

# THE SPECULUM.

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WHOLE No. 38.

## The Student Should Pay More Attention to Politics.

WILL CURTIS, OLYMPIC SOCIETY.

It is a noticeable fact that too many of our students know little or nothing about politics; or worse than this, care nothing for them.

There are, perhaps, some reasons why the students do not pay more attention to politics. It is not convenient for many of them to go to the library regularly to read the papers, and they cannot afford to take a daily or weekly. Then there is the ever ready excuse, lack of time. The four years of such persons' college life make a great blank in their knowledge of political history, which will be a constant source of regret and mortification to them in after years.

A college course is but a preparation for life's work. In these active, busy, hurrying times, a thorough preparation is necessary for success in any line of work. A fair knowledge of politics and the important events of the day is very essential to the college boy in his preparation for active work. If he neglects reading the papers and loses all interest in politics, the great "gap" there formed will be a constant barrier to the greatest success in whatever occupation he chooses.

Should he choose the legal profession one of the most important elements to his success will be a thorough knowledge of all the laws passed by congress and his state legislature, and the important decisions of the courts. He must know the practical workings and effects of these laws at the present time. Should he be called to fill a position of honor or trust, or appear before the public, his lack of knowledge of affairs during his college course still stares him in the face. The

merchant, doctor or teacher will be hampered in his work if he does not understand men and have a detailed knowledge of the important events in this country. To no one is a knowledge of politics of more importance than to the educated farmer. He is the influential man in his neighborhood. Those with less education look to him for advice and counsel. In political affairs he may have great influence for good, for he is not easily influenced by scheming politicians; and if he has kept himself posted while at college, he cannot be misled by wrong or exaggerated statements on tariff or temperance questions. The farmers that do not read the papers are the ones that are so easily swindled. It is because they do not know what the papers say about the "Bohemian Oats" "Drive Well" or other similar swindles; or what the decisions of the courts are regarding some of these. The student who expects to be a farmer should obtain some of this knowledge by a careful perusal of the papers while he is at college.

While here, habits are contracted that are lasting, hence it is of great importance that they be good habits. If a person does not care to read or know anything about politics while at college, it is not at all likely that he will after leaving.

A majority of the boys here teach during the winters. Scarcely a day will pass in which a knowledge of politics could not be used to good advantage; in fact such a knowledge is necessary in their school work; and without this knowledge and the ability to use it, the teacher is not doing his duty to his pupils or his patrons. On visiting the parents he is expected to talk politics at least part of the time. If the teacher knows little or nothing about the doings of congress or of

public men, he is at once set down as an ignoramus, and is probably thought unqualified to teach the school. This judgment is not with entire injustice either. His success and reputation depend, to some extent, on the knowledge that can be obtained from nothing but the newspapers.

Every one that loves God and humanity; that wants to see evils crushed; that desires peace and prosperity in our country; that is anxious to have right prevail, is interested in the temperance movement. Can we then afford to be ignorant of what our brothers are doing and have done to further the cause of right? Instead of this lukewarmness, the thought of the evils caused by the liquor traffic, and a knowledge of the underhanded, treacherous methods of the rum dealers to defeat prohibition in Pennsylvania and Rhode Island, should cause the blood to tingle in our cheeks, and make us determined to prepare ourselves thoroughly for carrying on the war against the saloon. The most successful temperance worker has the best knowledge of all the temperance legislation in this country. It matters not what our occupation may be, we will all be voters; and will have to vote on temperance measures, and work for them in our towns or at the polls. Most of the students at this college know that a "Local Option" bill has passed our State Legislature, yet how many of them read the bill or know anything about it? We don't know how many times in the future a definite knowledge of this very bill will be of advantage to us.

A knowledge of politics better prepares us for citizenship. We will vote more intelligently. In political contests our influence for good will be greater, and should we be chosen to fill a public office, could do so with much better satisfaction to ourselves and our constituents. Can any student then afford to remain ignorant of political affairs while at college?

The boy that makes up his mind to keep up with the times will readily overcome all

the difficulties. Fifteen to thirty minutes daily is ample time to spend in reading the leading newspapers. Those who can afford to take a daily or weekly can readily find a few minutes time to read after dinner or supper or at other times when they would otherwise be doing nothing. Two or three hours a week spent in the library reading the papers will keep the student fairly well posted. If some reading must be sacrificed, better the novel than the paper, for the novel may be read hereafter; but the interest and knowledge lost in politics will never be wholly regained.

This does not imply that the student should read everything in the papers. Some will get more knowledge from reading a paper ten minutes than others will from looking at it two hours. The reader must learn to discriminate between the good and the bad; to read the heading in one place and the entire article in another; always to read to some advantage. He must ponder over what he reads, and mentally render his judgment upon important actions. In this way he will have such a knowledge of politics as will make him a better citizen, a more influential man, and better fitted to fill any position in life.

### Co-operation.

D. A. GARFIELD, DELTA TAU DELTA FRATERNITY.

Co-operation in its broadest sense is an *element* in our social organization; but by common consent and use its present application is to combinations among working men for producing and distributing with a more equal and satisfactory division of profits; or combinations between masters and men in the form of a limited partnership or percentage of profits. The latter, a sort of profit sharing is not likely to succeed, as the capitalists have all the advantage and the suspicious and jealous disposition of the wage-worker, the outgrowth of his ignorance regarding business principles and practices, renders him dissatisfied with any arrangements proposed by his employer.



Co-operation among laborers has for its object the receipt of higher wages for labor and the obtaining of greater values in commodities, for the disbursement of such wages. The principle of social science, man's inherent desire of a maximum of gratification for a minimum of exertion, makes these desires seem perfectly laudible.

It is obvious that it would be of advantage to all laboring classes could they unite in the manufacture and sale of their products and the purchase of their necessities and thus save the enormous profits which go to the capitalist and middle-man. But how is this co-operation to be successfully carried out. In casting about for an example we find that it first came into existence in England about 1840. A few of the flannel weavers at Rockdale united their hard-earned pennies and invested in a small stock of goods. The plan was to issue stock, sell the goods at a fair margin, declare a dividend on the stock and pay a rebate to the purchaser. Though the growth was slow the society prospered in the face of opposition from the clergy, the merchants and the authorities. Other societies soon adopted the idea, all with marked success until Great Britain was entirely pervaded with the new system. There are now more than 1,200 of these societies registered under the Industrial Societies' Act, numbering upwards of 600,000 members mostly the heads of families, owning a capital of £8,400,000, and making a profit of £2,000,000 annually, all bound together in one co-operative union, pledged by its constitution formed for "the promotion of the practice of truthfulness, justice and economy in production and exchange."

Co-operation in the United States has had to do with distribution rather than production and shows a larger development than is usually supposed. Beginning in New England about 1850 it prospered in the form of co-operative stores for some years until discord and jealousy among the members caused its dissolution. It has extended west-

ward with variable success, and been practiced by the Mormons in Utah. Owing to the obscurity incident to these humble enterprises, their shrinking from public notice and the ephemeral character of many of them, data are peculiarly hard to gather and to estimate the extent of the movement is exceedingly difficult.

