

# THE SPECULUM.

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WHOLE No. 32.

## Progress in Manufactures.

G. L. F., DELTA TAU DELTA FRATERNITY.

The history of the world, from the earliest ages, proves progress to be one of the important laws of nature. Everything, from the simplest to the grandest manufactures, sciences and arts, is ever progressing to something simpler and grander. The inventive genius of man grows, from age to age, as a child grows from infancy to manhood; and in each era we can trace its growth in the increased comforts, conveniences, development and civilization of mankind.

The wonderful progress in manufactures that has taken place in the last century can readily be seen by contrasting the manufactures of the past with those of the present. Let us compare those manufactures used at the period before steam was first introduced as a motive power, and from which dates the almost phenomenal advance in this direction, with the corresponding ones of to-day. Look at the stage coach, slowly rumbling across the country with mail and passengers, in the former period, and at the ponderous locomotive, drawing its train of cars at lightning speed from place to place, in the latter. The rapidity of travel, the convenience of transporting products to any part of the country, the swiftness and cheapness of the mail delivery and the distribution of knowledge shows, as no other one thing does, the control of man over the forces of nature and the rapid progressive strides in manufactures that is taking place.

The progress in the construction of ships has been no less rapid. When we think of the magnificent ocean steamers that are now crossing the ocean and circumnavigating the

globe, and know that steam was first introduced to propel ships in the year 1807, does not the change seem marvelous? Our forefathers crossed the Atlantic in 1620 in the *Mayflower*, a ship of one hundred and eighty tons burden, and the boisterous voyage took them three months. To-day the ocean steamers run from New York to Liverpool in ten days, and often in less time. A traveler crossing the ocean now, can be accommodated as well and can get as good food as can be obtained at any of the first class hotels; while in the days of the sailing vessel the problem of properly provisioning the ship was the most difficult one to solve.

Methods of lighting our houses and streets have improved with astonishing rapidity. The light of the candle gave way to the light of the oil-lamps. Now gas is used to light most of the city residences, and the electric light, invented but a few years ago, has already reached a high state of perfection, and is used to illuminate many of the large cities of Europe, Asia, North America and South America, and is even introduced into a large number of dwelling-houses.

The manuscript books of the middle ages, written on parchment, were very scarce and expensive, and only a few people were able to purchase and enjoy them; while now the cheapness of our printed volumes brings them within the reach of all. Besides, the wood engravings, steel engravings, copper-plates, stereotypes and lithographs used at present in the printing of books make them much more instructive and interesting. Again, compare the printing press used by Franklin, then considered the best in the country, with the presses that print the daily papers of our large cities, in one operation, and fold them, ready for distribution, at the rate of from

twenty thousand to twenty-six thousand per hour.

The old system of carrying mail and sending messages by means of the carrier-pigeon, the courier on horseback and the old-fashioned stage-coach is heard of now only in history and story. The railway-mail to carry our letters, the electric-telegraph to send messages long distances, and by means of which nations are brought into instant communication, and the telephone, which enables people miles apart to carry on a conversation, have filled its place.

Progress has been no less rapid with agricultural implements. The spade, the hoe, the flail and the scythe, tools used every day by the farmer a few years ago, have given way to more useful and labor-saving tools; and the farmer now works with the steam plow, the rotary harrow, the threshing machine and the steam reaper.

It would be an impossibility, in the limits of a short sketch, to dwell upon all the branches of manufactures in which a decided progress can be traced. The abstruse manufactures are by no means the only ones that have progressed. Every year shows an onward movement in science as applied to manufactures, and the result of this movement is seen in the improvements of even the most trifling articles. Go into the home of the working man and see to what a great extent the wife's cares have been lessened and her labors diminished. Look at the sewing machine, the washing machine, the wringing machine and the other articles of hourly use found there, and compare them with the clumsy appliances of even twenty years ago. A person's mind is never more worthily employed than when exerted to increase the manufacturing capabilities of his country. It matters but little if it be exercised in great works of invention or in the increased usefulness of the washboard or of the egg-beater.

## The Dake Engine.

E. N. P., UNION LITERARY SOCIETY.

Ever since the steam engine was invented it has been the constant aim of inventors to improve upon it. From the expensive and time wasting process of condensing the steam in the cylinder, it was but a few steps to the use of a separate condenser. After a time the truth that steam could be exhausted into the open air became known, and we had the two most important types of our present steam engines. The automatic cut-off, Corliss valve, and many other improvements have been added; the two types have been combined, but the principle remains the same. Now, as then, the steam admitted to the cylinder acts on the sides of a circular disc, giving it a reciprocating motion which is changed to a rotary motion by levers and rods, or a combination of them. But ever since the infancy of the steam engine, men have tried to find a substitute for this combination. The objections were principally against the dead center and loss of force by the friction of so many parts. Various devices were invented and often tried, but few proved to be of any value. One invention, however, seems to have proved itself a success. It is the Dake engine.

This engine is of very recent origin, having been patented but little more than a year ago, and so has not been tested sufficiently to develop its fullest capacities. So radically different is it from the common types, that engineers are very backward in accepting it as a substitute for the older machines. The Dake engines are made of all sizes, from one to one hundred horse-power and larger. As the difference between them is only in size, and not in the form of the working parts, a description of an eight-horse power engine will suffice for all.

The largest single part of this engine is the rectangular base, twenty-four inches wide, forty-two inches long, and six inches high. On the front end of this base is

fastened the engine proper and on the back end a bearing to support the shaft. Between the two, on the shaft, are fastened the fly wheel and driving pulley. The engine proper is composed of five parts; the outside case which takes the place of the cylinder, the cover to the same, the two pistons, and the crank with shaft attached. The outside case is best compared to a heavy, shallow box measuring, on the inside, twenty-two inches wide, thirteen and one-half inches high, and two and three-quarters inches deep. In the back a recess is bored out large enough to hold the crank, which has a four inch stroke. Inside of this case a second box moves from right to left and back. It is the outer piston. This piece is thirteen and one-half inches high, seventeen and one-half inches wide, and two and three-quarters inches deep, outside measurement. It is furnished with movable gibs that can be set out, thus taking up any possible wear. To prevent any steam from reaching the crank, a bottom is placed in this outer piston, it being wide enough to cover the crank at both ends of the stroke. A narrow slot is cut in the bottom large enough to allow the crank pin to move up and down. This slot is, in turn, covered by part of the inner piston which moves up and down inside. The inner piston is again rectangular. It is fifteen and one-half inches wide, seven inches high and two and one-fourth deep. It also has gibs for taking up the wear. In the center is placed the brass bearing for the crank pin and inside we find numerous steam passages. The engine cover has two passages cored in it. One conveys the exhaust steam from the lower to the upper exhaust opening. The second passage conducts the fresh steam from the top of the case to the inside of the inner piston. This cover is very accurately ground so that no steam can pass between it and the moving pistons.

Let us suppose the crank pin to be at the farthest point to the left. The outer piston

is at the left end of its stroke and the inner one moving up. Could we see through the cover we would see steam rushing in many ways. The live steam from the opening in the cover is passing to the inside of the inner piston, through a hole in its left-hand wall, through a groove in the inside wall of the outer, into the open space between the two, where, expanding, it is forcing up the inner piston. No sooner has it passed the center than it opens a port through the left-hand side of the outer piston admitting steam between the latter and the outer case. This steam, expanding, drives the two pistons to the right. The ports are so arranged that the steam of either can be cut off at any desired part of the stroke, thus making the best use of the fuel used. The ports in the case are opened and closed by the pistons themselves, thus doing away with the eccentric, side rods, valves and all the other apparatus employed in most engines. Just before the inner piston has reached the end of the upward stroke, it opens an exhaust port, and so the space is cleared, ready for the downward motion. By this combination of lateral and vertical motion the crank pin is continually being forced around, and with it the crank and shaft. In this manner we virtually have a double engine, each piston being an engine by itself.

