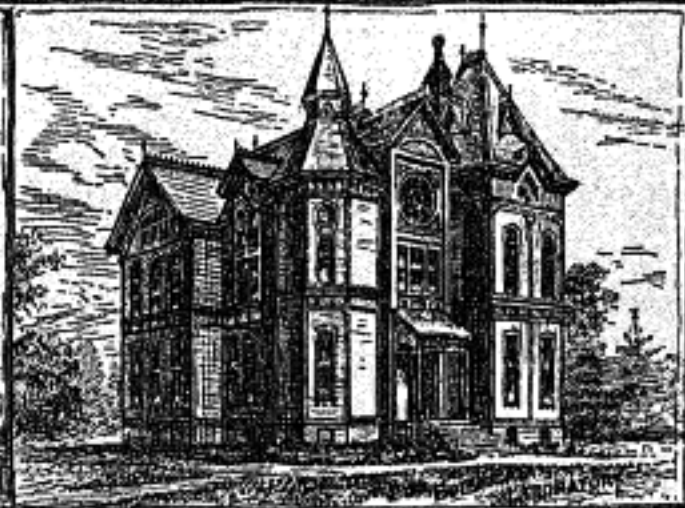


OCTOBER 1, 1886.

COLLEGE

SPECULUM.



AGRICULTURAL COLLEGE, MICH.



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THE COLLEGE SPECULUM.

VOL. VI.—No. 2. AGRICULTURAL COLLEGE, MICH., OCTOBER 1, 1886. WHOLE No. 22.

The Natural Development of the Mind.

GEORGE J. HUME, UNION LITERARY SOCIETY.

Although every college curriculum is arranged with a view to satisfying the needs of the majority of students, yet few find any course just what they want, or in fact just what they need. Many times a young man, in order to get a degree, or to have the advantage of college libraries and laboratories, passes through a course in which one half the studies are at the time distasteful to him. Who can blame such a one if he neglects a part of the regular work for what he believes to be more conducive to his welfare, and what is certainly more agreeable?

As we read in the Scriptures, "What profit hath he that worketh in that wherein he laboreth?" How easily some of us may grasp this thought and take it home to ourselves! Many a student can recall to his mind a hundred profitless hours that were spent at poring over algebra when he longed to throw the hated book aside and take up his more inviting history, or to be searching out some valuable law in natural science. They were profitless hours because a great part of his mental force was wasted in the vain effort to hold his mind upon the works, or, as the Scriptures say, because he was working in that wherein he labored.

No man has any force to waste. For the most profitable work, the mind must act as one power, whose constituents are bound together by the strong ties of interest. Who is there but has often felt such a desire to know the character of some statesman or author, to understand the cause of the rise and fall of some nations, to learn the habits of some plant, or to solve some problem, that no ordinary power could draw his attention from the coveted object? Knowledge obtained at such a time washes not away with the first shower, but is stamped forever on the tablet of the memory. Moreover, when the mind feels a gnawing hunger for any branch of useful knowledge, that hunger should, if possible, be satisfied with the proper food; for like hunger of the body, it indicates a real need. It is the voice of nature urging the development of the mind in the proper way; and in order to obey that voice, other work may well be neglected.

Many renowned men, because they evaded certain college work, are said to have been indifferent students; but if the whole truth were known, we should doubtless find that nearly all of them were as studious and thoughtful as their more brilliant fellows. Sir Walter

Scott, while in school, was called an idler; but his so-called idle hours were spent in the dreaming and meditation that made him a writer of poetry and romance. Emerson, as a college student, was not famous. The class work in philosophy and mathematics was all hard for him, and he gave it little attention. We see a still more familiar and striking example of natural development in the mind of Abraham Lincoln, who probably owed his sturdy manhood and practical philosophy to the very fact that his mind was not encumbered with superfluous learning. In like manner, all of the world's most eminent men have begun in early youth to follow their own inclinations.

In every child, are born pure desires, a tendency toward self improvement, and a fitness for some good work. The all wise Creator has planned the development of every mind. From early childhood, the poet shows a capability of strong feeling and imagination; the young orator is apt in speech and quick in thought; the good merchant is known in his school days by his shrewdness in bargains; and the preacher is early indicated by his fervency of spirit. The foundation of the man is laid in early life; and like a work of art, in which there must be but one artist, the mind, in its development, should be continued, as begun, by the best of all artists—nature.

The Advantage of Debate in a Literary Society.

E. A. BURNETT, ECLECTIC SOCIETY.

The literary society in a college, no less than the society of the outer world, meets a great want in college life; and its intrinsic value depends largely upon its influence over its individual members. This influence is in every way an educator. In its associations, its social manners, its literary culture, its parliamentary discipline, and in its moral influence, the society is ever teaching, ever suggesting.

Great as are the social benefits derived from the communication, and interfusion, of humane interests and humane passions raising men in the "scale of knowledge and of virtue" through contact with men superior to themselves; yet for the greatest and most lasting influence of society life, we look to the improvement acquired by earnest, careful literary work. Associations must change, the bonds which draw us together, sooner or later must be broken; and individual excellencies and defects stand out as indications of real worth. Though former associations are not without their influence, yet the pursuit of certain lines of literary work gives one an

added power, an increased capacity and capability which cannot fail to be recognized. Varied as are the forms of literary work in a society, each having its proper place and contributing towards an interesting and instructive program, we cannot consider each of equal value. For the greatest individual improvement we look to the debate. It cultivates all of the mental faculties. It trains the observing, the discriminating, the constructing, and the reasoning powers; bringing them into action so as to develop them most symmetrically.

The practice of debate encourages and develops self-confidence. Inherent in the nature of every young person as he enters school or college life is a feeling of diffidence which tends to retard his speaking in public. Whatever thoughts he may possess, or may ordinarily be able to express, are, upon his appearing before the public, either forgotten or so confused that they can find no utterance until practice has enabled him to overcome his embarrassment. He who would lead his fellow men to great and noble deeds, must not be obstructed by any barrier which will retard his powers of thought or of expression; the man who can make the best five minutes' speech on any subject or upon any occasion, will win the confidence of men, where the person who can only exhibit himself on certain occasions, with fine displays of studied oratory would fail.

The continued practice of speaking before an audience enables one to concentrate his thoughts and to present them in a systematic manner. It does away with a verbose, long-winded class of men, who talk simply for the sake of talking, and seldom establish a point or even touch the subject. A few contests with an opponent will either remedy the evil or silence the victim. The public will not long submit to be bored by one who fails to present good arguments in a clear and forcible manner; and its stinging criticism cannot fail to strike those who are too conceited or too negligent to obey its rules.

No discipline or education gives a broader or more correct idea of any subject. To debate well a person must study both sides of the question. Not only must he know how to arrange skillfully the arguments in his favor and be able to present them in an interesting and forcible manner; but he must know with equal precision the arguments of his opponent, and study to defeat them without giving them undue prominence.

As the constant use of any faculty stimulates its growth, so through practice are the powers of perception and discrimination developed and matured. By practice one learns to see and meet the various tricks so common in debate, and to detect the schemes of oratory intended to entrap and to convince the unwary listener. Through the steady and concentrated action of the mind on one idea, or one series of ideas, collecting in one point the rays of thought as they search and penetrate each argument, carefully reasoning out and weighing each conclusion, man's judgment is made more reliable and his reasoning powers are strengthened and brought under control.

The process of debate is an intelligent contest for superiority. The arguments presented by the opponents are placed side by side for comparison, and the effort required in preparing and presenting the discussion, the mutual strife for leadership, cultivates and strengthens thought. Mind copes with mind, and each is benefitted. Equals in age or in ability, people seldom meet in debate; but each is able to teach the other.

We are ridiculed by Europeans as being a nation of "spouters" and yet we pride ourselves in the fact that nowhere is there found a people so enlightened, and so capable of deciding for itself the questions which concern a nation's welfare. Unlike the powers of Europe, our strength lies, not in scarlet robes, in flashing ensigns, or in martialled hosts, but rather in the fact, that, scattered all over this broad land, on every hill and in every valley, wherever civilization has penetrated the primeval forest to build for itself a home, there may be found men whose education has fitted them to argue questions of national importance. Representing as we do a government "of the people by the people, and for the people," the only safeguard of our national rights and national prosperity, rests in the ability of each citizen, intelligently to meet, to argue, and to decide the great issues of the time.

America has possessed her share of great men. Alike in her hours of peril and of defeat, of triumph and of prosperity, their voices have guarded and guided her foot-steps. Looking back to the early education and early influences of these men, we find that their characters, their powers of thought and of expression were largely acquired in the debating school and the lyceum.

A Trip Northward.

L. H. BAILEY, JR.

EDITOR COLLEGE SPECULUM:—Vermilion Lake lies in the northeastern part of Minnesota, on the 48th parallel of latitude, seventy-five miles due north of the western extremity of Lake Superior. Near this Lake the village of Tower has sprung up during the last three years, and a railway has been constructed to it from Two Harbors, on the north shore of Lake Superior. The occasion of this settlement is the iron mining interest, which is now assuming great proportions. The Geological and Natural History Survey of Minnesota, under the direction of Prof. N. H. Winchell, inaugurated this year a scientific exploration of the country adjacent to Vermilion Lake, and your subscriber was one of three persons who were engaged to study the botanical features.