American characteristics are not in harmony with so gradual a development as that of co-operation must necessarily be, and most organizations of the kind in this country have failed; yet their downfall has been due to incompetency and dishonesty in management, selfish and impatient members and vicious methods of doing business, more than to the impatience of the people at their slowness of growth. The unprecedented prosperity of our nation has indisposed men to small savings, and active competition has made margins necessarily small. It is exaggeration to say with some "that co-operation in the United States has been marked by almost utter failure." Enough has been indicated of real success to make it probable that with the oncoming of harder conditions of working men the system may be adopted with success. Co-operation among working men with the high aims set forth by the British association cannot fail to lift trade to a new plane in which workmen shall be fellow-workers, not rivals and a principle of justice, not of selfishness shall regulate exchange.

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There are in the world 2,750 different languages.

Ex-President Hayes has been giving a series of lectures on political economy at Oberlin.

A test will be made at the Ohio State University of the cases in which students were expelled for non-attendance at chapel. Under the Bill of Rights it is held that no State institution can compel attendance on religious exercises. A committee was appointed by the Legislature to investigate.

## A Song for our College Days.

WRITTEN BY FRANK HODGMAN, '62.

TUNE.—“*Good bye, my lover, good bye.*”

A song, a song for our College days,  
And let it be jolly and free;  
With rollicking, frolicking notes in their praise,  
Come join in the jovial glee.  
We'll toot the flute, and the bugle horn  
Shall waken the echoes afar;  
We'll banish the woes of the maid forlorn,  
With the notes of the gay guitar.

Joy is a lover,  
Sweet Hope a rover,  
School-days soon over,  
Then, Alma Mater, good bye.

The wailing notes of the cat at night  
Shall come to an end at last;  
His body shall feel the dissecting knife  
Or ever the term is past.  
We'll chase the butterfly over the lawn,  
The honeybee line to his tree;  
We'll treat to a minim of chloroform  
The hornet and bumblebee.

Chorus.

The pippin upon the pippin tree,  
The melon upon the vine,  
In overall legs they soon shall be,  
And the watch-dog left behind;  
The turkey that roosts on the barn so high,  
The chicken that roosts so low—  
Their bones shall be picked so nice and sly  
That never the owner shall know.

Chorus.

We'll wander in fancy o'er meadow and green,  
Adown by the Cedar's flow,  
Where the moonbeams shimmer the branches between,  
And merry waves sparkle below;  
And the maids we love shall meet us there  
By the moonbeam's silver light,  
Our names the silvery birch shall bear  
On its bark so smooth and white.

Chorus.

The joyful hours fly swift away,  
The toils of life speed on;  
The raven locks soon turn to gray,  
When College days are gone.  
And yet, and yet, we'll ne'er forget,  
When raven locks are hoar,  
The loyal friends that here we've met;  
God bless them evermore.

Chorus.

## The Roberts Converter and its Effects on the Iron Industry.

R. J. CLELAND, UNION LITERARY SOCIETY.

During the past three or four centuries there have been a number of inventions for the conversion of the ores of iron into their finished products. Of the more important inventions previous to the invention of the Roberts converter might be mentioned the puddling process by Henry Cort and the Bessemer process by Sir Henry Bessemer.

In his invention, Sir Henry Bessemer sought to improve upon the Cort puddling process and to introduce a mechanical puddler. He failed in the solution of the problem but in his failure he discovered a new product and at the same time laid the stepping stone for the invention which was patented a few months ago. The new process, the principles of which were discovered by a Frenchman and which were recently put into practice in Springfield, Ohio, more than solves the problem which Bessemer undertook. The Cort puddling furnace is one by which air could be passed over the metal constantly while the puddler stood in front of the molten mass and kept it in motion, a process which is not only slow but probably the most exhausting labor that any class of workmen have to do. The metal is subjected to this treatment until it is reduced to the finished product whether iron or steel. If the former, it is reduced until as nearly pure as possible; if the latter, the required per cent of carbon is left in. This decarbonization of pig iron is the problem which has been puzzling the iron masters for the past three centuries. The process has been improved upon some, but up to the present time all wrought iron and all tool steel have been made by the ancient method.

As the discovery of the puddling process by Cort marked one great era in the history of iron manufacture, so the substitution of a mechanical for a manual perfection of iron by Bessemer, 1855, marked another. While the many uses of iron, developed by invention, were taxing the capacities of the furnaces, Bessemer came forward with his new form of the metal. It is harder than iron and cannot be welded, yet it can be bent, twisted, rolled or hammered into any shape. The advantages of Bessemer steel are that it will last longer than iron and with the same number of men it can be manufactured in vastly larger quantities than puddled iron can be. Less skill is required in its manufacture and its cost is only about one-third as



much. For the above reasons it has been almost universally adopted by railroads. Up to the present time however all the finer grades of iron and steel have been manufactured by the puddler's process and consequently tool steel is so expensive that it is as yet little used.

Such were the methods employed in the manufacture of iron until about one year ago when Gustave L. Roberts of Stenay, France, made some experiments which were the foundation of the process recently invented. The result of his experiments reached the ear of Bookwalter of Springfield, Ohio, who immediately went to see Roberts' experiments and while there he secured the right to the process in the United States. Mr. Bookwalter returned and built an experimental plant and the process which was patented a few months ago is the result.

A comparison of the Roberts process with that of the Bessemer will give a better idea of its advantages and improvements.

In the Bessemer process the converter is so constructed that the blast of air is let in at the bottom and passes perpendicularly up through the molten iron. Consequently the blast supports the iron, keeps it in violent agitation and mixes all the impurities with it. If the blast is continued longer than is required to burn out the carbon and silicon the oxygen attacks the iron and the result is a weak and oxidized iron. To avoid this Bessemer introduces another ore of iron, ferromanganese, a certain amount of this being necessary to the Bessemer products. In the Roberts converter the blast is let in through the side of the metal. This sets up a rotary motion which causes a violent agitation and at the same time, instead of mixing the impurities with the iron it blows them to the opposite side of the converter. This turning the metal over and over is what the puddler does by hand and as in the old furnace the new converter exposes only a small portion of the metal at a time, to the action of the blast. While there remains any silicon and

carbon in the metal the oxygen will attack silicon before it will carbon, therefore the blast can be stopped at any time after the silicon is burned out, leaving any product from the poorest wrought iron to the most highly carbonated steel.

