

# The M. A. C. Record.

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## Institutes.

### VASSAR.

The second annual meeting of the Tuscola County Farmers' Institute was held at Miller's opera house. The institute was well attended and much interest was manifest. Papers read were excellent, and much good was accomplished. The officers for the ensuing year elected are: President, C. R. Selden; secretary and treasurer, Fred H. Orr.

### LAPEER.

The State Farmers' Institute commenced yesterday with a two days' session, Judge W. W. Stickney presiding and Hon. I. H. Butterfield acting as conductor. There was a large attendance, including many noted agriculturists from different parts of the state. Many excellent papers were presented and the discussions were very spirited. The institute was well attended at all of its sessions. The present officers were all elected for the ensuing year, including Judge W. W. Stickney as president and George W. Carpenter as secretary and treasurer.

### AUBURN.

The State Farmers' Institute at Auburn continued throughout two days and was a complete success. The papers presented were excellent and were thoroughly discussed. The speakers furnished by the State Board of Agriculture were John L. Shawver of Ohio, I. N. Cowdrey of Gratiot county, Mrs. Mary A. Mayo of Battle Creek, and Dr. E. A. A. Grange, Dr. Howard Edwards and M. L. Dean of M. A. C. L. W. Oviatt of Williams was chairman and E. R. Phillips of Bay City secretary.

The following officers were elected for next year: President, L. W. Oviatt, Williams; secretary, F. W. Dunham, Monitor; vice presidents, Anthony Kern, Williams; E. M. Parsons, Kawkawlin; J. B. Stevens, Hampton; W. H. Needham, Monitor; A. Itner, Frankenlust; G. R. Phillips, Bay City; T. F. Marston, Bangor; executive committee, E. R. Phillips, T. F. Marston and E. M. Parsons, together with the president and secretary.

### A Pig in Class.

Now, I am not going to relate a personal adventure, however aptly the above subject might apply; nor am I going to throw stones from a glass house. But I saw a well-bred Poland-China porker in class the other day, and, to her credit be it said, she put on no drawing-room airs, except to turn up her nose slightly when too closely observed by the rustic youths who were not accustomed to her style.

It was in this way: I wandered into the class in live stock husbandry the other morning and found Prof. Mumford lecturing on swine, Poland-Chinas being the breed under consideration. After giving a brief history of the development of the breed, he spoke of their respective merits and demerits, among the former of which were early maturity, quiet disposition, easy keeping, and adaptability for crossing with other breeds. He had mentioned but two of the possible objections to Poland-Chinas when the hour closed, and promptly at the tap of the bell one of the farm-barn porters ushered in Miss

Poland China, a substantial-looking young brunette, who was motioned to an enclosed place in front of the class by Prof. Mumford. I was told that this was the hour for

### STOCK JUDGING,

and that the dark beauty who had just entered must undergo a most searching inspection from the score of young men present. Very well, thought I, but I'm glad I'm not a beauty. But, all joking aside, this is the practical way in which Prof. Mumford illustrates the points brought out in his lectures. During the first hour the students are given a lecture on the characteristics of a typical animal, and then an animal of the breed under consideration is brought before them. With blank score cards in hand they examine this animal and record their estimates of each point, as compared with their notion of a typical animal. Prof. Mumford also fills out a score card, and before the close of the second hour the estimates are compared and discussed. After the students have become somewhat proficient in the use of the score card, they are required to judge animals without the use of the printed blanks. Especial attention is given to selection of stock for the average farmer, not for the show ring. In this same general way the students have studied cattle, both dairy and beef types, and sheep.

From 10 a. m. to 11 a. m. Prof. Mumford has been lecturing to them on breeding and management of stock, taking up crossing, grading, marketing and shipping. This morning, however, Mr. Fulton gave a lecture on

### FARM FENCES.

He first spoke of fences in general, and emphasized the fact that the farmer should get along with just as few fences as possible. Fences take up valuable land and are always in the way when plowing or working crops. He would make a liberal use of movable fences.

Wire is at present the best and cheapest material for a permanent fence. In a woven-wire fence, the cross-wires should be small, so that, if bent, the tension of the runners will straighten them. In what is known as a stay fence the cross-wires or stays should be stiff enough so that they will not bend; for this reason wooden stays are probably best.

Mr. Fulton described the M. A. C. fence, which costs 20 cents per rod without posts. Posts are set 20 feet apart and nine smooth wires are strung, after which wooden stays are woven in and secured by wiring to the top and bottom runners and stapling to the others. He also described several methods of setting end posts and of making splices, and showed samples of wire tighteners. The whole lecture was illustrated by means of samples and models, which helped to make the talk plain and interesting. D. J. C.

### Symposium on City Milk Trade.

The dairy student who gets away from here without a valuable fund of practical information in addition to his routine work can not ascribe his failure to do so to the lack of opportunity. Hardly a week passes but these students are given an opportunity to listen to some dairyman who has made a success of the business, who is in

the business for money. Last Friday three successful city milk dealers talked to the students on practical problems in the city milk business. Thos. F. Marston, who has a fashionable Jersey milk trade in Bay City, Ira O. Johnson, who sells every quart of his milk in Grand Rapids at eight cents a quart, and A. M. Welsh, who does a large business in Ionia, gave the boys three hours of their time in talks on "Care and management of the dairy herd for city milk trade" and "Caring for and delivering milk in the city." Representing, as they did, three different phases of the trade, their talks were very valuable. The time was not devoted to the advancement of theories, but to the consideration of practical problems.

### Physical Laboratory Notes.

The large room in the basement of the physical laboratory promises to be a model experimental laboratory. The floor is made of cement, so that vibrations are practically eliminated. The tables at which the students work are of very rigid construction, thus enabling the student to perform very delicate experiments which would otherwise be impossible. At each table will be arranged taps for water, steam and gas. The room will be wired so that each table will have a switch, at which connection may be made for experiments with electricity. The storage batteries have been provided with trucks and may be moved easily about the room.

The lecture room is now seated to its utmost capacity, and it will soon be necessary to provide for more students. The addition of a gallery is proposed. New curtains have been provided for the windows so that the room may be darkened.

The physical department is highly appreciated by the students, and is a point of interest which is not often overlooked by visitors at the College.

E. H. S.

### Chicago M. A. C. Association.

The officers of the Chicago M. A. C. Association are making every effort to have the second annual reunion and banquet of the association the largest and most enthusiastic gathering of M. A. C. alumni ever held outside of the College grounds.

