The M. A. C. Record.

VOLUME I. LANSING, MICHIGAN, TUESDAY, MARCH 17, 1896. NUMBER 10.

OTTAWA COUNTY FORESTRY ASSOCIATION.

W. J. BEAL.

The board of supervisors, of Ottawa county, realizing that the continued destruction of the forests, which is rapidly going on from year, is likely to prove a calamity in the near future, by causing drouths and cyclones which so often visit treeless portions of the country, and for the purpose of arresting this destruction, and also to awaken an interest in tree culture, appointed a committee on forestry.

This committee organized The Ottawa Co., Forestry and Tree Culture Association. They earnestly urge every land owner to avoid as far is possible the destruction of the forests now standing, and to give the young growing trees such care and attention as will prevent them from being destroyed, and to begin this spring the planting of trees by the roadside, in waste places, and in fact everywhere that it is practicable to do so.

In their report at the close of the year, they wish to be able to show that thousands of trees have been planted, and that the citizens of Ottawa county are not only alive to their own interests, but also to that of posterity.

They also earnestly urge as many as possible who are interested in this movement to join the association, by paying into the treasury the small sum of twenty-five cents. All teachers and pupils will be enrolled as members on the payment of ten cents. They desire every teacher thoroughout the county to become a member and also to get as many pupils in their respective schools to join the association as possible, and to have the pupils urge their fathers to join, and make this movement a grand success.

On March 6, Governor J. T. Rich and the subscriber attended the first public meeting of the first county Forestry and Tree Culture Association ever established in Michigan. The new court house was well filled in the afternoon and evening with the citizens including many school children. Walter Phillips, of Grand Haven, is president; P. A. Latta, of Holland, secretary.

A company of national guards escorted the governor from the train to the hall. He complimented the beautiful court house, and was gratified with the evidences of thrift and prosperity on every side. He considered this a movement in the right direction, since the forests of our state were vanishing too quickly. It is time now to provide for the reproduction of these forests. Many states were cited showing that they were moving in advance of us. The woodlot will not grow good trees and at the same same time afford pasture for cattle, sheep and horses.

The subscriber spoke much in the same vein as at numerous institutes the past winter, dwelling particularly on the importance of making strenuous efforts to save the young timber from destruction by fire or other means. He advocated a provision for a State Forest Commission as the head to direct needed reforms in our state.

A resolution favoring such a commission was unanimously adopted with considerable zeal. Three sets of large photographs from the college were displayed on the walls, one lot of eight views of Graceland cemetery in Chicago, planned and managed by O. C. Simons; one of six views taken last summer of our North Lansing road by H. E. Harrison, '88, and B. O. Longyear, '98; another of eleven views taken in Wexford and Benzie counties, under the supervision of F. E. Skeels, '78. Hon. Geo. A. Farr, '70, spoke with much earnestness urging legislative action in this important matter, and stated that this forestry question was not the visionary one it is sometimes represented. He spoke of the progress made in Germany in this direction and urged that a forestry school be established at the Agricultural College, and that our academies and the University give some attention to the subject.

After adjournment the Governor was escorted to the Cutler House, and in the parlors received the citizens in large numbers, not excluding small school children. The rooms were well decorated with bunting, pictures, flowers and plants.

In the evening the Governor and your humble servant spoke on the subject of good roads.

Ottawa county was once covered with a luxuriant growth of pine and other timber, most of which has been removed. The county has suffered repeatedly by extensive burning of the young timber, and the humus of the richest upland and swamps. The worthy example of these people may well be followed by many of the newer counties of our state and why not by the older counties also?

The attendance would probably reach four hundred and fifty and the convention would compare most favorably in interest with the best of the institutes held this year.

RESIGNATION OF PROF. PRENTISS.

At a recent meeting of the Board of Trustees of the Cornell University at Ithaca, N. Y., the resignation of one of the members of the original faculty of the institution was reluctantly accepted. The health of Professor A. N. Prentiss, always delicate, has become so precarious that he did not longer dare undertake the arduous duties connected with the management of the department of botany in a great university.

Prof. Prentiss was a graduate of this College with the class of 1861. He was afterwards professor of botany and superintendent of the grounds at this College. Later, in 1868, he was elected to the chair of botany, horticulture and arboriculture at the Cornell University. In the 28 years of his administration he has made the department of botany grow in equipment and enthusiasm fro n nothing to one of the strong features of a great university. He did the pioneer work in laying out the grounds and creating the present beautiful campus at Cornell out of a raw and rocky hillside. His success in his class room and laboratory work is evidenced by the host of trained and enthusiastic botanists which Cornell has graduated in her short but brilliant history. C. D. S.

CHICAGO M. A. C. ASSOCIATION.

RAY S. BAKER, '89.

Chicago now has an organization which cherishes the interests and traditions of M. A. C. On the evening of March 11, nineteen loyal graduates and former students of the College gathered in one of the dining rooms of the Clifton house to hold their first annual dinner.

