has an opportunity to observe something of the fundamental principles of advanced agriculture the ways and wherefores are plainly demonstrated, or he at once becomes interested and begins to investigate for himself, and when once a start is made he will soon educate himself. I look for great results from your special courses. You should have a thousand students each winter.

R. D. GRAHAM.

Grand Rapids.

In this progressive age the farmer who remains passive or indifferent to advanced methods of agriculture, simply invites defeat. The special winter courses at the Agricultural College are of inestimable value to every young man who intends to make agriculture his profession. No means of practical education are within our reach that compare with that offered in the six weeks' course of butter and cheese making, home dairying and live stock husbandry. Financially it is within the reach of all, and at a time of the year when the work upon the farm can be left to the best advantage. The course of instruction is practical and may be put into daily operation upon every farm. More than all, it pays financially. The markets are constantly becoming more exacting in their demands as competition increases. Skilled labor only, pays a profit. Nowhere can the young man or woman get this special training with so little expenditure of time and money as in the special courses at the Agricultural College? The bottom rounds of the agricultural ladder are crowded, but there is still plenty of elbow room at the top with a premium thrown in.

A. E. PALMER.

Kalkaska.

The course for the benefit of busy young people is suggestive of great good to all who can be induced to avail themselves of such a splendid opportunity.

It seems to me that one such course on the special subject one is interested in would equal three years' ordinary experiences on the farm.

G. W. GRIFFIN.

South Haven.

For some time I have taken an interest in the work at the Agricultural College, and more so as I see the pressing importance of farmers being up-to-date in the use of the very best methods. These are being taught at the College. I notice the very excellent special winter courses that are to be given at the College this winter. This is a splendid opportunity for the young men and women that are soon to manage the farming interests of Michigan, to brush up in the most important matter pertaining to the farm.

(Judge) FRED. J. RUSSELL.  
Hart.

I have been carefully examining the special course list at the Michigan Agricultural College for the winter of 1898 and 1899, and am satisfied that it offers to the young men and women of Michigan who have not the time or means to take a full course at the College an opportunity for necessary culture in farm operations that should not be neglected.

One of the great drawbacks in intelligent farming is the lack of systematic training. Agriculture is

fast becoming a science, and to be made profitable and honorable must be considered along lines of practical business methods. In a term of six weeks one can gain practical knowledge that will be of inestimable value through life's work on the farm. Friction is one lever which helps to move the world. Young men and women from the country need to come more in contact with each other, give and receive practical ideas in their chosen fields of labor. And I do not know of any opportunity where so much practical good can be received and at so little cost as the one pointed out in your circular concerning the special courses as inaugurated for the coming winter. The teachers who conduct the courses are all practical men and women who understand what they teach, and if the wish of the writer could be granted the College would be full to overflowing with young men and women from the farm during the six weeks' course.

WILLIAM BALL.

Hamburg.

In reply to your favor of late date let me say that I consider your short courses very desirable for the young farmer in his preparation for a life work. The only thing in that line that is better is the full course as given at our College.

No young farmer can afford to neglect this opportunity at this time in fitting himself to compete with others.

C. B. CHARLES.

Bangor.

The advantages of these short courses, given by our Agricultural College, to those who cannot take a full course cannot well be estimated from a dollar and cents standpoint. It gives you the right start in the right direction, and when once started in the right direction, your success is only a matter of a short time. Six weeks' time with an expense of not over twenty-five dollars, is much better than years of time spent in trying to obtain the same results by experimenting and working on your own "hook." Six weeks will not make an expert of you in any of these courses, but they will make a better feeder or butter maker of you, and put you on the right road whereby you will soon become very efficient in any of the specialties you may choose.

No young man or young lady can afford to let these chances slip. It puts you at least ten years ahead of where you would have been without them.

I. N. COWDREY.

Ithaca.

I believe that many young people who will follow farming as a business, would be greatly benefited by taking one or more of the special short courses to be given next winter at the Michigan Agricultural College.

Frequently, the only difference between failure and success, lies in the "knowing how."

Respectfully,

H. C. BRADISH.

Adrian.

I think the special winter courses offer a grand opportunity for young men with limited means, to get on to the right track and keep up with the times.

CLINTON SNOW.

Lowell.

