

THE SPECULUM.

VOLUME XIII.—No. 7. AGRICULTURAL COLLEGE, MICH., MAY 15, 1895. WHOLE No. 85

The Observance of Arbor Day at M. A. C.

DR. W. J. BEAL.

It was in the spring of 1887 that the authorities at the M. A. C. decided to celebrate Arbor Day in an appropriate manner. The chapel was well filled and those participating in the excellent program were numerous, including President Willits, Dr. Kedzie, Dr. Beal, Professor Bailey and many students. Then followed the planting of eleven trees, if my memory is not at fault, one for each of the four classes, one for the co-eds., one for the Base Ball team, one for the students of the Mechanical department, one for the Delta Tau Delta fraternity, one for the Phi Delta Theta fraternity, one for the Union Literary society, and one for the Eclectics.

The company passed from place to place to see that each tree previously selected and made ready was suitably planted. In each case the president of the college substantially repeated the same words, guaranteeing that the tree should be well cared for and entrusting them to the Horticultural department. The Seniors of this year selected a well-formed second-growth tree of sugar maple which they planted three yards northwest from the main entrance to the armory in a hole the bottom of which was "thoroughly pulverized." The students of that period will see the propriety of the use of the quotation marks above employed.

A bottle said to contain some records was carefully laid beneath the roots of the class-tree. This tree never received much care except that one member of the class watered it pretty freely occasionally during the first summer. It died a year or two afterwards. The successor to

Professor Bailey, Professor Taft, placed another maple in the same spot, but that, too, was destined to perish, and was removed to the rubbish pile two years ago. Whether these trees died from want of care, on account of exposure of the roots before planting, or whether they were not suitably planted, or whether they were shocked by the near approach of cannon, rifle, or bayonet, or from the baneful effects of the bottle, the writer is unable to explain. At present a spot two and one-half feet in diameter a little below the surface and nearly destitute of grass marks the spot where these two unfortunate maples were planted.

Northeast of this disastrous spot about twenty feet from the northeast corner of the armory still stands in the grass a sugar maple that was planted by the Juniors of the year of 1887. This tree is likely to succumb to the borers, combined with other troubles.

The Sophomores planted an American elm twenty feet southeast of the armory, where it has since remained without mulch in a sod of June grass. The growth has been slow but at present the chances favor a continued existence with a prospect of a revival after the roots extend further downward and radiate further in each direction.

The Freshman tree was likewise an elm and planted twenty feet northeast of the armory. Its condition is a little better than that last mentioned.

In the Botanic garden a little east of an imaginary line joining the two ponds stands a pepperidge, tupelo or sour gum tree. Although always well-tilled, at one time life seemed so precarious that the writer, true to his promise, planted another near the spot. The original tree soon revived and is now in a thrifty condition while the other was soon removed.

Fifteen feet south of the road and little east of south of the diamond is the black ash planted by the ball team, standing in closely rooted grass, the tree scarcely larger than when planted eight years ago. Several small limbs have been broken from the top, possibly by a home-fielder sent there by George L. Chase of '88 or some other hero of the bat. Not very far from this unfortunate ash, at one time the Military department stationed a target. The writer here records the fact that the tree has been shot in the neck or straight through the trunk just below the limbs. Its recovery is not probable.

West of the Mechanical laboratory three or four rods stands a black walnut where the students of that department planted it on the Arbor Day of 1887. The growth has been very slow but the tree may yet revive though it will be a long time before nuts can be gathered from the branches or the trunk assume sufficient size for turning out newel posts.

About five rods south-west of the Horticultural laboratory, built since the tree was planted, stands within a foot of the path a sturdy white oak. It is near a border of shrubbery, kept in good condition and promises a long life. None of the present members of the Delta Tau Delta fraternity knew of its existence. South of the armory twenty-five feet a depressed circular spot nearly free from grass marks the spot where the tree died and was removed that took the place of the one planted by the Phi Delta Theta fraternity. One member of the fraternity believes that Lake killed it by dumping around its roots all the wood ashes of the succeeding winter while he roomed in the armory. A little before the tree was planted came the members of the fraternity from their rooms in Wells hall. The youngest member of the fraternity, Mr. Hawkins, lead the goat which was partially enveloped in a blanket on which were the three Greek letters which stand for the name of the fraternity. Previous to this date apparently none but the members truly believed that they possessed a real live goat.

There is no evidence extant to the effect that the goat was in any way responsible for the death of the elm planted by its owners. Four rods east of the hall of the Union Literary Society built since the last Arbor Day above mentioned is a thrifty silver maple believed to have been planted by the "Union Lits."

East of Wells hall in a good spot, so far as soil is concerned the Eclectics planted a tree, long since removed as it ceased to grow and was no longer an ornament to the grounds, nor a credit to the society which planted it.

Above has been recorded the condition of eleven trees planted on Arbor Day by M. A. C. in 1887. Three are thrifty, four feeble, three are dead and one about to die. None of the trees living are marked by any sort of a label, nor do we find them mentioned in the reports of the president, or any members of the faculty for that year, or in THE SPECULUM. The thrifty trees are worthy of labels, the feeble ones deserve better care to restore them to health, the dead ones might be replaced by living ones or monuments erected to mark the spots once occupied. The chief value of an Arbor Day such as the one observed in 1887 was mainly sentimental and if we may judge by the records also ephemeral.

In 1889 the class of '91 planted a rock elm four rods south-east of the Chemical laboratory. It is in a good spot and thrives. In the same year the class of '98 planted a Norway spruce four rods north-west of the Secretary's office and four feet west of the stone walks. where it is likely soon to be crowded if it continues to flourish.

The class of '94 planted a white pine which has made a fair growth. It has been mulched and is marked by a neat label and may be seen east of the big stone of '73 and still east of the stone path extending northeast of the office of the Secretary.

In 1876 when the Hon. C. W. Garfield was foreman of the Horticultural department he superintended the planting of a small grove of trees nearly midway be-

tween the Secretary's office and Howard Terrace. Of this grove there now remain two thrifty American elms, one red elm and one hawthorn.

The above records are presented for all to think over in lieu of planting trees on Arbor Day of 1895.

The Discontent Among Farmers.

J. S. MITCHELL, HESPERIAN SOCIETY.

The widespread discontent which has prevailed among the farmers of this country for the past few years is not due to any one cause, but to a number of causes. Of the many causes which have each contributed their portion to swell the general discontent, a few are just reasons for complaint. The remainder—a much larger part—are but fancied grievances.

Let us glance at a few of those causes due largely to legislation.

First, the abnormal development during and after the civil war. In the period from 1850 to 1860 the country was making a steady but natural growth. The low tariff of 20 or 25 per cent. was but a small restriction upon the foreign trade. The war of the rebellion coming on in 1861, the duties were raised upon nearly all articles on which a tax could be collected. Money was needed to carry on the war; thus the people submitted to those heavy duties with but little complaint.

The discrimination against foreign products tended to raise the price of those articles produced at home. This, together with the withdrawal of two millions of men from the industries of the country to carry on the war, and the inflation of the currency, created abnormally high prices. Since the close of the war, prices have been gradually readjusting themselves to their normal level.

We have a class of farmers, who are continually looking back and sighing for the good old times, when wheat was worth \$2.00 per bushel, wool 90 cents per pound, and beef \$12.00 or \$15.00 per hundred-weight. But when we con-

sider the fact that the products of the farmer to-day will buy him more of the necessaries or luxuries of life than ever before, even in those good old times, his grievance cannot be allowed.

Second, arising out of the previous high prices came the contraction of heavy debts. Farmers who were at that time realizing high prices for their products ran in debt for more land, for buildings, or for farm machinery. The man who did this, practiced economy in living, and was industrious, usually paid off his indebtedness in a few years; but the man who lived luxuriously on the money which should have gone to pay his debts, thinking at the time that he would be able to straighten it all out in the near future, soon found that this was more easily said than done.

Prices which were high on account of the inflation of the currency, began to fall as contraction took place. The more they fell the harder it became to pay of the indebtedness.

Thus we have a class who are buried beneath a load of debt, a legacy of the inflation. Of this class it may be justly said they were wronged, but it was the wrong which the whole nation suffered. It may be said against them that the government, seeing the wrong, contracted the inflation slowly, thus giving them a chance to save themselves, of which, through lack of business insight or other reasons, they did not take advantage.

Third, is the so-called protection to the farmers. To some this topic may seem threadbare, but so long as a wrong exists this question never should, nor never will become a dead topic. The foundation principle of protection is to shut out the competition of foreign producers, or, in other words, to raise the price of the protected product in the protected country. If the prices are not raised, which is true in some cases, there is no protection. Now, through the workings of this system, the prices of the protected articles which the farmer buys are raised, while the farmer is obliged to compete with his great staples, wheat, cotton and live stock,

with other nations in the markets of the world. He is forced to buy in a protected market and sell in an unprotected market; to buy in a high market and sell in a low market, while he must produce his great staples for export as well as for home consumption. Now, when an article is produced partly for home consumption and partly for export, the price of the part exported fixes the price of the part consumed at home, and since the great staples are largely exported, the prices which the farmer receives are fixed by the export price—the price in the free market of the world.

