Some Actions of Bacteria.

At the meeting of the Natural History Society, Monday evening Mr. Marshall gave an interesting half-hour talk on some actions of bacteria. A few introductory remarks on the study of bacteria from the morphologic, physiologic and chemical points of view were then proceeded at length the chemic action of bacteria and to describe the formation of the important chemic product, lactic acid.

Pater discovered in 1857 that lactic acid was the result of fermentation and that it was produced by a specific germ although he did not isolate the germ in a pure culture. Previous to this time and for a few years after, it was believed by Liebig and others that it was the result of coagulation.

The most common example of its production is in the souring of milk. Lactic acid germs are found all around the dairy—in the at boils, on the sides and udders of the cows, in the dirt of the stable. They get into the milk, where owing to the warm temperature and the presence of lactose, or milk sugar, they multiply very rapidly. The action of the bacteria is upon the milk sugar, the molecules of which are split up in such a way as to form lactic acid.

Milk sours more rapidly in warm weather because the weather is more favorable for the growth of bacteria. With proper milking the speaker said milk would keep ten or eleven days. Where ordinary milking it sours in two or three days.

By proper milking he meant cleaning the sides and udder of the cow and keeping them dry during the time of milking, so that no dust or hairs will fall into the milk. The latter and all other utescles that at any time come in contact with the milk must also be sterilized. The important thing is to keep the bacteria out of the milk; if this be done the milk will not sour.

Lactic acid is also found in butter, cheese, beer, wine, vinegar, sauerkraut, canned fruit, sour bread, etc. It is the chemic action of bacteria on proteins of the stomach in cases of dyspepsia, and it causes the teeth to decay. Under the tarter of the teeth the bacteria act on particles of nitrogenous food to produce lactic acid, which in turn unites with the calcium of the teeth and forms calcium lactate, and thus a cavity is produced. To prevent decay the teeth should be kept free from tartar.

Mr. M. W. Fulton Takes Up Farming for Himself.

Mr. M. W. Fulton has landed in his resignation as Instructor in Agriculture and Experimenter in Soil Physics, to take effect at Monday day.

He came to the Farm Department direct from the University Platform in 1895. By his faithfulness to duty and conscientious devotion he has been very helpful not only in the way of public respect of the College authorities but in winning a large place in the affections of both students and co-workers in this department and the students that have reported to him.

For several terms Mr. Fulton has had immediate charge of "student labor." He has made that function one of appreciated value to the students and a pleasure to the teachers.

The result of his long and painstaking labors, together with his re- sultation and soil moisture and on the draft of wagons and other farm implements will be published in two forthcoming bulletins.

Mr. Fulton leaves the College to to take charge of the Fulton farm at Highland Park, almost within the city limits of Detroit. He goes to his work armed with the combination of scientific training and practical experience, which added to his natural ability, will insure success in the line of farm work, adapted to proximity to a large city.

The best wishes of the College population go with Mr. Fulton on their return to their old home.

A Touch of Winter.

The heavy snow-fall of last week has given to our campus every appearance of winter. Wednesday night about midnight snow began to fall and it did not abate till o'clock Thursday evening. Eight or nine inches of snow fell and the snow-pow was kept nearly all of Thursday and part of Friday from, clearing paths to the various buildings. The warm sunshine Friday afternoon and Saturday aroused a hope among our foot- ballers that we would be able to play the game scheduled with Olivet yesterday afternoon, but it proved to be more snow came and they were forced to the conclusion that another week must pass without a game. This was a set disappointment, for our team is sadly in need of practice and we cannot without our trip home in order to be at the game. If 1/2 of our 400 students will be as sacrificing, we can have a special train with a rate of $1.50 for the round trip. Many of the faculty and students of the near-100 in all—have already signified their intention of going. Hand in your name at once to the committee. Let us show that we can loyally support a winning team.

Good News from One of Our Graduates.

Office of Superintendent, Pima School.

Sacanto, April, Nov., 1898.

Dear Sir:—I was transferred from Omaha Agency, Nebraska, on the first of September and am now settled very nicely with my family and three children at this place. I trust you will be pleased to receive an increase of $300 per annum; hence I rejoice. I am now in the land of the famous "Giant Cactus," "Gila Monster," etc.

