

The M. A. C. Record.

VOLUME I.

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ABBOT HALL AND RAVINE FLOWER GARDEN.

FLOWER GARDEN EXTENSION.

THOMAS GUNSON.

In order to increase our stock of hardy herbaceous plants, it was decided, two years ago, to reclaim the piece of low land in front of Abbot Hall to a point as far south as to where the filled-in river drive crosses the ravine, and near to where the old rustic bridge that formed one of the principal college attractions used to be. This ancient land mark, so inseparably connected for many years with so much of student life, and around which memories gather, has long since passed into history, and its place taken by something less artistic perhaps, but much more permanent.

This low land stretches north to where the small, rustic bridge spans the narrowed ravine on the main foot walk connecting Abbot Hall and Faculty Row, with the rest of the principal college buildings.

The reason for selecting this land was because it was so admirably adapted for the purpose in view. Repeated dry seasons convinced us there was no use in longer trying to grow these gross feeding hardy plants on the dry, sandy knoll, near the large greenhouse.

Another and a less reason, perhaps, was to head off the possibility for the present, at least, of this, the last piece of low land that lay in this direction, from becoming part of the botanic garden.

The curator of this, the third botanic garden of importance in the country, had, two years previous to that time, developed a desire to annex all the land that lay around this interesting and beautiful place.

This irregular piece of land was laid out in blocks or sections of different sizes and shapes, more with the object of getting it plowed and cultivated for two or three years without the horses tramping everything, than for more artistic effect.

We did not have enough of these hardy plants to fill all of this newly acquired territory for the first and second years, and it has taken those that we did have some time to recover from the severe division necessary to extend them as far as possible the first year; and last summer's being so dry they have not yet appeared at their best.

The following is only a partial list of those already planted: Helianthus or sunflowers, orgyalis, Maximilianus, multiflorus, and mult. plenus; Lilies, candidum, tigrinum, and superbum; Hemerocalis, or day lilies, fulva and flava; Yucca filamentosa, or Adam's needle; Hollyhocks; Eulalia gracillima; Phloxes; Monarda didyma (Horsemint); Paeonies, red and white; Achilles;

Dianthus barbatus, or sweet william; Gaillardias; Oriental and annual poppies; German and Japanese Iris in variety, and many others.

It is the intention of the professor in charge to add to this list from time to time only plants that are of decided merit, until all the land is filled up, thus forming a unique collection of these useful plants, some of which will begin flowering just as soon as the frost is out of the ground in spring, and follow each other in close succession till snow flies in the fall.

Meanwhile the larger blocks have been filled out with castor oil plants (Ricinus), cannas, dahlias, gladiolus, asters, and these again were bordered and odd corners filled up with irregular patches of geraniums, bright-leaved coleus, petunias, verbenas, sweet alyssum, and other bright flowering plants, all of which were allowed to grow and wander at will. The more exposed and conspicuous places were filled with the many-colored and bright portulaccas; behind these again were balsams, zinnias, and miniature sunflowers.

Some criticism—more or less friendly in its nature—has been made by college people and others against the apparently unnatural method of arranging gaily colored flowers for mere purposes of effect, without taking into consideration the surroundings or the blending of the colors themselves. However just the criticism may have been, this was no part of the plan. It was more to our purpose to have flowers, and to have lots of them.

Just how to arrange plants and flowers to suit the caprices of fashion, professional artists, and would-be critics in art, is one of those tasks that we feel like asking to be delivered from. No one has ever laid down any definite rules just how to arrange hardy herbaceous plants to comply with all the requirements in the case, for they flower at different times during the season, so that they cannot all be made attractive at the same time, hence the necessity of their being planted in clumps independent of the mere arrangement in color. This careless way of grouping plants is not entirely defenseless if we would try to follow the best guide in these matters.

The early impressions made on me by the way nature arranged plants on a steep and barren hillside in a country where everything is stern and wild, still remains a lesson on the subject. Near the summit of this hill great irregular clumps of European hazel (Corylus Avelana) which from its stunted appearance was not entirely satisfied with its conditions, though it never failed to yield its fruit in abundance every year, was perhaps deeply margined on one or two sides by the tall purple-colored foxglove (Digitalis purpurea) while not far off were masses of the white flowered variety, the spaces

between being covered up with little patches of grass that seemed to be at perpetual warfare with the most widely distributed of all plants—Pteris aquiliana, or common brake.

This arrangement would only be broken perhaps by some huge rock whose surface was covered with mosses and lichens of various kinds and at whose base was a clump of Prunus spinosa or "sloe" one of the ancestors of our best plums. Those again would be followed in their turn by lesser plants until the mountain side receded into the more fertile valley beneath.

How often we see this same plan carried out on a larger and grander scale in our own country. Location, soil, and other things is more or less responsible for this arrangement, but it all seems to be part of a great plan.