Thus, being obliged to purchase his labor and necessities in a highly protected market, while selling in a low market, the farmer is grossly wronged. But here again a large class of the farmers wrong themselves through their ignorance of the workings of the system. They are crying for protection which does not protect; they ask for bread and are given a stone.

Fourth, is the shifting of taxes. Under our present system of taxation the burden of taxes are borne by the class who obtain their products from mother earth. In this country the farmers make up the greater part of this class.

With our present system of import taxes it is said that the consumer pays the tax. But does the consumer always pay the tax in the end? If the consumer be a farmer he must pay the tax, since he can shift it to no one else. The farmer goes to the market with a load of produce—it may be either wheat, corn, cotton or cabbages—and some one else fixes the price which he shall receive for his produce. He goes to a merchant to buy the necessities of life, and again some one else fixes the price which he must pay. On the other hand, if the consumer be of the stipend class—a teacher, doctor or lawyer—the tax on the article consumed will raise the cost of living, and they in turn will receive a larger sum for their services. The farmer employing their services will thus help to pay their tax.

If it be a merchant who consumes the

article, his cost of living will be increased; if he employs the services of the stipend class he will be compelled to contribute to their tax. This will also be added to and further increase the merchant's cost of living. The farmer buying goods from this merchant will pay for the goods, the tax on the goods, and a large part of the tax of the merchant as well as a part of the tax of the stipend class shifted on the goods through the merchant.

So it is with the manufacturer and all other classes of producers, the prices of whose products and services are not fixed by some one else at both ends of the transaction.

You may ask why it is that the stipend and manufacturing classes are able to raise the prices of their services and products? It is through the immobility of both labor and capital to change from one form of services or production to another, when they once become committed to a certain line of services or productions. For instance, the miners of the upper peninsula a year ago, would rather go half starved, supported by charity, than work for a fair wage in the lumbering camps. A number of box factories and wooden-ware manufactories continued running during the past year at a loss to the owners, while hundreds of others were closed down, being committed to a certain line of production, and the demand for their products ceasing.

Again in the assessment of the general property tax, the farmer pays more than his just share. His property consists of real estate and personal property that cannot be hidden from the view of the assessor; while the holders of stocks, bonds and mortgages can easily keep from the view of the assessor much of the evidence of wealth, and thus escape their just share of the tax.

Further the high rents or city taxes of merchants are largely added to the prices of the goods which they handle.

Thus we see that the farmer has just cause of complaint in the lavish expenditures of both State and federal governments, since the burden of taxes through

the shifting of taxation falls upon him.

We shall now take up some of the natural causes over which not the government, but the farmer himself has control, but nevertheless against which he has made bitter complaint.

The first of these is the low prices of the great staples cotton, wheat and live stock. During the last sixty days the prices of live stock have raised so that all complaint from this source has ceased. Wheat also is steadily advancing. For the cause of the long continued low prices of these staples we must look to lessened consumption, to new and improved machinery, to improved facilities for transportation, which opens a larger area to compete for the same market, and to over production of these staples.

By one or more of these causes, South America, South Africa, India and Australia, have been brought into direct competition with us in producing for the great markets of Europe.

This cheapening of the great staples should not be looked upon as an injury, but as a blessing to the farmer as well as the race. It is true that for a time it may and does injure the farmer until he can change from the staple to some other form of production. This cheapening of the great staples must necessarily cheapen other articles which the farmer must purchase.

Second, the point of diminishing returns is not approached. Closely connected with this point are the methods employed by the farmer. The greater part of the farmers in this country do not farm intensively but extensively. In the extensive farming, a large area is cultivated and but a small yield per acre obtained. If the amount of cultivation was increased up nearer to the point of diminishing returns, the profits of the farmer would be increased.

Now, if by careful management the amount of plant food in the soil is increased, the cost of cultivating and harvesting of the crop will be but little more, while the yield will be greatly increased.

Thus, if a profit was made before, it will be greatly increased.

Again the farmer is slow in changing from one form of production to another, for instance many farmers have continued to raise wheat as a staple, although the country has been suffering from an over-production of this cereal.

It may look upon the surface, as if a more intensive system of farming would produce more than could well be consumed and thus cause prices to fall; but if we will look beyond the surface, we will see that an increased production will give increased profits, and that larger profits will give the farmer more money to spend. This will allow those who furnish him goods and machinery to consume more of the products of the farm. Now, since the products of the farmers come from the soil, the farmers' profits are not increased at the expense of some one else, but on the contrary become a blessing to the nation.

Third, the ability of the farmer as an entrepreneur.

The greater part of the farming class of this country are entrepreneurs. They employ labor and capital in the production of wealth. Many own both the land and capital employed, but they are entrepreneurs nevertheless, who receive rent, interest and profits. These profits, like all other profits, may be minus or plus, according to the abilities of the entrepreneurs as compared with the no profit entrepreneurs.

A large part of the farming class have not the ability as entrepreneurs to manage the labor and capital and direct production; and hence will fall below the no profit entrepreneurs, or in other words, will make a minus profit.

It is this class of farmers that are continually railing about hard times; while the real difficulty lies in their lack of the requisite ability as entrepreneurs to direct industry.

In looking over these causes, each of which has had its advocates, we see that there are but two of them which are just

grievances, the protection system, and the shifting of taxation.

The remedy for the first of these causes is apparent, the education of the farmers as to the true workings of this system. Of the latter, a remedy is not so easily applied. It is evident that the import taxes and general property tax could be greatly reduced by increasing the excise taxes on intoxicants, tobacco, and luxuries, and by the use of the graduated income tax as well as a tax on inherited property. By these changes the burden of taxation would be partially removed from the agriculturalists.

War Versus Arbitration.

H. E. WARD, OLYMPIC SOCIETY.

War is the most unwelcome word of any language. Yet it has had its counterpart wherever speech has been heard, since man first rebelled against the will of his maker. Even before the primeval silence of ages had been disturbed by the voice of animate nature, the spirit of that word existed with all its terrible significance. Atom contended with atom, molecule strove against molecule, element struggled with element, and constellation opposed constellation.

The history of the human race is the record of a ceaseless struggle for existence. Man has fallen heir to innumerable wants, and in the gratification of his ever-increasing needs he has frequently overstepped the bounds of his personal liberty and infringed upon the rights of his fellow men. The annals of the past abound with myriads of accounts of contests between individuals and between States. In fact the work of the historian would be far less laborious were it not for the necessity of recording the results of the feuds and frays by which man has blotted the pages of his history.

Since experience has shown a spirit of contention for rights and resistance to wrongs, either real or imaginary, to be one of the attributes of human nature, it becomes necessary that we as interested

parties should endeavor to ascertain whether the present means of avoiding or settling such difficulties are the ones best adapted to secure the rights and liberties of all, and to accelerate the advance of civilization.

In view of this fact, and that we may be the better able to choose, let us consider briefly the distinguishing characteristics of the two principal methods which have been employed in the past to settle the disputes which have arisen between nations, viz.: war and arbitration.

It appears strange that two means which are so diametrically opposed to each other should have been used to accomplish the same object. Accepting the law that similar causes produce similar results, it follows that if justice, the great object sought, can be obtained by one of these methods, it can not possibly result from the pursuit of the other.

War, the first employed of these agencies, has been defined to be the organization and exercise of the combative instincts of man common to him and the beasts. Is it fitting that man, who prides himself on being the creature wherein is the culmination of intellectual development and power of mind, should resort to the exercise of the same instincts and motives in the adjustment of his differences that animate the monarch of the jungle in dealing destruction to the creatures about him?

In answering this question let us glance at some of the constant characteristics of war as exhibited by it in every age in which it has existed, and if we find it has tended to advance the cause of mankind or that it has accomplished successfully the purpose for which it was instituted let us give it our approbation. But if, on the other hand, we find that it has failed in its great object, and that it has degraded rather than elevated the standard of human existence, then let us brand it with our just condemnation.

It has been maintained by some that war is profitable for those engaged in it or at least for the winner, but even if this were true, how much more unprofit

able it must be for the loser! In all nature nothing is wasted. Nature accumulates that she may give. But how contrary to this teaching is the spirit of war! Its methods may vary with the progress of science and civilization, but its characteristic features for a long succession of ages have been the desolation of fair lands, the destruction of wealth, the demolition of the most magnificent achievements of skill or genius, and the demonstration to mankind of its utter disregard for the fruits of honest toil. Achievements which may have cost years of privation, or ages of attempts, of anxiety, and of anguish are all swept away by one cruel blast, and the smoke of the battle field arises as incense from a great altar, on which the private interests, the social rights, and the lives of men are offered up a sacrifice to the gods of national pride or imperial aggrandizement. Can such a method of settling disputes redound to the profit or honor of an enlightened people? Reason answers, no.

