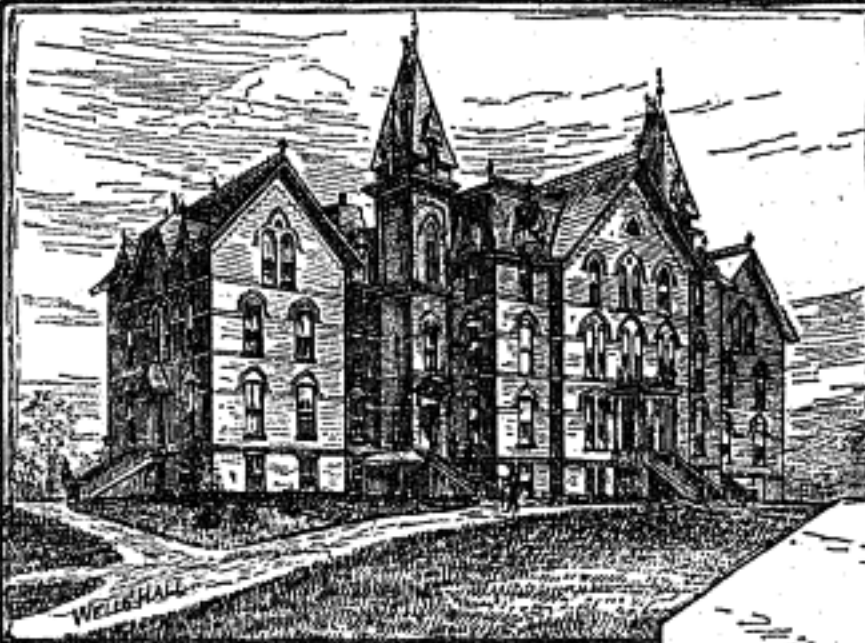


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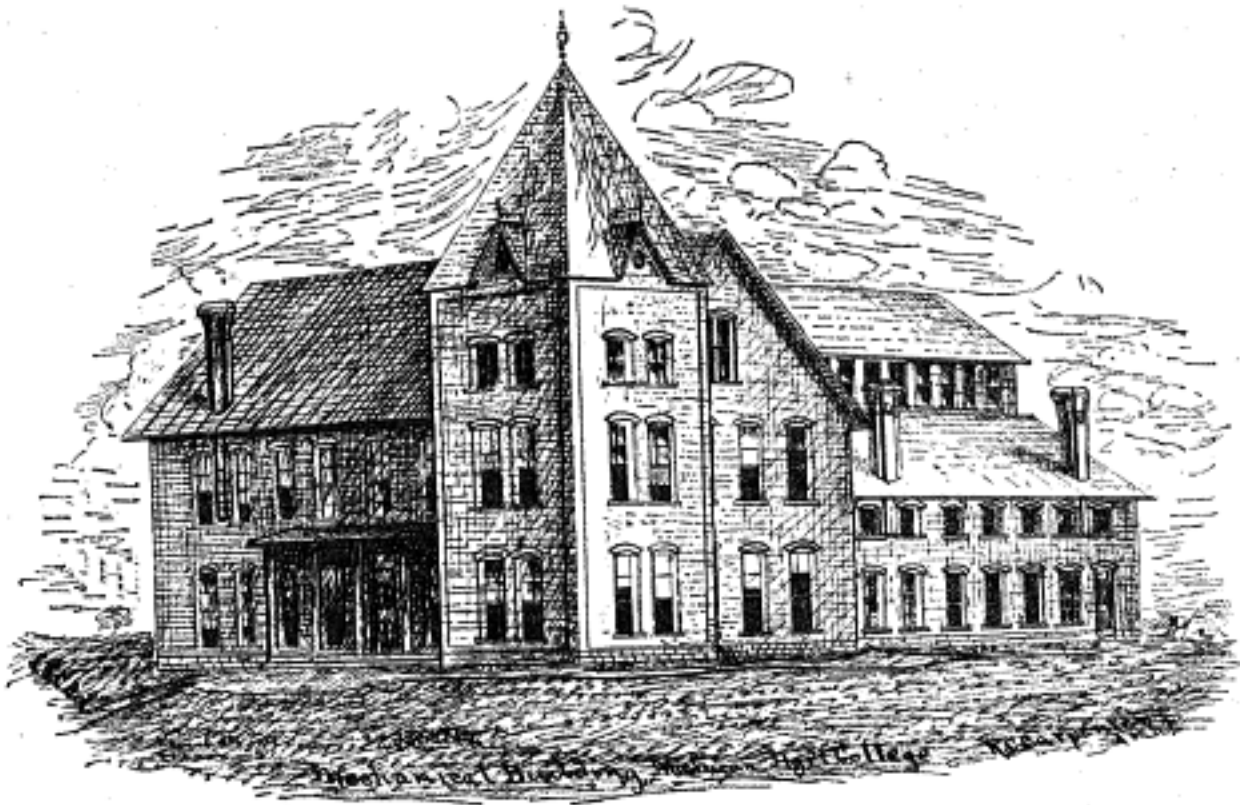
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THE COLLEGE SPECULUM.

VOL. V.—No. 1.

AGRICULTURAL COLLEGE, MICH., AUG. 1, 1885.

WHOLE No. 17.



THE MECHANICAL DEPARTMENT.

The above cut is a view, as it will appear when completed, of the new building for the mechanical department, which will be known as the building for the mechanic arts. It is intended to accommodate classes in mechanics and drawing, as well as to form a workshop for students in the course of the mechanic arts. The north portion of two stories consists of class rooms, the south of the shops. The portion devoted to class purposes is in plan forty by sixty-four feet.

The first floor consists of a recitation and lecture room, thirty-six by thirty-six feet, for the class in mechanics, which is connected by wide folding doors with the mechanical laboratory, a room twenty-four by thirty-six feet. In the tower is a pleasant study fifteen by fifteen feet for the professor of mechanics, opening directly into the laboratory. The laboratory will be used for the purpose of experimenting in physics and mechanics, and to a certain extent in the manufacture of physical apparatus. It is in direct and easy communication with the shop.

On the second floor is a drawing room thirty-six by forty feet, with closet attached with conveniences for making blue prints of drawings. There is also a designing room twenty by thirty feet to be used for preparing drawings to be used in the construction of tools or machines in the shops.

The room in the tower, similar to the one below, is entered from the hall, and being in communication with the design room, will be used by the superintendent of the shops as his office. The design room also connects directly with the shop by a door opening into the gallery of the latter. The rooms in this

part of the building will be amply supplied with blackboards.

Above these rooms is a garret of equal dimensions connected with the shops, which will be used as a lumber and store room.

The remaining portion of the building consists of the wood and iron shops, fifty by sixty feet on the inside. These are divided into two rooms by a light wooden partition. The north room twenty-seven by fifty feet, will be used as a wood shop, the south room, thirty-three by fifty feet, as a machine shop. On each side of the shop is a gallery fifteen feet in width, which will be used for bench work. In the center a space twenty feet wide is open to the roof. Besides the windows in the sides the shop is lighted and ventilated by those in the upper portion, and for its cost the shop is believed to be as convenient and well lighted as any in the state. Frames twelve feet apart support the clear story, and are sufficiently heavy to support a ten-ton traveling crane.

The building was designed by Prof. R. C. Carpenter, and the drawings made principally by students under his direction. The building is located on the site of the old piggery, and is to be completed by November first, so that the equipments will be partially in place by the beginning of the next spring term. It is being built by Fuller & Wheeler of Lansing, who took the contract for \$7,800.

As this building does not provide rooms for blacksmithing or foundry work, which must be taught, an addition of a temporary shed may be necessary, which will be removed when money is obtained for permanent buildings for these purposes.

Detailed information can be found in circular issued.

The New South.

J. R. NEWTON, DELTA TAU DELTA FRATERNITY.

While this term is certainly applicable in many respects, yet it is misleading, as are a great many articles written under this heading. It is through these that northerners, capitalists, and foreigners get exaggerated ideas of southern progress. Writers magnify the new, forgetting the Old South, with all its influences, many of which still affect, and will for years to come, the very life of those people.

To one who would learn of the development of a country's resources, there is no better place to study than its markets. In this section, a large part of which has a favorable climate with vast resources and every variety of production, one would expect to find a self-sustaining people. Yet we find anything but that. Even after being engaged two hundred years as an agricultural people they are not able to feed themselves with productions grown upon their own soil. The bulk of hay, grain and meat consumed is produced hundreds of miles from the consumer, when it could be grown with less cost at home. Neither is the south supplying its own tables with half the small fruits, vegetables, and dairy products that are needed, nor with a thousand other little home productions which go to make up a thrifty people.

"Oh," the southern man will say, "we do all this in our way." This is the very point; the way makes the difference between the Old South and what we hope the New South will be. It is a self-evident fact, that until people can feed themselves most economically from their own resources, they have not made very much progress.

It is their lack of business knowledge, their loose system of conducting affairs that hinders and retards every industry of the South. Take their systems of measures and weights, as applied to their farm products. Long forage, wood, and the like, is sold by the wagon load. Small fruits, vegetables, and chickens are sold by the pailful or by the size of the fowl, or by any measure merely guessed at. All over the South, cities and towns with from two to four thousand inhabitants will have no bakeries, market gardens, nor dairies. The facts in the case are, the masses in neither city nor country have learned how to live, except in a hand to mouth sort of way. Even farmers who own land and teams, and especially those who rent them, including the negro population, will send grist to mill upon horseback, and never do they prepare a year's stove-wood at one time. The judicious use of time and the principles underlying labor and capital are so poorly understood, that men who have money, lands, and a market at their very door are buying bread. It is only through the liberality of mother earth that such farmers live at all. It certainly is not due to the application of their skill to the resources of the South that they do not starve.

As the masses engaged in diversified agriculture are non land owners it will be interesting to examine the system under which they operate. The entire business is conducted upon a credit basis, involving three parties, the merchant, farmer, and laborer. Now, as the merchant supplies corn, hay, meat and groceries, and the farmer furnishes the tools, stock, land and seed, all must be secured by a lien upon a crop not yet planted. If the tenant possesses implements and stock, these are usually mortgaged for the year's supplies. Binding contracts are made, but, notwithstanding, more or less litigation comes from the conflicting effort of all the parties trying to manage the farm operations when neither

are competent. While there is a steady improvement in this, the trouble is, the farmer has all his money buried in untilled lands, and the working people have nothing except their daily labor to invest. Instead of the capital employing the labor, improving it, and giving it personal supervision, this rental credit system widely separates both, thereby destroying their successful operation.

This bungling method is applicable, not only to the farmers, but to every line of business in the south. In the cities the business men seem to be having a good social time all the while. Here, as on the farm, it takes two to do one man's work. Still it is gratifying to know that the southerners see their failures, which nothing less than the freedom of the white man has made possible. In the construction of railroads the South, by the aid of outside as well as home capital, is making telling progress for the country's good.

The southern coast lines, passing from the north through Virginia, the Carolinas, Georgia, Florida, and Alabama, have opened up great lumber-bearing regions for the truck farmer and fruit grower; so now they are beginning to compete with their northern brethren. While this is going on in the southeast, the middle and northeastern lines connecting Cincinnati, St. Louis and Chicago with Tennessee, Alabama and Missouri, have entered the coal and iron regions, so that these states are now supplying iron goods at such rates as materially to affect these industries in other coal and iron bearing regions.

The cotton factories are causing, not only a revolution in the cotton trade, but a greater diversity of industry, which is necessary to sustain a manufacturing people. Still with unparalleled resources in the way of climate, soil, timber, coal and iron, with magnificent streams running from the mountains of Virginia, Tennessee, the upper portion of the Carolinas, Georgia, and Alabama—with all this, constituting a fertile belt for grain and stock-growing, fringing the upper edge of nearly every cotton state, and their cheap labor, we are compelled to say these important industries which should be transforming the raw materials are yet too largely in New England and the northwest.

The reasons for this will be seen to be due largely to southern systems of education. These systems have been determined by the demands of the people, which have been very different from the northern demands. Scientific, mechanical, and industrial courses have not been included in any of their past educational institutions to any large extent, although the number of colleges probably exceeded those of the northern states. From a failure in these directions the South has suffered and will continue so to do for a long time to come. The idea that each little town that can raise ten or twenty thousand dollars must found a college makes education so cheap that it is almost worthless except in name. This superficial training results in flooding the country with a class too lazy for the common things of life, and without brains enough for the professions.

We would give these people justice so far, that up to the war, and even since, state institutions have been opened largely to a favored few. So with everything changed and a sudden awakening to the needs of education for the masses; with limited means and without forethought that wisely combines money and efforts for the future, a mushroom growth of institutions has sprung up all over the South. Few great schools, very few, combining all the equipments in the way of buildings and apparatus, and men who are known to be great educators, have been founded.

Next we will look at the public district school system. Although in operation in every state there is such a mixture of old educational systems as to seriously retard the work in this line. While cities and towns are just beginning to have graded schools, the country is not yet divided so as to have a central school in each district. This results in poor, promiscuously scattered buildings and schools, with no special town or district tax for school purposes borne equally by all.

The general state school tax in most of the South supports the schools only from four to six months during the year, and this is usually paid six months or a year after the labor of the teacher has closed. This necessitates, if a term is taught longer than is paid for by state tax, the collecting of wages from each patron by the teacher personally. It follows from such a system that irregular schools are kept, sometimes none, and that an indifference, the fruits of which will tell against the uplifting of the masses, results.