Success in any department of agriculture is one of the highest attainments of human effort. The time was when clearing the land of timber, breaking up the virgin soil and

scattering seed upon it, would bring a fair compensation for the labor expended. But the forest has been swept away by the woodsman's ax, and the virgin soil has been robbed of its fertility. The farmer is confronted by new conditions in every line of work. In the barn and in the field, in the dairy and in the stable, great changes have taken place in the last forty years.

How shall young men meet these conditions? How can farm labor be made more productive, and farm products more remunerative? These are questions that demand a solution by every tiller of the soil if he would win success. This is as true of the kitchen as on the farm, of the woman as of the man. They are co-ordinates of each other.

Formerly very much was done by the hands,—now very much must be done by the head, or, in other words, the head must direct the hands more efficiently. No amount of muscle or machinery is sufficient of itself to secure the best results. With this end in view, the Michigan Agricultural College is carrying on its work. It is a good thing to read what is going on there from week to week to demonstrate the best methods of successful agriculture, but it is a better thing to see and hear and handle the methods employed to secure the desired results. The short courses planned and organized for the coming winter must be of great utility to those who can attend them. The time and money spent will be a rich investment of capital for future use—no other outlay can, pay so well. Young men and young women of Michigan, don't let this opportunity pass unimproved.

JAS. F. TAYLOR.

Douglas.

Answering your favor concerning winter courses at the Agricultural College would say that they are admirably adapted to the introduction of correct ideas of agriculture in its widest sense. The inspiration and information that will be imparted will be followed by an alertness for inquiry, and if you can supplement this with the reading of agricultural papers, a great work will be accomplished. I am not certain but the results from these short courses will prove relatively greater for the investment than long courses. A syllabus of the instruction in pamphlet form would be a great gain to the student, not only at College but for reference and exhibition.

JAS. N. MCBRIDE.

Burton.

Mr. J. H. Brown, of Battle Creek, member of the Michigan Live Stock Sanitary Commission, and associate editor of the *Michigan Farmer*, said to us in a personal interview:

"For a long time I have considered these special winter courses of the greatest value, especially to young men and women on the farm who have no opportunity to attend college and pursue the regular curriculum of studies for four years.

"In these times ignorance is a sin, for there is no excuse. I know many young men who have made a success in life, simply because they took advantage of every opportunity; and one or more of these splendid winter courses furnishes just the opportunity for any young man or woman on the farm to get a good start along the line of their chosen vocation in life.

"Farm life and practice needs our best and brightest young people to make the future of agriculture a

glorious success. My advice would be to take one of these special courses, if at all within the range of a possibility.

"If I could spare the time from my busy life, I would quickly arrange to take the special course in live stock husbandry next January, as I know it would be invaluable to me in my work."

In the rapid march of progress the farmer of the future must necessarily conduct his business on more scientific principles than in the past. There is a great responsibility on the parents of to-day to educate the young. The future success of this great republic depends largely upon the education of the American farmer. An education along agricultural lines would be an investment that would repay in large dividends which can be neither lost or stolen. There never has been a greater demand for well qualified men and women than there is to-day. Every boy and girl should have head, heart and hands educated. The very best place to do this, is at the Michigan Agricultural College.

Each year this institution is sending out manly men and womanly women, just the kind that society needs. Its graduates are all around, enterprising, go ahead good citizens. At the Agricultural College manual training is associated with the intellectual. As far as manual training is concerned it has reached a high development in the school of a scientific character. If it is impossible to take a full course, a special course has been prepared for the benefit of those who cannot spare the time to take a longer course.

If you are a young farmer just married and want to be a success, go to the M. A. C. Take your wife along where she can learn the culinary art to perfection. This special department consisting of six courses is a Klondyke to the young man or young lady who desires to keep up with the times or make the most of their opportunities.

W. O. COOK.

South Haven.

The supply of "book worms"—that large intelligent class of young men and women whose habit is to read books without acquiring the ability to apply their knowledge to the practical affairs of life, is becoming very large, but the number who can both think and do is very limited, and herein lies the advantage of an education at the Agricultural College.

A mind disciplined to discover principles and apply them to the practical affairs of life will never lack employment. There is a superabundance of muscle and brains; to direct and utilize labor is hard to find.

In the employment of labor in my nursery operations the men of muscle flock here in great numbers, but we find it difficult to get foremen to direct work. All employers are finding the same difficulty and thus the prestige enjoyed by graduates of the Agricultural College is becoming greater every day. People are just beginning to appreciate the advantages of a practical industrial education.

R. M. KELLOGG.

Three Rivers.