At the head of the table sat W. R. Rummler, of '86, the temporary chairman. The years have bearded him and given him a legal aspect befitting his profession, but in other respects he is as young as ever. At his left was Dr. John Wesener, with '88, as sound and jolly as when he played the trombone and led the band at M. A. C. He occupies a prominent position as professor in the Chicago College of Physicians and Surgeons. Next in order at the table came L A. Breggar, '88, one-time athlete, now assistant superintendant of Graceland cemetery. His laugh was as loud and his handshake as hearty as ever. Three '89 boys sat in a row and buzzed with reminiscences.

There was Will Curtis, city editor of the Kewanee, Ill., *Star*, substantial and prosperous; and W. S. Palmer, who stands high in the auditorium tower where the weather is made and by pressing a button cloaks Chicago in a blizzard at will. He and his wife live at 4707 St. Lawrence avenue. Near him sat E. N. Pagelson, '89, *m.*, brown from wandering in the wilds of the south. At present he occupies an excellent position with Cram Bros., manufacturers of mining machinery. Then came O. H. Pagelson, '93, professor in Northwestern University; J. P. Churchill, '95, *m.*, who is with the Illinois Central railroad company; Frank Bauerle, '92, *m.*, who is making money in the manufacturing of mantels, and, at the foot of the table, W. P. Hawley, '92, *m.*, who recently escaped being injured in an explosion at the Troy laundry machinery works, where he is employed. J. S. Dixon, '86, occupied the next seat, and then came A. E. Brown, with '86, who is working in the mailing department of the Chicago postoffice. The oldest graduate present, S. M. Millard, '65, sat next in order. Although it is nearly 32 years since he left the College, his appreciation of M. A. C. and its work has been in no wise dimmed and he was quite as enthusiastic as anyone present. He entertained the younger men around him with stories of the old days when the College campus was speckled with stumps and the only dormitory was the famous "Saints' Rest." Thomas F. McGrath, '89, who occupied the seat on Mr. Millard's left, looks much as he did in College, although he has accomplished much as an engineer. R. W. McCulloch, '87, is little changed. he goes soon to the far west where he has property interests. In the next seat was C. E. Smith, '84, of Waukegan, who was a delegate to a recent convention in his county, and who, it is hinted, may come soon to still higher political honors. Byron S. Palmer, '81, next in order, is a dentist. Last Fourth of July he had the misfortune to have an eye put out by the explosion of a fire cracker, and he has suffered much from it since. On his left sat J. H. Smith, '83, who has for a number of years occupied a position with the schools of Roger's Park, Ill. Next and last came Ray S. Baker, '89, at present with the Chicago Record.

From the first the conversation was most animated and it was not interrupted by any set speeches. A permanent organization to be known as the Chicago M. A. C. Association was formed, with S. M. Millard, '65, as president; W. R. Rummler, '86, vice president, and Ray S. Baker, '89, secretary and treasurer. Pres. Millard addressed the gathering as "Farmers of Chicago," and lent to the enthusiasm by showing the possibilities of the work. The next dinner will be held in a year's time and it is hoped that one or more of the College professors can be in attendance.

AGRICULTURE IN JAPAN.

BY F. YEBINA, '95.

The real name of my country is Nepon, The Land of Sunrise. This name was given by the Chinese and the name Japan is not known to my countrymen. The name Japan was given by Spaniard traders on account of the varnish or japan which they received from that country.

The farmers in Japan belong to the so called lowest of the three classes of people, nobility, soldiers, and common people. At the present time the soldiers are taken from all classes of the people, but in former times when soldiers were considered of a higher class, the brightest of the lower classes took advantage of every opportunity to leave their trades for the higher position of soldier.

This left agriculture in the hands of the most ignorant. Thus we find that the same crude systems were used in cultivating the soil for centuries and centuries. The same old fashioned hand tools were used generation after generation, with no improvement. Then the people did not travel from place to place, and as a result there was no opportunity for exchange of ideas or improvement in methods of work.

The farmers all live in villages, where each family has a patch of some four or five acres planted to orchard or used as a vegetable garden. Beside this little plat upon which the house stands each farmer owns a part of the extensive fields which surround the village, and which are planted mostly to rice. These rice fields extend from one to two miles from the village and are unfenced.

Each village has its pasture, meadow land, and mountain, all of which are under the control of the village council. The village pasture acommodates all of the stock of the village and an exchange of stock among the people of the different villages is so arranged that all the animals of a given village are of the same sex, while in the adjoining village they are all of the opposite sex; in one village all cows, in the next all bulls; in one all mares and in the next all stallions. The mountain furnishes fuel, many wild vegetables, mushrooms, and nuts for the villagers. There is a national law regulating the cutting of timber. The timber land is generally divided into a certain number of parts, one of which is cut each year and replanted, so that the supply of wood does not decrease.

Rice is the chief product of our agriculture. There are two varieties, one grown upon high land and one grown upon low lands that can be flooded and where the water supply can be controlled. The first variety is one of inferior quality. Great care is required for the successful growing of the low land variety. The rice seed is sown broad cast in an especially prepared bed in April. This is kept flooded with about an inch of water until sometime in May when the young plants have grown to be four or five inches tall and they are transplanted to the rice fields. Here they grow in groups of ten to fifteen, about ten or twelve inches apart. These fields are kept flooded until August except when the rice is to be weeded. This is done three times and is a very hard task for the farmer. He practically converts his hands into garden rakes by fixing on each finger a little point of bamboo, and lying upon the ground in the hot sun and damp, vile smelling atmosphere, rakes over his whole field.