In the new process as in the Bessemer, no fuel is used in converting the cast iron into the finished product. The perfection of the converter, the arrangements for blast and all the appliances which mark a difference between the Bessemer process and the processes of previous years are as necessary to the new process as to the Bessemer. The material for their products of manufacture are essentially the same. Any metal that can be poured from the converter of any process can be poured from the converter of the new process. This means that all the products of iron ore can be produced in the same converter by a mechanical means so much cheaper than it has heretofore been manufactured that it will stimulate the use of iron and steel more than has any previous invention. The blast of the Bessemer converter supports the whole mass of metal while in the new converter it does not. Thus the Roberts converter can be much lighter and for this reason the layers in the Roberts converter last for 250 blasts while in the Bessemer they last for only fifteen blasts. The Bessemer converter must be relined after a few blasts, the Roberts after a thousand. The metal in the new converter is raised to a much higher temperature than in the Bessemer converter and it is due to this that metal from the Roberts converter can be cast into billets of the required size, while in the Bessemer process they must be cast into billets much larger than required and then rolled to the required size, a process which costs about four dollars a ton. The cost of making all grades of iron and steel by the Roberts converter is the same and it is much less than the cost of Bessemer steel. The importance of this will be seen when it is considered that the poorest grade of wrought

iron made by the old process costs from five to six dollars a ton more than Bessemer steel.

Owing to the high temperature attained by the new converter which renders the metal very mobile, it can be poured into moulds, and the castings made by this process have all the properties of wrought iron. Since wrought iron is about five times as strong as cast iron, this means a great change in machinery. Castings can be made one fifth as large as if made of cast iron and yet have the same strength, or, if made of the same size, they will be five times as strong. Castings can also be made which have the properties of steel and this will be of great value in the manufacture of heavy ordnance and car wheels.

Since the cheap modern methods have been introduced iron has been used for many things that it was once thought impossible to use it for. A few of the more important uses being bridge building, iron pipes for gas and water, stoves, ship building, agricultural implements and so forth. Since it has been put to so many uses under the present prices, it is difficult to conceive of the uses it will be put to under the greatly reduced prices brought about by the invention of a mechanical puddler.

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## SCIENTIFIC.

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### The Wheat Pest.

Considerable attention has been directed of late to the ravages of a very active wheat pest, the *Aphis avenæ*. Prof. Cook, who has been giving the matter considerable study has just issued a bulletin on the grain plant louse and we will give an abstract of that.

The louse attacks wheat, barley, oats and rye and is found in small numbers on these grains every year. This year occurs one of the terrible attacks that seems to threaten very serious loss. This raid extends from Ohio west to Illinois and to considerable distance north, in Michigan; reports having

lately come from some of the northern counties.

The *Aphis avenæ* is one of the large genus *Aphis*, different species of which attack fruit trees, cabbages, hops and indeed to a greater or less extent, nearly all of our valuable cultivated plants. These plant lice have flask-shaped bodies and are usually green and black, though sometimes they are yellow or red, and are usually very small. In looking at the grain aphid at this season, four forms will be seen; a small wingless louse, a large wingless form—the full grown apodus or wingless louse—the pupa of the wingless louse which has short wing pads, and the mature winged louse. We usually find these four forms, at some season of the year, in all plant lice colonies. Frequently, and this was true a few days ago of this grain aphid, we only find the wingless forms. Later the pupæ with wing-pads and fully developed winged forms are seen. These winged lice are doubtless developed that the lice may spread before their food is wholly destroyed and they confronted by famine. The mature wingless louse of this grain aphid is about one-tenth of an inch long. The winged louse is nearly twice as long to the end of the wings. The lice have long seven jointed hornlike antennæ and simple veined wings, a characteristic of the genus. There are also two spine-like projections, black on the grain aphid, on the hind part of the abdomen. These are the nectaries or horny tubes, so called because there frequently exudes from them a nectar which attracts ants and bees to these lice. Just now (June 20th, 1889,) a species of louse on our Norway spruces is secreting nectar so profusely that in the early morning it stands on the leaves in drops so that it can be tasted. It seems very pleasant to the taste and is giving the bees a fine harvest. This peculiar physiological characteristic serves the louse in this way: by attracting ants, wasps and bees, the birds and insect enemies of the lice are frightened away. The oats and wheat are visited by ants that the



nectar secreted by these grain lice may be secured. The beak of this grain aphid is strong, dark in color, and about one-third the length of the body. With this the louse sucks the sap and devitalizes the plants.

The color in these lice varies greatly. Early in the season while they are on the leaves or stalks they are green. This is the color now of all healthy lice on the oats. After they migrate to the heads they often turn yellowish green and even rusty red, though now the green color prevails even with the lice which are gathered thickly about the kernels. Some of the winged lice are very dark, almost black. In these the legs are nearly all black. It is probable that the nature of the food affects the color. As the berries mature it is likely the yellow and red colors prevail to a large degree.

#### REPRODUCTION OF THE LICE.

The reproduction of plant lice is very curious. Late in the season we find both sexes. This is the only time that we find males. The sexes now pair, and eggs are laid about buds, in crevices or where they will best survive the winter. In the spring only females hatch from these eggs. These do not lay eggs, but each gives birth to from three to five lice each day. In about four or five days these young lice produce living lice, each contributing daily its four or five new lice to help on the general devastation. Such early and rapid breeding implies great nutrition, and we easily understand why the plants wither and dry up. We also see how the lice become so quickly numerous and widespread. Calculation shows that in less than a month, if no lice die or were killed, a single louse might be the progenitor of more than several million lice. To follow the numbers further defies comprehension. Many have written me: "We can not imagine where the lice could come from so quickly and rapidly." The above fact explains this physiological riddle.

#### WHY SO NUMEROUS THIS YEAR.

This is not the first season that this *Aphis*

*avenæ* has come like a destroying flood upon the grain field. In 1861 the lice swarmed upon the cereal crops of New England and New York, at which time Dr. Asa Fitch fully described it in his sixth report. In 1866 and again ten years later it did great damage in various sections of the west. We see then that this louse does not come yearly but only at long intervals. Why is it? It is doubtless owing in some measure to the weather, but more to its insect enemies. We readily see that its enormous prolificness would make it as the sands of the sea shore every year, except that some natural agent held it in check. Fitch describes three such enemies. Even now as we visit the oat and wheat fields we find many forms different from any previously described. These have short, rounded bodies, which are of a dirty white color. The cause of this is that these are attacked by parasites, which are eating them up. We have reared several of these little benefactors, and find them now busily engaged in the fields laying the eggs that will destroy the lice. These minute parasitic insects lay a great many eggs, one in each louse, and their presence and prosperity mark the doom of the lice. Thus through the agency of these minute parasitic forms, aided by climatic influences, we are to be saved from a raid by this grain aphid next year, and will be greatly benefited this year. Indeed in some cases, these little friends will very likely save us from serious damage. Why the parasites are not able to come successfully to the rescue each year is still unknown. Very likely this problem will receive a very valuable practical solution in the future. In these parasites the entomologist sees the doom of the lice, but not, we fear, till great harm is done. Dry weather is a great promoter of insect productiveness. It is more than probable that the exceeding drouth of 1887, 1888 and of the April and May just passed, together with the mild winter of 1888 and '89, have had much to do with the present invasion. We might expect much aid from our frequent June rains, but they prob-

ably were too late. Observation shows that the lice are more than holding their own, so we may conclude that the warm rains are not greatly depleting their ranks.