The 17th of July, a cool, clear morning, found us upon Lake Superior, *en route* from Duluth to Two Harbors. The high and monotonous line of bluffs which rose gradually from the water's edge are clothed with a pristine vegetation, giving us a first sense of that charming wildness of nature which we were seeking

and which we afterwards found without the effort of looking for it. It is a dreary coast. Even the white glaring trunks of the paper birches scattered in the dull background of spruces reminded me more of skeletons than of living trees. I was impressed with the lowness of the trees, and reminded, as well, that I was approaching the region of dwarf vegetation. A sense of the absence of all animated life seemed to be thrust upon me; and even when a wreath of smoke curled above the trees and gave evidence of human beings who were burning for a roadway, this sense was only intensified. The very contrast of the signs of human presence with the dull wild monotony increased the feeling of loneliness.

A ride of a few hours brought us to Two Harbors, where we took the train for Tower. During the whole railway journey we appeared to be plowing a great furrow into the heart of a wilderness. For sixty-eight miles we found no settlement, unless we apply the term to the single house at a water-tank or two. I found opportunity to jump from the train three or four times and to grab the first plant which attracted me. My first "find" was a rare sedge, doubly interesting as it was discovered by the unfortunate Douglas Houghton, our first State Geologist, on his exploration of the source of the Mississippi. The plant bears his name, *Carex Houghtonii*. My second "find" was a plant similar to the first, a sedge first found in Greenland, and now for the first time detected within our limits east of the Rocky Mountains. My third was an old acquaintance, a plant which I had named and described some three years ago from two dried specimens, one from New Brunswick, the other from the Saskatchewan. Surely, I had found a country where rare things are common and common things are rare. It was fortunate that I had such inspiration upon my setting-out, otherwise I should have been disheartened entirely. The night found us four miles beyond the lean village of Tower, encamped upon a low headland on the lake. The morning brought a cold rainstorm, following a night of exasperating frost. The rainstorm brought shivers, and had not wild nature charmed us with novelty it would have brought blues as well. No one enjoyed the long day but three: these three were Pashatonegweb, Mrs. Pashatonegweb and Little Pashatonegweb. Here let me explain that the camp was that of the geological portion of the survey, three persons strong, besides the Indians, upon our arrival. Pashatonegweb, a short Chippewa of middle age, acted as cook, achieving more success in the acting than in the cooking. A small light tent supplied the botanists shelter, and a corduroy of spruce and mountain ash boughs, inhabited by spiders, supplied the necessary sleeplessness.

For a week I rode and rocked upon the crooked lake in the inimitable birch bark canoe with Pashatonegweb at the paddle. The canoe is the gondola of the Indian Venice, carrying one in and out among the two hundred

islands of this rugged lake without imparting a feeling of motion. The space of my letter will not allow me to detail our wanderings. The country is rough, although the hills seldom exceed one or two hundred feet in height. The timber is mostly red pine, paper birch and arbor-vitae, the last known everywhere, although erroneously, as white cedar. The pine is the largest timber and yet it is not often large enough for sawing into boards. This smallness is due in part to the dwarfing tendency of the short summers and in part to the fires which every century or two, according to Indian traditions, sweep over the country. I was well aware of the fact that the numbers of species, either of animals or plants, decrease as one goes northward, but I did not fully realize its effect upon the aspect of a country until I studied it here. The species of flowering plants about Lansing number about a thousand; about Vermilion Lake they number about five hundred. Consequently the flora is not so varied there as here. I took pains to count the number of species which grew upon small areas, such as produce from fifty to sixty species of plants at Lansing, and found that they did not often exceed twenty. But while I found this northern dearth of variety, I found the southern species: the plants about Vermilion Lake are very similar to those about Lansing. Seventy-five miles to the southward, along Lake Superior, I found a more northern flora. The explanation of this apparent anomaly lies in the fact that Vermilion Lake is protected from the cool summer breezes of Lake Superior.

The second week I spent in the almost endless chain of lakes which stretch away to the International Boundary. With an Indian, a young man and a canoe, we began a voyage which took us into the very heart of nature. Our ultimate point was Hunter's Island, queen's land, lying in the boundary chain.

The development of the nose of Minnesota lying north of Lake Superior must depend entirely upon the mining interests. The iron ore is equal to the best of that in Northern Michigan. Some thirty miles north and east of Tower mines have been located, but want of communication prevents their being opened. The agricultural capabilities of the country do not extend much beyond potatoes and turnips.

How the M. A. C. Cadets Went to the State Fair.

J. A. LOCKWOOD, LT. U. S. A.

"Like the leaves of the forest when Summer is green,
That host with their banners at sunset were seen.
Like the leaves of the forest when Autumn hath blown,
That host on the morrow lay withered and strown."

BYRON.

The edict went forth that the cadets should go to the State Fair. They were no longer to hide their light under a bushel, but were to shine forth in all their splendor in the prize drill.

It was an extraordinary occasion and demanded extraordinary preparations. Each cadet polished and rubbed his brass buttons until they shone like bald heads in the sun. Regardless of expense, white gloves were purchased in fabulous quantities. Shoe blacking was profusely lavished on leather surprized at such unusual treatment. Necks, unused to the novelty, became rigid in stand-up collars four inches high. Lastly, rifles and belts underwent an inspection unexampled in its severity.

About sixty strong, they boarded the train for Jackson. The Commandant counted each file as they entered the cars.

"He counted them at break of day,
But when the night came where were they?"

The French had their Waterloo. The Union army its Bull Run. The cadets have had their Jackson.

Not to weary the reader by enumerating in detail the varied experiences incident to arriving in Jackson in the rain, bold sallies *en masse* on the Methodist Church lunch room (where the pretty waitresses completely succumbed to the cadets and presented each one with a *boutonniere*), passing the night like veterans, on cots in the guard armory, where excitement prevented sleep, and other interesting circumstances, we will record the arrival of the cadets on the bloody field, after an adventurous march through the mud, at precisely 2 P. M., Friday, Sept. 17th. They were drawn up "in battle's magnificently stern array." The drill began. They came, they saw, they were conquered.

It is useless to enumerate the causes which prevented the cadets from "downing" the Detroit Greys, the Jackson Rifles, and other inferior organizations. If their "fore sight" had only been as good as their "hind sight" the result might have been different. They feel, however, that

"'Tis better to have drilled and lost
Than never to have drilled at all."

They met the enemy and they are his. They marched off defeated but not dismayed. The retreat was in good order. The engagement although severe and lasting for 30 minutes, was not fatal to any of the participants. The only wound reported is a wound on Cadet Capt. Bates' right ear inflicted by his own sword (which was not to be wondered at considering the short time he had been carrying the dangerous weapon).

The enemy captured some of the cadets baggage in the heat of the engagement. An imitation leather valise and a rubber coat are the missing articles upon which the Cadet Quartermaster demands a Board of Survey.

The cadets threatened to kill their Mascot—"the little boy with the gun"), but subsequently decided to let him off with his life on the promise of better luck next time.

THE horticultural department is getting a great many different kinds of fruit from all over the country, also a large variety of huckleberries, the cultivation of which by the department will be something entirely new in that line.

NATURAL HISTORY.

Galls and Gall Producing Mites.

C. P. GILLETTE.

One of the most interesting topics presented to the student of entomology is that of galls and their architects.

It seems strange indeed that the sting of a living insect upon the leaves or twigs of a tree should cause abnormal developments of the parts, and that these growths should take such definite forms. The galls produced by any insect are as regular in position and shape as are the apples on a tree. But what seems still more wonderful than this is the fact that the insect when ready to lay its eggs will always go to exactly the same variety of tree as the one from which it came, and to a similar location upon the tree. Certain galls, for example, are always found upon the petiole of a leaf, others are always upon the midrib or some of the main veins, while others are never upon a vein at all. There are a number of gall producing insects that always attack the buds, and each produces a gall peculiar to itself.

One would not mistrust that there are so many different kinds of galls until he had endeavored to see how many he could find. I have taken not less than twenty different varieties from oak trees alone during the past summer.

The gall-nuts of commerce, so much used in the manufacture of ink and for coloring purposes, are produced by a little four winged fly upon a species of oak in western Asia.

We speak of galls as being abnormal developments, but nature does not build in vain; even galls are produced for a purpose. Every one of these peculiar growths is a storehouse of food in which one or more insects or mites feed until fully grown, and then, if no opening is already provided, they gnaw their way out and escape.

Conspicuous among the gall producers are the Phytopti or four legged mites, and I presume the readers of the SPECULUM would be glad to be able to detect these ravagers of our foliage. So far as I know, the Phytopti in this country confine their depredations to the leaves of plants. There is a European species that sometimes does much harm to currant bushes, by destroying the buds, but I do not think it has yet been introduced into this country.

The gall mites are very small and make exceedingly interesting objects for microscopic study. They vary from five to eight thousandths of an inch in length, and are about four times as long as thick. The galls produced by these mites were known and studied for nearly a hundred years before their true cause was discovered.

The mite galls are found upon a large number of our most common trees, and may be very conveniently separated into three classes according to their forms; nail galls, warty galls, and velvety or dust galls.

The nail galls are very common upon the upper surface of the leaves of the sugar maple, the basswood, the wild plum, and the American elm. The leaves appear, as some one has said, as if a large number of tacks had been driven through from the underside with their points projecting above.