Yet, were expense the most greivous objection to war, it might perhaps be in a measure overlooked. There is, however, a mightier objection, one that utterly condemns the whole process. I refer to its unpardonable failure to accomplish its initial object. Reason rises in revolt at the realization of the fact that the great majority of the wars which have obstructed the march of social progress were fought in vain, and that the problems in dispute were wholly neglected and left to be settled by treaty—treaties which would have been far more advantageous had they been ratified before the struggle began. This is necessarily the case, however, from the nature of the office which war is intended to fulfill. The only case where it is ever justifiable is in defense or in the redress of wrongs where such redress is refused by the offending party. In the theory of international law where all nations are equal, how inconsistent is it to hope that war, which can only decide which party is the stronger or the more artful intriguer, should be able to decide the law or to dispense justice.

War is opposed to the advance of civilization and is in discord with the spirit of the nineteenth century. All the greatest thinkers of the age condemn it as inhuman and degrading. Even Gen. Grant, that great and successful warrior, said of it: "Though I have been trained as a soldier, and have participated in many battles, there never was a time when in my opinion some way could not have been found to prevent the drawing of the sword. I look forward to a time when a court, recognized by all nations, shall settle international differences." But this thought belongs by no means to the nineteenth century. It is as old as Homer, for Minerva called Mars a furious, mad and infernal god. At last, however, we may hope the blood-red star Mars is now on the wane, though nations still cling to the feudal idea of dueling, which is not thought to be a lawful, much less an honorable, means of settling disputes between individuals. Nations, however, must still fight for their rights and honor.

When Napoleon sent couriers to announce a new victory, or the capture of thousands of prisoners or hundreds of flags, and dated his bulletins from Vienna, Berlin, Madrid or Moscow, the people shouted for joy, the cannons roared, and the odes of thanksgiving went up from Notre Dame, but little thought was given to the heart aches of the poor mother who, through long weary weeks of waiting, hoped and prayed for the return of the brave boy who slept in an unknown grave, and who had laid down his life that millions might rejoice.

War is the negative of all gentle impulse, and we can justly feel thankful that this is an age of progress, and that with a growing consideration for human life comes the element of pity to soften the heart and guide its emotions to gentler methods. Compassion and sympathy find a fruitful soil in generous natures, and are well matched with manly courage.

The age of chivalry is no more. Since science has eliminated from war the qualities of personal heroism which made it so attractive, and has converted it into

mechanical means for slaughter and destruction, men have looked for other and more economical ways of settling their differences. Every new invention brings the time nearer when war must be displaced by international arbitration.

That the latter method is more economical needs no argument to prove. The cost of instituting and maintaining a court of arbitration is infinitely small compared with the ravages and sufferings incident to war. Not only is this true, but when both parties agree to be bound by the decisions of such a court, the probability of each obtaining justice is far greater than by the sword. The rights of the weaker parties are no longer sacrificed, as on the battle field, to the greed of the stronger.

With a standing court of arbitration the rights of neutrals would be far more secure. Formerly it mattered but little to the neutral if his friends waged war; he lived largely within himself, and waited till the erring nations should end their quarrel. But in this age of mutual dependence the pulse of the whole world beats quicker, as the rumors of war travel their swift way, stocks fall, men look for new avenues of trade, they contract their business and weak firms shake at the prospect of failure. Then may not the neutral, if he is to be perhaps the greatest sufferer by the war, have some control over its taking place?

The hour is surely come when men should consider these matters of greatest import, and should put away the great and expensive armaments of modern times, which are a constant menace to the peace of the world. Let all nations weigh carefully the recommendations of the great Pan American congress, and strive to conclude uniform treaties of arbitration, or establish an international court of peace. Let this court be composed of one or more of the ablest judges of each nation, chosen for life. These men would then become familiar with international law, and would not fear to make decisions adverse to their own nations. Let the sittings be open to all men and to testi-

mony, both oral and written, and if after such a trial justice could not be obtained then mankind might well despair.

International arbitration is by no means the creation of an idle fancy, but a reality whose merits have been demonstrated by the most thoroughly practical tests. The United States alone has been a party to sixty-seven different cases settled in this manner. Surely every citizen of our commonwealth may justly pride himself, that his is the country to which the whole world is looking with eager imploring gaze for relief from the bondage of war.

Then let us substitute the voice of humanity for the voice of cannon and let war which has been said to be a blessing in disguise, be replaced by another blessing whose nature is not so doubtful that it must be disguised. And then we may hope that the bugle's blast will no more forever break the reign of peace, that the sword *will* be beaten into the plowshare, and that man's hand will no longer be raised against his brother.

Let us hope for all of this in the name of Right outraged, of Justice banished, of Humanity degraded, of Freedom sacrificed, of Truth crushed to earth, and in the name of Peace and Good Will among men.

SCIENTIFIC.

A New Entomological work.

G. C. DAVIS.

"A Manual for the Study of Insects," is the title of a new 700-page book that made its appearance a few days ago. Prof. and Mrs Comstock of Cornell University are the joint authors. Mrs. Comstock devoting the most of her time to drawing and engraving the six plates and 800 illustrations that add so materially to the value of the work. There has been a great need and a constant demand for a book of this kind. Not only have our colleges been in need of it, as a text book and book of reference, but many teachers in our city and district schools, and learners not connected with any school, except nature's, have long been seeking

just such a work. Dr. Packard's two works were about the only ones that could be recommended, and these were technical, and antiquated nearly as soon as published. Prof. Comstock's Manual has resulted from years of hard work and careful research, and is not only up to date, but is much in advance. In writing the book, enough manuscript to make another book equal to this in size, has been discarded simply because he found on research that present classification is faulty. Though entomology may advance as rapidly as it has in years past, the manual will still remain a standard work for quite a time to come.

After the introductory chapter on zoological classification and nomenclature, the near relations of insects, such as the cray fish, cyclops, sow bugs, scorpions, spiders, mites and centipedes are treated of in their order, giving the relations and differences which they bear in relation to each other and to insects. This is a valuable chapter to the beginner in the study, as it enables him to classify in a general way the specimens he may have, and to determine whether they are insects or allies.

Chapter III treats extensively of the insect as to external and internal anatomy and metamorphoses. The parts of the insect and function of each part, are very clearly shown and, taken with the transformations and life history of an insect, make a very interesting chapter to read. The chapter ends with a synopsis for determining the order to which an insect belongs.

The primary classification of insects makes nineteen orders in the place of seven as made by older works. This simplifies classification from the very beginning and gives the student a clearer idea of affinity than formerly where insects so dissimilar were classed together. The division of each order into families is but slightly changed from the usual classification, except in Lepidoptera (butterflies and moths) where a decidedly different arrangement has been adopted that is already being acknowledged by Lepidoph-

rists as being proper and superior to the one now used.

The most of the book, 618 pages, is devoted to the different orders, giving a chapter to each. Each of the orders has a synopsis heading to the families, and then common, typical species are given as illustrations under each family, synopses leading to genera and species, as in botany would be useful but incompatible, and impossible at present, as the species of insects so far out-number those of plants; such a work would necessarily contain many volumes and be too difficult and technical for a text book. As the book is written the subject matter under each family is interesting reading, simple in diction, and practical. Where particular species are mentioned, the common injurious or beneficial ones are generally given and usually illustrated. Where scientific names are used, the pronunciation of each is given and, if the species has a common name, that is given also.

Taking the work as a whole, it is invaluable in many ways and must inadvertently produce a lasting enthusiasm in the student of insect life and inspire him to study insects more closely and see many of these interesting things for himself.

Student Experiments at the Agricultural College.

A part of the students' labor system at the college consists in the performing of field experiments. New and timely topics are generally chosen from among the unsettled problems in farm practice and the sciences relating to agriculture. These experiments are considered strictly college work and are carried on primarily for their educational value to the students. An effort however is made to secure valuable results, and conclusions of general interest are often obtained. Here are some of the experiments carried on by students the past season:

One continued an experiment in the improvement of corn which had been conducted by different students for a series

of years; another tried several experiments in the use of salt as a fertilizer; another reported his success with different methods of killing Canada thistles; another worked all summer trying various ways of killing quack grass; another had obtained some curious results from detasseling corn; two others reported their success in using bisulphide of carbon for killing woodchucks; one performed some interesting experiments on the cross-fertilization of corn; two cultivated several kinds of roots on different soils to see the effect on yield, quality, habit of growth, etc.; one cut repeatedly the grass upon two square rods of meadow and compared its weight when dry with the yield of hay from a similar plot cut but once; twelve students carried out various lines of treatment for wheat smut; another set was similarly engaged upon oat smut, while six others tried various remedies for corn smut; two students had charge of a half acre collection of the less known agricultural plants known as the "curiosity strip"; one reported on the application of various fertilizers to wheat. The students meet occasionally in the class room to talk over their experiments with each other and with the professors in charge. Much enthusiasm is manifested in this work, which is considered a valuable part of the college course.

Comparative Yield from Pasture and Meadow.

It has been said that pasturing is a wasteful method, that more fodder can be secured in a season from a given area planted to some fodder crop which is cut as it approaches maturity than can be obtained from the same land devoted to pasture. The following brief experiment to determine what effect repeated cutting, in imitation of pasture, would have on the total yield of fodder was performed the past season by Mr. J. W. Simcock, one of the students in the college. Two adjoining plots of orchard grass, each two by four rods in size, and as near alike as possible, were chosen, one of which was

allowed to grow up for hay, while the other was cut repeatedly with a lawn mower. The successive clippings were placed in a loft to dry, and after two days, during which it was turned twice, each was weighed. Following are the dates of cutting and the amount of dried grass obtained each time.