This natural way of grouping plants is in striking contrast to the practice of planting single specimens in the yard or away from the house and then wonder why they refuse to be comforted or that they always look so lonely.

Plants, like many animals, are more or less social in their nature, they seem to want the companionship of their fellows, and especially that of their own kind. I have often seen one or two plants eke out a miserable existence even when given the best care, both artificially and naturally; when as many hundred would grow luxuriantly, under the very same conditions with very

little attention.

The taste for the hardy plants is everywhere on the increase. Amateur and professional flower growers, owners of city lots and farm homes, are asking more about them every year; and how admirably adapted they are for nooks and corners around country homes where with a little attention once or twice a year they can be left to take care of themselves.

There is no plant that will flower all summer, nor all winter; but a selection can be made from those that will follow each other in close succession during the summer season.

Greenhouse.

BIRDS OF SPRING.

PROF. W. B. BARROWS.

Spring birds of a dozen species are plentiful already on the campus or in the vicinity. The most abundant are the crow, robin, bronzed grackle or crow blackbird, red-winged blackbird, cowbird, meadowlark and song sparrow. The killdeer is heard daily on the farm, and the vesper sparrow is here in small numbers. Bluebirds of course should be here, but only four or five individuals have been reported yet from this immediate vicinity.

On Sunday Morning, March 29, a small flock of tree swallows or white-bellied swallows appeared on the campus but have not been seen since. Phoebe were here the following morning, and are common now. Several other species are certainly here and could be found by diligent search. Some of these are the fox sparrow, white-throated sparrow, field sparrow, and many species of waterfowl.

For some reason, not yet clear the rusty blackbird which usually appears with the redwing and crow blackbird, or even in advance of them, was not noticed until April 2, the kingfisher and mourning dove are long over due.

A few warm days would doubtless add many new names to this list of arrivals.

The pine grosbeak, so abundant from New Years until the middle of March, has not been seen since March 20, while other winter residents, notably the cedar waxwings and purple finches, are here in undiminished numbers. The last named bird is one of our finest songsters and it is to be hoped that it may stay on the campus to nest in spite of its bad habit of nipping off the buds of shade and fruit trees.

Zoological Department.

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OUR SHORT COURSES.

It has long been the hope as it is now the expectation of both the Board and Faculty of M. A. C. that special courses along the lines where the need is most pressing should be offered at the College. Heretofore the demands of the work at Farmers' Institutes have been so imperative at the time of year when the special courses must begin that their inauguration has been postponed, except in the dairy, until the present time.

Beginning next winter special courses will be given along at least four special lines. No examination will stand in the way of any young farmer or farm laborer who may desire to come. The instruction will be practical, to the point, and yet sufficiently extended to fit the farmer or fruit grower to pursue his chosen line of work.

Naturally, in these special courses the emphasis will be placed on the laboratory and actual practical experience in the greenhouse, forcing house, grafting cellar, dairy room, stock barns, or seed room as the inclination or special business of the farmer may dictate. Enough fundamental science will be given to afford an intelligent explanation of the various operations.

The special course in the dairy will fit a man to make butter and at the same time to feed the herd economically and care for them wisely. The course in fruit raising will fit a man to set out and care for a fruit orchard, whether of trees or small fruits. Practical courses for practical men are intended.

PRACTICAL EDUCATION FOR YOUNG WOMEN.

MARY A. MAYO.

Hon. John A. Anderson, a former President of Kansas Agricultural College, said, "A girl has a right to an education as precisely adapted to woman's work, as is a boy's preparatory to man's work."

What is woman's work? By a wise and supreme law a majority of young women are destined to become wives and mothers; to establish and keep the home, care for it, work for it, live for it, and for this most important work, they should be carefully, thoroughly, competently trained. As to the advisability of such a training there can be no question.

One of our greatest needs is better homes, better fathers and mothers; fathers who realize the responsibilities of fatherhood and are fitted for them; mothers who are conscious that the crowning glory of her life is motherhood and that her greatest concern shall be to make a wise, true mother; who shall be able to give to her child a strong body, clear brain, and a nature capable of a grand development.

Most parents are anxious that their daughters shall receive something of an education. They attend the common schools and pass to the high school, choose a course of study, graduate. They take Latin, French, German, mathematics, astronomy, music, and history, all excellent for mental development. Most of these young women are daughters of laboring people and expect upon graduating to earn their living. How many of these graduates are thoroughly fitted for any one thing that shall win for them food and shelter? A few may teach, many go into shops, factories, offices, and some as domestics, all unskilled. Many marry, and frequently men with small incomes. How many know from practical teaching how to care for a home, to manage in a wise, prudent manner the small salary and keep the family comfortable, healthy and happy? They must manage, must cook, must work; but at what a great disadvantage without any previous preparation. Miss Sill, a professional cook says, "one third of the food in the average family is wasted for lack of knowledge in managing, saving, and properly cooking."

