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## Science and Practice in Agriculture.

GEO. L. TELLER, '88, COMMENCEMENT ORATION.

Very few industries are older than agriculture, yet none have been comparatively so little developed. Why? Because there has not been a due combination of science and practice. It is well known that before agriculture laid any claims on science, principles were deduced which enabled the husbandman to carry on in a rude manner the art of farming. That only since this time has comparative progress been made. That still there are numerous complex problems to be solved before agriculture can be placed upon the footing which she, from her position among productive industries, demands.

By science in agriculture is meant a knowledge of the ultimate principles which underlie the producing of farm commodities. To determine those principles requires men who are not hampered by an ignorance of practical labor; men who do not forget that their works are fruitless except they can be made practical; men who do not delight in vague theories the truth of which never has been and never can be demonstrated. Otherwise their results will be like many of those of Davy, of Liebig and others; worthless except as standing evidence of mis-directed energies; excellent examples of what must be guarded against by future investigators.

Everywhere in nature man finds himself surrounded by innumerable evidences of fixed laws. He sees them in the minutest grain of sand as well as in the highest mountain; in the tiniest blade of grass as well as the giant oak, towering high above his head; in the simplest animal as well as the complex structure of man, and the intellect which enables him to ferret out those

laws and understand their operations. Nowhere in nature does he find chaos or chance. Every phenomenon has its cause which is as certain to be followed by the effect as is the sun to rise and set upon the morrow. In no industry is man brought more closely in connection with nature and her laws than in agriculture. In none are more varied and more complex laws involved, and how can he expect to arrive at perfection in that industry or even approach it without understanding those laws wholly or in part. In all occupations he is most successful who understands why he pursues any mode of action. He who does his work without knowing why, will do much that is useless or worse than useless. To obtain the best results the artisan must have a thorough understanding of the relations of cause and effect which are involved in his work; yet when he has that understanding he has nothing more nor less than the science of his industry.

Science then must dissipate erroneous and superstitious beliefs. Such beliefs are not founded on a knowledge of cause and effect. They have their origin in sublime ignorance. Many farmers are to-day wasting their soil and shortening their crops by sowing impure seed because they believe that wheat will turn to chess, yet scientific investigations have clearly demonstrated that this belief is false. Like produces like is a grand law of nature and no exception to it has been made in favor of these two grasses. It is science that has shown pear blight to be caused by a specific germ which is abundantly reproduced both within and without the pear tree, and which must be destroyed in order to prevent the spreading of that disease. It is science that showed, at a time when it was of imminent importance, that Clawson wheat is not in-

ferior to other races in its flouring qualities. It is a knowledge of the anatomy and physiology of domestic animals that will enable the farmer to guard against the infamous abuses of his stock by the ignorant and inhuman quacks invading almost every community. It is a knowledge of the principles which underlie his art that will enable the husbandman to realize that there is more in farming than mere drudgery.

There is something in an understanding of science which awakens the mind of man to activity. When once he has a taste of knowledge he has a growing thirst that continually impels him to further study. In no occupation are there better opportunities for studying nature than in agriculture. In none are the rewards of such study greater. A thousand opportunities for observation are offered every day. A thousand problems are presented, the solution of which will materially aid the farmer in his future work. But the life of any one man is too short to study out all the complex laws of nature for himself. He must look to others for assistance—to the chemist, to the botanist, to the entomologist, and to still others. Yet to draw correct conclusions from the results of their labors; to apply to his industry the principles they have deduced, he must understand at least the elements of their sciences.

Suppose, however, he were satisfied to follow in a mechanical way the rules for action determined by others. The varying conditions of soil and climate make it impossible for scientists to lay down more than general rules. To obtain the best results each farmer must for himself modify those rules to suit his own special needs, yet he cannot modify them without an understanding of the principles on which they are based.

It is by experiment that difficult agricultural problems must be solved. By experiment the falsity of supposed truths must be made known. By experiment new truths must be determined; and by experiment the

correctness and value of principles deduced must be impressed upon the masses. For these purposes as well as for detecting adulterations, for identifying plants and insects, and for determining the best methods of exterminating those which are injurious, experiment stations must be maintained. But who are to direct them? The scientific theorist who never did a day's work on the farm in his life? The self-conceited practical farmer who does not understand the first principle of cause and effect? It is as impossible for the one as for the other, and the work of either must tend to bring these stations into disrepute and frustrate the purposes for which they were established. The men to direct experiments must be practical men but they must not be men who ignore the importance of science. They must understand it and follow its teachings or their work will be fruitless. It is such men who have directed experiment stations in England and the most prosperous of those of Continental Europe. It is such men who have conducted similar institutions in America and the results of their labors have been, not only greatly to benefit the industry, but to encourage Congress to make an annual appropriation of more than half a million of dollars for the support of government experiment stations.

From Europe westward to Japan the influence of agricultural colleges is being felt. That they are continually growing in favor and are receiving much encouragement, both public and private, is proof enough of their importance. It is for combining science and practice that these institutions have been established. It is at such institutions that persons who have served an apprenticeship under a good farmer, and who have become familiar with the methods of practice usually pursued, can fit themselves for judiciously managing a private farm, or for pursuing a line of study which will enable them to enter upon the no less important work of deducing practical truths for the use of those who are

engaged in actual farming. It is at such institutions that the young are to receive a rudimentary knowledge of the sciences involved in the industry, and having such knowledge that they are to have set before them, by a man who is deeply scientific and broadly practical, a clear and concise exposition of the bearing of each and all those sciences on the industry. It is at such institutions that they are to receive, by word and by example, a knowledge of the principles involved in the industry, that when they depart, wherever their lot may be cast, they may be enabled intelligently to apply those principles and make the worth and importance of them felt by the surrounding community.

And when the majority of the farming class have come to recognize that every effect has its cause, and when they are capable of combining and are willing to combine the causes necessary to produce desired effects, then can we look for a full development of the agricultural interests of our country.

### Appearances Are Not Deceitful.

A. D. BAKER, OLYMPIC SOCIETY.

There is a somewhat prevalent idea that the world judges a man superficially, taking him for what he seems rather than for what he is. That this is a fallacy the thoughtful who choose to observe closely will readily concede. As a rule the world puts the right value on a man. To prove this you have only to look around you. Those within the circle of your acquaintance who have long held places of trust are, as a rule, deserving of them.

There are many who appear, or try to appear, what they are not. These form two classes, according to their motives. The first appear different from their real characters because of excessive self-consciousness. Such a person, who when perfectly at ease is an entertaining and pleasant companion, becomes, when in the society of people not

familiar to him, stiff and formal, and even churlish; or he may, on the other hand, become loquacious. This person, if he could but let himself appear, would produce an entirely different and much better impression.