April	26	5 lbs.	8 oz.
"	31	1 "	4 "
May	8	5 "	4 "
"	11	1 "	3 "
"	27	8 "	8 "
June	4	4 "	4 "
"	8	2 "	12 "
Total		29 lbs.	

On June the 8 the plot left as meadow was cut just as it was coming into blossom. The hay when cured weighed one hundred pounds. The weather became dry soon after and the small subsequent growth on each plot was about the same.

THE SPECULUM.

PUBLISHED MONTHLY DURING THE COLLEGE YEAR,
BY THE STUDENTS
OF THE MICHIGAN STATE AGRICULTURAL COLLEGE.

TERMS, 75 CENTS A YEAR; SINGLE NUMBERS, 10 CENTS.

ADVERTISING RATES MADE KNOWN ON APPLICATION.

Subscribers will be notified when their subscription has expired, and are requested to renew *before the next issue*.

BOARD OF CONTROL.

W. C. BAGLEY, Phi Delta Theta Fraternity,
Editor-in-Chief.

ASSOCIATE EDITORS.

B. H. HALSTED, Delta Tau Delta Fraternity. C. P. CLOSE, Olympic Society.

G. MASSELINK, Union Literary Society. H. F. LAKE, JR., Hesperian Society.

W. C. STEBBINS, Eclectic Society. F. N. JAGUES, Columbian Literary Society.

M. W. FULTON, Business Manager.
H. R. PARISH, Asst. Business Manager.
SEC. I. H. BUTTERFIELD, Treasurer.

AGRICULTURAL COLLEGE, MAY 15, 1895.

ATTENTION is again called to the fact, that we now require our subscriptions paid in advance. If you find your paper marked, please attend to the matter as soon as convenient.

By dint of strenuous exertion the college authorities have finally succeeded in turning the prospective solution of the student-labor problem into a false alarm.

THE occupants of Wells hall have a question to ask. The correct answer will find welcome space in the columns of THE SPECULUM. They have a curiosity to know what becomes of that part of the room rent which, they are told, is paid in order that water may be pumped into the halls. The matter is a mystery to them at present.

THE spring house-cleaning which the dormitories are undergoing at present brings to mind a suggestion which a person who is thoroughly conversant with the college in all its workings made a short time ago. He remarked that if the money spent in military inspection of rooms be added to a small fee to be collected from the students a sum would be obtained which would be sufficient to employ a janitor who would make a business of keeping the rooms in order. With a little estimation it can be readily seen that the scheme is quite practicable. It is very odd that some such plan has not already been adopted.

THE catalogue for 1894-'95 has appeared from the press of Thompson & Van Buren. The pamphlet is in every respect far in advance of all previous efforts. The plan of publishing the catalogue in the spring term, instead of the fall term following the year represented, remedies a fault which has often been criticised. Perhaps the most noticeable feature of this year's catalogue is the number and excellence of the illustrations. The taste displayed in arranging the size and position of the engravings comes as an agreeable surprise after the inartistic effects of the provisional register. The plan which many colleges adopt in appending to the name of each professor a short account of his academic and professional career, would in our

opinion, make a valuable addition to the present form of the catalogue.

THERE is another fact shown by the catalogue which should not be allowed to pass without notice and that is the large increase in attendance over previous years. A total of 428 students have been enrolled in the past twelve months, an increase the more surprising because nearly every sign pointed rather to a falling off in numbers. If this fact means anything it means a vindication of the policy of the present administration of the college. It means that M. A. C. is entering upon an era of such prosperity as has not before been known in its history. It means that in spite of troublous times, in spite of changes which would have wrecked a weaker institution, in spite of a public sentiment that at one time threatened to sweep it into the oblivion of unpopularity, M. A. C. has continued unswerved in its course and has emerged from the storm not only unscathed but in better condition than ever before. The fact cannot but be flattering to those who have its best interests at heart.

COLLEGE NEWS.

PROCEEDINGS OF THE BOARD.

May 8.—Request of Dr. Beal for office furniture referred to committee on buildings.

Request of Dr. Beal to allow Mr. Wheeler to make a botanical survey of Ingham county was referred to committee on botany.

A recommendation from faculty that date of commencement be changed from 13th to 9th of August was referred to a special committee.

Certain advertising in the *Free Press* was authorized.

May 9.—Recommendations of Station Council: 1. Purchase of dynamometer for \$50. 2. Rent of three acres for growing potatoes. 3. On the care of fruit trees at Grayling. 4. Sowing of grass seed at Grayling. All adopted and authorized.

The erection of three small poultry houses for \$250, the purchase of an incubator for \$50, and the purchase of spring balances at \$40, all authorized.

Resolved, That commencement be August 13, and that faculty consider the advisability of a two weeks' vacation at that time.

Resolved, That telephones be procured for use of various departments, at the discretion of the president and the secretary.

Dr. Beal was authorized to purchase office furniture to the amount of \$40.

Prof. Wheeler authorized to make a botanical survey of Alpena county at expense of \$50.

Various improvements in pump and engine room were authorized.

Experiment Station Council was authorized to erect a barn for experimental station uses, to cost \$584 61.

ABOUT THE CAMPUS.

A new dark room is being built in the basement of the Chemical Laboratory.

Prof. N. D. Corbin, formerly an instructor here, visited the college April 27.

Prof. Wheeler will spend the month of June making a botanical survey near Alpena.

Mrs. Van Deventer, Mrs. Gorton's sister, has recently been visiting at President Gorton's.

Capt. E. P. Allen of Ypsilanti, who was a student here in 1867, made the college a visit recently.

President Gorton has been appointed honorary secretary of the Egyptian Exploration Association.

No special effort has been made for the summer school, but those who come will be accommodated.

The Flint high school under the direction of Superintendent Hathaway, visits the college Friday, May 17.

C. B. Chaffee, a graduate of Hillsdale College, and now superintendent of the Grass Lake schools, visited the college May 5.

Hon. Edwin Willits of Washington, D. C., ex-president of M. A. C., will deliver the commencement address next August.

Prof. and Mrs. Weil have returned to the college. They visited Chattanooga, Asheville, Charleston, and Bethlehem, Penn.

President Gorton gave a lecture on the "Yellowstone National Park" before the "U. and I." club at Lansing Monday evening, April 6.

Among the other items allowed by the committees of the legislature is \$750 for a cement walk from the president's house to the west gate.

Last week Lieutenant and Mrs. Lewis gave a delightful whist party to their faculty friends. Prof. Chamberlain and Mrs. Gunson carried off the honors.

Archie Moore, the college bus driver, has taken unto himself a wife. Archie is popular among the students, and they unite in wishing the couple a long and happy life.

President Gorton, Dr. Barrows and Prof. Wheeler, each addressed a committee of the legislature, giving arguments in favor of a natural history survey of the State of Michigan.

Mr. L. E. Rowley, editor of the *Lansing Journal*, read a paper in the chapel Friday evening, April 27, on "Napoleon from Elba to Waterloo." It was an able paper and was well received by an appreciative audience.

Prof. Barrows recently took his class in geology to Grand Ledge to study the rock formations in regard to stratification, the coal mines, fossils, etc. The members of the class obtained specimens of fossilized plants which grew during the paleozoic era, also samples of petrified moss of more recent date.

A room has been set apart in the office of the Chemical Department, in which will be placed Thomson's Quadrant Electrometer with photographic self-registering attachments for the purpose of showing the electrical condition of the atmosphere, whether the potential of air is constant or varies on the approach of storms.

The class in meteorology, "chaperoned" by Dr. R. C. Kedzie, recently visited the Michigan weather bureau at Lansing. Messrs. Schneider and Cole very courteously explained the use of the different instruments used in taking observations of the weather, and the way in which these observations are taken and weather indications determined. The instruction received was practical and the visit enjoyed by all.

The "Junior Hop" was one of the most brilliant affairs ever held at the college. The spacious armory was gaily decorated, the music excellent, the weather perfect, and the floor in good condition. By 9:30 about 125 couples had assembled and the grand march was then led by Professors Vedder and Chamberlain. The program consisted of twenty-four regular dances and six extras, most of which were waltzes and two-steps. So fascinated were the merry dancers that the gray dawn of morning caught them still in the dizzy whirl of the waltz. All who participated, report a splendid time and give due honor to the boys of '96.

Dr. Grange has made two interesting tuberculin tests lately. The first was at Grant, Newaygo county, where forty-three head of dairy cattle were tested, but none of them showed the characteristic reaction indicating tuberculosis. Following this the cattle of the State Public School at Coldwater were submitted to the tuberculin list, and seventeen out of twenty-six animals reacted in a manner indicating tuberculosis, three were doubtful and are to be re-treated at the proper time. Autopsies were held upon two of those which reacted and abundant evidence of disease was found. The doctor has been directed by the State Live Stock Sanitary Commission to hold autopsies upon the remaining fifteen animals which showed reaction, and will do so during the spring vacation.