If our young women were thoroughly skilled in cooking, physiology, hygiene, the proper care of children and the home, many of the social and poor problems would be solved.

There are no reasons why young women should not receive training in dairying, floriculture, landscape gardening and horticulture, if they desire it.

Thinking parents of today are anxious that their

daughters shall be as thoroughly trained for the practical work of their lives as their sons. They know that the life that is before them will be intensely practical, and for it they must be prepared. Demands will be made upon them for skilled hands and trained minds that they may be masters of their work and not slaves to it.

If they should never assume the duties of home and its responsibilities, let them at least be so educated as to be self sustaining. We expect it of our sons, we demand it, why not of our daughters.

Modern penologists are saying that the best interests of society and the State demands that the inmates of our reformatories and prisons shall be so trained that upon their release they may be self sustaining. Are not our young women of quite as much importance to society and the State as juvenile offenders and criminals? The game in our forests and streams are protected by salaried officers aided by large appropriations. Is it not quite as wise to protect the homes by placing them in the care of thoroughly trained women, skilled in all that tend toward their highest development? Where such an education can be obtained; what shall be its scope; and how secured, will be further considered.

NEWS FROM GRADUATES AND STUDENTS.

Isaac J. Quigley, with '95, m., is with a Grand Rapids oil and varnish company.

Cal R. White, '81, is general agent for the Odell typewriter, headquarters at Chicago.

Will F. Hopkins, with '93 m., is a bookkeeper in the City National Bank of Lansing.

"Fairview Farm," near Manchester, L. D. Watkins & Son. The son is L. Whitney Watkins, '93.

Louis C. McLouth, with '89, is principal of the Central Manual Training School, Cleveland, O.

Chas. E. Dodge, with '89, a newspaper man, at Cleveland, Ohio, died of typhoid fever, Sunday, April 5.

H. C. Newman, with '97, was the prohibition nominee for township clerk in Portland township this spring.

Wm. C. McLean, with '96, m., is in partnership with his father in the hardware business, Jackson, Mich.

A grange of 53 members was recently formed in West Medina, of which C. A. Jewell, '62 was chosen master.

Roy C. Fisher, '95, will assist Prof. Strong in the chemical laboratory of the Normal for the next three months.

R. E. Doolittle, '96, has been appointed to succeed H. W. Lawson, '95, as Assistant Chemist to the State Food and Dairy Commission.

From the *Portland Review* we learn that Supt. R. S. Campbell, '94, of Saranac, applied last week in person for the Superintendency of the Portland schools.

Ed. F. Woodcock, with '78, mayor of Niles, and one of that city's most enterprising men is being strongly suggested as a good man for State Treasurer on the republican ticket.

Profs. D. A. Sharp and John W. Rittinger [M. A. C. '94], inform us that they will hold a Summer Normal School, in the high school building, beginning May 25. —*Gazette, New Carlisle, Ind.*

Henry Silsby, with '73, of Webberville, was elected supervisor of Leroy township at the recent election by the largest majority of any on the ticket. Dr. E. D. Millis, '82, was elected clerk of the same township.

Mr. and Mrs. R. H. Gulley have moved from Detroit to Norwood Park, Illinois, where Mr. Gulley has assumed the management for the State of Illinois of the Vermont Life Insurance Company. —*Ingham County News, April 9.*

"You may think that a district 'school dad' isn't busy, but load on president of a reading circle, president of county teacher's association, and member of the board of examiners and some of the spare time will be taken up." —R. B. PICKETT '93.

Frank M. Paine '89, florist, Traverse City, writes: "My business prospects are good although this has been a hard year. Have a 20x80 foot modern greenhouse, constructed of cypress and heated with hot water. At the present outlook will need to enlarge my glass area soon. Easter trade was especially heavy; had a fine display which drew a large crowd of visitors."

Nearly a year ago Clarence B. Smith, '94, while pursuing post graduate studies here, took the civil service examination required of applicants for appointment in the Department of Agriculture. Ten days ago Mr. Smith received notice of his appointment to the Experiment Station Division with request to report for duty April 15. He has resigned his position as principal of

schools at Lawton, Mich., and will be succeeded by H. W. Lawson, '95.

Valmore L. Steward, '93 m., who has been studying at Santa Ana, California, will devote himself to chemical engineering.

A recent number of the *American Journal of Science* contains an article by Prof. Rowland, Carmichael and L. J. Briggs, '93. Their experiments prove quite conclusively that the source of the Roentgen ray is at the anode rather than at the cathode end of the tube. The result of their investigation is attracting a great deal of attention and is being widely copied in the leading scientific journals.