Those of the other class have some motive for their attempts at deception. These, also, are of two classes. Some have characters or motives of which they are ashamed or which they know are positively wrong. These may be termed the vicious. A conspicuous and remarkable example of this class is Shakespeare's Richard III. From this prince of villains are all gradations. To these there are two warnings:—The most accomplished villain will find his equal; there is no more easily duped man than the one who is trying to dupe another, as is strikingly illustrated in detective service.

The other class, it will be assumed, are at heart right in their motives, but labor under the delusion that they can succeed better by assuming an exterior that is contradictory or at least that is intended to give an erroneous impression of what is beneath it. Among these are many who are ambitious for popularity or influence. They must appear glad to see all for whose friendly feelings they care. They must smile whether they feel like it or not. They think they are deceiving, and this thought reacts on the character and deceit becomes a habit. An extreme development of this class is seen in some of our politicians, and we all know how transparent is the veil that they think hides their motives.

People have a faculty of looking through actions to motives. Most do this by an indefinable intuitive method; some through long experience with the world. One may succeed for a time in covering himself thoroughly from those around him, but time is a revealer from whom there is no escape. His thoughts and feelings will leave their impress on his face, and the schemer, with all his cunning, cannot conceal himself. With the reputation of a schemer fixed upon him, no

engaged in actual farming. It is at such institutions that the young are to receive a rudimentary knowledge of the sciences involved in the industry, and having such knowledge that they are to have set before them, by a man who is deeply scientific and broadly practical, a clear and concise exposition of the bearing of each and all those sciences on the industry. It is at such institutions that they are to receive, by word and by example, a knowledge of the principles involved in the industry, that when they depart, wherever their lot may be cast, they may be enabled intelligently to apply those principles and make the worth and importance of them felt by the surrounding community.

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action, however ingenuous, is free from suspicion.

There is a charm about a person whom you feel is honest in his actions and who is saying and doing what he really feels, because this frankness necessitates his being all right. No one wishes to expose to view things he is ashamed of and that will injure him in the estimation of others. To be honest we are not always to blurt what we know. We are possessed of judgment which we are to use here as elsewhere. But we are to free our conversation and actions from these deceits which are so prevalent. Stop to think of the amount of deception practiced by fairly good people, and it is surprising. We wish to appear to as good advantage as possible, and we exaggerate our accomplishments. It seems so easy to give a wrong impression, and thereby bring ourselves into a better light.

Some unconsciously conceal themselves from those around them. These are the ones who complain that the world is unjust to them. They have no particular motive for concealment, only a certain shrinking, an instinct that makes them withdraw into themselves. Of these ask the question, how do those who know you best, those from whom you do not try to conceal yourself, how do these regard you? This is the test of your real worth. If these have confidence in you and respect you, then the world, if you will let yourself appear to it, will do the same.

It is unwise and impolitic to try to appear better than we are, for in this we cannot succeed. It is equally unwise and impolitic to try to appear worse than we are, for in this we are sure of success. Strange as it may seem, the latter course is somewhat common. These persons see those around them who profess so much and do not follow out a tithe of their professions, that they learn to hate hypocrisy, and not being able to hold their equilibrium, are unconsciously thrown to the opposite extreme. Though this is a less repulsive form of deceit than the other, yet it is deceit, and should be overcome.

Be what you desire the world to think you, then throw down all masks and deceits and stand before people *yourself*.

The final result is inevitable—"Ever the right comes uppermost, ever justice is done," and it will be done to you.

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### Go South, Not West.

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L. W. RICE, ECLECTIC SOCIETY.

From the time of the first discovery of gold in California, up to within a few years, the constant flow of immigration has been westward. Why this should have been so is easily explained. It was about this time that bitter hatred existed between the people of the North and South on the question of slavery. The great railroads were pushing westward and offering big inducements to the people. But perhaps strongest of all was the discovery of the rich mineral wealth in the West. All these causes tended to induce the people to go westward rather than southward. After the close of the war however, and when peace reigned once again in our country, people began to see the advantages offered in the South, and some turned their steps in that direction. Northern capitalists saw opportunities for increasing their wealth, and sent their agents there to invest money. What has been the result? The chances offered, though recognized by few at first, have gradually developed until now the South, with all its promises of success, stands open to all thrifty and industrious people.

Let us look at some of the opportunities which present themselves. It is a well known fact that the South is rich in valuable minerals. Perhaps the leading one of these is iron ore. Large furnaces are also in operation, and more are constantly being built. The farming land is all that could be desired. Before the war this land was in large plantations, which are now being divided into smaller farms. On these the average northern farmer, with modern agricultural imple-

ments, cannot help but succeed. Nor must we fail to recognize the natural waterways and numerous railroads. It is these that make manufacturing cities, and facilitate commerce. Already we see this in the large number of commercial cities which have sprung into existence, and which will soon become rivals of the cities of the North.

Nor must we fail to take into account the difference in expense in going South. Many a young man after completing his education finds himself comparatively poor, and were he to go West the expense would be so great that he would have almost nothing with which to engage in business after reaching his destination. But by going South his expenses are not so large, and consequently he has more capital to invest with greater chances of success.

Let us for a moment compare the present condition and growth of the "New South" with the "Old South." At the close of the war the country was left a waste, houses were destroyed, and in fact everything ruined. To-day what do we find? Under the skillful hand of man, the country has, as it were, sprung into a new existence, leaving behind all traces of its former condition. Where were once desolate fields and farms, are now found enterprising cities. Manufacturing towns have sprung up on all sides, while well cultivated farms with neat farm houses are found in place of the plantation mansion or the slave quarters. What has done this? Nothing but the steady flow southward of industrious people. Why then, do so many people go westward and not southward? Our answer is this. The great railroads leading westward have received from the Government large tracts of land. It is for their advantage to dispose of these lands as rapidly as possible, consequently they boom the West, offer big inducements to the people, and in fact, do everything to enable them to get rid of their lands, thus increasing their own wealth. For this reason many people have gone westward, lured on by the

great offers of the railroad corporations, only to find themselves humbugged. On the other hand, the railroads of the South have had no such chances, and those who have gone there have done so believing it for their own good, and not deluded by tempting offers of corporations.

Many people have an aversion to the South, pointing to the ravages of that dread disease, yellow fever. This is the only strong objection against the South. But, when we consider that only an exceedingly small portion of the country is afflicted, the objection does not seem so large. Again, in cities where careful sanitary precautions are observed from the first the disease gains no foothold. This is unlike the blizzards which sweep across our western states, carrying untold suffering and death with them. Nothing can be done to prevent them, and they seem to increase in number and severity every year.