The few working parts of the Dake Engine, the impossibility for it to get out of order, the small amount of floor room required, and the ease of handling, are among its chief recommendations. As there is no valve to be raised, steam may be turned into the exhaust pipe and the engine reversed exhausting through the steam pipe. A great many of these engines have a fourway cock for a throttle and are very quickly reversed. All this and its great speed make it the foremost hoisting engine in the market. Altogether it may be considered as one of the most radical steps in engine building of this generation.



### The Alumni Reunion.

The Alumni began to appear on the grounds on Saturday, August 11. By the next Monday evening there was a goodly number here, the greater part of them coming so early in order to attend the anniversary meetings of the various literary societies and of the fraternities. On Tuesday they appeared in sufficient number to take possession of the College domains, and on the afternoon of that day many of them laid aside the dignity incumbent upon Alumni and enjoyed the old-time sport of kicking the foot-ball about the campus. On Wednesday were held the regular exercises of the association.

A large number of the class of '83 was present at the reunion, and the members of that class held regular Class Day exercises, with Class Dinner in one of the club rooms.

The lady graduates of M. A. C. were photographed in a group in front of the class rock of '73. Prof. L. G. Carpenter of '79 manipulated the camera.

On Wednesday, August 15, the Alumni Association carried out the following program:

First business meeting, 8:30 A. M.; literary meeting, 10:30 A. M.; second business meeting, 3 P. M.; dedication of Abbot hall, 6 P. M.; banquet, 7 P. M.

The business meetings were both held in the Chemical Laboratory. The first meeting was presided over by Vice President Byron D. Halsted of '71; second meeting by Vice President Richard Haigh of '69. The two meetings were occupied with hearing the reports of various committees, appointment of committees and the passage of resolutions, several of which will be given in full below.

Word was received that Ransom M. Brooks of '73 was very ill, the result of an imprisonment in Andersonville during the late war. Resolutions of sympathy were passed by the association, and more than one hundred dollars raised upon the spot for the aid of Mr. Brooks. Messrs. J. S. Tibbits

of '73 and Dustin C. Oakes of '74 were appointed to convey the gift to Mr. and Mrs. Brooks. The following shows how the gift was appreciated:

LYONS, MICH., Aug. 17, 1888.

*Messrs. J. S. Tibbits and D. C. Oakes,*

KIND FRIENDS:—We wish through you to express our most grateful thanks to the professors of the College, to the classmates of '73 and to the members of the Alumni Association of the Michigan Agricultural College for their kind and generous remembrance of Mr. Brooks in his time of sickness and need. The thought of your kindness and sympathy will brighten many otherwise weary hours. We can only pray that God will bless you and help you in every time of need and hour of trial, and hope that the time may come when we may meet with you and express personally our thanks. Words cannot convey an idea of what we feel, and we can only say again, God bless you!

MR. AND MRS. RANSOM M. BROOKS.

Among others, Dr. Halsted, the chairman, appointed the following committees:

On nominations—Messrs. Davenport, '78, Taylor, '76, Holliday, '83, W. W. Reynolds, '70, F. R. Smith, '87.

On resolutions—Messrs. D. Strange, '67, O. P. Gulley, '79, Jay Sessions, '74.

Committee on Kedzie memorial—Messrs. Shelton, '71, W. W. Daniels, '64, Farr, '70, C. L. Ingersoll, '74, and Mrs. M. J. Carpenter, '81.

Committee to draft paper on labor system—Messrs. O. Clute, '62, W. A. Rowe, '73, L. A. Lilly, '77.

The committee on nominations made the following nominations:

President, E. M. Shelton, '71; vice presidents, W. L. Carpenter, '75, C. E. Hollister, '61, D. C. Oakes, '74; secretary, F. S. Kedzie, '77; orator, G. A. Farr, '70; alternate orator, J. W. Beaumont, '82; poet, Frank Hodgman, '62; alternate poet, J. B. Cotton, '86; historian, C. P. Gillett, '84; alternate historian, Mrs. H. T. French, '87.

During the meeting, since this year is the twenty-fifth year of Dr. Kedzie's connection with this College, it was decided to appoint a committee of five to consider the matter of presenting the doctor with some testimonial.

The Alumni Association has considerable faith in the value of the labor system as carried out at this College. A resolution declaring their faith in the system was carried by the association unanimously. Then it was resolved to appoint a committee of three to draft a paper giving full particulars concerning the labor system of this College.

Various resolutions were passed expressing the pleasure with which the association sees the growing strength of its Alma Mater and the many improvements in her surroundings and equipment; the debt of gratitude to the founders of the College, to the Board of Agriculture, the able faculty, and especially to Presidents Williams, Abbot and Willets for the College, declared to be one of the State's most useful institutions; the heartfelt loss of the association in the death of Prof. J. C. Holmes, the first professor of horticulture at this College; a request that Prof. A. N. Prentiss of '61 prepare for the next triennial reunion of the association a paper on the life and character of Prof. Holmes, and on his eminent services in behalf of this College; a request for a paper on ex-President Williams at next reunion; the affectionate remembrance of Dr. Manly Miles, the first professor of agriculture at this College, for his eminent ability and sterling enthusiasm in education, and for his great usefulness in laying the foundation of the labor system at this College; a resolution urging upon all students not completing the course, a continued zeal in advancing the well-being of the College, and welcoming them to all meetings of the association.

THE SPECULUM derives much pleasure from the following resolution of the Alumni Association:

*Resolved*, That in THE SPECULUM the Alumni recognize an ably conducted journal,

whose regular visits, bringing to us news of friends old and new, and of the constant improvements made at this College, are most welcome; and that we urge upon all Alumni, upon all undergraduates and upon all friends of the College to give to THE SPECULUM in every way a generous support.

Other resolutions are given below.

*Resolved*, That we remember with thankfulness and high appreciation the long and faithful service of Dr. T. C. Abbot, ex-president of this College; that we recognize his deep and lasting influence in shaping our lives to higher issues; and that we extend to him and to his family our warmest sympathies in the severe illness with which he is afflicted.

WHEREAS, We recognize the persevering and untiring efforts of our sister Alumnae in completing the course here under the many disadvantages of the present; and

WHEREAS, There are many more daughters of this State who desire to participate in the opportunities offered by this College for a scientific and practical education; therefore be it

*Resolved*, That it is the sentiment of this association that the State should make more suitable arrangements for receiving them into our College.

*Resolved*, That it is the duty of all members of the Alumni, both to themselves and to the State, to take such an active interest in the affairs of this College that they shall be ever watchful for its welfare.

About seven hundred persons congregated in the Armory to listen to the literary exercises of the Alumni Association. The exercises were much appreciated, especially the college songs furnished by the College Glee Club, one of which was encored. Below is the program of exercises.

Music, Glee Club; introductory address, Vice President B. D. Halsted, '71; music, bass solo, R. H. Stanley, '91; oration, "The Ordinance of 1787," F. E. Robson, '78; music, tenor solo, L. W. Hoyt, '82; history, Mrs. M. J. Carpenter, '81; music, quartette.