Peché Island is at the foot of Lake St. Clair and projects into the Detroit river. Here Rollo J. Coryell, '84, is located as superintendent of the orchard and gardens of Hiram Walker. Life is not entirely devoid of incident even in winter as will be seen from the following: "When the river is frozen over we cross to Walkerville in a duck skiff mounted on runners which is drawn along very easily and if the ice breaks through one can step into the boat. Going over for a doctor recently I was careless, broke through and got wet up to my waist. On going back the doctor was pushing the boat along at the stern while I was at the bow. He broke in and missed catching hold of the boat. I did not know of his trouble until he called and by that time I had pulled the boat several feet ahead. I threw him a rope and instead of pulling him out he pulled me in. As he only had the rope to hold him up his weight drew me down in the water so that my hat was the only thing that did not get wet. His water soaked ulster was so heavy that he could not get out of the water and into the boat unaided, but finally with my help he rolled in on one side of the skiff as I slid out on the other to keep the boat from capsizing. We at last got across the river and were asked by the numerous and interested French spectators, *if we got wet.*"

WHAT TO PLANT ON ARBOR DAY.

DR. W. J. BEAL.

If you follow the fashion you will most likely plant sugar maples or American elms—both very nice trees when well grown and suitable for the road side. Those who are more venturesome and do not care to be limited to these two kinds, may be interested in the following, much of which was contained in a paper read at a meeting of the State Horticultural Society held last October at Traverse City. The paper has not yet appeared in print.

Let us pass to the west of the College on the road to North Lansing over a gently rolling surface and see what nature has done and what the orderly, old-fashioned pathmaster has done. The native trees and shrubs and perennial herbs in great variety have taken possession of the road on either side, excepting a track of suitable width for the passing of teams. The fences are concealed from sight for much of the distance. Here is a great variety of woody growth and some views such as an artist would select for his sketching. I noticed in half a mile, five or six kinds of oaks, three of poplars, two of elms, two of ashes, three sorts of hickories, eight of willows, three of dogwoods, several kinds of viburnums, one kind of hazel, a sumach, three kinds of maples, a blue beech, ironwood, baswood, wild plum, wild crab-apple, sassafras, butternut, black walnut, grape vines, Virginia creeper, button bushes, two sorts of wild roses raspberries, several sorts of hawthorns, asters and golden rods in variety. Here are bunches of second growth called "sprouts" where some trees or shrubs have been cut down,—very pretty; here groups of hawthorn, beautiful when in flower, beautiful in autumn when full of fruit; and there are bunches of willows, beyond a bog of sedges and over the willows are festoons of Virginia creeper now clothed in scarlet and crimson, as are our sumachs and red maples and some of the oaks and dogwoods. The highway is in excellent condition for most of the year, and I know from observation and heresay that city people and others especially enjoy such roads where they can see nature dressed in her neatest robe.

On the knolls certain sorts prevail; in the low lands others are found, while the wet places have still a different combination.

I must say that to my way of thinking, there is much more to admire along this highway of half a mile where nature has made her mixed planting, than there is along the highway north of the College, where stand the double rows of American elms.

I would plant or leave, if already there, some hawthorns, dogwoods, Virginia creepers, grape vines, and a mixed lot of native trees and shrubs. In a village or in some other places they should not remain as thick as in the highway referred to, but choice selections could be

placed or left in certain suitable spots. To a considerable extent the same general rule would apply to planting of roadsides in the country and streets in a village.

But no! the owner must do as others have done, cut away all of these things, seed to grass, and plant maples thirty feet apart just one foot or just ten feet from the fence. Along the road above referred to I recently sold an acre apiece to two Germans, and made the request, which they seemed to assent to, that I might suggest some of the wild shrubbery that ought to be left. They built houses and began improvements (?) by cutting out all wild shrubs and trees, leaving only a few trees which they trimmed up from the ground. Still farther west on the road under consideration, a pathmaster has several times cut all of the young trees and shrubbery excepting a few nearly in line by the fence. He even cut down some of the largest and finest trees a foot or more in diameter because they were not near enough to the line to suit him.

In planting trees for streets, I should first seek a variety of which Michigan has sixty or seventy good native species, taking care to place each in soil suited for its best development. Once in a while some stubborn man with no originality in this line of work will persist in his straight row of sugar maples; all right, by so doing the streets will become an object lesson as they should. It is well enough to plant trees thickly along the streets of a city, but the trouble comes when half or two-thirds of them should be removed to give the others room to make fine specimens. Not one man in a thousand has the foresight and the nerve to take out some of the pretty young trees before all become crowded, slim and unsightly. Then it is usually too late, and all are left to themselves.

The reader is to infer from the above, that I should usually plant trees in irregular lines and mixed groups making free use of native shrubs and vines in variety adopting each kind to suitable soil. In the southern part of the State, especially, some native evergreens would be most excellent to mix with the rest. Most of the delightful views along the roads today in the older portions of our State are due to what was considered a slovenly practice of a few farmers some years ago, who neglected to cut and grub out by the roots every vestige of hazel, dogwood, elder, hawthorn, grapevine, white oaks, and everything slick and clean, possibly excepting a row near the fence. Before condemning the suggestions here made, I hope the younger persons, especially, will consider the subject long and well and make comparisons of highways where the artificial and the mixed planting are illustrated.

