

# THE SPECULUM.

VOLUME XII.—No. 7.

AGRICULTURAL COLLEGE, MICH., JUNE 10, 1893.

WHOLE No. 69.

## The Development of the South.

JOHN W. O'BANNON, '89.

Within the heart of the southeastern part of the territory of the United States, is an area nearly as large as France, endowed with more varied resources and with a better climate than almost any other equal area within the limits of our common country. A few years ago this seat of future industrial empire was comparatively unknown to investors, and the stream of capital flowed steadily westward. This phase has passed, or is passing, and the time has now come for men to realize that there lies at our very door a territory capable of supplying all the necessaries and luxuries of life in measureless abundance.

With respect to the natural resources of this section, short exploration will prove the existence of almost unlimited supplies of iron ore, coal, salt, fire-clay, kooline and glass sand and timber. Ores, coal and timber exist in such abundance as to make the question of proximity and quality of more importance than supply. The pending questions are: Which coal makes the best coke, which ore the best iron or steel, which timber the best grade of lumber for its particular purpose?

The conditions described are found in the states of West Virginia, Eastern Kentucky, Eastern Tennessee, Western North Carolina and South Carolina and Northern Alabama and Georgia. A line drawn around this territory will include the greater portion of the coal, iron ore and timber. Outside of this, however, is good agricultural country, some as fine as the sun ever shone upon. For example the "blue grass regions" of Kentucky, the home of our

finest horses and cattle, the Cumberland plateau west of the mountains and the Piedmont on the east. In this area, probably, are found the best conditions of climate, soil, humidity and rainfall in their relation to diversified agriculture of any section in the world. To those who view natural scenery in favorable light in connection with the home, this is the land of promise. There is nothing more beautiful or picturesque than the hills and valleys of this "Land of the sky." Here are all the elements of the landscape art ready for the gardener's hand.

If one should attempt to forecast the future of this portion of our country, a study of the map of Europe with regard to areas of coal and iron production would be profitable. The great centers of industry there have gathered near the sources of iron and fuel supply. The next step would be to locate the places in this country where will be the great industrial centers of the future. In doing this, due regard must be had to the relative conditions of the new and old at the present time. Be this as it may, the coal and iron are there beyond the hopes of the most sanguine, and these elements give power. As yet the crystallizing process is in its infancy and it is hard to say where it will go on most rapidly.

One of the potent factors of future development which must not be lost sight of is the railways. The southern lines were laid out for specific but limited purposes, connecting but few points. But they have been gradually combined into broad and comprehensive systems with adequately equipped and well ballasted main lines. Around the larger cities they are well grouped and branches are tapping the iron, coal and timber districts rapidly.

Within the limits of this short sketch it is impossible to more than touch upon the boundless resources of what may appropriately be called the industrial South. In all the branches of human endeavor the field is just opening. No better opportunity is anywhere presented for all classes to better their condition than the South at present holds. What it needs most is the educated and progressive farmer, but there is ample room for all occupations.

### Literary Training at the Agricultural College.

HARRY D. BAKER, PHI DELTA THETA FRATERNITY.

The object of the Agricultural College of Michigan is to afford the young men of the country an opportunity to obtain a practical scientific education. The growth and prosperity of the institution and the number and rank of its graduates furnish ample evidence as to the accomplishment of the purpose for which it was founded, yet we would not claim that the school has attained its highest degree of efficiency; there remain still a few flaws.

As would be supposed the course at this college is largely given up to the study of purely scientific text books and to the practical application of their principles. So impressed have the faculty of the school been with the importance of the study of the sciences, as a principal point, that we think they have forgotten the existence of some of the auxiliaries; so that the course now contains over nine-tenths purely scientific work. The most important of these auxiliaries in connection with the work here is such a course of literary training as will give the student a good knowledge of books, and how to use them so as to increase his fund of general information, and properly develop the retentive powers of his intellect. This is nearly as essential where a person is preparing himself for scientific work, as

where he is intending to follow some literary pursuit. Even for the man who has fully determined to be a scientist, there is no one study aside from his specialty which would really be so helpful to him as the careful study of English classics.

All of our most eminent scientists have been industrious literary students and not a few of them, brilliant literati. If we would have proof for this statement, we need but to refer to the biographies of such men as Darwin, Agassiz and D'Aubigne.

The course at this college today prescribes for work in Rhetoric and Rhetoricals, and a cursory treatment of American and English literature; this comprises about all there is which could with any degree of propriety be called literary work. It seems a meagre taste of a dish so full of plums and containing so much nourishment for the intellect. That to the course, as it is at present, there should be added more complete and exhaustive work among the classics seems to us most necessary. When this feature is remedied, the body of the curriculum will have acquired some of that symmetry which it now lacks.

To many of the students the opportunities offered here for literary work are the chances of a lifetime. How important then that the work here along this line be thorough and comprehensive.

Moreover the inculcation, during his college life, of correct literary tastes is of the greatest importance to the student. It will serve to put his mind in a healthy intellectual condition, will give his opinions firmness and character and may open to him chances for the development of a dormant genius within him.

Books are tools, and the study of their proper use is quite as important to the student, as that the carpenter's apprentice should learn the proper use of the hammer and saw. As a workman prizes his sharp, finely-tempered tools, and applies them where they will be most useful, so the

scholar should enjoy books and use them to the very best advantage.

While the ability to read intelligently and to digest what one has read is of great importance, it is a matter of equal moment that a student accustom himself to reading only the best of books—books of *true worth*. This habit would be greatly encouraged at M. A. C. by the introduction of a more extended course in modern literature.

The man who is conversant with the works of authors of merit comes almost involuntarily, to gauge his thoughts by theirs, and in selection for composition to bring his ideas to the same crucial tests. In this way he learns to think more clearly, to speak with more ease and fluency, and to write with greater force and conviction.

That there should be system in one's reading—the study and assimilation of the less, before the greater is attempted, and the sequence as to subject of the books read—needs no proof. The little child cannot appreciate the meaning of the sentence before he has mastered the word and letter.