It is through these loopholes in the fortifications of the South against demagogism, that political thieves have crawled into power and hold sway under the cloak of an honest democratic administration as well as under the republican. But there is an encouraging outlook in the elevation and broadening of the political conscience of the South. The great advance in the temperance cause, has produced a mighty change, until now a generation of leaders and rulers is being reared by the common people of the south. Marvelous and wonderful strange are the workings of the institutions of man overruled by a far wiser God. That race, through which came institutions making a blot on our fair history and bringing ruin, and showing that the South was no longer capable of ruling, has by combined circumstances and elevating influences begun to fall in with the southern white man's interests. Both have changed, until now the South is making rapid strides toward the regaining in a certain degree of lost political power.

It is certainly true that under so many favorable circumstances for increase in population, more representatives and electors will be sent from the South. If, as predicted by politicians, this results in anything like a balance of power, will their building as a part of a harmonious nation stand the test of time, or will they again strike with their increased strength another blow at American freedom? These are questions coming forward for us to settle. The pioneers of to-morrow will tell us of the results.

Choosing an Occupation.

A. L. NICHOLS, ECLECTIC SOCIETY.

Many of the young men in our colleges are prone to attach too little importance to the thought of what business they are to engage in after they have finished their college course. They are too apt to think "there is time enough to choose an occupation after I have finished my course here," and forget that every man is the architect of his own fortune, and that the architect always has a plan for his building before he lays the foundation.

In building for life it is as important for a person to have some idea of what that life is to be before laying the foundation as it is for the mechanic to understand the nature of the house which he is to erect. Each may build to suit the foundation and take the risk of having the structure which he most desires; but it is far better to lay the foundation to fit the edifice. In the one case it will be a work of

chance, while in the other, method lessens the labor.

At no time in a young man's career is he more in need of a clear and decided mind, and of a thorough knowledge of his own capability, than in choosing his future calling. After he has decided upon his course in life his success will depend only upon his ability and his perseverance, but in choosing he is to act for his whole future life.

Many are content to drift along without any aim in life until the necessity of doing something stares them in the face, and then they take up whatever seems to be nearest at hand. As a result they are not fitted to carry on any business successfully, while if they marked out the path they intended to take and then followed it, keeping their eyes fixed ever on the goal toward which they were striving, they might have stood well up on the ladder of fame. Not that a man must give up all studies save those which will instruct him in his chosen profession, for that would be but a narrow education; but he must endeavor to perfect himself in that one. Life is short and it takes years of study to thoroughly master any subject. No one, then, can hope to become equally proficient in all. He must be content to thoroughly understand one or two, or else become a Jack at all trades and a master of none. By becoming a master of any one trade he may become of some use, not only to himself, but also to humanity, while by having a smattering knowledge of each he can do good work in none.

Do not seize upon anything which appears easy to you, without taking into account other questions as to its desirability, for many pursuits that seem easy have little else to recommend them. Thoroughly canvass the field of possibilities and see what is best suited to your nature. If you discover anything which suits you, then study it carefully in all its bearings, consult with leading men of that profession, and read what others have said of its requirements. Then ask yourself, "Am I capable of doing all this successfully? Can I become a leader here, or must I be content to rank low if I make this my choice?" If you can make a success of it then see if you could enjoy it, or whether you would soon tire of such a life and long for a change. To succeed in any calling a person must possess some love for his work. The success of all our great men depends not more upon their ability than upon the fact that they are engaged in pursuits which inspire them with an enthusiasm for their work.

When you find an occupation which fills all your requirements, accept that as your choice. Do not hesitate because it is not quite so much looked up to as some other, for it is better to be a first-class mechanic than a third rate lawyer. The one will rise in his profession and become an honor to it, while the other will not only live in misery himself, but will be a disgrace to the profession which he ought to honor. False pride has fed many a man on a crust, while by humbling his pride he might have risen to distinction.

We cannot all become Websters or Clays; but we can all live to some purpose, and make life the better for our having lived, if we only start in the right direction and then do our best. We must remember that "there is always a place at the top," and then select some profession in which we will stand a fair chance of reaching that position.

We hear every day of men who were born lucky and who succeed in whatever they undertake; but there is no work of chance connected with it. If you were to read the history of their lives you would find that they richly merited their success. They chose

an occupation which they could master and then gave up their whole time to that. What appears a chance is simply the natural outgrowth of their labor. In the spring they planted the seed for their great work, and now when we see them gathering their bountiful harvests we imagine that it has always been thus with them. And thus it ever is in the battle of life, success crowns those who win her garlands, and if you would win renown, seek some profession in which you can work with a will, and then put forth all your energies, or, as a modern writer has forcibly expressed it: "First see that you are all right, then go ahead."

The Scientific Tendency of the Age.

T. D. HINEBAUCH, UNION LITERARY SOCIETY.

The Latin and Greek languages reached their highest perfection during the age of Augustus Cæsar. Since then they have gradually declined, until at present they are known only in theory and not in practice. The greatest writers of the English language lived in the fifteenth and sixteenth centuries. Since then we have had no writers who would favorably compare with Shakespeare, Bacon or Milton; but science has gradually advanced from Bacon's time until the present. At no period in the world's history have scientists been greater or more numerous than at present.

The wants of the greater portion of the people are met by the products of science and not of classics. In fitting men to supply their wants, scientific education is most valuable. The merchant, the mechanic, and the agriculturist do not want a course of study which fits them merely for public speakers; but they want an education that will enable them successfully to battle with the great difficulties of life.

By glancing over the recent catalogue of colleges we see that the demand for scientific studies is greater than for the classical, and so quite a number of the leading institutions of learning have made radical changes: even conservative, classical Harvard having recently made great additions to the scientific courses. Other colleges have from time to time annexed mechanical or scientific departments, and schools of technology, until nearly all the prominent institutions of learning have some one of these forms, or a modification of one connected with it.

The advantages to be derived from a scientific course are many and of much more importance than those to be derived from a purely classical course. Nearly all industrial pursuits are founded on some branch of science. The machinist looks to the scientist for inventions that will enable him to perform a greater amount of labor, or perform the same amount at less cost. These inventions are often the result of the most perfect calculations of all branches of mathematics involving a thorough knowledge.

Science tends to facilitate the commercial intercourse between different parts of the world, by bringing them in closer relation. This is effected by means of the various forms of telegraphy and facilities for speedy transportation from one part of the country to another. These inventions have been the result of the most careful study of the scientific principles on which they are based.

True, there are many inventions that are the result of the labor of uneducated men, or men who have a limited knowledge of the scientific principles upon which their inventions are founded; but that is no sign that these men might not have produced greater results had they received the benefit of a scientific

education. The greater number of our inventors have had such an education fitting them for their work.

At the present day any education is incomplete unless partially secured through scientific studies. The scientist is the person who commands public attention. He has a greater field for labor than the classical student. The old saying, "There is nothing new under the sun," applies most strictly to the classical studies. While there may be nothing new in realms of science, there is a vast field for the discovery of laws that may have existed for ages, but are still unknown. Geology well illustrates the progress of science. It is but a few years since that study came into college curricula. In the last decade great progress has been made, and a great many phenomena that were formerly regarded as inexplicable, are now easily explained by geological discoveries.

The truly educated man is the man educated in the sciences. He, only, can account for the great daily occurrences of life. To him they are not mere problems which he is unable to solve, but problems from the solution of which he derives much pleasure and satisfaction. The sciences properly studied, reveal the wonderful complication and grandeur of nature, the invariable relation of cause and effect, the vastness of the universe beyond all human comprehension, and thus they lead the mind to adore and reverence the Creator.

SCIENTIFIC.

The American Association for the Advancement of Science.

This famous association holds its next meeting at Ann Arbor, beginning Wednesday, Aug. 26, and lasting for a week. This association was organized in 1848 as a successor of the association of Geologists and Naturalists organized in 1840. Its object is to promote intercourse between scientists, to give a stronger and more general impulse and more systematic direction to scientific research, and to procure for the labors of scientific men increased facilities and a wider usefulness. It has become of great importance in American science, scarcely a recognized scientific man in America but is a member. Meetings are held annually in different parts of the Union, and the various localities vie for the honor of having the meeting. One previous meeting has been held in Michigan, that of Detroit in 1875. There were then 804 members, now there are nearly 2,500. The attendance varies according to locality and the inducements for attendance.

In its actual work the association is divided into nine sections which proceed independently of the others. These sections are as follows: Section A, Mathematics and Astronomy; B, Physics; C, Chemistry; D, Mechanical Science; E, Geology and Geography; F, Biology; G, Histology and Microscopy; H, Anthropology; I, Economical Science and Statistics.

The chairmen of the sections for this year are: Section A, J. M. Van Vleck of Middletown, Conn.; B, C. F. Brackett, Princeton, N. J.; C, W. R. Nichols, Boston, Mass.; D, J. B. Webb, Ithaca, N. Y.; E, Edward Orton, Columbus, Ohio; F, B. G. Wilder, Ithaca, N. Y.; G, S. H. Gage, Ithaca, N. Y.; H, W. H. Dall, Washington, D. C.; I, Edward Atkinson, Boston.

Each day is begun with a general session of the association for business purposes, after which the sections meet, usually having both a forenoon and an afternoon session. During the first day the chairmen of the sections each gives an address on some subject connected with the section, usually the results of his own investigations, or a review of the progress in that portion of science. In the evening is the address of the retiring president, this year by Prof. J. P. Lesley of Philadelphia. Programs are published each morning, giving the papers to be read in each section during the day. If one does not wish to confine himself to one section, he goes from section to section so as to hear those papers he desires to. Uninteresting or technical papers are read to nearly deserted rooms. As the time approaches for some celebrated man to speak the room fills by those drawn thither by interest in the subject, or out of curiosity to see the man.

An annual volume of proceedings of some five hundred pages is published. This is received by all members. It contains the addresses of the presidents of the association and sections and some other papers of great importance in full, but most of the papers are published in abstract only.

Other societies, or rather special clubs, meet in connection with the association, and at the same time. Thus a botanical club and an entomological club for those members especially interested in these branches have been formed, and will meet the day preceding the general meeting of the association, or on Tuesday, Aug. 25. Likewise the association for the promotion of agricultural science, consisting of forty of the most prominent agricultural investigators in the country, meets on Tuesday. Many of our graduates should be especially interested in attending this meeting. It is to our credit that one-fourth of its members are graduates or professors of this college.

While doing a good deal of hard work the association does not intend to overlook things that will add to its pleasure. While some of the evenings are devoted to lectures, some of them are given up to receptions, lawn parties, and the like. Excursions are given to points of interest free to members, and Saturday is devoted to that special object. This year an excursion to the Saginaw Valley has been arranged to visit the great lumber and salt industries of Saginaw and Bay City.

We may count ourselves fortunate in having this meeting so near to our doors, and we shall have much to regret if it is not taken advantage of by all who can possibly attend. The advantages are not confined to the specialist, but every one interested in science, and especially the student, will find it of interest, and will derive there that inspiration which will make itself felt through all the remaining years of his life. We may read a man's books, but after having seen him those books bear a very different character. Obscure places are full of meaning, and the printed page now seems like living words. It is only by personal contact with him as we see and judge of his character, that we are raised by his ideas and penetrated by his love for science, that love of truth for its own sake, which must be the basis of every truly scientific character.

The State Board of Agriculture has appreciated the importance and benefits of this meeting, and in consequence have lengthened the vacation one week for the special purpose of enabling those connected with the college—not simply the professors, but the students as well,—to attend the meeting. They have wisely recognized the fact that while this takes a

week from our fall studies, yet in a broader education and in the spirit attained, a benefit is derived which is worth dropping all college exercises for, that which will render future studies to those who attend of such livelier interest and greater benefit that no one week of one's college course can be said to be so fruitful. We would strongly urge every alumnus and every student who can possibly go to do so. He may be assured he will have nothing to regret by so doing.

Unlike the British association the meetings are open to all who desire to attend, whether members or not, but the special privileges are extended only to members. The conditions of membership are exceedingly liberal. Practically any one who desires to join can do so. His application must be endorsed by two members which, when passed by the standing committee, is voted on by the general association. The fee for entrance is \$5. The annual fee is \$3. Both are paid the first year. These payments entitle one to all the privileges of membership, and to the valuable proceedings, which are published annually.

THE COLLEGE SPECULUM.

Published Quarterly—August, October, April, and June.

BY THE STUDENTS

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AGRICULTURAL COLLEGE, MICH., AUG. 1, 1885.

WITH THIS NUMBER of the SPECULUM the new board of editors greets the public. We were somewhat surprised at being placed in this responsible position, and cannot account for it except it be through the ignorance of our supporters. However, we are here, and find the work must be done, and we have it to do. We agree with our last board in that we did not come here to edit papers, and that to do justice to both paper and studies is almost an impossibility. However, we recognize the fact that the experience to be gained will be of much benefit, and so assume the responsibilities with this in view. The SPECULUM has just finished a very creditable year and we earnestly hope it may continue in the same manner. Time

alone can tell. As a safeguard against disaster we ask for the hearty coöperation and good will of the students, faculty, and alumni, and we will endeavor to do our part.

THE LAST number of the SPECULUM was due June 1, but as was noticed it did not appear until July 1. We have no excuse to offer for this tardiness, but censure the editors for crowding our work of two months into one. We have endeavored to collect our material in time to issue the first number of volume V, August 1, for, if put off, a large part of its value, especially to the alumni, is lost. So if any matter is omitted we must be pardoned on account of thus being hurried.