Assurances have come to Ray S. Baker, '89, secretary, that a large number of the alumni, as well as several members of the M. A. C. faculty, will be in attendance. Tickets for the banquet will cost three dollars, which will cover the entire expense. Preceding the banquet there will be a reception for friendly greetings and the renewal of old acquaintanceships.

The reunion will be held on Saturday evening, February 27, 1897, at the Union League Club, under the management of the following officers: President, S. M. Millard, '64; vice president, W. R. Rummel, '86; secretary, Ray S. Baker, '89; executive committee, L. A. Bregger, '88; C. E. Smith, '84; reception committee, Harry E. Emmons, '78; Carlton R. Dart, '81; J. H. Smith, '83; Paul M. Chamberlain, '88; W. S. Palmer, '89; O. H. Pagelsen, '93; John P. Churchill, '95; Steven W. Tracy, '96; A. E. Brown, '86.

## Agricultural Bibliography of Maine.

This is a work prepared as a contribution to the World's Columbian Exposition, and contains biographical sketches of Maine writers on agriculture, with a catalogue of their works, and an index to the volumes on the agriculture of Maine from 1850 to 1892.

The editor is Samuel L. Boardman.

The second name in the alphabetical list is that of Theophilus Capen Abbot. Born in Vassalboro in 1826, and graduated from Waterville College, now Colby University, in the class of 1845. He taught for the rest of his life after graduating, in Maine, in Vermont, at Berrien, Michigan, 1856; as principal of the Union school, Ann Arbor, 1857; professor of English literature at M. A. C. from 1858 to 1862; president from 1862 to 1885; professor of mental philosophy and logic till his death in 1892. A list of the leading publications of Dr. Abbot is given. A quotation from the *Kenebec Journal* contains, among other things, these words: "A modest, mild-mannered, noble man, cultured and broad in mind, genial in social intercourse, beloved by all. \* \* \* And that is why the Agricultural College of Michigan is so noble an institution today; why Dr. Abbot will always live in it, and why the people of Maine and of the country should never forget him. His memory and fame are secure in the splendid institution of which he was the real father."

W. J. B.

### Economies for the Farmer.

From the 1896 report of the Secretary of Agriculture of the United States:

"During the fiscal year just ended, the aggregate of exports from American farms amounts to \$570,000,000,—a gain of \$17,000,000 over 1895."

"The farmers of the United States hold 72 out of each 100 farms—occupied by their owners—absolutely free from mortgages or other encumbrances."

"Legislation can neither plow nor plant."

"Science is constantly showing the farmer how to increase the annual product per acre in cereals and other products, but the great question confronting each tiller of the soil is, how to secure satisfactory remuneration for the results of his toil."

### Base Ball.

It is desired that all candidates for positions on the base ball team file their applications with Captain C. H. Adams at once. Light work in the armory will be carried on during the remaining winter months to put the men in condition for out-door work as soon as the season opens.

C. M. KRENTEL, Manager.

### Debate.

At the College next Friday evening the Natural History Society and the Lansing Science Club will debate the question, "Resolved, That Darwin did more than Agassiz for the promotion of natural science." The judges for the debate will be Drs. Kedzie and Beal of the College and Prof. Smith of the Lansing high school.

### At the College.

Mrs. Babcock and Mrs. Dean spent Sunday in Grand Rapids.

The color-line is now very closely drawn between sophomores and freshmen.

The Abbot Hall co-eds took a sleigh ride on Monday evening of last week—no boys.

The actual enrollment at present is 278, which includes 44 special-course students.

Miss Myrtie Underwood, '00, is now boarding with Mr. and Mrs. Westcott in the Terrace.

Mr. M. L. Dean of the horticultural department was away on institute work last week.

R. J. Robb, '98sp, spent several days of last week at Mason, attending the teachers' institute.

The Feronians will give a play, "The Last Day," on Friday evening, March 5. All are invited.

The mechanical department has purchased a copy of Appleton's Encyclopedia of Drawing.

A. J. Weeks, '99, was sick a few days last week with la grippe, but is now able to be around.

Mrs. R. Greene and Mrs. F. N. Howe of Pewamo visited Mrs. G. B. Trip-hagen last Thursday.

Dr. Kedzie has been invited to speak before the legislature on the subject of sugar beets next Thursday evening.

Dr. Grange attended the meeting of the State Veterinarians' Association in Lansing Tuesday and Wednesday of last week.

Prof. L. R. Taft is the contributor of an article upon forcing cucumbers, to the current number of the "Orange Judd Farmer."

Profs. Beal, Barrows and Wheeler were in Jackson Saturday to attend a meeting of the officers of Michigan Academy of Science.

The military band at the College is progressing finely under the directorship of D. C. McElroy, who has been ill for the past month.

This is the latest: The principal parts of the verb tease are tease, tosed, teased, according to Mr. Hoyt, who said he "didn't care to be tosed."

The horticultural department finished filling their ice house with ice last Wednesday. The ice is not as thick as might be desired, but is of fairly good quality.

Every student in the domestic science department feels competent to dress and roast a chicken after the very thorough lesson received in that art last week.

President J. L. Snyder of the Agricultural College was a caller at the [Mt. Pleasant] Normal Jan. 21. The general history class was treated to a very pleasant talk by him.—Moderator.

Gov. Pingree has sent to the senate the names of A. C. Bird, '83, and T. F. Marston, with '92, to be members of the state board of agriculture in place of Hon. Henry Chamberlain and Hon. Wm. Boyden.

A student suggests that the College build a storm house over the steps leading to the dormitories, and thus protect the freshmen from being ducked as well as keep the snow and ice off the steps.

Lost, a lady's rubber; probably last Monday night on the sleigh ride, as it was found early Tuesday morning. The rubber was a small one (No. 7) with a pointed toe. Owner may thank Mr. Brooks for picking it up.

A number of sleighing parties took

advantage of the excellent sleighing last week. A load of Eclectics was out Tuesday evening, and a load each of Hesperians and Union Lits on Friday evening. Ladies were permitted to participate.

Among the visitors at College last Friday were Mr. and Mrs. L. C. Whittemore and Miss Cora Whittemore of Ovid, Mr. W. F. Whittemore, Tawas City, and Mrs. V. E. Rio, Oscoda. Miss Cora Whittemore expects to enter the women's course here next fall.

The changes made last summer in the arrangement of the boilers at the power house give us a heating system independent of the boilers which furnish power. The uniformity with which the dormitories are now heated shows the advantages of the changes.

The choir and a number of their friends were entertained at the home of President and Mrs. Snyder last Friday evening. Games and music were followed by dainty refreshments. It is impossible not to enjoy oneself when President and Mrs. Snyder entertain.