The warty galls differ from the foregoing by being more globular in form, and are not drawn out in slender teat-like projections. These are very common upon the leaves of the soft maple, and are often so crowded together as to occupy nearly the whole surface of the leaf. These, and the nail galls as well, are hollow and contain a large number, sometimes a hundred or more, *Phytoptus* mites. There are several hymenopterous insects that produce galls very similar to those just mentioned, but they may be distinguished from the mite galls, by being entirely inclosed, while the latter always have an opening upon the underside of the leaf where the inmates may pass out and in at pleasure. This opening is enough to enable one to distinguish the mite galls except in case of galls produced by plant lice, but the lice are large enough to be readily seen by the naked eye, while the mites cannot be detected without a glass.

The velvety or dusty appearance upon leaves caused by mites can hardly be called galls. They are the result of an abnormal development of the leaf hairs, probably caused by the irritation of the mites while feeding. On the leaves of the beech the dusty appearing patches are often of a brown color and are very apt to be mistaken for a fungus, but they are not.

The *Phytopti* offer a very interesting field for original research, as only a few species have been described in this country, and they are very common upon a large number of our trees, shrubs, and vines.

At the meeting of the Natural History Society Sept. 10th, Mr. George Crandall presented a series of experiments in progress, on the effect of certain substances upon the bacterial life of tomato infusions with the view of ascertaining the most effective preservative and best disinfectant.

Salicylic acid, carbolic acid and coffee were among the substances used. The methods of experiment and some partial results were given. We hope that at the next meeting a full report of the experiments may be presented. The study of these lowest forms of vegetable life has in recent years attracted scientific minds all over the civilized world.

Though observed and mentioned over two hundred years ago, little is recorded of them until within the last thirty years, and until within fifteen years the literature concerning them has mostly been in some language other than English.

There are now quite a number of American and English works, which with the translations, place the whole history of the subject, as far as it is known, within the reach of the American student.

The heated discussions over the spontaneous genera-

tion theories which a few years ago involved so many eminent scientists, called for much investigation and experiment, which materially advanced the knowledge of these low forms, and though the advocates of spontaneous generation were effectually quieted by the masterly researches of Pasteur and Tyndall, the new field of investigation proved so attractive to those who had been drawn into it that they did not relinquish it, and are still at work on the life histories, and relations to higher life of these lowest of living forms.

Insect Eccentricities.

A. J. COOK.

Few among the unsolved problems of science are more interesting or worthy attention than that connected with the anomalous appearance of insects; often in regions far outside their usual limits. The cotton moth, which is indigenous to the South, is occasionally taken in New York, Canada, Michigan and Wisconsin. The Cotton Boll Worm, or more properly Caterpillar, is for the most part confined to the South, where it often does most serious harm to their staple crop, though it thrives as far north as Southern Illinois and Kansas, where it becomes the Corn Worm, and attacks the corn while yet in the milk. In 1880, and especially in 1881, this insect came in force upon the corn fields of Michigan and other northern States. In the latter year it did very considerable damage, since which time it has not put in any appearance at all.

During the past season (1886), I received from several counties of this State hairy Bombycid caterpillars, which were reported to be eating the green corn plants. They fed about the middle of May, and in some localities were reported so numerous as to do much damage. Specimens of these Caterpillars which were bred in our laboratory, proved to be one of the handsomest of the harness moths, *Arctia phyllira*, Drury. Although Drury states that a specimen was taken in New York July 12th, Harris, who was so long an authority on the insects of our country, says it is rarely found North, but is common at the South. Riley and Fitch make no mention of this species, which surely argues that it has been very rare, and not a serious enemy, or even a minor enemy of the great crop of Illinois and adjacent States. Lintner, in his "Contributions" gives several lists of Bombycid moths taken in the State of New York, but we find no mention of *Arctia phyllira*.

Why then should this moth come all at once to Michigan and make a noticeable attack upon the young corn plants? Can it be that some heavy south wind comes all at once, just as many moths are first trying their yet unused wings, and hurls them afar from home and kindred? Or are the conditions of our North-land too rigorous for this species, so that only some very few more hardy individuals struggle on here—so few that

they have even escaped the eager eyes of the entomologist—when all at once more favorable surroundings let loose many individuals. Surely these are hard puzzles; and offer a rich field for the enterprising entomologist.

Another strange feature of these Caterpillars of the past summer, was this, that they passed into the earth to pupate. So far as I know such an act on the part of these Bombycids is entirely exceptional. None of our entomologists mention such a case.

Mr. B. Neumoegen says that *A. phyllira*, Drury is a variety of *A. figurata*, Drury.

Color in Eggs.

READ BEFORE NATURAL HISTORY SOCIETY, OCT. 8,
BY PROF. A. J. COOK.

The constant presence of any organ or substance in an animal or plant implies value or usefulness. Nature is too provident of her energies to constantly nourish a useless appendage. Let the boy refuse to think or study and soon his enfeebled brain will be powerless to perform any real efficient work. The old philosophy spoke of color in organisms as merely for beauty. The newer speaks of color as a useful feature of organ or organism.

Color in animal organisms comes from pigment. It is supposed that the hemoglobine or red pigment of the blood is the primal source of all pigment of the higher animals. In the liver this changes to green, brown or yellow pigment, which gives hue to the bile. The cells in skin changes this to the pigment of skin or hair, and thus the variety of colors which adorn these parts of animals. In albino animals the tissues seem disabled in this direction and so no pigment is formed. The white red-squirrel, musk-rat and raccoon in the museum are examples of this disease. In such cases the hair and skin are destitute of pigment and so are white or pink. In albino animals the skin and eyes are pink for the reason that we can look through to the blood vessels in the absence of the coloring material. In human albinos the function of the pigment becomes evident. The skin is so delicate that it will bear no hardships, indeed the nerves seem to feel the light and show in their helplessness their need of protection. Has not nature then really showed a substantial kindness in blackening the skin of the Ethiopian, and other dwellers under the scorching rays of a tropical sun? But the function is more clearly discernible when we study the eyes of the albino. Usually the pigment of the iris not only gives beauty to the eye, but serves as a curtain to exclude an excess of light. In the eye of an albino this color is gone, the light streams into the eye, and vision is greatly impaired, in fact is almost destroyed, except at night. Like an owl, and for the self same reason, an albino can see better by night than by day.

Often in our wild and domestic animals there is an opposite tendency to that of albinism. The cells secrete an undue amount of pigment, and the skin or

hair are unduly black. Such a freak is called melanism and such animals are said to be melanized. A raccoon in the museum shows this peculiarity.

The skin which superficially is composed wholly of epithelial cells, whose purpose it is to form from the blood this pigment, does not simply cover the exterior of the animal but may be said as truly to be reflexed, at the extremities of the alimentary canal and other tubes which extend into the body, and so we may say correctly that the skin covers the body and lines all cavities of the body which connect directly with the outside. We see then that the oviducts or egg tubes of birds are also lined with the skin and so are also furnished with a rich supply of epithelial cells. We need not be surprised then that all egg shells, the product of this epithelial lining, show a tendency to coloration. It is no more surprising that an egg should be decked with color, than that the eyes or hair should be similarly adorned, especially so, if such color is of value to the egg. If of no value, we may rest assured that nature would soon cease to ply her brush. She never paints in her workshop unless utility urges that the colors be added.

Most of us know that these colors separately or combined, are exclusively used in nature's work of egg-painting. Eggs are either reddish, green, or black or of a hue produced by combining these colors. The red is usually modified into brown, the dark is often subdued to gray, while the green is of all shades from the rich dark green of the eggs of the robin and cat bird, to the most delicate green of the eggs of the warblers.

Now of what use is this color? Surely if the mature tissues of the albinos hand needs to be protected from light how much more the delicate tissues of the forming embryo in the egg.

We may easily believe that were the curtain of pigment in the egg shell removed the fragile embryo would succumb to the bright sun light, and development would cease. And how could nature have chosen more kindly?

We all know how grateful the green shades of nature strike even so delicate an organism as our own eye. Many a weary eye has felt the black cloud as a messenger of mercy and we all have noticed and rejoiced in the mellow light of autumn, tempered by the gorgeous foliage of the closing year.

We see then that nature not only tempers the wind to the shorn lamb, but she has also screened the light from the yet unborn fledglings, and has used the most pleasing colors to effect her purpose.

But what is there in a close study of eggs to confirm this belief? Do we find such a use and distribution of nature's pigment, as will harmonize with and sustain this view? Let us ask nature herself.

Upon examination we find that the nests of birds vary very much both as to style and position. Indeed so great is the variation that the matter might well be a subject of study in itself. It is not merely a matter of accident. Whenever we see a peculiarity in any nest we may be assured that such peculiarity serves some

useful end. Many a bird either tunnels out a place in the earth for a nest or more shrewd and frugal of its energies appropriates some tunnel already formed. Thus the kingfisher and bank swallow with great effort tunnels deep into bank or cliff that their young may be safe from harm. The prairie owl, wise in action as well as in look, appropriates the abandoned hole of some prairie dog, where it is said to nest in close company with the massasauga, which assertion may well have an ? as an annex.

Other birds like the wood-peckers, blue-birds, wrens, some of the owls, and various of the flycatchers, like our chimney swallow and pewee, nest in hollow tree or stump under bridge or cornice or in a fissure in the rock. Still other birds like the orioles and quails, cover their nests. A few birds like our large owls and many warblers place their nests in such dense foliage that light of sun or eye of man tries in vain to reach or find them.