In August or September the rice is ready to harvest. The grain is cut by means of cradles similar to those used in this country though smaller. It is bound and shocked about the same as grain is treated here and is then ready for threshing.

[To be continued next week.]

The M. A. C. Record.

PUBLISHED WEEKLY BY THE

MICHIGAN AGRICULTURAL COLLEGE

EDITED BY THE FACULTY.

ADDRESS ALL MAIL TO LOCK BOX 262 LANSING, MICH.

SUBSCRIPTION, 50 CENTS PER YEAR.

Business Office with ROBERT SMITH & CO., State Printers and Binders, 406 Michigan Ave., East, Lansing, Mich.

To be entered as second class matter at Lansing, Mich.

In this issue of the RECORD we begin the publication of an article from the pen of our Japanese student, Mr. Frank Yebina, on Agriculture in Japan. It will be interesting to compare this article with the one on Russian Peasant Life, from Vadim Sobennikoff, and then to compare the two with conditions existing in our own country.

We wish to call the attention of our readers to a lecture delivered before the Massachusetts Horticultural Society on Feb. 8, 1896. by Gilbert H. Hicks of the class of '92, formerly Instructor of Botany. Mr. Hicks spoke on "Seed Control; its Aims, Methods, and Benefits." We are glad to be able to print an abstract of this important lecture which appeared in the *Boston Transcript*. This lecture was very well received. It gives the numerous friends of Mr. Hicks here, and elsewhere, pleasure to learn of his success.

It was with pleasure that we received the following communication and the accompanying account of the C. M. A. C. A. dinner, which will be found on the first page of this issue.

PUBLISHER M. A. C. RECORD,
Agr'l College, Mich.:

By resolution of the Chicago M. A. C. Association I am directed to forward to you an account of the first annual dinner of the organization.

RAY S. BAKER,
Chicago, March 12, 1896. *Secretary.*

It is just such news that we want. It is such news that our alumni like to read. We wish that in every city containing a half dozen or more M. A. C. alumni similar organizations might be effected and that we might hear from all of them. To hear of the "old boys" gathered around the banquet table talking of old times on our campus, is almost like having them with us again; and there are none we like better than "our old boys."

An enquirer wishes to know if wood ashes sown with wheat in the fall are of value; also information regarding alfalfa clover as a farm crop.

As has already been stated in the RECORD, wood ashes are a very valuable fertilizer as they contain over 5 per cent potash, 1.7 per cent of phosphoric acid and 34 per cent of lime. On soils where potash is called for they are especially valuable.

They will make a good fertilizer for wheat on most soils, but difficulty will be found in drilling them in with wheat on account of the bits of charcoal and other coarse material which ashes always contain. It will be as well to sow them broadcast.

Alfalfa is still an uncertain crop in this State and should be indulged in but very moderately by the farmer. It matures its seed like the clovers, at about the same time, and should be treated in practically the same way, if the seed is the crop desired. It is cut while still in full blossom for hay and makes a most excellent forage, being somewhat richer than the hay from red clover. In very dry seasons and on loamy soils, deep and fairly rich, it may be a worthy competitor of the common red clover, but its reputation is by no means well established. C. D. S.

REQUIREMENTS FOR ADMISSION TO INTER-COLLEGIATE ATHLETIC CONTESTS.

In the *Speculum* of April 15, 1895 appeared the new regulations governing the admission of M. A. C. students to inter-collegiate contests after September, 1, 1895. In view of the many additions that have since been made to our student body it seems advisable to again call attention to these requirements.

We feel that the effort to raise the standard of athletics and to eliminate professionalism, an effort which is in thorough sympathy with the vigorous measures being taken by many eastern universities and by our own U. of M., should meet the hearty support of every lover of amateur athletics.

The resolutions adopted by the Faculty and approved by the Board of Agriculture are as follows:

Resolved, That the students be allowed to retain membership in the Inter-collegiate Association and that they be allowed to participate in the various contests on the annual field day and in games of foot ball and base ball on the grounds of this or some other college, under the following conditions:

1. To be eligible to take part in any inter-collegiate contest occurring in any term, before the first monthly report, the student must have been in regular attendance upon the college for at least the term next preceding, and shall have taken in that term the equivalent of three studies.

2. To be eligible to any inter-collegiate contest a student must have an average standing of eight or over on a scale of ten, and shall not be conditioned in more than two studies.

3. The eligibility of a student to inter-collegiate contests after the first monthly report for the term in which he enters, shall be determined by special action of the Faculty.

4. No student shall represent the college in any regular annual inter-collegiate field day who has not received from the Secretary of the Faculty a statement in writing certifying to his eligibility under these rules.

5. These regulations shall go into effect at the beginning of the next college year.

Resolved, That article six of the constitution of the Students' Organization be amended so that it shall not be competent for the organization to levy any tax for athletics, or that taxes levied for athletic purposes shall be voluntary obligations.