The hot-water heating system of Abbot Hall has been run until recently as an open system. The cold weather of the past two weeks has made it necessary that the temperature be increased. This has been accomplished by making it a closed system provided with a suitable relief valve.

A very pleasant "faculty night" was given by the Olympic society at its last meeting. Among the leading features of the program was a debate, music from a society quartette, a poem of considerable merit, a college paper, besides one or two instructive essays. A representative group of faculty members and ladies were present and after refreshments passed the evening very enjoyably singing college songs and visiting.

James S. Conway, clerk to the director of the experiment station, suffered a stroke of paralysis on Thursday night last. He had been to the city during the evening and returned in company with a student who slept in the room with him. In the morning he was found unconscious. On Monday morning he seems decidedly better, though still unable to speak. His sister and two brothers came in response to telegrams from Decatur, Conway's home, and are now caring for him at the hospital.

Prof. Smith and Mr. True attended the annual meeting of the State Dairying Association, Feb. 2 to 4, at Charlotte. Several samples of butter were exhibited by the dairy students and were scored by an expert from Iowa, who had been scoring butter in New York for market. He pronounced three or four of the packages from the school to be as good butter as he had tested in over a month. Much of the butter that was exhibited was made by men who were M. A. C. dairy students two or three years ago.

A number of members of the state association of county drain commissioners visited the College last week, being piloted by Hon. Richard Pearson of Sanilac county, who is chairman of the house committee on drainage. The following gentlemen comprised the party: J. W. Jackson, Midland county; Albert Little, Kalamazoo county; S. J. Serrell, Oakland county; Frank Heim, Berrien county; J. M. R. Kennedy, Isabella county; H. S. Hayward, Sanilac county; and Jacob Blind, Geo. Marx, and Edwin Houler.

We have a poultry department at the College which handles chickens exclusively. Part of the equipment is

comprised of several incubators, which make the hen fruit blossom at a rapid rate. As yet no geese have been handled, but an interesting experiment is now being conducted, on a somewhat extensive scale, by a prominent professor of a leading department. It consists of placing his class record-book in a refrigerator during the time the book is not in use. Many are interested to know what effect it will have on the goose-eggs; and if successful, this industry may supersede the use of the incubator.

### Our Cooking Laboratory.

GRACE M. LUNDY, '00, of the Feronian Society.

In the department of domestic science now taught at this College, we are to learn many things that will be of great benefit to us in future years. As yet we have had only cooking (practical and theoretical), and I doubt if there is a girl who takes it and does not thoroughly enjoy it.

On the second floor of Abbot Hall, which is devoted exclusively to the use of the young women, is situated



our laboratory or cooking room. Above is given a picture of the interior, which will give a better idea of it than any description.

The large stationary tables are placed in the middle of the room, and the young women usually work in pairs. Each person is provided with a molding board, a mixing board, measuring cups, spoons, knives, fork, pepper, salt, scrubbing brush and soap. A gas stove between each two furnishes heat for a great deal of cooking. When the young women are receiving instruction they are seated.

The utensils are all of the very latest pattern, and are of granite or have porcelain lining. After each lesson the young women are required to wash every article used and put each in its proper place.

There are three divisions, each of which has two lessons of two hours a week. The first division meets on Monday and Wednesday, the second on Tuesday and Thursday, and the third on Wednesday and Friday, from 1 to 3 p. m.

The students are provided with white aprons, white sleeves, which come to the elbow, and white caps. About five minutes before class time we go up to the laboratory and don our uniforms, as you might say, and wash our hands. As soon as we have finished this we take our seats and Prof. McDermott calls the roll, each young lady reporting what she has done in cooking since our last lesson.

At our first lesson we learned where the things were kept, and the exact

place of everything in the store-room. We were given rules for dusting a room, washing dishes and the care of the sink. Also rules for measuring. In addition to this we learned the principles of food, principles of combustion, construction of the range, and how to build a fire. Since then we have learned several different ways to prepare vegetables, cereals, eggs, milk, mixtures with baking powder, thin batters, sugar, meats, and cheese.

The young women who live at Abbot Hall have plenty of opportunity to practice what they learn, as they are directed by our professor to prepare certain dishes for their own table.

Whenever members of the State Board visit the College they take their meals at Abbot Hall, and Prof. McDermott usually has some of the young women prepare the dainties, to show how they are progressing in this art.

The recipes used and instruction given are of the most practical kind, and will become almost invaluable if appreciated as they should be by those who are receiving them now.

### Improving the Public Schools.

While Michigan, through the Agricultural College, is sending flower seeds and making suggestions for their use and giving instruction regarding the planting of trees and shrubs, Cornell University issues a "Teachers' Leaflet on Nature Study," containing drawings and text on "How a squash plant gets out of the seed." For 1897, the State Horticultural Society of Massachusetts offers numerous prizes, ranging in value from fifteen dollars to fifty cents, for school gardens, for school herbariums and for children's herbariums.

### The Milkman and the Hired Girl.

Three leading milkmen from three populous Michigan cities were engaged, not long since, in "swapping inside tips" in the milk business. All agreed that the most important thing, the thing that must be done in order to keep up trade, is to have men on the milk wagon who can keep on the good side of the hired girls. After several instances in support of this had been noted, one of the three, after looking all around and assuring himself that no reporters were in hearing, told how his wagon-man, who was a favorite with all the hired girls, got a new customer. One of the girls with whom the wagon-man was very friendly went to work for a family who had long been customers of another milkman. In a few days he got word to deliver milk where the hired girl had

gone. When he went he asked her what was the trouble with the other dealer's milk. "Oh, nothing; but I wanted you to come here, so I put vinegar in the cream for a few days." It is needless to remark that patent aerators and sterilizers do not compare in importance with such a man as that.

**How can Sheep Husbandry be made Profitable under Present Conditions.**

By JOSEPH STEPHENSON, MEMPHIS.

[Paper read before the Macomb Co. Farmers' Institute at Armada, Jan. 13, 1897.]

With every farmer, stock of some kind is a necessity, in order to consume what is grown on the farm. After a few years of great depression in sheep husbandry in our state, it is quite cheering to be able to say the future looks bright for a revival in the pursuit that promises to be of a lasting character.

We believe our farmers have been making a great mistake in sacrificing their flocks as they have the past three years. With a decrease of half a million in our own state, about eight millions in the United States, one million in Great Britain, and nine millions in Australia, we believe those who have kept their flocks will have an opportunity to reap their reward. Not all men make a success of this industry. But those who persevere with good judgment are the ones who get a fair return for their labor and capital.