The West, with all the disadvantages of a new country, starting from almost nothing, has steadily but surely grown into the front ranks of our great country. And it necessarily follows that the "New South," which has none of the disadvantages of a new country, must be built up and in a few years become a rival to the northern and western states.

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### Feudalism.

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JAY R. MCCOLL, PHI DELTA THETA FRATERNITY.

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The close of the ninth century witnessed a great change in the semi-barbaric society of Western Europe. Great states and kingdoms, once united, now became broken into a multitude of dukedoms, counties and smaller divisions, all bound together, as it were, by social and political relations based on land tenure. This condition of society, prevailing as it did from the reign of the Carolingians to the Crusades, and attaining its highest development in the eleventh, twelfth and thirteenth centuries, is known as the Feudal System.

Though it was one of the most complex institutions ever existing in Europe, feudalism, in an ideal form, would be very simple. Suppose all the land of a country to be in possession of the king; on conditions of fealty and service he divides it among his immediate followers or dukes; they on similar terms divide their portions among the next lower order; thus the process might continue to the lowest classes. Although the ideal was by no means attained, the relations of granter to receiver, or *lord* to *vassal*, were similar. The duties of the *lord* or *suzerain* were counsel and protection; those of the *vassal*, homage and support. The estates thus held were called *fiefs* or *fiefs*, hence the name feudalism. They varied in size from a few acres to a kingdom, and from the nature of things social and public relations were made dependent on private relations, and political rights on landed rights. In the words of one, "land became the sacramental tie of all public relations." By the end of the tenth century we find the primitive Germanic society almost completely changed; territorial interests taking the place of crude, personal instincts.

Why should the strong empire established by Charlemagne thus retrograde into apparent disorder? Society seemed to be made up of two main elements, the Romans with their principles and learning, and the Teutons with their ideas and customs. There was a strong feeling toward personal independence. This was considerably due to the disgusting rule of the later Carovingians. The bolder duke declared his independence of the king, the more assuming count of the duke, and so down through the list. Their example was followed by the less brave, until there seemed to be a complete social and political disintegration, and each became, practically speaking, his own master. The change was probably accelerated by the spread of Christianity, accepted literally by the barbarians. The belief that the world would end in the year 1000 had fatal in-

fluence on progress, and especially on national sympathy. It developed prominently a sense of individuality and not of association. This tended to discourage governmental support, and promote self-interest.

All hurried to become lords and vassals in their respective classes, and many times independently as exacting lords only. Not only individuals, but cities, monasteries and churches became members of the feudal system. Rights, prerogatives, privileges and fees, as well as land, came under its control. The lord may have obtained his sovereignty over his vassals by voluntary surrender of it by his lord, or he may have obtained it by usurpation. The principal duty of the vassal was military service. This he had to give, whether it was to satisfy the whim of his lord or indirectly to protect himself. The suzerain had a right also to exact taxes. These might be in money or in the products of his possessions. The vassal in return obtained protection, often a no small recompense in those times of strife between lord and lord.

For three centuries the Feudal System dominated over France, Germany, Italy, Northern Spain, England and Scotland. Though all accepted it, only the nobles and barons at heart liked it; for it afforded them position and social advantages not otherwise obtained. The kings hated it because it gave them little more than a title. The yoke of the common classes was harder to bear than it would be in a monarchical government. This feeling, together with the Crusades, social and political revolts, and the invention of firearms, tended to break down the institution which had so long flourished.

Although it was the best form of society that could have been maintained in its time, it had its defects. The formation of strong governments was prevented. It was simply a loose league of hundreds of petty states, each looking out for its own interests. The division of society into classes made it very oppressive for the lower orders, giving them no possible chance for intellectual development.

The fact that feudalism was so widely spread goes to prove its necessity. Although it was defective, it had its bright side. It served as a step from barbaric society toward our more modern customs. Through its inculcating influences of independence, it kept down the despotic rule of Royalty. It was in this period that chivalric sentiments were fostered and developed, only to find expression at its decline. We are indebted to this time for a great impulse given to polite literature. "It is to the feudal times," says Guizot, "that we trace back the earliest literary monuments of England, France and Germany, the earliest intellectual enjoyments of modern Europe."

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### SCIENTIFIC.

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#### Report of the Natural History Society for September 14, 1888.

This was the first meeting of the year, and the large attendance and interesting program indicated a strengthened interest in the society.

The meeting was called to order by President Dewey. The first exercise of the evening was presented by F. H. Hillman, his subject being "The Carpet Beetle" (*Anthrenus scrophularia*). One of the most troublesome household pests is the carpet beetle, sometimes improperly called "carpet moth" and "carpet bug." This insect belongs to the family *Dermestidæ*, which contains many other insects noted for their injurious proclivities. Among these is the *Dermestes lardarius*, well known to the naturalist, as its favorite occupation is eating the internal portion of dried specimens, leaving but a thin shell to fall to pieces on the first disturbance. Other insects of the same genus, *A. lepidus* and *A. varius* have long been known in Europe and Colorado, where they are found eating the flowers of certain plants.

The carpet beetle was introduced in 1874,

making its first appearance in the eastern cities. It is supposed to have been imported from Europe in carpets from Brussels. Like the others just mentioned of its genus, its work in Europe is mainly upon flowers, but a new climate gave it a new appetite, and as a destroyer of carpets and other goods it is rapidly spreading in the United States.

From the nature of its depredations, and the peculiarities of its life and habits, its character cannot be too well laid before the public, and that too as a forerunner of a rapidly increasing evil.

The larval form is that in which we are the most interested, for then it does its greatest damage. To see these pests where they have gained a foothold one has simply to raise up the edge of the carpet and he will find the little brown, hairy larvæ making the best use of their time in getting to some protecting crevice. As they are not very slow one must make his observations hurriedly in order to see them. One cannot fail to recognize this larva after once noting its peculiar appearance. It is about one-eighth of an inch in length, each segment having a ring of projecting bristles. The head is almost invisible owing to the thick ring of hairs surrounding it. At the posterior extremity is a pencil of hairs often equal to the length of the body. The larva and beetle both mimic death when frightened.

No cocoon is formed when the insect assumes the pupal form, the skin of the larva serving as a pupa case. The carpet beetle usually selects the margin of the carpet as its scene of action. Finding a thread suitable to its taste it follows this up, cutting off the cross threads in its path till, reaching the other side of the breadth, it leaves it cut as neatly as could be done with a pair of shears. Not only carpets but any woolen goods, and it is now claimed cotton goods, are liable to injury from this insect.

When may we expect to find them? The larvæ make their appearance in early June and after feeding at the expense of the carpet



go into the pupa state about August 1st, from which it emerges as a beetle about October 1st, and continues to appear during the winter, which is due to the varying temperature of the room.