In all such cases, as many of you know, the eggs are white, darkness ever veils such eggs and so no pigment is needed to obscure the egg from egg hunters, or protect the yet unborn fledgling from the injurious light. That this absence of color means absence of use is demonstrated in the fact that while the covered quail's eggs are pure white, those of grouse and prairie chicken are dark gray. The latter need color protection and have it. The former have no such need, and of course the color is wanting. Why has the pewee and chimney swallow pure white eggs, and the other flycatchers which nest in trees eggs that are tinted and flecked? Tell me that a bird nidificates in the darkness, and I will tell you as surely that the eggs are white. As vainly will you look in the darkness, for colored eggs, as for colored plants; nature can not manufacture chlorophyl without light. She will not egg pigment, unless light makes its presence valuable. True in some cases, as with some owls and flycatchers the color of the egg may not seem to be as great as the light would lead us to expect. It may be in such cases, that the birds have changed habits, and it requires more time than has existed to stimulate the pigment forming function of the oviduct. Natural selection works very slowly.

Many birds build their nests upon the earth with no manner of protection at all. Sometimes a hollow is scraped out, sometimes leaves and sticks are gathered, and a rude nest is fashioned. In all such cases, of course the eggs are entirely exposed both to the light and to prowling marauders. Any hue would screen the light, but only a dark hue would mimic the earth and so escape detection. Hence we are not surprised at the dark gray, brown or almost black color of eggs laid in these ground nests. The mud hens, rails, snipes, plovers, loons, and grouse all nest on the earth; all have these obscure eggs. Such eggs are well protected from the light, and at the same time we see one of the best illustrations of the law of mimicry, which is so universal,

reaching its protecting hand to all life, animal and vegetable, and to the weak and powerful alike.

This function of color, makes it easy to explain curious differences in eggs of closely related birds. Thus the heron lays green eggs, while the nearly related crane lays those colored dark gray or brown. The former builds high up in trees, the latter on the ground. The habit of sparrows as to nesting also explains coloration in their eggs. The field sparrow builds on the ground and its eggs are speckled with gray and brown. The same is true of the song sparrow, though a greenish tinge argues that the nest might have been built formerly in trees or bushes, which argument is strengthened by the fact that these birds now sometimes build in shrub or bush. On the other hand, the chipping sparrow builds invariably in bush or tree, and as invariably lays dark green eggs.

Nearly all of our most common birds lay their eggs in nests made in bush or tree. These need protection from light and to be hid from egg loving bird or mammal. Were we to paint such eggs so as to best serve both these purposes, would we not select dark green. Nature has done just this, and what is more strange, eggs laid early in the season like those of robin and cat bird, are very dark green. Then the leaves are yet in bud, and hardly aid to screen from the light. Later the warblers, and other birds fashion their nests. Now the foliage is fully out and we see in the eggs those delicate tints of green which are so admirable. Thus late nature has thrown out her curtains of green, and the eggs need less pigment, nature is not profuse with her color, for nature is seldom wasteful, except where to be penny wise is to be pound foolish.

I might give many more examples showing how this color line is made to serve most useful ends, but I have said enough as each of you will observe for himself and will be struck as I have been by the evident meaning of the selection of colors, by the master artist, as you study even so humble a part of her canvas as that of birds, eggs.

Whether this law applies to our domestic birds—our barnyard fowls—I can not say. Most European fowls lay white eggs. While the large Asiatics lay brown ones. Whether the shy European birds are more secretive and thus hide their nests in dark shaded places, while the more gentle Asiatics place their eggs in exposed places, I have not the experience to state. The colors of the eggs would surely argue that such is the case.

Corn and Cob Meal.

The experiments of Prof. Shelton—class 1871—of Kansas, attracted considerable attention last year, from their showing that a pound of corn-cob when ground and fed to steers with the corn which grew on it, is worth more than a pound of meal made from corn alone, a result that was unexpected to many. In his experiment, 11,565 lbs. of corn-and-cob meal gave 1,580

lbs. of increase, while the same amount of corn-meal gave 1,454 lbs. increase.

The same set of experiments was repeated the past winter, and as admirably summed up in his last as the former ones were in his previous report. The result is not so strongly in favor of the corn-and-cob meal; 12,918 lbs. of corn-and-cob meal gave 1,025 lbs. increase, while 12,655 lbs. corn-meal gave 1,085 lbs. increase. Eighteen per cent of the corn-and-cob meal was cob, hence the pure meal these steers received was 10,593 lbs. If this caused increase at the same rate as with the corn-meal fed steers, there would still remain 117 lbs. increase to be accounted for, which is due to the cob.

One reason for the difference in the results of the two experiments the Professor thinks is due to the severe weather experienced during part of the time. During the cold spells the corn-and-cob fed steers fell short of the gain of the corn fed steers. The oleagenous and starchy corn-meal could better furnish the animal heat needed at that time than the cob.

A considerable experience with a large herd strengthens the Professor in the conviction of the superior value of the corn-and-cob meal. But a practical difficulty stands in the economical practice of the feeding at present, for as yet no mill has been found that will reduce corn-and-cob to meal economically, and the difference in cost of grinding is sufficient to overbalance the benefit from the cob.

AT THE meeting of the natural history society Sept. 10th Mr. Geo. Crandell presented a series of experiments in progress, on the effect of certain substances upon the Bacterial life of tomato infusions with the view of ascertaining the most effective preservative and best disinfectant.

Salicylic acid, carbolic acid and coffee were among the substances used. The methods of experiment and some partial results were given. We hope that at the next meeting a full report of the experiments may be presented. The study of these lowest forms of vegetable life has in recent years attracted scientific minds all over the civilized world.

Though observed and mentioned over two hundred years ago little is recorded of them until within the last thirty years, and until within fifteen years the literature concerning them has mostly been in some language other than English.

There are now quite a number of American and English works, which with the translations place the whole history of the subject, as far as it is known, within reach of the American student.

The heated discussions over the spontaneous generation theories which a few years ago involved so many eminent scientists, called for much investigation and experiment, which materially advanced the knowledge of these low forms, and though the advocates of spontaneous generation were effectually quieted by the masterly researches of Pasteur and Tyndall, the new field of investigation proved so attractive to those who had been drawn into it that they did not relinquish it, and are still at work on the life histories, and relations to higher life of these lowest of living forms.

THE COLLEGE SPECULUM.

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AGRICULTURAL COLLEGE, MICH., OCTOBER 1, 1886.

NOT long since our college was honored by a visit from a graduate of the English Agricultural College at Cirencester. In a short talk with him, the difference between the college at Cirencester, which is the only English Agricultural College, and our own college, was brought out.

The course in the English college extends over two years, and embraces only those branches closely allied to practical agriculture. Considerable attention is given to analytical chemistry, mathematics and surveying, and veterinary science. The laboratory work is the important factor. Their practice of making their farm an extended laboratory where the action of the laws governing the growth of vegetation may be studied directly, is certainly commendable. The distance between the growing crops, and agriculture as presented in the classroom may lend enchantment to the realm of farming, but it gives room for vagueness and error.

No definite educational acquirements are exacted from the students on entering, though it is expected they will have the rudiments of an education.

On the whole, the work done seems to be characteristic of the English people in their relation to agriculture, careful, exact, intensive. But with all these excellencies it seems as though much might be added before it would be entitled to the dignity of the term "college." Two years of apprenticeship, however sci-

entific, may make a farmer, but the time is near at hand when one who tills the soil should be something more than "farmer." He should aspire to the broader title, as a noted educator has expressed it, of "man farming."

True, it may be economy of time and energy for each to exert his faculties in one direction, but a well educated man acting in a certain line, will effect more than one acting under personal circumstances less favorable. One of the most defective features of the English agricultural college is an entire absence of the study of English. It seems as though one could ill afford to deprive himself of the best profit and enjoyment, by neglecting to create and improve the means by which he may learn of objects and actions as seen and interpreted by other and greater minds than his own.

The English college doubtless performs well all it undertakes, but it is evident that its graduates would have more influence in diffusing the knowledge they obtain if their own education could be made more liberal.

Now that the time is approaching when French and German will be introduced into the mechanical course there is considerable discussion as to the advisability of making these studies elective in the agricultural course. The advantages that would be derived from the study of French or German during the last two years are obvious. The fact that many lines of science have been more fully developed by French or German than by English scientists, is a strong argument in favor of the study of those languages. There are some branches of research the literature of which lies almost wholly outside the English language.

It is further argued that the discipline obtained by the study of language would warrant its introduction. A still remoter object, talked of rather vaguely, is that a knowledge of the language of other nations tends to broaden a man's views and enables him to appreciate the great brotherhood of man. Perhaps all this is true. One would be blind indeed that could not see the great benefits derived from the study of the languages of the nations of Europe.

We confess however that we are unable to see all the advantages claimed for such study.

Like Samuel Weller our "wision" is doubtless "limited" but we have about as lively hopes of being able to see through a flight of stairs and a deal door such as baffled Mr. Weller's vision, as we have of seeing all the advantages of the study of language as claimed by its enthusiastic admirers.

Many seem to think that a bare knowledge of some language differing from their mother tongue is an essential part of an education. It doesn't seem to make much difference whether it will ever be of any economic or educational value or not.