THE FINANCIAL condition of this organ is not encouraging. Although the success of a paper depends largely upon its contents and its management, it also depends upon the good will with which the paper is received by its readers. Now we do not wish to force this paper upon any person, but trust that the SPECULUM may prove itself worthy the subscription of every alumnus, every past member of the College, so that we may be sure of the paper entering the homes of all who have an interest in the College. Let all remember their subscriptions at once that the SPECULUM may start out on its new year with a solid financial foundation.

THE QUESTION as to why more of our young men do not attend college is attracting much attention throughout the United States. The attendance in many of our larger educational institutions is perceptibly diminishing, and the reason for it is not readily explained. Some have brought forth the argument that knowledge of Greek and Latin being required to enter most of the colleges causes many young men to remain at home. Others claim that too much time is required to finish a course; and still others bring forth a more plausible reason—that of expense.

That a college education is at the time expensive no one can doubt; that the expenses are diminishing many are inclined also to doubt, for it is a plain and undisputed fact that the expenses of attending many of our highest colleges and universities have nearly doubled during the last two decades. With this increase of expenses is noticed a decrease of attendance, hence it is natural to conclude that college expenses do tend to keep men out of college. But we do not wish to argue that the charges should be lessened, for it seems as though they are in most cases as low as they can be, and there is a question as to whether it would be best to make education free, for out of students who have to work hard for their education come the men of most influence in the land. Yet we are ready to admit that much of our college expenses are extravagant and extremely unnecessary.

President Willits hit the nail on the head, when in chapel recently he advised the students of this College to avoid unnecessary expenses, especially during commencement, when the tendency is to go to extremes in class dances, banquets, and other like indulgences. We trust his remarks will be heeded, so that classes that are to graduate in the future will not feel it their bounden duty to make a display as grand as the class that precedes. Below we give the expenses of attending a number of the important institutions in the United States. Some of the facts have been taken from a recent number of the *New York Independent*, while others have been obtained by direct communication:

	ANNUAL ROOM RENT.		WEEKLY BOARD.		TUITION.	ANNUAL TOTAL EXPENSES.	
	LOW-EST.	HIGH-EST.	LOW-EST.	HIGH-EST.		LOW-EST.	AVERAGE.
Amherst.....	\$18 00	\$125 00	\$3 00	\$3 00	\$100 00	\$350 00	\$500 00
Boston Un.....	60 00	120 00	3 00	8 00	36 00	200 00	300 00
Bowdoin.....	50 00	50 00	2 75	4 00	75 00	390 00	500 00
Brown.....	20 00	40 00	3 00	5 00	100 00	350 00	500 00
California Un.....	30 00	100 00	4 00	9 00	.....	250 00	500 00
Columbia.....	*300 00	450 00	.....	.....	200 00	600 00	800 00
Cornell about.....	.....	.....	2 50	6 00	600 00	300 00	500 00
Dartmouth.....	20 00	40 00	2 50	4 00	70 00	300 00	500 00
Harvard.....	22 00	300 00	4 00	8 00	150 00	450 00	800 00
Michigan Un.....	30 00	80 00	1 50	5 00	.....	175 00	370 00
Michigan Agr'l.....	4 50	21 00	1 80	2 75	.....	130 00	250 00
Oberlin.....	7 50	30 00	2 25	4 00	12 00	250 00	350 00
Princeton.....	27 00	85 00	3 25	7 00	75 00	350 00	600 00
Trinity.....	.....	.....	3 00	6 00	90 00	300 00	500 00
Union.....	.....	||150 00	3 00	5 00	.....	300 00	500 00
Vassar.....	.....	.....	.....	*3 00	100 00	500 00	600 00
Valparaiso N I N S.....	12 00	20 00	1 40	2 50	24 00	65 00	117 00
Kansas Agr'l.....	\$8 50	†21 25	||2 75	||4 00	.....	100 00	200 00

* Room and board. † Room and tuition. ‡ Rooms for self boarding students. || Furnished rooms and board.

The above table shows facts which are conclusive in themselves—that a college education does cost money, much more in some colleges than in others. In the table we have given the lowest and highest room rent and board, and the lowest and average total expenses of attending the different colleges. The highest total expenses have reached in many instances \$3,000, but as the amount is so variable and so dependent upon individual circumstances that we deemed it useless to insert it here. It will be noticed that all in all the expenses at this College are about as low as the lowest. The amounts given do not include any deductions for money earned on the college grounds, but do include all expenses actually incurred while on the grounds. A number of students with what they earn on the grounds and during winter vacations are enabled to pay all their expenses.

The expenses given for the Northern Indiana Normal School at Valparaiso, do not include any side issues, such as society taxes, lecture, fuel, and light fees, and other incidental expenses, and it may be well to state that books are not bought but rented there at 10 per cent of their retail price, thus considerably reducing the total expenses. It will thus be seen that although the expenses in most of our colleges are high, yet there are colleges, and of high standing, in which the expenses are not such as require a whole family to live in want and penury for the sake of giving one child an education.

THE CLUB boarding system has again been in trouble, but the excitement caused thereby has subsided and all the clubs are in apparently good running order.

With the constitution as it now stands and as the State Board intended it should be, all the clubs are in free competition in everything except one thing—the cook's wages. This clause, which fixes the wages at a uniform rate, is of great importance, for without it harmony among the clubs would be an impossibility and the stewards would have forced upon them a task too unpleasant and too burdensome for any student to think of assuming.

With the freedom of the students to move in any club, it was thought would come the dissolution of one of the clubs. But such has not taken place and it is hoped that all clubs may run till next term, when, according to expectations, there will be enough students to run five full clubs. If there are not enough to fill every club to a desirable number then close one club and run the remaining four to their full capacity, thus bringing about a reduction in the price of board in all the clubs. It is self-evident that the more numbers a club has the cheaper can board be obtained, and thus the present "cheap" club, by gaining a large number, can have nearly or quite as good board for two dollars or less as another smaller club can have for two-fifty.

If there is a sufficient number of students to run a club, who can live on a cheaper quality of food, who can do away with pie, cake, sauce and other luxuries, then such students should by all means be allowed to form such a club. One such club has been formed, has nearly reached its limits as to numbers, and is running with apparent success; and now, if there are of the same class enough to form another club, let them organize this term, be in running order at the opening of next term, and so do away with much unnecessary confusion.

Some are much surprised at the higher price of board in the clubs at Wells Hall, but if such persons would investigate the matter we predict an answer for them. It is an undisputed fact that extra meals tend greatly to reduce the price of board, and that club which secures the greatest number of such is sure to have the lowest board.

Now there is one club which is so situated as to be able to gather in nearly all the visitors who come upon the grounds, and board in that club has been and always will be the lowest, simply because the club serves by far the largest number of extra meals. When all the clubs have nearly the same number of boarders, then and not till then can we expect a uniform price of board, and this condition of things we hope to see next term. Students complain of high priced board and think it might be reduced by reducing the quality as well as the quantity, but they forget how essential is first-class food during the years of bodily development. To work with the body as well as the brain as we do here, and at the same

time cut short both in quality and quantity the necessary food, is folly of the gravest kind, the harvest of which will be reaped in the future. Food of such quality and quantity as will conduce to good health and a robust constitution we hold to be of no small importance during our educational career, and all efforts should be made to obtain such and obtain it at the lowest possible cost.

We wish to advance a few thoughts in regard to our so-called high-priced board. Have we in our midst any puny, sickly students? Are half our numbers composed of ladies, whose dainty appetites little is required to satisfy, or are we mainly of that class whose time is spent in purely mental pursuits, with nothing of a physical nature to excite the body to healthy activity, to stimulate the appetite to a desire for good substantial food in abundance? No. We are a class laboring with both mind and body; a class of exceptionally good health and of robust constitutions; a class necessarily possessing an enviable appetite to satisfy which requires an abundance of good, wholesome food. It is this wholesome food and its abundance which we need and which we have that costs from \$2.00 to \$2.50 per week. But is not this cheap when we look at the results? Certainly it is, and let us not injudiciously complain.

THE SLIM ATTENDANCE at morning prayers has been a matter of frequent remark, and many there are who cannot see the reason for such. At one time attendance was made compulsory, that is the roll was called, and the chapel seats were as a rule quite well filled. After a time the calling of the roll was abandoned and soon the attendance began to dwindle. *Although attendance is still compulsory, yet no* measures are taken to enforce it, and as a result those who do not go to chapel from principle do not go at all, so that most of the time there are hardly enough present to make it any object to proceed with the exercises.

Some of our largest colleges, having had for years compulsory rules for chapel attendance, have recently repealed them and made the matter entirely optional. This is all very well in colleges of some 800 to 2,000 students where, whether compulsory or not, there will always be a comparatively large chapel attendance. But in such an institution as this attendance must be made compulsory or we can expect but few present. By all means have morning prayers, and if necessary (and we think it is) make attendance compulsory. Have a faithful choir to lead in the singing, distribute plenty of singing books through the chapel, and thus by making the exercises interesting and instructive, awaken a desire on the part of every student to attend regularly. Furthermore, let our esteemed guardians lead off with an example of regular chapel attendance and we guarantee that the students will follow.

These remarks lead to the subject of our Sunday services. For the past year or two they have been

very poorly attended. Half the time there are not enough present to encourage the minister to speak, while occasionally the seats are pretty well filled.

Now there must be a reason for this state of affairs. Is it because the majority of students are not church goers? It seems hardly possible. Is it because the sermons are dry and uninteresting? Let each one settle this in his own mind. Or is it because the services as a whole are uninteresting and unattractive? Situated as we are, three miles from town and away from all religious influences save what are created on the grounds, it seems imperative that all means should be taken to provoke a religious sentiment in the College, to make the services so interesting and attractive as to allow no one an excuse for not attending.

The first thing of importance in church services is an interesting, enthusiastic, inspiring preacher; one who can rivet the attention of his hearers; who can make his congregation feel that one hour spent in church is of great benefit and not so much time thrown away. Good singing is of inestimable value in Sunday services of any kind. That church which has the best singing almost invariably has the largest congregation, and it is of no less importance here at college. The first requisite for good singing is a well trained choir, and next to this is a congregation that is able to and will fill the air with all-soul singing. But it is demanding too much when we ask a congregation to sing from memory, for there are not many who have a good-sized hymn book stored away in one corner of their brain.

Now, we believe that by a little attention to this matter and an effort on the part of one or two of our leading singers, enough others can be secured who are willing to spend, for a small recompense, an hour or more in practice each Sunday, and thus in a short time a good single or double quartette could be organized. This with the congregational singing consequent upon supplying all with hymn books, would furnish singing of which we might well be proud. Other helps might be added. Although this is not a musical institution, yet there is material enough to form an instrumental quartette or small orchestra, which can join with the singing or render voluntary music as occasion required, and thus materially aid in increasing the attractiveness of our Sunday services.

The above remarks in regard to chapel attendance can hardly be true of the last two or three weeks, for matters of such unusual interest have transpired that nearly every student has felt a natural impulse to attend. But who can tell how long this interest will be kept up, and what will be the result when it subsides? The President has signified a desire to have the members of the faculty attend morning prayers. The students will hail with delight any such movement, and with such an example set before us as this would be, we feel justified in predicting, a full house every morning.

To further increase the interest in these exercises, there is a movement on foot whereby the seniors, and possibly the juniors, will, in the near future, deliver one or more public orations immediately after devotions. This plan, though it would be entirely new at this College, has worked with marked success in other institutions, and it appears to be a plan that is worthy of trial.

THE MORAL standard of the students of any college goes far toward establishing the reputation of that college, and hence the importance of a high standard of morality cannot be overestimated.

We look with pride upon the past history of our College, and notice what a comparatively good reputation it has borne. We have noticed with much gratification the gradual improvement of a number of students and have hoped that such improvement would continue. When the military department was under consideration one argument in its favor was that by wearing uniforms and thus being more easily identified, the students would possess more dignity and feel more of a personal responsibility as to their behavior. With this in view the supposed results were the elevation of moral character and the abstinence from such petty vices which, if known, would lower the moral standard in the minds of others. For such results have we hoped, but it is with much regret that we become aware of the fact that they are not reached.

To be sure the moral standard here is not lower than at other colleges, but that is not the point. Can it not be higher? Cannot each and every student see to it that his character is such as he knows it ought to be, and thus continue to elevate the moral standard of the College? It is with much remorse to ourselves and greater pity for the student that we see him, whom we regarded as standing on the top round of the ladder of morality, all at once lose his underpinning and fall to the bottom of disgrace and shame. Actions that bring about such results not only ruin the future prospects of the man himself, but they throw a mantle of shame over the college which he is attending, and over the family to which he belongs. If it were possible we would like to see such persons reformed in their vicious habits and started anew on the journey of life. But if such is impossible it were better that they leave the College and so not allow their influence to bear upon younger members.

Let us close this article with the heartfelt wish that each student may take the subject home to his individual case and decide at once that it is better to take the good advice of others and so live that he may honestly bear an unstained and enviable reputation.

IN THE last number of the SPECULUM an article appeared from which one would infer that President Willits favored making the labor system elective. Before a recent meeting of the Natural History Society our President made an informal report of his

visit to Washington as a delegate to the convention of agricultural colleges. From this report and from private interviews we learn that he does not favor making labor elective, unless the time arrives when we are so flushed with students as not to be able to furnish work for all. Then arrangements would have to be made whereby part of the students would work a certain period and then another part take their place. In this case some students would desire to work all the time, and thus would our labor become elective to a certain extent. But until that time comes, the labor system at this College will be compulsory, and upon this compulsion depends the success of the system.

