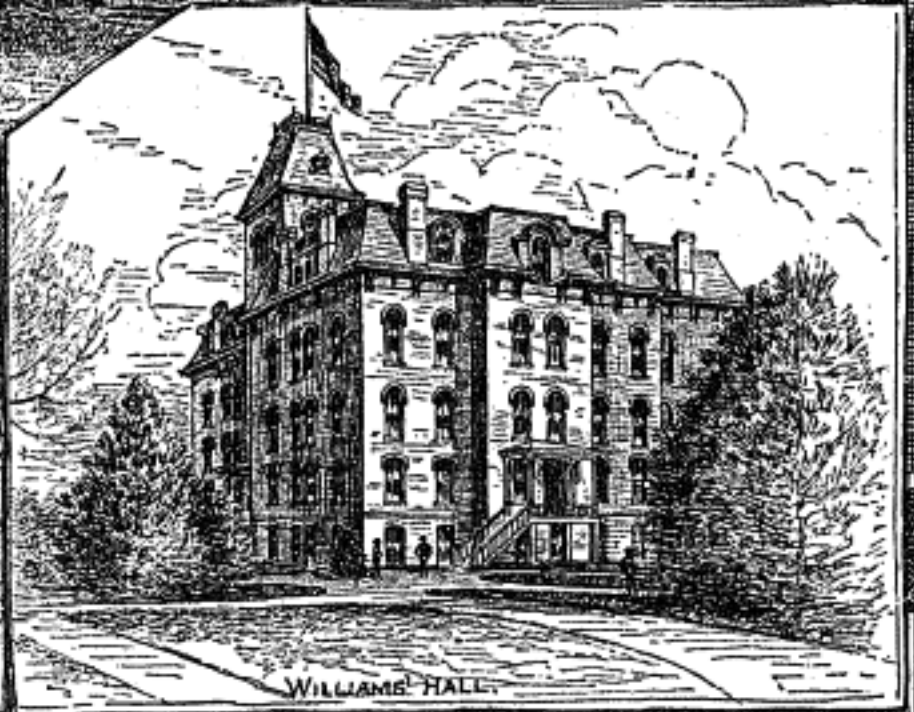
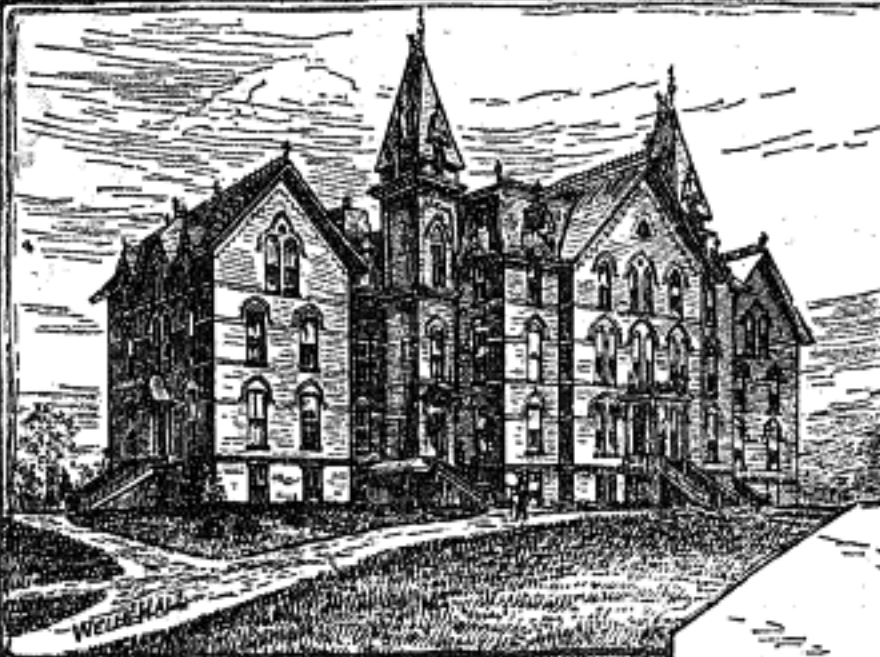


COLLEGE

SPECULUM.



AGRICULTURAL COLLEGE, MICH.



BROAS, the One-Price Clothier, Undersells them all on Clothing,
Hats, Caps, and Gents' Furnishing Goods.

CORNER MICHIGAN AND WASHINGTON AVENUES, LANSING.

JOHNSON & FOLEY,

RETAILERS OF

FINE DOMESTIC AND IMPORTED GROCERIES.

OLD LAND OFFICE,



LANSING, MICH.



Casey & Whitney

PHOTOGRAPHERS.

Special Rates Given to Students.

YOU ARE INVITED TO CALL.

OVER LANSING NATIONAL BANK.

U. H. FORESTER,

WHOLESALE AND RETAIL

Books, Stationery, Toys, and Fancy Goods.

CORNER STORE, OPERA BLOCK,

LANSING, - - MICH.

CROTTY BROS.,

DEALER IN

STATIONERY

Blank Books, Periodicals, Wallets, Pocket Books, Albums,
Bibles, Prayer Books, Law Blanks, Seaside Library
for Summer Reading, Ink, Pens, Frames,
Visiting Cards, School Books, etc.

Subscriptions taken for any Magazine or Paper published in
the World.

TWO DOORS NORTH OF POSTOFFICE,

LANSING. - MICHIGAN.

WE OFFER A LINE OF

AMERICAN WATCHES

in Gold and Silver cases from the best man-
ufacturers. Also

AN ELEGANT ASSORTMENT

-OF-

Jewelry and Silverware.

We compete in prices with any of the larger cities.

FRANK WELLS.

WESLEY EMERY,

WHOLESALE AND RETAIL

BOOKSELLER AND STATIONER.

Correspondence Solicited.

SCHOOL BOOKS FURNISHED FOR FIRST INTRODUCTION.

Libraries Furnished at Lowest Rates.

16 Michigan Avenue, - LANSING, MICH.

THE COLLEGE SPECULUM.

VOL. IV.—No. 4.

AGRICULTURAL COLLEGE, MICH., JUNE 15, 1885.

WHOLE No. 16.



T. C. ABBOT, LL. D.

WE ARE VERY glad that we can present to the readers so excellent a portrait of President Theophilus Capen Abbot, as every person who has ever been a student of the College will rejoice to look at the likeness of one who has been more influential than any other in the development of our loved Alma Mater, and in keeping it in that wholesome path, which was con-

templated in the act founding our Agricultural College, and from which the most of such Colleges have departed. Each of the students even far back in those first trying days, will gaze lovingly on this portrait of one, who, more than any other, inspired them to hard effort, noble purposes, and pure lives.

President Abbot was born in Vassalboro', Maine,

April 29, 1826. While a mere lad his father moved into Augusta, Maine, where his early school days were spent, and where preparation was made for entrance into college. That the close scholarly habits for which Dr. Abbot is so remarkable, were not alone peculiar to his mature years is evinced in the fact that he graduated from Colby University, Waterville, Maine, at the age of nineteen, and was considered, so the writer has been informed by an alumnus of the same college, as one of the most scholarly graduates that had ever left the University. After graduation, Mr. Abbot taught in an academy in Vermont for a portion of a year, and then for some years taught in a seminary in Northern Maine, taking long vacations, which were spent in pursuing a post-graduate course in the college at Waterville. During this time, he taught chemistry and the higher mathematics. During the early years of our own college, Professor Abbot taught mathematics, and his readiness, and ability to make even dry hard mechanics and conic sections fascinating was often commented upon by the students. They did not know that he had experience to aid his ripe scholarship in making clear and easy, those abstruse propositions. Few teachers could use Peck's mechanics successfully in a college where the students had had so little previous discipline in higher mathematics.

He next took a two-years course in the Bangor Theological School, after which he taught the Greek at Colby University for one and one-half years. The Rev. Mr. Pond, a leading Congregational clergyman of California, was at this time a student at Waterville. Mr. Pond once stated to the writer that "Prof. Abbot was one of the most scholarly persons he had ever known. So conversant was he with literature, ancient and modern, that one had only to ask him to learn of any author or his works."

At this time Professor Abbot made his first visit to Europe, where he spent a good part of a year. He was specially delighted with Northern England and Scotland, which was partly owing to his extended knowledge of English literature.

In 1856 Professor Abbot came to Michigan, and taught a part of a year at Berrien Springs. That Mr. Abbot brought the strict New England notions with him, we gather from the statement of one his pupils at Berrien Springs, that Professor Abbot looked very askance at the dancing proclivities of his pupils. In 1857 Mr. Abbot was employed to take charge of the High School at Ann Arbor, which was really the preparatory school for the University. Here he became acquainted with Miss Sarah Merrylees, who was associated with him in the school, and who later became Mrs. Abbot. During this year he was called to the Professorship of English Literature at our college, which was just ready for the inaugurating exercises. The position was accepted, but owing to his engagement in Ann Arbor he could not enter upon its duties till the summer of 1858. Dr. Abbot was Professor of English Literature till 1866; was Treasurer of the College so long as it remained under the charge of the Board of Education—from 1858 to 1861,—and was Secretary for the next two years, and virtually Secretary of the College till 1871. In 1863 Professor Abbot was unanimously chosen President, much to his surprise, and greatly to the delight of the students, who had already come to look to him for advice and direction, even as to a father. In 1866 his professorship was changed from English Literature to Logic and Mental Philosophy, which professorship he still holds. In 1870 he received the degree of LL. D. from the University.

In 1860 Dr. Abbot was married, and the writer well

remembers with what pleasure the students, under the captaincy of Dr. Thurber, made and decorated a magnificent balloon, which was made to speak our hearty welcome even before the new bride had fairly entered the college grounds. The students soon learned that in these nuptials, not alone Professor Abbot, but each student was made richer, for now each one had two wise, thoughtful, and true friends, in place of one before.

It is not necessary to speak of President Abbot's peculiarities as a man to the ex-students of the college. All have too long revered him for his retiring modesty, his thorough interest in all the students, his Christian courtesy, and heart kindness, which could never suffer him to forget any person who might need aid or advice.

He has ever shown, in all his associations, a truly judicial mind, which seldom permitted him to err in his judgments or actions. If biased at all it was ever on the side of kindness and leniency. He always trusted largely to the good sense and manliness of the students, and rare indeed was such trust betrayed.

As a teacher, President Abbot rarely ever had a superior. He had that most desirable power which impelled students to their best efforts, even though he spoke no word to urge or blame. The writer often heard students say that they would rather fail in all their other classes than in his. One of the early students, who is now a distinguished Professor in one of our leading Universities, voiced the general feeling in the remark that he would sit up and study all night rather than to stumble in his English literature. This silent, but most potent influence, is the most desirable trait in any teacher. Another source of power in President Abbot as teacher, was the fact that he never came into class without a thorough knowledge of the subject which he was to present. The breadth of his attainments, and his accuracy, and clear cut scholarship were known and felt by all his pupils.

As President, Dr. Abbot has shown an eye single to the grand object for which the college was established. Nothing could swerve him from a course which should ever keep in view the aid and promotion of Agriculture. While other colleges have switched off the line, and so lost the regard and friendship of the farmers, our college has ever been true to the farmers' interest, and has constantly grown stronger and stronger in their affections; so to-day it stands impregnable, fortified as it is on all sides by the support and regard of Michigan's able farmers. All honor is due to President Abbot for such wisdom, and firmness which has resulted in placing the college as the first of our Industrial Colleges.

Physically, President Abbot has never been strong. Some years since the writer heard him say that he had never known a time, since he entered college, when he was free from pain. Often his headaches, which were his constant companion from youth, were almost unendurable. Yet burdened with such a weight, he became one of the finest scholars in the country.

Executive duties were never to President Abbot's taste. Study and teaching were ever his delight. The arduous duties, and severe labor incident to his executive work, so told on his strength and energies, that in 1873 he was forced to take a vacation for one year, which time was spent in Europe. Though refreshed by his rest, he did not gain that strength and vigor which he and his friends had hoped. Since his return he has often felt that the duties as President were too exhausting, and in the fall of 1879, he urged upon the State Board of Agriculture, the wisdom of retiring him to a professorship and placing some

younger stronger man in the President's chair. The Board would not even entertain the proposition. For the past two years, his health has been even poorer than before, so that last fall he felt constrained to demand a release from the duties of President.

All the friends of our much beloved President, and that means all who have ever been students of the college, are expectant and hopeful that, relieved of the duties and burdens of executive, Dr. Abbot's strength may return and he be spared long years to honor the chair of metaphysics at our college.

It is now expected that when the next number of the SPECULUM shall appear, Dr. Abbot will have retired from the Presidency and President Willits be fully installed.

President Abbot.

Framed in the dim romance that softly clings
Above our college days—a gentle face
Looks out with smiling tenderness that brings
A host of memories of the dear old place.