Society officers for next term:

Feronian Society—President, Miss Alice Coats; vice president, Miss Bertha Baker; secretary, Miss Myrtle Peck; treasurer, Miss Clara Steel.

Union Literary Society—President, J. E. Niswander; vice president, G. N. Eastman; secretary, J. W. Riggertuk; treasurer, Frank Warren; marshal, W. S. Greiner.

Olympic Society—President, H. R. Smith; vice president, N. M. Morse; secretary, A. B. Stonaer; treasurer, G. E. Starr; marshal, J. C. Nichols.

Phi Delta Theta—President, W. G. Amos; secretary, Cal Wardwell; treasurer, W. A. Rider.

Columbian Society—President, J. G. Veldhins; vice president, F. N. Jaques; secretary, Lee Chapman; treasurer, E. H. Sedgwick; marshal, G. E. Marrow.

Delta Tau Delta—President, F. H. Yapple; vice president, J. F. Coats; secretary, F. B. Ainger; treasurer, E. M. Kanter.

Eclectic Society—President, W. C. Stebbins; vice president, W. R. Vanderhoef; secretary, Arthur Cole; treasurer, A. L. Pond; marshal, G. R. Snyder.

Hesperian Society—President, J. S. Mitchell; vice president, H. W. Lawson; secretary, G. C. Humphrey; treasurer, W. T. Barnum; marshal, R. L. Stone.

BOTANICAL DEPARTMENT.

Nearly 8,000 plants for the herbarium have been mounted since last July.

About 175 varieties of seeds have been received from the famous Kew gardens of England.

Dr. Beal and Prof. Wheeler have set out thirteen species of Michigan willows and seven foreign species south of the botanical garden near the brook. The trees are set in pairs as they are dioecious.

The botanical garden came through the winter in splendid condition, due in part to late cultivation last fall. The addition west of the brook is being cultivated twice a week for the purpose of killing quack grass.

About one hundred choice shrubs, nearly all of which come from Japan, were presented to the Botanical department by Harvard University. Forty of the larger ones were turned over to the Horticultural department; the remainder were planted in the botanical garden.

An interesting fungus was lately discovered by Mr. Gunson growing in a liquid manure tank at the green house. It is new to this country, but was found and described in England about twelve years ago. The name of this curious organism is *Ascobolus Viridulus*. Prof. C. F. Wheeler has the honor of being the first American botanist to determine the identity of this fungus.

HORTICULTURAL DEPARTMENT.

A number of new shrubbery beds are being made at different parts of the campus.

A large number of new varieties of fruits, particularly strawberries, are being set out.

The department is sending out trial collections of fruit trees, for tests, to farmers in different parts of the State.

On April 19th Prof. Taft visited Grayling to inspect the fruit and forestry plantations. Owing to the severe drought the trees made a comparatively small growth last season, but with one or two exceptions they have come through the winter without injury. The collection contains one hundred varieties of apples, ten of plums, ten of cherries, and five of pears. These are for the most part Russian sorts, selected on account of

their hardiness and known ability to withstand severe drought.

The forestry plantation was set in 1889, and contains all of the leading American forest trees that would be likely to grow in that section, and a number of maples, poplars, and other European trees recommended from their supposed adaptation to sandy soil. On account of the impoverished condition of the soil and the dry season the growth has been small. The Australian and Scotch pines made perhaps the best appearance.

Of the grass plots started by Dr. Kedzie the sheep fescue and red fescue nearly cover the ground, and while of little value as a meadow grass, it seems to be adapted to the sandy soil for sheep pasture. The alfalfa and most of the common grasses are failures. The tall oat grass and the timothy are among the best, but have only formed a thin bunchy sod. The flat pea and prickly comfrey made a fair growth.

Prof. Taft is putting in an irrigating scheme which will revolutionize the Horticultural department. The water is pumped from the river by the large fire pump at the boiler house. From there it is conducted through a three-inch iron pipe past the bath house, veterinary and agricultural laboratories on to the gardens. Along this line there will be placed three fire hydrants for the protection of buildings on the east side of the grounds. From the main pipe about 2,500 feet of distributing pipe is arranged in three lines running east and west in the gardens along the higher points, with hydrants at intervals of 100 feet, to which two and one-half inch hose can be attached. The scheme will be used both to supply water for the plants grown, and experimentally to learn the best methods of applying the water and the amounts required, etc. It is proposed to apply the water on the surface in furrows, and in drain tiles beneath the surface as sub-irrigation. To distribute the water to the furrows for surface irrigation, experiments will be made with small wooden flumes, head ditches and hose. The amount of water supplied will be determined by a meter and by measuring the amount drawn from the tank. For the purpose of supplying water in small quantities when the pump is not in operation, a boiler-iron tank eight feet in diameter and twenty feet high will be located on the high ground east of the garden barn. About nine acres of the gardens will thus be irrigated, and besides this an extension will be laid to the apple orchard, the young pear and plum orchards, the berry plantations, etc., east of the gardens.

FARM DEPARTMENT.

The crimson clover sown last fall all died except on one plat which was well covered with snow during the winter.

Munson and Redfern, '97, have completed the setting of shade trees along the lane to the Grand Trunk railroad.

A. A. Crozier has received a package of Chinese millet seed from Prof. E. M. Shelton of Brisbane, Australia.

Hon. J. G. Ramsdell, of Traverse City, is planting on his farm a half acre of *Lathyrus silvestris* for the Experiment Station.

The department has sold during the month, four head Holstein cows, seven Holstein and three Jersey calves, and one yearling shorthorn bull.

The two pieces of woodland have been surveyed and laid off in wards for the purpose of making a record of the growing timber for future reference.

One of the prettiest sights on the Farm department is the brooder with 130 little chicks. The per cent. of hatch was unusually large and Mr. Park is to be congratulated on his success.

The station recently sent to President Clute of the Florida Agricultural College a quantity of *Lathyrus silvestris* plants and the earth in which they grew. He is making a study of the *Lathyrus* and its nitrogen microbes. It will be remembered that President Clute introduced this plant at our college.

Belle Sarcastic has completed her annual record, which eclipses anything done in the past, except the phenomenal record of Clothilde 2d. Belle gave, during the year, 21,101.1 pounds of milk, with 613.17 pounds of fat, the equivalent of 791 pounds of butter according to the World's Fair standard.

Several seniors have been studying the draft of plows and other farm implements. It was found that in stubble land, to plow a furrow eight inches deep required a pull of 250 pounds. In stiff timothy sod the draft varied from 450 to 600 pounds. A ton on a wagon moving on a level floor was moved by a pull of 25 pounds. The same on a level gravel road required from 75 to 100 pounds.

MECHANICAL DEPARTMENT.

Some bins and pattern shells are being constructed in the wood shop for the foundry.

The Case engine in the forge shop has been fitted with a new head and arranged for attaching an indicator.

The fifty-horse power compound engine has been connected up with a condenser and air pump for experimental purposes.

The eight light dynamo under construction in the machine shop is nearly completed. The new hydraulic hoist will probably be ready for use in the foundry next term.

The senior class in steam engineering recently made a test of the Capital Wheel Works plant in Lansing. This plant supplies power to the Street Railway Co., and the class in electrical engineering took readings of the electrical data.

England with a population of 26,000,000 had under 5,500 students at her universities in 1882. Germany, with a population of 45,250,000 had over 24,000 university students. That same year the United States with a population of 60,000,000, had 66,437 students in college, 4,921 in schools of theory, 3,029 in law schools and 15,151 in medical schools—total 86,588.—*Ec.*

PERSONALS.

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 the department, often, thus making his work much easier and the department more interesting to all.

WITH '62.

Samuel Alexander, a junior in 1861, recently paid the college a visit and revived recollections of thirty-four years ago. He was full of astonishment at the amazing progress, yet can recall many old landmarks.

'70.

Hon. Chas. W. Garfield in speaking of athletics says: "College athletics is a germ disease, and we must inoculate it with something that will develop a mild type of the same thing and not so fatal."

'73.

Attorney B. T. Halstead of Harbor Springs, Mich., will represent several lumber firms in a law suit before the supreme court at its next session.

'78.

A recent communication from Alva Sherwood of '81, contains the sad news that Dr. J. S. Pardee died at his home in Three Oaks, Mich., February 27, 1895. In speaking of him, Mr. Sherwood says: "That same energy, integrity and ability which characterized him as a college student, won him a large measure of success in his after life. As a teacher, medical student, practitioner and citizen, his career was, and is, an honor to his alma mater."

A. A. Crozier has an excellent article in the May number of the *Agricultural Science* on "What is Millet?"

W. K. Prudden of Lansing, has lately suffered severe losses by fire. Several of his buildings were totally destroyed, and, as fate would have it, bore no insurance.

'79.

O. P. Gulley has been elected supervisor of Dearborn township, Wayne county.

'81.

Born, April 20, to Mr. and Mrs. W. L. Snyder of Detroit, a son.

'82.

John F. Evert was the democratic nominee for commissioner of schools in St. Joseph county. His opponent was declared elected by a majority of six. Mr. Evert contested the returns, and a recount showed an error of twenty-three votes, thus giving him seventeen majority.