No rain has fallen since my arrival and, with the exception of a few days after my arrival which was rather warm, the weather has been very pleasant. The universal opinion concerning this climate, is, that, with the exception of the first three months of intense heat during the summer, it is very healthful and delightful.

I have missed the record very much and shall be pleased to re- ceive the bill at the above address.

With best wishes for the con- tinued prosperity of the Michigan Agricultural College, fond memories of which I will continue to cherish wherever I may wander, I am

Yours very sincerely,

D. D. McCauley, '98

A Deer Park at M. A. C.

Workmen are erecting a park wire fence, seven and one-half feet high, around the wood-lot north of Prof. Well's residence and a part of the arborium, which willcreens the deer park, which was arranged to secure three deer from Belle Isle and later may add elk and buffalo.

Complimentary to the Women's Department.

The following resolution was adopted by the State Federation of Women' s Clubs at the annual meeting, held recently in Manistee:

Whereas, important, valuable and greatly needed instruction in household economics is being afforded by the Women's department of the Michigan Agricultural College, therefore,

Resolved, That heartily commend the same to the club women of Michigan and urge a larger acquistion with the institution and patronage of the same in the interest of better homes for our commonwealth.

The Literary Societies.

EccleSot Society.

On November 5th, the Ecclesotic Society gave the following program:

Washington was quoted.

Custer Carroll.


Original Declaration, "Ticdon" of Forty Years Ago,

E. W. Binkley.

Extemporaneous Talk, "Co-eids," E. S. Good.

Critique for the evening was given by M. G. Hillman.

The society was agreeably surprised during the business meeting by a call from G. B. Wells, who at present has charge of athletics at Alma.

Feronian Society.

On Friday evening, November 11, the Feronian society entertained their friends of the Hesperian society in the rooms of the latter. The program of the literary program was rendered:

Quotations from Agricultural Papers.

"Oration—The Prevalence of Modern Fiction is an Advantage"—Miss Bristol.

Select Reading from De Quincy's "Joan of Arc"—Miss Monroe.

"Music—Miss Rich.

Society Paper, illustrated by Miss Frances Farrand—Miss Robson.

"Critics Miss Fay Wheeler.

"Light refreshments were served and the guests amused themselves by games and dancing until the party broke up at the early hour of 11 p.m.

Miss Florence Hedges with '01 is taking a course in Latin, German, Greek, English, and history at the University.

Miss Pearl Kelzis '98 enjoys her work at Wellsley very much. She is taking language and music principally.

Several interesting letters have been received from Miss Lillian Wheeler '98, who is spending the winter in Washington, D. C. She is taking advantage of the Congres- sional Library, and recently enjoyed a pleasant trip to Mt. Vernon.

The legislature of Maryland has appropriated for the use of Johns Hopkins University the sum of $50,000 for two years, without conditions, so that for the present the University can continue its work without contradiction of its activities or reduction of its teaching force.

It takes tact to determine when advice is advisable—Puck.
Leaving the stone paved streets of Oschersele we were soon on the main thoroughfare, and the strong aroma of beer is the only thing possible under the circumstances, hired a livery and were driven across the country to Klein Wanzleben.

For various reasons the M. A. C. Record is occasionally sent to those who have not subscribed for Paper. Such persons are asked no hesitation about taking the paper from the press, for no charge will be made for it. The only way, however, to secure The Record regularly is to subscribe.

Official Directory.

W. Y. M. C. A.—Regular meetings Sunday evening gatherings at 8:00. Dean, J. H. Lowry, President. C. H. Porcher, Secretary. Meetings every Sunday evening at 8:00. First Ward, Wells Hall. Am. Red Cross, Secretary. D. C. R. Diederich, President. Sister Anna, Secretary.


BOTANICAL CLUB—Meets Monday evenings at 8:00. Mrs. C. L. Weil, President. Mrs. M. L. Weil, Secretary. Meetings every Monday evening at 7:30. Fourth Ward, Laye Hall. C. H. Fuhrman, Secretary.

SHAKESPEARE CLUB—Meets Wednesday evening at 7:30. Mrs. C. L. Weil, President. H. B. Clark, Secretary. Meetings alternate Wednesday evening at 6:30 P. M., in Dean's office. C. H. Fuhrman, Dean, Secretary.