He used our hearts as tablets—he wrote down
The patient lesson of his gentle life—
None ever knew that face to wear a frown,
None ever heard that kindly voice in strife.

We dreamed of noble lives—we filled our minds
With all the thoughts that come at fancy's call,
Yet now we humbly pause like one who finds
That he has passed the noblest work of all

We are his boys—we pushed against his will,
We could not always understand his way,
Yet like a true and patient father, still
He smiled and waited—and we come to-day,

And lay our humble tribute lovingly
Beside the honors he has won, and own
His influence has touched us tenderly,
His life we name the noblest we have known.

"Well done!" The words that crown his life are true,
And men may turn back from the gates of Fame
To envy him—to see how long years through,
The hearts of friends shall treasure up his name.

And on that head where honor's hand shall rest
With loving benediction may be placed,
The tribute of his boys who know him best,
Whose hearts his patient gentleness has traced.

HERBERT W. COLLINGWOOD, '83.

Agricultural Education.

T. A. STANLEY, PHI DELTA THETA.

There are hundreds of people, and by no means the uneducated only, who think that the science and art of agriculture needs no study. They think that to carry on this great industry, a young man should spend his time in practice on the farm rather than give up a few years to study.

In other words, agricultural education is to them a meaningless phrase.

And why is this the case if it is not because such people are so short-sighted as to be unable to see anything in the line of agriculture that requires study, or are so selfish as to withhold from their children and even themselves, that which will be of so much value in time to come.

You often hear a person remark, knowing you are attending an agricultural school, "What do you find to study that bears upon agriculture?"

Now to all those who hold such views let it be said, that agriculture, treated as a science or an art, opens to the student a larger field for investigation than any other calling known to man.

There are very few studies in a college course, especially that of our agricultural college, but what

bear directly or indirectly upon agricultural science; but to select from a college curriculum those studies which will be of most use to one intending to become a practically scientific farmer is a difficult thing to do. And here it may be said, is the advantage of choosing one's calling before entering college, for if after two years in college, he decides upon any one pursuit, he may find that he has not put the time and thought upon certain passed studies that he would have if his decision had been made earlier.

But now let us see if we can find any studies that will be of practical use to those who intend to manage a farm. If we can, we can answer the question quoted above.

Granting that we have studied those more common branches that prepare us for a higher education, we first would suggest chemistry as of vital importance, embracing elementary, organic, analytical, and agricultural chemistry.

Having taken a general course in this, though we may not be a professor of chemistry, nor able to analyze soils, yet we will know the results of certain chemical combinations, the why and wherefore of chemical phenomena that otherwise would be unknown; we will know the chemistry of foods, and the effects of their ingredients upon the animal system, as well as the effects of plant food upon the great vegetable world. These are a few among the many facts that we are enabled to understand by a general course in chemistry.

Botany is or should be of interest to everybody, but more especially to the farmer, for he is dealing with its teachings every day of his life. By it we are taught how plants grow and how they feed, how to classify them as to their value for various purposes, and by it our way is prepared for the pursuance of that next and closely allied study, horticulture.

Horticulture shows us how to treat the vegetable kingdom, and botany gives the reasons for so doing. By the thorough understanding of the one we are better enabled to practice the other.

Entomology is too often regarded as of little importance to the farmer, but when we stop and think of the hundreds of insect friends and enemies with which the farmers are daily dealing, and the rapid rate at which they are increasing, can we conscientiously shun this study? Not only are we enabled to distinguish between our friends and enemies, but we are taken into a new world, as it were, and there study the interesting habits of creatures which to too many are but nothing. By carefully studying their habits we can the more easily further their destruction or preservation, and thus avoid many useless attempts in either direction.

Physiology, both human and animal, are of such vital importance to the farmer that too much stress cannot be laid upon their thorough understanding.

But it is not alone to the farmer that human physiology is of such importance. Every man and woman should be thoroughly acquainted with the subject, and thereby avoid much useless pain and suffering.

It is a deplorable fact, but nevertheless true, that the best farmers take more care of their choice calves than do many parents of their growing child.

But what has physiology to do with the farmer other than to teach him in regard to the laws of his own being? Very much; for the physiology of the higher animals is so closely analogous to human physiology, that to understand the latter, one fairly understands the former. Not only that, but it prepares us for a more thorough understanding of the veterinary science in its treatment of the domesticated animals.

Veterinary is too often neglected by the growing

farmer. How often do we hear of the death of some valuable animal, where a little knowledge in this science would have saved the animal's life.

To be sure veterinary doctors often prove to be quacks, but this is only another argument in favor of personal knowledge on the subject.

Another subject that may here be mentioned, is feeding animals. Although there is no really practical book on the subject, yet by the careful reading of a number of our best books upon the subject, one may learn much in regard to the best preparation of food, the best time for feeding, together with the already proven effects of certain foods upon the animal system.

Having a good knowledge of the theoretical part, one can soon determine by experiment what sort of feeding will be most advantageous to his particular case.

We have thus endeavored to give an idea of those studies which are of especial interest to the farmer; those to which the student intending to become a farmer should give particular attention.

It has also been the aim to disprove the common notion among many apparently successful farmers, that four years on the farm is of more real value than the same time spent in college.

Although at the end of four years on the farm, and four in college, the one on the farm may be more efficient in practical work, yet at the end of the next four years the educated farmer will be at the head.

The studies here enumerated are such as play a very important part in the curriculum of most agricultural colleges, but in no college are they more thoroughly taught than here.

Our chemical course is noted for being one of the very best, while that in botany is one among the few in which the subject is taught on a purely practical basis.

Veterinary occupies a whole year, while the other studies take less time but are as thoroughly taught.

In conclusion let it be said to those intending to become farmers, and who have the time and what little money is required, by all means spend that time and money in an agricultural education.

The Late Judge Wells.

Judge Hezekiah G. Wells died at his home in Kalamazoo, April 4th, 1885. He had been troubled for a number of years with fatty degeneration of the heart, and more lately from rheumatism from which he suffered much until death relieved his pains. Believing that he should never regain his health, he resigned his position on the Court of Alabama Claims last September, and returned to his home in Michigan.

Judge Wells was born at Stubenville, Jefferson county, Ohio, June 16, 1812, and received his education at Kenyon College. He was admitted to the bar in 1832, after studying in an office at Stubenville. His ancestors came from England to Maryland, and for several generations resided in that State; his parents removed to Ohio in an early day. He was one of eleven children, all of whom, except a brother and a sister, are dead.

Judge Wells came to Kalamazoo county in 1833, and for two years lived on a farm in the township of Texas; he removed from Texas to Schoolcraft, and to Kalamazoo village in 1846. He was married in 1840 to Miss Achsah Strong of Kalamazoo.

Judge Wells has held numerous school, township,

and county offices, and has been a member of every convention and commission, for drafting or revising the State Constitution. He received the title of "Judge" from his position as County Judge for Kalamazoo county. The confidence imposed by the people in his judgment and integrity, is well exemplified by the fact that fully eighty per cent of the cases tried under his jurisdiction were without a jury, it being necessary then for the party desiring a jury to demand it. He has served five terms as President of Kalamazoo village; was twice elected presidential elector, first in 1840, and again in 1860. He was appointed Minister to the Central American States by President Lincoln, and Consul to Manchester, England, by President Johnson, both of which he declined. He was named in the law which organized, in 1861, the State Board of Agriculture, and drew by lot the four years term, and was reappointed at the end of his successive terms up to the administration of Governor Begole; and he was for the greater part of this time President of the Board. He was for one year President of the State Agricultural Society, and for a number of terms was a member of the Executive Committee of that body; and was also for many years an active member of the Board of Trustees of the Kalamazoo Female Seminary. He raised the 25th Michigan Infantry in 1862, and was one of the principal ones instrumental in organizing the State Pioneer Society of which he was President at different times.

President Grant in 1874, appointed Judge Wells presiding officer of the Court of Alabama Claims; and upon that occasion he resigned his position on the Board of Agriculture, but was induced by President Abbot to withdraw the resignation. Upon the reorganization of that court, President Arthur re-appointed Judge Wells as its presiding officer, he being the only man on the new court who was a member of the old one; failing health, however, compelled him to resign last September.

Judge Wells took considerable interest in politics; was a Republican of the Grant school, and he was always a rigid supporter of that statesman.

The Agricultural College owes much to Judge Wells's ability, and his zeal in behalf of the school, for its present high position and prosperity. He spent one whole season before the State Legislature, when efforts were being made to have the college removed to Ann Arbor, and made a department of the University. He was confident that such a course would be detrimental to the best success of the college; time and the experience of like institutions have proved the soundness of his judgment. He also opposed the measure which at one time proposed to move the college from its situation in the woods to a cleared farm in the southern part of the State. It was under his supervision that all the large sales of lands granted by the State were made, which very materially aided the college in its early history. Judge Wells has always owned and operated farms both in Michigan and Ohio, and took special interest in horticulture and floriculture; he had much to do with developing those departments here, and they will miss his care and influence on the Board of Control. Our fine greenhouse and flower garden owe very much to the interest he has taken in their improvement.

There are few who, during any time in the past twenty years, have been students here who have not seen his stately appearance on the college rostrum, which never failed to be greeted with applause; he was always called upon for remarks, and what he said was always well received and attentively listened to.

Judge Wells had no children, but has always taken a

deep interest in young men, and on numerous occasions has materially aided those endeavoring to obtain an education; and his assistance was often and willingly rendered worthy ones in obtaining positions and securing a start in life. He was a jovial old gentleman, fond of jokes, and was a great story teller, and his company was always pleasant and lively. A life size oil painting of him adorns the college reading room. The portrait was painted by George W. Reed of Kalamazoo, in 1881, and is a very valuable picture, which will always be retained and cherished by the college.

Judge Wells has never extensively practiced law, but the greatest confidence has always been given him as counsel. He was not wealthy, but was in comfortable circumstances.

He was a life long Episcopalian, and died a communicant in that church. The funeral services were conducted by Bishop Gillespie, of Grand Rapids, who, though he said it was contrary to the customs of that church, delivered an eloquent eulogy on the life and character of the deceased.

Thus has a long and well spent life run its course, one which has been of use to our nation, one marked in the history of our State, and one the good example and influence of which must be lasting and beneficial to his fellow men.

A JUDGESHIP on the Michigan Supreme Bench is, we think, the highest position to which a farmer student of the Agricultural College, has yet been elected.

Allen B. Morse, two years with '61, of Ionia, Mich., at the last election was elected a Judge of the Supreme Court, vice Thomas M. Cooley whose term of office expired.

Judge Morse was born at Otisco, Ionia county, Mich., January 7, 1839, and is the first Judge of our Supreme Court born in the State. He received a common school education, and entered the Agricultural College in 1857, remaining here two years, which finished his school education.

The effects of his course here have been to make him somewhat interested in science, and he is said to be well posted in scientific matters. He taught school during the winters of 1859 and 1860, and studied law in the office of Wells & Wells, at Ionia, in the spring of 1861, but discontinued his studies and enlisted in the 16th Michigan Infantry, in July of that year. Remaining in the 16th until December, 1862, he entered the 21st Michigan Infantry as First Lieutenant, Company I, and was promoted to Adjutant, and detailed as A. A. General on Col. F. T. Sherman's staff in 1863; while acting in this capacity, he lost his left arm at Missionary Ridge, November 25, 1863. Col. Wm. B. McCreery of the College Board of Control was Colonel of 21st Michigan.

After recovering from his wound, Major Morse returned in April, 1864, to his regiment, but resigned the following September, and resumed the study of law in the office of W. B. Wells, at Ionia, and was admitted to the bar the next February.

He commenced the practice of law at Ionia, under the firm of Spencer & Morse, and has continued in the business under the firm names of Wells & Morse, and Morse, Wilson & Trowbridge.

Judge Morse appears to have made the most marked success as a criminal lawyer, and particularly in murder cases. He has been engaged in eighteen murder trials, eleven as prosecutor, and seven as defendant, the two most important being *People vs. Hurd*, and the *People vs. Millard*. It is remarkable that he has

never had a client indicted for murder remaining in prison over one year.

Judge Morse is extremely popular at home, having been elected to fill numerous public positions, and in the election for Supreme Judge, carried his county by an overwhelming majority. He was elected Prosecuting Attorney for Ionia county in 1866, and again in 1868; Alderman for Ionia in 1873; State Senator for Ionia and Montcalm counties in 1874. He was candidate for Attorney General on the Democratic ticket in 1878; delegate to the Democratic National Convention at Cincinnati in 1880, and was elected Mayor of Ionia in 1882.

He was married to Miss Frances Van Allen, Nov. 25, 1874, and has four children, two daughters and two sons. His wife died Oct. 29, 1884, after a short illness of congestion of the brain.