Various remedies of extermination have been tried with greater or less success. Some have found it almost impossible to keep carpets and others have done so at the cost of unceasing vigilance. Some have supplied them with food which they seem to like better, by placing strips of flannel under the carpet. Others have left an uncarpeted margin of twelve or eighteen inches about the room which seems to interfere with their activity. Kerosene and benzine are objectionable on account of their odor.

Probably the best method is to steam them. Three or four thicknesses of wet cloth are laid upon the infested portion of the carpet and very hot flat irons are passed over them. The steam thus produced permeates thoroughly the carpet and crevices of the floor when larvæ, pupæ, beetles and all have to yield to the common destroyer—heat at the temperature of 212°.

Furniture infected by either the carpet beetle or *Simex lectitoria*, better known as the "bed-bug," may be successfully treated by removing from the house and saturating thoroughly with gasoline or benzine, which is a sure cure for the insects and does not injure the furniture.

This article was followed by a talk on the deer family, by Mr. C. B. Cook, who has just mounted a caribou for the museum.

The Cervidæ or deer family is represented in every continent but Australia, the size of its individuals varying from that of a cat in the case of a certain Asiatic gazelle, to the European elk which is as large as an ox. The genus *Rangifer* is made up of *R. tarandus* which is the domesticated reindeer of Lapland, *R. græulandicus* the barren ground reindeer of the Hudson Bay region, and *R. caribou* that inhabits the wooded tracts of northern Minnesota and Manitoba, and at

one time extended down into our own State. A fine specimen of this last is the one that has just been mounted for the museum.

The genus *Rangifer* differs from the rest of the deer family in that the females have well developed horns. They are all well adapted to the country in which they must live, being well protected by their color, and having broad loose-jointed feet that will spread to a large extent, allowing them to pass with ease over boggy marshes or snow that has a comparatively thin crust. Their keen scent and remarkable powers of sight and hearing, as well as their habits of cunning render it almost impossible to approach them. They cross the rivers in herds, when they are killed in large numbers by the Indians. It is probable that the difference between the *R. græulandicus* and *R. caribou* is only because the latter has better shelter and food, and is consequently much larger and better developed.

The next article was by A. B. Cordley, on Maple-tree Borers. The maple has about forty insect enemies but only a small number are very harmful. Mr. Cordley described the four that do the most damage, beginning with the maple beetle, *Glycobius speciosus*. This is a handsome black beetle with gold markings. Its length is about seven-eighths of an inch. The grub or larva is large, white and cylindrical.

The next enemy is the *Tremex Columba*, one of the horn-tails. The female of this insect is one and one-half inches long with a borer one inch in length. By means of the borer she deposits her eggs in the wood of the tree, where the larvæ as soon as hatched are ready to begin their operations. The head and thorax are rust colored, the abdomen black, with seven yellow bands across the back. The antennæ are short and blunt, with a black band across the middle. The wings expand two and one-fourth inches and are brown and semi-transparent. The male is much smaller, lacking the borer, and is rust colored variegated with black.

Another enemy, the *Chrycobothis femorata*, belongs to the coleoptera. This insect is commonly known as the big headed apple-tree borer, and attacks many kinds of trees. The larva is nearly an inch long with an enlarged segment just back of the head. The beetle is five-eighths of an inch long, dark gray above and greenish below with a metallic lustre. It lays its eggs in May and June, usually on the southwest side of the trees.

The last one described was the *Ageria acerni*. This is one of the lepidoptera. It is rather small, being blue and yellow with a fan-like tail. The grub is small, white and cylindrical.

The maple suffers much from all these pests and in many parts of the State the trees have been nearly all killed. The only remedy is the jack-knife and a stiff sharp wire applied whenever traces of the borer are found. Where they are too bad it is better not to plant maples at all, but elms and bass-woods instead.

The closing paper was on the animals of the pine plains by Mr. L. H. Dewey. He described the animals as seen by the party that took a wagon trip through the pine plains, of which party Mr. Dewey was a member.

#### ANIMAL LIFE IN THE PINE WOODS.

We generally think that in the forests, far from the habitations of man, wild animals may be found in abundance. The pine woods of northern Michigan are usually supposed to be a paradise for the hunter. In some respects these ideas are wide of the truth. That there are many species, or that the species are represented by larger numbers in our northern forests, are mistaken ideas. In one day we will find on this College campus a greater number of species and, aside from certain insects, a greater number of individuals than we found last June in a two-weeks journey across the State. The expedition was in the interest of botany rather than zoology, therefore it is quite probable

that some of the less important species of animals escaped our notice.

The one species that far outnumbered all others combined and attracted our attention most, was the musquito. Every evening they collected in vast assemblies about our camp, singing to us and remaining to banquet with us, and every morning long before the sun had faintly streaked the east, they presented their bills for the entertainment. The musquitoes were not the only troublesome members of the order Diptera. The small black sand flies would crawl through the meshes of the musquito netting, with which each tourist was covered at night, and suck the best blood of their sleeping victims. Spotted winged deer flies were abundant and hungry. There were numerous horse flies very much like those which we have here except that they had two prominent yellow bands on the abdomen.

At West Harrisville we found numbers of beetles resembling the June beetle cut down to three-eighths of an inch long. The lumbermen called them "pin worms," and said the worms (larvæ) from which these beetles grow, bore in the pine lumber. They are not the true pin worm but belong to the genus *Tomicus*. In a few places we found a black species of the *Curculionidæ* about three-eighths of an inch long. The inevitable bed-bug was found in a flourishing condition way out in the midst of the plains.

On the Huron shore at Harrisville my attention was attracted, the first morning we were out, by the large size of the *Vanessa antiopa*. This butterfly was quite common throughout the eastern part of the State, and especially in the more heavily timbered lands. The most common butterfly east of Grayling, or in the valley of the Au Sauble, was the *Papilio turnus*. In the western part of the State the *Danais archippus* or milkweed butterfly was most common. This was also found more than others in the midst of the barren plains. The *Papilio asterias* was quite common in the deciduous forests of Kal-

kaska, Grand Traverse and Benzie counties.

The wings of a large white lunar moth were found in the dense mixed pine and hardwood forest of Kalkaska county. Very few smaller moths were noticed and not a *Hadena* or *Agrotis* was seen.

In southern Grand Traverse county were many fine plum trees well laden with green fruit. The people owning them said that they had never been troubled by the curculio.

Very few bees or *Hymenoptera* of any kind were seen. A few miles east of Grayling there were a number of large ant-hills among the jack-pines. They were dome-shaped, four to six feet across and one to two feet high.