#### WHAT TO EXPECT.

Where the lice are very numerous, as they seem to be over a widespread area of our country, they must do great injury. Where ten or twelve lice are collected about a single kernel of wheat, as we have actually seen in the past few days, there is little hope for that kernel. We have counted one hundred and sixty lice on a single head of wheat. It is hoping too much of the little parasitic flies to expect them to save the present crop. We can expect much injury, especially where the lice are in such countless numbers as are now seen in many of our wheat fields of Indiana, Ohio and Michigan.

#### WHAT OF REMEDIES.

The excellent specific against plant louse ravages, the kerosene and soap mixture, cannot be used without much injury to the crop. To apply it might be like the jump from frying pan to fire. Again, the lice are so protected by the close cluster of the kernels that very likely the remedy would not be fully effective. We could not, therefore, recommend its application in this case. We are now making extensive and accurate experiments, so that at the time of a future raid we can speak with positiveness in this matter. We are aiming to find just what the damage is, just how many lice it requires on a head or kernel to blast it, and just how effective the remedy is, and how serious the damage of its application will be to the plants.

#### INCORRECT NAME.

The name "green midge," which is going the rounds of the papers, is very incorrect, and should not be used. The Hessian fly and wheat midge are very different insects. These midges are two-winged flies, whose larvæ are footless maggots. They belong to the great two-winged fly order, Diptera, while these are plant lice or aphides and be-

long to the order of bugs, or Hemiptera. Let all speak of this as the grain aphid, or plant louse, and not as the green midge, which is entirely wrong, as they are not always even green in color.

A. J. Cook.

June 27th, 1889.

#### Natural History Society.

The meeting of the Natural History Society for June, occurred on Friday evening the 14th.

The first thing presented was a talk by Mr. Curtis on the value of mixed grasses for pastures. Mr. Curtis had taken specimens from a plat seeded with six of our common grasses and forage plants, and had dug up specimens of each species to compare the length and character of the roots. It is evident from the study of these that the same soil can produce more when sown to plants having roots of a different length and manner of growth than when confined to a single species. A great advantage of a mixed seeding in pastures is that a larger and more constant period of growth is obtained than when there is no mixture.

Mr. Seibert followed Mr. Curtis with an illustrated article on one of our common algæ, the *Pleurocarpus mirabilis*. Drawings were made showing the formation of zygospores from the conjunction of the two adjacent cells on the same filament and also by the conjunction of different filaments. This last condition is reported by some authorities as never existing, but Mr. Seibert found it in several instances.

Mr. Waldron followed with a talk on wheat rust, *Puccinia graminis*. This exists in four forms, two of them, the æcidiaspores and spermagonium, being found on the *Berberis vulgaris* (common barberry), and the teleutospores and uredospores found on the different members of the grass family, more especially on wheat. The teleutospores constitute the black rust found on wheat and grass late in the season. This form does not



reproduce itself upon the wheat but furnishes sporidia which will germinate the following season on the barberry. These then produce the æcidia found on the barberry. The spores from this form fall upon the wheat, producing uredospores, the red rust of wheat and later the teleutospores.

The uredospores constitute the active rust that spreads so rapidly, especially in a damp season, since moisture is necessary for the germination and growth of the fungus.

It was formerly thought that the barberry is absolutely necessary for the continuance of the rust but it is now known that the uredoform can attach itself so firmly to a plant of wheat or grass that it is able to survive the winter in this stage and thus be ready to begin its attack the following season.

### **The Dissipation of Fogs by Electricity.**

Among the many applications which electricity is finding, we now hear of its proposed use for the dissipation of fogs, and the clearing of fog and smoke-laden atmospheres, such for example, as those of London during their notorious fogs.

An English electrician, Dr. Oliver Lodge, has made a series of preliminary experiments in which he has succeeded in clearing rooms filled with smoke of various kinds, steam, sulphur vapors, and mixtures of several of these.

The operation consists in discharging into the room the electricity furnished by a Wimhurst or Holtz influence machine. The electricity thus furnished is comparatively small in quantity, but of very high power, and this form of a charge seems necessary to attain the end in view. The theory of the action is not altogether understood, but it appears that in the case of fog or steam the atmosphere becomes clear by the coalescence of the smaller particles into larger, and their final precipitation as drops of mist or rain. It seems probable that if any large volume of the atmosphere containing fog could be thus acted upon, a shower of rain would

result, and the atmosphere thus become cleared.

With fog and smoke mixed, the vapor in coalescing into drops would tend to carry the particles of smoke with it, thus producing mist and rain drops charged with smoke particles. These drops in falling, would in the usual way, tend to wash out the remaining smoke from the air, as a final result thus clearing it of both fog and smoke.

With smoke or dust alone, the action seems more difficult to explain. There are some indications pointing toward an explanation, but the present discussion of these would be beyond our limits. As a matter of fact, however, whether it can at present be completely explained or not, smoke filled rooms have been rapidly cleared by a deposition of the smoke induced by a discharge of the electricity. In addition, a French savant has found that the same agent exerts a notable action on the microscopic dust, bacterial spores, etc. with which the air is laden.

On the 31st of December last a heavy fog prevailed in London, and the city's gas bill for the day was about \$40,000. The most of this might have been saved could the fog have been precipitated in a shower of rain. On the evening of the same day it was impossible to see, even with gas, and in the theaters the stage could hardly be seen from the back portions of the room.

There thus seems to be a wide field in this direction, but there are many difficulties in the way of its application on a large scale. Among these may be mentioned the considerable cost of a large scale experiment, the uncertainty of the best means for providing the supply of electricity and the great number of discharging points over a city rendering it difficult to maintain the charge. Whatever may be the difficulties, however, it is a subject attracting considerable attention, and already steps have been taken to meet some of them. We may therefore expect to learn, sooner or later, as to the practicability of the use of electricity as a modifier of

atmospheric conditions in general, and more particularly as an agent for the dissipation of fogs.

W. F. DURAND.

# THE SPECULUM.

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AGRICULTURAL COLLEGE, JULY 10, 1889.

WITH this issue THE SPECULUM completes its eighth year, and the editors who have so eagerly watched its progress during this time now turn their duties over to other hands. Although in some respects the work has been an arduous one, yet in laying down the pen and bidding farewell to the "OLD SPEC" we cannot but remember the many pleasant things which the work has brought with it. We feel more than ever that a college paper is a reliable criterion of the moral and mental status of the students, and that we are judged to a great extent by that standard. To make this criterion as high as possible requires the whole hearted sympathy

of the students and alumni in the work. It is with pleasure that the retiring board expresses its thanks for this support during the past year and we hope that it will be extended, undiminished, to THE SPECULUM in the future.