The Oberlin College of Ohio opens each recitation with either singing or prayer. What would Harvard, with its optional rule of attending devotional exercises, think of that?—*Ex.*

SCIENTIFIC.

The Wheat Stalk Worm Again.

C. P. GILLETTE.

In the April number of the SPECULUM, Prof. Cook gave a brief description of what he thought to be "*A new insect pest in Michigan.*" Since then I have completed drawings of this little enemy to the wheat grower (*Isosoma nigrum*, Cook), which appeared in the *Rural New Yorker* of May 9th, with a full description by Prof. Cook.

As *I. nigrum* bids fair to become a very interesting as well as unpopular intruder in our wheat fields, we again burden the columns of the SPECULUM that its readers may have a more full description of this little culprit. We hope too, that the accompanying cuts will be of some service in enabling you to detect him.

Judging *I. nigrum* by its closely related and notorious brethren, *I. hordei*, Harris, and *I. tritici*, Riley, which seems a proper thing to do, we prophecy for it a probability at least, of doing much damage to our wheat crop in the near future unless some efforts are made to check its depredations.

We have many insect enemies whose depredations would be almost unbearable were it not for their natural enemies that keep them in check. *I. nigrum* seems to be little troubled in this way at present, for out of over one hundred specimens reared in the laboratory this spring, only one parasite was obtained.

Natural History.—From what we know of this insect and related species, it is probable that the eggs (Fig.



Fig. 1.

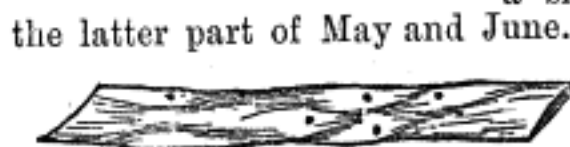


Fig. 2.

1) are laid upon the straw, just above one of the lower joints, and from five to twenty on a single internode, in the latter part of May and June. Fig. 2 of the annexed cuts represents one of these short straws from which the fly has escaped after

eating its way through the dry, hard, prison walls that surrounded it. The black dots represent the round clean cut holes through which it escaped. These straws which are inhabited by the little yellowish-white larvæ, become woody and hard throughout with no hole in the center, and trouble the farmer by breaking in short pieces and coming through the

spout with the grain at the time of threshing like so many little sticks.

The straws are also slightly deformed, being wrinkled longitudinally, and slightly swollen over each larva cell.

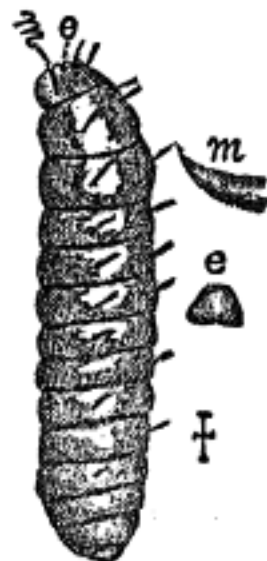


Fig. 3.

The larva (Fig. 3) attains its growth by September, when it is 4 m. m. in length. A few change to pupæ, (Fig. 4), in the fall, but most remain as larva during the winter, and change to pupæ early in the spring, which are white at first, but soon turn black like the imago.



Fig. 4.

The imago (Fig. 5), representing the female, is from

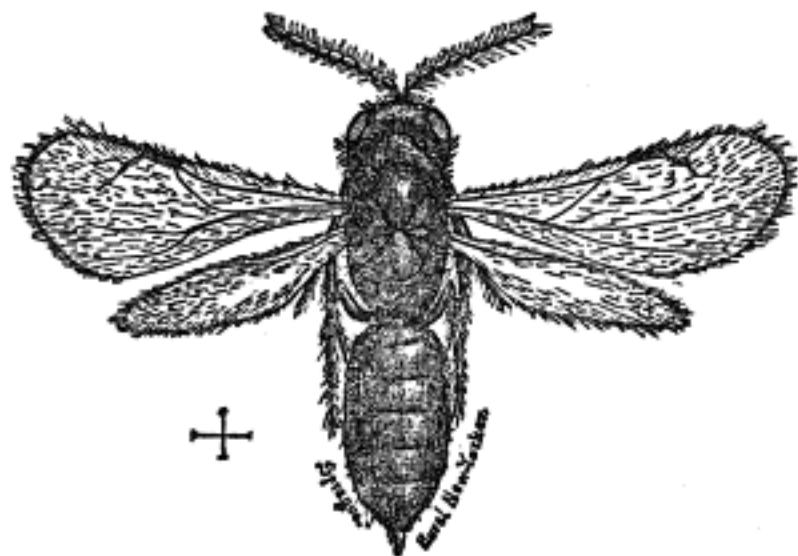


Fig. 5.

three to four and four-tenths millimeters in length, and to the unaided eye of the casual observer, appears like a little jet black fly, or winged ant. With the aid of a pocket microscope, however, the tip of the abdomen, and portions of the legs, will be seen to be yellow in color on both male and female, and the female has a yellow spot on either side of the thorax, just back of the eyes.

The eggs (Fig. 1) are very small—white—and have a pedicel twice their own length. Each female lays from seventy-five to one hundred.

Remedies.—Cut the wheat high and burn the stubble. If many straws appear in the bin, clean them out and burn them. Remember the insect is mostly in the lower portions of the straw, where it remains during the fall, winter and early spring, and then use your own judgment as to the best methods to destroy them.

Our Native Fruits.

BY L. H. BAILEY, JR.

There are great possibilities in many of our native wild fruits. The Northern States abound in indigenous fruits which promise to the patient pomologist great rewards in the way of hardy and palatable varieties. Those plants which vary most widely in a state of nature, improve most readily under the influence of cultivation. This principle is illustrated in our strawberries, blackberries, raspberries, and grapes. All our cultivated blackberries have sprung from one wild plant, the *Rubus villosus* of our copses

and tangles. Many of our varieties, prominent among them being the old Lawton, are natural sports which were picked up in fence-rows or clearings. Nearly all hardy raspberries, and all the black-caps, have originated from one or the other or both of our native species, the black and the red, *Rubus occidentalis* and *R. strigosus*. None but the older and less hardy of the garden raspberries have sprung from the European *Rubus Idæus*. All of our leading strawberries are varieties of our common wild *Fragaria Virginiana*, or perhaps in some cases are modified by crosses with other species. All grapes grown out of doors in the Northern States have sprung from three wild species: *Vitis Labrusca* of New England and the Alleghenies, *V. æstivalis* of the Middle and Southern States and *V. riparia* of Michigan and adjoining States. Many of our grapes are also natural varieties which were picked up in the woods.

These facts in regard to blackberries, raspberries, strawberries and grapes suggest the query, Why not improve more extensively all our wild fruits? We have a wild black currant, *Ribes floridum*, which is naturally better than the Old World *Ribes nigrum* that is in common cultivation. The variety known as American Black is a natural sport of this wild species. The common wild gooseberry varies exceedingly and is worthy close attention. The attractive Missouri currant, which is planted in various places upon our grounds, is the parent of two or three very good varieties. Two wild plums give promise of great capabilities. The Wild Goose and Miner are nearly pure native Chickasaws, *Prunus Chicasa*. The dwarf sand cherry of the beaches and dunes of our Great Lakes bears a sweet and attractive fruit which deserves the attention of every pomologist. Our wild crab apple needs attention. All our wild nuts are awaiting the labors of the horticulturist. The pecan must have the bitter matter bred out of its inner shell; walnuts, butternuts, chestnuts and hickory nuts are waiting for thinner shells and plumper meats. Our common walnut has greater capabilities than had the parent of the English walnuts of the confectioners. There are no less than twenty-five fruits, of various kinds, natives of Michigan, which present attractive problems to all lovers of botany and horticulture.

The Horticultural Department desires to undertake the solution of a few of these problems. Our present method must be to plant the seeds of the finest wild fruits and await results. We desire the coöperation of students and others in securing seeds of the largest, smoothest and sweetest of all kinds of native fruits.

DURING THE PAST TERM aside from regular analytical class work the Juniors have examined some articles found in the market, with the following results:

Dore's Fly Paper.—A thick yellow blotting paper containing in its fiber ordinary white arsenic.

White Frosting is sold at the drug stores to ladies for use as "diamond dust," causing a slight glitter on the brow of beauty. The substance is glass, containing quite a proportion of oxide of lead.

A sample sold as **Black Antimony** (used principally as a horse medicine) contained no antimony in any form, but consisted of powdered anthracite and marble dust.

An estimation of the starch in a diabetic flour from New York was made and compared with analyses made of ordinary flour ground in Lansing with following results:

Flour	Starch	Per cent.
New York diabetic	28.4	
Lansing Shorts	61.3	
Northway Centrifugal	54.4	
Stone middlings (before bolting)	56.8	
First middlings	61.4	
Barke flour (bolted)	53.2	

A NEW PHENOMENON IN SOUND.—During my experiments in chemical physics I have discovered an apparently new phenomenon in sound, the particulars of which, as far as I have examined, are these: A piece of ordinary glass tubing from 4 inches to 6 inches in length and from $\frac{1}{4}$ to $\frac{1}{2}$ inch in diameter is selected, and a small bulb blown on one end. As far as I have examined there appears to be a somewhat constant ratio between the size of the bulb and the calibre of the tube. Into the open end of the tube a drop of water is introduced. The bulb is then heated nearly to redness and a small portion of the water forced into it, and again plunged into the flame when, if the conditions are right, a peculiar singing tone is produced, somewhat resembling in character, pitch, and quality the tone produced in the *Chemical harmonicon*. My observations have not been of sufficient completeness as yet to determine anything very definite in regard to the phenomenon. I am, however, pretty well convinced that the presence of water is necessary in the tube, at least, if not in the bulb. I also notice that the pitch can be changed to one of higher tone by moving the flame towards the open end of the tube; and I am not positive that this change is not permanent. Thus far experiment seems to indicate that such is the fact. Of other characters of the tone and circumstances I am unable to offer any explanation. Further observation and more careful experiment will undoubtedly explain all the conditions of the phenomenon.

I have consulted various writers on the subject of sound and can find no mention of anything similar.

A. C. REDDING.

TALKS AFIELD. About plants and the science of plants, by L. H. Bailey, jr. Houghton, Mifflin & Co., Boston. Price \$1.

This little book of 160 pages is intended for the general reader who may possess no knowledge of botany. The paper, type and binding are all that could be desired and just what we should expect from the well-known house which publishes the book. It is needless to say to the readers of this paper that the author is Professor Bailey, recently elected to the chair of horticulture, and the first editor-in-chief of the *SPECULUM*. The text is well illustrated by 100 good figures; the language is destitute of technical terms so far as it is possible and convey correct ideas.

The author passes over much ground, but has the good sense to select many of the most attractive topics for his talks. He speaks of the leading classes of plants, and describes several typical forms. The following examples from the contents will give a general idea of the book: The flower, the stem, the rose family, the composite family, a peep at the inside, cross fertilization, hidden flowers, the arrangement of leaves, the compass plant, how some plants get up in the world, carnivorous plants, a thistle head, willow twigs, the importance of seeing correctly, how plants are named.

Besides gleaning from the writings of some of our best recent botanists the author gives an account of many curious and interesting things which have come directly under his own observation. Professor Bailey has written a very pleasant book, which deals mainly with the topics that are now attracting the most attention among botanists. He adds another to the list of popular botanies such as we are right glad to welcome to our table. Such reading is wholesome mental diet for young and old and ought to supplant many of the exciting stories of frontier life. A little observation in connection with the reading can hardly fail to awaken a love for the study of plants.

W. J. B.

THE COLLEGE SPECULUM.

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

BY THE STUDENTS

— OF —

THE MICHIGAN STATE AGRICULTURAL COLLEGE.

TERMS, 50 CENTS A YEAR; SINGLE NUMBERS, 15 CENTS.

ADVERTISING RATES MADE KNOWN ON APPLICATION.

All subscriptions will be regarded as continued unless we are notified to the contrary.

BOARD OF EDITORS.

DELTA TAU DELTA FRATERNITY.

H. E. THOMAS, Editor-in-Chief.....Literary Articles, Editorials.

NATURAL HISTORY SOCIETY.

PROF. R. C. CARPENTER,.....Science.

ECLECTIC SOCIETY.

F. L. CHAPPELL,.....College News.

UNION LITERARY SOCIETY.

R. M. BATES,.....Personals.

PHI DELTA THETA FRATERNITY.

D. J. STRYKER, Secretary,.....Exchanges and Colleges.

R. W. HEMPHILL, JR.,.....Business Manager.

PROF. S. JOHNSON,.....Treasurer.

AGRICULTURAL COLLEGE, MICH., JUNE 15, 1885.

IT IS WITH PLEASURE and with feelings of relief that we are now to lay down the editorial pen and pass the management of the *SPECULUM* to other hands.