OTTAWA COUNTY HISTORICAL SOCIETY—Meets at the Historical Room, Third Sunday in each month at 2:00. Mrs. M. L. Weil, President. Mrs. C. L. Weil, Secretary. Meetings alternately the fourth Tuesday in each month at 7:30. Fourth Ward, Wells Hall. Mrs. C. L. Weil, President. Mrs. M. L. Weil, Secretary.

GUARDIAN ANGELS—Meets every Tuesday evening at 7:30. Fourth Ward, Wells Hall. "F. E. West, President. Mrs. M. L. Weil, Secretary. Meetings every Saturday evening at 7:00. Fourth Ward, Wells Hall. Irma Thompson, President. Mrs. M. L. Weil, Secretary.

THREE KING'S DAUGHTERS—Meet alternate Wednesday evening at 6:30 P. M., in Dean's office. C. H. Fuhrman, Dean, Secretary.


Klein Wanzleben.

Berlin, Oct. 18.

Dear Record:—On invitation of U. S. Consul Henry W. Diederich, of Magdeburg, I accompanied him on a trip to Klein Wanzleben, the centre of the Sugar Beet Sugar Works at Klein Wanzleben. As a great deal of the beet culture exists in Germany, we were interested in seeing it. We drove into the court yard of the Wanzleben Works. The plant is located on an ancient estate or "gut" into the court yard of the Wanzleben. The grounds consist of six large buildings, many requirements, it is carefully stored until the year next and then used for seed production. Seed obtained from this beet is sown, and if the "dauughters" obtained are as sweet and free from defects as they were planted for seed and the process as described repeated year after year use the great, great, great, great, great granddaughter of the original mother. The seed material to or excels her remote ancestor in points selected in determining the breeding type the seed breeder considers the seed produced from these beets fit to be placed on the market. On the other hand if the different deteriorate and the various generations do not retain the shape, size and sugar producing qualities of the original, the entire generation (and descendants) is rejected for seed production. Many strains may be thus thrown out from year to year in order to raise the standard of sugar richness. The family photograph album is a picture place in this work of selection, show ing as it does at a glance whether the race is following a straight line or this constant study over every feature of the beet plant only is it possible to raise the amount of sugar in the beet from nine or ten where it originally was up to over nine tenths of the total weight of the beet at Klein Wanzleben this year.

Every law of breeding by selection which one might think applies only to animals also applies to this work of improvement. In-and breeding, crossing of established races, frequenting of disastrous results as in animal industry. Each year $125,000 is spent on improving the quality of beet seed growing and improvement alone.

Leaving the laboratory and its records, we went next through the large seed storage rooms. The seed is threshed in the field, then brought to the warehouse where by means of machinery driven by an electric motor it is elevated, cleaned, screened and transferred to the seed drying chamber. The drying of the seed is an operation requiring great care and constant watchfulness on the part of the attendants. The seed is carried back and forth on an endless conveyor system.

The proper amount of moisture must be abstracted, sufficient to insure the product from attack of mold, but not too much moisture must be removed—otherwise the capsule becomes too hardened and prevents the contained seed from germinating. After drying, the seed is once more screened and is then ready for the market. The seed is placed on the market each different lot must be tested. We next visited the germination room. Here we found the inspector busy at his work. Taking a sample of several different lots at once, each device divides the sample down, getting finally a small sample which is a fair representative of the original seed. From this fraction are then taken, soaked in distilled water 48 hours, then stood for 3 days whereafter they are planted in plates, covered with a plate of glass and placed in a room where they are kept for 10 days. At the end of seven days the plates are examined, the seeds which have sprouted being cut out, the seed plate, after having the sproots thrown out removed, and both plates returned to the germination room.
NOVEMBER 15, 1898.

In 1861 they began the use of the gang plow by electricity; what you see are the wires running from the 50-horse power generator in the engine room affair. In 1859 Messrs. Robson will be editor-in-chief and Carl H. Smith business manager.

First and foremost, the number of sprouts sent out to form a standard or it is not considered fit for market. Each sample must conform to a standard. Reasonable test for seed-producing purposes which were the heaviest when tested in a solution of salt and water. In the 39 years of work the sugar beet is susceptible to a multitude of diseases of a fungoid nature. A specialist in this branch occupies a room in the seed testing house I remarked on the presence of a fungus. It was a very complete chemical analysis.

The mechanical seniors have completed an apparatus for testing the steam consumption of engines. The class of 1900 will publish an institution in the vicinity. The mechanical seniors have completed an apparatus, for testing the steam consumption of engines.