The mind of the student of science needs just such cultivation as this work will afford. He needs the powers of analysis, of close discrimination and the quickness of perception that will certainly come with it. Thus it can be easily seen that the careful and systematic study of the classes, as typical books, will prevent the mind from becoming warped and illy-proportioned as it is almost certain to become in a technical school. The wrestler, while preparing for the bout, must train for that particular sport, but he must not forget that to be a good wrestler, he must train as an all-round athlete, as well. Let the student at the Agricultural College therefore, beware lest his development, intellectually, be solely along one line. Let him make books his friends, companions and tutors, and let him use his influence for wider literary instruction at M. A. C.

“A true university in these days is a collection of books.”

### Unseen Forces.

MAURICE CARNEY, ECLECTIC SOCIETY.

Of the many questions that confront us, this seems to be the least understood of any, although many able men are devoting their time and means to develop facts and phenomena that are astonishing the whole world. With the modern man these questions seem to be the most perplexing to him: What are they? Where do they come from? Where are they bound? Shall they ever cease?

Suppose we turn our attention for a few moments into this supreme realm of thought and allow our thoughts to roam for a short time. It is with sublimity that these forces uplift us to that grand and noble sphere wherein the Divine Ruler imparts that image of his life to our views for us to accept.

Indeed, in a rapid survey of this field of thought, we are tempted to affirm not merely that the theory of probability is of the utmost service to us, but that it is almost our sole method of discovery of the truth. The astronomical doctrine brings to our view demonstrations of this mighty unseen law or force. It is wholly unnecessary at this time of advancement to attempt to appraise the value of such powers, for it is self-evident that there must be some unseen force or power beyond man that has control of these heavenly bodies.

Bring our imagination to confront the most distant star that can be seen with the unaided eye. Then think of the smallest star that our most potent telescope can disclose. Think of the tiniest stellar point of light which could possibly be depicted on the most sensitive photographic plate after hours of exposure to the heavens. Think indeed of the very remotest star which by any conceivable device can be rendered

perceptible to our consciousness. Doubtless that star is thousands of billions of miles from the earth; doubtless the light from it requires thousands of years, and some astronomers have said millions of years, to span the abyss which intervenes between our globe and those distant regions. They are there and it matters but little at what distance they are from the earth, they are held in place by this mighty force or law that no one has ever seen or ever will see.

It is on every hand that we encounter these unseen laws. Here goes a car down the street at the rate of eight miles an hour, and to all appearances it seems to be moved by some unknown force. There is a wire overhead and as we see nothing in this wire that has life, we are forced to admit that the car moves. We will ask what is it there that pushes the car at that speed. Why! you will say electricity of course; well then, what does it look like? Whence its origin? Where bound? Has it color or taste? Will it ever cease? Has any one ever seen it? It matters but little whether we ever see this force or not, its existence we do not deny. It is omnipresence, always has been and always will be, only God knows as to its mighty power and endurance.

Then again we are surrounded and live with nature each day, and but little do we realize what force or forces play such active parts in the maintenance of this kingdom, where all things were created equal.

Just for an illustration here is a little seed. To all appearances life is extinct. Scarcely anything but a dry shell remains. But place this little seed in the ground, give it proper care and nourishment, and to our surprise there will be appearing through the crust of the soil a small green stem, and in a few days it has grown to be a plant with all the richness and beauty of nature. The leaves and stem formed each day with that symmetry which nature possesses. The question arises what law or force is it that

lies dormant within the seed for so long a time and then has power to unfold all the splendor of creation. Where is it? Can it be seen? Will it ever cease? What force or law is it that gives it color, that foliage that some plants possess, those beautiful orders? It is only that mighty unknown force which is made manifest in all life.

Can we see or conceive of that law or force that causes vegetable matter to decay? Nothing ever dies, neither does this vegetable matter, it only passes from one state of life to another, only to live on. Are we then safe in saying that man can be subject to these changes?

We all believe and know that life leaves this body or shell of ours just as life leaves the stalk of a plant. The stalk does decay under the action of nature, so does the body of man. But where has this part we call life disappeared to so rapidly. The scale of nature is infinite. When we attempt any intellectual solution of her mysteries we are confronted by the fact that no absolute knowledge is possible, while of relative information we may build up a vast structure.

The absolute is wholly beyond reason and logic; but in the realm of spiritual perception, love and goodness, we may know the absolute and become one with it. "Canst thou by searching find out God?" Through the intellect, never; but through the inner vision we may find Him.

Then since all these laws and forces that we have been discussing is nature, only within her realms; then as nature is God translated into vitalized color, form and beauty, therefore these unseen laws or forces possess that image of God. Nature may always be trusted, for natural laws are divine methods.

The world is embellished by spirit and its inaudible testimony is the cadence of the gospel love. All forms of life are registering their actions and printing their biographies in the imperishable ether in which we

dwell. The world we see is a world of transitory illusions. To the degree in which our spiritual sight has been unfolded, we may penetrate beyond the shadows and gain glimpses of the real. The chief reason why we see so little of the spiritual world through nature is because our spiritual faculties are only in an infantile stage of development. Even in physical existence the range of our sensuous and intellectual consciousness is so limited that according to modern science, whole universes of beings may dwell among us or be passing through as of whose presence we know nothing. Their colors, forms and properties are so smooth that only beings whose senses are far more acute than ours, can be introduced into their society.

Weight, size, color and form, are nothing more than human subjective limitations. The discharge of a cannon makes no noise if there are no ears within range. It possesses a power to stimulate the listening ear, but the noise has no existence except in the hearing. There are forms of life below us which have but one, two or three senses. Who can affirm that there are not other forms, invisible and unknown to us, who possess many more than five senses?

An eminent scientist has recently made startling suggestions that not only below us may exist molecular universes, with orders, intelligences and even civilizations, but that above us, perhaps worlds may be but as molecules of grand universes containing complex systems, organizations and personalities. Every step we take seems to be upon enchanted ground. We have no power in our own consciousness to surmount and explain these natural unseen forces, only to say that they are.

We need not fear that we can lose anything by the progress of these unseen laws, but we may trust to the end. That which is so beautiful and attractive as these relations, must be succeeded and supplanted only by what is more beautiful in what is to come, and so on forever.

## SCIENTIFIC.

The following is taken from the recent report of the legislative investigation committee, and requires no explanation:

A few instances will serve to illustrate the idea of the practical benefits derived by the people from the scientific work of the college.

1. First to demonstrate that the arsenites—London purple and Paris green—were safe and practical remedies against the codling moth. This remedy now is used all over the country.