The board of editors for the coming year has been elected, is organized, and in readiness to begin its labors. Mr. T. A. Stanley, '86, of New Britain, Conn., has been chosen for the position of editor-in-chief. He has exceptionally strong support on the board, and we prophesy a successful year for the *SPECULUM* under their management.

The present board wishes to acknowledge the hearty support given to the *SPECULUM* during the past year, without which editing a college paper would be nothing but unpleasant and unsatisfactory labor.

Although the work imposed is no small task in addition to the regular college duties, already overcrowded, yet there is no reason to complain and we do not regret the labor bestowed upon the paper, but only wish it had been possible to give it more time and attention. Such, however, must be the complaint of every board. The editors must perform their full college work, which if properly done will occupy his whole time, and the attention given to the paper must be taken from his studies to their detriment, and will be insufficient to be at all satisfactory in discharging the duties devolving upon the editors of the *COLLEGE SPECULUM*.

THE UNIVERSITY CHRONICLE comes out in a sorrowful sort of thrust at the Agricultural College, because it and not the University has been the object of more liberal dealing at the hands of the State Legislature.

The attack is based upon an article in the *Detroit Post* criticising the College because of the expense to

the State. In the first place the Post article exaggerates and misrepresents the facts. Its computation is based upon the entire cost of the institution and not upon its running expenses. The greater part of the appropriations in the past have been for buildings which will be permanent and hence not enter into the expense except as capital invested. The University is already built up and hence has not this expense. Besides that school is full to overflowing with students while this has not, as yet, more than half the number that can be accommodated, which materially increases the ratio of expense.

But the fact is, excluding the students in the professional schools at Ann Arbor, the University has only two and one-half times as many students in the literary department, with its five courses and corps of over fifty instructors, as the College has; whereas, it should have five times as many as the College with its one course and eleven professors. And the actual expense to the State per student at the College is less than in the literary courses at the University. By counting the students in the law and medical schools, which combined are self supporting, the ratio of expense is reduced.

The Chronicle further berates the State for supporting a school which has no better course than the Agricultural College has. While it does not pretend to go so high, yet for a four years' course it is as good as a course at the University occupying the same time, and in chemistry, botany, and entomology, except for advanced study, it has a more thorough course.

The Chronicle says, with a lame attempt to cover up its sneer at the farmers, that the agriculturists are a very respectable class, but they have no need of special favors from the State. They are by no means asking special favors. The State is essentially agricultural, and it is nothing more than justice that the predominant class should have a school where its sons may be educated. Of what benefit to them is the University? Not one iota, directly. It is beyond their reach and its course is not fitted to their needs, which only shows that the University has no sympathy with the farmers, that it does not comprehend their wants, and that, if the agricultural department were a branch of the University instead of being a separate school, it would be a total failure. On the other hand, the Agricultural College is within reach of all, and her course furnishes a general practical education especially fitted to the needs of the farmer, and it is no fault, but rather a virtue, that this course is not so advanced as may be had at the University.

The farmers have contributed more towards the support of the University since its foundation than they have for the support of their own school; they have paid towards the University more than other classes have paid to maintain the Agricultural College. Notwithstanding all this the Chronicle finds fault because the State allows this class to have a representative school. What reason has it for venting its dis-

appointment on the College? Nothing but selfishness, an astonishing lack of the spirit of justice and fairness, and such a surplus of self importance as to blind its mental vision.

It is this hoggishness that is creating among the people a feeling antagonistic to the University; it has persistently ever since its foundation endeavored to draw everything unto itself and to crush every other educational institution. The opinion seems to prevail at Ann Arbor that every important interest in the whole State is centered in the University and that everything must bend to its imperious demands. A little less arrogance and greediness will be far more amiable if nothing more.

The Chronicle loves to dwell upon the reputation of the University abroad and tell what a pride it is to the State. We have no desire to question that; on the contrary the SPECULUM takes as much pride in the reputation and success of the University as does the Chronicle, and hopes to see the reputation and influence of that institution grow as much in the future as it has in the past. There is, however, no occasion for ill-feeling towards this school. The Agricultural College is also a source of pride to the State; it enjoys the reputation of being the best of its class, and is the model looked up to by similar institutions.

The College has done nothing more than to put her needs and worth before the Legislature in such a light as to secure her appropriations; and because the University has failed to do this the Chronicle finds fault with the College. A very petty, sniveling kind of revenge, to say the least.

It is to be regretted that the Legislature has not dealt more liberally with the State University. Every one who has any pride in the educational system of our State would have been glad to see the University receive the full amount of appropriations asked, except the item for a mechanical department which she had no need of, no right to ask for, and ought not to have.

No, Mr. Chronicle, you have your hands full to attend to your own affairs without indulging in useless and uncalled-for abuse of an institution which attends strictly to developing and using its own resources and advantages.

The University has always exhibited a spirit antagonistic towards the College, and with effects so far not very gratifying to the friends of the University. There is nothing between the schools which should prevent their working in harmony. A wise prudence would say: Each attend to its own affairs.

Quite a general opinion prevails that the appointment of Hon. C. G. Luce to a position on the Board of Agriculture is a step looking toward the establishment here of a ladies' department. At a recent gathering at the College, Mr. Luce, when called upon to address the meeting, took occasion to give public expression to that idea. While it must be admitted that the entrance of a ladies' class would be hailed

with delight by a majority of the students, just because it would be fun; yet it is not plain where the addition of such a feature would become a profitable acquisition to the College, or be an unalloyed benefit to the students.

It is not meant to cast any reflections on the dear girls, far from it, nor to be understood as opposed to the higher education of women, or to co-education; but it is clear that such a course at the present time would be a disadvantage to the College, and for that reason unprofitable to the students.

It may be that the system works well in those institutions where it is in operation, but that argues nothing in the case under discussion. This College is of a different character from most of those schools, it is differently situated, and, at the present time, is in unfavorable circumstances for such a departure.

To develop to the highest perfection possible the mechanical school, carry out other contemplated improvements, and maintain the college course as a whole in its present high standing, will require the whole attention and all the resources of the College for some time to come.

There are several reasons why the procuring of a ladies' department would be an unwise measure. Our course of study, unlike that of most colleges, is not adapted to both sexes, hence would have to be enlarged and modified to its certain detriment, unless the expense be increased to an extent unreasonable to suppose that the College can afford. One of the most striking advantages which this college possesses over many others, is that it has not undertaken in its curriculum more than it can accomplish; it has only one course, but that course is thoroughly handled. The great difficulty with a majority of our American colleges is that they have in their courses more studies than can be the most successfully managed. They endeavor to run a university with resources insufficient to conduct a college having only a single course, and as a consequence none of their courses are at all perfected.

The difficulty and expense of making the ladies' department an industrial school to conform to the present character of the College must not be overlooked. And unless it is made such, there can be no object in its establishment, as the State already has a normal school and a university for the higher education of women. It is with difficulty that means sufficient to satisfy the demands of the College are now obtained from the State and it is not probable that any considerable increase in the appropriations can be had in the near future. To divide the moneys now granted with a ladies' department must necessarily embarrass the present course, and would be too small to satisfactorily conduct an additional school.

This great amount of talk about the moral, social and refining influences which the presence of ladies would exert is all very nice, and it cannot be disputed that it would be true in a certain degree; but that

such influences and their benefits are overestimated is equally true. The refinement and culture obtained only by mingling in society, is without question, a valuable auxiliary to a college education; but it is not of prime importance, and should not be sought to the detriment of intellectual culture, but should be incidental thereto. Education alone is worth more than refinement alone. Having the intellectual training, social culture will in time follow; but education will never come as the result of the refinement and culture of society.

Those students who are so clamorous for the advent of the ladies' department would find the change not so agreeable as they imagine. Rules far more strict than the present ones would have to be adopted, and students be put under discipline that they would now think very irksome. And aside from these considerations it would very likely result in increasing the annual expenses now required to take the course.

Were the College situated so that dormitories would not have to be erected, and many other conveniences provided, and were the course such that it would not require to be materially changed, it would then be policy to admit the girls by all means. Under the present condition and circumstances, however, it is not evident where such a course would result in decided advantages.

To ACCOMMODATE the military department, the time given to manual labor has been reduced to two and one-half hours. This is one half-hour in the right direction, but is still crowding matters too much. Classes close at 12 m., which leaves only forty-five minutes for dinner and to report for drill. After drilling one half-hour only fifteen minutes are allowed to prepare for work and report to the several departments, and to be always on time is simply impossible. Especially is this the case on the farm. One would naturally suppose from the way time is occupied here that it was a matter of life and death that students be kept hard at work every moment. The policy of thus endeavoring to completely fill all the time is not very apparent. One of the objects of both the labor and the drill is punctuality, and this is certainly not accomplished under the present arrangements.

What is gained by keeping students in such a hurry from early morning till night as is done here? They certainly cannot do the best of work with their studies. It does not help matters much to say that drill hours will probably be changed to come after supper. It only takes the time from study hours and cannot last for any longer time than the summer term, for drill will have to be held at some other hour during the spring and fall terms. Have the work commence at 2 p. m. and the drill at 1 p. m. This would give more time after dinner and more time before work, and still be giving sufficient time to manual labor. Punctuality could then be required at all times, and thus one of the objects of both systems be

attained, and the evils of the constant hurry be in part overcome. There will then be duties sufficient to keep students busy; no one can deny that too much is now required to have everything done well. A little less to do and that done well will be far more profitable. Perhaps the only way to convince those who think that drilling for only half an hour is a small matter and not at all tiresome is to have them try it for a time.

Since going to press the time for drill has been changed to 6:30 P. M. This relieves the hurry at noon, but only takes the time from another portion of the day. Furthermore, the change can only be temporary, and the drill must be put at some other time after the present term.

THE LECTURE delivered by Belva Lockwood before the Students' Lecture Association in the Lansing opera-house was not a gratifying success, either financially, or as an intellectual treat. The rain in part prevented what might have been a good audience, and the fair lecturess effectually blockaded one expected source of revenue by exhibiting herself before the State Legislature. The cunning law-givers flattered her vanity by sending a "special" committee inviting her to appear in their presence. She could not refuse this opportunity to "advertise the lecture" and herself, increase her notoriety, and show off before the big men of state. The result was no one from the Capitol attended the lecture, for they had seen the monstrosity and few cared anything about the lecture. Why people should have such a curious desire merely to see noted persons is one of the unaccountable phenomena of human nature. Neither did this specimen present a more strange appearance than any other woman who would rather be a man.

The lecture, though fairly good, was still very commonplace as a literary production, and nothing in the delivery tended to arouse the feelings of the audience or excite applause. The subject, Social and Political life in Washington, was one particularly interesting to an American audience, but would have been far more entertaining and instructive had the lecturer not strained every possible opportunity to say everything which might in any way increase her notoriety.

She particularly enjoyed expressing her opinions on public questions and matters of governmental or administrative policy—opinions which no one cared the least about, except as a matter of curiosity.

Nevertheless the audience obtained some good ideas of Washington and her people. The most marked feature of life in the capital brought out was the part played by the Washington women. The speaker inadvertently showed her class to be the constantly disturbing element of Washington life, their frivolous rivalries and jealousies keeping society in a constant state of commotion. She very thoroughly developed in the minds of the audience, the idea that had Belva Lockwood been raised to the position of chief magistrate, the all-absorbing topics discussed by the admin-

istration would have been, who should be the best-dressed woman, appear with the grandest turnout; who should occupy the most conspicuous pew at church or the most distinguished position at a public banquet, and who should be the lady of first importance in Washington receptions.

IN A previous number of the SPECULUM was discussed the propriety of detailing a member of the higher classes to act as guide for visitors at the College.

We are informed that this has been the practice in previous years and that the plan worked well, but that for some unaccountable reason was discontinued. There seems to be an imperative demand for some such arrangement as this, especially during the summer term.

A great many persons visit the College during this term, and it would be a matter of advertisement could some means be devised by which visitors might become better acquainted with the plans of the school, people coming here obtain but very imperfect ideas of the place and see only a small portion of the things of interest to be seen. Were there some one to point out and explain these things, show the opportunities for study here, and the advantages offered by the school, it would certainly be of no little benefit. By thus better spreading information in regard to the College many friends would be attracted to it, who would otherwise be indifferent and perhaps opposed to the school.

This would at the same time stimulate among the students a desire and interest to instruct themselves respecting numerous things on the grounds that a large part of them now know little or nothing about. How many have very complete ideas of the manner the grounds are laid out and buildings constructed and situated with relation to beauty, safety, and utility of the opportunities for studying botany, gardening, farming; the facilities for the study of chemistry, entomology, and other sciences, and of the practical workings of the institution in general? Only a very small proportion.

By appointing students to inquire into these things in order to point them out to visitors would spread much information among the students, and stimulate them to observe these things and thus become of lasting benefit to visitors to the College, and to the students themselves.