Botanical Department.

AT THE COLLEGE.

Work in the foundry began last week.

Junior orations in chapel began last Wednesday.

The Feronians entertained the ladies of the faculty last Friday afternoon.

E. Ralph Pierce, with '95, m., Belding, Mich., called at M. A. C. last week on his way to Detroit.

The Union Literary Society entertained the faculty and friends from Lansing Saturday evening.

H. W. Mumford, assistant agriculturist will soon occupy the rooms vacated by H. P. Gladden.

Dwight Randall, with '96, m., is taking a course in mechanical engineering at the Illinois University.

The Juniors are making strenuous efforts to make the coming Junior Hop, on Friday evening, the best of its kind.

On Wednesday last C. J. Hupp, assistant general freight agent for the Michigan Central Railroad, Detroit, looked over our campus, barns and farm.

The Senior Mechanicals last week took indicator cards from the Corliss engine in Thoman's mill, and also from the U. S. Baking Co.'s Buckeye engine.

Prof. C. D. Smith, director of Experiment Station, went to Paw Paw last Friday to consult with prominent farmers of that vicinity regarding the establishment of a sub-station.

In response to the request for the publications by alumni, to be placed in the library; Dr. F. J. Groner, of Grand Rapids, has sent ten pamphlets on medical subjects, for which we are duly grateful.

Among the college visitors last week were F. L. Manning, Lyons; W. G. Smith, Sr., Howell; W. M. Horton, and Elias Durfee, Fowlerville, Supt. H. R. Patten-gill, Prof. C. T. McFarland, of the Normal School.

It is proposed to organize a reading circle for the study of Dante, or possibly Browning. All who would be interested in such study are requested to meet at Prof. Holdsworth's, Wednesday evening of this week, at half past seven.

Last Wednesday evening Mr. and Mrs. H. P. Gladden were surprised by receiving a call from a load of college people, including Prof. and Mrs. Taft, Mr. and Mrs. Gunson, Mr. and Mrs. Dean, and Messrs. Durkin and Johnson, all of the Horticultural Department.

Mr. Allen Chaplin, Bitter Creek, Sumner Co., Kansas, has just completed a course of reading in the Farm Home Reading Circle and a neat diploma has been sent him. Mr. Chaplin was enrolled as a member of the Farm Home Reading Circle in June, 1894, and has earned his diploma by careful and patient study.

The Agricultural Sophomores are now doing practical farm work. They have two weeks of poultry judging and feeding, two weeks of stock feeding, and the same length of time at fence building, which last includes practical instruction in building wire, rail and movable fences, and the planting and care of hedges. Throughout all this time each student will carry out some experiment and also keep informed of all the general farm operations.

The Juniors in the Horticultural Department have for the past week been engaged in the preparing of cold frames, planting peas, spinach and onions, and in pruning grapes, peaches and other fruits. Some of the class have been at work learning to model vegetables. It is proposed to make plaster models of the leading varieties of potatoes and other vegetables, and most of the orchard fruits. The former will be used for comparison and this will lessen the number of varieties to be grown each year.

The appearance of the general museum has been changed greatly by the installation of the new cases and the redistribution of the large mammals. Few college museums have more or better specimens of our characteristic animals. Probably the most conspicuous gap in our list of mammals is the Bison or American Buffalo, of which we possess neither "hide, horn nor hoof." Though once abundant in Michigan it is now not only absent here, but on the verge of total extinction. The Agricultural College should have a living herd of these valuable animals.

HILLSDALE VS. M. A. C.

M. A. C. was defeated at base ball by Hillsdale College at Hillsdale last Saturday in a game that was fast and close from start to finish. The score was as follows:

M. A. C.	A. B.	R.	1 B.	P. O.	A.	E.
Krentel, A. C., c.-----	4	0	2	5	0	1
Crosby, s. s.-----	4	0	3	1	2	1
Adams, 2 b.-----	4	0	0	4	2	0
Warren, p.-----	4	0	1	1	0	0
McLouth, 3 b.-----	4	1	2	1	0	0
Brown, H. N., c. f.-----	4	0	1	6	0	0
Krentel, A. B., 1 b.-----	4	0	2	3	0	0
Clark, l. f.-----	4	0	0	3	0	0
Simmons, r. f.-----	4	0	1	0	0	2
Totals -----	36	1	12	24	4	4