In the special winter courses of the M. A. C. the State Board of Agriculture has offered opportunities that the boys and girls on Michigan's farm cannot afford to miss. What a boy or girl wants is a start in life. Many a fine boy has been

[Continued on 3rd page.]



ber5; for second prize, that marked number 4; for third prize, that marked number 6.

After examination of the several plans by full the Board, the report of the committee was accepted and under the following resolutions unanimously adopted:

*Resolved*, that the State Board of Agriculture hereby awards the first prize in the competition of architects for furnishing plans for a Women's Dormitory, to number 5 as designed by numbers on the backs of the submitted plans, provided the architect submitting said plans shall execute to and file with this Board a bond of \$25,000, approved by the Board, guaranteeing the specifications submitted as to cost of building.

*Resolved*, further, That the second prize be awarded to number 4 and the third prize to number 6.

On opening the envelopes, numbered by Supt. Hammond to correspond with the several plans, number 5 was found to have been submitted by Pratt and Koeppe of Bay City, number 4 by Rush, Bowman & Rush of Grand Rapids and number 6 by E. A. Bowd of Lansing.

It was *Resolved*, That the President be authorized to employ a night watchman.

It was moved that the President of the Board, the President of the College and the Secretary, be requested to prepare and present to the Board at the next meeting, estimates covering items and buildings needed by the College, for which appropriation by the legislature is necessary.

The Committee on Experiment Station reported on appropriation for material for bacteriological work, that the sum of \$300 be allowed from Experiment Station fund.

The same committee reported favorably on the recommendation of the Director and Horticulturist of the station for the appointment of S. H. Fulton as Superintendent of South Haven fruit station, to begin March 1, 1899, at a salary of \$600, for ten months' work per annum.

The report was adopted. Charles W. Loomis, having completed his College work, was granted the degree, Bachelor of Science.

#### Piano Recital.—The Program.

The young ladies of the Music Department will give a public recital in College Hall Friday evening, December 9, beginning promptly at eight o'clock. They will be assisted by the M. A. C. Chorus.

The program is as follows:

##### PART I.

1. Reneuveau, *B. Godard* . . . Miss Monroe
2. Les Sylphs, *Bachmann* . . . Miss Lowe
3. Fleurette, *Lichner* . . . Miss Waterman
4. Au Matin, *B. Godard* . . . Miss Robson
5. 'Tis Morn, *Geibel* . . . M. A. C. Chorus
6. March of the Gnomes, *F. Behr* . . . Miss Lovely
7. Dancing Spirits, *C. Bohm* . . . Miss Parker
8. Spring Song, *Merkel* . . . Miss Collins
9. Birthday Song, . . . . . Mr. Driskel

##### PART II.

1. Dance in the Green, *Bohm* . . . Miss Nolan
2. In Green Fields, *Merkel* . . . Miss Paddock
3. The Toll, *Stone*, Miss Parker, Miss Rich, Mr. Hayes, Mr. Parker
4. Gavotte, . . . . . Lee
5. Selection, . . . . . Mrs. Marshall
6. Yachting Glee, *Culbertson* . . . M. A. C. Chorus

F. A. Lautenslager, of South Rockford, spent a few days at the College, as guest of his brother.

#### Of Special Interest to All Friends of the College.

[Continued from Supplement.]

turned from the farm simply because he was compelled to do farm work without understanding the reason of things. Make a boy hoe potatoes without knowing what potatoes are and their requirements; compel him to prune trees or grow fruit without having an understanding of the nature of these living things; force a boy to run a steam engine without understanding its mechanism, and you make that boy a mere machine. But now teach him the nature and philosophy of all these things and the scene changes. It is like the sun bursting through the heavy clouds of a dark day—all is brightness. What was drudgery becomes pleasure. The boy is transformed from a mere machine to a human being with a purpose.

The reason there is so much dissatisfaction among farmers is because farming is not understood. Become interested in farming; study it, make it a business, and it is not all drudgery. Much of farm labor becomes pleasant employment. The way to make a boy a farmer is to get him to studying agriculture. Get him interested in the business, not in the mere mechanical labor.

Some men say, "If I want my boy to be a successful stock breeder, or fruit grower, etc., I will let him work for a successful man in that particular line of farming, and he can learn more than he can at the Agricultural College." You make a sad mistake. This method would do very well if the employers would give the boy as good a chance to use his head as he does to use his hands—but he won't. He hires him for what his hands can do, and uses his own head. Ten to one the boy will not get the inspiration desired. He gets the cloudy part of the day, but misses the sunshine.