THAT THERE has been no such thing as hazing in our College for nearly two years will be gratifying to all those who have so long wished to see an end to this great "bug-bear" of college life.

Its maintainance here for so long a time even in a mild form and its final overthrow are good illustrations of the force of custom in college ways, and of its loss of power when once that custom is broken.

The practice was kept up, not because it was thought to be right or expedient, or even thought to

be harmless; neither was it done as a mark of enmity toward the freshmen; but it was continued partially for the sport of it, but principally because it was the custom. Every class must keep up its honor and reputation, each must do as the class before had done, or they would be looked upon by their college mates as lacking in pluck and courage; whereas, they only showed a want of that very element in doing as they did; they had not the manliness to stand up for the right in the face of the opinions of their fellows. It required only a very small degree of pluck for a gang of "bloody sophs" to come out in the dead of night with hideous noises, buckets of water, and squirt guns to frighten the innocent freshmen. That sort of proceeding is without doubt at an end here. The juniors siding with the freshmen one year, and the succeeding junior class threatening to do the same on the following year have broken up the custom, and that being the leading cause for the practice it is not likely to be renewed.

There is disappearing with this, however, another feature of college society, and one which cannot be considered altogether an evil. Reference is made to class feeling. Few can have failed to notice the decrease of class spirit during the last year. It is not at all unlikely that with the advent of students in the mechanical school, when classes will consequently be more divided, that it will be a question of only a short time when class feeling will be a feature of the past.

It cannot in justice be said that such a change will be wholly desirable; for it is this spirit that serves as a tie to hold the members of a class together in the firmest bonds of friendship; it imparts to a class ambition and energy. If it is not carried to extremes it becomes one of the motive powers which very materially aid in keeping alive many of those social institutions which go to make college life pleasant and profitable.

THE GOVERNMENT in the dormitories is a matter wholly under the control of the students, and has come to that pass where it should receive prompt and vigorous attention. For the spring term in some wards no officers at all were elected, in others it was practically the same, and none did their full duty. The order in some wards has been at times almost unbearable.

This sort of thing cannot long continue. Under the new administration there will certainly be a change somewhere. President Abbot has given full and fair warning to the effect that if the students' government did not give better attention to the enforcement of rules and the preservation of order, it would in all probability be supplanted by some other and sterner system of government.

We cannot but entertain the opinion that the present system of maintaining order is the best method that could be devised providing it be enforced and its provisions carried out; but as it stands now it is almost a dead letter. The system has degenerated woefully in the last few terms. It ought to be a mat-

ter of pride that the system of self government be preserved here, and made if possible even more successful than it has been at times in the past, for the reason that this is about the only college in the United States where it has for any length of time been used with so flattering a degree of success.

If a new mode of government is substituted for the present, it is not at all unlikely that it will be much severer and one in which the governed will have little or no voice. Hence the conclusion is forced upon us that if the students of the Agricultural College are wise and know what is for their best interests, they will at once take steps to revive their system of government and make it effective. They must not expect seniors to do this; it is the lower classes who are interested.

FREQUENT REMARKS are heard of late on the subject of making the labor system elective; and it is said that our new President favors such a move. We are unable, however, to verify the latter statement, but hope it is not true.

If such a step is ever taken it will be good-bye to the success of the labor system and must result in the loss to the Agricultural College of its distinctive feature. It never has worked the most satisfactorily in those institutions where it has been made elective and it never can. Boys in general, and especially college boys, will not work unless obliged to do so. Most of those who now think they would work, were the system made elective, would, we are confident, soon lose their good intentions. Remove the compulsory feature and not one-half of the boys now in college would work; and the influence of those who did not would soon have the effect to draw away many of those who did. It would attract to the College many of that class who now stay away because of the manual labor required, which would exert a still further injurious effect tending to bring it into disrepute. A healthy sentiment among the students in favor of the system, or at least one that does not look upon it as disreputable, is absolutely necessary to its successful operation; and making it elective would certainly not help matters in this direction. It would be but a short time before none above the freshman class would elect the labor, and a large share of that class would not. Other interest would take the place of the work hours and the whole matter would become a complete farce.

THE IMPROVED condition of the dormitories is one thing which the alumni who visit their Alma Mater this year cannot fail to notice. Many of those who will have a desire to visit their old rooms will hardly be able to recognize them.

The movement in this direction began three years ago, when the occupants were allowed to paper their rooms and afterwards to paint and otherwise improve them at their own expense. Besides very much improving the appearance of the rooms this has had the effect to create a considerable pride and emula-

tion in the care of them, resulting in a very marked increase in cleanliness and order. This spirit for fixing up has continued until to-day the very poorest class of rooms are in as good condition as were the best rooms when the present senior class entered. To add to what the students have done, the College has taken the matter in hand and repaired and fixed up the halls and many of the rooms, while the officers in charge of the dormitories make it their business to see that rooms are cleaned each term either by the occupants or by persons hired for the purpose. This must gratify all lovers of cleanliness and good order, will be a pleasing change to the alumni, and is exerting a wholesome influence on the students in cultivating habits of taste and neatness.

INFORMATION coming from numerous sources indicates that the attendance at the Alumni Reunion this year will be unusually large. Since the last gathering nearly one hundred have been added to the alumni, making a total of over three hundred. It is especially desirable that the attendance this year shall be large. Very many changes and improvements have been made since the last meeting, and more are in progress which will be well advanced by Commencement, so that the alumni will see much to interest them; and they will need to come often or their Alma Mater will grow beyond their recognition.

A large gathering will keep alive interest in the welfare of the College, and will be an impetus to the new era upon which she seems about to enter. Let every alumnus come, then, who possibly can, and not only alumni but every old student. Renew your love and patriotism for your Alma Mater by contact with her surroundings; inform yourselves of her condition and possibilities, and so be able to give a good and intelligent report of her work, and by spreading knowledge of her advantages, aid in extending her influence and usefulness.

ALL WHO have occasion to direct mail matter for the College should take especial care to direct, Agricultural College, Ingham County, Mich. The word Lansing should not appear in the address, as all mail thus directed remains in the Lansing office.

COLLEGE NEWS.

The grove south of Williams Hall is to be made into a lawn. Prof. Harrower spent last vacation with friends at Ann Arbor. The barn near the greenhouse, for the florist, is nearly completed.

A grapevine of no mean length now adorns the botanical museum.

Thirty-two Seniors expect to graduate, if they can make up for lost time.

Dr. Beal is still industriously engaged in making his collection in forestry.

There has been, recently, an addition of a number of species to the arboretum.

The plants in the Wild Garden have been rearranged and some shrubs added.

A number of plaster casts have been purchased as models for the class in drawing.

There has lately been added to the Botanical Museum a typical collection of fossil plants.

"Talks Afield" is the title of Prof. Bailey's "excellent little book on plants and flowers."

During vacation a fine stereopticon was added to the apparatus in the Chemical Laboratory.

Ninety stand of arms have been forwarded by the U. S. Government for the use of the College cadets.

Mrs. Merrill, during vacation, finished the work that she began last winter in the University Library.

A neat barn and woodshed have been built by Prof. Bailey. Our grounds will soon improve in that direction.

Among improvements contemplated on the farm are better watering tanks for the stock, and a new windmill.

A span of four-year-old Clyde mares, black in color, have been purchased from Mr. Jas. M. Turner, for the farm.

The vacancies in the apple orchard have been filled. In two months, it is said, there will be no grass to be seen there.

The appropriation of \$1,500 for the Zoölogical will be chiefly expended in obtaining a full collection of Michigan birds.

The old root-cellar in the vegetable garden has been removed, and that knoll presents a new and tidy appearance in a new dress.

Prof. Johnson some time ago purchased a very fine-bred ten-months-old Short-horn bull from the herd of T. C. Anderson, at Sideview, Ky.

New coal bins near the boiler-house are now nearly completed. The bins have a capacity of 350 tons, and were made by the students.

Mr. J. R. Newton, '85, represented the members of M. A. C. at the national convention of the Young Men's Christian Association, held in Atlanta.

President Abbott spent his vacation in Ypsilanti. He visited several classes in the State Normal School, and reports that institution in beautiful order.

The plants have been transplanted from the greenhouse to the beds. The good weather has caused them to assume a remarkably neat appearance.

The hot beds on the Horticultural Department have done well this year. They have been an attractive and instructive feature in the work of the department.

President Willits and Hon. Henry Chamberlain were made delegates by the State Board to the convention of agricultural colleges to be held in Washington about June 24th.

On looking over the list of studies in the new catalogue we were surprised and pleased to notice that a short course in business law has been introduced by President Willits.

The vineyard south of Wells' Hall has received a fertilizing with bones buried beneath the vines. This vineyard is now known as Vineyard No. 1, while that northwest of Prof. Carpenter's is Vineyard No. 2.

U. S. Senator T. W. Palmer, in his recent speech before the Legislature, congratulated that body on its wise liberality toward the Agricultural College.

Many changes are being made on the grounds, prominent among which are the removal of unnecessary and crowded evergreens, the setting of screens about Williams' Hall and back of Wells' Hall, the rearranging of drives, etc.

Dr. Grange hopes to be able to get the papier mache horse in time for an exhibit at the State fair next fall. The State Board directed him to make a veterinary exhibit, but if the horse does not come it must necessarily be postponed.

The fine lot of begonias now in blossom at the greenhouse are well worth visiting. Mr. Knapper keeps them under lock, so that people with weak wills will not be too strongly tempted, as they surely would be if allowed to visit them alone.

Mrs. Belva A. Lockwood, under the auspices of the I. S. L. A., delivered a lecture in the Opera House May 6. The subject was, "Social Life in Washington." The lecture in some of its parts was good, but on the whole it was a trifle tedious.

The old vegetable garden is taking on a new aspect. The south half is being made into the fruit garden, comprising all leading hardy fruits and many curious and desirable novelties. It is proposed to lay down all blackberries and raspberries during winter.

The officers of the various literary societies are as follows: Delta Tau Delta—President, J. A. Dart; Secretary, D. L. Davison. Phi Delta Theta—President, E. R. Lake; Secretary, C. M. Underhill. Union Literary Society—President, F. M. Woodmansee; Secretary, H. W. McArdle. Eclectic Society—President, J. Y. Clark; Secretary, B. B. Smith.

Prof. McLaugh, instead of coming here July 1st, intends to visit city schools and start a great boom for students. He will examine all applicants for admission at the various schools. He will use questions provided by the regular examining committee at the College.

Perennial herbs and rare aquatic plants, to the value of \$25, have been added to the wild garden. Among the aquatic plants is a pink variety of the common white water lily (*Nympha odorata*, variety *rosea*). This is the choicest hardy water lily known anywhere.

The Stewards elected for the present term are as follows: Club "A," F. B. Smith; Club "B," J. J. Jakway; Club "C," T. A. Stacey; Club "D," W. A. Kinman; Club "E," H. S. Talbot. Club "E" will make a resolute endeavor to have the price of board down to \$2.00 a week.

Mr. Birtch, the foreman of the farm, and his wife have left the College. Mr. Birtch's father-in-law being in poor health, Mr. Birtch has gone to manage his farms near Durawigan. Mr. L. E. Snyder is now acting foreman of the farm, and Mr. C. W. Ayres and wife are in the farm house.

President Wells, of the State Board, and Prof. Johnson, during vacation, attended the Hereford and Aberdeen Angus sale of Burleigh & Bodwell at Chicago. They purchased two Hereford cows and one two-year-old heifer. An Angus bull was purchased for experimental feeding.

Dr. Beal has lately received from Fred Schumacher, of Akron, O., 31 samples of cereal products in the various stages of manufacture. Corn, wheat, rye, and oats are all shown. These specimens are in fine show bottles in the botanical museum, and are well worth looking at.

The College now receives mail twice a day. Mr. Moore, with his wagon, leaves the College at 8:15 A. M. and at 1:30 P. M., and starts from Lansing for the College at 10 A. M. and at 4 P. M. Any person who may happen to be in Lansing can thus ride out and visit the College at small expense.

Ex-Congressman Herr delivered a very interesting and spicy lecture in the chapel May 5. The subject of his discourse was "Individualism, or Taking Care of No. 1." Governor Alger, Representative McNabb, and the editor of the *Lansing Republican* were present, and each responded to the call for a speech.

The crops on the farm are in a flourishing condition. The various fields are occupied as follows: No. 3, by meadow and experimental plots; No. 4, by pasture; No. 5, by peas, potatoes, corn, and millet; No. 6, by wheat; No. 7, by pasture; No. 8, by oats; No. 9, by corn; Nos. 10 and 11, by meadow; Nos. 12 and 13, by pasture; No. 14, by corn; Nos. 15 and 16, by pasture.

The State Fish Commission intends to expend quite a sum of money on the ponds for the mirror carp at the College. Pickers have forced an entrance to the ponds made last year, and no carp are now to be seen. The mirror carp are of economic value to anyone who has a small pond, as they may be fat and like rogs. It is said by the "State Board" and Club "B" that they are very palatable.