2. The first to make and use the kerosene emulsion, which is now relied upon as a specific against all such insects as plant and parasitic lice, bugs, etc.

3. The first to prove that it was safe to use Paris green to fight the potato beetle.

4. The first to show that pyrethrum mixed with water was an efficient insecticide. This is the only non-poisonous substance that is found efficient in destroying insects.

5. The first to show the proportion of Paris green or London purple and water, which is best in fighting insects.

6. Proved by careful experiment that it is not dangerous to use London purple or Paris green on fruit trees, even though stock be pastured in the orchard.

7. The first to prove by careful experiment that it will not do to spray fruit trees while in bloom. Such spraying will kill honey bees.

8. Proved beyond question that bees are essential to the full fruitage of our orchards and gardens.

9. Proved by extensive experiments that artificial pasturage, by use of non-useful plants, for bees is not practical.

10. Proved that spraying with the arsenites is not a satisfactory remedy against the plum curculio.

11. That our present methods of honey analyses are not reliable.

12. Proved that it is possible to trap and

even poison cut worms by use of baits of fresh clover, mullein or other herbage.

13. Exposed the sale of marl brought in from Ohio and sold at high prices as Buckeye Superphosphate, sold for \$20.00 a ton, and cost about \$1.00.

14. Exposed the sale of Western Reserve Fertilizer (powdered furnace slag) worth thirty-four cents a ton and sold for \$22.00 a ton. Killed the sale of 800 tons at once, and was threatened with prosecution for \$50,000.

15. Clawson wheat was denounced by millers as unfit for food or grinding and price ran down at once ten cents a bushel, but after its value was demonstrated the price came up ten cents. Farmers said the wheat produced three to five bushels more per acre than the kinds recommended by millers. With 1,500,000 acres of wheat three bushels per acre makes a large gain.

16. Demonstrated that American wheat is not poisoned by use of Paris green for insecticides, contrary to the statement of a leading scientist, which charge was taken up by European wheat growers and the world's market for American wheat was saved.

17. Have shown the great capacity of Michigan to grow sugar beets of great sugar producing quality.

18. Tested thousands of packets of seeds from different dealers.

19. Tested two thousand varieties of fruits and vegetables and made known their worth to the public.

The two hundred students in the Chicago Theological Seminary surprised the faculty the other day by handing them their pledge for \$6,000 in aid of the movement to raise \$400,000 to secure Dr. Pearson's great gift. Naturally this is taken as a particularly bright omen for the grand undertaking. Nothing could have been done more expressive of the spirit which pervades the entire institution. The joint gift was made in the form of a thank-offering "for benefits received."—*The Advance*.

# THE SPECULUM.

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AGRICULTURAL COLLEGE, JUNE 10, 1893.

THIS issue of the SPECULUM was necessarily delayed in order that the events of Field Day might be given due notice. In another column will be found a full report of the events.

WE are in receipt of a pamphlet sacred to the memory of T. C. Abbot. It contains a short sketch of his life, the address delivered at his funeral, resolutions of sympathy from Faculty and State Board and a few of the many letters of condolence received by Mrs. Abbot. The letters all bespeak of the wonderful work of this man. The man dies but his work still lives.

STUDENTS, is there a copy of your county paper in the reading room of the library?

If not, why do you not personally see the publisher of one of your county papers and ask him to furnish a copy? They can usually be obtained for the asking and this will enable you to have your county as well represented in the reading room as most of the others are now.

THE students were very much interested in the bill before the legislature known as the Redfern bill. The students were in hopes that the provisions of the bill would be so strained as to allow the graduates from this college to receive state certificates to teach, the same as the Normal and University graduates are now receiving.

The legislators did not see this in the same light as we do and so they passed a substitute bill which in its present form will not help a single college in the State. The bill is a move in the right direction but it lacked momentum sufficient to carry it as far as it ought to have been carried.

TOWARD the last days of the session of the legislature, the special committee appointed to investigate the policy, course of study, conduct and general management of the Agricultural College made its report. Perhaps the hurry of the last days of the legislative session made the report less thorough than it otherwise would have been, still the committee did good work.

The report considered as a whole is favorable to the college. While some minor points are criticised the general workings of the college is looked upon by the committee as being all right. In order that those who have not had a chance to see the full text of the report, may get a better understanding of it we will give under the several heads the substance of the report.

#### 1. *Legal Basis of the College.*

It was thought that the board should bear in mind the terms of the act of congress which directs that such branches of learning should be taught as are related to agricul-

ture and the mechanic arts in order to promote the liberal and practical education of the industrial classes in the several pursuits and professions of life.

In order to determine the above point, they looked into the workings of the two courses. They criticised the Agricultural course for not giving as much of the practical education as it ought. It said a practical student ought to be able to handle a team, plow, sow or perform *any* of the practical operations of the farm.

The mechanical course was found to be in a very creditable condition. Still this was criticised for not giving the students practical work in plumbing.

#### 2. *Expenditures.*

The committee thought the funds had been wisely used in building and equipments. It was also thought that the amount paid for services rendered had been well expended.

#### 3. *Have the Faculty Sufficient Work Assigned Them?*

Quoting from report which says: "We do believe that more work can be given to the faculty, and a corresponding greater benefit to the students and college, by enlarging the laboratory or practical teaching without increasing materially the force of teachers."

#### 4. *Is Co-education Desirable and to be Recommended?*

The committee said yes. They based their belief upon the success of the education of girls at the university of our own State, at the Agricultural College of Kansas and at other leading educational institutions, and hence they recommended that the Board of Agriculture arrange as soon as possible for an industrial course for girls.

#### 5. *Is It Desirable to Relieve the Board of Control of Agricultural College Lands from Farther Care and vest their Care and Management in Board of Agriculture or Jointly in Two Boards?*

Recommended that the control of these

lands should be vested solely in State Board of Agriculture.

#### 6. Recommendations.

Closer relations between State Board and Faculty by having joint meetings at stated times.

To give great latitude to the president in his powers and privileges in employing and directing assistants. The president should be held responsible for the success or failure resulting from his administration.

Compulsory manual labor should be abandoned. They desired to have only such labor as is needed in conducting the practical education. Volunteer labor should be paid for at a price depending on the class of labor performed. Gradually abandoning the dormitory system. Addition of more elective studies or courses. Adoption of a two year's course, which shall at the same time be a part of the regular four years' course.