It is asserted, however, that some men accomplish these things without the aid of the Agricultural College; some men can do anything. But they are altogether too few. What is desired is that a majority accomplish these things. One man without help accomplishes things that another, with the right kind of a start could do in a portion of the time.

The boy, to be a farmer in the right sense of the word, should have studied along the line of an agricultural education. If you can't give him a four-year course at M. A. C. give him the benefit of one of these short courses.

COLON C. LILLIE.  
Coopersville.

I am very decidedly in favor of the "special winter courses" for which you are endeavoring to secure students; and I hope that a large number will be induced to attend. I am sure that such a course would be of immense value to those who take it. They would indeed, be better able "to keep up with the times"; and that, in our day, is a matter of very great importance. Our State Agricultural College has, in taking this forward step, given new proof of its usefulness, and of its purpose to help and to encourage all who are willing to avail themselves of the advantages it offers. With the best wishes for the success of this movement, I remain,  
Adrian. JNO. GREGORY.

## The M. A. C. Special Hat

Is now on sale; much nicer hat than last season; better material and workmanship—the price remains the same, Fifty Cents.

If you want up-to-date neckwear I would have great pleasure in showing you the most complete line of natty ties in Lansing.

Sweaters, Golf Hose, Caps, Hats and Shirts are lines in which I lead.

Students' patronage respectfully solicited.

Elgin Mifflin,  
The Outfitter.

CHAS. A. PIELLA,  
DEALER IN  
DIAMONDS, WATCHES, JEWELRY,  
Clocks, Silverware, Art Goods.  
121 Washington Ave. N., LANSING, MICH.

HERRICK BROTHERS  
Fine GROCERIES and MEATS  
Everything guaranteed first-class.  
219 N. Washington Ave. Opera House Block

## R. B. Shank & Co., Leading Grocers and Confectioners.

## Bare Foot g

Will not be particularly interested in the very latest up-to-date, coin toe

Cork-Sole Shoes at \$2.85

but girls who wear shoes will be pleased to see them. No dampness—no squeak.

Yours truly,

#### REPAIRING..

Shoes repaired and Rubbers mended in the best manner.  
C. D. W.

C. D. WOODBURY,

103 Washington Ave. S.

## SIMONS DRY GOODS CO.

We make a special effort to sell only the best

## KID GLOVES

### The Monteford

Our \$1.00 Ladies' Kid Glove we fit and guarantee, in black and new fall modes, 2 clasp; or for

The Zettie \$1.25 Glove.  
The LeClairion \$1.50 Glove.

### Lined Mittens and Gloves

—At 50c pair,  
Gentlemen's Woolen Mittens.  
—At \$1.00 pair,  
Ladies' Heavy Gauntlet Gloves

### Our Underwear Department

Offers exceptional values in  
Ladies' Winter Underwear.  
Ladies' Muslin Underwear.

### Carpet Department

Offers 100 30x60 Moquette Rugs  
For \$1.75 Each.

Simons Dry Goods Co.

## Alsdorf & Son... THE DRUGGISTS.

Everything First Class,  
Fresh and Up to Date.

## Lawrence & VanBuren PRINTING CO.,

Ottawa St. E. Lansing, Mich.





### News from Graduates and Students.

S. W. Tracy '96 is interested in mining operations at Altman, Colorado.

H. W. Tracy '94 is traveling for the Griffith and Turner Seed Company, of Baltimore, Md.

G. N. Eastman '96 m has been ill for some time with an abscess in one ear, but is now back at work.

### Civil Service Examination.

The United States civil service commission announces that examinations will be held on December 15, 1898, commencing at 9:00 a. m., at any city in the United States where it has a board of examiners, for the position of assistant in entomology, office of experiment stations, department of agriculture.

The examination will be upon the following subjects: Biology and entomology, French or German (translation of scientific literature) editing and abstracting, essay writing, and choice between additional modern languages and veterinary science.

This examination is open to all citizens of the United States who comply with the requirements, without regard to race or to political or religious affiliations. Persons desiring to enter this examination should at once apply to the U. S. civil service commission, Washington, D. C., for application blanks (forms 304 and 375) which should be properly executed and promptly forwarded to the commission at Washington.