A military society was organized at the College April 17, for the purpose of providing for literary work of a military character, and the discussion of military topics. The membership is limited to officers of the M. A. C. cadet corps. The officers for the summer term are: President, Lieutenant Lackwood, ranking officer of the battalion; Secretary, Sergeant Davis. The Society meets fortnightly, on Tuesday afternoons.

The College base ball team has been reorganized as follows: B. B. Smith, c and Captain; T. B. Bates, p; H. D. Howe, 1st, W. E. Gammon, 2d, T. D. Hinchbaugh, 3d, A. E. Bulson, s. e.; Richard Edling, s. i.; C. E. Layson, c. t.; E. R. Latta, l. f.; C. P. Schneider, manager. The team has already won three victories from the Lansing nine, and expects to play as many more games as the short season and opportunities will permit. They expect, now, to play at Webberville July 4th.

The shops in the new mechanical building will be under the superintendence of Prof. Carpenter, who will engage skilled workmen for each shop. In this way it is believed that students can derive skill of commercial value as well as learning "how to do," regardless of the time involved. For some time at least the principal work in the shops will be on tools for use in the shops. The manufacture of iron working lathes seems to offer the best field both from an educational and a commercial standpoint.

The officers of the State Agricultural Society of the State Horticultural Society and of the State Grange, having been invited by the State Board of Agriculture, met at the College June 9. At 1 P. M. the students assembled in the chapel to listen to the usual list of speeches. Hon. C. G. Luce warmly advocated education at the College, and was most heartily applauded. A number of other speeches were made. Mr. Jas. M. Turner moved the appointment of a committee to wait on

Gov. Alger and urge the appointment of Dr. Grange as State Veterinarian. The boys were well pleased at their escape from work for the afternoon, and cheered all the speeches well.

The Horticultural Department is inaugurating a system of educational labor which promises good returns. The first attempt was in the pruning of raspberries. A few members of a class of the junior class were given a ten minutes' talk in the garden office on the characters of the classes of raspberries, the differences in methods of treatment between them, together with concise directions for pruning and studying the different kinds; and immediately thereafter Professor Bailey accompanied the students to the berry patch and worked with them until they had a thorough idea of the subjects. The students have cheerfully aided the work, and the satisfaction appears to be mutual. Other labor of this sort is following.

At the meeting of the State Board of Agriculture in April the following resolutions were passed on the death of Hon. H. G. Wells, and a copy of them directed to be sent under seal to his family.

WHEREAS, The Hon. Ezekiah G. Wells, who died at his home in the city of Kalamazoo on April 4, 1885, full of years and honors, was a member of this Board for 22 years, and most of that time President;

Resolved, That the State Board of Agriculture desires to express and leave on record their appreciation of one who was an honorable and distinguished public officer, an excellent citizen, and a good husband, the loss of whom will be long felt by the public, his neighbors, and his family.

President Abbot and Dr. Kedzie, from the College, attended his funeral in Kalamazoo. A very fine bouquet of flowers was sent from the greenhouse.

At the fifth annual convention of the Inter-collegiate State Association of Literary Societies at Ann Arbor, the delegates from the "Electric" of M. A. C. report a pleasant and profitable session. There were about thirty delegates present, and all were most hospitably entertained by the Alpha Nus. In the session for the discussion of society work, among other papers, one entitled "The Benefits Derived in Business Meetings," was presented by J. E. Hammond, '86, of Lansing. There was a public entertainment given at University Hall in the evening. A large audience was in attendance. Among the exercises noted by *The Michigan Argonaut* was "Chicago, a poem by J. Y. Clark, of Lansing, excellent in its metre and wording, even if its thought was not the newest." Among officers elected in executive session, in the program committee appears the name of J. J. Jakway, '86, of our College, and in the executive committee the name of another of our Juniors, E. A. Whitney, appears as chairman.

The drinking water for Wells Hall is now supplied from the old well at the west end of the hall instead of from the well at the greenhouse. A pipe has been attached below the ground and runs off on a level into the vineyard. The water flows constantly, and is thus kept clear. The water from this well and the well at Williams Hall has been analyzed by Dr. Kedzie with the following results:

	Williams Hall.	Wells Hall.
Total solids in imp. gal.	18.27	21.78
Organic matter	5.60	6.58
Mineral matter	12.58	18.20
Chloride of Sodium	1.61	.006
Free ammonia in 1,000,000	.010	.010
Albumen ammonia in 1,000,000	.002	none.
Nitrates	traces.	none.
Nitrites	none.	none.

The executive committees of the State Agricultural Society and of the State Grange adopted the following resolutions at their recent meeting here:

Resolved, That we have great satisfaction in expressing our aiding and growing confidence in President Abbot, and desire to record on this occasion our great regret that his health and age demand his retiring from the presidential chair. We are, however, glad to know that his connection with the institution is not severed.

The following resolutions were unanimously adopted by the State Agricultural Society at their recent meeting here:

WHEREAS, God, in His Providence, has removed from our executive board one of its oldest and brightest figures, in the person of Hon. H. G. Wells, a man who from the first organization of the State Agricultural Society recognized its power for usefulness in stimulating to the highest efforts the great farming interests of our State, and who through all its varied history never failed of personal concern in its annual fairs, or in any scheme that might promote the growth or development of the agricultural classes in influence and power. He gave his time and best efforts for almost twelve years without pecuniary considerations, in the work of placing on a broad, firm foundation,

the Michigan Agricultural College, which is accomplishing so much apparent and prospective good to our farmers and mechanics, and exemplified in his own life and character the great American ideal of a wise, unostentatious, and public spirited citizen; therefore,

Resolved, That we, the executive committee of the Michigan Agricultural Society, express our sense of personal loss in his removal from our midst, which we deeply feel and sincerely regret that we shall no more have the benefit of his wisdom in our counsels or the pleasure of his genial presence in our annual meetings.

PHILO PARSONS,
WITTER J. BAXTER,
WM. CHAMBERLAIN,
Committee.

THE NEW BUILDINGS.—The contract for erecting the new buildings has been let to Fuller & Wheeler, of Lansing, for \$23,333. The mechanical building will occupy the present site of the piggery. The piggery will be removed to some distance beyond the tool barn, and the garden barns will also be removed to give it room. The extreme dimensions of this building are 73x100 feet. It will contain a shop for iron working 50x33 feet, with side galleries for hand work, making the total floor surface 2,640 square feet. The blacksmithing and foundry work will be done in a detached wooden building for the present. The shop for wood-working will be 27x50 feet, with galleries, making the total floor surface 2,160 square feet. Both shops have overhead and sidelight, with ample provision for ventilation. During the next two years, the instruction in wood-working will be confined to the use of hand tools; in iron-working, however, a complete line of machine tools will be put in, including lathes, planers, drills, shapers, etc. This building will also contain class-rooms in the north part. This part is two stories in height, with the addition of a tower. Its extreme dimensions are 36x73 feet. The first floor will be occupied by Prof. McLouth, as a lecture room and physical laboratory. The subject of mechanics will be taught on this floor. The laboratory will be well equipped for physical experiments, and for the manufacture of physical apparatus. Prof. McLouth intends to make all apparatus needed for his own work and will possibly manufacture apparatus for sale. This will be an important feature of the shop practice. The second story will contain a room for drawing, a blue print closet, and office for the superintendent of the shop. The room for drawing will be well lighted and admirably suited for its purpose. The military hall will be located on the west side of the brook and directly west of College Hall. Its extreme dimensions are 63x114 feet. The drill room will be 60x98 feet, without a pillar in it. The floor will be made of cedar block pavement, nicely laid. The building will also contain an armory and two private rooms for the officer in charge. The building is to be made of white brick with red pilasters. The Veterinary Hall will be located north and west of the old carpenter shop. The extreme dimensions are 36x70 feet. Over the entrance to the main part is placed a horse's head. The main part will be 36x40 feet. On the first floor will be an office and museum; on the second floor a class-room like Prof. Cook's. In the rear will be an operating room 30x30 feet, equipped with the necessary appliances. Between the operating room and the class-room there will be a hoist for lifting heavy bodies.

Library Notes.

After a heroic struggle our set of Littell is completed, except a few plates.

A stout cane, an immense jack knife, a handkerchief, and a napkin await owners.

The ten students from Barry county gave us their photograph, and visitors frequently ask "Are those the professors?"

Liberty enlightening the world has a place in one of our alcoves, and she seems to have brightened up the corner a good deal.

We boast some fine new, walnut body, cane seat chairs, and there is a prospect of linoleum to cover our floors before commencement.

Look on your shelves and see if you have borrowed volume 1. Smithsonian Miscellaneous Collections, or the Journal of the Royal Agricultural Society for 1867. They are both loaned to unknown persons.

Two of the plants sent over by Mr. Knapper have worn the same blossoms for three and a half weeks, and they are good for at least one more. The ivy presented by Miss Harrison is growing vigorously.

The divisions in the library are now Dictionaries, Magazines, Architecture, Engineering, Astronomy, Mathematics and Phy-

sics, Chemistry, General Science, Medicine, Zoölogy, Botany, Horticulture, Agriculture, Michiganiana, United States Documents, Geology, Education, Statistics, Political Economy, Biography, Geography, History, Fiction, Poetry, Drama and Shaksperiana, Criticism, Philosophy, Religion. A small collection of works on Fine Arts waits a place. The above seems to make the bookroom an open page to those who have any idea what subject the book they want treats upon. We promise to have pamphlets and all in order before September next. A late visitor declares that he has an interest in every book here, as he has paid taxes in Michigan sixty-two years; he is hale and cheery and looks likely to welcome the assessor several years longer.

Natural History.

At the meeting of the Natural History Society, April 17th, Mr. Gillet made a few remarks on a freak in nature, the "freak" being an extra joint in one of the maxillary palpi of a grasshopper. Mr. Stanley presented some notes on the anatomy of the mud puppy. Mr. I. B. Bates gave the result of his observations on the evaporation of water from leaves. Mr. L. G. Carpenter described the gold mines of Colorado, especially those of Gilpin Co. near Central City and Black Hawk, about forty miles west of Denver, whence most of the gold found in Colorado comes. He gave a narrative of the trip up the Clear Creek gorge to reach the mining camps, and the difficulties overcome by the railroad in ascending the tortuous gorge, in depth from 700 to 1,500 feet. There are curves of 33°, and the average grade for 24 miles exceeds 125 feet per mile. Blackhawk can be described as a city a mile long, 60 feet wide at the bottom, and 500 feet high, it being built on the sides of a narrow gorge. Central City, 8,500 feet above the sea, is a continuation of it. Gold is found in placers or in deep mines. In the placer mines it is found in form of dust scattered through the material worn from the mountains by the elements. These mines are the first found and soonest exhausted. The essential principle of the operation of freeing the gold consists in washing away the gravel, which is lighter than the gold. In the simplest forms, with the cradle or the pan, no capital is required. The famous Gregory diggings, which caused the excitement of 1859, were in the outskirts of Blackhawk. Placer digging is still carried on in this region, though continued for 27 years, and though the soil has been cleaned down to bedrock in many places, and washed over and over, the cars pass for miles through these operations. The most extensive placer mines are near Breckenridge, on the Pacific slope, which Mr. Carpenter afterwards passed through. The existence of placers indicates an outcrop of gold ore in the watershed above. The ore occurs in veins between walls of granite or porphyry, intermingled with more or less of rock termed gangue rock, and other minerals, silver and lead are usually associated, and often copper. In Central City and Blackhawk mines open on the principal street. Abandoned shafts are everywhere, making it unsafe for an unwary traveler. The deepest, the California, is now working on the 2,000 feet level. As the ore comes from the mine it is sorted according to its value by pickers. Assays are made and bids given by the smelting companies. It is sold by the cord, which weighs from seven to eight tons. Some kinds of ore will pay expenses of working at \$6 per ton, but it is not often worked if the ore runs less than \$40. In some places, owing to expense of transportation, ore running less than \$150 is thrown on the dump. Gilpin county, a small area around Central City, produced last year nearly \$3,000,000 in gold alone. Mr. Carpenter had photographs of the places mentioned, and showed many specimens of gold ore of different values from various localities. On Friday, May 15, instead of a regular meeting of the Natural History Society, the Society and others spent the evening in the botanical laboratory to enjoy the microscopical exhibition given by the Sophomore class in botany. Some twenty or more members of the class were each provided with a powerful compound microscope, and had prepared a number of specimens showing some of the wonders of plant life. Bacteria, whose study has recently become of so much importance from the connection of members of the family with disease, were shown swarming in a drop of water. F. R. Smith had specimens of diatoms. C. Smith a section showing fibrovascular bundles; C. Waldron a section of the tradescantia; H. S. Thiers, scalariform or ladder shaped vessels; O. C. Wheeler, a section of grass showing the hygroscopic cells; W. C. Hall, showed oak cells, and F. J. Free showed stomata or breathing pores of leaves. The effect of alcohol in contracting protoplasm was shown by I. B. Bates, and beautiful forms of pollen grains were presented by H. L. Chapin; I. E. Robinson showed the effect of cooking on starch; R. W. McCulloch exhibited the movement of protoplasm in the hairs on the squash vine; A. E. Gilbert, crystals, found in the bark of the locust and fuchsia, and E. W. Redman showed hairs from plants. At another microscope was the section of a petal

shown by H. H. Winde; Mr. Samson showed the conjugation of two cells; J. N. Estabrook and Guy Arnold showed ocellitona and chlorococcus. The former moves with a sinuous, snake-like motion. The latter grows by division, several cells forming in a mother cell, which finally burst, liberating the newly formed daughter-cells.