Other colleges have adopted this labor system. They make labor compulsory, and are meeting with grand success, and the officers find that it is only by compulsory measures that success can be reached. It is entirely unnecessary to argue upon the necessity of combining labor with study in such an institution as this, nor do we deem it necessary to bring forth any more arguments against making labor elective; but we do believe that if the compulsory rules are strictly adhered to, if no student is excused from work except through physical disability, our labor system will live to crown all efforts toward making this a model Agricultural College.

THROUGH THE energetic efforts of our Professor of Horticulture the rural aspect of the College grounds has been much improved. Many trees and shrubs have been culled out, hundreds have been planted and transplanted here and there, so that the appearance of many places has been so changed as to be hardly recognized as the same. In some places young trees have been set out and years must elapse before their beneficial influence can be felt. Yet this has been an important move in the right direction, and we predict a wonderful change in the beauty of the place within a few years. Since the well at Wells Hall has been repaired so as to furnish an ever-flowing supply of first-rate drinking water, steps have been built to the place of supply and the whole fenced in from the vineyard on either side and the open field below. This is a great convenience and one which should not be taken advantage of. The steps were not built to be used as a lemonade stand, nor was the place so enclosed that it might serve as a public slop bowl. The steps and vicinity are to be used simply for getting water and nothing else.

OUR NEW PRESIDENT assumed his duties a number of days earlier than was expected. On Tuesday morning, July 14, nearly every student assembled in chapel to greet him who but the night before had returned from an official visit to Washington. We were rather on the anxious seat as to what would be the result of our first meeting with one of whom we had heard and read so much, and from whom we were led to expect a great deal. Seldom has there gath-

ered in our chapel such an assembly, whose hearts were filled half with fear and half with hope. Seldom was silence more profound than just as our President was about to utter his first remarks to the students of the M. A. C. But when the deep silence was broken by his stern and commanding yet amiable voice, who can describe the feeling of relief that we experienced? Who can estimate the load that was at once lifted from our hearts? Joy and gladness at once took the place of sorrow and despair, as we recognized the fact that the College had received a new impetus; that it had secured a leader who would carry us through the critical period of its existence. Although no promises were made, yet from what was said all present were simultaneously possessed with the thought that hereafter anything that claimed to be a law would be enforced, and whoever dared to disobey the rules would not go unpunished. With this as foundation, we cannot help being filled with encouraging hopes, and predict a successful future for our beloved institution.

ABOUT A YEAR ago a change was made in the manner of renting rooms, by which the average cost was somewhat raised. This caused some discontent among the students and provoked quite a discussion upon the subject. Now by looking through the dormitories one can easily see the benefit occasioned by this change. The additional amount of money thus obtained has been expended upon the buildings, and as a result there is now scarcely a room but what is in a respectable condition, and many of them are absolutely first-class rooms. Not only have the rooms been thus improved, but also the hallways, and we will take pride in showing our alumni the advancement the College has made in this direction. But now that the buildings are so improved some think that the rent should be reduced, and we agree with them on that point and rather urge such a movement. But one thing must be borne in mind: will the buildings, especially the hallways, long remain in this condition? If they will, a reduction in rent should certainly be made, but there always has been and there is to-day a tendency toward roughness in the hallways, and so long as that tendency remains, just so long must room rent be high to insure the repairing of damages inevitable with such conduct. When football, base-ball, wrestling, and other out-door sports, together with idle scribblers, are confined to their proper places, when a feeling of neatness and respectability pervades the entire College, then and not till then can we expect a reduction in room rent.

POSTOFFICE ADDRESS.—Attention is again called to the fact that a postoffice has been established here, and all mail matter should be directed to Agricultural College, Ingham county, Michigan. Matter not so directed is stopped at Lansing and sent out here with the next mail, but if so directed this unnecessary delay, besides much annoyance to the post-

masters, is entirely avoided. Let every one heed this notice and direct as above.

READERS and subscribers are requested to consult the advertisements of the SPECULUM before making their purchases. It has been the aim of the business manager to procure only such advertisements as will represent the most reliable firms, so that we need have no hesitancy in recommending them.

COLLEGE NEWS.

The
First issue
Of the SPECULUM
Under the new regime.
Have you sen-i-or "tile?"
Commencement August 19.
'85, we bid you a last farewell.
Secretary Baird is still very low.
Mr. President, may I go to town?
Come out and see the cadets drill.
Students, patronize our advertisers.
The freshmen will have no class-day.
Subscribe for the SPECULUM. Vol. V.
We are to have a tent for Commencement.
The Fourth passed quietly at the College.
The draining of No. 13 is nearly completed.
About 90 students are drilling in the cadet corps.
Sixty tons of hay were cut from No. 10 this year.
Faculty meetings are the special order of the day.
Where is our baseball team? Gone to Greenville.
Seventeen seniors are taking quantitative analysis.
President Willits returned from Washington July 13.
Prof. McLouth's house is rapidly nearing completion.
New well at the piggery; 17 ft. deep and 8 ft. of water.
Dr. Grange was called home July 1 by the death of his sister.
Mr. A. L. Bemis with '83 is taking a special course in Botany
Mrs. Ella Baird Knappen is now living at home with her parents.
President Willits will deliver an inaugural address commencement.
A new drive has been made from Wells Hall to the engine house.
Wanted very much by the students—two weeks' vacation in August.
Dr. Grange has been appointed State Veterinarian by Governor Alger.
A new tin roof has been put on the north part of the Chemical Laboratory.
Prof. Johnson's house has been painted and now looks very neat and attractive.
Mr. L. E. Snyder is giving good satisfaction as temporary foreman of the farm.
President Willits begins his administration with the hearty good will of the students.
Mrs. Boardman, daughter of President Willits, has been visiting here the last few weeks.
The pear, plum, and cherry orchards have been pruned, scraped, and washed with soap.
'85 boys are growing fat and lazy. This state of affairs is probably due to hard (?) study.
Class '85 has about reached the summit. We presume it will descend soon after commencement.
Dr. Beal has enjoyed a visit from his sister-in-law, Mrs. J. O. Beal, of Rollin, Lenawee County, Mich.
Lieut. Lockwood lectured July 1 on "The benefits to be derived from military discipline in schools."
The "Union Lits" entertained the North Lansing Grange July 11. They report a splendid time.
One of the unsophisticated freshmen emphatically refuses to analyze his quarto of flowers in botany. He says it is very dangerous fooling around so many *pis-tis*.

Dr. Beal's wife's sister, Miss Proud, has been having quite a spell of sickness but is now convalescent.

Mrs. A. J. Cook visited with friends in Dayton, Oberlin, and Columbus, Ohio, during the spring vacation.

Five "coeds." May many others grace the College with their presence is the wish of the boys of M. A. C.

While on the College grounds Dr. Abbot occupies the suite of rooms formerly occupied by Prof. Harrower.

President Willits will deliver the oration at the exercises to be held in Lansing on Memorial Day, August 8.

Mr. C. P. Gillett, '84, was elected steward of club "B" to fill out the unexpired term of J. J. Jakway, resigned.

Prof. Bailey is endeavoring to interest the residents between the College and the city in decorating their roadsides.

The freshmen are doing good work in Botany. Dr. Beal says that he gives them fewer hard names than former classes.

Prof. Bailey has been engaged by the Massachusetts State Board of Agriculture to lecture in New England next winter.

Dr. W. J. Beal will go to Grand Rapids about Aug. 5, to attend to duties pertaining to the American Pomological Society.

The cat-hole east of the farm house is being drained. We shall expect to see cabbages and cauliflowers growing there next year.

Prof. Johnson reports that the sophomores on the farm are working regularly and with few exceptions are doing good work.

The proceeds from the Apiary so far this season have been about \$110; \$60 from the sale of honey and the rest from the sale of bees.

How beautiful the lawns by the greenhouse! It is indicative of a good deal of efficient work on the part of our able florist, Mr. Knapper.

The sedges collected by Lieut. Greeley in Grinnell Land have been sent by the United States Botanist to Prof. Bailey for identification.

Mr. W. A. Kinnan, '86, was elected business manager of our Speculum for the ensuing year, taking the place of J. J. Jakway, resigned.

President Willits will, as soon as he gets settled, spend his forenoons in his office in the library building, and his afternoons at his residence.

Hollows have been cut in the bank opposite the President's, and the undergrowth cut out in places, to allow passers-by a view of the river.

A junior with a bug net and a bottle (cyanide bottle) in hot chase after the "winged butterfly" is one of the most amusing sights of the term.

The officers' military society meets fortnightly on Monday evenings. The programme consists of essays and discussions upon military topics.

Crops are looking well on the farm; the wheat seems well-filled; and the corn though somewhat small, promises with good weather to yield a good crop.

A new Eureka Mower has been purchased on the farm and is giving good satisfaction. It is a front cut and so arranged that one horse walks in the grass.

Discovered, a new "Mammoth Cave"—when a senior goes before President Willits, bold and fearless as a lion, and—comes away, meek and submissive as a lamb.

Dr. Beal is now engaged in an extensive correspondence with parties in the South with a view of getting specimens of tropical fruits and various other novelties.

The sophomores have chemical manipulations on Tuesday and Friday afternoons from 5 to 6 o'clock. They are instructed by Mr. F. S. Kedzle, assistant in chemistry.

The election of stewards for next term resulted as follows: Club "A," F. R. Smith; "B," J. B. Cotton; "C," T. A. Stanley; "D," W. A. Kinnan; "E," H. S. Thiers.

Twenty-nine Seniors will graduate in August; provided, however, they can obtain enough money to procure Spell's orchestra for class-day and commencement exercises.

The new buildings are rapidly being pushed to completion. A full force is at work, and ere long the Mechanical Hall will be seen towering above the grove south of Williams Hall.

Prof. Bailey will present a paper on "The Geographical Distribution of North American Carices," before the Botanical club of the association, which meets in Ann Arbor, August 26.

Lynn Bonham, '84, is now with us taking a post-graduate course in chemistry. He will remain this term and perhaps next. He is directing his efforts mainly to the subject of Agricultural Chemistry, with a view of taking that up as a life work.

Notice the post-graduate with "racquet;" the senior with "plug;" the junior with bug-net; the sophomore with hay seed on his back; and the freshman with an armload of weeds.

The juniors, after much debating and reconsiderations, have decided not to hold any class-day this year. The expulsion of two of their number somewhat dampened their enthusiasm.

Mrs. Perry Mayo, of Battle Creek, lecturer of the State Grange, visited her son, N. S. Mayo, of '88, recently, and wrote a newsy article in the Battle Creek Call concerning her visit.

Mr. Chas. L. Bemis of '74, and Mr. Chas. W. McCurdy of '81, are taking post-graduate courses in Botany. Mr. Bemis is working on the pumpkin and Mr. McCurdy on the red clover.

Prof. Grange lectured July 15 in the chapel, on the subject of "The Horseshoe." An interesting account was given of its history, and of the superstition attached to it in various countries.

A new boiler has been put in the cellar of the greenhouse, under the main room, and the old one near the propagating room. In this way much more of the heat will be utilized than formerly.

The juniors, as a rule, were well pleased with their short course in Apiculture. Prof. Cook has a world-wide reputation, not only as a bee-keeper, but as a bee master, and is a decided enthusiast.

A gas compression pump has been purchased for the Chemical Laboratory. It is intended to compress the gas used for calcium light experiments, and is the only one in the State outside of Detroit.

J. D. Towar, '85; J. Y. Clark, '85; W. G. Everhart, '86, and L. C. Colburn, '88, under the direction of Prof. R. C. Carpenter, made the detailed plans of the mechanical building illustrated on our first page.

The Botanical Museum is the richer by 54 specimens of Michigan woods, finely prepared and labeled—a donation from C. J. Holmes, of Detroit, the first professor of horticulture the College ever had.

C. F. Lindsley and A. C. Bird of '83, with ladies, visited the College on the Fourth. We also noticed on that day the beaming countenance of J. W. Beaumont, and the familiar form of T. E. Millsbaugh, both of '82.

The Horticultural Department made preparations to give a strawberry sociable to all the students who work on the department. But the strawberries were stolen, and the sociable became one of the might-have-beens.

Both vineyards have been pruned and the vines trained. In the vineyard south of Wells Hall—known as vineyard No. 1—a series of illustrative trainings will be made this fall. All sorts of trainings and trellises will be represented.

On the fourth Prof. Bailey stayed at home and labored diligently sowing buckwheat; while his efficient foreman, Mr. Crandall, dragged it in. This would rather indicate that the Professor and his foreman are not very patriotic.

The following officers were elected by the Natural History Society for the ensuing year: President, G. W. Park; Vice-President, F. C. Davis; Secretary, H. L. Chapin; Treasurer, Mr. L. G. Carpenter; Curator, W. H. Clemons.

Prof. Johnson and other leading agriculturists of the State visited the farm of Judge Isaac Marston of Bay City a few weeks ago. They spent the time pleasantly and profitably in looking over the leading farms and live stock of that locality.

Dr. Kedzie has been invited by the Secretary of the *American Social Science Association* to deliver an address before the association, which meets at Saratoga in September. The Dr. has declined owing to college duties requiring his presence here.