The banquet held in College Hall was a thorough success. The music was furnished by the College Glee Club. Too much praise cannot be given the Glee Club for the part that they contributed towards the entertainment. The music rendered, consisting of old college songs, had the rare merit of being in perfect harmony with the occasion. Hon. Henry A. Haigh of '74 was Toast Master. The toasts were as follows:

Old College Days, Daniel Strange, '67; College Days of the Present, C. B. Waldron, '87; Sister Institutions, E. M. Shelton, '71; Freshman Rhetoricals, Prof. E. J. MacEwan; Prodigal Sons, G. E. Breck, '78; Being Docked, W. F. Hoyt, '83; Alma Mater's Future, Pres. Edwin Willits.

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### SCIENTIFIC.

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The following is from Prof. Cook's article on "Microscopic Tests of Honey," as published in *Gleanings in Bee Culture* of August 15:

I made, the past winter, a careful investigation of the whole subject, and am led to doubt the existence of a sure test for honey, either chemical or by aid of the polariscope. As you doubtless know, there are two kinds of sugars—cane, and the glucose group, or reducing sugars. The latter are so called because they reduce the copper sulphate, when made strongly alkaline by caustic potash. Of the reducing sugars we have the glucose of our factories, honey, liver sugar, digested starch, etc.

The chemist using the copper test as given above calls all these sugars identical, simply because they give the same reaction with copper sulphate. If they are the same, why will the bees forsake commercial glucose for honey, or why will they die on the purest commercial glucose and thrive on good honey? Cane sugar will not reduce the copper salt, and when eaten by animals it must be digested to be absorbed and assimilated. Thus when we eat cane sugar we do what the bees do with nectar—we convert it into a reduc-

ing sugar, very likely the same as honey.

Nectar contains cane sugar. Indeed, the cane sugar in nectar often equals in amount all the other sugars put together. Analyses show, however, that the amount of cane sugar in nectar varies. Let this be remembered: *The amount of the different sugars varies in the nectar of different flowers.* Again, as the bee sips nectar it is mixed with the secretion from the racemose glands of the head and thorax, and this acts like our own digestive secretions on the cane sugar, and changes it to reducing sugar. Now suppose the bees are gathering very fast from the basswood, for instance, where a single colony may gather over twenty pounds per day; does it stand to reason that they can digest this nectar as perfectly as though they were gathering from some source where they secured their stores in mere dribbles? Thus in such cases of very rapid gathering the digestion would be less perfect and the honey would contain more cane sugar. May not this account for the marked sweetness of basswood honey? In this connection it is suggestive that, in the various analyses which have been made of honey, the amount of cane sugar varies. Thus, I find the analyses generally give from one to three per cent. of honey as cane sugar. Yet not infrequently the amount equals five or six per cent., while in some cases twelve and even sixteen per cent. of honey has been found to be cane sugar. *Here, then, mark the second uncertainty. Owing to more or less rapid gathering the digestion of nectar is more or less perfect.* The chemist then would find much cane sugar, and would report adulteration, when the honey was entirely pure, right from the bees, and through them from the flowers; but owing to imperfect digestion the cane sugar was very prominent. Such honey would be sweeter than though more reduced or digested, and so might have higher intrinsic value. We see then that the chemist cannot tell us absolutely whether honey is adulterated or not. There is reason to believe that abso-



lutely pure honey has been pronounced as probably adulterated. The chemist was honest and able, but did not understand the whole question or its many difficulties.

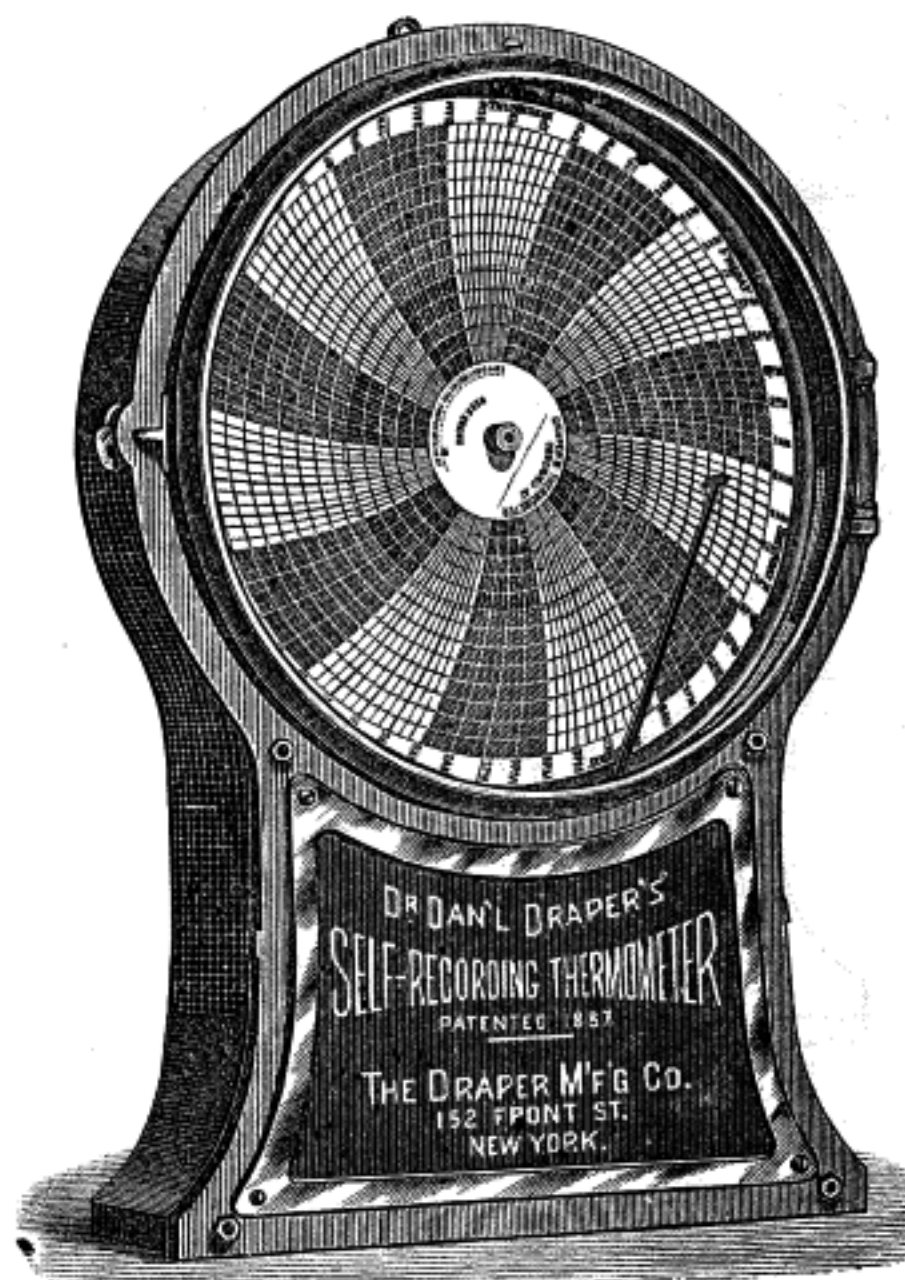
But what of the polariscope test? This test depends upon the property of various substances to deflect the rays of polarized light to the right or left. Thus, cane sugar changes the polarized ray to the right; so does dextrose, one of the reducing sugars of honey. On the other hand, levulose, another of the elements or sugars of honey, bends the ray strongly to the left. Dextrose and levulose are often called invert sugars; for when cane sugar is heated with a mineral acid like hydrochloric it is changed to dextrose and levulose. Glucose is a term used to designate all the invert or reducing sugars and is synonymous with grape sugar. Now usually honey rotates the ray of light, owing to the levulose, from two to twelve degrees to the left. From *two to twelve*, are not these numbers very suggestive? In the case of two degrees there was likely much dextrose, possible aided by not a little cane sugar or sucrose; while in the latter case the levulose was in the ascendency. Now suppose the ray bends wholly over to the right, "Hey, ho," says the scientist, "adulteration!" When in fact it was pure honey; but the cane sugar and dextrose were still more pronounced. Surely, if the ray often varies from two to twelve, left-handed rotation, we may certainly believe that it will often show a right-handed deflection. I fully believe that we have as yet no reliable methods to detect adulterations.