Roster of the M. A. C. Cadet Corps.

Colonel, Lieut. J. A. Lockwood, 17th U. S. Infantry.
Adjutant and Quartermaster, J. A. Dart.

COMPANY A.

Captain,	R. W. Hemphill, Jr.
1st Sergeant,	O. O. Dunham.
2d do.	G. E. Sprang.
3d do.	W. S. Baird.
4th do.	W. A. Kinnan.
5th do.	T. D. Hinebauch.
1st Corporal,	W. K. Clute.
2d do.	C. T. Lawson.

COMPANY B.

Captain,	C. D. Wiley.
1st Sergeant,	F. S. Hough.
2d do.	J. S. Dixon.
3d do.	E. R. Lake.
4th do.	F. C. Davis.
5th do.	L. G. Palmer.
1st Corporal,	J. J. Jakway.
2d do.	W. E. Gammon.

PERSONALS.

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

R. E. Caine, of '76, is farming at Battle Creek.
O. F. Shilling, of '78, is a druggist at Decatur.
A. W. Mather, of '83, is farming at Esler, Dakota.
D. F. Griswold, of '75, is an apothecary at Northville.
Alice Johnson, '84, is teaching school near Williamston.
A. Horton, of '76, is married, and farming at Fowlerville.
C. B. Charles, of '79, is married, and farming at Bangor.
A. H. Voight, of '81, is book-keeping at Los Angeles, Cal.
C. W. Ball, of '73, is married, and book-keeping at Ewart.
J. S. Murrice, of '73, is married, and still at Harbor Springs.
B. A. Nevins, of '75, of Otsego, is married and has one child.
C. J. Rawson, of '78, is a grain and produce dealer at Decatur.
W. A. Rowe, '73, mourns the death of his wife a short time since.
W. T. Lingley, '82, is teaching a graded school at St. Ausger, Iowa.
W. H. Goss, of '82, is married, and farming at Bangor. He has one child.
C. W. Ball, '73, has a prominent position with a large lumber firm at Ewart.
H. E. Gibson, of '69, is in the grocery business at Detroit, and is married.
E. H. Hunt, of '77, is farming at Saranac. He is married and has two children.
Jeff. H. Irish, of '82, is in the real estate business at Bottle Lake, Minnesota.
H. F. Buskirk, of '78, is farming at Bradley. He is married and has one child.
Daniel S. Lincoln, of '81, is married and engaged in horticulture at Big Rapids.
Dustin C. Oakes, of '74, is banking at Shelby, and expects to be at alumni reunion.
L. A. Lilly, of '77, is farming at New Sharon. He is married and has two children.
Frank E. Robson, '78, of Lansing, is married to a young lady from Cleveland, Ohio.
H. P. Jenney, of '74, is teaching at Jeddo. He is married and has two children.
C. E. Miller, of '72, took the degree of M. D. at Rush Medical College in '79, and is now practicing at Cadillac. He is married and has three children.

T. F. Millsbaugh is farming at Lyons, Mich., and expects to attend alumni reunion.

W. F. Delano, of '81, of the U. S. signal service, hopes to attend alumni reunion.

Jay Sessions, of '74, is farming at Maple Rapids. He is married and has one child.

G. D. Nevins, of '71, is farming at Medina. He is married and has three children.

A. A. Crane, of '75, a lawyer and banker at Gaylord. He is married and has one child.

E. P. Clark, of '83, is teaching at White City, Kansas. He expects to become a farmer.

C. A. Dockstader, of '81, is druggist at Three Rivers, and is "cranky on peppermint oil."

E. C. Bank, of '84, has been promoted to assistant superintendent of the Reform School.

Charles Goodwin, of '75, is farming at Bennington. He is married and has two children.

G. A. Farr, of '70, is married and has two children. He is practicing law at Grand Haven.

G. A. Royce, of '75, is in the real estate business at Baraga. He is married and has two boys.

H. W. Collingwood, '83, will go to New York in July to enter the office of the Rural New Yorker.

L. B. Hall, of '82, "watches over three of the prettiest school-ma'ams in the State," at Luther, Mich.

H. C. Nixon, of '83, has been teaching till recently, but is now engaged in the study of medicine.

H. A. Haigh, of '74, took the degree of LL. B. at Ann Arbor in '78. He is practicing law at Detroit.

Chas. W. McCurdy, of '81, now Principal of schools at Sand Beach, expects to take his M. S. in August.

S. V. Beebe, of '67, is in the insurance business at Utica, N. Y. He is married and has three children.

A. C. Williamson, of '72, is farming at Armada, O. His wife died June 14th, '83, leaving three children.

H. M. Wood, of '83, is in the lumber business, and has homesteaded 160 acres of land since graduating.

G. W. Thompson, of '82, is practicing law at Minneapolis, Minn. He hopes to attend alumni reunion.

C. E. Sumner, of '79, is married, and is employed as clerk in the Auditor General's office in Washington.

R. T. McNaughton, of '78, is in the real estate business at Jackson. He is married and has three girls.

C. I. Goodwin, of '77, is well situated on a farm of 140 acres near Ionia. He is married and has one child.

W. W. Reynolds, of '80, is in the hardware business at Cassopolis. He is married and has three children.

Herbert Bamber, of '81, is a civil engineer, and in government employ on the Ohio river improvement survey.

Charles D. Sprague, '70, has sold his farm near Greenville, and has purchased another near Grand Ledge.

L. A. Buell, of '83, lost heavily on bees last winter. He expects to go either to Kansas or Nebraska soon.

B. B. Barber, with '82, who has been sick since November '81, is able to ride out, and visited the College recently.

Cyrus Crandall, of '80, is married, and has one child. He is assistant prosecuting attorney of Marquette county.

C. K. Ingersoll, of '74, is married, and has one child. He is Treasurer of Board of Education at Fort Colvin, Col.

F. W. Hastings, of '78, is a railroad postal clerk at St. Louis, Mich., and expects to attend alumni reunion in August.

C. J. Strang, of '78, took the degree of B. D. at Andover Seminary, in '82. He is married and living at Dowagiac.

H. V. Clark, of '78, is a member of the West Michigan Methodist Church Conference on probation at Benton Harbor.

L. J. Gibson, of '64, took the degree of M. S. in '69, and is now teaching at Lyons. He is married and has one child.

J. P. Lewis, of '78, was in the hardware business at Firth till recently. He is now buying grain and hogs at that place.

J. R. Monroe, of '78, graduated from the University with the degree of B. S., in '80. He is now banking at Kalamazoo.

O. E. Angerman, of '75, took the degree of LL. B. at Ann Arbor in '77. He is married, and practicing law at Detroit.

J. S. Corcoran, "Cork," for two years with '77, graduated in '80 from the State Normal, and in '83 from the Medical Department of Michigan University. He is now located in Sibley, Mich., and enjoys an extensive practice.

L. F. Ingersoll, of '74, took the degree of M. D. at Ann Arbor in '80, and is married, and is practicing medicine at Traverse City.

Bion Whelan, of '77, took the degree of M. D. at Ann Arbor in '79. He is practicing at Hillsdale, and is married and has one child.

J. Q. Thomas, of '79, is married, and has one child. He is farming at Junction City, and raised 6,000 bushels grain last year.

Geo. Grover, of '81, is an editor at Concord. He has taught three terms of school and been in the drug business since graduating.

R. M. Brooks, of '73, has 160 acres of timbered land at Ashley. He is marketing the timber and expects to make a farm some day.

J. H. Tibbitts, of '73, is a clerk in the Fifth Auditor's Office, Treasury Department. He is a civil service reformer, but no mugwump.

Fred. C. Snyder, of '82, is a horticulturist at Greenville, and is prominently connected with the grange. He is married and has one child.

Albert Dodge, of '77, is practicing law at Fowlerville. He took the degree of LL. B. at Ann Arbor in '81. Is married and has one child.

E. C. McKee, of '81, is farming at Laingsburg, and is paying special attention to thoroughbred Short-horns. He is married and has one child.

Byron S. Palmer, of '81, took the degree of D. D. S. at Ann Arbor, March, '83. He is married and practicing, 739 Larrabee street, Chicago, Ill.

Fred. E. Delano, of '82, is at his father's house at Oxford. He says he is looking for a girl to suit him and make him happy. Who will volunteer.

Jas. Brassington, of '76, is a lawyer at Hart. He is married and has one child. He says he is doing well and also is doing good work in horticulture.

W. C. Hume, of '73, took the degree of M. D. at the Detroit Medical College in '75. He is practicing at Corunna, and is married and has two children.

Harvey S. Rosenberry, of '81, took the degree of M. D. at the Starling Medical College, Feb. 28, '83. He is married and practicing medicine at Miltonsburg, O.

S. P. Tracy, '76, recently visited the college, will graduate in another at a Chicago medical college. He occupies his vacations raising seeds for D. M. Ferry & Co.

A. H. Phinney, of '70, took his degree of M. S. in '73; is married and has two children. He is lumbering and farming, paying a good deal of attention to stock-raising.

Henry F. Buskirk of '77 has left the lumbering business in which he has been engaged for some years at Wayland, and has gone upon his farm at Bradley, Allegan county.

Chas. W. Crossman, of '82, has been in the insurance business at Benton Harbor. He expects to teach for the next three or four years, and has just completed a fine residence.

J. E. Simonson, of '74, took the degree of LL. B. at Ann Arbor in '78, and is practicing at Bay City, and was elected Prosecuting Attorney for Bay county in the fall of '84.

S. M. Tracy, of '68, is married, and has three children. He took his M. S. in '76, and is Professor of Botany and Horticulture in Missouri State University. He expects to attend alumni reunion.

W. R. Hubbert, of '81, took the degree of M. D. at Detroit Medical College, March 4, 1885. He took second gold medal for proficiency on the final examination. Mr. Hubbert is still at Detroit.

F. E. Skeels, '74, who has been with C. W. Garfield, '70, upon Burton farm at Grand Rapids for the past eighteen months, has entered into partnership with Mr. Garfield in small fruit and truck farming.

Herbert Weed, '83, by paying two hundred dollars and complying with certain requirements of the United States homestead laws, obtained title to 160 acres of land in Missaukee county, now worth \$1,200.

Charles W. Garfield, of '70, is a farmer at Grand Rapids. He is "a mugwump in politics, a questioner in religion, a novice in business, a fool of a farmer, and a fellow that never knows when he is licked."

W. L. Snyder, '82, is giving attention to the special study of horticulture at his home in Greenville. Among other things he is experimenting to ascertain the effect of different varieties of strawberry pollen on the fruit of that year. It is a subject attracting much attention among horticulturists.

D. Strange, of '67, took his degree of M. S. in '72. He is married and has three children, and is farming at Grand Ledge. He says he has the "boss" farm and the "boss" boy, who will come here for four years.

Dustin C. Oakes of '74 is a member of the banking firm of Churchill, Oakes & Co., Shelby, Oceana county, and is a leading business man of that village. He lives in the finest house in Shelby, of which he is owner.

J. H. Smith, of '83, of Iowa College, Grinnell, Iowa, will spend his summer vacation in Michigan and New York. He expects to attend the alumni reunion next August before returning to his work in September.

Tom Brannin, for a time with '74, has the finest young peach orchard in Oceana county. Although it has required a struggle to secure this notoriety, he will be in the best of circumstances as soon as he markets his first crop.

R. A. Clark, of '76, took his LL. B. at Ann Arbor in '78, and is practicing law in Lansing. He is married and has two children, and says he is "devoting his life to making others happy." No doubt he makes a specialty of divorcees.

C. W. Garfield, '70, and wife recently visited J. D. Stannard in Wisconsin. He reports Mr. Stannard one of the most enterprising and influential farmers in that section. Tobacco is the principal crop raised there, but Stannard will raise none of the filthy weed.

Alice Weed, '81, closes a very successful year of teaching in the Clark school, Lansing. She will next year take an advanced position in the high school with an increased salary. She recently visited the College with all the pupils of her department. Superintendent Howell speaks very highly of her work.