THE establishment of the Summer School here for teachers and others wishing special work in the sciences is one of the latest actions of the State Board. The College holds during the summer anyway and the additions of this special course will require no great change in the existing order of things. The facilities of the college for this kind of work are wide and varied, and present opportunities to teachers which they can get nowhere else. The expenses here are small for there is no tuition to pay and the college grounds are beautiful and healthful in the summer. We hope the movement will be a success as it promises to be at the present time.

THE question of a bath-house at the college has been more or less agitated for several years. The students have always desired one and have several times endeavored to bring the matter to a head. At last decisive steps have been taken, and operations will be begun shortly. The State Board has appropriated three hundred dollars and the students are to furnish a like amount. The bath-room will be built east of the boiler-house where it can readily be furnished with hot and cold water. It will be large and commodious so that it may furnish ample room for the students. The management is placed in the hands of a bathing club, organized by the students and entirely under their control. This step will make a great improvement and add materially to the comfort and health of the students. The constitution of the club is printed below.

## Constitution of the Bathing Club.

### ARTICLE I.

This Club shall be known as the Bathing Club Branch of the Students' Organization.

### ARTICLE II.

SECTION 1. The membership of this Club



shall consist of persons holding bathing club certificates. These certificates shall be purchased upon entrance, of the Assistant Secretary of the college at the rate of one dollar (\$1.00) apiece and shall entitle the purchaser to all privileges of the Club. Certificates are not transferable and shall be equally assessed for all expenses of the Club.

SEC. 2. The Assistant Secretary of the College shall be Treasurer of the Club and shall hold all money of the Club, subject to order of the Steward.

#### ARTICLE III.

SECTION I. The Students' Organization shall elect a Steward, whose term of office shall be one college term.

SEC. 2. The election of Steward shall be by ballot and shall be held two weeks before the close of the college term. The election of Steward must be approved by the President of the College.

SEC. 3. The duties of the Steward shall be to collect all moneys; give receipts and keep the accounts of the Club in full; make necessary purchases; approve and pay all bills; estimate and assess the expenses per term; see that the baths and bath house are kept in proper condition; keep the bath house open for the use of members, and carry out such rules as shall be adopted by the Students' Organization, for the maintenance of order in the bath room and the systematic operation of the baths.

SEC. 4. If any member fail to comply with the rules of the Club, the Steward cannot entertain him as a member of the Club.

SEC. 5. For his services the Steward shall receive twenty dollars (\$20.00) per term.

SEC. 6. By a vote of two thirds of the Students' Organization the Steward may be impeached.

#### ARTICLE IV.

The books of the Steward shall be audited monthly by the auditing committee of the Club Boarding Association.

#### ARTICLE V.

Persons not members of the Club shall be charged ten cents for each bath.

#### ARTICLE VI.

This constitution may be amended by a two-thirds vote of the Students' Organization.

### COLLEGE NEWS.

Why don't the Juniors brace up and go to chapel?

The family of President Clute will reach the college about July 15.

Mr. C. E. Smith of '84 was the guest, June 20, of Lieut. Simpson.

Efforts will be made to secure two field guns for foot battery practice.

It is reported that Howard Terrace is very much in need of a cistern.

Several pieces of new furniture have been placed in the Secretary's office.

The wild garden is now quite attractive with its many plants and neat walks.

The Senior class are very much taken up with the work in quantitative analysis.

Prof. Thurtell may explain the difference between a sun spot and a speck on the glass.

Prof. Cook has received three applications within a month for professor of entomology.

Mrs. Carpenter has been spending two weeks visiting her mother who lives near Greenville.

H. M. Weed of '82 and wife, who have been visiting at Lansing, made a call at the college.

Dr. Beal spoke at the Eaton County Horticultural Society meeting, held at Charlesworth.

Dr. Beal has ordered of Spencer & Company a one-eighteenth first-class emersion worth \$85.

Mrs. Holdsworth will be away visiting friends at Traverse City until the close of the term.

The Librarian has lately received about \$250 worth of books for the Experiment Station Library.

At the July meeting of the Board, President Clute was made director of the Experiment Station.

Mr. Gibbons, editor of the Michigan Farmer, was the guest of Prof. Johnson one night not long since.

Mr. E. B. Fairfield of '71, an agent for the N. W. Life Insurance Company, visited the college June 18.

It is bad weather for Astronomy. It needs a clear sky as well as a good eye in order to study the stars.

President Clute's Sunday morning talks are very interesting. The President makes everything practical.

Target practice will be commenced if ammunition and some means of transportation will be provided by the Board.

The officers of the Y. M. C. A. for next year were elected July 1st, as follows: President, Chas. Ferris; Vice President, J. R. McColl; Treasurer, W. J. Heron; Secretary, C. W. Deye; Corresponding Secretary, V. H. Lowe.

Wm. H. Brooks, a teacher from the Normal, arrived at the college July 3d, and will take special work in Chemistry.

Prof. Cook published a 3,000 edition of his *Silo and Silage*, March 1st. Over 2,500 of these were already sold June 1.

Mr. Knapper has designed a class bed for '89 in the flower garden. He thinks it is an improvement over the class bed of '88.

Miss Abbot has resigned her position as librarian to—well, to take effect as soon as her successor can be secured by the Board.

Dean F. Griswold of '75 from Northville spent Saturday and Sunday, June 29 and 30, at M. A. C., visiting his friend, Mr. Peebles.

A fine collection of sample ores of lead, zinc, copper and silver were lately received by the Chemical Department from Butte City, Montana.

The public parlor across from the Y. M. C. A. rooms has been fitted up and is ready for use. Visitors have the use of this parlor at any and all times.

Indian club hangers, wall machines and a chest expander are among the apparatus lately received by the Military Department for the gymnasium.

Club C's cooks left suddenly July 1st. Mr. Smith, the steward, has secured Ben Burdon of Lansing as cook, and the club started up again July 4.

The report comes to us through W. A. Kinnan of '86 and Dr. Beal, that Sec'y Willits is well received by all connected with the Department of Agriculture.

Mr. Dewey took the Senior class to the ball ground where he showed them what is known as fairy rings. It is a fungus caused by several kinds of mushrooms.

The friendly face of Col. McCreery, of Flint, was not seen here at the July meeting of the Board of Agriculture, he having been called to New York on business.

The State Board gives \$300 towards a bath house, and the students raise as much. It will be conducted by the boys on the same system that our clubs are now run.

The resignation of Professor Johnson has been asked for by the State Board, to take effect August 20. His successor will not be chosen until the next meeting of the Board.

Mr. Peebles has a large class in vocal music Tuesday and Thursday evenings. This vocal training is supplying a long felt need, and the students seem to appreciate it.

Dr. Beal visited the Experiment Stations at Harrison, Baldwin and Walton the last of June. He reports things in good condition. July 3d he left to visit the other stations.

Juniors came in about 11 o'clock P. M., with three moths. They did not know cut-worm moths but will recognize them hereafter. Senior to Junior, "Didn't get much." Junior, "Well they aren't very large but they are pretty fine specimens though."