The sophomores will hold their class-day at Bay City July 31. Their officers are as follows: President, H. L. Chapin; Orator, H. S. Thiers; Poet, G. L. Hume; Prophet, J. J. Benjamin; Historian, H. H. Winde; Statistician, F. R. Smith; Toastmaster, J. N. Estabrook.

During vacation Dr. Kedzie, and probably Mr. F. S. Kedzie, will attend the meeting of the American Association for the Advancement of Science, which meets at Ann Arbor August 26. Dr. Kedzie will present a paper on the Promotion of Agricultural Science.

Dr. Kedzie recently received a specimen of ore from Colorado for analysis. It was found to contain a large quantity of Phospho-Molybdate of Ammonia, and five per cent of the oxide of Uranium. It is an unusual mineral specimen, and is much prized by the Doctor.

The last senior speeches have been delivered, and from '85 no more will we hear those charming words of eloquence and worth. The juniors have finished their display of oratory; and '86 feels proud of the compliment given her by Prof. McEwan for her promptness in this direction.

A good many insecticides are being experimented with this term. Kerosene emulsion and pyrethra continue to give good satisfaction. Common gas lime is being used with much success. The "cold water dip," a patent compound made in Baltimore, Md., is a perfect failure.

Interest in base ball has revived of late. The game played July 11, between '87 and '88, resulted in a victory for '87; score 26 to 13. July 13, '86 laid out the aspiring sophs, 24 to 8. Lawson and Gammon were the battery for '86, and Bates and McCulloch for '87. '86 still holds the championship.

The experimental plots of wheat in No. 3 yielded good returns this year. The Wyson, Champion, and Washington Glass are the first three in order of excellence. The San-domiska is also taking the lead. The Bennet variety in No. 6 yielded a good crop. This makes the fourth year that it has been raised on the farm.

Prof. McLouth conducted the chapel exercises during President Willits's absence to Washington. This relieved Dr. Abbot from coming out from Lansing so early in the morning. President Willits, since his return, has awakened an interest in chapel going. We do not know what it is that draws the boys, but they all go.

The College has just received a fine specimen of copper ore from B. B. Smith of '88. It was found in Livingston County, and weighs about 45 lbs. The fact that no copper is found this side of the Upper Peninsula makes this specimen more interesting and adds much to its value. It was brought down undoubtedly by the glaciers.

We hear rumors that several of the seniors contemplate matrimony as soon as commencement is over. We fondly hope that it is without any foundation. It would hardly be the right example to set before the undergraduates of the College. But perhaps it might be in accordance with strict economy, as the commencement suit would do for both occasions.

An iron planer has been purchased for the Mechanical Hall at a cost of \$550. It will be set up at once in the present shop, so that it can be used next term by the students. The new shops will not be completed till about November 1; yet tools will be put in various rooms of the present shop, so that 15 to 20 students can be accommodated by the 1st of September.

About an acre of strawberries will be set by the Horticultural Department this month. The main crop will be produced from Crescents, Bidwells, Sharpless, Miner's, Cumberland and Manchester, but some forty illustrative or test varieties will be planted. The juniors have had instructive labor in potting strawberries. More strawberries will be set next spring.

We notice that Wednesday afternoons rhetorical are generally well attended by the higher classes; but the seats of the lower class men are vacant and staring. Perhaps all do not know that there is a rule making attendance compulsory. We hope that it will be resurrected and enforced; or else dropped, for it is now merely a dead letter on the statute books of the College.

Say, have you noticed the decided improvement in the looks of the orchard this term? The trees have all been pruned, the bodies scraped and washed, and the ground plowed. Where old trees were missing new ones have been set. Prof. Bailey proposes to develop this embryo (?) if such a thing be possible. We hope his efforts will be attended with success, as the orchard has long been an "eyesore" to the College.

The Horticultural Department will build a fire hot-bed this fall. It will be 75 feet long by 6 wide, and heated by hot air from a cheap coal furnace. The earliest vegetables of the season will be grown in this bed. This and the ordinary hot-beds will be situated just east of the low hedge back of the library building. In this position they will be easy of access. It is the purpose of the Department to make the hot-beds prominent features in illustrative labor.

Students and all others on the College grounds have no doubt noticed the general diffusion of bark lice. In fact there are very few trees on the campus but what show the presence of these insects. Many trees are literally covered. There would be little hope for our shade trees next season were it not for the abundant species of insects that prey upon these lice. Nine different species of these parasites have been found, and of 1000 lice examined over 90 per cent have been thus destroyed.

Mr. F. S. Kedzie, assistant in chemistry is doing considerable photograph work, especially in the line of magic lantern slides. At the next winter institutes he will exhibit magic lantern views of the college grounds, buildings, and of the students in different phases. Mr. Kedzie purposes to give variety to the programmes and thus make them more interesting. The State Board has appropriated the money necessary and we are sure the enterprise will be a grand success, as Mr. Kedzie has a splendid lantern.

The woods have come back from New Orleans. Mr. F. W. Noble, chairman of the Michigan exhibits, in a letter to Dr. Beal, says: "Our exhibit was not successful, owing to the fact that the specimens were so small. The successful ones were those made on a large scale with the intention of being left permanently at New Orleans. Hence, they found favor in the sight of the judges." He further states that in quality, classification, and arrangement, our exhibit was far superior to any other made at the Exposition.

A new Marvel windmill has been purchased by the farm department. It will be put on a 50 ft. derrick, where the old one stands. The old one will be placed in the lane south of the Grand Trunk R. R. New tanks will be put in the tank house and at the several barns; and these will be so arranged as to supply the yards with plenty of water from this mill. Tanks will also be placed in Nos. 8, 12, 13, 14, 15, and by use of the mill across the railroad, these fields will be supplied. This will make it much better in pasturing stock.

From the 1st to the 24th of July the freshmen had no regular lessons in rhetoric, owing to the leaving of Prof. Harrower. They were met as often as possible by Prof. McEwan, and assigned work in essay writing. In this way they were kept somewhat busy. At last a teacher in the person of Miss McMahon has been procured. Miss McMahon comes from the Normal, where she is instructress in the same work she is called here to perform. She comes to us highly recommended, and it is hoped that her efforts will be of much benefit to the freshmen.

The College has added several beautiful specimens to its museum; two deer, a mother and fawn, are mounted in most exquisite manner. Also among the number are a gray fox and a long tail duck. This duck from the fact of its tail being parted is often called the "swallow" or "pigeon tail duck" by local hunters. Visitors should not fail to notice the two Ptarmigans, which are not excelled in beauty by any thing in the museum. They belong to the Grouse family and are pure white. These were killed near Quebec, and were presented to the College by Voiselle & LaRose of Lansing.

A man came from Clinton county to see Dr. Beal. He heard that the doctor had offered \$400 to any one who would bring him specimens of wheat turned to chess; so, having nothing else to do, he came over to get the money. The specimen consisted of several heads of wheat and chess growing from the same stool. After the doctor spent two hours dissecting, the man went away without even paying the doctor for his trouble or asking for the money. We would infer that he was satisfied that he had not made the discovery.

The officers of the Young Men's Christian Association for the ensuing year are as follows: President, C. H. Judson; Vice President, W. M. Munson; Recording Secretary, H. W. Carr; Corresponding Secretary, W. C. Hall; Treasurer, W. W. Diehl. There are at present thirty-five active members and seventeen associate members. Devotional meetings are conducted in the association room on Sunday and Friday evenings, commencing at 7 o'clock. Much enthusiasm is manifested by the members in their discussions, and this tends to show that this, the best society, furnishes plenty of employment for earnest, working, Christian students.

Prof. Harrower left College July 1, carrying with him the good wishes of the faculty and students of the M. A. C. During his connection with the College his labors in our behalf were crowned with success. As a teacher he ranks high, and as a scholar there are but few better. We understand he has gone to Germany, where he will enter one of her leading Universities. His intention is to spend the next two years in making a thorough study of several of the ancient languages. We predict for him a brilliant career in his chosen field; and that institution which secures his services in the future will profit much thereby.

Dr. Kedzie was called to Ann Arbor July 16 to give testimony in the case of Blake vs. Cornwell. The defendant in the case had raised the dam at Gettysburg Mills in order to get more power. Complaint was brought by Mr. Blake on the grounds, that the backing up of the water would be unhealthy to the surrounding country. Dr. Kedzie was called to settle the question as to which was the more unhealthy, the backing up of a large or a small amount of water. His testimony went to show that there was less danger in the former than in the latter case. The case was tried by Judge Joslin sitting in the Chancery Court.

The following Seniors are the orators for Commencement: James A. Dart, of Petoskey, Emmet Co.; Richard M. Bates, of Hastings, Barry Co.; Fred L. Chappell, of Cooper, Kalamazoo Co.; James Y. Clark, of Orion, Oakland Co.; Hiram J. French, of Almena, Van Buren Co.; Robert W. Hemphill, of Ypsilanti, Washtenaw Co.; Theries D. Hinebauch, of Vicksburg, Kalamazoo Co., and James D. Towar, of North Lansing, Ingham Co. The Senior class day will be held on the evening of August 18, at the College. Mr. H. E. Thomas, of Middleville, Barry Co.,

will give the President's address; Mr. Charles B. Collingwood, of Boston, Mass., the oration; Mr. Charles H. Hoyt, of Irving, Barry Co., the poem; R. M. Bates, of Hastings, the prophecy; J. D. Towar, of Lansing, the history; P. G. Towar, of Lansing, the statistics, and Edward A. Bartmess, of Buchanan, Berrien Co., as toast master.

The College base-ball team played at Greenville, July 4. From those who were present we learn that it was a remarkably fine game, and though we feel somewhat chagrined over our defeat, we are still glad of our team's record. The Greenville nine is one of the best amateur nines in the state, and therefore we can gracefully and with little regret turn over our hard earned laurels to them. All hail the Greenvilles! The game was called in the seventh inning to allow our boys to reach the train. The following is the score in the several innings:

	1	2	3	4	5	6	R	BH	E.
GREENVILLE.....	0	0	2	1	1	1	5	7	7
COLLEGE.....	0	0	0	1	2	1	4	5	4

For some time this term the College was agitated over a case of hazing of the most aggravated form. At last the guilty parties were found out and the following sentence inflicted on them: Two seniors, two juniors, and one freshman were expelled; one sophomore and one freshman suspended one year, and two freshmen suspended for the remainder of the college year. While these penalties seem severe, they are just and merited. It is the purpose of the faculty that hazing must be stopped, and if the boys will not do it voluntarily, the faculty will do it for them. It is to be hoped that the boys who have thus fallen in disgrace will profit by this hard but just lesson. "The way of the transgressor is hard."

We are informed that the attendance at the alumni reunion this year will be large. Since the last meeting nearly one hundred graduates have gone out from these "dear old halls of learning," making our alumni number over three hundred. To every alumnus we say come back and renew your love for your Alma Mater. List to the song of an alumnus—

"I've wandered round the college grounds
And sat beneath the tree,
That stood upon the river bank,
And sheltered you and me;
And here you are to greet me, cham,
How pleasant 'tis, you know,
To meet on these old study grounds
Of twenty years ago."

H. W. Collingwood, '83, recently made the College a short visit. He was on his way to take a position on the staff of the Rural New Yorker. At the urgent request of the students he gave a lecture in the chapel on "The Agricultural Resources of Mississippi; Her Social and Political Condition." Herb. has been sojourning in the South ever since graduating, employing his time first as business manager of the Stookville Live Stock Journal, and then as professor of rhetoric in a female seminary. His lecture was interesting and well enjoyed by the students. It threw new light on the hazy South, and enabled us to see the lamentable state of affairs existing there. The pervading sentiment of the lecturer was emphatically, "Stick to Michigan as long as hope lasts."

The Alumni held a meeting on the evening of July 24, at which time the following committee for the Alumni reunion were appointed: *Financial Committee and Clerks*, A. C. Redding, Prof. A. J. Cook; *Entertainment Committee*, to have in charge matters relating to board and lodging of the Alumni, F. J. Hodges, L. G. Carpenter, L. Bonham, R. H. McDowell; *Music Committee*, F. S. Kedzie; *Committee on Transportation from the City*, C. M. McCurdy, Frank Robson, James Salterlee; *Committee on Banquet*, C. P. Gillett, Prof. R. C. Carpenter, Mrs. Merrill, L. H. Bailey; *Committee on Alumni Reception*, Prof. A. J. Cook, Alice Weed, Chas. Bemis; *Committee on Programme*, Jos. Coulter, H. W. Baird, H. Holmes.

Our efficient engineer, Mr. James Wiseman, will take the position of foreman of the iron shops. Mr. Wiseman is, perhaps, as well fitted for this position as any man in the State. He served an apprenticeship of five years in the Glasgow Machine Shops; was a journeyman two or three years, and for the ten years prior to 1880 was the chief engineer on one of the largest steamers belonging to the mail and passenger line from England to Calcutta. He left this position voluntarily, because of the complete isolation from his family. He could reach his home only once in seven years. Mr. Wiseman is a man of very temperate habits, not even using tobacco. The students under his charge this term have finished a scroll-saw at odd hours, which new would cost about \$200. It was made at a cost of about \$50. Mr. Wiseman is well read in his line of business, and Prof. Carpenter says he is the best shopman he ever met.