To such, we fail to see why a knowledge of Hottentot would not be as valuable as two years of French or German. While a knowledge of other languages is a great aid to scientific investigators, yet for nine-tenths of the College students the study of English scientific works, supplemented by the proper amount of original investigation in the laboratory of nature, will be sufficient.

If discipline comes from the study of language, it comes no less from original and systematic study in the fields of science. It requires years of study of any language to be able to see its many beauties. The nice terms, the fine conceptions, and the beautiful imageries which lend fascination to reading, are appreciated only after long acquaintance with the best authors.

The knowledge of the anatomy of words has its place in the economy of education, but it is a place of little importance compared to the study of language as a whole. The average mortal will be better served by the knowledge that enables him to use a word effectively than he would be by a knowledge enabling him to give with nice exactness its Greek derivation.

Then, while languages are introduced, let us give them their proper place, and not hope to work any great educational changes in ourselves, from the simple fact that we can express a few rudimentary thoughts in a language that no one on earth could understand.

SINCE the first of the term, the College has been called upon to pay the last sad homage to two of its members. Both were highly respected members of the class of '89. The first, Charles Priest, died about four weeks ago, while the news of the death of George T. Gridley reached us Oct. 10th.

When each left for his home but a few days before his death, we little thought he was so soon to be numbered with the silent majority.

How grudgingly we allowed grim death to break the invisible bonds that bind us in a common brotherhood. Who of us did not feel that next to the ties of family are the college ties, tender but strong, only to be appreciated by those that have been held by their magic power.

Though there are no long years of pleasant remembrances, as in later life, to bind us to our brothers, yet the

common hopes and common plans talked over in quiet hours, give a mutual trust and confidence.

Our plans become intimately associated with those of our companions, and we look together into the future, where we shall measure our happiness and our success by theirs.

The future has its lights and shadows, no brighter lights than when warm friends join us to greet its coming; no darker shadows than when they are taken from us, and the joys and sorrows can no longer be shared with them.

There is no need of flattery, even though it could "soothe the dull, cold ear of death." To those whose ears have ever been greeted with the approval of friends, whose lives were such that censure was nearly unknown, the world has no cause to pay its regrets, in the poor coin of abject praise.

As we laid our first companion to rest we were comforted by the thought that the lowering clouds hanging in their sombre masses to the misty horizon, cast their shadows only over our own hopes. We knew that the sun beyond was shining in his wonted splendor, and, standing uncovered in the presence of death, we realized that "in the night of death hope sees a star and listening love can hear the rustle of a wing." And as we are preparing to do our last honors to Mr. Gridley we are comforted by the same thought; our curious hearts are stilled by the same assuring sound.

HAS anyone seen anything of the lecture committee? Why, you hadn't forgotten those good old times, had you, when that worthy body would go the rounds of the College selling lecture tickets for fifty cents each? Connected with a few of the lectures is another circumstance to which our memory clings, not fondly perhaps, but very tenaciously. We refer to those Saturdays just after the lecture, when the lecture committee would call around to make a friendly visit, and after a few remarks on the success of the lecture, would politely ask for a tax of fifty cents to help make up the deficiency.

As our mind runs back over these events, whose remembrance affords us so much pleasure, specific instances come up that make us long to live anew our college life.

Who of the older students will forget the time when one hundred or more advocates of woman's suffrage walked down town on that night of "inclement weather" to learn of "Washington society"? Did any of that one hundred advocate woman's suffrage the next morning? It may be safe to ask them that now, since they

have had two years to clean the mud off their shoes, but the time was when that question would make it necessary for a man to defend his honor. But that is all of the past. It is expected that one will feel the sharp end of the thorns occasionally when he is after the roses. Many of our lectures in the past were a success, at least from an instructive point of view, and we would suggest to the committee that it is time we were having another. We are not longing for a chalk-talk, nor for a collection of jokes (?) that have been going the rounds of the papers since some remote period in the shadowy past. We have also made the acquaintance of the "popular lecturer," and we thank you kindly; but outside of all this there is talent that would be of interest and value to us if placed before us. Lectures on social problems, or on some scientific principle or theory, have ever been well received by the students, and there is no reason why they should be discontinued.

THE political feeling at the College is made manifest by the usual lively demonstrations. It is an indication of a brisk, healthy condition that is to be encouraged in all organizations. Of course the limited time that the college student can devote to politics does not go far to make him a sage in that line. He can do no more than to catch a few of the most general issues, and learn just enough of their principles to argue learnedly on his side, meanwhile remaining in sufficient ignorance to prevent his opposers from shaking his faith.

Still, this state of things does not prevent his receiving the benefits to be obtained. If his interest is kept up, a more careful study of the principles will come later with the mature years of observation.

It is well at times to cease from the routine of study long enough to give a little play to the faculties that will be called upon in the world outside. In doing this it will not be found necessary to read any large part of the small political talk, the highest purpose of which is to fill space in a two-cent daily.

We look forward with fond hopes to the college election. Our neutral standpoint prevents us from discussing the relative merits of the parties and their leaders; but, accepting the law of the survival of the fittest, we stand on the fence, and proclaim that the candidate deemed fittest by a majority of the students will doubtless survive in the November election.

THE college this year made a new and very successful move by attending the State fair *en masse*. All departments from the mechanical to the co-educational

(excuse anti-climax) were well represented. The agricultural department with its mammoth potatoes and sleek stock, the horticultural with an exhibit of every thing in its line except melons, the botanical with its exhibit of drawings and woods, the department of veterinary with its skeletons and "petrified horse," the mechanical department with its display of "machines and the machines that make them," and the military with shining buttons and glistening guns, all united to show the worthy Wolverines something of the value of their agricultural college. It is needless to say that many eyes were opened wide in surprise at what is being done upon the "farm." No other means of advertising could have been so effective. Our light in the past has doubtless been to some extent under a bushel but the occasion of the fair made an opening that let a bright gleam through. Our circumstances render it necessary that something of the kind be done occasionally.

Though we feel proud of our name nor harbor one regret because we are not under the more imposing title of "university" yet it is necessary to correct the wrong impressions that arise simply from our humble appellation. Beside being useful in spreading the fame of the college the fair afforded an opportunity for an enjoyable holiday that the students will be slow to forget. All departments seem satisfied and though the military department failed to capture the coveted prize, yet its members came back with fire in the eye which said "We will see them later."

COLLEGE NEWS.

The term will close November 12.

Two picnics here this term from Mason.

The peninsula orchard is as near as ever.

Not so large a Freshman class this year as was expected.

Have you heard Chapin sing his Scotch ballads with variations?

The running well near Wells Hall, flows in a very small stream lately.

Don't ask your Junior friends whether they passed in blow-pipe, or not.

Cadet J. W. O'Bannon is considered the model private of the College Cadets.

C. P. Gillett has classified and named all of the Lepidoptera in the College collection.

There will soon be a new ice house on the site of the present one, twice the size of the latter.

The Seniors, in zoology, work three hours a week in the laboratory, principally dissecting.

Mr. Knapper has fifty-three kinds of carnations numbered and named; they are all his own seedlings.

Query by a well dressed visitor looking at the Abbott portrait "Was he the inventor of this institution?"

The old oven back of Williams Hall has been torn down, and things begin to look neat in the vicinity.

A set of wood-working tools and some lathe tools have been secured lately for the Mechanical Department.

The garden department will plant nearly an acre of Raspberries, and about an acre of strawberries, for market.

Wednesday, Sept. 29, Prof. McLouth lectured in the chapel, on Sir Isaac Newton. His lectures are always interesting.

The Juniors have finished mechanics, under Prof. McLouth, for this term, and he now hears the sophs in "Trig."

Prof. McLouth will deliver a lecture before the Grand Haven high school on the subject of the Sun. The date is as yet unfixed.

The garden department will grow cuttings, as far as possible, from all of the wild ornamental plants in this part of the country.

The apples from the old orchard will be used this winter, to experiment with, in regard to the various methods of burying such fruit.

The horizontal bar has been moved from the campus to its old position near the Mechanical building, and the boys make good use of it.

A recent inventory of the apparatus and fixtures in the department of mechanics and astronomy, foots up to about \$1800, a very good showing.

The forcing house on the garden has been enlarged so as to accomodate all of the Juniors—that is, they all are afforded opportunities for work.

President Chamberlain of the Iowa Agricultural College visited our institution last week, and delivered an address in the chapel, Sunday afternoon.

A cistern has been dug in the greenhouse, 10 feet long 6 feet wide and 4 feet deep, in which will be kept a manural solution with which to water the plants.

The price of board per week in the different clubs, for the first half of Fall term is—club A, \$2.32, club B, \$2.30, club C, \$2.35, club D, \$2.30, and club E, \$2.00.

Prof. Bailey has come to the conclusion that the vineyard near Wells Hall, will never be a profitable one, so he will use it, to show the different kinds of trellises, to good advantage, with.

Prof. Bailey will be in Lansing this winter and devote his energies to the study of german horticultural works. He will also be somewhat interested in the proceedings of the State Legislature.

Now, boys, don't go over into that orchard; if you do have occasion to go, however, don't steal any of the apples, but if you do steal apples, don't under any circumstances steal green apples.

Quite a rain and wind storm visited the M. A. C., Oct. 14th. It blew the cover off the engine house chimney, a piece of quarter inch iron about nine feet square, and covered the lawns with leaves.