Students' patronage respect­fully solicited.

The Monteford

Our $1.00 Ladies' Kid Glove we fit and guarantee, in black and new fall colors, 2 dozen or for

The Zettle $1.25 Glove.
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We have a large line of Lined Mittens and Gloves—At 50c pair, Gentlemen's Woolen Mittens.

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The Gymnasium or Tennis Shoes which have been so long delayed in transit have finally arrived. On account of the delay we will make

A Special Price, for balance of this week, only, at,............ 39c a Pair

After this week the price will be as usual.

MEN'S SIZES

The 75c grade, price this week only, 49c.

C. D. WOODBURY,
103 Washington Ave. S.
News from Graduates and Students.

W. C. Stewart with '91 is visiting at the College.

Born, Thursday, to Mr. and Mrs. M. W. Fulton, a son.

C. E. Townsend, '98, visited his friends at the College a few days last week.

C. E. Ingerson with '79, visited Sunday with his cousin, S. L. Ingerson '79.

The wife and daughter of L. A. Clinton '95, of Ithaca, N. Y., are visiting in Lansing.

Ira T. Sayre with '80, Flushing, will represent the 38th Senatorial District in the next legislature.

A. M. Duggan '85, Lansing, was elected State senator in the 14th Senatorial District by a majority of about 200.

Allegan county will be represented in the next legislature by two M. A. C. graduates; H. F. Buskirk, '76, re-elected, and B. A. Nevin '78.

L. J. Cole with '93 is doing 20 hours a week as an assistant in the department of zoology at Ann Arbor.

He is also carrying 12 hours of university work and has joined the zoological, botanical, and field club.

Prof. H. T. French '85, of the Idaho Agricultural College, called at M. A. C. Friday. He was on his way to Washington, D. C., to attend the annual meeting of the American Association of Agricultural Colleges and Experiment Stations.

Dr. A. E. Smith '81, Olean, N. Y., has been appointed clinical assistant surgeon in the nose and throat department of the New York Post Graduate Medical College.

As the position will not require Dr. Smith's presence in New York more than a few weeks each year, he will keep up his practice in Olean.

G. H. Hicks '92, first assistant botanist in the U. S. Department of Agriculture, has prepared and is now sending out to the various agricultural colleges and experiment stations, sets of economic seed samples for use in the identification and study of seeds.

These sets, each containing both of each seed, are now ready for distribution.

Colleges and Exchanges.

Lake Erie College and Seminary has a new skating pond but no boys—nothing but girls.

Although not apparently a bad class, still the men of 1902 follow in the footsteps of the Naughty-class, still the men of 1902 follow in the footsteps of the Naughty-class.

Mr. Rockefeller has offered $2,000,000 more to Chicago University on condition that an equal amount be raised elsewhere.

Of this latter sum $1,500,000 has been secured.

Notre Dame University has just announced that the following reformed spellings in all publications of the association:

Program—(programme); thru—(through); thruout—throughout; prolog— (prologue); deolog— (deology); demagog— (demagogue); pedagog— (pedagogue).

"Good-bye," said the gun, "I'm going off." And it wasn't a minute before everybody heard the report.

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Lumber of all kinds.

Interior Finishing a specialty.

PRICES RIGHT.

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New Spellings Authorized.

An important step was taken by the directors of the N. E. A. when, by formal vote, they instructed the secretary of the association to use the following reformed spellings in all publications of the association:

Program—(programme); (through); (although)—(although); thor­ough—(thorough); thor­oughfare—(thorough­fare); thru—(through); thrust—(throughout); catalog—(catalogue); pro­log—(prologue); deolog— (deology); demagog— (demagogue); pedagog— (pedagogue).

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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.

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Pierce Cycles, Fall Bicycles, Repairing and renting at reasonable rates. 304 N. Washington Ave.

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DAVIS—Clothing and Gentleman's Furnishing. 106 Michigan Ave. E.

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C. J. ROUSE—Cereal Drug Store, 123 Washington Avenue South.

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SIMPSON & COWDEN COMPANY—Dry Goods and Carpets. See ad.

FURNISHING GOODS.

E. G. MUIR—Linen and Legends Furnishing Goods. See ad.

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THE N. W. GRAND—R. M. Renner, Proprietor, Special rates when students in the city.

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