### New Constitution for the Natural History Society.

At the beginning of the present year those interested in the Natural History Society began looking up its records, which were found to be in very bad shape. As a result, a committee was appointed to draft a new constitution. The committee reported, and at its last meeting the society adopted the following:

#### CONSTITUTION.

This organization shall be known as the Natural History Society of the Michigan Agricultural College.

#### ARTICLE II—OBJECT.

The Society shall have for its sole object the encouragement of study in Natural Science.

#### ARTICLE III—MEMBERSHIP.

Section 1—Any person actually connected with the Michigan Agricultural College may become a member of this Society by signing the Constitution and paying an admission fee of ten cents (10c).

Section 2—Any member, upon severing his connection with the College, by graduation, honorable dismissal or withdrawal, shall become an Honorary Member, entitled to all the privileges of membership except voting and holding office.

#### ARTICLE IV—OFFICERS.

Section 1—The officers of the Society shall be a President, Vice President and Secretary-Treasurer, whose duties shall be those usual to such offices, and

Section 2—The President, Vice President, Secretary-Treasurer, together with two other members who shall be elected at the same time and in the same manner as the other officers, shall constitute a Board of Directors who shall have

general charge of all affairs of the Society not otherwise provided for.

Section 3—All officers shall be chosen by ballot at the last regular meeting of each college year, and shall enter upon their duties at the opening of the next college year.

Section 4—In case any office becomes vacant during the college year, it shall be filled by election by ballot at the next regular meeting unless otherwise recommended by the Board of Directors.

#### ARTICLE V—MEETINGS.

Section 1—Regular meetings shall be held each term at such intervals as the Board of Directors may deem advisable.

Section 2—Special meetings may be called at any time by the Board of Directors; or by the President on request of not less than one fourth of the resident members; but notice of such meeting must be posted at least one day previously.

Section 3—Ten members shall constitute a quorum for business.

#### ARTICLE VI—AMENDMENTS.

Amendments to this Constitution, or to any article or section of it, may be made at any regular meeting by a two-thirds vote of the members present, provided the motion to amend has been presented at a previous meeting.

### The Round-up Institute at Pontiac.

The Michigan State Round-up Farmers' Institute for the present season has been placed by the State Board of Agriculture at Pontiac, Oakland county, and will be held March 1, 2, and 3. Extensive preparations are under way to make this the best meeting of the kind ever held in the State. No pains will be spared on the program, and the farmers all over the State are urged to make plans to attend the Institute. The Board of Agriculture has secured a railroad rate of one and one-third, and exceedingly low rates at Pontiac hotels.

### TEXT BOOKS.

Old and New.

Drawing Tools and Draughtsman's Supplies.

### GROTTY BROS.—CITY BOOK STORE

206 Washington Ave. N., Lansing, Mich.

### ALL MEATS....

May look alike to you, but there is a very great difference in the quality we handle and that sold by some other markets. We handle none but the very best. Like the pudding, the proof of good meats is in the eating. A trial will convince you that you ought to trade with us.

BOTH PHONES. Careful attention given to phone orders.

GOTTLIEB REUTTER.

Washington Ave. South.

### Employees of M. A. C.

Desiring to build should  
not purchase their material before consulting with

Hiram Rikerd,  
Lansing, Mich.

Lumber of all kinds.  
Interior Finishing a specialty.

PRICES RIGHT.

Office and Factory, Mill St.  
Both Phones.

... At the ...

## DAVIS CLOTHING STORE

104 WASHINGTON AVENUE NORTH.

You can buy Sweaters, Supporters, Foot Ball Pants, Foot Ball Jackets, Gymnasium Suits, and the finest line of Tailor Made Clothing in the City.

Come in and see us any way.

## Furniture Headquarters.

Cots at - - \$1.25, \$1.50, \$2.00 and \$2.50  
Wire Springs at - - \$1.50 and \$2.00  
Mattresses from - - \$2.00 up  
Tables, Rockers, Bureaus, Iron Beds.

All goods delivered free to College.

M. J. & B. M. Buck.

## DIRECTORY

### LANSING BUSINESS and PROFESSIONAL MEN

The names in this Directory, as well as those of all our other advertisers, are of reliable parties. We hope that the faculty and students will take pains to patronize those who patronize us.

#### ARCHITECTS.

MEAD & WHITE—Architects, Lansing, Mich., 115 Washington Ave. N., and Harbor Springs, Mich., Clark Block.