Mr. C. K. Ober, general secretary, College department, of the Y. M. C. A., visited our local association Oct. 12, and addressed a fair audience regarding his work. Mr. Ober is a graduate of Williams, class '83.

Everything is crowded here just now, so much so that the once public parlor has been converted into private apartments for the accomodation of Mr. Crandall, foreman of the garden department, and his family.

Quite a number of the boys have purchased guns, and spend their spare time in hunting. Chandler's marsh furnishes quite a resort for them, but they have to be satisfied with very small game, even if they get any.

The old orchard, so long nearly dead, is beginning to show indisputable signs of returning vigor. Aside from the few apples which the boys have appropriated, the garden department expects to get at least 400 bushels.

Wednesday, Oct. 13th, Prof. R. C. Kedzie lectured before the students on the subject, The Scholarly Habit. The production was a masterpiece, and those who failed to hear it missed something both instructive and entertaining.

The Y. M. C. A. has lately published a small pamphlet, which contains the constitution, history, objects, and plan of work of the association. It is circulated especially among new students and contains much valuable information.

The following are the officers of the Y. M. C. A. elected for the present year. President, W. C. Hall; Vice President, L. H. Dewey; Corresponding Secretary, F. H. Hall; Recording Secretary, D. F. Anderson; Treasurer, Herbert Thurtell.

The sickness at the College has been the cause of much anxiety, both to students and parents at home, but the danger is nearly all passed, and those who went home on account of the sickness of others, can come back now, and feel as safe as they could anywhere.

Professor in Chemical Physics to student—What makes that electric machine pull your hair when you get up near it? "Because you are married to it." Considering an important event that transpired in the life of the young professor, last winter, all we have to say is, well——

Prof. Ball's experimental mechanics, is the text book which the sophomores will use next term. A full set of the celebrated Willis apparatus, for illustrating Prof. Ball's lectures will be secured; part will be purchased, and the other part will be made by the students themselves.

The rustic bridge near the chemical laboratory, has had long and rough usage, and begins to show the effects so strongly, that next year it will be replaced by an earth bridge, the west end of which will be swung a little to the north, in order that the turn from the road at the west of the laboratory will be less abrupt.

The students of the M. A. C. have not been having physical exercise enough lately, seeing which Prof. Bailey has had a wire fence built around the lawn between William's and Well's Halls. The benefit which each student receives from jumping over it in going from one place to another about the grounds, can hardly be over estimated.

The so called boulevard, along the "flats," running from the engine house to near the president's house, will be strictly speaking a summer drive, as it will be open to travel only a portion of the year—from May to the last of November. The two or three ditches, along the way will be bridged this fall, and the road will be ready for use in the spring.

At the State fair, Prof. Cook exhibited sixty-two honey plants, a colony of bees, a bee tent and fifteen different kinds of honey. Also eight cases of injurious insects and a number of bottles of insecticide. The same exhibit with the exception of the colony of bees, was made at the Lansing fair. The honey and honey plants are now in the College museum.

Prof. Geo. S. White has written to President Willets, from the Hassayampa Mining District, Tavapai county, A. T., kindly offering to send to the College Museum many of the curiosities which are found in that out of the way place, such as tarantulas, horned toads, scorpions, buzzards, chapparal cocks, &c. It is needless to say that his offer will be accepted.

Prof. McLouth has been offered the presidency of the Dakota agricultural college, at a salary of \$3,000, and the offer will be accepted on condition of their getting an appropriation from the Legislature, for enlarging the facilities of the school; there must be added to what there is at present, a chemical laboratory and a professorship of chemistry; and also one of veterinary surgery

The officers of the various societies, are as follows. Phi. Delta Theta, President, A. B. Cordley; Secretary, B. K. Canfield. Delta Tau Delta, President G. D. Perrigo; Secretary, Geo. Gladden. Union Literary, President G. C. Crandall; Secretary, Thos. McGrath. Olympic, President, O. C. Wheeler; Secretary, W. E. Bond; Eclectic, President, R. W. McCulloch; Secretary, Frank Kellogg.

There were 76 different kinds of tomatoes grown in the garden this year. This is the beginning of an experiment which will be continued for several years. Prof. Bailey says that next year, not only will the different kind of tomatoes of the whole world be grown here, but also all of the different kinds of egg plants, peppers and onions. He is also making arrangements for the growth of the cabbage tree of southern Europe.

The officers of the military companies are:

Company A—Captain, Irving Bates; lieutenants, W. A. Taylor, L. A. Breggor; first sergeant, A. B. Cordley; second sergeant—G. F. Stowe; third sergeant, G. L. Teller; first corporal, Geo. Glad-

den; second corporal, G. L. McPherson; third corporal, L. Churchill; fourth corporal, E. A. Holden.

Company B—Captain, W. Sanson; lieutenants, C. L. Himebaugh, D. A. Smith; first sergeant, G. Arnold; second sergeant, A. C. Lister. Others not yet appointed.

There has been a considerable amount of sickness at the college this term, and to a great extent it can be attributed to the poor sewerage system which we have. An institution, as large as this one, should be provided with the best possible sewerage. Money will soon be asked of the State Legislature with which to build new dormitories, for the accomodation of new students, but would it not be better, for the authorities to petition the Legislature for money to build a complete sewer system with, and thus give better protection to those already here?

The festive student rides the political mule, and much enthusiasm is displayed generally. Republicans, democrats, and prohibitionists have organized themselves into clubs, and make more noise at their meetings than a tribe of Indians at a war dance,—but then, these meetings probably are conducted the same as political gatherings the world over. The democrats took part in the parade, in Lansing when Yapple spoke there, and the republicans walked the street when Stephen A. Douglass, Jr. spoke. An election was held at College, Saturday, Oct. 16, which resulted as follows: Republicans 84, Prohibitionists 38, Democrats 15.

Within the past two years or more, the milkweeds, *ardepias* about Lansing have become diseased. They have a feeble yellowish appearance, and produce small wiry branches, reminding one of the yellow in the peach. Many of the wild weeds have died. At old mission, Grand Traverse county, these milkweeds are very healthy and vigorous, and are a great pest. Dr. Deal sent up some of our sickly plants in the hope of spreading the disease in that country. Should the experiment prove successful, Dr. Deal will have done something of great benefit to the country, and something which will reflect much credit upon himself.

The flowers have been taken from the beds and placed in the greenhouse for the winter. A visit to the latter place will more than repay one for the trouble and time spent. There are a great many different kinds of plants, and they receive the best possible care. During Mr. Knapper's visit in the east, he made himself familiar with the methods of "carpet bedding" and now promises, that next summer, he will have the flower beds looking better than ever. On his return he brought with him a valuable assortment of rare plants, comprising a collection of Crotons, one of Maranta, one of Bertaloma, and one of Nepenthes, or pitcher plants, also a number of other hot house plants.

The Mechanical Department made a very good exhibit at the State fair and also at the Lansing fair. Everything shown was entirely the work of students, and not only attracted considerable attention but called forth many favorable comments. The most important of the apparatus shown were the following: One 15-inch turret lathe, one 15-inch engine lathe, one pattern-maker's lathe, all of which were finished; also one 12-inch engine lathe, which was only partially completed. One machine which attracted particular attention was a gear cutter, the only one on the fair grounds, and a very neat piece of machinery. There were also about 150 different articles in wood.—dove-tailing, turning, etc. The space occupied by the exhibit was about 20x20, and it was well filled up.

The Commencement exercises at the close of last term lost much of their usual attraction, owing to the unpleasant circumstances in the College history immediately preceding it. The Senior class, which but a few weeks before graduation numbered thirty members, through a series of misunderstandings with the State Board which resulted in the latter asserting its authority, to appease its ruffled dignity, lost eighteen of its members. The twelve who remained to graduate could not hide from the occasion a sense of something lacking. The attendance was larger than might have been expected, and the commencement orations were very good. Aside from the regular degrees conferred: Prof. Samuel Johnson received the degree of M. S. as did also Mrs. M. J. C. Merrell, Prof. L. H. Bailey, Mr. Remington, Frank Benton of '79, and for special scientific work, Kizo Tamari. Honorary degrees were also conferred on Dr. J. H. Wellings and Prof. David Howell.

On invitation from the Luce club of M. A. C., Mr. J. B. Cotton, on Oct. 22, delivered an address in the college chapel. He spoke to a well filled house, and his remarks were well appreciated and often applauded.

Though our cadets failed to win a prize at the competitive drill at Jackson, still they did well and considering the short time which they have been under discipline, the display at Jackson reflected much credit upon them. The Army and Navy Journal in speaking of the occasion takes the following extract from the Detroit Free Press. "The Agricultural boys came in next. Dressed in blue with the whitest of white gloves, they presented a very fine appearance. Their manual was manual indeed. The marching of the cadets was precision from first to last."

Saturday, Oct. 9th, the College base ball club had the pleasure of severely chastising a rural team from the vicinity of an unpretentious little place called Bath. Poor fellows, they assumed the responsibilities of base ball players, but it was entirely too much for them. Such confidence had they in their strength that they came with only eight players, and chose their ninth man from the M. A. C. boys who had assembled to see the game. It was a lucky choice, as Learned, whom they chose, besides making some excellent plays, secured for them their one lonely little run, while the College team pounded the sphere for 22 runs.