There were but few lakes along the route, but in these few the water was very clear and teeming with rock bass, green bass and perch. The AuSable and the Manistee are both grayling streams. The grayling is a small fish something the shape of a perch. It is very fastidious in its habits, and will not remain in dirty water. For this reason we did not see any in the AuSable, which was kept muddy in all parts by the driving of logs. The water was clearer in the Upper Manistee, and the first night that we camped on this river we had grayling for supper and breakfast. It makes a very good dish, but it is probably its rarity and its gamy habits on the hook that give it such a great reputation. Farther west, in southern Grand Traverse county, we found many good trout brooks tributary to the Bordman river.

During the entire trip we saw a less number of reptiles than may be found most any summer day in a two hours walk upon the College campus. The dense cedar swamps were carefully explored without finding even a sign of a foundation for a snake story. About six miles east of Grayling the rattle of a massasauga was heard. The scarcity of frogs and toads, probably owing to forest fires may in part account for the scarcity of snakes.

Comparatively few birds were seen. The

whirring sweep of the night-hawk's spotted wings occasionally broke the stillness in the deep pine forests. Every night as our camp-fire was lighted, the cry of the whip-poor-will was heard in the neighboring brush. In the morning we were awakened by a note new to our ears. It came from the little white throated sparrow; the same white throated sparrow that is found in the Maine woods and of which Thoreau speaks in such enthusiastic terms. Its note had a very clear metallic sound that must be heard to be appreciated, and once heard, it can never be forgotten. At three o'clock in the morning, when all else in nature was asleep, this little early riser would send forth its sweet notes from the tree-top. After sunrise its song would change slightly, losing just a little of its metallic ring and having one or two notes added.

In traversing more than fifty miles of barren jack-pine lands, the only birds seen were robins and less than a dozen of these. One scarlet tanager was seen in the Au Sauble bottom lands, and one sand-hill crane was seen on the Manistee. A few wood ducks and two or three loons were found around the little lakes. From Grayling through to Lake Michigan there were frequent instances of the work of the log-cock. This large, black, red-headed woodpecker pecks great holes in dead trees, most frequently in maple stubs, the holes being often three inches wide by eight long, and six deep.

Four footed animals were exceedingly scarce. A few gophers were seen and chipmunks were quite common. No squirrels were seen except the red-squirrels, and they looked lean. Nothing but pine cones for rations makes too thin a living for them.

In the hilly region of Oscoda county numerous fox-holes were seen. There were three or four beaver meadows on the route, but no beavers have worked in them during the last twelve or fifteen years.

About the only marks of the presence of deer seen, were the beaten rings among the

jack-pines, which were said by the woodsmen to be made by the deers tramping around in them. None of these were fresh enough to show any tracks. The howling of wolves or the growl of the bear never disturbed our peaceful slumbers. We found places where bears had scratched upon trees. They will stand by the side of a tree and scratch as high as they can reach with their fore-paws. Woodsmen call these "measuring trees."

Under the head of "General Observations," Mr. Waldron showed a wolf trap, grown into a beech tree, that had just been procured for the botanical museum. The trap was carried into the top of a beech tree by a lynx or wild cat, as it is thought, and remained there thirty-six years before it was discovered. The trap was made by Mr. Orlando Hart of Tuscola, at Mt. Morris, N. Y., in 1838.

The next meeting of the society is to be held October 8th.

### Report of State Forestry Commission.

The forthcoming report of the State Forestry Commission will contain much valuable matter. Some account will be given of the results of the trip through the northern part of the State, considerable upon the matter of forest fires, and valuable matter on the succession of forests. Some space will be devoted to a description of lumbering as conducted in the large camps.

A valuable feature of the report will be a list of Michigan trees and shrubs, something as to the amount of pine left, and upon new uses for certain timbers, showing how those once considered valueless are now utilized to good purpose.

One of the finest and most interesting features of the report will be a discussion of Michigan timber trees as compared with other parts of the world; as, for instance, showing why Michigan has a greater variety of trees than England.

It will contain a *resume* of the reports from supervisors and others who were asked to state facts concerning the influence of deforestation, causes of forest fires and whether reforestation is desirable, and what legislation, if any, is needed for this object or for suppressing forest fires. These reports are somewhat interesting, and, withal, often quite funny. One wants a law to kill land speculators, but most of them want no more laws.

The Commission will not recommend legislation, but will publish what laws we have, and give an account of what is being done in other states. The report will be embellished with a good number of plates showing characteristics of the northern flora, views on the pine barrens and burned districts, as well as life in the lumber camps. Several hundred copies will be bound alone, and it will go into the next report of the Secretary of the Board of Agriculture.

As a whole the book will be valuable, and will be fruitful of results, if not in legislation, perhaps in other ways.

# THE SPECULUM.

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OF THE MICHIGAN STATE AGRICULTURAL COLLEGE.

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AGRICULTURAL COLLEGE, OCT. 10, 1888.

POLITICAL enthusiasm runs high in College. In fact, we have even more than our share of the mania. All of the parties are now represented by well organized clubs. The Republicans, who have by far the strongest association, are very active. They have ordered uniforms and propose to "paint the College red." The Democrats have a club of about fifty members. The Prohibitionists, who organized after the speech by Walter Thomas Mills, on September 28, have a club of about twenty members, who intend to supply all students with "extra dry" literature. We have as yet heard of no mugwump club, but there is no telling what may not be organized under pressure of circumstances. The College possesses a large num-

ber of voters, and this enthusiasm is just what we need. We are apt, in the busy whirl of college life, to fall behind the times regarding political issues, and an occasion of this kind is desirable because it imbues our students with positive political and patriotic principles. Half of the college graduates of this country leave college supremely ignorant of the vital principles of our national government. They have nothing in particular to inspire them, while at college, to do the reading and *thinking* necessary to become conversant with political topics. Occasionally, of course, there come times of intense excitement, like the present. Then the students read and discuss political matters, but find themselves crippled by their ignorance of the history of the great points in American politics.

Let the College authorities encourage this interest by allowing the members of the various clubs as much latitude as possible in procuring speakers and in attending "demonstrations." A time of so great general interest seldom comes in the student's life, and he naturally wishes to make as much as possible of the opportunity.

WHERE, oh where is the champion college ball team of Michigan? Echo answers "where?" There are nine very touchy men in College not including an umpire and a manager, who are slightly more than touchy, since the game of getting-knocked-out was played at St. Johns about two weeks ago. It is an old saying that "pride comes before a fall," but it continues to hold true especially in the case of a certain ball team. The College Ball Team has never, at any time, taken a back seat in its contests, but if it supposes that its old successes and honors are going to play its games it is sadly mistaken. The students have always given liberally toward the support of the team, but such playing as was done at the last game ceases to be comical, and becomes extremely foolish. The weakness of the team seems to lie in the lack of concerted action. Separately the players

are as good as ever. This simply shows a want of practice, and is something that can be remedied. But will it be remedied?