The State Board met at the College July 20 and 21. At the meeting the following business was transacted: Dr. Abbot was granted leave of absence for the remainder of the college year; owing to the meeting of the American Association for the Advancement of Science, at Ann Arbor, August 26, the opening of

the fall term of the College was postponed till September 2; Prof. A. J. Cook was authorized to engage C. P. Gillett, of '84, six months as assistant in his department; Dr. Beal reported that the duplicates of wood in the Museum were no longer of any use to him, and he and President Willits were authorized to distribute them to such colleges as might desire them; Dr. Grange was granted leave of absence from the Institutes next winter, for the purpose of attending the Veterinary College at Philadelphia, on condition that he furnishes a paper which President Willits agrees to read at the Institutes; the understanding is that Dr. Grange shall visit Washington, and there confer with the President on the subject of veterinary science, so that the latter may supplement the Doctor's paper by current remarks inspired by the interview; President Willits was instructed to go to Washington next winter and spend a month there in furtherance of the passage by Congress of a bill for the establishment of experimental stations at the agricultural colleges of the country.

From the circular issued by the American Pomological Society we copy the following:

"The Michigan Horticultural Society having invited the American Pomological Society to hold its next meeting in Michigan, notice is hereby given that the 20th session of this National Association will be held in Grand Rapids, commencing Wednesday, September 9, 1885, at 10 o'clock A. M., and continuing three days.

"All horticultural, pomological, agricultural and other kindred associations in the United States and Canada are urged to send delegations as large as they may deem expedient, and all persons interested in the cultivation of fruits are invited to be present and take seats in the convention. It is expected that there will be a full attendance of delegates from all parts of the country. No effort will be spared to make it the largest and most useful meeting ever held by the society.

"In accordance with an invitation from the State Board of Agriculture, after the meeting the members and delegates who desire it will visit the Agricultural College at Lansing.

"The Society encourages an exhibition of choice fruits, especially new varieties or novelties."

Prof. Cook will deliver an address before the Society, as will also Prof. C. E. Bessey, Marshall P. Wilder, of Boston, is President, and Dr. W. J. Beal is Secretary.

During the past two weeks thousands of circulars have been sent throughout the State, showing the advantages and resources of the College, and explaining its courses of study and its workings in general. We have facilities for 300 or 400 students, and we hope that these circulars will awake in our farmers a greater desire to educate their boys. Now-a-days success in any business depends upon energy and a liberal education. The farmer needs *industrial* education;

And let him, in his search for knowledge,
Think of the Agricultural College,
Where we do work with manly pace
To win our fame and footing-place;
Where we are taught that honest toil
Is worth far more than victor's spoil;
That it alone can give us cheer
To labor on for better year;
To honor those that till the land—
Reflective on our Pilgrim Band.
Labor, study, our life-long lot,
They characterize our earthly spot!
What though the farms that he has tilled
With paying crops his barns have filled;
What though that bank at "Northeast door"
Hath give him checks for golden ore:
Can he in these excuses find
For knowledge aught for unstored mind?
This scholar's field that he may till
And reap a crop if he but will;
And add to this good common sense
And practical experience,
That these advantages combined
May thus prepare his ready mind,
That he may get the greatest gain
"From mingled toil of hand and brain."
'Tis right that, while the farmer's hand
No labor gives his resting land,
Should grasp upon these chances new,
And, with good object e'er in view,
Search long for such as he can find
To train his brain and store his mind.
What though the rusted Scythe of Time
Away hath cut his manhood's prime;
What though his race may near be run—
His lasting progress' just begun!
Onward, upward, he e'er must go,
Or in oblivion sink below.
This rule the farmer ought to know:
"Men gather from the seed they sow."
If in this land of paradise
He sows the worthless seeds of vice,
Thorns, in life's foot-path ever spread,
Will dye with blood where he but tread.
Then let one with a purpose high
Remind thee to new cares defy,
That thou with honor e'er maintain
Thy footing on *life's higher plain.*"

Natural History.

At the meeting of June 12 E. W. Redman presented the following:

The fact that certain plants and flowers have the habit of changing their position from an upright to a drooping or closing form, and vice versa during the change from light to darkness or from darkness to light, was mentioned by Linnæus about 100 years ago, and it has since attracted the attention of other eminent botanists. There are also other movements made by plants besides this closing and unclosing. For instance, you have probably all noticed that by placing plants by a window they soon become inclined to the light. This is owing to the fact that plants grow faster in darkness than in light. The sunflower continually changes its position in order to face the sun. The sensitive plant upon being touched instantly recoils. The clovers are a common example of this sleeping and waking movement in plants.

The specimen selected for experiments was the Oxalis, a plant resembling the clover in some respects. It is a perennial herb with palmately trifoliate leaves and inversely, heart-shaped leaflets. I first noticed the specimen April 6, at 8:15 o'clock A. M. At that time the sun was shining on a part of the plants, while the others were in the shade. Two of the specimens were marked by tying a thread around the petiole of each, selecting one in the sunshine and the other in the shade. Within one-half of an hour the one in the sunshine had made an apparent change from a position at right angles to the petiole to a drooping one, while the one in the shade still remained the same. At 12:30 o'clock P. M. the same day I again examined the same specimens; they were both equally exposed to the sunshine, and had declined to an angle of about 23° from the position which they had occupied in the morning. April 13, at 8:30 o'clock P. M., I again revisited the plants, and found them to be asleep. Each leaflet was folded at its midrib, with the under surface pressed closely together and their edges in contact with the petiole. It was impossible to separate them by merely pulling them apart, for they would instantly spring together again. The next experiment made was by placing a closely-fitting box over one of the plants, thus excluding all light. Upon examination at two different times during the day the plant was found to be asleep. The cause of this movement lies in the active portion of the leaf-stalk, which consists of a tissue composed of thin walled cells, forming in many cases a thickened pulvinus. These cells are filled with water, which is allowed to escape into the intercellular spaces through the layers of protoplasm. These cells then contract, but are soon rendered turgid again by the water being re-absorbed. This process is then continued by the adjoining cells, and so on around the leaf-stalk.

The advantage resulting from this sleep in plants is that by so doing they are enabled to retain the most of their heat during the night.

To prove this theory Darwin tried an experiment on the leaves of the clover by pinning them back so that it was impossible for them to fold together. As a result of this experiment he found in the morning that there was more dew on those pinned back, which goes to prove that there had been more heat thrown off.

Prof. Bailey spoke on Grapes. He said:

The grapes of Europe all belong to one original species, *Vitis vinifera*—"wine bearing vitis." The early colonists to this country endeavored to introduce the European grapes, but the attempts were always signal failures. As early as 1630 experienced French vigneronns were sent to Virginia with a large stock of grape-vines, and three years later William Penn vainly tried to introduce them into Pennsylvania. In 1790 a company of Swiss grape-growers from the vicinity of Lake Geneva colonized in Kentucky and expended a fund of \$10,000 in an attempt to grow European grapes. The failures had now disheartened grape growers, and it was supposed that the climate of America was entirely uncongenial to grape-growing. Nevertheless, the Southern States possess a climate as salubrious as that of many noted grape regions of Europe. It is to the Swiss colony, however, that we are indebted for the first success in American viticulture. They began the cultivation of a wild grape—the Alexander—and they were successful. Since that time close attention has been given to the wild grapes of the country, and all the cultivated grapes of the Northern States have originated from them. Four wild species are common in the Northern States—*Vitis Labrusca*, or fox grape, of New England; *V. Riparia*, our common river-bank grape; *V.estivalis*, summer grape, and *V. Cordifolia*, frost grape. The first three species have given rise to our cultivated varieties. The speaker exhibited specimens of these species, and designated their peculiar botanical characters. It is now known that it is not our climate which forbade the growing of European grapes, but the ravages of a minute native insect, the phylloxera. This insect is not injurious to our native grapes. A few years ago the phylloxera was introduced into Europe, and it is now necessary for

viticulturists there to grow American roots, chiefly of *Vitis Riparia*, upon which to graft their own vines to insure them from attack.

At the meeting held July 24 H. I. Chapin read a paper on Aleurones. He said:

Aleurone grains were small globular bodies found in the ripening seeds of peas, beans, etc. These grains are at first enclosed by a sparse amorphous envelope. Some of the grains contain crystalloids, and are insoluble in water, while those destitute of crystalloids are soluble in water, ether, benzol, alcohol and chloroform. The globules are composed of a double calcium and magnesium phosphate. They do not appear till the sap begins to disappear from the funiculus, and as the seeds ripen the grains appear more and more distinct.

Mr. C. W. McCurdy read an essay on *Fertilization of Plants*. He said there were two processes of fertilization; close or self fertilization, as when the pollen of one flower falls directly upon the stigma of the same flower; and second, cross fertilization, where the pollen of one flower is applied to, and acts upon the stigma of another flower. It used to be taught that in perfect flowers self fertilization was the rule; but now botanists are certain that cross fertilization is the rule, and self fertilization the exception.

This is true of the clovers. Clover plants protected from the approach of insects, particularly bumble bees, have borne seed, but only a small quantity as compared with those plants to which the bees has free access. Experiments had been tried to prove the correctness of the above statement. In this way it was proved that bumble bees were necessary to the fertilization of red clover. The bee in searching for nectar, lights upon the wings and keel in the flower of the pea, and would do the same in the clover, were a single flower large enough to support him. He places his head against the banner petal, and pushes his tongue downward in search of nectar. In the act, the wings and keel are pressed downward, and the pistil which is furnished with little hairs below the stigma to which the pollen adheres, protrudes in consequence. The stigma strikes the abdomen of the bee, and the style also brushes against it. The visit to the next flower is similar. The stigma strikes the abdomen as before, but having been dusted with pollen from the previous flower, a portion of it is retained by the stigma, thereby effecting cross fertilization. The bee usually visits all the flowers in the head before leaving for new fields, and generally in the order in which they occur in the head, that is, beginning with the lowest circle and going round and round the head till the top of it is reached.

Experiments with Protoplasm was Mr. C. L. Bemis' subject. He experimented with the anagallis plant. At 60° F. no movement of the protoplasm was noticed. In order to have the protoplasm move the chlorophyl cells must move. These often move in bunches. Sometimes the whole cell is filled with chlorophyl, and if there is any movement, the whole of the cell contents moves. At 72° and 82° there was no change in the protoplasm; but at 92° the huddled condition was broken up, and the movement was slow. At 100° the movement was quite rapid, and the chlorophyl cells had lost their granular appearance. He also described the manner in which the movement of the protoplasm was stopped.

President Willits then gave a brief but interesting account of his recent trip to Washington. He said that on the 1st of June the Commissioner of Agriculture at Washington issued an invitation to the agricultural colleges and experimental stations of the country to meet in convention at Washington on the 8th day of July. President Willits and Hon. Henry Chamberlain were appointed by the state board as delegates to the convention. On the evening of the 7th a preliminary meeting was held and a programme adopted for the following day. At 10 o'clock A. M. the next day the convention met in the seed room of the building used by the agricultural department. Thirty-one states and territories were represented. The commissioner of agriculture was made president of the convention, and on taking the chair delivered an able address. He stated that the object of the meeting was to adopt some plan by which united efforts in regard to agricultural experiments could be secured, so that these experiments might be of much benefit to the country at large. At the evening session, President Willits read an able paper on *Industrial Education*. This subject was very fully discussed. Incidentally the subject of manual labor at colleges came up, when it was found that those colleges which enforce the labor system were the most prosperous. President Willits stated that he was strongly in favor of our present work system. He said our College received much praise as being the model agricultural college, and that feature of it which received the most praise from the members of the convention was the *labor system*. The point made by the opposition that manual labor is degrading, was met by comparing our work with the drudgery which the cadet at West Point or Annapolis is compelled to do. It is intended to focus the energies of the 47 agricultural colleges

and experimental stations, to make the agricultural bureau the clearing house for agricultural investigations. It was decided that these colleges and stations should be in communication with the *Bureau*, and that a report should be made by the commissioner of agriculture once a month embracing the work done at these various institutions. A committee of three, consisting of President Atherton of Pennsylvania, President Willits of Michigan, and President Lee of Mississippi, was appointed to meet in Washington next winter for the furtherance of the passage by Congress of a bill providing for the establishment of experimental stations at all the agricultural colleges of the country. A resolution was passed asking Congress to appropriate \$50,000 to the agricultural bureau in order to enable the commissioner to better distribute seeds throughout the country, and that these seeds should be examined by the botanist to see that they contained no injurious insects.

Chemical News.

A sample of white lead paint obtained in Lansing was analyzed with the following results. All oil was removed from the paint and 1 gm. of the dried residue was taken. It contained 50.695 of lead carbonate, 42.87 of barium sulphate, 0.5 of lead sulphate, 5.935 of silica and alumina.

F. L. CHAPPELL, '85.

A sample of Prof. I. Hubert's preparation called Malvina, for removing freckles and beautifying the skin, was found to contain 1.04 per cent of corrosive sublimate (Hg Cl₂).

C. H. HOYT, '85.

The following is an analysis of milk from breeds of cattle on the college farm:

BREEDS OF CATTLE.	Per cent of Water.	Per cent of Cream.	Per cent of Oil.	Per cent of Solids not Fat.	Per cent of P ₂ O ₅
Pole Aberdeen.....	88.02	7.00	3.69	8.11	.17
Hereford.....	88.7	2.00	1.17	9.98	.14
Holstein.....	86.9	7.50	2.75	10.14	.20
Ayrshire.....	84.5	9.60	2.76	11.25	.20

E. A. BARTMESS, '85.

SECOND ANALYSIS.