Resolved, That the Faculty opposes professionalism in athletics, and desires the student body to abstain from anything savoring of the same.

AT THE COLLEGE.

Mr. and Mrs. Rossman visited at Mr. Westcott's last Wednesday.

The thermometer went below zero at the College last Wednesday night.

We are sorry to learn that Prof. Chamberlain's mother is very ill.

Mrs. Jessie Beal Baker returned to M. A. C. last Friday for a week's visit.

A new team will be purchased by the Horticultural Department this spring.

A nine pound girl baby was born to Mr. and Mrs. E. A. Edgerton last Sunday evening.

The Vacation Guitar Club played at the Feronian Society meeting last Friday afternoon.

A. A. Crozier, assistant in agriculture, spent a couple of days last week at his home in Ann Arbor.

The M. A. C. Grange will meet in the Columbian Society rooms next Friday evening at 7 o'clock.

Last Thursday Mrs. Chamberlain received the sad intelligence of the death of her sister in Buffalo, N. Y.

Superintendent of Institutes, K. L. Butterfield, returned Saturday from a three week's institute trip through Ohio, Indiana and Wisconsin.

At the invitation of the board of trustees Prof. Weil last week examined the heating, lighting and water plants of the Kalamazoo asylum for insane.

One of the city pastors thought an Agricultural crusade had struck town when six of our faculty ladies called at his home in one day last week.

G. C. Davis, instructor in zoology, went to Grand Rapids last Friday to investigate certain pests that are doing great damage to the mushroom industry in that vicinity.

The Mechanical Department now has complete sets of blue prints of exercises used in the various shops—one set mounted for shop use and another bound for reference.

Quite a number of special students are taking lectures in Bacteriology under Dr. Grange. Six of the seniors, Messrs. Buek, Briley, Clute, Fimple, Nichols, and West, have chosen subjects along this same line for thesis work.

F. B. Rae, the expert electrician employed by the city of Lansing to investigate the troubles of the city lighting plant, invited Prof. Woodworth and his electrical engineering students to make the line tests and measurements to determine insulation, resistance, etc., which they did yesterday.

Prof. A. B. Noble, assistant professor of English, was recently elected to membership in the Phi Beta Kappa Society by the Alpha Chapter at the State University of Iowa. The object of the Phi Beta Kappa is the promotion of scholarship and friendship among the students and graduates of American colleges, and its membership is made up exclusively of those high in scholarship and morality who have studied Latin and Greek, or Latin.

Through the courtesy of Mr. Frank Yebina we have received from Prof. Tonaka of the University of Komaba, Tokio, Japan, seven varieties of Japanese wheat. It will be remembered that Prof. Tonaka visited M. A C. in '94.

NEWS FROM GRADUATES AND STUDENTS.

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

B. W. Peet, '92, will commence the study of medicine next year.

A. T. Miller, with '86, is a prosperous merchant of Swartz Creek, Mich.

W. H. Coffron, '82, Washington, D. C., is among those who are trying to solve the problem of X rays.

Geo. H. Rae, with '94. *m.*, 171 LaSalle St., is with the Chicago branch of the Westinghouse Electric Co.

Frank Johnson, '95, *m.*, is now with a Michigan Central R. R. bridge erecting crew at Cornell, Ontario.

We are sorry to learn that Wm. S. Howland, who expected to return to M. A. C. this spring, is not yet able to leave the hospital.

C. D. Beecher, with '89, is engaged in agriculture near Flushing, Mich. He is considered one of the most successful farmers of his locality.

J. A. Welinder, '96, *m.*, is taking special work at the North Dakota Agricultural College. He expects to return to M. A. C. in the future.

Speaking of the RECORD personals, "There are no boys like the old boys."—W. W. Daniells, '64, professor of chemistry, University of Wisconsin.

H. F. Palmer ['93] and wife are moving from the old homestead to their new farm in Brooklyn.—*Napoleon correspondence to Grass Lake News.*

J. R. McColl, '90, *m.*, Supt. Mechl. Dept. Tenn. University, Knoxville, writes of the successful results which he has reached with X ray photography.

R. C. Fisher, '95 returns to Ypsilanti this spring for 10 weeks work. He will graduate in June with the degree of B. Pd. His love for his alma mater is none the less.

Hon. C. W. Garfield, '70, is president of the Michigan Cyclist Publication Co., Grand Rapids, Mich., and each week edits a sprightly department entitled "The Road and Roadside."

John Hinkson, '92, U. of M., '95, is now practicing medicine at Wacousta, Michigan. He has a twenty mile drive through surrounding territory, and enjoys the open air exercise.

Prof. P. A. Latta, secretary of the Ottawa County Forestry Association, went to Grand Haven Friday, to attend the mass meeting held there in behalf of tree culture.—*Coopersville Observer.*

Guy Stewart ['95] is lending his experience and business ability to the "Favorite Store" this week in the absence of its enterprising proprietor, A. M. Radin, who is in Detroit buying new goods.—*Otsego County Herald Gaylord.*

Wm. Melville, who is connected with the acid department of the Michigan Carbon Works of Detroit, and who spent last summer at M. A. C. as a special student in chemistry will return during the present year for further study.