#### BARBERS.

J. H. WOOD—Barber, 106 Michigan Avenue E. College work especially solicited.

#### BOOKS AND STATIONERY.

LANSING BOOK AND PAPER COMPANY. Books, Stationery, Wall Paper, Engravings and Frames. 120 Washington Ave. N.

#### BOOTS AND SHOES.

C. D. WOODBURY.—Boots and Shoes. We shoe the students. See ad.

#### BICYCLES AND MUSIC.

PIANOS, Organs, Sheet Music, Guitars, Banjos, Violins, etc. Bicycles, new or second hand, for sale or rent. Repair shop complete. Bicycles and Guns to rent. Holmes Music and Cycle Co.

GEO. H. RICHMOND, Pierce Cycles. Full line of sundries. Repairing and renting at reasonable rates. 200 N. Washington Ave.

#### CLOTHING.

LOUIS BECK.—Clothier, Gents' Furnishings, Hats and Caps. 112 Washington Ave. North.

A. E. DAVIS.—Clothing and Gentlemen's Furnishings. See ad.

#### CROCKERY AND GLASSWARE.

H. LARNED.—China, Glass and Lamps. 105 Washington Ave. S.

#### DENTISTS.

R. W. MORSE, D. D. S. Hollister Block, Room 517.

DR. DAWLEY, M. D., D. D. S. Office over Postal Telegraph Co., Michigan and Washington aves.

#### DRUGGISTS.

C. J. ROUSER—Capital Drug Store. 123 Washington Avenue South.

#### DRY GOODS.

SIMONS DRY GOODS COMPANY.—Dry Goods and Carpets. See ad.

#### FURNISHING GOODS.

ELGIN MIFFLIN.—Ladies' and Gentlemen's Furnishing Goods. See ad.

#### FURNITURE DEALERS.

M. J. & B. M. BUCK.—Furniture. Cor. Washington Avenue and Ionia Street. See ad.

#### GROCERS.

R. B. SHANK & CO., 200 Washington Ave. S. The leading grocers. Both phones. Daily delivery to the college.

#### HACK AND BAGGAGE LINES.

M. A. C. STUDENTS—Don't forget W. H. PORTER, the Hack and Liveryman. Rubber tires a specialty. 300 Capitol Ave. S. Both Phones.

#### HARDWARE, STOVES AND TINWARE.

JACOB STAHL & SON.—Wholesale and Retail Hardware and House Furnishings. 211 and 213 Washington Avenue North.

NORTON'S HARDWARE—General Hardware, Stoves, Tinware, Graniteware, Cutlery, etc. 111 Washington Ave. South.

#### HOTELS.

THE NEW GRAND—R. M. Renner, Proprietor. Special rates to students. Washington Avenue S.

#### INSURANCE.

THE DYER-JENISON-BARRY CO., LTD., (Incorporated) 108 Michigan Ave. West. All kinds of the best insurance. Strongest agency in the city.

#### JEWELERS.

B. P. RICHMOND—Watchmaker, Jeweler and Engraver. 200-202 Washington Avenue N.

#### LAUNDRIES.

THE VAN GORDER PALACE LAUNDRY. C. H. Hilton, Agt., Wells Hall, Room 97. Irving Gingrich, Agt., Room 47, Williams' Hall. S. P. Lantz, Prop.

#### LUMBER DEALERS.

H. W. RIKERD.—Lumber Dealer. Mill Street. See ad.

#### MERCHANT TAILORS.

WOODBURY & SAVAGE.—Tailors. Student trade solicited. Opposite Hotel Downey, North.

JOHN HERRMANN. Fine Tailoring. 218 Washington Avenue N.

#### MILLINERY.

MRS. L. S. HUDSON, Hudson Block, where you can find the best styles in simple as well as elaborate Hats at lowest prices.

#### OCULISTS.

JOSEPH FOSTER, M. D.—Eye, Ear, Nose and Throat. Hours 9 to 12 A. M., 2 to 4 P. M. Sundays, 12 to 1. City National Bank Building, Lansing.

#### PHYSICIANS.

A. D. HAGADORN, M. D.—Office hours, 11 to 12 A. M., 2 to 4 and 7 to 8 P. M. Office at 212 Washington Avenue S.; home 419 Seymour St.

#### PHOTOGRAPHERS.

SPECIAL PRICES to M. A. C. Students. Hatton, Photographer, over State Savings Bank.

#### RESTAURANTS.

GILBERT M. HASTY.—Proprietor Hasty's Gem Lunch. Best meals and lunches in the city. 113 Washington Avenue S.