I am very certain that adulteration is never practiced by bee-keepers, and is very rarely practiced, if at all in these days, by dealers. By aid of our chemical department we shall soon know the exact truth of the matter. We shall not only test the present methods of analysis thoroughly, but shall strive to find if there is a method which is sure and practical to tell pure honey from that which has been adulterated.

## Draper's Self-recording Thermometer.

As many students have had their curiosity aroused by this instrument when visiting the Chemical Laboratory, a description of its construction may be of general interest to THE SPECULUM readers.

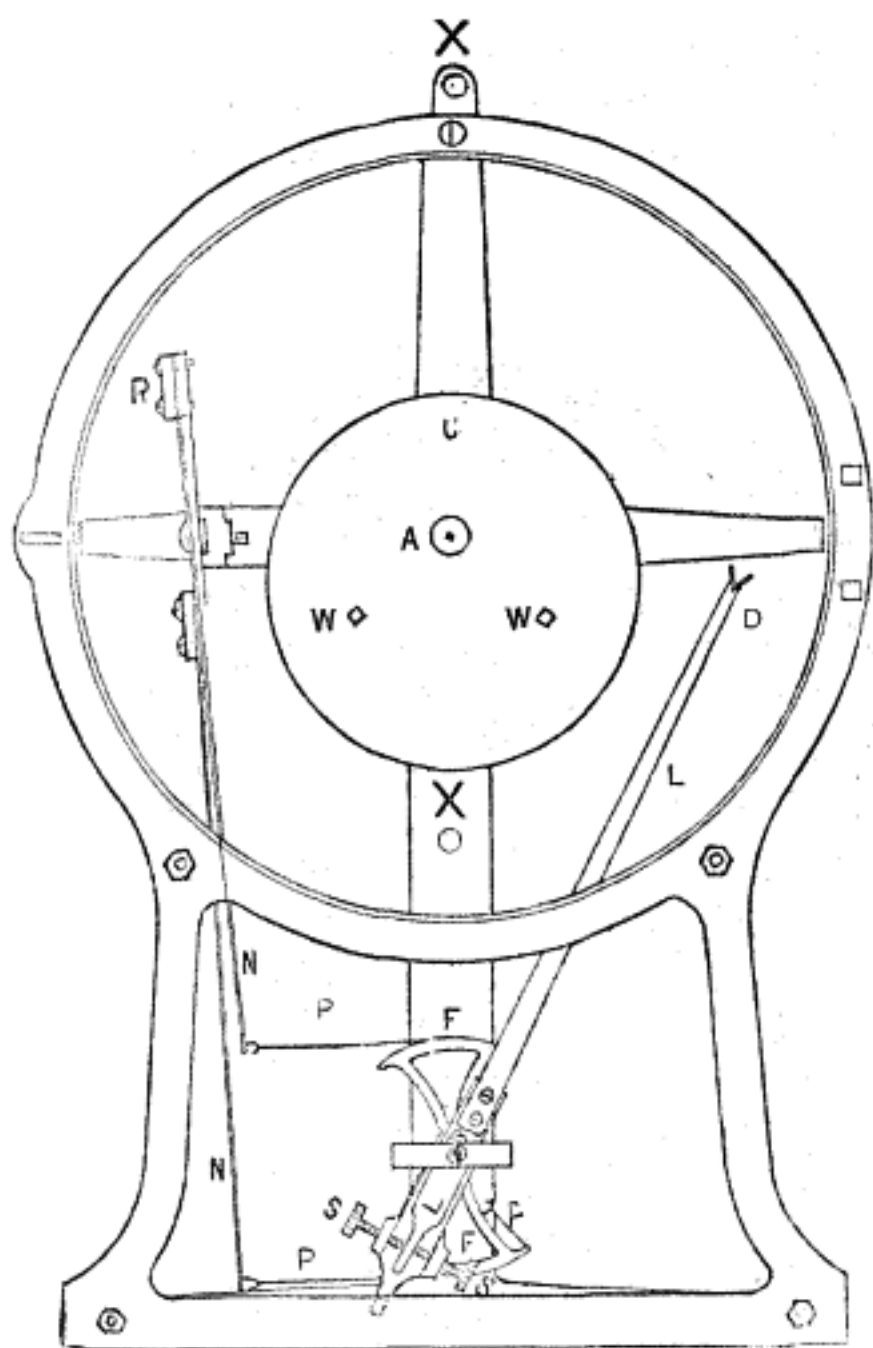
The parts open to view are simply the record dial and the lever which carries the pen. The sheet, which is renewed every



week upon the record dial, is ruled in concentric circles about the hub which attaches the dial to the clockwork. The circles are ruled at just such a distance apart as to represent degrees on the Fahrenheit scale. Space is provided on the sheet for recording temperatures as low as  $-15$  deg. or as high as  $110$  deg. If the temperature falls the pen is

drawn towards the hub; if temperature rises, thrown farther away.

If the record dial and the entire glass front of the case of the instrument be removed the working parts will appear as shown in the following diagram :



The large circle containing the letters *C*, *A*, *W* represents the eight-day clock which causes the record dial to make one revolution per week. *A* is the arbor supporting the dial and fitting the hub shown in Fig. 1. *W* *W* are clock winding arbors. To the left of the clock are the thermometer strips *N* *N*; the attachment of one is shown at *R*. These strips are compound bars made by fastening a strip of brass beside a strip of steel. The upper bar (nearest the clock) has its steel side towards the clock; the other bar (the lowest one in the figure) has its brass side towards the clock.

The lever *L*, carrying the pen *D*, is pivoted near its lower end. Attached rigidly to this pivot, and thus controlling the movement of the lever *L*, are the sectors *F* *F* connected to the thermometer strips by platinum wires, *P* *P*.

Suppose the temperature to rise, this will cause the strips *N* *N* to expand—the brass expanding more than the steel will cause the upper bar to curve towards *F*, slacking the upper platinum wire *P*. At the same time, from the same cause, the lower bar will curve in the opposite direction, pulling on the lower platinum wire *P*, thus giving the sectors a right-handed rotation, and hence carrying the pen farther from the centre, causing it to record an increase of temperature. If the temperature falls the movement will be reversed.

*S* *S* are set screws, allowing the pen lever to be adjusted.

Comparing readings obtained from this instrument with a standard mercurial thermometer, shows it to give fairly accurate results.

At a meeting of the class of '91" the following resolutions were adopted :

WHEREAS, An all-wise and kind Father has deemed it best to call away our highly respected and esteemed member, Albert H. Warner; therefore be it

*Resolved*, That in the death of our late classmate, we have lost a member who, by his faithfulness to duty and his genial manner, had won the friendship and admiration of all;

*Resolved*, That we, as a class, extend to his bereaved family and friends in their deep affliction our heartfelt sympathies, and that a copy of these resolutions be published in THE SPECULUM.