W. H. ~~Clemons~~, '86, will leave Michigan this year in the capacity of traveling salesman for the Perkins Wind mill Company of Mishawaka, Ind. His family will follow him to the West in a few months, where they will permanently locate.

W. M. Munson, '88 professor of horticulture in the Maine Agricultural College, writes from Ithaca that he met President and Mrs. Snyder in Switzerland last summer, having traveled with them from Interlachen to Lausanne.

Owing to liberal appropriations at the Nevada State University, the department of Botany and Entomology in charge of Prof. F. H. Hillman, '88, has been greatly enlarged. His department now occupies an entire floor of a large building and is making good progress.

Wm. Petrie, '90, *m* is now superintendent of the St Johns, Mich. electric plant. His experience since graduating has been somewhat varied. Two years with the Brush Electric Company at Cleveland; two years in charge of the mechanical department for colored students at Knoxville, Tennessee; then a farmer at Con-

neaut Lake, Pa., for a short time, and last fall he again entered the employ of the Brush Company. He began his present duties three weeks ago, and will visit the college in a short time with his wife, who is a graduate of President Snyder's alma mater.

Prof. A. T. Stevens, '93, Greensboro, N. C. is having quite a problem in drainage to solve. Blue clay, yellow clay, red clay, pipe clay and quick sand are some of the soils he encounters. He kindly remembered one of his M. A. C. friends by sending some wild violets last week.

The Atlanta Tribune says of the recent County Teachers' Association held in that place: "The various subjects were ably discussed by some of our talented teachers; the subject of 'Child Study,' by Prof. H. B. Fuller ['92] was the most interesting feature of the meeting." The Hillman correspondence to the same paper says: "County school commissioner Fuller is proving himself to be an efficient official for the benefit of education in this county. He has done more to advance the 'new ideas' than all of his predecessors placed together since the organization of the county."

NATURAL HISTORY SOCIETY.

Roentgen Rays.

At the meeting of the Natural History Society last Friday evening, the whole time was given to W. J. McGee, '96, for an explanation of the theory of the Roentgen or X rays. Mr. McGee began by giving an idea of the various conditions of matter, solid, liquid, and gaseous, and also of the so called fourth or radiant condition which was discovered much later. He then performed several experiments with Crookes' tubes and called attention to the tendency of the molecules of radiant matter to produce phosphorescence upon striking against other bodies. He explained that formerly it was supposed that only the *cathode* rays had this property, and that *cathode* rays can be brought to a focus, or deflected by means of a magnet. But Prof. Roentgen while preparing to perform an experiment to show phosphorescence noticed that phosphorescence was produced through a medium known to be opaque to *cathode* rays. He immediately recognized the importance of his discovery and began experimenting with the unknown or X ray. He found that, unlike the cathode ray, it could not be focused, reflected or deflected, that it would pass quite readily through wood, iron, and other substances opaque to cathode rays, and that the facility with which it penetrated these substances was in direct proportion to the density of the substances. Another important discovery was that X rays produce an impression on photographic plates similar to that produced by light. Thus a new and very important field in photography was opened up. The X rays could be made to penetrate the flesh and show the location of bullets and other foreign substances or they could be sent through steel to show flaws or breaks not otherwise perceptible.

The room was then darkened and by means of the stereopticon, and slides made from photographs taken by Messrs. McGee and Eastman, several very interesting pictures were thrown upon the screen, including the one described by Mr. McGee in the last issue of the RECORD and some that have been taken since. One of the best of these was a picture of the tail and rear quarters of a mouse, in which the bones showed very plainly. Each individual vertebra could be distinctly seen, separated from its neighbor by a lighter space marking the location of a cartillage.

The program was very interesting and we hope that at subsequent meetings the young men who are carrying on these experiments will favor us with the results of any additional light they may glean from these mysterious rays.

BUTTERFLY TABLETS.

PROF. WALTER B. BARROWS.

The Zoological Department has obtained recently a supply of Denton's patent butterfly tablets and will soon place on exhibition in the Museum an attractive display of exotic butterflies and moths selected mainly from the rich collection donated by Senator McMillan a few years ago. These tablets are rectangular blocks or plaques of white plaster, made in a variety of sizes and proportions, each block hollowed at the proper place to admit the body of the moth or butterfly, while the wings are extended as with ordinary pinned specimens, but without the pins. Each block is faced with clear glass and "bound" with enameled paper so that the contained insect comes close against the glass and is encased in a hermetically sealed frame which not only protects it from dust and museum pests, but makes it an exquisite picture or medallion, the beautiful forms and tints of the insects showing to the best advantage against the snowy background.

This method of mounting has many obvious advantages, together with some drawbacks. The fact that each specimen is cased by itself is an absolute protection against the infection of the whole collection by museum pests, which so often happens where hundreds of insects are pinned in a single case. It also allows the handling and critical examination of the individual specimens by those who are not experts, without any danger of injury. Each insect lies so close to the cover glass that the character and arrangement of the wing scales and the venation can be satisfactorily studied with the hand lense, or even under the compound microscope. Above all, the beauty of the insect is shown to the best advantage, and this or some similar style of mounting is sure to come into general use, at least for display collections and popular instruction; it is not designed to replace the systematic collections of professional entomologists.