The time has come when haphazard farming ceases to be profitable, and we must put our brains at work and run the farm and everything in connection with it on sound business principles. Even sheep breeding must be conducted on the same principles if we would make it successful. We cannot afford to sell everything that will sell and breed the remainder, but must keep the best; put our flocks into such shape that they will be self-sustaining in quantity, and breed in such a manner that no matter what we are breeding for, the flocks will be getting better. We should determine what is the primary object in breeding; whether mutton or wool. But this is pretty well decided now for us. Wool cannot now be grown at a profit, and the future offers nothing flattering, for there is no escaping the inexorable law of competition.

There are two branches of sheep husbandry that can be made profitable, even under existing conditions,—the production of mutton lambs, and stock for breeding purposes. My experience has been confined to the former. There are two ways of getting an ideal flock. If possessed of the ready money, we may buy the product of another's labor, which is much the shortest way. But that is not just in line with the purpose of this paper, so we will assume that we have a flock of ewes and wish to obtain the best possible results both for the money that is in it and the satisfaction there is in owning it. For one should take as much satisfaction in the possession of a good sheep as he does in the money he receives for it. The money is the substantial object, but we are aware that excellence brings satisfaction and money. The breeding flock of ewes should be allowed good feed after the milk is dried up till the coupling time. I think it quite important that they are in good thriving condition at this time. In selecting a ram, whether a Down or long wool, it is of vast importance that the animal be purely bred and individually a good specimen

of the breed. The lambs will show greater uniformity, and will sell better. If in large flocks, I think one of the Down breeds will give the best satisfaction. They are hardier and can be kept in larger flocks than the long wool breeds. If sheds are suitable for early lambs, would breed about October 20. But the critical time has just come,—that uncertain, unreliable, busy fall, when the pasture is too good to turn off from and too poor to keep the sheep thriving; and the sheds are not ready, and no time to fix them; and the sheep are almost forgotten, and the cold rains come on and drench them through and through, and a month's feed is more than lost before they get it. Now, if you expect a profit, don't do it. What is lost in condition during the fall is dearly gained, if at all, during the winter. Have a shelter for the sheep and have them in it when the weather demands it. Ewes that will lamb the last of March will need a little better feed than those that lamb in May. I commence feeding grain about Dec. 1, one-half bushel to fifty ewes, corn, oats and bran equal parts by measure, always feeding a little nice clover hay until they become accustomed to dry feed, when I feed straw and corn fodder, feeding hay only at night. About one month before the lambs come I would increase the grain gradually to about double the amount. Do not keep too many together. The lusty, strong ones will crowd the weaker ones away from the feed rack and grain trough, thereby obtaining a double portion themselves and depriving the weaker of their doubly-needed ration. Have all doors and gateways wide, it will save losses at lambing time.

Most farmers fail to appreciate the advantage of winter range for breeding ewes. During dry, pleasant days when the ground is frozen they can usually be allowed the run of a meadow or pasture that is to be plowed in the spring for corn without injury to the land and to the great benefit of the ewes. The little they pick up in this way is probably of not much account except in the way of affording a variety of food, which sheep, more than any other stock, seem to require; but the great benefit lies in the exercise the ewes thus get. The lambs will be stronger at birth and a much greater percentage of them are likely to be raised.

If your ewes are grade long wool or Down you may expect one-half of them to raise twins. At this time I would divide them up, having as few together as possible. Separate all those having twins, putting them by themselves to have extra feed and care. Have water by them at all times. I always have a few small pens about 2 feet by 4, and in case a ewe refuses to own a lamb I place her in the pen with the lamb. She cannot turn around, and after seeing that the lamb gets its feed a few times, she will give up and own her lamb. I never failed in making a ewe own a lamb in this way. Never let a lamb die if you can possibly prevent it; every lamb lost will take at least \$3 from that profit we are after. There are other points to be considered which have a bearing upon the profits, such as docking and trimming carefully before turning to pasture. Do not turn out too early while the ground is yet cold. Salt as often as once a week, or, still better, keep salt by them. With present prices of wool, we think it a good time to quit this barbarous plan of washing sheep. It is a good plan to change pasture often; if your pas-

ture is in one field it will pay to divide with temporary fence, changing often. In raising mutton lambs, I find ticks the worst enemy they have to contend with; they cannot thrive if they have ticks. Some say feed the ewes sulphur. I never could see any beneficial results from its use; perhaps I did not use enough. I bought refuse tobacco and steeped it, making a strong liquid, and dipped the lambs just after shearing the ewes. One dipping will usually clean them off entirely. There are several dips on the market which would probably be better; I have not tried them.

To get the best results, lambs should be kept growing; never let the flesh that is born on a lamb get off its bones, but keep it there, increase it and improve it, until it leaves the farm as some one else's property. Such lambs would weigh from 80 to 100 pounds at four to five months old, and would bring from \$3 to \$4 per head this past fall.

Now let us see what we could reasonably expect from a flock of fifty ewes. They should shear six pounds of wool, which would bring, at the present time, 12½ cents, which would be \$37.50. They should raise sixty lambs, which, at the prices last fall when from 4 to 5 months old, would bring \$3.50 per head. Total amount received from fifty ewes, \$247.50. That my figures are not too high, but within the reach of all, is shown by letters just received from friends who have been engaged in the business for the past fifteen or twenty years in St. Clair county. One, from 31 ewes and one ram, received a total of \$207.85 after selling 7 ewes and retaining 9 ewe lambs in their place; an average receipt of more than \$6.50 per head. The other, from 49 ewes and two rams, got gross receipts of \$255, or an average of \$5 per head. Now I would say right here if those ewes were fine wool ewes, or if I was not willing to get up at least once in the night to look after

the ewes and lambs for about three weeks while the lambs were coming, by all means have them come one month later. About one-third of the fine wool ewes would probably have twins. They need the fresh grass in order to furnish milk in sufficient quantity. I think it best to keep such lambs till January or February. I would wean at about four months old; would commence feeding grain while on grass,—corn and bran, equal parts. When put in winter quarters, I would not let them out until ready for market; they will eat better if kept confined, and will consequently gain faster. There is no animal raised on the farm that will pay greater profits for the food consumed than good, thrifty lambs. The greatest profits are derived from young animals fed for quick growth from the day they were dropped, and marketed just as soon as they have arrived at the weights most in favor. We think in large flocks, with grain at present prices, the later lambs will give about as good returns as the earlier. There are other reasons why farmers should keep sheep, unless a specialist in some other line, the number depending on size of farm. There is much less capital required than in any other branch of stock raising. They will pick their living later in autumn and earlier in spring than any other stock. They are the best scavengers the farmer can have, eating much that would otherwise go to waste; also their droppings are spread more evenly on the poorest spots, thus improving the land. If rightly managed, and you do not overstock, they are comparatively free from disease.