W. O. HEDRICK,  
ALGERNON SWEENEY,  
CHAS. WEIDEMAN,  
*Committee of Class of '91.*



## Elizabethan England.

GEORGE S. JENKS, ECLECTIC SOCIETY.

In 1558 England, weakened by internal dissensions, particularly on the subject of religion, was not in the front rank of European nations, and was in no condition to contend with other nations. She required an energetic monarch to raise the nation from its low place to the highest, and such a monarch she received in Elizabeth, who ascended the throne at her sister Mary's death. Elizabeth had been well educated and under such influences that she was well qualified to take the throne. The young queen had many things to contend against and many things to do to make a new England out of the old. The manufactures were not such as would be expected of a country like England at that time, and the commerce had not been developed to any great extent. No great advancement in these had been made before her reign. The first great trouble she had to cope with was religion. Her sister Mary had been a Catholic, while she was a Protestant; thus two opposite forces were put in motion on Elizabeth's accession. During Mary's reign cruel persecution followed everyone not a member of the established church, of which the Pope was the recognized head. These cruelties were stopped by Elizabeth, who also re-established the supremacy of the throne in religious matters. Freedom in religion being thus established, England was enabled to make a great advancement in learning, commerce and manufactures. Elizabeth's methods in all matters were those which were best for the country, and she followed those methods throughout her whole reign.

Soon after Elizabeth's accession England was threatened by foreign enemies, but, by her diplomacy, Elizabeth was enabled to gain time from them and to put England in a fair state of security. However, France, England's principal enemy, again threatened the

country, and again war was delayed by diplomacy. Elizabeth was now very popular with her subjects, and to show her power she made her high claims of her prerogative which angered the Puritans, a sect that had arisen soon after her accession, and had declared themselves in no way subjects of the Pope. The Puritans, believing that the queen had no such rights as she claimed, started the "Spark of Liberty," and tried in all ways possible to be elected to Parliament, in order to prevent her from having supreme power in England. In 1579 they felt bold enough to claim liberty of speech; but both houses soon submitted to the power of the queen. The Catholics at this time were doing everything in their power to hinder Elizabeth and to put Mary, Queen of Scots, on the throne, so that the queen had severe laws passed against the Catholics and then against the Jesuits and Popish priests. In 1588 war arose with Spain and the Invincible Armada was sent to destroy the English seaport towns and to carry soldiers to invade England. Then was seen the effects of Elizabeth's reign. England had no navy, but in an incredibly short time Elizabeth was enabled to bring against the Armada ships manned with the most experienced seamen in the world. The Armada was destroyed partly by the English and partly by a storm arising on their passage home.

During this reign trade had been carried on with other countries, and even the trade of Muscovy was secured from the Czar and held for many years. This encouragement of commerce was beneficial to the country as well as to the companies owning the ships, inasmuch as Elizabeth could use the ships, if need be, as her navy. She granted patents to monopolies as one way of encouraging trade, but that was so obnoxious to the majority of the people, that during the session of Parliament in 1601 the queen abolished the most oppressive patents.

Elizabeth died in 1603, having reigned forty-five years. During her reign England

still retained some barbarous practices, among which were the star chamber and rack, used in trials, and martial law used to preserve order. However naval enterprises were encouraged and many discoveries were made, principally in the Western Continent. She also encouraged home manufactories.

The greatest thing for which England is noted in Elizabeth's reign is the literature. During the reigns of the bigoted monarchs preceding Elizabeth's time nothing of great importance could be written, as only a few were educated; but in her reign everything tended to produce great writers; the language had been fully established, and the printing press successfully used, so that it is no wonder that amid such influences great authors should arise. This age produced some of the greatest writers the world has ever seen and writers whose works have had a powerful influence on succeeding times.

Poor people were numerous in Elizabeth's time, and the first law for their relief was enacted about 1567: but they were also affected by the prosperity of the country, and their condition was much improved before the end of Elizabeth's reign. The people during this age began to build their houses more for comfort than for protection, and great improvements relating to household conveniences were made. The common people also advanced in learning. Elizabeth's reign will always be distinguished from its predecessors, by the advancement in freedom of religion, progress of learning and growth of commerce. It was notably the age of discovery.

— The first botanical species discovered by the late Asa Gray belongs to the Grass Family, and is common through the Northern States from Maine to Wisconsin. Its Latin name is *Panicum Xanthophysum*.

Josh Billings says: "The best medisin I kno for the rhematiz is to thank the Lord it ain't the gout."

# THE SPECULUM.

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AGRICULTURAL COLLEGE, SEPT. 10, 1888.

WELCOME '92. The opening of another college year brings with it a large class of new students. We are glad to welcome them to our ranks, and hope that they may enjoy their college life, so prosperously begun. There is no epoch in the experience of man of so much importance as his college days. His habits are formed and his character is molded and settled. The acquaintances made at college are life-long, and we may always expect to find a man in the same kind of society which he kept while at college. A great many young men in entering do not realize this, and it is to their misfortune.

They regard this most important step too lightly, and are apt to think rather of the pleasure and excitement to be derived from college life than of the sober, earnest work that is to be done—the only kind that ever shows any results. The true object of the student at college is to broaden his intellect and make mental fibre, not to shirk through his work, and on graduation just succeed in grasping his “sheepskin,” as if that were the only end to be sought for and accomplished. We hope that there will be no hazing in the College this year. At best, it is but mean and cowardly, a “relic of barbarism,” and we are proud to say that there is a growing sentiment in College against it.

SOCIETY men please mark. There is one thing in regard to THE SPECULUM which we desire to impress upon our students. A college paper is always an index, in some respects at least, of the life, habits and social, as well as mental, status of the students at the college. In other words, we are judged by our paper; hence the necessity of careful, painstaking work on every sentence that goes into THE SPECULUM. We urge the societies to furnish their best men for this work. Let them choose with reference to *ability*, and not select a man because he may be “a jolly good fellow.” The success of our paper lies right here. Choose good men and let them write and re-write their articles until all glaring mistakes, at least, are eradicated. Do not put the work off until the last moment, when haste is necessary, but begin early and do the work well. Send in readable copy, for blind writing and poor punctuation are inexcusable, and cause much trouble to everyone concerned. Since THE SPECULUM has become a monthly it is particularly necessary for all those concerned in its welfare to do their work well and have everything *on time*.

COMMENCEMENT, with all its excitements, has come and gone, and another class has been ushered forth into the world to try its metal under new surroundings. The term examinations were all finished Friday, August 10th, and the Olympic Society opened the festivities with its banquet which was held that evening. Saturday was spent as quietly as could be expected considering the amount of suppressed excitement among the students, some of whom were soon to graduate and others to return home. Sunday was a beautiful day and at two in the afternoon the Chapel began to fill. At half past two the crowded room turned expectant eyes towards the doors through which came the class of '88, in single file, headed by its ladies, and took its place near the rostrum which was beautifully decorated with foliage plants. Music was furnished by a quartet from Lansing and the devotional exercises were led by Rev. C. H. Beale of that city. The subject of President Willits's Baccalaureate address was “Gifts and Bribes.” For over an hour he held the undivided interest of his audience with the deep thought and careful illustrations of his address. It has called forth many words of praise, and those who heard it will long remember the discussion. In the evening a fair-sized audience heard an address on “Unwritten History” by Mr. James G. Inglis of Saginaw. This address was delivered particularly to the members of the Young Men's Christian Association under whose supervision it was. On Monday many of the students went home, and those who remained were actively employed in preparing for the various society banquets, and for Tuesday's exercises. On Monday evening the Delta Tau Delta and Phi Delta Theta Fraternities and the Union Literary and Eclectic Societies held their banquets. Every one seems to have spent a very pleasant evening, which, strictly speaking, extended itself well into Tuesday. Tuesday,



as far as weather was concerned, was all that could be desired. Armory Hall was filled with seats facing towards a platform constructed for the purpose on one side. The building was neatly decorated with evergreens, flags, colored muslin and mottoes—that of the graduating class being “Where Duty Leads.” It was tastily arranged above the platform. At ten o’clock the large auditorium was crowded, and the State Board of Agriculture followed by the class of ’88 numbering thirty-two men, took its place upon the platform. Excellent music was furnished by Speil’s Orchestra and the devotional exercises were led by Rev. E. H. E. Jameson of Lansing. The following orations, which space will not allow us to give in full, were then delivered by members of the class.