Perhaps the most serious objection lies in the fact that only one side of each insect is visible; but this is true of all other collections, and can be obviated readily by mounting two specimens of each species, one showing the upper surface and the other the reverse. Most other objections are more apparent than real, and are more than compensated for by the beauty of the preparations. The tablets are inexpensive and several hundred will be placed in our museum at once.

Zoological Department.

M. A. C. RECORD.

In a recent interview J. H. Brown, associate editor of the *Michigan Farmer* expressed himself as follows:

"I have just been looking over your issue of March 10, and find it very interesting and full of practical information. Dr. Kedzie's article on 'Chemist or Farmer' is somewhat reassuring to the almost discouraged farmer, who begins to think that food substitutes will eventually ruin him, body and soul.

"I think if Mr. McGee could cause an X ray to penetrate the anatomy of every progressive farmer in Michigan, he would, on an ordinary time exposure, develop from nearly every breast this expression on the plate: 'I have 99 per cent faith in M. A. C., and hereby give the other one per cent the benefit of the doubt.'

"I would suggest that every farmer who reads the RECORD should cut out the chart of the College farm (on page 4, issue March 10,) and save for future reference. It will be handy to refer to in reading future issues of this paper, wherein experiments are referred to as being located in certain fields or plots. Prof. Smith's description of the distribution of 'Farm Crops for 1896,' interested me very much.

"Although a student of the College but three months, I am quite familiar with every field on the farm, and have tramped the ground over many times in the last two years. I would give almost anything for the privilege of taking the full course now, with so many facilities for study and experimental work. The young farmer who can matriculate at this school, and realizes the full value of every moment of earnest study and investigation, should be happy. As he advances to greater attainments as a student and experimenter, happier is he who constantly finds a healthy incentive to reach greater heights yet unattained."

MASSACHUSETTS HORTICULTURAL SOCIETY.

[Address by Gilbert H. Hicks on Seed Control.]

Before the Horticultural Society, Saturday, Feb. 8, 1896, Gilbert H. Hicks, of the Department of Agriculture of Washington, delivered a lecture on "Seed Control; its Aims, Methods and Benefits." The lecturer first spoke of the importance to the farmer of good seed; that is, seed pure from dirt or weed seeds, etc., true to name, and of good vitality, and gave some of the results of tests of seeds. The lowest vitality and purity is found, as a rule, among grass seeds, and the detection of impurities in this class of seeds is the most difficult not only by the purchaser but also by the dealers. As the result of some germination tests made by American experiment stations on twenty-one kinds of grasses, the percentage which vegetated varied from two to twelve, and of eight other kinds not a single seed sprouted.

Perhaps flower seeds are inferior in respect to germinating averages even to grass seeds. Owing to the methods of culture as well as to their size, vegetable seeds are usually much cleaner than those of grasses and other forage plants. There is a good deal of fraud practiced by mixing small gravel and sand with vegetable seeds to increase their weight.

After giving further evidence of the large quantity of poor seed sold, the lecturer said, the important question is, What are we going to do about it? Shall we continue to believe that the evils will regulate themselves in the ordinary course of competition, as the seedsman would have his customers think? Experience with commercial fertilizers and adulterated food products ought to be sufficient to satisfy the most sanguine farmer or gardener that competition among seedsmen is not going to insure him good seed.

More than a quarter of a century ago these same questions were forced upon the attention of European agriculturists by the results of some tests of commercial seed made by Dr. Nobbe, director of the experiment station at Tharand, Saxony. Seed control methods were introduced, and as the result there has been a great improvement in the stock offered for sale. Poor seed is on the European market, but no man there needs buy it unless he wants to. At the present time there are over one hundred seed control stations in Europe, not a single important country being without one or more. Germany heads the list with 38, Sweden has 16, Austria 14, Belgium 9, Russia 7, and France, England and Scotland one each. Even Japan, Brazil and Java have one or more, the total number outside of the United States being in 1894, 117. In some cases this work is conducted in connection with a regular agricultural experiment station; in many instances seed testing alone is carried on. So far as the lecturer knew there are no laws in Europe compelling seedsmen to furnish good wares; the result is reached through the pressure of public sentiment due to the effect of control stations.

Frequently the work is undertaken in connection with agricultural societies, all of whose members share in the benefits. For example, every agriculturist in the jurisdiction of the Dresden Agricultural Society is authorized to send in to the experiment station at Tharand, Saxony, samples of seeds bought by him, together with a statement of their origin and cost.

The sample must be taken and sealed before a witness, and must be a fair average of the seed purchased, so that the dealer cannot dispute the result of the test. Of the smaller seeds, as radish, rape, clover, grasses, etc., at least half an ounce must be sent in, and in the case of larger seeds, such as peas, beans, cereals, maize, etc., from a quarter to a half a pound. The results of the test are published in the official journal of the station, which also publishes equitable standards of purity and germination, so that the people may know whether the guarantee of seeds offered to them is of a sufficiently high per cent.