In conclusion I would say keep your flocks up to the highest standard of excellence; mark and dispose of all ewes that do not at least raise one first class lamb, filling their places with the best of your ewe lambs,—those that mature the earliest, showing a good form and vigorous constitution. Of one thing I am sure, we can never sustain or maintain sheep husbandry by resolving in conventions that the duties on foreign wools must be replaced, or by relying on the special merits of the few thoroughbred sheep we have.

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We cannot stop this sale in the midst of a whirlwind of business, so will let the good work go on and continue this great profit crushing but business producing FIVE DOLLAR SUIT AND OVERCOAT SALE. We've got the goods and must have the money.

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# The M. A. C. Record.

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MICHIGAN AGRICULTURAL COLLEGE

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ASSISTED BY THE STUDENTS.

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For various reasons THE M. A. C. RECORD is occasionally sent to those who have not subscribed 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.

## The Secretary of Agriculture.

The agricultural interests of the country have been informed of their probable representative in the cabinet of President McKinley. Prof. James Wilson of Iowa Agricultural College has been tendered this place by the president-elect, and has accepted. Without regarding the territorial fitness of the appointment, the appropriateness of the choice made is beyond doubt. Prof. Wilson is sixty-two years old, was born in Scotland and received his education at Iowa College. Farming has been the occupation of his life, and he is a frequent contributor to the agricultural press. For six years he sat in the state legislature of his state, and for the same length of time was representative in congress from an Iowa district. He has served as farmer member of the Iowa railroad commission, and has been the trustee of the state University. To a suitable business life has thus been added enough political experience to equip him for a cabinet position. The agricultural colleges have more than a passing interest in the selection of Prof. Wilson. His connection with one of their number during the past five years should presumably identify him with the interests of these institutions. He is known to have opinions upon their needs and responsibilities, and a helpful consideration may be expected from him as Minister of Agriculture.

## Agricultural Colleges and the Civil Service.

J. STERLING MORTON.

In the future may it not be possible for an arrangement to be made, in accordance with law, between the presidents of agricultural colleges and directors of experiment stations on the one hand and the United States civil service commission on the other hand by which the certificates of the former as to industry, ability and character will permit their graduates, under the direction of the Secretary of Agriculture, to enter the service without examinations? If a reasonable construction of existing laws permits those who have devoted years of study at experiment stations and in agricultural colleges, and thus made themselves especially expert and skilled in specific lines of investigation, to enter the scientific bureaus and divisions of the United States Department of Agriculture after a rigid examination by their preceptors and certification by them as to their merits, will not the country begin at once to realize direct

benefits from experiment stations and agricultural colleges which under the present system seems to be wanting?

In short, by a judicious extension of civil service rules cannot the agricultural colleges be increased as to number of students and at the same time made a scientific rendezvous whence the Department of Agriculture may with certainty always draft into its services the highest ability and acquirements in specific lines of scientific research?—*Report of the Secretary of Agriculture for 1896.*

## Another M. A. C. Association.

Hon. Chas. W. Garfield, a graduate of the Michigan Agricultural College and an ardent enthusiast in all matters pertaining to the Lansing institution, will make another endeavor to revive interest in a local M. A. C. association.

This morning Mr. Garfield received a letter from the secretary of the Chicago M. A. C. association and his attention was again called to the number of students, past and present, that Grand Rapids has sent to the old college halls and the lack and evident need of some organization to bring them together.

The matter is now in the hands of Lin W. Rice at Sweet's. All those interested in M. A. C. or those having an idea of the kind of association that they would like to see formed, will leave their names with Mr. Rice. Later he and Mr. Garfield will sign a call for a meeting and local M. A. C. graduates may see a long cherished hope realized.

*Grand Rapids Evening Press.*

## "Watered Stock."

C. F. HERRMANN, '97, OF THE PHI DELTA THETA FRATERNITY.

There are but few stock companies which do not deliberately and with forethought deceive the public in regard to the rate of interest paid upon their invested capital. The practice of charging the public rates which realize an exorbitant per cent. of interest becomes quite simple when competition and statutory enactments are both lacking to keep the rates within the bounds of the cost of production. This fact is realized nowhere better than by corporations, and their usual cowardly manner of demanding the public to throw up its arms is by "watering stock."

"Watered stock" is, to a greater or less extent, an imaginary increase in the value of a corporation's possessions. It is represented by an increase in the number of shares whose full par value have not been paid into the corporation, but are partly accounted for by labor, property, or contract work. The object of this practice, as already intimated, is to seemingly decrease the future earning power of a public franchise, and prevent adverse statutory enactments by leading the public to believe that the companies are receiving but a nominal rate of interest upon their capital. The excuse offered for this dishonesty is that the investment was utterly useless, as far as earnings were concerned, for the first four or five years, which, no doubt, is true in a large number of instances, but does not in the least excuse the offenders. It is but reasonable to suppose that an honest, straightforward financial report from corporations would secure for them the privilege of continuing their high prices until a fair remuneration had been realized for the first few years of business depression. It is unreason-

able that after the public has used every possible means to encourage them to engage in business that it should now turn and trample them under its feet. Such a procedure is disastrous to the public welfare. Has the public any right to expect to receive consideration at the hands of corporations? Most certainly it has, when the public gives valuable franchises, when it gives the privilege of buying an individual's property without paying exorbitant prices, when it protects the invested capital against the imposition of others who would like to run their cars upon the same track, or string their telephone or electric light wire upon the same poles, or transact business in the same territory, and does all this for the mere promise that in return it shall receive the best possible service at the lowest possible rate. No one can doubt the right of interference to the public when these beneficiaries disregard its interests.

Aside from the injury done the public, inflated capital has a very marked effect upon the individual who purchases stock after the watering has taken place. He is often charged double the amount of the real value of his purchase, and is not aware that he is buying bubbles until he has become a member of the company. It sometimes happens that companies are organized for the sole purpose of inflating stock to the utmost and then selling it at the highest possible price to unsuspecting purchasers, who afterward find it impossible to realize a fair rate of interest upon the enormous sum paid for their shares. The natural result of this is foreclosure and receivership, and in cases of large corporations it causes a general depression in business circles.

Assuming that we are agreed that corporations should not be allowed the dishonest practice of watering their stock, in what way are we to overcome it? By enacting laws absolutely prohibiting the watering of stock, and allowing no company to declare a stock dividend until a state commission has investigated the labor, property, or contract work for which the stock is to be issued, and has found that labor, property or contract work to possess the amount of value represented.