THE Board of Editors enjoyed a pleasant surprise a short time ago. It was in the shape of a splendid basket of peaches directed to the "Spec. Board," and sent by W. A. Taylor of '88, who was Editor-in-Chief last year. It is needless to say that the Board met and duly considered the peaches until none (of the peaches) remained.

THE "HARROW" of the class of '90 doesn't seem to be forthcoming. What is the matter? We hear that it is to be an exceptionally good annual, but the pleasures of anticipation are beginning to dwindle, and we would like to see the annual in bodily form. The expectation now is that it will be out very soon. No student should think of being without one or more. It will also pay the Alumni to get them, for in no other way can so much general information be gained of the College. If you want an annual, address the Business Manager of the "HARROW."

Owing to an error in the article on the "Alumni Reunion" in the September SPECULUM, the toast of Professor Manly Miles, first professor of Agriculture here, was omitted. He spoke on the subject, "The Farm when I found it."

### COLLEGE NEWS.

The State Board met at the College October 2.

President Willits spoke at the county fair at Alpena October 4.

W. F. Staley of '88 was on the grounds September 28 and 29.

Mr. Jay Starnard of '77 spent several days visiting the College two weeks ago.

Through the influence of Prof. McEwan, the Library lately secured several books to be used as aids in Bible study.

The jasper loses its brightness in the presence of the diamond. The once bright and cheerful faces of the junior and sophomore are fast fading into oblivion under tiles and mortar boards.

The freshman class has elected officers as follows: President, U. P. Hedrick; Vice President, J. A. White; Secretary, D. Park; Treasurer, C. D. Bowen; Marshal, B. A. Hills.

Club F is now running. Mr. and Mrs. P. D. Barnes of Lansing were procured by the steward as cooks. The banquet board was spread for the first time on the evening of the 22d of September. Toasts were appropriately responded to by members of the new club, and friends.

The ducking business has been carried to an unbearable extent in some of the wards. The public feeling is against this practice. If we can not have fun without resorting to such low and contemptible things as throwing slops out on those below, we better had go without the fun.

The Class of '91 elected the members of Harrow Board No. 3, September 26: Editor-in-Chief, John Potter; Literarian, W. O. Hedrick; Poet, A. J. Morley; Statistician, A. C. Sly; Art Editor, C. F. Baker; Business Manager, Fred W. Ashton; Historian, A. T. Sweeney; Sporting Editor, H. S. Hopkins.

According to the usual custom of the Y. M. C. A., its members gave a reception to the Freshman Class in the Library Building September 14. After the games and refreshments the president of the association made a welcoming speech to the Freshmen, in which he set forth the objects of the association. Following was music by the glee club and string band. We hope you will all remember the words of our president, "You will always be welcome at our meetings."

The Agricultural Report of Michigan for 1888 will soon be out. The two new features of our College, the Signal Service and Experiment Department, will be given a place in the report. The Agricultural Report will also contain the report of the State Forestry Commission, of which Mr. Garfield, member of the S. B. A., and Dr. Beal were appointed directors. Several thousand copies of the Forestry Report will be bound and published alone.

Freshmen, please lay your hats on the table at the right of the door when you enter the library, and you will gain favor in the eyes of the librarian. All of the students, professors as well, should remember that the library is not a debating or sporting room. Every student, in so far as it is possible, should keep his or her mouth shut, lest those that are there for business should be interrupted by your conversation or outbursts of laughter. Please carry the essence of this to the library with you.

The Zoological Department lately received skins of the following animals, which are being mounted and will soon adorn the shelves of the museum: Puma (*Felis concolor*)—once an inhabitant of Michigan and probably of the College Campus—prairie wolf (*Canis latrans*), marmots, pouched gophers, several western squirrels, roseate hornbill and the Florida flamingo. The last is a bird with long legs and neck and yellow bill, found on the coasts of the gulf states. It is named

from its red color, which makes it a striking specimen for a collection.

Mr. Lake, our late assistant botanist, has accepted the position of Professor of Horticulture in the Oregon Agriculture College. He is also assistant in the experiment station at the college; salary, \$1,600. But Oregon is not satisfied yet; she is trying her best to get Dr. Beal and Prof. Cook away from us. We admire our youthful sister's lofty ambition, but she asks more than we are willing to grant. Dr. Beal and Prof. Cook were both offered considerably more than they are getting here.

The Natural History Society, which met September 14 in the chapel, presented to an unusually large audience an interesting program. Every wide-awake student will find much of interest and use to him in these meetings; they only come once a month, and every student should attend, because it is original work done by our fellow students; besides it is free to all. Many who do not regularly attend would go and pay 25 cents admission to hear a man from some other college who has got his knowledge not by observation but from cyclopædias.

Since our last issue the museum has received one hundred and fifty new specimens. The insects began to work quite vigorously in some of the specimens in the museum. The specimens have been taken from the cases, and the alcohol and arsenic remedy applied which destroys the insects. Mr. Waldron has preserved a sample of the powders or dust, which these insects leave behind them as a result of their work. The two new rooms which have been partitioned off from the class room are now completed, with the exception that two cases are yet to be put in, for the apparatus to be used in the experimental work. One of the rooms will probably be used for class laboratory work most of the time.

President Willits received a squash raised by James Rebell on his farm in Sec. 2, T. 25 N., R. 2 W., Crawford county, Mich., nine miles from Grayling Station, weighing 74 pounds, circumference 5 feet 3 inches. Raised without fertilizers, except clover sod turned under. Soil was characteristic jack-pine plain sand. Mr. Rebell, besides making himself a good home, is carrying on some valuable experiments. He put out over 2,000 young trees last spring, and has been asked to report to Dr. Beal, as to the methods of treatment and success. Samples of wheat raised in Emmet county on the same kind of sand, but in timbered region, were sent to President Willits. Samples showed an excellent berry.

The American Association for the Advancement of Science and the Society for the Promotion of Agricultural Science met in Cleveland, Ohio, during vacation. Drs. Kedzie, Beal and Prof. Durand were there and presented papers. Dr. Beal read a paper before the A. A. S. on the Succession of Forests, also one on the Comparison of the Flora of Eastern Michigan with that of Western Michigan, in the line of Benzie county. There was a greater per cent. of attendance this year

at the society for the Promotion of Agricultural Science than there has ever been before, and it is reported as the most successful meeting. Dr. Kedzie presented a paper entitled, "Tile Drainage in Relation to Floods and Drouth." Dr. Beal read a paper entitled, "The Flora of the Jack-Pine Plains." Dr. Kedzie was re-elected president. The meeting will be held at Toronto next year.