HILLSDALE.	A B.	R.	1 B.	P. O.	A.	E.
Myers, 1 b.-----	5	0	1	1	2	0
Whipple, 2 b.-----	5	1	3	13	0	1
Brokaw, c.-----	4	1	2	8	4	0
Davis, l. f.-----	4	0	1	1	0	0
Wells, 3 b.-----	4	0	0	1	1	0
French, s. s.-----	4	0	2	2	4	1
Brown, c. f.-----	4	0	0	0	0	0
Burton, r. f.-----	3	1	1	0	0	0
Storms, p.-----	4	1	3	1	4	0
Totals -----	37	4	13	27	15	2

Earned runs, M. A. C., 1, Hillsdale 2. 3 base hits, Brokaw, Storms. Stolen bases, H. N. Brown 2, Krentel, Whipple 2, Meyers, Brown. Double plays, French to Myers to Whipple. Bases on balls off, Warren 1. Hit by pitcher, H. N. Brown, Myers. Struck out, by Warren 4, by Storms 8. Umpires, Hoyt and Lampson.

The game was won by Hillsdale in the fifth when they bunched two singles and two triples which netted three runs. In the eighth three singles and an error by Simmons gave them another run. Our boys, although they got 12 hits to 13 for Hillsdale, were unable to bunch their hits. It is safe to say that we have the most promising lot of young players that we have had for years. They are a little weak at the bat and a little slow on the infield, but our outfield is decidedly fast. Brown in center and Clark in left, doing especially fine work. The three games that occur on our home grounds in the next two weeks will give an opportunity for lovers of the national game to size up our Colts.

NATURAL HISTORY SOCIETY.

The monthly meeting of this society held April 10, was of unusual interest. Mr. T. L. Hankinson talked about the "Birds of the campus," describing twenty species which had he seen upon the college grounds this season. Mr. C. D. Thompson told of "Seeds found in

snowbanks," giving the results of observations made last winter in the vicinity of the college, including the discovery among other weed seeds of the "winged pig-weed," a species new to this locality. Mr. C. F. Wheeler gave an account of his recent visit to the American Museum of Natural History in New York city near Central Park, describing in particular the magnificent Jessup collection of woods in this museum, collected and prepared under the direction of Professor C. S. Sargent and containing every species known of North American trees. Mr. G. C. Davis described the California system of quarantine against injurious insects as he had observed its operation while on a visit to that state. This system began to be developed eleven years ago immediately after an unusually severe scourge of the cotton cushion scale. As now conducted it secures the periodical inspection of all orchards and also the inspection of all fruit trees brought into the state or shipped from one part of the state to another. Among the remedial measures adopted has been the introduction of some twenty or more species of lady bird beetles which are particularly destructive to scale insects.

K. L. Butterfield described briefly the features of the Michigan Institute System.

Under the head of "Observations" Master Norman Edwards reported seeing the first robin on the 26th of February. Mr. Roscoe Kedzie reported picking dandelions in flower over the lines of steam pipes on the campus on March 30. Dr. Beal and others reported instances of robins and meadow larks remaining in the State all winter. Prof. Barrows mentioned, as an example of how weed seeds are sometimes distributed, that he once counted 22,000 seeds of a single species taken from the stomach of a duck. The meeting closed with a few appreciative words from President Snyder.

SAP FLIES *alias* SNOW FLIES *et al.*

G. C. DAVIS, '98.

These flies are one of the earliest of our harbingers of spring. They made their appearance nearly a month ago though not in as great numbers as may be seen when the first few really warm days of spring come in succession. We seldom see them use their wings, but they are rapid walkers and are crawling over everything and into everything in a very innocent manner, indoors and out. If one sits down to write they are sure to find his hand and crawl over it to investigate what is going on, and then they take delight in crawling over the back of one's neck, evidently for the sport of seeing him jump and cringe; yet aside from these few eccentric festivities there is not a more harmless insect in the animal kingdom.

No doubt from these few reminders each reader has a distinct picture of the fly in his mind through his own experience with its habits. The picture shows us a smoky brown, nearly black, insect, about a half inch long, slender, antennae projecting forward, narrow, many veined wings folded over its back and with two horn-like appendages projecting back beneath them. If we take the trouble to examine the wings we shall find there are four, instead of two as in all the true flies.

The first question of course is, Where do they all come from? Go with me down to the Cedar River in the autumn, and in the swift flowing part of the stream almost any loose flat stone that we may pick up will be seen to have the nymphs of these flies attached to it on the under side. The nymph resembles the stone in color, but in shape it resembles the mature fly except that it lacks the wings and has six little clumps of white hair-like gills for securing its oxygen from the water instead of breathing air. Both the nymph and the fly form quite an important part of the food supply of our fishes. The nymphs that escape the fate of making a luncheon for some hungry fish, crawl from the water and later transform to the flies which appear with the first spring thaw, leaving the cast skins in abundance on the banks near the water's edge.

The wings enable the fly to travel some distance from the stream where it was bred, but its life is short, lasting only a week or two, and there is probably very little if any food taken during this time.