“The Spirit of the Age,” H. B. Cannon; “Accomplishment or Equipment,” Mary L. Carpenfer; “The Mission of America,” L. C. Colburn; “Zeal without Knowledge,” F. H. Hall; “Does it Pay to Seek Wealth,” Mary L. Harrison; “Obedience to Law,” W. M. Munson; “Shakespeare’s Manliness,” W. A. Taylor, “Science and Practice of Agriculture,” Geo. L. Teller.

Music was generously interspersed. At the close of the orations President Willits gave a short address to the graduating class, after which came the conferring of degrees. As the class and audience arose to receive the benediction those present couldn’t help feeling that this was a fitting close for four long years of study and work—a reward, in one sense, for duties well done. At two o’clock the graduating class and their friends gathered in the chapel, from which the seats had been removed, to partake of the class dinner. About two hundred persons were present, and the affair was very successful. After due respects had been paid to the repast President Willits, who officiated as Toast Master, arose, and after a short speech, proposed the following toasts:

“Class of ’88,” responded to by Mr. Geo.

F. Stow; “Our Alma Mater,” by Mr. Clark Hubbell; “Our Sister Colleges,” by Prof. Knight of Oberlin College; “Our Faculty,” by Dr. R. C. Kedzie; “Why I leave My Alma Mater,” by Prof. L. H. Bailey, Jr.; “Our Honored Alumni,” by Rev. O. Clute of the class of ’62.

At five o’clock occurred the reception by President and Mrs. Willits at the President’s residence. A large number of persons were present, and everyone enjoyed the afternoon. In the evening a large audience gathered in Armory Hall to listen to the class exercises. The music was all very good, and especial praise should be given to the Glee Club. Herbert E. Harrison read a history of the class of ’88, in which was related many amusing incidents, especially those occurring in the freshman year. The class poem was delivered by Mr. Henry Thurtell, and the oration by Mr. N. S. Mayo. Mr. A. B. Cordley read the class prophecy, foretelling the weal and woe of the members of the class. Harrowing in the extreme will be the fate of some of the unlucky members, while others rejoice under a load of good prophecies. Mr. J. C. Stafford read some very surprising statistics regarding ’88, some of which stretched our imagination almost to the breaking point. Mr. J. N. Estabrook, in his president’s address, spoke of the bright future of the class, its last sad farewell to its Alma Mater, and of the pleasant days spent at College. A class meeting and informal hop followed the exercises. With the day the history of ’88 as a College class was forever finished. We shall miss them in our societies, in our student meetings, in athletics and in all places where stalwart, hearty, hard-working men were wanted. Yet we are proud of them as Alumni, and we know that many of them will make their mark in the world, and we shall be proud to say of them “They were students of the Michigan Agricultural College.” Wednesday was devoted to the exercises of the Alumni organization, which are reported elsewhere.

## COLLEGE NEWS.

Need rain.

The lawns are turning yellow.

The Veterinary Museum lately received several specimens.

Seventy-eight freshmen have been classified and five were rejected.

There are about forty Sophomores working in Farm department this term.

Mr. Burnett of '91 got three of his fingers on his left-hand badly mangled while cutting ensilage.

The flower garden is in a fine condition now, and many visitors come here every day to see it.

Miss Harrison resigns her position as assistant librarian, and goes to the school for nurses in Detroit.

The twenty-nine varieties of potatoes grown on the experimental plats will yield a very fair crop of fine tubers.

Messrs. Lake, Steward and Lodeman, during vacation, sailed from M. A. C. to Lake Michigan. Time, one week.

Mr. Maynard, Professor of Horticulture in the Massachusetts Agricultural College, was on the grounds August 23.

The museum has just received from Northern Minnesota a fine specimen of a caribou or reindeer, which is being mounted.

Mr. Osburn, Professor of Horticulture at the Iowa Agricultural College, spent a few days at the College just at the close of last term.

Ridpath's History of the Civil War, 3 vols., and Comte De Paris's History of the Civil War, 4 vols., are now to be found in our library.

Mr. Holdsworth is making some fine drawings to illustrate Dr. Beal's reports for the State Forestry Commission on Succession of Forests.

Mrs. Nellie Kedzie, Professor of Domestic Economy at the Kansas Agricultural College, spent most of her vacation visiting Dr. Kedzie's people.

The frost did some damage here a few nights ago. The squashes, melons and cucumbers were killed, thus rendering the experiments of no avail.

Miss Abbot, daughter of ex-President Abbot, has been chosen by the State Board as librarian, to fill the place made vacant by Mrs. Carpenter leaving.

Students have an excellent opportunity of studying the beef producing qualities of the different breeds of cattle in the steers found in the Experiment Barn.

Until this term psychology has not been taught at the College for some time. We have a good class in it this term, and all seem to like the study very much.

Abbot Hall, named in honor of ex-President Abbot, was dedicated Wednesday, August 15. The exercises were conducted by Rev. Mr. Clute, a graduate of '62.

We are proud of the boys of '88. We are glad that

so many of them have been retained at the College, because they merit the positions they were called to fill.

A valuable Shorthorn cow, weighing 1,700 pounds, died September 1. The result of the post-mortem examination by Dr. Grange was that the cow probably died of blood poisoning.

The Sophomore class has elected officers as follows: President, Samuel K. Boyd; vice president, A. J. Gordon; secretary, H. H. Doty; treasurer, C. J. Weideman; marshal, C. J. Cook.

The steers on the farm, which have been fed for the purpose of testing the beef producing qualities of the different breeds, will be exhibited at the State Fair and at The Chicago Fat Stock Show.

Professor Taft will place on exhibit at the State Fair specimens of all the oddities and peculiar plants which are to be found in the Horticultural department. There will be but a small exhibit of fruit from the College this year.

Young men, enter ye in at the front door of Abbot's hall and ye need have no fear, but whosoever climbeth up and entereth in through a window, and when the master cometh taketh refuge in a closet, ye shall have curses rained down in torrents upon your heads.

Mrs. W. J. Beal, Miss Jessie Beal and Katie Cook spent several days during vacation visiting friends near Devil's Lake. They attended a farmers' picnic held at Devil's Lake, where they listened to a very interesting address by Mrs. Perry Mayo on Monopoly. She is the mother of Mr. Mayo of '88.

President Willits lectured to an audience of 7,000 at the Grand Ledge picnic, and had an audience of 15,000 at Whitmore Lake. The subject of his lectures was, Land and Population. President Willits declined six invitations to speak at farmers' picnics during vacation. The President and his wife spent one week of the vacation at Whitmore Lake.