Visitors—

	A. B.	R.	B. H.	T. B.	E.
Knapp, - - - - -	4	0	0	0	6
Smith, - - - - -	4	0	0	0	1
Staten, - - - - -	4	0	0	2	1
Learned, - - - - -	4	1	0	4	2
Lasenby, - - - - -	4	0	2	4	1
E. Knapp, - - - - -	4	0	0	3	1
Dryer, - - - - -	4	0	0	1	1
Hicks, - - - - -	4	0	1	3	2
Hyler, - - - - -	3	0	0	3	1
Total, - - - - -	40	1	3	20	16

Home Nine—

Cordley, 2d b., - - - - -	7	3	3	9	0
Chase, c. f., - - - - -	7	3	1	12	0
Smith, c., - - - - -	6	3	2	12	4
Canfield, 1st b., - - - - -	6	1	2	6	1
Yerkase, p., - - - - -	6	2	2	11	1
McCulloch, 3d b., - - - - -	6	1	1	4	1
Bates, l. f., - - - - -	6	4	2	16	0
Bulson, s. s., - - - - -	6	2	2	10	1
Bartmess, r. f., - - - - -	6	3	3	15	1
Total, - - - - -	60	22	18	95	8

The class of '89 has, within a very short time, been called upon to mourn the death of two of its members, and the following resolutions have been drawn up in token of the esteem in which both were held:

WHEREAS, The angel of death has again visited our class, and taken from us our highly respected and beloved classmate, Charles J. Priest; therefore be it

Resolved, That while we humbly submit to an All Wise Providence, we deeply mourn our sad loss and shall ever cherish his memory.

Resolved, That in the death of our late classmate, we have lost one of our most worthy members, our college one of its most promising students, and his family a kind and affectionate son and brother; and that we as a class deeply sympathize with his family and friends, and extend to them that deep sympathy which warm hearts can give who feel that their affliction and sorrow are one.

Resolved, That a copy of these resolutions be forwarded to the bereaved family, and be presented to our COLLEGE SPECULUM and the *Corunna Independent* for publication.

[Signed,]

L. C. BARTMESS,
GEO. GLADDEN,
J. H. WHEELER,
Committee for Class '89.

WHEREAS, An All-wise Providence has seen fit to remove from our midst another of our respected and beloved classmates, Geo. T. Gridley; in view of that loss, and the respect we feel for our deceased brother, be it

Resolved, That in his loss the class of '89 of the M. A. C. loses one of its most diligent and untiring students, a classmate and student, who will ever be remembered by his gentle and loving manners, courteous demeanor on all occasions, and the faithful discharge of all duties imposed upon him.

Resolved, That we extend to the bereaved family and friends in this their deep affliction, our most heartfelt sympathies.

Resolved, That a copy of these resolutions be sent to the family of our deceased classmate; that a copy be placed on the records of our class, and that a copy be given to the SPECULUM for publication.

[Signed,]

C. E. HELMORE,
WM. LIGHTBODY,
W. S. PALMER,

Committee of Class of '89.

WHEREAS,—God in his Providence has removed our brother, George T. Gridley who died at his home in Jackson, Oct. 10th, 1886.

RESOLVED, That in the death of Mr. Gridley, the Union Literary Society loses an honored and respected member who was ever prompt in his duty, a faithful and loyal worker and ever a kind-hearted and considerate brother.

RESOLVED, That we tender his mother and friends who are thus called upon to mourn his early death, our heartfelt sympathy, and be it furthermore

RESOLVED, That a copy of these resolutions be furnished the bereaved mother; a copy be spread upon the records of the society and further that a copy be published in the COLLEGE SPECULUM and also in the Jackson papers.

C. B. WALDRON,
H. L. CHAPIN,
W. A. TAYLOR,

Committee.

The management of the base ball club has been entirely changed, an organization has been formed which will be governed by a set of rules of which the following are a part.

ART. 1. The club shall be known as the M. A. C. club.

ART. 2. The officers of this club shall consist of manager, secretary, treasurer, and steward.

ART. 3. The manager may be a member of the faculty or a student, and shall be elected at any regular or called meeting of the students organization in August, for the ensuing school year. All other officers of the club to be elected by the players in September of each year.

ART. 4. It shall be the duty of the manager to secure the best players in the College, so far as practicable, to play the various positions of the College club. The manager to have absolute freedom in the choice of players, or in removal of players from the nine. Students not fulfilling college duties are not to be assigned regular places in the nine. They may also forfeit the places in the nine, to which they are assigned, by neglecting college duties, by poor playing, by neglecting practice, or by any act that would disgrace the club.

ART. 5. It shall be the duty of the manager to organize two nines, the first nine to consist of the best available players, the second nine of the second best players. All promotions to the first nine to be made from the ranks of the second nine. Such promotion to be made whenever a decided superiority is shown by a player in the second nine over a corresponding player in the first nine. Promotions to the second nine to be made from players not members of the club, when they show decided superiority over players in the nine.

ART. 6. The manager shall assign a regular time for practice for both nines, and shall determine the character of such practice. He shall subject players to the payment into the treasury of a fine for absence from practice without leave.

These are the principal rules; the duties of the officers and players are specified, and also there are regulations with regards to fines, dues, uniforms, etc. Meetings of the association are held regularly. Prof. R. C. Carpenter is manager, L. C. Bartmess secretary, L. McLouth, treasurer, and O. C. Hollister, steward. The members of the two nines are—

FIRST NINE.

I. B. Bates,
Don Yerkes,
A. B. Cordley,
N. C. Smith,
R. W. McCulloch,
A. E. Bulson,
Geo. Chase,
B. K. Canfield,
A. G. Shepard,

SECOND NINE.

Frank Bruen,
W. L. Rossman,
W. L. Learned,
G. D. Perrigo,
Harry Thurtell,
W. Needham,
D. A. Garfield,
O. C. Hollister,
Lewis McLouth, Jr.

UMPIRE—C. M. Hemphill.

Library Notes.

The library is enriched by sixty pamphlets on civil service reform; they were sent by the secretary of the national league. We have also received a number of reports from the Massachusetts Bureau of Statistics of Labor as well as the first of the national reports upon that subject. The latest addition to the library is Labor Laws of America by Henry A. Haigh, class '74, E. M. Preston sends an elegantly bound copy of Horticultural Resources of Nevada county, edited and compiled by himself.

PERSONALS.

A change in the arrangement of this department will be noticed. It will hereafter contain first college personals, second alumni personals. In the last division the items of each class will be found together. We earnestly ask each alumnus to send class or other news to the editor before each issue thus making his work easier and the department more interesting than it would be otherwise.

COLLEGE PERSONALS.

Chas. Baker, '84, made us a flying visit last month.
 W. S. Snyder, '82, is at present making his home here.
 General Cucheon of Detroit was on the grounds Oct. 8th.
 Prof. F. A. Gully, '80, was on the grounds one day last month.
 L. J. Gibson, '64, accompanied by his wife, spent a day at college, lately.
 Fred Davis, '86, is a frequent visitor at the college during drill hours.
 Geo. C. Crandall who went home a short time ago, is sick with typhoid fever.
 Dr. Byron S. Palmer, class of '81, visited M. A. C. a short time ago. His wife was with him.
 Kizo Tamari is at Champaign, Illinois, studying diseases of the silk worm under Prof. Burroughs and Fort.
 Prof. Geo. S. White who was for a time instructor in English at the college, is now at a mining camp near Prescott, Arizona Territory.
 B. E. Fernow, commissioner of forestry, spent several days upon the grounds. He was especially pleased with the arboretum and botanical museum.
 Chas. Goodwin, '65, visited the college a few days ago. He says that he was surprised as well as pleased at the great improvements in all departments.
 We are glad to see the jovial face of Frank Free again upon the campus. He will finish the course with '88. Another man of whom '87, was once proud.

ALUMNI PERSONALS.

CLASS '62.

E. M. Preston has issued a *brochure* on *Horticulture* in California. A handsome copy of which will be found in the library. He says that he will surely be present at the next Triennial.

CLASS '64.

Prof. W. W. Daniells, of the Wisconsin University, recently stopped over a day at the college on his way to a meeting of the North American board of health at Toronto.

L. J. Gibson is still teaching at Lyons. His vacations are spent on his farm at Wacousta. He has quite a large apiary.

CLASS '67.

Daniel Strange was one of the chief exhibitors of horses at the Central Michigan fair. We noticed several blue ribbons.

CLASS '68.

Frank S. Burten, who will be remembered as the student poet of '68, has just issued a large work. The title is *Whispering Meadows and—*

H. G. Gully had a splendid exhibit of fruit at the State fair.

Prof. S. M. Tracy issues a list of the flowering plants of Missouri.

F. J. Growner sends the college library a paper on Empyema, treated in an original manner. It is said to be a very important method.

CLASS '77.

W. A. Fritz is taking a postgraduate under Dr. Beal.

Prof. W. C. Latta is gaining a great reputation by his experiments in wheat culture at Perdue University.

CLASS '78.

E. O. Ladd is on his fruit farm at Old Mission. He reports.

Geo. E. Breck is taking a vacation in Europe.

Eugene Davenport is a regular contributor to the Rural New Yorker and other leading agricultural papers.

W. K. Prudden is again in Lansing. He was the owner of one of the best trotters in the Central Michigan races.

CLASS '79.