When this has been done, the public will be able to receive a true account of the earnings of corporations, and then legislative enactments can be made limiting the charges of corporations.

## The Roentgen Ray.

PROF. PHILIP B. WOODWORTH.

During the year 1896 at least a thousand people have visited the physical laboratory for the express purpose of seeing a Crookes tube in operation. A conservative estimate would place the number of questions asked at about one thousand. The visitor will usually see the pale, yellowish green light given by the electrically excited tube and wonder if that is the wonderful, powerful X ray, and, when told that the glass bulb or bottle with metallic terminals sealed is a Crookes tube, will usually ask, "What is a Crookes tube?"

The answer in part is, if the tube were opened so the tube would be full of air, instead of the peculiar light there would be a zigzag electric discharge from one metallic terminal to the other; just the same as would take place in the open air. If now the tube is connected with an air pump and part of the air is pumped out the dis-

charge will take place with greater ease, and if the pumping continues the remaining air in the tube will show colors and effects similar to the northern lights. Later the whole tube will begin to glow. If the pump is an exceptionally good one and its action is carried on, there will come a stage of exhaustion at which one of the terminals will act as the source of light. Objects in the tube will cast shadows. A small windmill in such a tube will rotate, propelled by the something that apparently radiates from one pole. When the stage of exhaustion where one terminal is the center of distribution is reached, the tube is called a Crookes tube. Mr. Crookes found that the rays in these tubes could be drawn out of a straight line by a magnet and discovered numerous other peculiarities. If the air is completely pumped from the tube all electrical effects stop. No discharge takes place through a perfect vacuum. Suppose you wanted to make a noise by shaking a bottle of shot. When the bottle is full of shot you will get no noise. Pour out part, and the tube when excited (shaken) will make a noise. Pour out almost all the shot and you can get more noise. Pour them all out and you get nothing. So there is a mean, or best, value than can be arrived at by experiment. Such a condition may be said to be the Crookes tube condition.

But Mr. Crookes did his work about 20 years ago, and the new interest in the Crookes tube came from Roentgen's discovery that other and invisible rays from the Crookes tube had the power of making certain substances give out light. For several years match safes and clock dials have been arranged to shine in the dark, giving back the light they absorbed during exposure to sun light. There is quite an extended list of substances that absorb light when exposed. Roentgen discovered, first, that when in the neighborhood of an excited Crookes tube some of these substances would shine or glow just as though they had been previously exposed to sunlight; second, that objects placed between the tube and the substance cast shadows as though the rays came from one terminal of the tube; third, that the rays pass through almost all substances quite regardless of whether we can see through them or not. The rays cast a clearer shadow when they are compelled to go through a tin washdish than through a sheet of ordinary window glass. Fourth, that bones cast a darker shadow than the flesh, so that the shadow of a hand or an arm will show the details of the bones contained; fifth, that the materials used in the manufacture of the ordinary photographic dry plate are sensitive to these rays and if exposed to them will develop, showing shadows which have been cast during exposure.

Then the "wizard" on applications, Edison, set about to find the most sensitive substance to these rays. As a result of his work we use the tungstate of calcium, a material that looks like very fine table salt. When this is spread on an ordinary cardboard and held a few inches from the tube it will glow and emit light. The amount of light given out by the tungstate of calcium is truly wonderful. An 8 by 10 inch cardboard well coated will glow so that it can be seen by every one in a room 40 by 40 feet. If now a hand or arm is placed between the cardboard and the terminal in the tube every one in such a room will see the skeleton of the hand and the dim outlines of the flesh.

By the same process we have ex-

aminated broken bones in a man's foot without taking his shoe off. One of the most entertaining experiments is to put the card on one side of a man's neck and the Crookes tube on the other, then watch the movements in the throat when the man swallows.

The question that goes unanswered is, "What makes the tungstate of calcium glow?" There is no proof that it is either heat, light or electricity. We can bend all three with lenses, reflect all three with mirrors, and twist all three with special apparatus. But so far no one has bent, reflected or twisted the ray that must travel from the Crookes tube to the tungstate of calcium. In answer to a question often asked, I will say for myself and those who have been associated with me in a year of continuous work with the Crookes tube, not one has experienced any ill effect from the exposure.

By this discovery another great advancement has been made in the direction of solving the problems of physics, and to the surgeon it has already proved itself invaluable.

Every scientist feels an honest pride in the great strides investigators have made in recent years, and new experiments and their results are watched for by all students.

#### Hogs on the Farm.

[The following is the substance of a paper delivered before the Ottawa Co. Institute at Holland, Jan. 12, by S. Yutema, Forestgrove.]

Hogs on the farm is not a very nice sounding subject, but considered from the standpoint of dollars and cents it takes with many of us.

A hog is a clean animal if you give him a chance and consider his circumstances. I know when warm he will wallow in dirty water or mire, but that is the medicine for cooling the excessive heat with which his appetite or the farmer's feeding has filled him.

When I commenced farming for myself I soon found out that hogs needed comfortable quarters. In one of our agricultural papers I found a plan, as follows: Pen 8 ft. by 12 ft., with posts 6 ft. high; double sheathing of inch boards; covered with roof-boards and shingles; floor of two-inch boards; nothing in it but a trough, so that it could be easily cleaned. This was for feeding only.

For the hogs to sleep in I built another pen of the same dimensions about two rods from this, but with a floor of stones covered with about three or four inches of sand, and with stone walls about two feet thick and three feet above ground, thus making the ridge of the roof about seven feet above ground. On the south end was an opening for the hogs, and on the north end a shutter for putting in bedding. Both did very well for a number of years, when other lodgers—very small indeed, with, according to Webster, two eyes and six feet, and noted for their agility and leaping—wanted to share in the bedroom of the swine. I tried to exterminate them, but failed. At length my wife hinted that it was best to take the pen down, else they might make excursions to other quarters. So the roof was removed, the walls were torn down, and a timely freshet did the rest to the intruders.

After that I made two cheap pens, without floors, and with sides and roofs of common boards; but these in rainy weather became damp, and when more bedding was put in it began to ferment like a manure pile.

In connection with these we had a place for feeding—simply a platform

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of 2-inch oak plank a few inches above the ground. Not being corn-tight, rats made it their picnic ground, and when driven out by cold, went to stay over night with the pigs and disturbed their quiet sleep.

In order to get rid of the rats I took up the platform and laid it so low that it was too wet for them to dwell under, but, to my chagrin, I found it often too wet for the hogs to eat their corn. I then got coarse gravel and made a bed for the planks, high enough to keep dry. The planks were kept together by a fence-board nailed across each end. This has proved satisfactory.