To strengthen and subdivide agricultural course.

To keep abreast of first class farmers in experimental work by demonstrating the value of new things.

Maintaining the part of the farm not used for experimental purposes as a model farm.

Making the appropriations for the education of those in industrial vocations and the learned professions more in accordance with the proportion of the two classes in the business affairs of life.

We will not try to comment on the above report as we are fully convinced that the student who has had a four years' course here can determine for himself the weak points of it. However we are glad the report was made and now we can realize the college has been benefited by it. A minority report was made but all considered the source from which it came, and passed it by without giving it heed.

It is announced that Charles Dudley Warner will deliver the commencement oration at the University of Michigan.—*Illini*.

## COLLEGE NEWS.

The college physician fee has been abandoned.

We understand that there is a ladies' bicycle club on the grounds.

Mr. G. C. Lawrence, class of '85, is making a collection of economic plants.

Vacation, Field Day and various other combinations makes a scarcity of college news.

Professor Edwards and W. O. Hedrick are doing the work of Professor McBride this term.

G. C. Davis made a trip to Chicago recently to install the national entomological exhibit.

Professor Cook has recovered from his recent illness so far as to be able to meet his classes.

May 10, the Battle Creek High School visited the college and were much pleased with our institution.

Mr. Clinton and wife are in Chicago attending the educational exhibit at the exposition for the college.

The experiment station library is now arranged under our new cataloging system and is ready for use.

Sunday-school picnics find the college a very pleasant place to come; one will visit our grounds Saturday.

Many salaries were raised at the last board meeting, among which was that of Mr. Gunson, our efficient florist.

The great cry of investigation has been satisfied and what good or evil has come from it? Echo answers what.

The mechanical department is building a small air compressor for experimental purposes. They are also making a pair of planer centers.

Recent rains have caused the Cedar to overflow its banks and cover the wild garden with water. The damage it will do cannot be estimated.

Mr. Wheeler will have charge of the smut experiments, commenced by Mr. Holden. We believe this experiment has fallen into good hands.

All the freshmen class in botany are now supplied with stage microscopes. The Botanical Department own thirty. Their work is now largely laboratory.

When Professor E. A. Burnett visited the college recently, his last class in agriculture presented him with a silver shaving mug as a token of their esteem.

Mr. C. F. Moore of St. Clair has been appointed a member of the State Board of Agriculture to fill the vacancy occasioned by the resignation of Mr. Butterfield.

We do not believe students should go so far in giving vent to dislikes as did some of our students a few nights since in burning lecture notes given by a professor.

An unusually large number of flower beds are being placed about the lawns. They begin to present a beautiful sight, and by August will be admired by all who visit the college.



The Botanical Department has commenced to collect and press various common weeds and grasses. These are all to be full size and will be used at farmers' institutes and fairs.

Wendell Paddock, W. G. Smith, Bert Cook, E. B. Hale, W. L. Harvey and A. T. Stevens, all of '93, attended the burial of their classmate, John R. Potter, May 24, and acted as pall bearers.

The botanic garden will have added to it the leading weeds. These will be labelled; then all may become acquainted with them. There has also been about 250 kinds of seeds from different parts of United States, planted there.

The course in botany has been slightly changed. The freshmen have only three days per week instead of five and in its place will be some work during the summer term of the sophomore year, and physics will go to the freshman year. This goes into effect this term.

A brown Swiss bull calf from the herd of Mr. McCormick of Ill., will soon be received by the college. He is a grandson of Eliza that has a record of 65 lbs. of milk and 2 2-10 lbs. of butter-fat, per day for three days. It is a present to the college by Mr. E. M. Barton of Chicago.

The grass garden is nearly all planted. Nearly all the grasses have been removed from the Farm Department and some from the Delta. These are planted with reference to the natural conditions of growth. Some are on the bottom land, some on clay, some on sand, while some are in shaded places, others in bright sunlight.

Prof. Wheeler was called to Colon this week to investigate the cause of the death of nine sheep belonging to P. Farrand & Sons. He found that one of two things was the cause; either the sheep had eaten shepherd's purse affected with white rust or from eating plants of sleepy catch fly. As yet it is not definitely known which, but the station will continue to work on it.

A. F. Gordon of '91, is studying karyokinesis or transformation of the nucleus during cell division in formation of cells. He finds that in *Tradescantia* the cells form in from ten to twenty minutes and that the whole process from nucleus to nucleus again does not occupy more than two hours under favorable conditions. Nearly all parts of all plants have cell multiplication in this way and thus grow.

The presidents of the various societies and fraternities for this term are: of Union Literary, U. P. Hedrick; of Eclectic Society, A. B. Chase; of Olympic Society, A. B. Cook; of Hesperian, O. B. Hall; of Feronian, Miss Jennie Cowley; of Columbian Literary, W. J. Cumings; of Phi Delta Theta Fraternity, M. F. Loomis; of Delta Tau Delta Fraternity, W. F. Hopkins; of Natural History Society, Bert Cook, and of Botanical Club, A. T. Stevens.

The mechanical department now has \$1,500 appropriated for a foundry building, which will be built on to the east side of the blacksmith shop. It will make the shop extend seventy feet east, and the foundry will be in the west end next to the machine shop, and the blacksmith shop in the east end. South of the foundry part will be a wing about 20x30 feet in which will be the cupola, core oven, rattler, hydraulic lifter, for elevating coal and iron to the charging platform; also bins for coke, iron and sand.

Hon. I. H. Butterfield, who has been on the Board of Agriculture for some time, has been appointed secretary in place of H. G. Reynolds, who resigned on account of ill health. Mr. Butterfield takes his position July 1. He comes as a practical business man, with much experience, and will undoubtedly fill the position in a satisfactory manner. Secretary Reynolds will go to Traverse City to spend the summer, then to Chicago for a short time, then to California where he will make it his home.

One of the saddest misfortunes ever taking place at the college occurred last Wednesday. About 6 o'clock in the afternoon, Fred J. Bone and G. P. West went to the river swimming. They had not been in long when Bone called to West for help. The river being high, and having a very strong current, West made but slow progress, and when within a couple rods of him Bone went down for the last time. West gave the alarm and immediate search was commenced. A large part of Wednesday night and all day Thursday was used in searching, but the body could not be found till about three o'clock Friday.