There are many species of these flies, all of which belong to the family Perlidae (Per'-li-de) and are given the common name of *stone-flies* by Prof. Comstock in his new work on entomology, because of the habit of living under stones in the immature stage. The name by which they are perhaps most commonly known in this State, at least in the vicinity of sugar bushes, is *sap-flies*. Their inquisitive nature has led them to where they have gotten into the sap and has caused the sugar maker an endless amount of trouble to skim them out. *Snow-flies* is another common name given them as they are very often found crawling over the snow while it still covers the ground in early spring. Under favorable conditions great numbers of these stone flies will be

found traveling upon the surface of the snow, and this gives rise to the many extravagant paper notices at such times on the "phenomenal appearance of insects."

The *stone-flies* are not alone in this habit, but there are minute wingless allies in a kindred order Thysanura (*Thys-a-nu'ra*) which are capable of activity at even a lower temperature and are known to color the whole surface of the snow by their presence in such great numbers.

Next month and in early June another and still larger ally, the *May-flies*, will replace the *stone-flies*. They also are harmless and, like the *stone-fly*, are preyed upon by the finny inhabitants of our streams.

Zoological Department.

SOME VIEWS ON OUR CAMPUS.

One who has never visited our College can have but a faint conception of the many beauties it presents. In the accompanying group of pictures are shown a few of the attractive features of our campus.

Wells Hall,

our largest and finest dormitory, faces an attractive open campus, which in summer affords room for several tennis courts. This hall contains rooms for about 125 students, the Club D dining rooms, the Phi Delta Theta fraternity rooms, the Hesperian Society rooms and the Columbian Literary Society rooms, in which are also held the meetings of the M. A. C. Grange.

Back of Wells Hall runs the

Red Cedar River,

a view of which is shown, looking down from the dam. In summer the banks of this river, in places low and grassy, in others high, steep and rugged; here lined with graceful overhanging willows, there fringed with tall grasses and golden rods, and again bordered with belts of standing timber, offers many a tempting retreat for a long afternoon of study or reading.

Three afternoons of each week the students appear in uniform on the parade grounds in front of the

Armory

and spend an hour going through the evolutions of military drill. Our illustration shows one end of the armory, the interior of which contains the office of the Commandant, a gun room, and a large drill hall. The small illustration on the right shows a part of Faculty Row and a better view of the parade ground. It is on this large parade ground that the students "cross bats" with the students of sister colleges. It has been the scene of many a hotly contested ball game, many an exciting "hundred yards dash," "mile run," "relay run," or other athletic contests between M. A. C. and Albion or Olivet.

Another illustration shows the

U. L. S. Chapter House,

a handsome brick structure owned by the Union Literary Society, and in which are held the weekly meetings of this society and of the Feronians, a society of lady students. In front of this is the fountain erected by the Class of '73, and in the distance another view of Wells Hall is shown.

Williams Hall

is our oldest dormitory and it contains rooms for about 100 students. In the basement are the dining rooms of Clubs A, B, and E. First floor contains the Y. M. C. A. assembly room and parlors, the College book-store, a barber shop, and rooms for students. The second and third floors are occupied by students. Fourth floor contains the Delta Tau Delta chapter rooms, the Eclectic Society rooms, and the Olympic Society rooms.

Abbot Hall,

our newest dormitory, faces a broad shallow ravine, which in summer and autumn is brilliant with beds of asters and other bright hued flowers. It contains twenty-five large, airy rooms, each suitable for two students, also a commodious, well-lighted dining-room, and is thoroughly modern in everything—finish, heating, ventilation, and water appliances. At the beginning of next year (Aug. '96), fine parlors will be fitted up here, and under the charge of a competent matron, this hall will become the home of our lady students. The State Board of Agriculture has decided to meet the increasing demand for an industrial course for ladies by admitting them to this college, and before the opening of the next college year a course fully adapted to the needs of ladies along the lines of literature, science and household economy will have been arranged.

In the midst of such healthful surroundings it seems strange that a student should ever be ill, and yet such a



SOME VIEWS ON OUR CAMPUS

misfortune sometimes befalls. For such an emergency our State has wisely provided a neat

Hospital,

facing the state road on the north side of the grounds, which contains bath rooms and all modern sanitary appliances, and where the sick will receive the best of care. It will not be out of place to say that our hospital has never yet been occupied by a patient.

And now we invite your attention to our annual catalog for 1894-5 which contains many more fine illustrations of College views, together with much valuable information regarding our courses of study, expenses, etc.

If you are interested in college work write for our catalog to

THE SECRETARY,
Agricultural College, Mich.

THE THREE NEW WHEATS FOR MICHIGAN.