I have now two 8 by 12 ft. pig houses or pens, with about six inches of gravel under the two-inch plank floors. In winter I bring bedding to the hogs two or three times a week, and in case of too much straw, I remove the old. Perhaps fattening hogs might do without bedding, but in winter I think it is better for them.

For breeding sows, in winter, I have a shed connected with a barn, where three can have a separate pen each, arranged so that each can be let out alone, said room being warmed by ventilation from the cow stable.

The best time to breed differs with localities and soils. If the soil around the barn is very dry, I think there is not much difference; but with us who live on clay soil it often makes a great difference. If the young pigs have to waddle a great deal in mud and slush they are almost sure to get stunted in growth; likewise, when their pens are so small that they cannot get sufficient exercise.

A sow which has a brood of young ones should be fed carefully, at least in winter. Good success needs a good start. Skimmed milk or, what is better still, buttermilk, should be item one of her diet. Use with this barley or rye meal. Low-grade flour is also excellent, if the grade is not too low. I avoid feeding corn to young pigs, unless in connection with potatoes, apples or mangels. Too much corn fattens them prematurely. Clover pasture, or well cured, early mown clover, is often a great help.

Hogs should be kept growing every day, with plenty and a variety of food, but never should be overfed. Keep in mind that overfeeding or irregular feeding is sure to take all the profit away. During cold weather all ground feed that is mixed with water or milk when fed should be warmed to the natural heat of the animal, otherwise the animal will need more food to get warm.

Meal that is fed to pigs should be boiled till done, then properly cooled before feeding. The cheapest pork I ever made was made by fattening a lot of hogs on boiled mangel leaves and potatoes, to which I added, when

about done, enough meal to make a thick pudding.

Since there is nothing like corn for fattening hogs, it should be the chief food for the last six or eight weeks. It is best to feed old corn till New Year's. If you do not have it, buy it, unless it be very high in price.

In feeding hogs do not give them more than they will eat up clean. When you are cleaning out the trough or are cleaning a place for the corn for a half dozen or more hogs, if there is not a lot of squeeling going on then there is certainly something wrong. You have either overfed them or you are so cruel that you are a terror to the poor creatures. I feed hogs for fattening twice a day, and it is best not to disturb them between times. The more quiet they are left the better they will grow. I find it best to fatten each brood separately.

The best time to fatten hogs is all the year around, and the very best time to sell is when they are ready for market. Try these two things fairly, and you will stick to them.

I always try to please the meat-market man with the pork I sell him. At present there is more demand for meat in hogs, proportionately, than formerly. We farmers must satisfy this demand or take less than the market price for our pork.

In conclusion I would briefly say: Take very good care of your breeding sows. Always have clean sand, gravel or clay where they can get to it when in pens; for little pigs this is still more essential. Clean the pens and put in a little bedding every day. Feed with care, plenty with variety, but not too much. Be on the best of terms with the animals. Keep them growing, growing, growing, till they are seven, eight or nine months old, and then sell. The result will generally be a good return for all your feed, time and care.

#### Both at Home.

An amusing story is told of the late Principal Pirie of Aberdeen, Scotland. Just as "at home" cards became fashionable, one of the driest specimens of the old professional régime was surprised to receive a missive which read as follows: "Principal and Mrs. Pirie present their compliments to Professor T., and hope he is well. Principal and Mrs. Pirie will be 'at home' on Thursday evening at 8 o'clock." This was something which evidently required an answer, but the recipient of it was quite equal to the occasion. He wrote: "Professor T. returns the compliments of Principal and Mrs. Pirie, and informs them that he is very well. Professor T. is glad to hear that Principal and Mrs. Pirie will be at home on Thursday evening at 8 o'clock. Professor T. will also be at home."

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## English and American Skaters.

It has been said that there are no skaters on ice in the world as graceful as the American girls. This may be due in a measure to the difference in method between the skating of the girl of the New World and her English sister, but be the cause what it may, the truth of the assertion still holds. An essential feature of the English method is to skate with a straight knee, which cannot be accomplished to the letter and at the same time give the graceful, easy stroke which is so noticeable a characteristic of the American skater. It cannot be said, however, that the women of the old country are as prone to adopt this method as the men, and there are in England today some really fine skaters. Englishmen, as a rule, execute their movements on the ice on a grand scale. They appear to be flying rather than merely gliding over the surface of the ice, and some of their strokes are really marvels of strength and skill, one stroke frequently carrying the skater the entire length of the rink. The American skater, however, takes the stroke with a slightly bended knee, and then coming up to the "straight-knee" movement, makes a most easy and graceful appearance.—*Washington Post.*

## At the Gallery.

Such a dainty cap of linen  
Quite becomes your tossing tresses;  
Surely, sweet, you've never been in  
London, where each maiden—bless  
us,—  
Wears a fluffy, stately bonnet,  
Huge with flowers and feathers on it.  
Praise for you is most condign,  
Winsome Mistress Valentine.  
Cherry lips and cheeks of posies,  
Clear brown eyes with mischief  
smiling;  
Surely, some young fellow knows he's  
Waisting time with your beguiling.  
Love, I fear, for you is folly;  
And, withal, so fair and jolly,  
I would say your quite divine,  
Winsome Mistress Valentine.  
Some might say you're like a Venus,  
But I know you're too unquiet;  
Still I'd have none come between us,  
Though, I'm sure, I never sigh yet,  
When I think you can not love me,  
For you hang quite high above me,  
And you're not down in the line,  
*Painted Mistress Valentine.*  
—*Notre Dame Scholastic.*

"When I first earned money I sat down and thought it all out. I perceived that it did not matter how much one earned, it was necessary to save something all the time or one could never be anything but an employé. Even when I earned only \$2 per week, a certain part of it was put aside for future use."—Hermann H. Kohlsaat, a poor boy at twenty, but a millionaire at forty-three and owner of the *Chicago Times-Herald* and the *Evening Post.*

Germany is gaining ground because "Their country bristles with technical schools, with commercial training colleges, and with special educational institutions for every kind of theoretical learning and practical skill, from the method of dairy farming to the theory of transcendental aesthetics."—Dr. Dillon in the *Fortnightly Review.*

Botany class. Miss C.—"Mr. W., what reason can you give for the growth of cocoon palm on coral islands?" Mr. W.—"The seeds (cocoonuts) are carried there by birds."—*Et.*

## Official Directory.

Sunday Chapel Service—Preaching at 2:30 p. m.