Mr. Bone entered last fall with the freshman class, was an industrious student and highly respected by his classmates and all who knew him. He was about twenty years of age and came from Coe Ridge, O. His father came and took his remains home Saturday, after a short service in the chapel Saturday morning at 7:30 o'clock.

Mr. Van Devort has been doing a piece of work which calls for much credit. It is a dynamometer for measuring directly the force exerted on a lathe tool while at work. It consists of a cylinder which holds the tool point; this is filled with compressed oil and attached to a pump by which greater pressure of oil may be secured. Connected with the cylinder is an ordinary pressure gauge and a Bristol's recording pressure gauge. The area of the plunger which fits the cylinder and holds the tool is ten square inches, and the pressure gauge records only 1-10 of the pressure. Mr. Van Devort has made several satisfactory trials of this and will make many more, some of which may lead to some new discoveries in machine work.

The Botanical Department is now beginning to complete its home. It has ordered thirty tables two feet wide and three and one-half feet long for the use of the sophomores in plant physiology. Each of these tables has two drawers which are locked, and each also has a tight box for the microscope. This will

enable the department to fix the responsibility of injured microscopes or broken utensils. We are glad to see these improvements in this department for Dr. Beal and his assistants have, for the past three and one-half working years, certainly been badly unconvened and much handicapped for doing the good work that might be done.

#### MICHIGAN MUCK.

In older times the muck swamps of our State were considered not only waste and worthless but a disgrace to the country. They are now proving to be mines of wealth to those who know how to use them.

Specimens of these mucky soils have been gathered, analyzed, mounted and exhibited by the chemical department of this college. They include:

1. Celery soils from Kalamazoo, Grand Haven, Newberry, Luce Co. The Michigan celery has won a proud name all over our land.

2. Cranberry soil from St. Joseph, which affords this delicious berry in quality fully equal to the cranberries of New Jersey and Massachusetts.

3. Peppermint soil from St. Joseph Co. The leading grower of peppermint in that section modestly declined to send soil for this purpose—"Too much trouble and expense"—while he thought he had too good a thing to be given away.

#### P E R S O N A L S.

We desire the earnest co-operation of every person who has ever been connected with the college in trying to make this department an interesting one. Let every alumnus and every person who has been with classes here send in news to the editor of this department, often, thus making his work much easier and the department more interesting to all.

The personals department of the SPECULUM presents its compliments to its diminutive contemporary, the *Eagle*, willingly acknowledging the great help the *Eagle* has been to our department. But we beg to inform our supra-precocious rivallet that we derive some of our information from other just as reliable sources as the *Eagle*.

'67.

The county surveyor of Clinton county, Henry H. Jenison, lives at Elsie instead of Eagle, as reported in the last SPECULUM.

Daniel Strange is said to have cleared five per cent on a reasonable valuation of his farm at Grand Ledge.

'68.

Frank S. Burton was successful in his endeavors to get the Rhines Balloting Machine passed upon by the legislature for use in coming elections.

'69.

Richard Haigh, Jr., spent most of the winter as a member of the "third house" in the Michigan legislature, lobbying for Rhines Voting Machine.

The annual catalogue of the Missouri school of mines is on our table. A glance at the faculty roll reveals the name of Paul J. Wilkins as instructor in the Academic Department.

'70.

Hon. C. W. Garfield was on the grounds June 3, looking after the interests of the Military Department.

'73.

G. E. Kedzie is now superintendent of the Barstow Mining Company's property near Red Mountain, Colorado.

W. Asa Rowe has taken a contract to raise a large acreage of beans for the D. M. Ferry Seed Co. of Detroit.

'74.

Dr. F. J. Groner is now a surgeon at St. Mark's Hospital, Grand Rapids, Mich.

From the *Detroit Tribune* we learn that Henry A. Haigh recently returned from an extended trip through Mexico. He reports that country as a most interesting one to visit, and has numerous trophies in the way of Mexican arms, etc. He also says that Mexico, while a Republic in name, is but a military despotism in fact, still the government is well adapted to the people. Popular suffrage exists only in name. He does not favor annexation of Mexico. Mr. Haigh also attended the Louisville Republican League convention, and reports a very successful and profitable meeting.

'77.

Born, at Storrs, Conn., on May 21, a boy by the name of Peebles, whose weight is 5 kilo., 443 gr. *Eagle* congratulates Professor and Mrs. Peebles.—*Eagle*.

WITH '79.

George R. Malone is grand organizer of the I. O. G. T. at Lansing, Mich, and resides on Chestnut street.

'79.

Frank Benton was re-elected secretary of the Union Beekeepers' Association.

C. W. Gammon had the honor to ship the first box of cherries to the Columbian Exhibition, the product from his farm at Walnut Grove, California.

'81.

Dr. Ambrose E. Smith, physician at Olean, New York, spent Sunday, June 4, at the college, while on his way to Chicago.

W. S. Delano is secretary of the National Board of Agriculture, of the National Farmers' Congress. He writes as follows: "There is one thing about our Alma Mater which causes me regret. It is the frequent changing of members of the faculty. To my mind this is wrong, and the State of Michigan should apply the remedy, increase the salary of the distinguished professors. M. A. C. develops a man,

and when he is ripe for mature work allows him to give his mature work to some other institution."

'82.

Dr. Eugene D. Millace visited the college Monday. He is a successful physician at Webberville, and is also a candidate for postmaster at that place.

William L. Snyder, who has been suffering from a protracted illness, is again able to attend to his duties as chemist of the Michigan Carbon Works at Detroit.

'83.

Albert W. Mather is now at the head of the shipping department of the Hammond, Indiana, pork packing establishment.

Cards are out announcing the marriage of Ernest P. Clark and Miss Elnora Wheeler, Wednesday, May 24, at Kendall, Mich. At home after June 1, at St. Joseph, Mich.

W. S. Kedzie is now located at Ouray, Colorado, where he is assayer for H. C. Dickinson, to remain until December 1. He writes: "On account of the low price of silver it has been rather quiet during the winter. While it may not be very brisk during the summer, still I look for a good deal of ore to be shipped from this place."

'84.

Edwin C. Bank is a candidate for the superintendency of the State Industrial School at Lansing.

'85.

Chas. H. Hoyt is in charge of the lumber exhibit at Chicago.

The friends of W. S. Baird will be sorry to learn of his illness, which makes it necessary for him to give up indoor work. He expects to remove to the west, where we hope he will find a climate and occupation congenial to him.—*Eagle*.