The following promotions have been made in the Cadet Battalion, in accordance with orders published October 2, 1888: Co. A.—Captain, Ray S. Baker, '89; 1st lieutenant, A. D. Baker, '89; 2d lieutenant, D. A. Garfield, '89; 1st sergeant, F. M. Seibeit, '89; 2d sergeant, H. A. Stewart, '89; sergeant, R. C. Clute, '89; sergeant, F. J. Stahl, '89; sergeant, B. K. Bentley, '90; 1st corporal, F. B. Stockwell, '90; corporal, J. W. White, '90; corporal, J. H. F. Mullet, '90; corporal, C. F. Rittinger, '90; corporal, F. B. Plimpton, '90. Co. B.—Captain, L. Churchill, '89; 1st lieutenant, E. A. Holden, '89; 2d lieutenant, J. W. O'Bannon, '89; 1st sergeant, L. W. Rice, '89; 2d sergeant, F. M. Paine, '89; sergeant, W. E. Davis, '89; sergeant, H. A. Martin, '89; sergeant, H. J. Hall, '90; 1st corporal, G. F. Bristol, '90; corporal, G. S. Jenks, '90; corporal, J. H. Hooper, '90; corporal, N. C. Smith, '90; adjutant, G. J. Jenks, '89; lieutenant quartermaster, T. R. McClure, '89.

The Horticultural Department made a very creditable display at the State Fair this year. The exhibit consisted of one hundred and forty-seven varieties of tomatoes, nineteen varieties of kale and specimen plants of orache, ornamental foliage beets, artichoke, chicory and cardoon. Their space in horticultural hall was much larger than it had been at previous fairs. The roots of the plants were bound in dampened moss, which preserved their freshness during the entire week. The corner was the most attractive in the hall, especially to the young ladies, owing largely to the two attractive seniors, Messrs. E. A. Holden and Foote, and the amusing junior, Ward, who had the exhibit in charge. The tomatoes were attractive from their fine appearance and diversified forms, colors and characteristics. Their soundness brought forth the query from the visitors, "How did you raise them without the rot?" The exhibit reflected much credit on the new Professor of Horticulture, Prof. Taft.

## PERSONALS.

### Alumni, Take Notice.

AS THE SPECULUM circulates widely among the alumni of this College, it is aimed to make this department of much interest to them. For this reason all persons having items of interest concerning any of the alumni, their occupations, etc., will oblige by forwarding same to Personals Editor, Speculum.

### WITH '61.

U. J. Baxter, who has served as Assistant Secretary of the Interior and also clerked for several years in the United States Land Office, was removed from office

three years ago. He entered the law, and has since gone insane.

A. E. Macomber of Toledo, Ohio, has accepted the appointment from the Alumni Association to write for the next triennial reunion the memorial address on the life of Hon. Jos. R. Williams, the first president of this College.

### WITH '62.

Hon. Melbourne H. Ford is renominated for Congress by the Democrats of the Fifth District. He has made a splendid record in the present Congress, and starts in the canvass under very encouraging circumstances.

### WITH '66.

Oscar Eaton is now vice president of the First National Bank of Bryan, Ohio.

### WITH '71.

Major Fred E. Miller is growing fruit at Charlevoix. He writes that his health has very much improved within the last two years.

### '74.

Dustin C. Oakes of Shelby is negotiating some real estate loans for Oberlin College; he writes also, "We expect to do a good business this year, as fruit is without end; two full express cars of peaches leave here daily, and the apples are finer than were those of last year. Plums this year beat the world. I am doing all I can to help elect Byron M. Cutcheon for Congress, Luce for Governor and Harrison and Morton as leaders. I have a wife, one boy, one girl, one cow, six chickens and two cats." What alumnus can beat that record?

### '75.

Oscar E. Angstman is a prominent physician in Detroit; he is connected with Harper Hospital.

B. A. Nevins is a hustler in the g. o. p.; he is a member of the Congressional Committee of the Fifth District.

### '76.

J. D. Stannard was at College a few days ago. He will soon return to Greeley, Col., where he owns and works a farm.

J. A. Hartman visited the College recently.

S. P. Tracy was recently married in Detroit. He is now practicing medicine at Sault Ste. Marie.

### '77.

Chas. Bloodgood, M. D., has removed from Frankfort to Kalamazoo.

### '78.

H. F. Buskirk hurrahs for Harrison and Morton. He was a delegate to the Allegan County Convention.

Edward J. Rawson is at Como, Colorado. He is book-keeper at one of the coal camps of the Union Pacific Coal Company.

### WITH '78.

Cassius E. Herrington is nominated for prosecuting attorney by the Democrats of Oakland county.

Fred E. Smith is nominated for county surveyor by the Republicans of Cass county.

'79.

Chas. E. Sumner is a member of the law firm of Collins & Sumner, Toledo, Ohio; he is also real estate agent.

'81.

L. B. Hall is principal of the Belding schools.

Howard M. Holmes has sold his partnership in the control of the Ann Arbor *Register*, and is now the editor of the local department.

'82.

A. J. Chappell of Pinckney "can't get along without THE SPECULUM," and writes also that he likes the change in the cover.

Hon. J. W. Beaumont now has his law office at 12 Moffatt building, Detroit.

John F. Evert of Mendon delivered at the St. Joseph County Farmers' annual meeting, August 16, a strong speech in favor of higher education for the people.

W. H. Coffron has been put in full charge of the aluminum works at Findlay, Ohio.

'83.

W. A. Bahlke of Alma is doing effective work for Cleveland and tariff reform by making a series of speeches in his county.

Edmund Schoetzow of Volinia is nominated for county surveyor by the Democrats of Cass county.

WITH '83.

O. G. Harding is a prosperous farmer near Buchanan.

'84.

John I. Breck is Republican candidate for prosecuting attorney in VanBuren county.

Willis Leisenring is in South Haven helping his brother to care for the peach crop.

Clarence E. Smith has been spending his summer with relatives in Connecticut. He is superintendent of the Schoolcraft schools. Owing to trouble with his eyes he is obliged to wear glasses.

WITH '84.

W. A. Jones is a pharmacist at Big Rapids.

'85.

That (?) in the August number of THE SPECULUM did signify something after all. Witness the following:

E. Ralph Lake. Lillian M. Stryker.

MR. AND MRS. E. R. LAKE,

MARRIED,

WEDNESDAY EVENING, SEPT. 19, 1888,

AT NILES, MICH.

At Home,

Corvallis, Oregon, after Oct. 1.