Mr. N. A. Richards a graduate of Albion and nine years principal of the St. Louis schools is taking a special course in Chemistry. He has been chosen as Mr. Church's successor at Greenville.

There will be added to the zoological museum before next term commences a *porpoise manatees* and several other fine specimens. This will make by far the finest addition ever made to our collection at one time.

Mr. Norton, with '71, and Judge Ramsdell, of Traverse City, who was an instructor in an early day at the college and is now one of the leading fruit growers of the State, made a short visit at the college not long since.

Mr. L. R. Jones, graduate of U. of M. and professor elect of U. of M. and Experiment Station, is at the college for the purpose of doing special work in the Zoological and Veterinary Departments the remainder of the term.

The orators for the contest have been elected. W. Babcock and H. J. Hall from the Union Literary Society, A. L. Walters and K. L. Butterfield from the Eclectic Society, C. F. Rittenger and W. A. Fox from the Olympic Society.

Mr. Hillman has been chosen professor of Entomology of the U. of Nevada and will be connected with Botany and Experiment Station work. As consideration for his services he will receive a salary of \$1,800. He has our best wishes.

Many applications for the chair of English Literature were before the Board of Agriculture at its July meeting. The Board desires to secure a well trained man of wide experience in teaching, hence it is moving a little slowly. No appointment was made but several applications from most able professors are under consideration by the Committee on Employes.

It is warm weather again, and proper sanitary measures and precautions should be taken by every student. Stewards should see to it that everything around their club rooms are neat and clean. There is no need of having a swarm of flies about the kitchens and dining rooms, and river ice put in the water that is to be drank. The pail of water should be set into a tank of ice.

In the contests at Pine Lake July 4th, L. Burnet won 1st prize for the standing high jump, standing broad jump, 100 yards dash and tied for 1st in the sack race. S. K. Boyd took 1st on high kick. H. Doty received 1st on the swimming race and Hillyer 2d. The second nine won both base ball games at Williamston—M. A. C. vs. Fowlerville, 8 to 3; M. A. C. vs. Williamston, 14 to 6.

The work on *The Harrow* for '89 is progressing finely. The annual will contain all the good features of its predecessors and many new ones of great interest are to be added. It will be especially interesting to the Alumni. Our college annual is unquestionably above all others in the line of art, yet '91 will raise the standard still higher. The book will be out some time before commencement.



Senator McMillan has purchased the Austin collection of Coleoptera for the college. This is one of the finest scientific collections in the country. There are about 8,000 species and about 40,000 specimens. This with the 12,000 Lepidoptera presented last winter by Senator McMillan and the cabinets before at the college gives us about 70,000 specimens, which forms one of the best collections of the west.

The Annual Catalogue for M. A. C. is under way and will be out soon. A few changes of interest have been made. Three hours of drill per week will be required in every term of the year. One-half term of military tactics has been added to the fall term of the Sophomore year. Moral Philosophy has been changed to the Senior year and made compulsory. The mention of the Summer Course here will be a feature of the new catalogue.

The next SPECULUM Board will be made up as follows, with the exception of Science Editor who has not yet been elected: Editor-in-chief, W. Babcock, Union Literary Society. Colleges and Exchanges, A. L. Waters, Eclectic Society; College News, J. R. McColl, Phi Delta Theta; Athletics, B. K. Bentley, Delta Tau Delta; Personals, C. F. Rittenger, Olympic Society; Business Manager, F. H. Stahl; Assistant Business Manager, F. W. Ashton; Treasurer, Secretary Reynolds.

Lieut. Simpson speaks in very complimentary terms of the band. The following are the names of the members: H. F. Hall, Drum Major; F. Goodenough, Leader, E flat cornet; A. H. Gillette, solo B flat cornet; Chas. Angell, first B flat cornet; A. J. Warren, first alto; John Dunn, second alto, S. K. Boyd, first tenor; L. Burnett, Tuba; F. G. Stone, tenor drum; M. S. Gregory, bass drum. At the beginning of next term the band will be reinforced by several other good players and then we shall expect some excellent music.

The importance of Secretary Willits's position will be readily seen when we notice the divisions that have been assigned to his department: Botanical division and section of vegetable pathology, pomological, chemical, microscopical, ornithological, forestry and entomological divisions, the silk section and the office of experiment stations. Secretary Willits will, in general, control and direct the scientific policy and operations of these divisions and sections, and all questions and correspondence involving the scientific work will be submitted to him for approval and signature.

Hiram T. French has resigned his position here as assistant professor of Agriculture to accept a position in Oregon Agricultural College as superintendent of Experimental farm and vice director of station. His resignation is to take effect July 15, and he will enter on his new duties at Corvallis, August 1st. Mr. French has been connected with the Farm Department here ever since he graduated in '85, and has won the respect and confidence of all who have had to do with him. We regret having to lose Mr. French but a broader field is open to him and we can but wish him success and a pleasant home on the Pacific coast.

A request for flowers for Michigan Day at Gettysburg came to the college on the 6th inst. President Clute consulted with our florist, Mr. Knapper, and found him enthusiastic in his desire to aid in decorating the graves of the Michigan men who fell on that field of glory. On the evening of the 9th a fine collection of greenhouse flowers was expressed to the Gettysburg Floral Committee in Detroit, to be added to the car-load to leave Detroit on the 10th. G. A. Dickey, one of the ablest men in the class of '61, fell on that bloody field from whence so many noble souls went up to God. All college friends rejoice that a floral tribute has gone from the college to testify our affection for him and for the thousands who fell with him.

The attention of the students is especially called to the work that is being done on the Horticultural Department. Besides putting the lawn in good shape Prof. Taft is carrying on many valuable experiments. These experiments are conducted in such a way that the results will be very reliable. Wherever it is possible the experiments are duplicated and triplicated. Under his supervision are carried on in various parts of the State experiments to determine the effects of climate, location and soil upon certain fruits. All the experiments are very practical and such as the student will be asked about many times and will wish to know for his own benefit. Prof. Taft will be very glad to show the students the experiments as far as he can and will explain the object and the methods pursued. It would well pay the students to spend one hour a week gleaning from the Horticultural Department, by daylight, the benefits of these experiments.

#### Our Summer School.

It is remarkable that the great facilities of the Michigan Agricultural College as a summer school for all who desire a few weeks or a few months of special training have not been more widely announced and more widely used. Our regular school year continues through the summer and all our regular work is in progress, hence summer students can join any classes which they are prepared to enter. The chemical laboratory is one of the most excellently equipped in the country, having every appliance necessary to the elementary or advanced student. Laboratory work is individual work, each student can work independent of all others; hence he can begin at any time, in any line of work for which he is fitted; work as many hours a day as he pleases, and for as many weeks or months as he can spare, having all the time an able professor at hand from whom to get suggestions and direction.