The experimental work with ensilage on the Chemical Department began August 25. Samples of corn are cut each Saturday and left to wilt till Monday when fresh samples are cut, and the two lots cut up separately with a hand cutting-box. A portion is then dried for analysis and the remainder put into casks to form ensilage for analysis in the winter. A comparison will then be made of its feeding value with that of the original fodder. One hundred and fifty tons of ensilage will be stored in the silo on college farm this season.

Dr. Kedzie has just returned from the Experiment Station at Grayling, bringing with him samples of the soil and specimens of eight different kinds of plants raised there this summer. As all eyes are now turned with interest to the experiments which are being made at the station on this heretofore condemned sand, we give the names of the different kinds of plants, the average height and the period of growth. This will enable those who are acquainted with the plants to form something of an idea of what can be done on the

soil, and under adverse circumstances; for there has been only three showers since the seeds were sown. The seeds were sown the first of June on new land and the plants were pulled August 31. Spurrey 16 inches high, alfalfa 20, Hungarian 24, millet 24, June clover 6, mammoth clover 6 to 18, vetch 12 to 18, yellow lupine 10 to 12. The alfalfa and the vetch have very thoroughly covered the ground. Specimens of the plants and samples of the soil on which they were grown will be placed on exhibit at the State Fair.

List of machines made by the students in the iron shop to be exhibited at the State Fair: One 15-inch Turret lathe, one 15-inch engine lathe, one 12-inch engine lathe, 48-inch pattern-maker's lathe, one improved bench lathe for wood-shop, 25-horse power engine, two three-horse power engines, and quite a large number of small tools. All machines to be running when on exhibition. The work under construction at present: One boring bar with sliding head fed by a feed screw running along the bar. The sliding head is fitted with two feathers, which slide in grooves provided in the bar. It is obvious that the bar will, in consequence of its rigidity, take out a much heavier cut than would be possible with any boring tool, and furthermore, there being four cutters they can be fed up four times as fast as would be possible with a single tool or cutter. One 12-inch engine lathe, two wood lathes and grinding attachment for lathe, all under way. A blacksmith is employed in the afternoon to take charge of the blacksmith shop, so as to relieve the foreman in the iron shop, there being forty-eight students in the latter shop.

#### LIBRARY NOTES.

The new catalogue case made by the students is a very convenient addition to the library furniture.

Since our last issue the walls of the library were whitened and a tasteful frieze and moulding put up.

Two cases are to be placed at right angles to the cases now in the back alcove; these, with a third case between cases IV and V, will make room enough for some months to come.

The library is open from 8 to 12 A. M., 1 to 6 P. M. and 7 to 9 P. M., five days in the week. Saturday it is open from 8 to 12 A. M. and from 1 to 5:30 P. M. Sundays open from 10 to 12 A. M.

The Experiment Station library is forthcoming, English, German and French packages on the way from New York, and American books are already here as far as they have been found; many works ordered are out of print and scarce.

A great many books are being secured through exchange with other libraries. The Experiment Station library is buying comparatively few books not already in the main library. There will now be a chance to get a book to use, heretofore one copy hardly went around a class.

Some misunderstanding seems to exist about the use of keys. The library being open sixty-six and one-half hours a week, the public ought to be able to

do its work without asking personal favors of individuals who have keys for their own personal use only. A holder of a key may introduce and show through the library any stranger asking admission. He may bring into the library any member or members of his own family or any one visiting him. He may bring for special instruction any student in any class which he teaches. He must not lend his key to "his uncles nor his cousins nor his aunts" nor his daughters nor his sons, nor his servants, nor to any one whomsoever.

#### PERSONALS.

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

'67.

H. H. Jennison is farming at Eagle.

'68.

A. G. Gulley of South Haven is recovering from his illness resulting from sun-stroke last summer.

'69.

James Satterlee is now traveling salesman for D. M. Ferry & Co., of Detroit.

'71.

Frank A. Sessions is cashier of First National Bank of Ionia, Mich.; he has held that position since 1880. He is also somewhat interested in farming and in other enterprises. He is, and expects always to remain a Republican and a protectionist, consequently he is for Harrison and Morton this fall.

'73.

Ransom M. Brooks, who has been farming at Lyons, is confined to his bed by illness resulting from imprisonment in Andersonville during the Rebellion.

WITH '73.

Dr. J. K. Gailey is practicing medicine in Detroit.

WITH '78.

Rutherford P. Hayes is teller in the Savings Bank of Fremont, Ohio.

'81.

C. W. McCurdy is now Professor of Biology in the Winona High School, Winona, Minnesota. He likes his position very well. The high school is a new one and well fitted up. Professor McCurdy's department has just received \$3,000 worth of new appliances. His lecturing room is larger than Dr. Kedzie's here.

A. B. Turner has taken the principalship of the Burr Oak schools for next year.

'82.

Professor L. H. Bailey sailed for Europe, August 27.

John P. Evert, Superintendent-elect of the Mendon schools, has been chosen as a member of the St. Joseph County Board of School Examiners.

WITH '82.

Frank E. Lodeman is in Saxony, traveling for his health.



'83.

Prof. Allen C. Redding has been spending part of his vacation at Bangor, Mich., whither he went after the alumni reunion.

WITH '83.

Park P. Nelson was married to Miss Dimmie Fletcher on August 15 at the residence of the bride's parents at Taylor, Mich. Mr. and Mrs. Nelson will reside at Ann Arbor after October 1.

'84.

Orel C. Hershiser keeps account of '84 boys for the next three years.

J. D. Hill intends to practice law at Bryan, Ohio.

Warren D. Barry is U. S. surveyor at Salt Lake City.

Michitaro Tsuda is secretary to the Prime Minister of Japan.

Colon C. Lillie has been engaged as principal of the Coopersville High School for another year. His farm is conducted upon the principles he learned at M. A. C. Of course it surpasses his neighbors' farms.

'85.

T. D. Hinebauch is with Dr. Sutton of Kalamazoo, practicing veterinary.

'86.

Joseph B. Cotton expects soon to open a law office in Duluth, Minn. Before leaving Indiana, he expects to stump Noble county for Protection to American manufacturers, Harrison and Morton.

H. Jenner is clerking in a drug store in Allegan.

Charles Lawson recently took a trip to Duluth.

WITH '86.

Fred Rogers is loan agent at McAllister, Kansas, and is doing well. He recently visited his home in Holloway, Lenawee county.

'87.

George Hume is in Washington Territory. He is spending his time cogitating and teaching school. For recreation he indulges in such light literature as Shakespeare's Dramas, and Olney's Calculus.

Guy Arnold is farming near Allegan.

Coie L. Himebaugh takes the grammar department of the Burr Oak schools next year.

H. W. MacArdle will teach in the Homer schools next year.

WITH '87.

Guy E. Drew has recently returned from California and is now at his home near Three Oaks, Mich.

'88.

Dale A. Smith was on the College grounds, September 1.

W. M. Munson is studying practical horticulture down in the Peach Belt.

Miss C. L. Harrison has gone to Detroit to study at Harper Hospital.

At the home of the bride's parents, Arlington, Mich., on the afternoon of August 21, Mr. Luke C. Colburn to Miss Mary Schermerhorn, the Rev. A. B. Cochran

of Bangor officiating. Frank Hall had the pleasure of being "best man." Among the gifts was an elegant marble mantel clock, surmounted by a bronze figure. The clock bears on its back the inscription, "Compliments of the class of '88, M. A. C." Mr. and Mrs. Colburn left on the evening train for Grayling, Mich., where they have their future home, and where Mr. Colburn teaches next year. A long, useful and happy life to the new firm.

Frank J. Free called on college friends September 2. He is at present farming with Charles Whitmore of '87, two miles south of Lansing.