Y. M. C. A.—Holds regular meetings every Thursday evening at 6:30 and Sunday evenings at 7:30. S. H. Fulton, President. C. W. Loomis, Cor. Secretary.

Y. W. C. A. regular weekly meetings for all ladies on the campus Tuesday evenings at 8 o'clock, in the ladies' parlors. Meetings on Sunday evenings with the Y. M. C. A.; Miss Edith F. McDermott, President; Miss Alice Georgia, Cor. Secretary.

M. A. C. Grange—Meets every three weeks on Tuesday evening in the Columbian Society rooms. Prof. C. D. Smith, Master. H. W. Hart, Secretary. Natural History Society—Regular meeting second Friday evening of each month in the chapel at 7:00. H. C. Skeels, President. W. R. Kedzie, Secretary.

Botanical Club—Meets first and third Friday of each month in the Botanical Laboratory at 6:30. T. Gunson, President. W. R. Kedzie, Secretary.

Shakespeare Club—Meets every Wednesday evening. Dr. Howard Edwards, President.

M. A. C. Athletic Association—C. B. Laitner, President. G. B. Wells, Secretary.

Columbian Literary Society—Regular meeting every Saturday evening in their rooms in the middle ward of Wells Hall, at 7:00. T. A. Chittenden, President. A. J. Weeks, Secretary.

Eclectic Society—Meets on fourth floor of Williams Hall every Saturday at 7:30 p. m. D. C. McElroy, President; T. H. Libbey, Secretary.

Feronian Society—Meets every Friday afternoon at 1:00 in Hesperian rooms. Miss Pearl Kedzie, President. Miss Hattie Chase, Secretary.

Hesperian Society—Meetings held every Saturday evening in the society rooms in the west ward of Wells Hall at 7:00. A. T. Cartland, President. D. E. Hoag, Secretary.

Olympic Society—Meets on fourth floor of Williams Hall every Saturday evening at 7:00. W. R. Goodwin, President. E. R. Russell, Secretary.

Phi Delta Theta Fraternity—Meets

on Friday evening in chapter rooms in Wells Hall, at 7:00. H. A. Hagadorn, President. C. M. Krentel, Secretary.

Union Literary Society—Meetings held in their hall every Saturday evening at 7:00. G. A. Parker, President. A. E. Wallace, Secretary.

Tau Beta Pi Fraternity—Meets every two weeks on Thursday evening in the tower room of Mechanical Laboratory. G. A. Parker, President. E. H. Sedgwick, Secretary.

Club Boarding Association—I. L. Simmons, President. H. A. Dibble, Secretary.

Try and Trust Circle of King's Daughters—Meets every alternate Wednesday. Mrs. C. L. Weil, President. Mrs. J. L. Snyder, Secretary.

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**News from Graduates and Students.**

We are sorry to hear of the death of the little daughter of Mr. and Mrs. Frank R. Poss, '94.

G. N. Eastman, '97m, left for his old home near Imlay City last Tuesday, to be gone about two weeks.

J. H. Briley, '96, is starting a reading table in his school at Hillman and writes for the M. A. C. RECORD.

N. J. Miller, with '97m, paid us a visit Saturday and Sunday. Mr. Miller is employed as bill clerk in the senate.

Charles S. Emery, '77, represents E. Bement & Sons in Texas, with headquarters at Waco. His wife left Lansing last week to join him.

H. M. Howe has returned from his trip through the southern states and is now at work in the office of D. M. Ferry & Co. of Detroit, Mich.

At a meeting of the Scientific Association of the University of Missouri, Monday evening, Jan. 25, Prof. F. B. Mumford, '91, gave an address on "Effect of Temperature on Animal Nutrition."

F. N. Bierce, with '97m, who is working for the Stilwell-Bierce Co. of Dayton, O., received a call last week from W. A. Anson, with '95m. Mr. Anson is traveling for the Elliott Button Fastener Co. of Grand Rapids.

Honor is a new town of Benzie county—right in the woods and surrounded by hills. A fine two-story schoolhouse shows that the founders believe in education as a corner stone. M. S. Gregory, the teacher, is a former student of M. A. C.—*Moderator*.

Z. Veldhuis, with '96, now lives at Overisel. He graduated last spring in the veterinary department of the Detroit College of Medicine. He has spent some weeks lately in Detroit with Dr. Brenton. He visited M. A. C. last week and has a high opinion of her advantages. He has from time to time advised young persons to attend this College.

It is reported that John W. Rittinger, '94, is a candidate for the position of superintendent of schools in St. Joseph county, Indiana. At college Mr. Rittinger was a great favorite, a good student and trustworthy. His college education and his experience as a teacher give him a good training for the position to which he aspires, and we hope he will be successful.

Prof. F. B. Mumford, '91, is now right in the midst of his work with students in the short winter course in agriculture at the University of Missouri. The course opened Jan. 5, and will continue to March 30. Prof. Mumford gives seventy-five lectures in this course, ten on farm equipment, fifteen on farm crops, twenty on breeds and breeding, and fourteen (exercises) in stock judging. C. M. Conner, '92, gives a series of lectures on drainage.

Prin. Campbell [94] writes: "The Yale schools have a first-class course of entertainments this winter. McClary, Bliss Concert, Macy, Wood and Sprague. One new organ has gone into the school since Christmas and there is nearly enough money on hand to purchase two more. New reading table, upon which may be found "Timely Topics," "Moderator," "Week's Current Intelligence," "McClure's," "Cosmopolitan," "Scientific American," "Literary Digest" and "Educational Gazette." A review class meets at 8:30 every morning in the high school, and from primary to high school all are hard at work."—*Moderator*.

N. D. Corbin, who has been a correspondent for the Detroit "Free Press" and the "Evening News" for some time, has accepted a position on the latter paper, and went to Detroit Sunday to start in. Mr. Corbin has been a hard working, persistent news hunter, and has shown an energy and ability for the work that will surely bring him success in a larger sphere of action. He has many friends here who will wish him the best of success.—*Ann Arbor Courier, Jan. 20, '97.*

"Science has bred in us a spirit of experiment and a contempt for the past. It has made us credulous of quick improvement, hopeful of discovering panaceas, confident of success in every new thing. Science—our science—is new. It is a child of the nineteenth century. It has transformed the world and owes little debt of obligation to any past age. It has driven mystery out of the universe; it has made malleable stuff of the hard world, and laid it out in its elements upon the table of every class-room."—Woodrow Wilson in the *Forum*, referring to Princeton in the nation's service.

Jean de Reszke declares that last summer all his servants performed their labors to the energetic rhythm and melody of Seigfried's smithy songs, which they heard him practicing so often.

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