Chas. W. Gammon is the happy father of a sweet little girl.

CLASS '80.

Prof. F. A. Gulley of Mississippi is to give lectures in Texas during winter. He has a standing offer to go to that State as Professor of agriculture. Positions for *good* men are never wanting in this line of work.

CLASS '82.

W. S. Snyder is now at the college. He spent last year at Cornell.

CLASS '83.

Bahlke for prosecuting attorney and Mathews for circuit court commissioner on the fussion ticket.

C. M. Weed spent several weeks of his vacation at his home in Lansing. He has been reengaged as an assistant at the Illinois University with a higher salary.

CLASS '84.

J. R. Abbott has gone to learn the lumber business with Mayor Estabrook of East Saginaw.

John J. Bush Jr. was very busy at the Lansing fair with his fine herd of Galloways. John looks even healthier than when he was wielding the editorial pen in behalf of the boys of M. A. C.

R. J. Coryell had a fine article in a recent issue of the Grange Visitor. The subject was the Agricultural College.

O. J. Hershiser is about to move his large apiary from western New York to north western Ohio.

C. E. Smith is instructor at the State Normal.

CLASS '85.

W. S. Baird shipping clerk for Bement's manufacturing company.

Chas. Hoyt reports that his bees and farm are prospering finely.

C. Fred Schneider has completed his studies at Washington and is now stationed at Pike's Peak.

CLASS '86.

J. B. Cotton instructor of freshmen in the *younger* mathematics.

Fred Davis has gone to Ann Arbor. He will take civil engineering.

Miss Jennie Towar is taking an extended trip throughout the east.

THE NOBLE EIGHTEEN.

Ye are scattered and gone.

The bright sky of your future
 Was clouded at dawn.

Not by error or crime,

But, for rude happenstance,
 Your place might have been mine.

The wrath of the dignified board

Thus unjustly descended on you,
 Because in their fight they were floored,

And the days from your commencement were few.

So you'r out in the world minus "diploms"

The college oft, oft for you moans,
 And good tidings from you far away.

Makes us happier and brighter this day.

Judson is home on the farm. He is learning of practical agriculture.

Brown is teaching school in Dakota.

Everhart is at Freeport, Illinois, surveying for the Ill. Central railroad.

Geo. French is on a visit to Grand Haven.

Will Clemons is home working hard on the farm. John is doing likewise only interrupted occasionally when he plays 2d. base for the Bath base ball club.

Eldredge was disappointed in his school at Mackinaw Island.

Welch is teaching in the northern part of the state.

Hancorn is home on the farm. He will teach this winter if the directors think his services are worth forty-five dollars a month.

Dunstin is selling farm implements in Wisconsin. He thinks it beats teaching all hollow.

Whitney is studying law at St. Louis.

Clute is studying law at Ionia with his father. He will teach this winter.

The editor saw Nichols at the State fair. He was looking hale and hearty. He is home on the farm.

Howe is home. We hear that he astonished the natives lately by playing first base for a local club. He was hit by the pitcher; the consequence was that Harry made a fourteen bagger, and the ball was never found.

Hooker spends his spare hours by photographing everything upon the place, from the lame chicken in artistic posture to the staid and grave rail fence which surrounds a neighboring cornfield. He says it reminds him forcibly of the one around No. 16.

Rummler is in Detroit. He will teach this winter.

Geo. Spangler is in Lansing. We see him seldom; he gives the College a wide berth.

Kinnan is somewhere west of the Mississippi.

EXCHANGES.

Will some one please remind the *Niagara Index* that it isn't pretty to throw that nasty mud.

We are pleased with the appearance of the *Oberlin Review*, but would suggest that an exchange column would make it more interesting.

One of our most regular exchanges is the Notre Dame *Scholastic*. Though a clean, scholarly journal it is most too reserved for a college paper. Let us see you smile, fair *Scholastic*.

The last number of the *Normal News* is a fair representative of a college paper, but we would suggest a more systematic arrangement, and more attention to the world living outside the Normal.

We will state for the benefit of the Aurora that the circumstances concerning our late difficulty with the State Board were too extended to admit of full publication. We can hardly grasp the meaning of the following sentence which was used by the *Aurora*: "It seems further that a student had been expelled for refusing to testify in an affair in which he was not engaged, and states to the board what they considered their duty in regard to class-day and commence-

ment exercises." In the language of our old grammar instructors we would ask, "What are you going to do with 'they'?"

In the *Detroit Sunday News* of Sept. 26th are some glimpses of Europe as seen by Henry A. Hagh. He speaks of having seen the Prince of Wales, Kaiser Wilhelm and several notables of a lower degree. Mr. Haigh expresses surprise at the little interest that Englishmen take in American politics. Regarding them in this line he says, "They know something about American securities and some of them have sorry tales to tell about American railway investments, but very few of them seem to care anything about who is president or candidate for president. They would be glad if we would stop sending money to the Irishmen, and would be much obliged if we would give them free trade.

In the exchange column of the *College Rambler* for Sept. 18th, appears a rather bitter outbreak against our exchange editor, who, by the way, is "out of town" and can not enjoy the little exhibition of spleen. As we are a stranger in this department, our worthy exchange will please excuse the moderation that must temper our criticism of the paragraph referred to. We wish to call the attention of the *Rambler* to the fact that in this particular instance its name is hardly suggestive of its extremely wandering nature. If it will kindly consent to return from the darkness in which its stroll has taken it, will see that the editor-in-chief of last year and the exchange editor of this year are two different persons. Judging from the *Rambler's* question—"Can such an intellect as this be content with the trivial affairs of college life?" we see it was not aware of the fact hence its aimless criticism. As our exchange editor is an Illinois man, our first impression on reading the paragraph was that he had pooled interests with the *Rambler* and had written the criticism himself in order to make a demand for the paper. Further consideration however leads us to believe that he is knocking around his native state looking for the Illinois college in hopes of being able to feast his eyes upon the exchange editor of the *Rambler*, and thus catch an inspiration from the mighty intelligence of that person. And now dear Mr. *Rambler*, as it is your nature to wander around to some extent we don't mind taking a little stroll with you as we think it will be to your advantage to see your image as reflected from our polished and unruffled front. First, we will talk about our exchanges. Of course you know that the *Rambler* and the SPECULUM are the only *perfect* representatives of the college press. Because we are so smart and mighty, however, shall we overlook that short but effective social law, "Live and let live." True criticism is proper. It is one of the vital elements of improvement. Your infallible and elevated position should enable you to suggest and direct. True greatness never abuses. It performs the higher duty, to guide and teach. Not having in mind your criticism of the paragraph in our last issue but rather your general bearing toward other members of the college press, we ask if it ever occurred to you that the world of college journalism would be a dreary one if the *Rambler* were the sole inhabitant. Missing the bright faces of your exchanges even though they appear but pigmies beside your towering talent; missing also their good-natured jostle that gives mutual strength and vigor, we can imagine than even your glories and strength would wane. Your success depends on the success of your contemporaries. Would it not be more fitting then, to your position and more conducive to your own interest, to use some of your splendid talent in trying to improve the organs that make your success possible, rather than strive to blot out their existences by large quantities of very bad mud?

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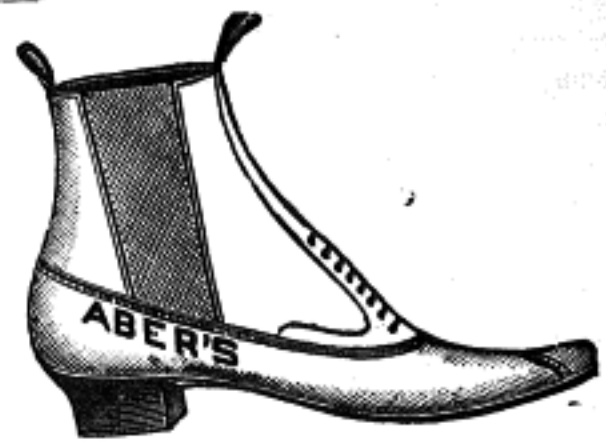
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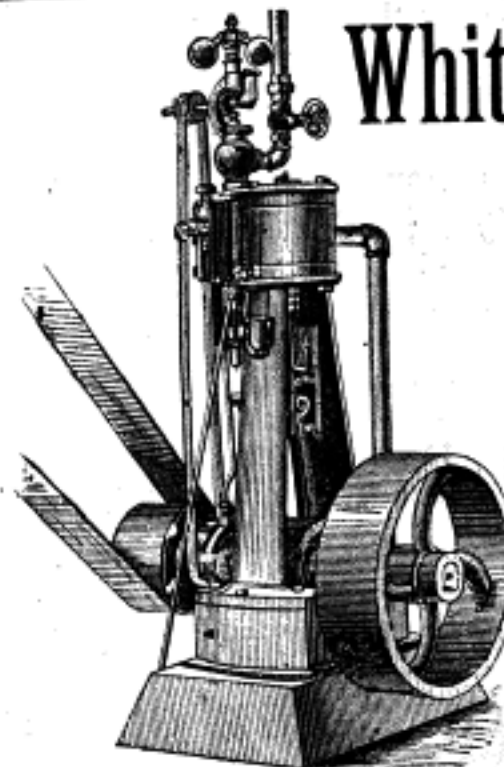
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