Mrs. Lake is a sister of D. J. Stryker of '85. Professor Lake is now well prepared to maintain the dignity incumbent upon the professor of botany and horticulture at the Oregon Agricultural College.

E. A. Bartness has been prospecting along the Atlantic Coast, visiting many places important in the earlier history of our country.

D. J. Stryker has returned from California, and after a brief visit with his parents he will leave for Lowell, Mass.

G. C. Lawrence is engaged as superintendent of schools at Dansville, Mich.

L. G. Palmer is principal of Horton schools.

'86.

The Frankfort *Express* made its first appearance September 21. It is a weekly, edited and owned by E. A. Whitney. It declares itself "A Republican Journal; Radical and Right." Its first issue contains rather a caustic paragraph reflecting somewhat on the management of affairs at this College. Mr. Whitney, besides editing this journal, finds time to look after his law office and his farm. He is running on the Republican ticket of Benzie county, for Circuit Court Commissioner.

Joseph B. Cotton and George E. Spangler, attorneys at law, Duluth, Minnesota.

WITH '86.

George French expects to attend University of Michigan this fall.

W. T. Welch is now traveling. He wishes THE SPECULUM much prosperity.

T. O. Willard is republican candidate for county surveyor of Allegan county.

'87.

H. H. Winde expects to go on a extensive western trip as soon as he finishes his present term of school, which will be in a short time.

George J. Hume is now at Hunters, Stebbins Co., Washington Territory.

G. C. Crandall has returned to the University of Michigan, for his second year in the course of medicine. He has been doing special work in Embryology, under Dr. Vaughan. Mr. Crandall has a large private collection of mounted microscopic specimens.

W. C. Sanson will teach near home this winter.

I. B. Bates recently dislocated his shoulder while playing ball. He has been visiting friends at Flint for two or three weeks, but is now at work again in Detroit.

Married, Sept., 27, at the residence of the bride's parents, Mr. Guy Arnold to Miss Gertrude Porter, both of Allegan. Chas. Bassett a former student at this College, was one of the grooms. Mr. and Mrs. Arnold left that evening for a short visit in Chicago, and they will be at home in Allegan after Nov. 1st. Mr. and Mrs. Arnold will soon take up their home on the farm three miles east of town; as Guy is a practical farmer and a graduate of the Michigan Agricultural College, and the lady he has chosen is one well suited to be a helpmate, it may well be believed that theirs will be a successful future.

WITH '87.

J. J. Benjamin is in St. Louis, Mo.

'88.

Will A. Taylor is doing all he can to help the republicans in the coming election; but his heart is all right yet, as was shown by the basket of luscious west shore



peaches that he recently sent "ye Speculum board." He was a delegate to the Republican convention of Allegan county.

Chas. Redman is surveying at St. Ignace.

Nelson S. Mayo has entered the senior class of the Chicago Veterinary College. He will graduate from that school next spring.

Paul Chamberlain is at 34 Ontario St., Cleveland, Ohio, draughting for the Brown Hoisting and Conveying Machine Co.

Dale A. Smith is teaching at Sebewa, Ionia county. He will teach there this winter also.

John C. Stafford has taken up a claim in the Oklahoma region.

Glenn Perrigo is teaching near Portland.

A. E. Bulson, Jr., has entered the Chicago Medical College.

Chas. L. Lawton is surveying at Gogebic.

WITH '88.

E. D. Kent is working at home, on the farm, near Augusta.

Nelson Tuttle is farming near Ionia.

WITH '89.

William Edmonds, special student in chemistry last term, is again attending Albion College.

M. J. Johnson is teaching in Windsor, Eaton county.

Robert Edmonds is clerking at C. H. Hunter's, Lansing.

L. G. Remington is attending the State Normal School. He hopes to be at M. A. C. at the commencement of '89.

Herman P. Hugenholtz is a member of the firm H. M. Buhrman & Co., notaries public and general insurance agents, Grand Rapids.

William McDonald is second engineer on the Colorado, plying between Port Huron and Duluth.

W. G. Steward lately received a \$1,000 clerkship in the War Department at Washington. He writes that he is about settled in Washington, and that he likes his work fairly well, but will probably return to M. A. C. at the beginning of next spring term.

Warren Babcock, Jr., was recently on the grounds. He is now acting postmaster at Milan.

WITH '90.

Kenyon L. Butterfield is farming at home near Lapeer. He expects to teach school this winter and return to College next spring.

A. B. Mitchell was lately called home by the death of his father. He is now managing the home farm near Chelsea.

W. H. Culver is private secretary of C. F. Emery, the great stock breeder and proprietor of the Forest City Farm, Cleveland Ohio.

Chas. Dodge is now living in Lansing.

Bert Mulliken is working in the Michigan Central Freight Office, Lansing.

Carl Pray is teaching school near Eaton Rapids.

Chas. Burns is keeping books for Walter Buhl & Co., Detroit.

Fred A. Baker is a prominent lawyer in Detroit.

F. H. Whitney is insurance agent at Battle Creek. He wants The Speculum "as long as she waves."

WITH '91.

Thos. Flower has charge of the department of brass work in the establishment of Jas. Flower & Bros., founders and machinists, Detroit, Mich.

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## COLLEGES.

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Brown University has raised \$80,000 for a new gymnasium.

There are thirty college graduates on the staff of the *New York Sun*.

Dartmouth has sent out 290 college professors and forty-seven college presidents.

Amherst has given to the world 200 college professors and twenty judges of the supreme court.

The annual report of Harvard University shows that the average annual expenses of students are \$800.

Columbia has taken another step forward, and henceforth will admit women to her higher courses.

P. Norris of Philadelphia recently donated his law library, valued at \$190,000, to the university of Pennsylvania.

Rev. Warren A. Chandler, who has just been chosen president of Emory College, Georgia, is only thirty-two years old.

Francis H. White has been appointed as Professor in History and Constitutional Law in Kansas Agricultural College.

The department of journalism established in Cornell this fall is a commendable departure, and one which might well be adopted in all larger colleges.

Professor Patton, recently elected president of Princeton, is a British subject who has never sought naturalization in this country.

The four leading female colleges in America are Wellesley with 620 students, Smith with 367, Vassar with 283, and Bryn Mawr with 79.

Cornell has raised its standard on examinations from sixty to seventy per cent. A great improvement could be made in many of our colleges if they would do likewise. In many of our colleges the examinations are merely a farce.

Probably, the richest college professor in the world is Professor E. E. Salisbury, of Yale. He is a millionaire, and his fortune was made by investments in Boston real estate. Professor Salisbury is about seventy years old, is a man of courtly demeanor, and has traveled over nearly the whole world.



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