WITH '88.

Herbert Thurtell intends to enter Ann Arbor this fall to study medicine. During the last year he has been teaching at the Allouez Mine, Keweenaw county.

F. M. Ambler has been clerking in his father's drug store during the summer vacation of the University. He will return to Ann Arbor this month, and will complete the course in pharmacy next summer.

H. R. Case will study civil engineering at Cornell this winter. He is at present working at civil engineering at Sioux City, Iowa.

To Will Hannaford of Solon, Leelanaw county, a boy.

WITH '89.

John J. Howard is working at home on the farm at Iosco.

H. J. DeGarmo is at home working on the farm near Muir.

Will Needham is firing on the Michigan Central construction train. He was at the College a few hours on September 2.

WITH '90.

James Berry recently took the examination for West Point at Bay City, but failed to get the appointment. He called on his old friends at M. A. C. a few days ago.

D. W. Bradford is head draughtsman at the Detroit Electric Light works.

Bert Axford has been spending part of his vacation in Lansing.

J. P. Lockwood is at home on the farm, Marshall, Mich. He is preparing to take a herd of Shorthorns to the State Fair.

Albert Finsterwald has lately been attending the Detroit Business College.

Chas. Lewis graduated in January from the Detroit Business College, and has since been working for Buhl & Co., hatters, Detroit.

W. A. Fox is principal of the school at Wawaka, Indiana. He intends to return to M. A. C. next spring.

WITH '91.

J. T. Ashton, Jr., is in Nebraska regaining his health.

F. B. Moore will teach in Noble county, Indiana, next winter, and return to M. A. C. in the spring. He expects to complete his course with '92.

ATHLETICS.

Athletic sports, as yet, have not acquired the enthusiasm of last term, as several of the most energetic students in this line have graduated.

In a few days, however, as soon as the class in gymnastics is organized, a new impetus will be given to them. The freshmen appear to be taking a great interest in sports; there being several fine athletic fellows in the class. To such we would say, if there is any one thing that you can do better than anything else just practice up on that sport, and carry off a memento or medal next Field Day.

In this way only can M. A. C. keep up her reputation of being second to no other College in the State in manly, physical strength.

The great triumph of the ball team this season was in winning the series of games between M. A. C., Albion, Olivet and Hillsdale, thereby gaining the College championship of the State.

Since Field Day the team has played three or four minor games. The full score of two are given:

Owosso vs. M. A. C., Howell, July 4.

OWOSSO.	ABR	BH	PO	A	E	M. A. C.	ABR	BH	PO	A	E
Wright, c.....	5	0	1	3	1	Burnett, 3 b.....	6	4	6	1	1
Wolverton, p. ...	5	0	0	0	4	Cordley, r. f.....	6	2	5	1	0
Shaw, 3 b.....	5	0	0	3	0	Canfield, p.....	6	1	1	1	5
Carr, c. f.....	4	0	0	1	0	Chase, c.....	7	3	2	5	2
Brewer, 1 b.....	3	2	0	7	0	Stack, s. s.....	5	3	2	4	2
Sullivan, s. s.....	3	0	1	5	0	Rittenger, 1 b.....	7	3	1	9	1
McArthur, 2 b....	3	1	0	1	0	Weideman, 2 b....	6	2	3	3	1
Roth, l. f.....	3	0	1	1	0	Morris, l. f.....	5	2	1	0	0
McCarty, r. f.....	3	0	1	0	0	Stockwell, c. f....	5	3	2	1	1
	34	3	4	21	5		49	3	22	24	11

	1	2	3	4	5	6	7	8	9	R
Owosso.....	0	0	0	0	2	0	1	0	0	3
M. A. C.....	4	2	1	3	3	3	2	2	3	23

Earned runs—Owosso, 1; M. A. C., 12. Base on balls—Owosso, 3; M. A. C., 2. Passed balls—Wright, 4; Chase, 1. Struck out by Wolverton, 4; Canfield, 7. Two-base hits, Chase. Three-base hits, Chase and Burnett. Time, two hours.

Universities vs. M. A. C., Agr'l Coll., June 23.

UNIVERSITIES.	ABR	BH	PO	A	E	M. A. C.	ABR	BH	PO	A	E
McMillan, 3 b.....	6	1	2	3	4	Burnett, 3 b.....	5	0	2	2	3
Jayne, c. f.....	6	2	2	2	0	Smith, c.....	4	1	0	8	2
Marker, jr. f.....	6	1	0	0	0	Vance, s. s.....	4	1	0	2	5
McDonald, 2 b....	5	2	3	3	8	Chase, c. f.....	4	0	0	2	0
Codd, p.....	5	2	2	2	7	Canfield, p.....	4	1	2	0	8
Booth, c.....	5	1	0	6	4	Cordley, r. f.....	4	2	1	0	0
Wilkinson, l. f...	5	1	3	1	0	Bulson, 2 b.....	3	0	0	3	4
Duffy, 1 b.....	4	1	1	0	0	Stockwell, l. f...	4	0	1	2	0
Scott, s. s.....	5	1	2	0	2	Morris, 1 b.....	4	0	0	10	0
	47	13	15	27	25		36	5	6	27	20

	1	2	3	4	5	6	7	8	9	R
Universities.....	2	0	5	2	2	0	0	1	1	13
M. A. C.....	0	0	0	2	0	0	1	2	0	5

Base on balls, Bulson, Duffy. Left on bases—Universities, 4; M. A. C., 4. Struck out—Canfield, 6; Codd, 5. Passed balls—Smith, 1; Booth, 1. Two-base hit, McDonald. Three-base hit, Canfield. Time, two hours. Umpire, K. D. Keyes.

COLLEGES.

Johns Hopkins will probably be removed to Clifton just outside of Baltimore, in accordance with the will of its founders.

Columbia now offers instructions in Sanscrit, Zend, Pehlevi, Hebrew, Biblical, Armaic, Syriac, Arabic, Assyrian and Ethiopic.

Among the scholars of all nations who were honored by the doctor's degree from the University of Bologna, were the following Americans: James Russell Lowell, David Dudley Field, Professor Adams and Professor Agassiz.

The Yale faculty has passed a law forbidding the use of intoxicating liquors in any of the societies of that institution. It is a wholesome move, and will probably prevent any of the societies from being raided for dispensing liquors as was done at Harvard recently.

At Amherst the examination system has been entirely abolished, and a series of written recitations given at intervals throughout the term at the option of the professor, has been substituted. This order of things is highly satisfactory to the students, and takes away the custom of cramming, which examinations held at long intervals are sure to foster. Class honors at the end of the course are awarded in accordance with the total average grade of a student for the whole four years' course. This plan might be adopted very beneficially in other colleges.

EXCHANGES.

The *Monmouth Collegian* would be much improved in appearance by a cover.

The *Oberlin Review* contains some interesting facts on its growth for the last five decades.

The *McMicken Review* comes to us for the first time, and we welcome it.

The *Colby Echo* is a very interesting paper, and it contains a fine exchange column.

The *Aurora*, Iowa Agricultural College, contains some fine articles on "Principles of Political Parties," "Mount Vernon," and "Thinking; What is it?"

The commencement number of *The Fordham Monthly* is a fine journal. Besides much literary work it contains much of interest to the Alumni and friends of the College. It contains the portraits and sketches of the lives of its presidents.

One great fault with many of our college periodicals is that they are defective in certain important departments. Many of them do not contain exchange departments. If this department were established in each journal, we would receive more benefit from them and they would be more evenly divided.



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