Seed producers or dealers can have the purity and germinative ability of their seeds examined for one or two dollars, according to the size of the seed. Special arrangements are made with parties not members of the Dresden Agricultural Society.

The prices for seed testing vary according to the labor required and the country in which the test is made. A few of the stations are self-supporting, but most of them receive grants from the State to aid in carrying on the work. In many cases so-called "control firms" are regular patrons of the stations, paying a certain annual amount for having tests made.

To their customers they furnish a guarantee for genuineness, purity and germinating capacity, based upon, but not necessarily equal to, the test made by the station for them—the "preliminary test," as it is called.

Immediately upon receipt of the seed the customer can send a sample to the control station if desired, and have it tested at a reduction of from one-third to two-thirds from the prices charged the dealer, or, in some cases, without expense. This is called the "supplementary test."

The firm binds itself in case its seed falls five per cent or more below the germination per cent guaranteed, either to refund the money pro rata or to replace the goods, paying transportation both ways.

In supplementary tests made for members of the East Prussian Agricultural Society, if more than two per cent of foreign matter occurs above the guarantee, or ten dodder seeds per kilogram (about four and a half seeds per pound), the dealer agrees to take back the goods, paying charges both ways, or, at the option of the buyer, to refund from five to ten per cent of the cost for every five to ten seeds of dodder per pound.

Certain conditions exist relating to the amount of seed one must purchase to entitle him to free tests; also, to the manner of drawing and sending samples, limit of the time of the year when seeds can be bought under a guarantee, time for filing claims, etc. The methods of procedure are perfectly equitable for both dealer and buyer.

Not only the results of the tests but also the names of the seedsmen are published by the experiment station. This acts as a most wholesome check upon the sale of impure and ungerminable seed, and places the agriculturist in a

position to protect himself effectually against the purchase of inferior stock.

The lecturer next touched briefly upon the methods of testing seeds at the control stations, and also gave directions by which buyers could ascertain the value of their own seeds. Perhaps the plate method is the handiest way of making home germination tests which will prove at all serviceable. This consists in the use of two folds of white flannel cloth thoroughly wet, between which the seeds, having been carefully counted out, are placed. A soup plate, covered with a common dinner plate, is used for holding the outfit. The cloth will need to be freshly moistened two or three times a week, according to the dryness of the atmosphere where the plates are kept. Seventy degrees Fahrenheit, which is about the temperature of an ordinary living room, will do very well.

In conclusion the lecturer stated a few benefits of seed control among many which might be given:

1. Seed control will furnish reliable and non-partisan information of the real worth of commercial seeds.

2. The publicity given to the test would act as a great incentive to dealers to furnish only good seed.

3. The honorable seedsman would be protected against dishonorable dealers with whom he is now obliged to compete.

4. The farmer and gardener could ascertain free of cost or for a small sum, the value of seeds purchased from dealers connected with the seed control.

5. The impositions which are now so frequently practiced by seedsmen upon the ignorance and credulity of their customers would be greatly diminished.

6. A universal and thorough system of seed control in America would lessen, in a great measure, the importation of bad weed seeds.

7. The interest awakened among farmers and others in a practical study of seeds, together with the knowledge upon the subject disseminated by the stations, although a secondary benefit, would be of immense value to American agriculture and horticulture.—*Boston Transcript, Feb. 8, 1896.*

NEW BOOKS IN THE LIBRARY.

The following books have recently been purchased for the library:

Arnold (Matthew), Letters, 2 vols.
Aikman, Milk.
Aiken, Methods of Mind Training.
Bluntschli, The Theory of the State.
Campbell, Structure of mosses.
Cochrane, Wonders of modern mechanism.
Cheney, That dome in air.
Cope, Organic evolution.
Chamberlain, Child and childhood in folk thought.
Chicago Daily News Almanac, 1896.
Cohn, The Science of Finance.
Dyer, The Evolution of Industry.
Dictionary of National Biography, Vols. 42-3-4.
Ellwanger, Idyllists of the country-side.
Field, Echoes from the Sabine farm.
Ferri, Criminal sociology.
Gibson, Beautiful houses.
Gladden, Ruling ideas.
Grinnell, The story of the Indian.
Greenwell, Rural water supply.
Grimshaw, Shop kinks.
Grasses of Tennessee.
Hall, Who Pays Your Taxes.
Harrasse, John Cabot.
Haddon, Evolution in art.
Hoffman, The Sphere of the State.
Houstan and Kennelly, Alternating currents.
Houstan and Kennelly, Electric heating.
Hazell's Annual, 1896.
King, New Orleans.
Korschelt and Heider, Embryology.
Lodeman, The Spraying of Plants.
Lowell, Mars.
Longstreet, Manassas to Appomattox.
Mayo and Smith, Statistics and sociology.
Marsden, Cotton weaving.
Marey, Movement.
Maclaren, Beside the Bonny Brier Bush.
Morgan, Animal life.
Moulton, Literary study of the Bible.
Pennell, Illustration of books.
Risteen, Molecules.
Robb, Electric wiring.
Scott, Reconstruction.
Seligman, Essays on taxation.
Sherman, Recollections, 2 vols.
Shaler, Domesticated animals.
Seeley, Story of the earth.
Sully, Studies of childhood.
Saintsbury, History of the 19th century, literature.
Smyth, Bayard Taylor (American men of letters).
Wright, Greenland's ice fields.