Last year the New York legislature appropriated \$16,000 to investigate the causes of failure of orchards and vineyards to bear fruit. One half of this amount was placed in charge of L. H. Bailey, professor of horticulture at Corawell University. This year the legislature has appropriated a like amount and put it all in the hands of Prof. Bailey. V. H. Lowe, '91, and G. A. Lodeman, '89, are his assistants.

'83.

E. P. Clark was the successful candidate for commissioner of schools in Berrien county, Mich.

'85.

L. G. Palmer was unanimously re-elected superintendent of the Muskegon Heights school.

WITH '85.

W. F. Alexander of Bennington, called upon old friends at the college during the latter part of April.

'86.

G. W. Park still conducts the *Park Floral Magazine*. His son is a member of '98, and has charge of the poultry department.

'87.

A. B. Cordley, formerly an instructor in entomology under Prof. Cook, is at the college taking post graduate work in botany. Mrs. Cordley, nee Miss McLouth, with '89, was here also, but left for Connecticut, May 9, to visit friends and relatives.

'88.

Dr. A. E. Bulson, Jr., is professor of Larynxology and Rhinology in the Fort Wayne College of Medicine, and managing editor of *Fort Wayne Medical Magazine*.

Geo. J. Hume and wife, nee Nettie McCurdy, with '90, located at Latah, Washington, will spend the summer in Michigan.

J. N. Estabrook and W. G. Merrit, with '90, have been working with the present legislature as lobbyists.

Mrs. Thos. Flower, nee Miss M. E. Harrison, is visiting friends and relatives in Lansing and at the college.

'89.

Mr. P. G. Holden, school commissioner-elect for Benzie county, has accepted the chair of science in the Benzonia college. Mr. Holden was formerly an assistant in agriculture at M. A. C. Those who had work under him, know that he means business when conducting a class. The directors of Benzonia college are to be congratulated for securing his services. He is now at M. A. C. taking post graduate work.

Prof. J. W. Tourney of Tuscon, Arizona, is giving special attention to the cacti of the west. Those interested may see him illustrated in *Garden and Forest* for April 17, '95, as he stands beside a giant cactus.

W. S. Palmer, while teaching in the Spokane high school, Washington, was notified of his appointment to a position in the U. S. weather bureau with duties at Chicago. He reported for work on January 29.

R. S. Baker is doing excellent work on the staff of the *Chicago Record*.

'90.

A. L. Waters, for a long time mining engineer in Kentucky, is at present in the same business in New Mexico.

WITH '90.

Geo. Flower, who has been in charge of a water works plant in Kentucky, will soon leave for new work in Cleveland.

'91.

H. Z. Ward of Grand Rapids, was a visitor at the college, May 1st and 2d.

R. J. Crawford, superintendent of the Richmond schools, was elected school commissioner of Macomb county.

A. T. Sweeney will graduate from the law department of Columbia College next June. Report says that the first train from New York, after graduation, will pass through Lansing and stop long enough to make two '91's one. Miss Jennie Foster will be the other party.

A. R. Locke, Deputy U. S. Consul at Glasgow, Scotland, expects to return to Michigan in July.

H. W. Mumford was here April 27, and purchased some valuable live stock.

B. K. Canfield of Paris, France, is hard at work on a figure for the coming saloon. Having received special mention two years ago, it is reasonable to expect great success this time.

B. A. Holden will take special work in the sciences at the college this summer.

WITH '91.

H. L. Hopkins and Miss Pamela Whiting were married at the home of the bride's parents, Congressman Whiting, April 29. THE SPECULUM wishes them a long and happy life.

'92.

G. H. Hicks' efficient work secured him a raise of \$200 on January 1. He has so widened his investigations into the pure seed question that an assistant in the person of A. J. Pieters, U. of M., '93, has been appointed in order to facilitate still wider research.

L. C. Brooks, teacher at Pierport, Mich., recently gave the college half of one week's visit. The other half was donated to the city of Lansing. Mr. Brooks will close his school in June, and expects to take work at the college during the summer.

W. K. Sageodorf, U. of M. law, '95, and Howard Baker, U. of M. "Medic.," '98, enjoyed the junior hop April 19.

Dr. N. Stowell writes: "I am a Democrat yet and believe Grover is all right." Dr. is a champion of woman's suffrage, and will undoubtedly be richly rewarded for his ardent efforts. A silver medal is the forerunner of future success.

WITH '92.

Elmo R. Mesorne has charge of the public parks in Los Angeles, California.

'93.

The Misses Kate Cook and Lillian Wheeler, of Claremont, California, made the ascent of Old Baldy, on mule back, a short time ago. Old Baldy is one of the highest as well as most famous mountains in that vicinity. They will leave Claremont for Michigan June 15.

A. B. Chase is cashier of the Gobleville Exchange Bank.

S. H. Blake is drafting for the Kalamazoo Boiler Works.

Luther Baker has been re-engaged as principal of the Galesburg schools. He will spend the summer at Lansing, and expects to take special work in science at the college.

W. W. Paddock, assistant horticulturist at the Geneva Experiment Station, has lately issued a fine bulletin on spraying apparatus. He is doing considerable institute work among the farmers of New York State.

W. W. Tracy is at Pontiac, Mich., working on the seed stock farm of D. M. Ferry.

Bert Cook, of Owosso, took in the junior hop.

Joseph Perrien, mechanical engineering course, U. of M., spent vacation visiting friends at the college.

W. W. Parker, of the University, attended the "J." hop Friday evening, April 19.

W. G. Smith and C. B. Chapin were also among the numerous attendants at the junior hop.

Miss Jennie Cowley is doing splendid work in the 6th and 7th grades of the Cedar St. school in Lansing.

'94.

Principal R. S. Campbell, of Saranac, has been re-engaged for another year, at an increase of salary.

C. J. Barnum is at the college taking work in botany and entomology.

WITH '94.

F. H. Elliot is managing his father's farm at Hickory Corners, Mich.

John W. Dunn, of Pewamo, paid the college a visit May 2.

J. C. Patrick is managing the Grosse Ile limestone quarries, with headquarters at Detroit.

A letter from S. D. Pepper, of Leesburg, Fla., dated April 7, says: "I am still here at farming, gardening and growing orange trees, and must say that Florida is getting into shape again as fast as could be expected. We are all looking for the groves to be back where they were in three years from now if frost does not prevent it. We are already eating string beans and new potatoes."

WITH '95.

George Phillips is at work in the office of Phelps, Brace & Co., Detroit.

W. W. Smith is at home in Douglas, Mich. He was obliged to leave Purdue on account of ill health.

WITH '96.

N. C. Johnson has a good situation with Rose & Ellsworth of South Bend, Ind.

WITH '97.

E. A. Caulkins, who was obliged to discontinue his studies on account of ill health, visited the boys April 27 and 28. Owing to the invigorating air of country life his health is much improved, and he expects to re-enter in the spring of '96.

It requires \$1,000,000 to pay the running expenses of Harvard for one year.

ATHLETICS.

On Saturday afternoon, April 20, our first inter-collegiate of the season was played with Albion. Although some of our boys were much fatigued by the Junior Hop, the evening previous, they put up a good game, defeating Albion by a score of 12 to 8. By innings as follows:

Innings,	1	2	3	4	5	6	7	8	9	Totals.
Albion,	0	1	2	4	0	1	0	0	0	8
M. A. C.,	1	1	4	0	0	2	4	0	*	12

Batteries, Albion—Cogshall, Clark, Jacobs and Buck. M. A. C.—Ferguson, Ansonge and Krentel. Umpire—Crosby.

The day was perfect and fully five hundred people witnessed the game. The features of the game were Gorenflo's fielding, Ferguson's batting, and McKinnon's advice as coacher.

Crotty Bros. of Lansing, offered a base ball bat for the best batting record. McKinnon and Ferguson tied, but McKinnon forfeited to Ferguson.

The Albion correspondent of the *Sunday News-Tribune*, was so confident of the success of the Albion team that he writes as follows: "The progress which the base ball nine is making, will be indicated by the outcome of the game with M. A. C. at Lansing this afternoon." Wait until after the game next time, friend.

The next Saturday the team went to Kalamazoo, full of confidence from the Albion game, that they would "swipe the earth" with the Kalamazoo College team. Before they returned, which, by the way, owing to an inclination on the part of some of the boys to become acquainted with Kalamazoo's fair damsels, was not until Sunday night, they had concluded that it takes something more than confidence to be always successful at base ball. There are generally a few little features, such as batting and fielding, which require some attention. Crosby's telegram shows the result of the game, and also the way in which the boys took it. "Kalamazoo 21, M. A. C. 6. Out-played at every point. Meet us with a hearse."

Olivet came to play us the following Monday, and we hoped to regain our reputation in this game. But we were doomed to disappointment. The game was as near like the Kalamazoo game, as two games of ball can be. In the first three innings good ball was played, and it looked as though we should have a good game, but in the fourth, things began to go to pieces and Olivet scored seven runs. This acted as a damper on our enthusiasm, and the Olivet boys got more enjoyment out of the rest of the game than we did. Field day is coming on, and if we wish to win that base ball cup from Albion, we must do some tall hustling. They are doing some good work as is shown by the score of the game with Olivet, Saturday, May 4th.