WITH '85.

Louisa Truman was married the 16th of March, at Pasadena, to John K. Vlier.

'86.

C. H. Judson is civil engineer for the Lake Shore and Michigan Southern Railway, assisted by J. P. Stafford, with headquarters at Hillsdale.

E. G. Eldridge, clerk in Clifton House, Chicago, writes that he can take care of about thirty people at once in his own home at very reasonable rates. Members of the class of '86 are especially eligible to entertainment there. He resides within five blocks of the fair grounds.

'87.

A. A. Abbott will graduate at the Michigan Mining School in September at the head of his class. During the spring term he has been serving as assistant instructor in physics, and he has been appointed assistant instructor in drawing for the next school year.

C. E. St. John, for several years the very popular assistant in the physical science department at the State Normal School, has secured the John Tyndall scholarship at Harvard in a competitive examination. There were sixty or more competitors. A year at Harvard and a year in Europe go with this scholarship. We're proud of this Michigan product.—*Moderator*.

'88.

Howard B. Cannon and Miss May Varney were married May 9, at Simon, Wayne Co., Pa. The SPECULUM extends congratulations.

W. F. Staley, who took the degree of LL. B. at Georgetown University last year, took his Master's degree at that institution June 5.

'89.

Ellsworth A. Holden, ex-school commissioner of Benzie county, and now assistant in the office of Superintendent of Public Instruction, was married to Miss Maud E. Pratt, at Lake Ann, June 1.

Frank M. Paine and Miss Eleanor Georgiana Rutter were married Thursday, May 11, at the Congregational church, Rockford, Mich. Mr. and Mrs. Paine will make Charlevoix their home in the future.

'90.

L. W. Spaulding, instructor in carpentry at South Dakota Industrial School, writes: "We have a young but very well conducted reform school here. I enjoy my work, and am doing quite well financially."

A. L. Waters is one of this year's graduates at the Michigan Mining School. He has made a good record, and was employed as a special draftsman on the geological survey for a few weeks this spring. He is the first student to win the \$75 first prize offered by J. M. Longyear of Marquette for an essay on a subject assigned by the board of control of the school.

'91.

V. H. Lowe is gate-keeper and exhibitor of the Libby Glass Co., at the Columbian exhibit.

WITH '91.

Of thirty-six men who entered with the class of '93 at the Mining School only nine will graduate, and George Church is one of three who are from M. A. C., and who compose one-third of the graduating class.

WITH '92.

M. L. Jones is at Houghton attending the Mining School. M. L. is doing very well at school, is a great ladies' man, and has become a great star on the stage, and is head man in a local minstrel show.

At a meeting of the class of '93, held May 23, 1893, the following resolutions were adopted:

WHEREAS, since Almighty God in his infinite wis-

dom has removed from our midst one of our most respected classmates, Mr. John R. Potter, be it

*Resolved*, That while we acknowledge the infinite wisdom and goodness of the Supreme Being we no less mourn the loss of him who has been taken from us.

*Resolved*, That in the death of our friend and classmate we have lost one whose abilities were marked, whose amiable and generous disposition, whose unswerving devotion to duty were honored and respected by all.

*Resolved*, That we extend to the bereaved family our heartfelt sympathies in this great sorrow.

*Resolved*, That a copy of these resolutions be incorporated in our minutes, and that they be published in the COLLEGE SPECULUM.

VERNON J. WILLEY.  
ALBERT B. CHASE.  
HARRY M. GOSS.

## ATHLETICS.

Well, Field Day, the long-looked-forward-to event of the college year, is over; not the Field Day of former years, but a sort of profane parody on the event of events that we once knew.

The enthusiastic, wild and loyal students, the athletes, and the crowds of friends and partisans—all these elements of a successful Field Day were gathered at Jackson, June 1-3. The important factor which was lacking was one over which the members of the M. I. A. A. had no control.

Until Wednesday the skies were clear and seemed to smile on the preparations that were being made for the great day; it now looks as if the gathering moisture of a week was saved up for the particular purpose of pouring it down during the Field Day. At any rate this was certainly done.

Wednesday evening it rained profusely, enough to give a sample of what could be done in that line.

Thursday afternoon about one hundred started for Jackson under a dull, leaden, uncompromising sky; but the frequent showers failed to dampen their ardor or drown the yells, college songs and merriment. On the train an enthusiastic and plucky little senior offered to bet the athletic editor that Friday would be a clear day. We reckon it as one of the lost opportunities of our life that the bet was not taken.

When the train arrived in Jackson we proceeded to take the town by storm. (The weather had done likewise.) We marched up to the Hibbard House and gave nearly all the college yells known to Michigan. We were lodged at the "New Hurd" now under the Hibbard management, and were well housed, fed, and cared for during our stay in the city.

It rained that afternoon, rained in the most lavishly abundant way. Out on the fair grounds where it was proposed to hold the sports, there were miniature rivers and lakes and a life sized swamp covering the

remainder of the grounds. Of course all sports scheduled for that afternoon had to be postponed. We put in the afternoon looking glum, telling the people "who we were," or how "Sister Mary walks," while all of the students hoped for blue sky and sunshine. In the evening a reception was given to the visiting students by the ladies of the Congregational Church, which was largely attended and much enjoyed.

Friday morning came, and with it more rain. In spite of this however we gathered at the fair grounds. In front of the grand stand was what may in former days have been base ball grounds. We were told that a certain pool of water rippling in the wind was left field; that the tall grass growing from an adjoining marsh, covered right and center fields; that the muddy patch in the foreground was the diamond. Only to a person of vivid imagination did this seem at all possible; yet on such a place as this were played two of the games preliminary to the base ball championship.

About 10 o'clock the umpire called "play ball" and Olivet and Ypsilanti crossed bats to determine which of them should play in the game which should decide the ownership of the cup for another year. Only seven innings were played and the Olivet was an easy victor. The game was featureless except for the large totals in the error column; but almost any error was excusable on such a field as that. The ball was wet all the time. Whenever it struck in the field there was a splash of water to show where it landed. The mud on the base lines was 2 to 3 inches deep. The score by innings is as follows:

	1	2	3	4	5	6	7	
Olivet . . . . .	0	4	3	3	1	0	0	— 11
Normal . . . . .	3	0	1	0	0	2	0	— 6

In the afternoon, more rain intervening, Albion and M. A. C. battled. And a fierce struggle it was. Much credit is due to Catcher Simmons, who went into the game with a thumb bruised open and one which pained him with every ball he caught. It was an exhibition of grit of which we or any college might be proud.