BREED.	Per cent Cream.	Per cent Water.	Per cent Total Solids not Fat.	Per cent Fat.	Per cent Ash.
Short Horn.....	8.	87.09	10.8	2.5025	.7
Jersey.....	21.2	83.71	10.06	6.225	
Ayrshire.....	7.90	88.36	10.12	1.515	1.29
Holstein.....	6.2	89.06	8.77	2.18	1.245

W. I. POWER, '85.

Hop Bitters, manufactured by Hop Bitters Manufacturing Co., Rochester, N. Y., contains 13.647 per cent. alcohol; strong beer contains 5 to 8 per cent.

Brown's Iron Bitters, prepared by Brown Chemical Co., Baltimore, Md., contains 18.58 per cent. alcohol; whisky contains 40 to 50 per cent.

LYMAN BONHAM, '84.

Library Notes.

Dr. Abbot has presented to the Library a large number of books and pamphlets.

The College has 22 volumes of history, comprising the Abbot collection of 34 years. It begins with the transactions of the State Agricultural Society, which "held its second annual meeting at the village of Jackson on the 19th of December, 1849," at which time and place, on the motion of Bela Hubbard, it was

Resolved, That our Legislature be requested to take such legislation as shall appear necessary or expedient for the establishment of a State central agricultural office, with which shall be connected a museum of agricultural products and implements, and an agricultural library, and as soon as practicable an agricultural college and a model farm."

The same volume has the further record of a site located in 1855, and the appointment of Prof. L. R. Fisk, of the State Normal School, to the Department of Chemistry, and J. C. Holmes, Esq., to the Department of Horticulture; then the dedicatory exercises, and so on to the present time. In many of the volumes are bound poems, speeches, programmes and other matter, which helps to complete our knowledge of the first quarter of a century's working of the institution. The collection will have a yearly edition of one volume, viz., the Report, together with the catalogue and such other material as may be gathered. All are invited to contribute.

The library floors go bare till next year. The subject catalogue now has 4,000 and more references; each student should

acquaint himself with the catalogues and their use. It may not be so necessary to know their use while here, but on entering any other library where the books are out of sight or locked up, it is a little comfort to be able to order intelligently.

Alumni Meeting.

The Alumni meeting will be held at the College, Thursday, August 20, 1885. The exercises at 10 A. M. will be as follows:

History—By EUGENE DAVENPORT, of Woodland.

Poem—By O. E. ANGSTMAN, of Detroit.

Address—By the President, S. M. MILLARD, of Chicago, on "Higher Education."

3 P. M. Business Meeting; 7:30 P. M. Banquet of the Alumni. Music in charge of F. S. KEDZIE.

An opportunity will be given and place appointed for holding class reunions at 4 P. M., August 19th. Each class should arrange among its own members for a full reunion. The commencement exercises of the College will be held at 10 A. M., Aug. 19th, and will probably be of unusual interest. It is hoped that each alumnus will take this opportunity to visit the College. The local committee will do all in their power to make the visit a pleasant one. Immediately upon arriving on the grounds, call at the Chemical Laboratory, sign the register, and if possible quarters will be assigned you. At that time detailed programmes will be furnished by the committee of arrangements.

Reduced rates for self or friends can be obtained over the railroads, by writing to the secretary, R. C. Carpenter, for proper certificates. It requires one certificate for each; these are signed by ticket agent at your own station, and full fare is paid; Prof. Carpenter signs them here, and one-third fare is paid for return. Remember, any friend of the college can obtain these by writing the secretary, and stating the number wanted.

FARM BULLETINS.—The following is an act of the Legislature, passed May 11, to provide for the publication of useful information derived from experiments made in the different departments at the Agricultural College:

SECTION 1. *The People of the State of Michigan enact,* That the State Board of Agriculture be, and they are hereby authorized to provide from time to time, in bulletin form, for the dissemination among the people of this State, and through the medium of the public press the results of experiments made in any of the different departments of the Agricultural College, and such other information that they may deem of sufficient importance to require it to come to the immediate knowledge of the farmers and horticulturists of the State.

SEC. 2. The several Professors of Chemistry, Zoölogy, Botany, Agriculture, Horticulture, and Veterinary Science, shall each at least twice in each year, not excluding the President and other Professors, prepare for publication an article embracing such facts as they may deem of public importance, a copy of which shall be simultaneously sent to each and every newspaper in the State, and to such persons as the State Board of Agriculture may think proper, said professors to so arrange that at least one of said articles shall be sent out as above provided the first week of each and every month in each and every year.

SEC. 3. The Board of State Auditors shall, upon the approval of the State Board of Agriculture, audit the accounts for printing, stationery, and postage incurred in the publishing and disseminating of said bulletins, and the same shall be paid out of the general fund: *Provided,* That no account for printing the same in any newspaper shall be allowed.

The act is ordered to take immediate effect. There have been four bulletins issued. Bulletin No. 1 is from the Chemical Department. In this bulletin Dr. Kedzie discusses "Early Amber Cane as a Forage Crop." No. 2 reports the results of seed tests made by Mr. Knapper in the greenhouse. No. 3 is by Prof. Cook, and describes and offers remedies for "The Black Wheat Stalk Isosomia." No. 4 by Prof. Johnson on "Stock Feeding."

"Dr. S. H. Wellings, late of Maple Rapids, a brother of Dr. J. H. Wellings of this city, left Lansing for Vienna, Austria. He intends taking a course of lectures at the University of Vienna, one of the leading medical and surgical schools of Europe. Together with his visits to other European cities, he will remain abroad about two years." Mr. Wellings was here about '64.

'79. "The Modification of Plants by Climate," is the title of a book treating of the relations of climate to fruitfulness, vigor, hardiness, and earliness, by A. A. Crozier, M. S., price twenty-five cents. This is "a little book full of interest to improvers of plants and those who would know where the most desirable seeds are grown and why." The book can be obtained by addressing Mr. Crozier at Ann Arbor.

PERSONALS.

The Editor of this Department desires the earnest co-operation of the alumni in aiding him to fill these columns with interesting items. Give occupation since graduation, what offices held, whether married or not, etc. Let this receive prompt attention from every alumnus.

Those before whose names the star (*) is placed are expected to be present at the Alumni.

Dr. J. P. Letts is practicing at Romeo.

Arthur Seely, with '81, is now an M. D.

* W. Leisenring, '84, is teaching at Lacota.

Walton, with '86, is clerking at Three Rivers.

F. W. Sheldon, with '85, is in a bank at Burr Oak.

Campbell, with '83, is traveling for a Detroit house.

A. C. Himebaugh, with '86, is farming near Brunson.

D. D. Lee, with '85, owns and runs a farm in Dakota.

* H. A. Livermore, with '84, is farming near Lansing.

T. D. Campbell, with '87, is studying law at Hastings.

Adams Bayley, '61, is a farmer at Big Beaver—not Troy.

Ira T. Sayre, is a lawyer at Flushing, and lately married.

Preston, with '84, received a B. S. at Olivet College this year.

W. W. Sage, '84, was elected school inspector of Goblesville.

Chas. Basset, with '86, is studying law at Severence, Kansas.

Frank Rood, with '87, is farming and sheep-raising at Covert.

Clarence Crabbs, with '87, is in a creamery at Gibson City, Ill.

A. B. Goodwin, with '87, expects to return and graduate with '88.

H. V. Clark, '78, is now Baptist minister on the Berrien circuit.

D. W. Bowser, with '86, is farming at his father's home, Delwood.

* O. E. Angstman, '75, will read the poem at the alumni reunion.

Avery and Evert, both '82, are "stumping each other to go west."

C. B. Hays, with '86, is book-keeper for Lakey & Co., Kalamazoo.

Henry Dickey, with '82, is district attorney for Dickie county, Dakota.

H. H. Granger, with '85, is book-keeper in a freight office at Detroit.

S. E. Jones, with '85, is station agent for the Union News Co., Detroit.

Ed. A. Haven, with '83, is running a cheese factory at Bloomingsdale.

* Minnie Shellier is the girl whom H. W. Meeker, with '85, married.

Curtis, with '83, graduated from the Bennet Medical College, Chicago.

E. P. Clark, '83, has become a farmer, with 320 acres at Tonzalin, Kas.

* Wm. Farnsworth, with '82, is lumber inspector at South Boardman.

G. W. Park, with '86, is again at the College studying under Prof. Beal.

T. O. Williams, with '85, is with a hardware firm at Medicine Lodge, Kas.

* W. A. Thomas, with '87, will return to College and graduate with '88.

E. A. Burnett, with '86, expects to return in the fall to graduate with '87.

J. R. Shaffer, with '71, is practicing medicine at Elm Hall, Gratiot county.

Elmer McArthur, with '82, is an insurance and real estate agent, Charlotte.

Eugene Gregory, '78, recently started for Germany to pursue a course of study.

C. W. Crossman, '82, was married in June to Cora Kennedy, of Benton Harbor.

W. E. Hale, '82, is getting a fine herd of Shorthorns on his farm at Eaton Rapids.

H. M. Turell, is having an extensive business in dry goods and groceries at Litchfield.

* Lynn Bonham, '84, is taking a post-graduate course in chemistry and physics.

* D. J. Gillam, with '84, is married, and engaged in the insurance business at Lansing.

W. W. Bemis, '76, has lately left farming and started with market gardening near Ionia.

O. P. Gulley, '79, recently visited the College. The flush of youth is still on Orrin's cheek.

* F. W. Hastings is railroad postal clerk at St. Louis, Mich., but is anxious to get on a farm.

T. A. Saylor and E. B. Norris, both with '87, are with Morley Bros.' hardware firm, Saginaw.

H. G. Reynolds, '70, is at the College, engaged in preparing the agricultural report for 1885.

A. B. Turner, with '81, lost his diploma in a hotel fire, but will receive another. He is farming.

D. O. Watson, with '81, is a prominent candidate for collector of customs at Grand Rapids.

C. B. Charles, '79, works his farm in the summer, and in the winter bales hay quite extensively.

J. B. Jenny, with '88, is at home on a farm. He has not entirely recovered from heart disease.

H. J. DeGarmo, '88, who left college on account of weak eyes, is improving and may return with '89.

D. D. Harger graduated from the law department at the U. of M. this year. He is now at home.

Carroll Clark, '81, is secretary of the Orion Park Association, as well as master of the Orion Grange.

Chas. McKenney, '81, is still teaching at Charlotte. He is studying to become a teacher of classics.

* A. W. Troupe, M. D., class '81, has been appointed health officer of Springport. He is a physician.

J. E. Coulter, '82, is at the College, assisting in the secretary's office, during the illness of Secretary Baird.

E. D. A. True, '78, has a 280-acre farm at Armada. He is a breeder of thoroughbred Poland-China pigs.

D. C. Holliday, Jr., '83, has caught the bee fever, and is planting an apiary in the vicinity of New Orleans.

* E. A. Murphy and T. F. Millsbaugh are farming together at Lyons. They visited the College in July.

Arthur Jones and H. A. Price, both '81, are members of the law firm of Clink, Jones & Price, Muskegon.

B. S. Palmer, '81, is president of the alumni association of the college of dental surgery, of the University.

* C. W. McCurdy, '81, is again at the College studying under Prof. Beal. He will get his M. S. in August.

C. E. Sumner, '79, still remains as clerk at Washington. His appointment was secured by President Willits.

E. C. Varnum, with '83, is a member of the firm of R. S. Varnum's Sons, druggists and booksellers, Jonesville.

* Wm. F. Pack, with '81, is a member of the firm of Clowes & Co., dealers in dry goods and groceries, Centreville.

C. H. Granger, with '87, is book-keeper in the Wabash, St. Louis and Pacific railroad offices at St. Louis, Mo.

F. S. Rogers, two years with '86, is at Topeka, Kansas. He is deputy clerk of the U. S. district court for Kansas.

J. P. Finley, '73, has just prepared another exhaustive treatise on tornadoes which is much commended by the press.

* Dwight Waldo, with '85, secured eight ribbons in the field-day contests at Albion. He will be a senior next year.

* W. F. Landreth, with '85, will not return to college as he had expected to do. He went back to Chicago instead.

* Leonard, with '85, is in a store with his brother-in-law at Union City. He taught a seven-months school recently.

H. A. Brown, with '86, is in partnership with his brother at Allegan. They own the finest flouring mill in the county.

C. P. Bush, with '83, took the degree of B. L. at Ann Arbor, and now intends to take his second year in the law course.

M. H. Ford, Representative from Grand Rapids in the last Legislature, introduced the famous capital punishment bill.

Frank Sayre, with '87, is a "tiller of the soil" in Fulton Rock county, Wis. He says he likes the business and the country.

Dr. J. Groner, '74, of Big Rapids, has recently won no little fame by a skillful operation upon a man whom a log run over.

* E. O. Ladd, '78, with his wife and boy, expects to be here at the alumni reunion, to claim the class prize for the first boy.

Dr. Bion Wheelan, '77, of Hillsdale, read a paper on "Sanitation in small cities" at the sanitary convention held at Ypsilanti.

It is desired to have a full set of alumni photographs. Each one of the alumni should see that his is placed in the collection.

W. H. Hannaford, with '88, is farming at his father's home, Solon. He expects to go out west next winter to run a cattle farm.

A. E. Smith, '81, took his M. D. at the Rush Medical College, married a wealthy young lady, and is now a physician at Elmira, N. Y.

Prof. E. M. Shelton, '71, and his wife (Miss Sessions, '73), of Manhattan, Kan., are now visiting relatives at Owosso and Ionia.