The lawn-tennis season has opened, and our admirers of the game may be seen enjoying themselves daily.

The Bicycle Club recently elected the following officers: President, Geo. W. Rose; secretary, Miss Loa Renner; treasurer, H. W. Hart; captain, M. P. Thompson. The club expects this season to complete the track to the city. Every bicycle rider on the campus should belong to this organization.

Our aspirants for field day honors are improving their spare time in training for their respective events. Every afternoon, from four to six, they may be seen in full uniform on the track or in the field. The Military department shows its appreciation of the benefits of athletics by excusing from drill all who intend to take part in the field day contests. We have secured M. J. Dwyer, of Grand Rapids, as trainer, and expect to bring home our share of prizes from Hillsdale.

The local field day, to determine the contestants for the M. I. A. A. field day, occurred Saturday afternoon, May 4. The time in all the track events except the 100-yard dash was slow, owing to the poor condition of the track. The first event was the standing broad jump, won by Bateson, '96, 9 ft. 10 in. 2d, Cole, '98, 9 ft. 9 1/2 in.

The mile run was won by Stone, '98, in 6:01 4/5, nearly one minute slower than Tracy's record. 2d, Thompson, '98.

Cole won the 100-yard in 10 3/5. Bateson 2d in 11.

Running high jump—Cole, 5 ft. 3 in. 2d, Bateson, 5 ft. 2 in.

Running broad jump—Cole, 19 ft. 7 in. 2d, Bateson, 18 ft. 11 in.

220-yard hurdle—Pond, '97, 29 4/5, 2d, Rork, '96.

Pole vault—Bateson, 7 ft. 7 in. 2d, Pond, 7 ft 3 in.

Half-mile run—Stone, 2:39 1/5. 2d, Ainger, '98.

Running hop, step and jump—Cole, 41 ft. 6 1/2 in. 2d, Bateson, 39 ft. 1 1/2 in.

Putting shot—Becker '98, 31 ft. 10 in. 2d, Bateson, 29 ft. 4 1/4 in. This was an 18 pound shot.

220 yard dash—Normington, '95, 27 4/5 sec. 2d, Bennett, '98.

Hammer throw—Cole, 67 ft. 10 in. 2d, Bateson, 65 ft. 4 in.

Mile bicycle—Rork, 3:15. 2d, Thompson, 3:20.

The mile and quarter-mile were both slow on account of the condition of the track.

The 120 hurdle was run in heats, Cole winning the first one from Pond in 20 sec., and Bateson the second one from Rork in 20 sec. The final heat between Cole and Bateson was won by Cole in 18 4/5 sec.

Mile walk—Vanderhoef, '96, 9:56. 2d, Cummings, '96.

Quarter-mile bicycle—Thompson, 44 4/5 sec. 2d, Rork.

440 yard run—Rider, '96, 60 sec. 2d, Bateson.

The relay race was the last event and the one in which the most interest was centered. Three teams were in the field from the classes of '96, '97 and '98. The teams were as follows: '96, Tracy, Bateson, Rork and Partridge; '97, Redfern, Quick, Rigterink and Hart; '98, Mandigo, Bennett, Austin and Denton. Won by '96 in 4:22.

Cole wins the all-around, having 25 points out of a possible 30. Bateson pushed him hard with 24 points. '96 wins the class cup.

The local Field day, taken as a whole, was an encouraging success. With earnest training there is no reason why M. A. C. cannot still hold her place at the head of the M. I. A. A.

TWO LITTLE GIRLS IN BLUE.

Two little girls in blue, lads,
Two little girls in blue.

In these rampant days of the the bicycle craze,
Make way for something new.

For these two little girls, in blue lads,

According to the popular rumors,

Have, people say, prepared the way

For two little girls in bloomers.

—The Widow.



TRY

SHARPSTEEN'S
STUDIO

FOR A GOOD PHOTO

Corner Washington and Michigan Aves.

ANDLAUER & MALINS,

MERCHANT TAILORS

220 WASHINGTON AVE. S.

LANSING, MICH.



DRY GOODS and CARPETS.

STUDENTS will find the largest stock of Carpets, Curtains, Blankets, Bed Spreads, Towels, Ready-made Sheets and Pillow Cases and all House-furnishing Goods, at

BURNHAM & CO.'S.

Prices always the lowest.

10% DISCOUNT

TO M. A. C. STUDENTS.

NOTICE.—In order to test the value of our advertisement in **THE SPECULUM**, we will make a discount from our regular prices (which are always the lowest) of **Ten Per Cent.** to every student who will refer to this ad. when making his purchases during the next four weeks. This makes

\$1.00 Tennis Shoes cost you	\$0.90
2.00 Pumps and Oxfords cost you	1.80
3.00 M. A. C. Shoes, all styles, cost you	2.70
3.00 Russet Razor Toe Shoes cost you	2.70
3.50 Russet Razor Toe Shoes cost you	3.15
5.00 Patent Leather Shoes cost you	4.50

Hoping we will find this of mutual advantage, I am
Yours for shoes,

103
Washington Avenue South.

C. D. WOODBURY.

BOYS —

BUCK sells Furniture Right.

All goods delivered to College free.

Best Woven Wire Cots,	\$1.25
“ “ “ Springs,	1.50

WE SELL EVERYTHING.

M. J. & B. M. BUCK.

OPEN EVENINGS.

Bicycles!

H. L. HOFFMAN,
General Agent, M. A. C.
Any wheel at reduced rates.
Call and get prices before
purchasing a wheel. **Room 25, Williams Hall.**

Harrison House.

Near entrance to College grounds.

**FURNISHED ROOMS
FOR STUDENTS.**

Ice Cream Soda, Confectionery, Fruits, Stationery,
Tobacco, Cigars, Notions, etc.

STAR LAUNDRY.

Don't forget to send your **WASH** to the cheapest and most reliable **LAUNDRY**.
Wash leaves Tuesday, 8 A. M., and returns Thursday P. M.
ROYAL FISHER, Room 96,
GEORGE WILLIAMS, Room 29, } Agents.

IF YOU WANT

A NICE SUIT
OR SPRING OVERCOAT,



Hats Caps or anything in the Furnishing Goods line- give us a call. All goods marked in plain figures.

JOE BECK, THE CLOTHIER.

117 Michigan Avenue East.

H. H. LARNED,

—DEALER IN—

© Crockery © China.

Special attention given to obtaining the best styles of lamps.

105 Washington Avenue South, LANSING, MICH.

You will find the Largest Assortment of

Fine Boots & Shoes



H. A. WOODWORTH'S

115 N. Washington Ave.

Repairing

Neatly

Done.

W. E. TRAGER,

DEALER IN

FRESH and SALT MEATS.

509 Michigan Avenue East.

PADDACK

Photographer

Latest Novelties for Groups and Friendship Photos.

Special rates to students.

HOLLISTER BLOCK, LANSING.

TAKE ELEVATOR.

TELEPHONE 247.

Do you want any . . .

Hardware,

Pocket Cutlery,

Tinware,

Razors?

Yes, try . . .

Norton's Hardware.

LOUIS BECK,

The Clothier

HATS, CAPS,
and
GENT'S FURNISHING
GOODS,
A Specialty.

HEADQUARTERS
For FINE
CLOTHING.

Students and Others, Give us a Call.

112 Washington Avenue North.

RIVERSIDE GREENHOUSES, - LANSING, MICH.

LANSING CITY ELECTRIC RAILWAY CO.

TIME CARD.

Cars Leave Wash. Ave. and Washtenaw St.—Standard Time.

6.00 a. m.	11.00 a. m.	3.00 p. m.	6.30 p. m.
7.00 "	11.30 "	3.30 "	7.00 "
8.00 "	12.00 m.	4.00 "	7.30 "
8.30 "	12.30 p. m.	4.30 "	8.00 "
9.00 "	1.00 "	5.00 "	8.30 "
9.30 "	1.30 "	5.30 "	9.00 "
10.00 "	2.00 "	6.00 "	10.00 "
10.30 "	2.30 "		

Cars Leave College.—Standard Time.

6.30 a. m.	11.30 a. m.	3.30 p. m.	7.00 p. m.
7.30 "	12.00 m.	4.00 "	7.30 "
8.30 "	12.30 p. m.	4.30 "	8.00 "
9.00 "	1.00 "	5.00 "	8.30 "
9.30 "	1.30 "	5.30 "	9.00 "
10.00 "	2.00 "	6.00 "	9.30 "
10.30 "	2.30 "	6.30 "	10.30 "
11.00 "	3.00 "		

Last car leaves the City Saturday and Sunday nights at 11 o'clock. Leaves the College at 11:30.

Arrangements for special cars at other times should be made with H. A. Burton, superintendent, at the company's office. PARCEL WAGON on the College grounds from 8:30 A. M. to 6 P. M. to collect packages, parcels, etc. Parcels and packages to or from the city, 5 cts. Trunks, 15 cts. S. L. KEIGHLEY, Gen'l M'gr.