The score was large; any score must needs be, played under such adverse circumstances. But heavy batting rather than errors accounts for the large score that was made. The Albion team went to pieces and seemed utterly unable to handle a wet ball. Fisher's curves were a mystery which most of them failed to solve; in the last four innings Rittinger did good work in the box, and few hits were made off him.

Extended comments on the game would necessarily be of a partisan nature. We think, however, that any unprejudiced person who studies the summary and analysis of the game below, will see that Albion was outclassed and outplayed.

Some of the features of the game were the fine double play from Simmons to Patrick to Simmons in the first inning; the hot liners caught by McElroy and Chas. Jacobs at different stages of the game; and the heavy batting of the M. A. C. team.

M. A. C.	AB	R	FB	SB	PO	A	E
Mc Elroy, 3 b . . . . .	5	2	3	4	1	0	1
Simmons, c . . . . .	5	2	2	1	9	4	4
Rittinger, 2 b . . . . .	5	2	4	0	3	0	1
Fisher, p . . . . .	5	1	0	0	1	3	3
Ansorge r f . . . . .	5	2	1	0	0	1	0
Crosby, c f . . . . .	5	1	1	1	0	0	0
Patrick, 1 b . . . . .	5	2	1	2	12	1	0
Chase, 1 f . . . . .	5	2	3	3	0	0	0
Beauvais, s s . . . . .	5	1	2	2	1	3	2
Totals . . . . .	45	15	17	13	27	12	11

ALBION.	AB	R	FB	SB	PO	A	E
Ogden, p . . . . .	5	2	2	1	1	10	3
Mulholland, 1 f . . . . .	5	0	1	2	0	0	0
Buck, c . . . . .	5	2	1	4	3	2	2
Phelps, s s . . . . .	5	1	1	1	1	0	2
White, 3 b . . . . .	5	1	1	2	0	3	0
Landon, 1 b . . . . .	5	0	2	0	13	0	2
Jacobs-Karl, c f . . . . .	5	0	1	2	0	0	0
Crampton, r f . . . . .	4	1	1	3	0	0	0
Jacobs-Chas., 2 b . . . . .	4	1	0	1	6	1	1
Totals . . . . .	43	8	10	16	24	16	10

	1	2	3	4	5	6	7	8	9	Total
M. A. C., . . . . .	7	0	0	0	0	8	0	0	*	15
Albion, . . . . .	1	0	3	2	0	1	0	0	1	8

Earned runs, M. A. C. 5, Albion, 3. 2 base hits, Rittinger 1, Chase 1, Ansorge 1. Stolen bases, M. A. C. 13, Albion 16. Double plays, M. A. C., Simmons to Patrick to Simmons, Bases on called balls, M. A. C. 5, Albion 3. Bases on hit by pitched ball M. A. C. 1, Albion 1. Struck out by Ogden and Jacobs 2, by Fisher 5. Wild pitch, Fisher 1, Ogden 1. Time of game 2:15. Umpire, Gordon.

After the game, four of the field sports were run off, these being the only ones for which time or place could be found between showers during the whole three days. Considering the depth of the mud, the records were remarkably good, though none of them approached those of former years.

It was nearly eight o'clock when the last sport was finished on the fair grounds, and the indoor sports were scheduled to begin at that time in the opera house. Of course they did not, and it was nearly nine o'clock when they did begin. This delay and the general slowness and lack of method was one of the unpleasant features of the evening. Part of it may have been unavoidable, but much of it was undoubtedly due to the plan or lack of plan adopted by the board of directors. It seems that this worthy body, thinking to save the expenses of a referee, had decided to themselves act as judges. Well, they did so act. The five directors would stand on the stage, whispering and gesticulating for several minutes, trying to decide what wrestlers were to be called out for the next bout. When the decision was finally made when the wrestlers were on the mat, and one

claimed a fall, he was compelled to hold his man until the judges finally decided whether he was really down. Of course this ponderous system was liable to serious abuses and mistakes.

Before the evening was over nearly everyone present thought that serious abuses had been committed and mistakes made. Much dissatisfaction was expressed, and at ten o'clock the sports remaining were postponed until the next morning, at a time when a row seemed imminent.

All this would have been avoided by the system of having a professional referee—a custom which has been in vogue every previous year.

The club swinging and running high kick came first. The latter was probably more interesting than the same event last year. The wrestling, too, was rather better.

Desef of the Normal, was certainly one of the best men who ever wrestled in the M. I. A. A. In his own weight he is superb. But when a light weight enters welter and middle also, he should be compelled to take his chances with the others, and should be given no advantages. Mr. Green, the Normal director, was referee at the time when Desef wrestled with Laitner of M. A. C., in welter weight. The crowd thought that Desef was favored by the referee. When the third round began, each had a fall. Laitner threw Desef, or so nearly all who were nearest believed, but the referee would not allow it; Desef got a roll on Laitner, who bridged, but Green called "down," a decision which was jeered and hooted by nearly everyone in the house. Pandemonium reigned for some time and during the excitement the directors voted to postpone the remainder of the wrestling until the next morning.

Mr. Green may have been right in his decision, but nine out of ten of those who saw the bout do not believe it. He may have been honest, but it is wrong in principle to allow a man to referee where his interests are concerned; the fault lies with the rule which made this possible rather than with the man himself. Let us take a lesson from this, and in the future have a referee who knows his business, and who has no prejudices to stand in the way of a fair decision.

Saturday morning came, and so did the rain; the mud and water were so deep on the Fair Grounds that life and limb were not safe there. The wrestling was continued in the opera house at nine o'clock. About ten o'clock the wearers of the green were reinforced by a delegation of seventy-five more of the students, faculty and instructors of M. A. C. They were brought down by the news of Friday's game, but the final game which they came to see was not played at Jackson and could not be. The sports at the opera house were all that could be done in the way of athletics on Saturday. We console ourselves by the belief that we would have won the cup had the final game been played as scheduled.