R. C. KEDZIE.

It is my purpose to give a brief history of the three new wheats offered to our farmers, describe their properties and tell where the seed may be obtained for next fall's sowing, and the probable cost of the seed. I am in no way interested in the sale of the seed wheat, nor have I any wheat to sell or give away. I only take this course to inform the farmers and save the trouble and expense of answering letters of inquiry.

History.

The Golden Chaff was discovered by Mr. Robert Dawson of Paris, Ontario, in 1885. Writing under date of April 26, 1894, Mr. Dawson says, "I found five stalks of it eight years ago last harvest, growing where the other wheat was killed, and I thought it would be worth taking care of. It has done well wherever it has been tried. Last year it stood the highest in yield, highest in hardiness, and highest in stiffness of straw, and second in earliness. It was tested in 47 townships."

From this stool of wheat has come the Dawson's Golden Chaff, which has nearly displaced all other varieties of winter wheat in that part of Canada. The Agricultural College of Canada experimented with this wheat, pointed out its great productiveness and other valuable qualities, and disseminated it widely in the Province, thus conferring a great benefit upon the farmers of Canada. In merchantable and milling qualities it is highly prized, and in some cases the millers have offered a premium of ten cents a bushel over other wheats.

Seed Wheat Imported by M. A. C.

Not to be outdone in so good a work, the State Board of Agriculture imported 90 bushels of this wheat for fall sowing in 1894, in order to introduce it for trial in different parts of our State, placing the seed for distribution in the hands of Prof. Smith. A field of eight acres was sowed with this wheat on the College farm in 1894, and of the balance of the seed about 70 bushels, in parcels of about one bushel, were distributed in different sections of our State. I have not seen the returns from all these tests, but as far as heard from the report shows in nearly every case a larger yield per acre with Dawson's Golden Chaff than with any other kind, in some cases an increase of 50 per cent.

In most cases the wheat harvested from this first sowing was used for seed. It would seem that the product from this second sowing would be sufficient for an extended seeding next fall, but it is doubtful whether

the public can be thus served, because the farmers seem to be inclined to keep this wheat for their own seeding instead of selling to others. The case of a prominent wheat grower in Southern Michigan will illustrate this point. He said, "I sowed the bushel I got from the College and harvested a crop better by four bushels per acre than other varieties sown under better conditions. I sowed all this crop, and now have ten acres of the handsomest wheat I ever saw." "Then you will have seed to sell next fall?" "No, sir; I shall sow every bushel of it myself." There was no doubt about his estimation of the value of Dawson's Golden Chaff.

Where to Get the Seed Wheat.

I have received many letters of inquiry from persons who wanted this seed wheat in quantities varying from a bushel to a car load, and I have been trying to find where it can be bought in the quantity desired, and how to obtain it. I hope in this article to answer such inquiries once for all. I have only a peck of this wheat in my museum, and if the parties wanting this wheat will only write directly to the parties who will have it for sale after next harvest, they will save me a peck of trouble.

At the College.—Prof. Smith sowed thirty acres with this wheat last fall, and the crop at this date looks promising. If the season is propitious, the College will have some of this wheat for sale after harvest. For further information write to Prof. C. D. Smith, superintendent of the farm.

In Canada.—By correspondence with Mr. Robert Dawson of Paris, Ontario, I learn that he can probably supply all the seed wheat wanted by our farmers. Under date of March 6, 1896, he writes: "If the coming season proves favorable for the wheat crop we can supply you with the quantity you stated, and perhaps more if you require. I cannot state what the price will be. We generally charge from 25 to 30 cents per bushel above the market price of wheat here. We can warrant it pure and not mixed with other wheats. If I am spared till about the latter part of May, I will write you and let you know what the prospects will be then for a crop of wheat. It is mostly covered with snow, and we do not know how it will come out. We hope it will be better than last year."

The extra charge of 25 or 30 cents per bushel is very reasonable for the extra care and trouble in handling. These prices are for seed delivered on the cars. The cost for freight, customs, etc., will be borne by the purchaser. In case any party or neighborhood should want a large quantity of seed, it would be well to write Mr. Dawson before harvest. His P. O. address is Paris, Ontario.

Chemical Department.

FOR SALE

2 Registered Shorthorn Bull Calves.

One roan, calved June 18, 1895, sired by the famous Cruickshank show and stock bull, Volunteer, 101205. Dam College Victoria C.

One red, calved April 3, 1895. Sire Volunteer; dam College Mysie 4th, tracing to Imported Mysie 36th.

1 Red Polled Bull Calf Sired by Jim Corbett, dam Cara, 8393. A deep red, calved July 7, 1895.

1 Holstein Bull Calf A white and black calf, sire Maurice Clothilde, 17633, dam College Paulina Wayne, 30900, calved Feb. 13, 1896.

ALSO 10 SHROPSHIRE RAM LAMBS

All Stock which is not Registered is Eligible.

ADDRESS INQUIRIES TO CLINTON D. SMITH,

Agricultural College, Mich.