The botanical laboratory probably has no superior in America. It has a large and beautiful building exclusively devoted to it. Its herbarium is extensive and valuable. Its museum is one of exceeding interest. It has a large equipment of compound microscopes of the best quality, so that each student is furnished one at no cost. In this laboratory the advanced student finds every appliance to assist him in his work, and students in the elements aided by these

appliances find their progress to be rapid and encouraging. Those desiring to improve their knowledge of systematic botany have study-rooms and tables, microscopes and implements; gardens, fields and woods abounding in flowers, and skilled experts to direct them to the best methods.

In zoology and entomology the laboratory is not less fully equipped than are the laboratories of the chemical and botanical departments. It has large rooms, complete apparatus, including many of the best microscopes, a museum rich in typical specimens, and a cabinet of entomological specimens, surpassed by only a few in America. Here under skilled and enthusiastic instructors the student soon finds himself entering a new world of interest and delight that fills every hour of the day with absorbing study.

The physical laboratory is also one of the important features of the college. The apparatus is extensive and of the best kind. Students are taught its use, and allowed to use it. They are also taught to construct, use, take care of, and repair apparatus. Hence, here teachers will learn to prepare much of the apparatus they need for the proper study of natural philosophy in their schools; apparatus which many school boards do not provide because they have no knowledge of its great value in education.

The mathematical department has a superior equipment of instruments for surveying and leveling, with which students do field work, thus getting a practical knowledge of the instruments. In solid geometry, analytical geometry, and astronomy students can join the regular classes. There is a small observatory with a good telescope, which is at the service of students. A few evenings in the observatory will give a student command of the telescope, and a better knowledge of the heavens than can be acquired by months of text-book study only.

Manual training is coming rapidly to the front. Most of the special manual training schools are crowded with pupils. In some of the public schools it is being introduced with success. In the mechanical department of the college there is a wood shop supplied with all tools, benches and materials for learning the use of carpenters' tools. Students are put through a course of bench work in a series of graded exercises, advancing as rapidly as he is able to do the work. He learns advanced joining, turning and cabinet work. He is taught also pattern making and moulding. Each student in the wood shop has his own set of tools which he is taught to take care of. The iron shop is provided with engine, lathes, forges, anvils and all the tools of a regular manufacturing establishment, and in it the students are put through a complete course of iron work. The summer students who take the shop practice will find it a valuable aid in interesting parents and school boards in this most valuable and fascinating part of education, and in introducing manual training into their own schools.

The department of English literature is so popular everywhere that it is necessary only to say that most able professors are here found, who always wake in

their students a deep enthusiasm. A few weeks spent in the critical study of some of the master-pieces of Shakespeare, Tennyson, Milton and Longfellow always leaves the student richer in thought, and keener in appreciation, and adds to his power of enjoying "the wells of English undefiled."

To those who seek instruction in farming and gardening these departments offer advantages not equaled at any other school in the world. The large farm is in admirable condition. It has superior buildings for every branch of farm work. It has fine stock of several different breeds. It has the most superior machinery for all kinds of labor. It is conducted by men who have a national reputation. The college park, lawns, gardens and orchards include about one hundred acres, through which wind many walks and drives, and amid which are scattered the numerous and beautiful college buildings. All of these one hundred acres are in charge of the Professor of Horticulture, and are kept in fine order. He has a new and beautiful laboratory fully equipped. His students are enthusiastic in their devotion to their work in classroom and in garden. Students in horticulture who spend even a few weeks here cannot fail to be greatly helped.

Expenses for tuition are nothing to students from Michigan. Those outside of Michigan pay \$5.00 for twelve weeks. Board averages about \$2.50 per week. Students can enter at any time. Those desiring further information can write Henry G. Reynolds, Secretary, Agricultural College P. O.

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## PERSONALS.

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'62.

Frank Hodgeman's text book on Civil Engineering has been adopted at the college.

'64.

W. W. Daniels professor of chemistry in the Madison (Wis.) University was a delegate from the State Board of Health to the American Medical Association which met at Newport, Rhode Island, June 25th. He says "I suppose you are now sailing under a new pilot, and I hope for fair breezes and a full tide for the old college." Prof. Daniels will conduct a summer normal for teachers during the warm months.

'68.

William D. Place was elected County Clerk of Ionia county, last fall running 300 ahead of his ticket. He has laid out and owns the Highland cemetery which contains 100 acres. His farm, including the cemetery, contains 500 acres. He runs a dairy of eighty cows and supplies the city, prison and asylum with milk.

Warren A. Wells is employed as a teacher at Corning, Arkansas. He has real estate near Corning. He says the soil is good and large crops of cotton, corn and garden vegetables are raised. Fruit is suffering somewhat from the recent rains.

S. M. Tracy, who is the director of the Mississippi Experiment Station, is making a specialty of grass



culture, having over 300 plots in cultivation now and arrangements made for planting nearly as many more next fall. His herbarium collection includes over 600 species of grasses, and he has a large number of duplicates which he will be glad to exchange for Northern specimens. He is enthusiastic over Mississippi as a grass and dairy country. Says he cuts three crops of hay in a year and that butter prices are fully fifty per cent higher than in the north. For outside business he is growing this year sixty-five acres of watermelons and thirty-five of cucumbers. Ought not some one to send him a bottle of Jamaica ginger.

'71.

E. B. Fairfield who occupied the position of superintendent of schools at Grand Haven is now engaged as a special agent for the Northwestern Mutual Life Insurance Company, with his headquarters at Grand Rapids.

WITH '71.

Boyd Shelton was ex-Senator Tabor's manager in his attempt to secure the senatorial nomination.

'74.

Wm. Cook writes: I am at present farming and performing the duties of county superintendent of schools in Marshall county, South Dakota, with my headquarters at Britton. On May 14th I was elected, on the republican ticket, a delegate to the Constitutional Convention which meets at Sioux Falls July 4. South Dakota is enjoying quite a boom this summer on account of the near approach of Statehood. It now looks as if we were to have a lively time in politics this fall and it would not be strange if I take a hand in. Say to the boys that I am doing as well as I deserve.

'75.

F. J. Annis is one of the most popular and active men of Fort Collins. Besides being secretary of the State Board of Agriculture and the Experiment Station, he is treasurer and secretary of the Board of Education, of the Electric Light Company, of several ditch companies and carries on a successful law practice.

'76.

Jay Stannard is taking the lead among Colorado importers of Shropshire sheep. He has a number one flock.

'77.

Charles I. Goodwin is engaged in dairy and general farming on a farm of 140 acres in Ionia county. At present he occupies the position of town clerk and is secretary of the Ionia County Pomona Grange. His family consists of wife and three children, two daughters and a son. He reports crops in a poor condition owing to the cold weather.

Prof. W. C. Latta of Purdue University conducted farmers' institutes in northern Indiana last winter.

'78.

Eugene Davenport while out botanizing on the Red Cedar fell from his skiff into the water the second of this month. No damage done.

WITH '78.

E. C. Harrington has moved from Pontiac to Denver, Col. He is giving a course of lectures on Medical Jurisprudence to the medical students of the Denver University.