REPORT OF INVESTIGATING COMMITTEE.

To sum up the present condition of interest we would say: (first) that judging by actual attendance at the college, it seems for the last twenty years to have remained stationary; (second) that this stationary condition of interest exists over a wide area of American territory, and some study of foreign schools indicates that Europe might be included also.

In order to reach the causes of this stationary interest, the history of public opinion on the college has been examined. Newspaper sentiment would indicate in the beginning exaggerated expectations from the college both as to amount of money required and as to practical results. The college was to turn out yearly at least two hundred graduates at an annual cost of not to exceed fifteen thousand dollars. The education was to cost the student nothing but his labor, and the farm produce was to support the boarding department. Besides all this the graduate of the school was to be an ideal farmer or horticulturist from the start; was to accomplish far better practical results than the actual farmer of fifty years standing; was to inaugurate a millennial era in farming in which independence and a competency were to be the invariable reward of the farmer's work.

Those expectations were very soon found to be fallacious. Farmers are naturally conservative and cautious, and they held off to see how the experiment would turn out. It was found that industrial education is more costly than any other form, the equipment required being much larger and the teaching force more numerous. Moreover the graduates of the college were not successful over and beyond the best farming of the day. It was an unfair criterion to apply, but public opinion inexorably applied it. The college men had the theoretical instruction and something of the practice, but they lacked the judgment trained by long years of success and failure under specific local conditions. Hence, when a college man made only a fair success, the public said: "He cannot farm any better than neighbor so-and so" (naming a man perhaps of remarkable natural shrewdness and judgment), "who never saw a college. Hence an agricultural education is useless."

This original disappointment and consequent distrust still survives and is kept alive by the continued disagreement in theory and policy among those who guide the destinies of our agricultural colleges. There are those who contend that the land grants were intended to aid in establishing colleges where a general scientific education under farm auspices, so to speak, might be obtained; on the other extreme are those who think that the science-training should be of the crudest sort, and the main part of the instruction should be in empirical methods of tillage and manual training in the ordinary farm operations. There is one class of men who would make all the teaching in an agricultural college technical; there is another who, with the smallest possible concession to the name agricultural in the way of technical instruction, would build a literary college on an agricultural foundation. Between these extremes are all grades and shades of opinion; until the name agricultural college has, in the minds of the people, no definite meaning, and agricultural education has been pronounced by many a sham and a fraud.

Much of the committee's information concerning public feeling toward the college has been gathered from oral discourse with men and women during the institutes, and the circular letters sent out have not brought in as many replies as were expected. Moreover, it was found useless to send out letters of inquiry during the vacation. But such as were received were tabulated and constitute exhibit F. These and the talks with the men above spoken of warrant us in assigning as other causes of the stationary condition of interest in the college: (1) a distrust of the technical features of the college course. "You are not turning out practical farmers;" "you are not teaching farmers' sons how to make a business success of farming"—'such is the almost uniform opinion expressed in farmers' clubs.' (A. C. B.) "Farmers feel that you are soaring above them." (F. J. R.) An indefinite amount of testimony of this kind might be added. (2) An alleged tendency of education at the college to divert young men from the farm. This opinion has been expressed again and again, and has appeared so often in the newspapers that quotations are not needed. The opinion operates injuriously whether the fact exists or not, but we have examined into the conditions at the college and find that 24 per cent of our living graduates are actually farmers, and 33 per cent are either farmers or teachers of farming. Put this with the fact that only 11 per cent of our students on entering desire to be farmers and we have important data for determining the tendency of education at our college. We conclude therefore that, whatever may be said, the influence of the agricultural college is toward the farm, since it more than doubles during the four years the number actually inclined toward agriculture at entrance. (3) The depressed condition of agriculture. Potent as have been the factors already enumerated, it seems to your committee that the chief influence in restraining the farmers of the state from securing for their children the benefits of our college has been the present depressed condition of agriculture. Whenever the question has been put to the farmer, "Why do you not send your son to the college?" no matter what other reason is given, one part of the answer is well nigh universal: "Times are too hard." When, however, it is decided to send a son to college your committee finds that the choice of the college is influenced by a lack of faith on the part of the farmer in his own business. The very existence of this comparative poverty among the farmers after years of hard work perhaps has turned the paternal hopes from the farm to the city. Your committee has everywhere been met with the remark, "I do not want my son to live on the farm and work as hard as I have done and for such poor pay. I want him to be a professional man or merchant and get his money by his wits." That this idea is widespread is evidenced by the fact that whereas in 1880 the rural population (1,096,533) was almost exactly double the city population, in 1894 the population of the cities is within 80,000 of equaling that of the rural districts.

(*To be continued.*)