Wm. H. Draper, with '84, is a dentist at Devil's Lake, Dakota. He also practices at Fort Totten, a garrison of two hundred troops.

* Alice Johnson, '84, closed a successful term of school near Williamstown on July 9. She is now with her parents at the College.

* J. Woodman, '81, is lecturer for the Van Buren county grange, and a successful farmer. His second child was born April 20.

R. H. Gulley, '78, will teach the South Haven school next year. The atmosphere (political) of Mississippi did not agree with him.

H. K. Lum, with '85, graduated from the medical department of the U. of M. and was immediately appointed assistant in physiology.

Ex-Senator Farr, '70, of Grand Haven, is a member of the board of trustees of the Northern Asylum for the Insane, Traverse City.

Among the visitors at the College this term, not noted elsewhere, were A. C. Bird, C. F. Lindsley, A. F. Kinnan, and L. W. Hoyt.

* C. R. Dart, '81, is draughting for the G. R. & I. railroad at Grand Rapids. His work there is very confining and is telling on his health.

F. M. Standish is seen occasionally on the College grounds, riding with his Lansing girl. His visits to Lansing are short but they count.

F. A. Gulley, '80, is secretary of the National Agricultural Scientific Association, a meeting of which is to be held at Ann Arbor, in August.

J. R. Shelton, '82, is well pleased with Kansas. He is in the firm of Shelton and Smith, furniture dealers (not hardware), Minneapolis, Ka.

J. D. Bennet, class '86 of Hillsdale College, is taking a special course in some studies that he wishes to make up during his summer vacation.

Daniel Strange, '87, in answer to a call for "items of interest," says: "Principal item is John. He is only five years old, but he is full of interest."

* Chas. Humphrey, with '85, completed his first year in the law department of the U. of M., but expects now to enter the literary department.

Ed. Smith, with '85, was seen on the grounds a few days ago. We understand that he is tired of the west, and is now satisfied to stay in Michigan.

With '85. The *Detroit Post* says: "David Dodge of Ypsilanti, will serve Uncle Sam as mail agent between Chicago and Cleveland for \$1,200 per year."

W. W. Remington, '80, has been re-elected superintendent and principal of the city schools at Fort Collins, Col., with a salary increased to \$1,500.

Geo. Lawson, with '82, is receiving teller in the People's Savings Bank, Detroit. Last week he was robbed of \$500, and has no clew for its recovery.

A. C. Redding, '83, is taking a post-graduate course in chemistry. He will soon assume the duties of professor of chemistry at Findlay College, Ohio.

* Those before whose names this mark is seen will be here at the alumni reunion. It is not certain about the others, but many of them are expected.

P. of C. E. Bessey, '69, will deliver an address on "Fungi," at the meeting of the American Pomological Society, to be held at Grand Rapids in September.

E. St. John, with '87, is building a house for himself and wife on his father's farm. He is farming on shares with his brother, M. St. John, '83, at Yates, N. Y.

W. A. Bahlke, '83, studied elocution at Chicago, then went west; taught elocution in Dakota, and is now studying law with the prosecuting attorney of Ionia.

Professors W. C. Latta, '77, and J. Troop, '78, recently visited the Ohio State University (agricultural) and expressed themselves well pleased with it. Mr. Troop will make an exhibition of insects at the next Indiana fair.

S. Upton, '81, says: "The only degrees experienced since leaving college are 35 degrees below zero last winter." Hardware merchant, Verrill Iron, Dakota.

* W. A. Dothany, '84, is printing in connection with his general store at Farmington. He could not give up the art of printing that he practiced while at college.

W. T. Langley, '82, has been teaching a two-months school at St. Ansgar, Iowa, and may continue there for another year. He speaks highly of Mitchell county.

C. H. Eldridge, '83, taught on the Island of Mackinac last year, and expects to remain there for another year, salary \$800. He possibly may study medicine instead.

S. T. Elliot, with '82, is at Boston. He is book-keeper for the Massachusetts Benefit Association, one of the largest assessment life insurance companies in America.

C. A. Smith, M. D., with '81, is now house surgeon and superintendent of the Missouri Pacific railroad hospital at Sedalia, Mo., with a salary of \$1,800 and expenses.

A. G. Jack, with '82, is a dairy farmer and breeder of thoroughbred A. derney and Ayrshire cattle, at Media, Pa. He sends milk to Philadelphia in hermetically sealed jars.

* Eugene Davenport, '78, has recently assumed the Editorship of the agricultural department of the *Hastings Banner*. He will read the history at the reunion of the alumni.

* B. J. Robertson, with '82, is a successful "knight of the mortar," and a member and ardent supporter of the Michigan Pharmaceutical Association. He lives at Breedsville, is married, and has a daughter.

* S. M. Millard, '64, is president of the board of trustees of the Illinois Industrial University. As the orator and alternate orator for the forthcoming alumni reunion are unable to be present, he will give the address.

N. P. Graham, over three years with '79, has again been suffering from ill health for some time past, and is threatened with consumption. He is now in the mountains of Colorado, some thirty miles west of Longmont, near Estes Park.

F. J. Hodges, '84, who is taking a post-graduate course, will be assistant in chemistry at the Chicago Medical College next winter. For being one of the three highest in rank in his class while there, he was also appointed prospector in anatomy.

It is not known where the following alumni are. Any information regarding them will be thankfully received by Prof. R. C. Carpenter: Weils, '68; Bradner, '69; Johnson, '69; Wilkins, '69; Frazer, '70; Niles, '75; A. A. Robinson, '78; Guile, '79.

Michitaro Tsuda, '84, visited this country in July, but came no further than San Francisco. He came to purchase agricultural implements, plants, seeds and cattle. He expects soon to ship about one hundred fine milk cows to his farm in Japan.

* Among others who have expressed their intention to be here at the alumni reunion, are: L. B. Hall and A. J. Chappell, '82; E. H. Northrop, with '81; G. D. Moore, '71; D. McPherson, '74; J. H. Tibbitts, '73; C. E. Sumner, '79; O. C. Howe, '83; A. G. Gulley, '68.

Bob Baker, with '84, has severed his connection with the *Union City Register*, and is now book-keeper with the St. Johns Manufacturing Company. Before leaving Union City his friends presented him with a gold-headed cane. He visited the College in July.

Mrs. Nellie S. Kedzie, professor of domestic economy and lady principal at the Kansas Agricultural College, took a trip to Maine, and then came to the College, where she is now visiting her father-in-law, Dr. R. C. Kedzie. She is the widow of R. F. Kedzie, '71.

* '84. The *Lansing Republican* of July 9 says: "E. C. Bank, assistant superintendent of the Reform School at Lansing, and Miss Effie M. Clark of Leighton, were married July 8, at the residence of the bride's parents at Leighton." Carl was given a fine reception on his return.

* A. L. Bemis, with '83, is at the College studying chemistry and general history. He has been principal of the Pewamo schools, but will next year act as professor of chemistry, civil government, and penmanship in the Ionia schools. The Ionia schools are run on the polytechnic plan.

A letter just received from E. M. Bradner, '69, states that he left Oleta, Cal., two years ago, and is now at Beech, Wayne Co., Mich. He is suffering from "neurasthenia," and for the past four years has been unable to do any regular work. For the present his address will be as given above.

J. W. Beaumont, '82, had intended to leave Saginaw for Chicago, but was taken into a law firm and remained there. His visit at the College a short time ago was principally to obtain points in favor of the College, to argue against the friends of the University. Saginaw is a strong University city.

Dr. W. L. Wilcox, with '82, found it necessary to resign his position in the medical college at Chicago, on account of his extensive practice. His address is 108 Washington street, Chicago.

To stop all conflicting reports, it is well to state that A. W. Page, '84, is certainly married. He bought a farm of 160 acres of the "finest land in Dakota," lying on both sides of the Jim river.

A. B. Simonson, '77, is one of the four physicians employed by the Calumet and Hecla mining company, Calumet, Mich. The doctor is well liked, and is meeting with great success in his chosen profession.

W. L. Carpenter, '75, recently defended a case in the United States court, the trial of which lasted twenty days—the longest trial ever held in that court. Six cents were granted as damages without costs.

* C. L. Bemis, '74, is at the College studying botany and chemistry. He has for several years been principal of the Portland schools, and will occupy the same position the coming year. Speaking of him the *Portland Review* says: "Who as an instructor has few equals and no superiors in this part of the State."

* G. F. Beasley, '68, is a lawyer at Detroit. He is carrying on a careful study in botany, geology, chemistry, physiology and astronomy, combined with Greek, English, and Canadian history and literature. He is at liberty to receive his second degree at any time he chooses. He most carefully avoids "the halter of matrimony."

E. M. Preston, '62, recently visited the Sandwich Islands. Upon his return to his home at Nevada, California, he gave an account of the visit, which received great praise, and was published in full in several papers. While at the Islands he obtained many rare specimens as an addition to the collection he intends giving to the College.

W. H. Bristol, with '83, is at Shreveport, La. He received his LL. B. at the U. of M. and practiced law for a short time, but on account of poor health and a dislike for the law, he gave up that work. At present he is devoting his time to the study of science and literature. W. S. Delano, '81, is at Shreveport, and they pursue the study of entomology together.

It is with regret that we announce the death of Morse W. Jones, '80. After leaving college Mr. Jones went to St. Paul, Minn., and studied law with G. S. and C. Olis. His health giving out at this place he returned to his father's farm at Richland, Kalamazoo county, and while there, in a fit of melancholy, shot himself. He was a close student, and too hard study led to his death.

M. M. Marble, with '84, will continue to act as principal of the Lansing high school with a salary of \$1,000. David Howell, with '66, is superintendent, and with the help of Mr. Marble, he has brought the high school from a (?) school to a respectable institution. Among other students from here, employed in the Lansing city schools, are Miss Alice Weed, '82, in the seventh grade, and Miss May Wolcott, with '85, in charge of the Fifth Ward school.

Frank Benton, '79, has now a permanent address, Munich, Germany. Since graduation he has been engaged in introducing bees of various varieties—Palestine, Cyprian, Italian and African. He has made journeys to Java and Ceylon in quest of them. A small paper, *Bees*, is published by him from time to time for the benefit of his correspondents. The issues this year were dated at Florence, Italy; Larnaca, Cyprus; Tunis, Africa; and Beyrout, Syria.

John Swift, '68, M. S. in '71, two years after graduation was sent, on the recommendation of President H. Bentice and Prof. Bentice, to the Maine Agricultural College, as professor of botany, horticulture, and landscape gardening. At the end of one year he resigned, after doing a large amount of work in organizing the labor department and furnishing plans for the grounds—his plans were adopted in preference to Prof. Olmstead's. He then came to Michigan and cleared a new farm in Wayne county, remaining five years. For two and one-half years was clerk in the Auditor General's office under General Ely, then left to take charge of the laying out and improvement of the Harbor Point resort grounds, near Harbor Springs, and made this the pleasantest resort in Northern Michigan. Last summer he laid out a twenty-five acre cemetery in the "natural style." At present he is engaged in land and ornamental surveying, acting as land and book agent between times, and gives some attention to improving a farm near Cross Village, this farm being "the most beautiful spot on earth." Six months after graduation he married Jennie E. Briggs, of near Pontiac, "a farmer's daughter neither rich nor handsome." Has five boys and one girl between the ages of one and fifteen years. He probably will be here at the reunion.

The residence and business of the alumni can be obtained from the triennial catalogue, which was recently issued—that is so far as that catalogue is correct. The editor of this department has been very careful in collecting these personals, and thinks that they can be relied upon, even should they differ from the new catalogue.

BARNARD'S COMET.—The following interesting telegram from Prof. Pickering, of Harvard College, to L. G. Carpenter, gives positions of the new comet and data respecting it:

"Customable digitated butternut border inspection evenly cover jolter casuist jaw cenotary irresistibly changeably invoke cherub interrex felter."

It is exceedingly faint, being now of about the twelfth magnitude. It was nearest the sun May 17,

being then about 228,000,000 million miles from it. The comet is now about 160,000,000 of miles from the earth. Its position July 25 is 16 hrs., 52 m. in right ascension, and $14^{\circ} 32'$ south declination, a point in the constellation Ophiuchus, a little to the north and east of Antares of Scorpio.

The discoverer, E. E. Barnard of Nashville, receives the \$200 reward offered by H. H. Warner of Rochester, N. Y., for the first comet of the year.

The *Calliopean Clarion* for May is well filled with literary articles, but its personals are wanting. We think this part of a college paper should be well supported, since the personals are of most interest to the alumni.

The *University Mirror* is always a welcome visitor. The May number contains some very interesting literary articles. The essays, "General Gordon," "Politics on Both Sides of the Sea," and "Socrates versus Christ," are ably written.

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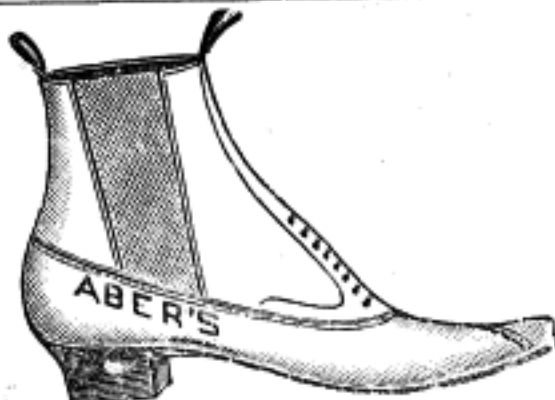
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