'81.

J. L. H. Knight is still farming at Lee Part, Nebraska, where he has been since he left college. He is conducting quite a large stock farm. He is located near a good railroad and seems to be making money.

Arthur B. Turner spent some time at the college reviewing chemistry and physics. He will teach school the coming winter at Three Oaks.

Charles McKinney graduated from Olivet College last month. He has been retained as instructor in English. What did we tell you?

'82.

Prof. L. H. Bailey visited the college last month, and after visiting his parents he returned to Ithaca, New York.

'83.

Harry W. Baird is studying law with Uhl & Crane of Grand Rapids. He expects to enter the law department at the University next fall. Harry seems well pleased with Grand Rapids.

'84.

J. D. Hill is practicing law at Montpelier, Ohio. He is having good success.

Warren D. Barry, the rover of the class, has been in the west for some time. At present he is with the Gant Engineers as draughtsman. His address is Wilson Point, La.

E. C. Bank is assistant superintendent of the Reform School at Lansing. He has a little daughter and wants to know why he is not entitled to the class cup.

Chas. McDiarmid is farming. He is also breeding thorough Hereford cattle and Cotswold sheep at Bear Lake, Manistee county.

W. V. Sage is chairman of the Board of School Examiners of VanBuren county, and principal of the Hartford schools. He has conducted various campaigns against the fair teachers of his county, in one of which he was successful. He was married last winter.

'85.

H. E. Thomas was examined before the Supreme Court and was admitted to practice. He will remain in Lansing until September. He is somewhat undecided as to where he will locate.

F. M. Woodmansee is practicing law at Vermontville. He represents several fire and one life insurance company. He is having fairly good success. Since last August he has had fifteen Circuit Court cases, being successful in everyone, and he has several more on hand. He is acting as collection agent for several large manufacturing companies. He was elected Circuit Court Commissioner of Eaton county last fall and Justice of the Peace this spring. He says

"On December 14th last a little stranger in the shape of a seven and one-half pound boy took up his residence with us. We think he is very nice."

Hiram T. French has accepted a position as foreman of the farm and assistant in the Experiment Station at the Agricultural College of Oregon.

'86.

Henry N. Jenner, of the firm of Rule & Jenner, of Goshen, Ind., says: "We bought an old established drug business and are doing well."

Geo. T. French has been market gardening in Lansing this summer. He is also raising a few bees.

'87.

Frank R. Smith is farming at home. He says he enjoys the work and that he thinks he will stick to it. He is engaged in a small way in apiculture.

Paul Chamberlain was tendered a position as instructor in mechanical drawing and mathematics in the South Dakota Agricultural College but he preferred to remain with the Brown Hoisting and Conveying Machine Co., of Cleveland.

'88.

L. A. Bregger has accepted a \$900 position in a Chicago cemetery. Now Louis apply the principles of landscape gardening.

T. H. Hillman has been appointed Professor of Entomology with a salary of \$1,800 in the University of Nevada. He will leave for the west soon.

We are pleased to record an addition to the family of L. C. Colburn. He has our congratulations.

Dr. N. S. Mayo will deliver the opening address at the Chicago Veterinary College, October 1st.

WITH '88.

Bailey Smith and Geo. VanAtta have taken up a piece of land at Seatco, Washington Territory.

John Wesener is employed in the Chicago College of Pharmacy.

J. A. Thompson will canvass for a Chicago firm selling anatomical charts.

WITH '89.

P. G. Gilbert is draughtsman for James Flower Bros., of Detroit.

Mark Anthony, who has been with Warren & Swarey, of Cleveland, has opened an electrical supply store in that city.

H. J. DeGarmo is at home assisting in the farm work. He expects to visit the college soon.

WITH '90.

C. Dodge is soliciting agent for the Cleveland Press.

F. B. Stockwell is acting as salesman in the dry goods house of Strong, Lee & Co., of Detroit.

Statistics show that it costs from \$400 to \$1,500 to put a boy through college. Returns show that the money invested in the four hundred dollar boy pays best interest on the investment.

## ATHLETICS.

Canfield and Smith have gained quite a reputation for their battery work; so much so, that the Lansing League tried to procure them to play against the Grand Rapids team July 4.

The University team played at the College, June 11, and were beaten by the following score:

U. of M.	A	B	R	BH	P	O	A	E	M. A. C.	A	B	R	BH	P	O	A	E
Marker, r. f.....	5	3	2	1	0	0			Chase, c. f.....	3	1	0	2	0	0		
Denny, c. f.....	5	0	2	0	0	0			Perrin, l. f.....	5	1	2	0	0	1		
Rich, l. b.....	5	2	1	1	0	2			Smith, c.....	5	2	3	5	1	0		
Wilkinson, l. f.5	1	1	4	1	3				Rittinger, 2 b.....	5	3	1	5	5	2		
Codd, p.....	5	1	2	0	1	0			Cordley, r f.....	5	1	2	0	1	0		
Lewis, s. s.....	5	0	1	2	0	3			Canfield, p.....	4	1	1	0	3	2		
Gray, 2 b.....	5	1	1	1	1	1			Burnett, 3 b.....	5	1	0	5	2	4		
McIndoe, c.....	4	1	1	11	0	2			Cleland, s. s.....	4	1	1	0	3	1		
Todd, 3 b.....	4	1	1	2	0	0			Gardner, 1 b.....	3	1	0	10	0	1		
Total,	43	10	12	22	3	11			Total,	39	12	10	27	15	11		

	1	2	3	4	5	6	7	8	9
U of M.....	1	0	0	4	1	0	2	2	0-10
M. A. C.....	0	2	3	2	0	0	1	4	*-12

Two-base hits, Perrin, 2; Wilkins 1. Passed balls—Smith, 2; McIndoe, 3. Wild pitches, Codd, 5; Canfield, 0. Base on balls, Codd, 4; Canfield, 0. Left on bases, U. of M., 6; M. A. C., 7. Earned runs, U. of M., 2; M. A. C., 5.

## COLLEGES.

"Down in front," a motto for mustache farmers.

Freshman yell at Yale: "Bric-a-kex-kex, coax, brick-a-kex-kex, coax, coax, whu-op, whu-op, parabaloo, '92."

At the University of Virginia the students are allowed to bring their dogs into the class room but the professors object to the presence of "ponies."

The young ladies of Wisconsin University are studying carpentry, and make as great advancement in mechanical skill as in their intellectual studies.

Ex-President White, of Cornell, now traveling in Egypt still retains his interest in that institution. He recently sent a valuable collection of antiquities to Cornell.

The chair of Philosophy made vacant by the death of Professor Morris, in the University of Michigan is filled by Dr. John Dewey, formerly Professor of Philosophy in the University of Minnesota.

Colby University has secured the Maine State Geological Collection which was formerly in the capitol at Augusta, for its museum. It still remains the property of the State but will be properly cared for by the University.

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