At a meeting of the board of directors it was decided

to play off the final game between M. A. C. and Olivet on the M. A. C grounds on the following Wednesday. The medals remaining will be contested for at a Field Day to be held sometime next fall. Only those now entered will be eligible then.

The results of the contests so far had are as follows:

#### STANDING BROAD JUMP.

Won by Flagg of Olivet, 10 ft. 3½ in.

Second, Poss of M. A. C., 10 ft. 2¾ in.

#### PUTTING SIXTEEN POUND SHOT.

Won by Paton, M. A. C., 31 ft 8½ in.

Second, Flagg of Olivet, 30 ft.

#### RUNNING HOP STEP AND JUMP.

Won by Armstrong N. A. A., 40 ft. 2 in.

Second, Mulholland, Albion, 40 ft.

#### THROWING SIXTEEN POUND HAMMER.

Won by Patterson of Hillsdale, 96 ft. 8 in.

Second, Flagg of Olivet, 93 ft. 10 in.

#### RUNNING HIGH KICK.

Won by Poss of M. A. C., 8 ft. 6 in.

Second, Whitney of Hillsdale, 8 ft. 4 in.

#### CLUB SWINGING.

Won by \_\_\_\_\_ of Albion.

Second, Ward of Hillsdale.

#### HEAVY-WEIGHT WRESTLING.

Won by Mitchell of M. A. C.

Second, Rittinger of M. A. C.

#### MIDDLE-WEIGHT WRESTLING.

Won by Rittinger of M. A. C.

Second, Desef of N. A. A.

#### WELTER-WEIGHT WRESTLING.

Won by Desef, N. A. A.

Second, Close, Albion.

#### LIGHT-WEIGHT WRESTLING.

Won by Desef, Normal.

Second, Woodworth, Hillsdale.

#### FEATHER-WEIGHT WRESTLING.

Won by McPherson, Albion.

Second, Riddell, Olivet.

This was all at Jackson. As the train pulled out of the station that Saturday night, it carried a crowd somewhat sadder, possibly wiser, certainly more tired and hoarse than the one which boarded the train at Lansing three days before.

To the management of the Hibbard House, who treated the college boys so well, to the citizens of Jackson, who were so appreciative and forbearing, and especially to the young ladies of Jackson who did so much to replace the sunshine that the skies denied us, do we extend our thanks and kindest feelings.

There was worse to come than anything yet mentioned. That was the loss of Wednesday's game and with it the base ball championship. Fisher's arm was lamed in the game he pitched against Albion and he was unable to play Saturday at all. On Thursday night Rittinger was called away by a telegram and thus we were deprived of two good players and were left entirely without a pitcher. Our catcher's thumb was still in a bad condition, and

the team was disheartened and generally demoralized. What could we do but take our medicine. The Olivet team came, saw, and conquered. They had a good battery and were in excellent practice.

Mc Elroy, who pitched the first seven innings, certainly did nobly, considering his lack of practice, and Simmons with his thumb in the worst of shape, played heroically behind the bat.

The details of the game are more or less painful and we need not dwell on them long. Perhaps Olivet could have defeated us had all our men been in the game and in good condition. They may say that at Olivet, but we at M. A. C. do not believe it. We claim the extenuating circumstances, while Olivet has the cup.

M. A. C.	AB	R	FB	SB	PO	A	E
McElroy, p and 3 b	4	1	0	0	0	2	2
Simmons, c	4	1	1	0	5	1	2
Ansorge, 2 b	4	1	1	2	4	4	1
Crosby, c f	4	0	0	0	0	1	0
Patrick, 1 b	4	0	1	1	12	0	0
Chase, 3 b	4	0	0	0	4	1	3
McKinnon, 1 f	4	0	0	0	2	0	1
Hale, r f	4	0	0	0	0	0	0
Beauvais, s s	3	0	1	2	0	4	1
Total	35	3	4	5	27	13	10

OLIVET.	AB	R	FB	SB	PO	A	E
Smith, s s	6	2	3	2	1	1	0
Archer, 3 b	6	3	3	1	0	0	1
Dowland, c	6	0	1	0	14	1	1
Wright 2 b	6	2	0	1	2	1	0
Moore, c f	6	1	3	0	0	0	0
Hinkley, 1 f	5	1	1	0	1	0	0
Cobbs, 1 b	5	1	2	0	7	0	1
Hamilton, r f	4	2	3	0	1	0	0
Luther, p	4	2	2	0	1	3	1
Totals	48	14	20	4	27	6	4

	1	2	3	4	5	6	7	8	9	Total.
M. A. C.	0	0	0	1	0	0	0	2	0	3
Olivet	0	0	2	2	1	4	1	4	0	14

Two base hits, Moore 1, Hinkley 1, Luther 1; 3 base hits, Luther 1, Simmons 1; double play, Ansorge to Patrick; bases on called balls, Olivet 3; struck out, by Luther 12; McElroy 1; passed balls, Simmons 2; wild pitch, McElroy 1; Umpires Clute, Bryan. Time of game 2:30.

In closing, we cannot but mention our appreciation of the gentlemanly conduct that has characterized Olivet boys and the Olivet team in all their dealings with M. A. C. this year. Olivet worked hard for the cup and won it honorably.

This is the second time M. A. C. has lost the championship in the last seven years.

We are in receipt of a communication from the Battle Creek Athletic Association, asking us to mention the Field Day exhibition to be given at their city June 28. Gold medals and prizes will be offered and the contests will be open to any amateur athlete in the State. Entry blanks may be obtained upon application to C. L. Bartlett, secretary.

# LET'S HAVE A RACKET

And a ball and we'll play tennis. But then there's the Shoes! We must have Tennis Shoes, and now I believe I had rather talk about shoes. We keep the good makes of Tennis Shoes, with ventilating soles, in high and low cut, and in colors—black, white, and think I shall keep brown ones. We have a Kangaroo L. A. W. Wheelman's Shoe—regular price \$2.50, we are closing them at \$1.65. Won't last long at that price. We appreciate the liberal patronage we get on those low cut Vici Kid and Patent Leather Shoes. We aim to keep only the best in this line, just the thing to wear to classes and society room. If you haven't a pair, ask to see them next time you are in. We have a good assortment of Russia Leather and Brown Shoes—very pleasant shoe to wear in summer; make a nice shoe to wear to the great fair. Prices are about same as in black. We have pretty near everything else usually kept in a first-class shoe store.

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