THE SIMONS

Dry Goods and Carpet Co.

COMPLETE LINE OF

CARPETS,

Curtains & House Furnishings

Special Prices to Students at M. A. C.

104—Washington Avenue North—104

DAVIS & CO.

The One Price Clothiers and Furnishers.

—WE ARE AGENTS FOR THE—

Celebrated Perfect-Fitting KING PANT.

Come and see our 50c Sweater.

Full Line of Football Goods. Football Rules, 10 cents

104—Washington Avenue North—104

RIVERSIDE GREENHOUSES, - LANSING, MICH

Business Men

FIND THAT IT PAYS
TO ADVERTISE IN

The Speculum.

All College People, Students and Faculty, patronize our advertisers.

Mackintoshes

Are essential garments in this climate, and if you think of owning one I fancy it will be to your advantage to see what I am showing in that way before making your purchase. There is nothing in the way of a top coat that will afford you the same pleasure and comfort as a first-class Mackintosh. My Wool Coats are all cemented, strapped and sewn on, and guaranteed water-proof.

Nothing Nicer

On the market, at the price, than the Men's Underwear I offer at ONE DOLLAR per suit. Carry all the different grades in the finer qualities, and at right prices.

Complete lines of Hats, Caps, Canes, Umbrellas, Neckwear, Shirts, Hosiery, Handkerchiefs. Students' patronage respectfully solicited.

Elgin Mifflin.

WELLS & MORGAN

Offer nearly every day special bargains in **Watches, Jewelry and Novelties.**

In these goods they are able to give their customers the advantages of the latest styles at wholesale prices.

In the art of WATCH REPAIRING we have no superiors.

WELLS & MORGAN.

CHAS. A. PIELLA, -- FINE LINE OF -- Diamonds, Watches, Clocks

Repairing of Fine Watches and Jewelry

a specialty.

Jewelry, Silverware and Optical Goods on hand.

106 Washington Avenue North, Lansing, Mich.

PARMELEE & JESSOP, FINE SHOES AND RUBBER GOODS

HOLLISTER BLOCK.

SPECIAL RATES TO COLLEGE STUDENTS.

COLLEGE BOYS

Make A. M. Emery's Book Store your headquarters while you "wait for the wagon."

College Text Books and Stationery,
Gold Pens,
Wirt's Fountain Pens,
Picture Frames and Wall Paper
constantly on hand.

Reduced Rates to Students.

A Large Stock of
Miscellaneous Books, Albums,
Paintings and Engravings.
*Prof. MacEwan's \$100 Library
in Stock.*

113 Michigan Ave. **A. M. EMERY.**

TRY

Jimmie Markey

FOR

LIVERY

106 and 108 Wash-
ing street east.

SEVERANCE BROS.

**BAKERY,
RESTAURANT,
CONFECTIONERY.**

**OYSTERS
AND
ICE CREAM.**

226 Washington Avenue South.

LANSING, MICH.

F. M. PRAY, R. D., Glasses Carefully and Accurately EYE SPECIALIST. Fitted.

OFFICE IN HOLLISTER BLOCK,

HOURS—9 to 12 A. M., and 1:30 to 5 P. M.

LANSING, MICH.

Capital City Dye Works

106 Washtenaw Street West.

Ladies' and Gents' Garments
Cleaned and Dyed in the
Best Style.

Kid Gloves Cleaned and Dyed.
Ostrich Feathers Dyed.

French Dye Cleaning
a Specialty.

All orders promptly attended to.

A. G. BISHOP, Prop'r.

1000 Meals for Five Cents

Each person eats on the average over 1,000 meals per year. To properly flavor these would require say 17 cents worth of Diamond Crystal Salt. This is a trifle greater outlay than if the other kinds were used, but 5 cents would more than cover the difference, and pay for the luxury of having

Diamond Crystal Salt

instead of the other kinds. But the important thing about it is the finer flavor your food will have and the greater protection your health will receive when you use the salt that's all salt. Ask your Grocer for DIAMOND CRYSTAL. If he has not got it, write to us. If you make butter, investigate our Dairy Salt, there's money in it. Address
Diamond Crystal Salt Co.,
ST. CLAIR, MICH.

JOHN HERRMANN

TAILOR,

218 WASHINGTON AVE. N.

STUDENTS

We would be pleased to show you our

Spring and Summer...

Tailor Made Suits

HATS, CAPS, SHIRTS, SWEATERS,
TIES, SUSPENDERS, SOCKS, JEWELRY.

H. KOSITCHEK & BROS.,

The Reliable Clothiers.

113 Washington Ave.

O. N. STONE & CO.,

THE

LEADING

GROCERS

Are headquarters for Staple and Fancy Groceries and Provisions. Fruits and vegetables in their season. Choice Butter and Fresh Eggs always on hand. Give us a call.

319 WASHINGTON AVE., NORTH.

EYES TESTED FREE.

Whether you buy glasses or not.

My time and skill is at your service.

FRANK N. BOVEE,

OPTICIAN,

At Brackett's Jewelry Store, Hollister Block.

PURE FOOD and DRUG BILL

IN EFFECT EVERY DAY AT

ALSDORE'S DRUG STORE.

We give you what you ask for.

No substitution here.

Pure Cream of Tartar Baking Powder

ONLY 35 CENTS A POUND.

No alum in this to disturb your digestion.

HOW IS THIS?

SUITS MADE TO ORDER

FOR **\$15.00**

AND UP.

Come in and examine our goods and get prices. They will astonish you.

WOODBURY & SAVAGE,

208 Wash. Avenue S., Lansing, Mich.

THE PARK SHOE STORE

IS MOVED

Into the Downey House Block, just south of the hotel.

We think as much of our **College Trade** as ever and all we ask of you is one call to convince you that we can save you money.

J. A. PARK, }
DEAN PARK. }

The Park Shoe House.

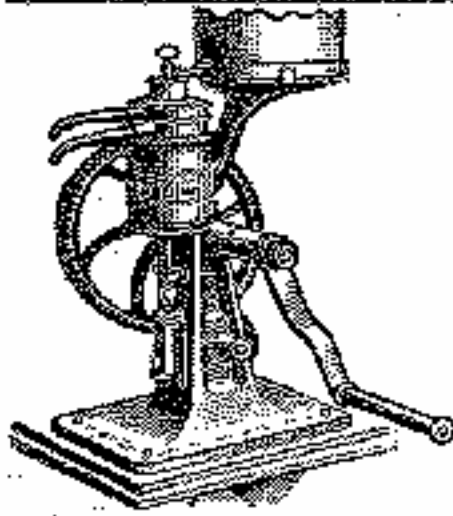
STUDENTS KNOW THE VALUE OF **PURE CHEMICALS** AND THE SAME RULE HOLDS GOOD WITH **PURE DRUGS**

When you want the latest novelties in reading matter, or the finest quality of pure drugs and chemicals in your prescriptions, call on . . .

235 WASHINGTON AVE. SOUTH.

F. B. RAYNALE, PH. C.

HAVE YOU FIVE OR MORE COWS?



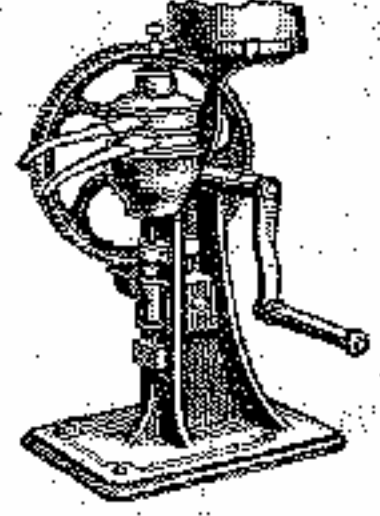
If so a "Baby" Cream Separator will earn its cost for you every year. Why continue an inferior system another year at so great a loss? Dairying is now the only profitable feature of Agriculture. Properly conducted it always pays well, and must pay you. You need a Separator, and you need the **BEST**,—the "Baby." All styles and capacities. Prices, \$75. upward. Send for new 1894 Catalogue.

THE DE LAVAL SEPARATOR CO.,

GENERAL OFFICES:

74 CORTLANDT STREET,

NEW YORK.



PHONE 192.

J. G. REUTTER,

322 WASH. AVE. S.

Fresh And Salt Meats

FINE CHICAGO BEEF A SPECIALTY.

We are Headquarters for all kinds of Home-made Sausage.

Rensselaer
Polytechnic
Institute,
Troy, N.Y.

ESTABLISHED 1824

A SCHOOL OF ENGINEERING

Local examinations provided for. Send for a Catalogue.

HUDSON HOUSE

Barber Shop  Bath Rooms.

FOUR FIRST-CLASS ARTISTS.

209 Washington Ave. S.,
LANSING, MICH.

J. W. CAREY,
Proprietor.

THE COLLEGE OF PHYSICIANS & SURGEONS

OF CHICAGO.

Annual Session begins in September and continues seven months. Four years graded course. Laboratory, Clinical and Dispensary advantages exceptionally good.

For annual announcement and other information address Corresponding Secretary,

DR. BAYARD HOLMES,
24 WASHINGTON ST., CHICAGO.