G. W. Park, with '86, expects to return to college this term. Since leaving college he has been engaged in improving his printing office and extending his business. He has just added three new printing presses of the latest pattern to his office, with combination book-folding, mailing, paper cutter, etc. The last press, a Campbell complete four-roller press, with combination rollers and tapeless delivery, was just put in place at a cost of \$2,000. The June edition of magazine was double that of last year, numbering 100,000 copies.

George P. Antisdale, whose sickness we mentioned in our last issue, died at the age of 19 at his home in Nyack-on-the-Hudson, N. Y., Easter Sunday, April 5, 1885. After the first term in his junior year at this College with '85, he returned to his home and engaged in book-keeping. The following September he entered Cornell University, where close application to study proved detrimental to his weak constitution. After returning to Nyack for the holiday vacation his health gradually failed, though he did not give up the expectation of returning to Cornell until about ten days before his death. He was always very fond of books, and after leaving home, where he had engaged in football, rowing, and long walks, he seldom engaged in these sports, but spent most of his leisure time in reading. This change proved to be a serious mistake, for being to some extent predisposed to consumption, sunshine was what he most needed. The confinement while keeping books caused him to grow thin, and after he had attended Cornell about two months (during which time he took regular exercise) an unexpected development in the disease prevented his taking his usual exercise. He felt in no condition for studying, though he thought his cough and debility was due simply to a severe cold he contracted in New York City on evacuation day. As soon as it was ascertained that he could not recover, his brother Edwin returned home, arriving there two days before George's death. Services were held at his home and his brother and sister accompanied the remains to Nottawa, Mich., where he was interred by the side of his mother. For one so young George had mature judgment, was a thorough student, and won many friends by his quaint humor, frankness, and successful application of the golden rule. Much as we regretted to see him leave this College, we regret still more that one who promised so much good to the world should have been called home so soon. But there is much consolation for relatives and friends in knowing that he was not found sleeping. His whole life was imbued with a Christian spirit and his last days were those of a professing Christian.

Two Model Farmers.

We clip the following description of the farm owned by Eugene Davenport, '78, from the Hastings Banner:

Barry county has many excellent farmers, but we believe none approach nearer the standard of "model farmers" than do Geo. W. and Eugene Davenport, of Woodland. They make farming a study and a business, and attend as closely to its details as any merchant to his trade. To begin with, they have one of the finest farms in Michigan, rich in soil, gently rolling, and com-

paratively easy to work. This they have improved as only intelligent farmers can. Everything about the place speaks of the thoughtful work of thrifty, progressive farmers.

In the first place, the Messrs. Davenport do not enslave themselves and exhaust the soil of their 200 acres of rich land by raising wheat alone. Neither do they despise this cereal as a part of productive, paying farming. They pursue mixed farming, which they find not only more convenient, but much more profitable.

Especially do they dote on their stock, and their pride is justifiable. They not only keep cattle to fat for the market, but have a number of head of the celebrated "Ayrshire" breed, the favorites of dairymen. From their fat stock a profitable harvest is reaped; and it doesn't simply come but once a year, but lasts all the year, for fat cattle are seldom a drug on the market. They have a creamery, and usually milk from fifteen to eighteen cows in summer but fewer in other seasons. Their creamery butter, every pound of it, is sold for twenty-five cents per pound the year round—another good harvest. Then they can show some fine porkers, good substantial fellows. To look at them would make a butcher's mouth water.

But at this writing you would find these gentlemen very busy in their "sugar bush." One thousand trees supply the sap, and the best modern appliances are used in making the sugar. Especial pride is taken in their "evaporator," an entirely new pattern in these parts. It is automatically self-regulating, and will boil six barrels of sap per hour. One can see the watery sap running into one end of the evaporator, and at intervals the sugary syrup removed from the other. With this evaporator and one fire, the Messrs. Davenport care for the same amount of sap that formerly required four pans and four fires. The most scrupulous cleanliness is exercised throughout the entire process of transforming the sap into sugar. A fine feature of their sugar-making is that they get a shilling a pound for all they make; and as they will make 4,000 pounds or more this year, their sugar harvest is not a bad one.

And so you see, these gentlemen have so timed their farming that they are bound to have harvests, and good-paying ones, not simply in July and August, but at convenient and frequent intervals throughout the year. They are thoroughly devoted to their occupation, happy in it, and are able to show that farming, where intelligently and progressively pursued, pays a good profit even in dull times.

COLLEGES.

Ohio has more colleges than all Europe.

Cornell gives a course of instruction in journalism.

Vassar alumni wish to raise \$20,000 for a new gymnasium.

Girard College annually educates one thousand orphans.

Among recent gifts to Wabash College are 640 acres of land.

Seventy per cent of Princeton's students are church members.

The University of California has an endowment of \$4,000,000.

Owing to lack of funds, Kalamazoo College has closed its doors.

Of the 1,017 students attending Harvard, 968 are from Massachusetts.

A judgment of \$350,000 has been secured against the Chicago University.

At Carthage College senior vacation and graduating honors have been abolished.

Ann Arbor high school contains representatives from Mexico, Italy, Japan, and Turkey.

Kalamazoo has proposed a \$25,000 endowment of a professorship as aid for her college.

The Michigan State Normal School holds its commencement on Wednesday, June 24th.

It is thought that Chester A. Arthur will succeed Dr. Potter in the presidency of Hobart College.

One-fourth of the fourth class failed to pass the last semi-annual examination at West Point.

At Yale College Saturdays are holidays and some recitations are held on Wednesday afternoons.

The Legislature of West Virginia has passed a bill which admits women into the State University.

The great university, soon to be established by the Roman Catholics, is to be located at Washington.

At the Morocco schools, teachers are paid fifteen cents per month for imparting the doctrines of the Koran.

The Faculty of Albion College forbade the students inviting other colleges to participate in the late field day exercises.

The University of Pennsylvania has opened three new departments—Biology, Physical Culture, and Veterinary Surgery.

President Porter says that the failures of colleges and university life are to be traced in more than three-fourths of instances to failures in the preparatory school.

Commissioners of England appointed to examine the technical schools of the world, pronounce the technical schools of the University of California the best of their kind in America.

College of Charleston and Wofford College, Spartanburg, S. C., each have specific chairs of English, and the course of instruction is continuous through the four years' college course.

A petition for co-education was presented to Adelbert College, Cleveland. It was seventy-two feet long and contained 4,000 names. The trustees decided in favor by a vote of 12 to 6.—*Ex.*

Students of Oberlin ought not to be found wanting in religious principles. Attendance is required at morning and evening prayers, two church services on Sunday, and they may attend weekly prayer-meeting.

Sixty Harvard freshmen have abandoned their Latin, eighty their Greek, and one hundred their mathematics. None of them, however, have dropped their base-ball or boating, and college culture is therefore safe.—*Ex.*

Numerous colleges are trying to solve the question: "Is co-education desirable? Among those who advocate co-education we find President Bascom of Wisconsin University, and President Angell of Michigan University."

Miami University is to be re-opened in September. A reunion of the alumni will be held on the campus. It is expected that speeches will be made by Hon. Chauncey Olds, Hon. Milton Saylor, Senator Ben Harrison, Hon. Oliver W. Root, and Prof. David Swing.

Among those who oppose co-education are President Eliot of Harvard, President Seely of Amherst, and President Robinson of Brown's University, while President Welling of Columbia University, thinks that co education is a question for each college to settle for itself.

Probably the largest literary prize ever offered is that of \$1,000,000 to be given in 1925 by the Russian Academy for the best work on the life and reign of Alexander I. In 1825, shortly after the death of Alexander I, the sum of 50,000 roubles was offered by one of his favorite ministers, to be given as a prize a century after his death, and this at compound interest will amount in 1925 to \$1,000,000.—*Yale News.*

EXCHANGES.

We have received our first copy of the *University Review*, from Lawrence, Kansas. It is a successor to the *Kansas Review* and the *University Courier*. The general make-up of the paper is good, being quite complete in all points that enter into a good college paper.

Comments from some of our worthy exchanges regarding the *Speculum*: It is neatly gotten up and contains good reading matter.—*Academic.*

"The interior is substantial and contains many well written articles."—*Bethany Collegian.*

"Its literary articles are short and generally good; its editorial department is extensive."—*Calliopean Clarion.*

The *Otterbein Record* says of the *Speculum*: "It is chuck full of interest."

We ever welcome *The College Speculum* to our table.—*The Pleiad.*

T. H. SEDINA,

— THE —

Nobby Tailor,

Has the Finest Selection of Suitings of any House in the City.

120 Mead's Block. GIVE THE YOUNG MAN A CHANCE.

LANSING HOUSE.

Terms \$2.00 per Day.

J. ABERLE.

LANSING, MICH.

CAPITAL CITY RINK

WILL BE OPEN ON

Mondays, Wednesdays, and Saturdays,

AFTERNOON AND EVENING,

Until further notice.

NO CHANGE IN PRICES

Only on Wednesday and Saturday Evenings.

CAPITAL BARBER SHOP,

No. 119 WASHINGTON AVENUE.

SPECIAL ATTENTION PAID TO
STUDENTS' CUSTOM.

FIRST-CLASS ARTISTS. EXCELLENT WORK.

J. W. DAVIS, Proprietor.

Metropolitan Art Gallery.

STUDENTS' ORDERS RECEIVE PROMPT
ATTENTION.

SPECIAL RATES TO STUDENTS.

COME AND SEE ME.

C. W. LEONARD.

201 Washington Avenue.

WESTCOTT,

No. 112 MICHIGAN AVE., LANSING, MICH.,

DEALER IN

Foreign and Domestic Woolens

AND GENTS' FURNISHING GOODS.

TOM WESTCOTT, The Cutter.

HULL BROTHERS,

DEALERS IN

Fancy and Staple Groceries,

Fresh and Smoked Meats, Canned and Farinaceous Goods,
Colgate's Toilet Soaps and Waters, Lubin's Perfumes,
Toilet Powders, Champagnes, Imported Cigars;

MANUFACTURERS OF

FINEST CONFECTIONS IN THE WEST

SELECT BAKING POWDER,

SELECT FLAVORING EXTRACTS,

KETTLE RENDERED LARD;

Roasters and Grinders of the

FINEST COFFEES AND SPICES!

And Curers of Sugar-Cured Ham, Bacon, Dried Beef, Smoked Tongues, etc.

None but Finest Goods kept, and all goods sold to the Consumer at less than Wholesale Prices.

HULL BROTHERS,

Opera House Block, DETROIT, MICH.

HEADQUARTERS FOR COLLEGE BOYS!

GEO. T. DAVIS'S

Bakery, Confectionery, and Restaurant.

ICE CREAM AND OYSTERS IN SEASON.

Lunches at all Hours.

CIGARS AND TOBACCO.

BANQUET ORDERS PROMPTLY ATTENDED TO.

103 Washington Avenue, Lansing.

LAUNT THOMPSON,

JOB PRINTING.

109 Washington Avenue,

Over Ekstein's Grocery, LANSING, MICH.

BEE-KEEPERS' GUIDE,

—OR—

Manual of the Apiary.

9,000 sold in six years. 900 sold in the last ten weeks. Entirely revised. Fifty pages and fifty costly illustrations added.

Price by Mail \$1.25. Liberal Discount to Dealers and for Clubs.

A. J. COOK, Author and Publisher, LANSING, MICH.

MOFFETT,

DENTIST.

Nitrous Oxide Gas or Vitalized Air given for the painless extraction of Teeth.

Southeast corner of Washington and Mich. Aves, Lansing.

HUDSON HOUSE,

M. HUDSON, Proprietor. - LANSING, MICH.

SHEARER'S LAUNDRY

takes the lead on

COLLARS AND CUFFS.

We use no hardening in our starch, therefore we break no collars.

**TRY OUR WORK
AND SATISFY YOURSELF.**

TWO DOORS FROM POSTOFFICE, EAST, LANSING, MICH.

H. W. SQUIERS,

AGENT,

ANTI-MONOPOLY GROCER,

111 Michigan Avenue,

LANSING, - MICHIGAN.

THE MICHIGAN PIPE CO.,

MANUFACTURERS OF

Wyckoff Patent Water Pipe.

STEAM-PIPE CASING.

—AND—

GAS PIPE!

BAY CITY, MICHIGAN.

Plans, Specifications, and Estimates for Water Works, including Pumping Machinery, made when desired. Stop Valves, Hydrants, Crosses, Tees, Bends, etc., used in the construction of Water Works, constantly in stock and furnished at manufacturers' prices. All our manufactures guaranteed to be as represented.

SEND FOR CATALOGUE.

TAYLOR & CO.'S

ONE-PRICE BOOT AND SHOE HOUSE,

125 Washington Avenue, LANSING, Mich.

STUDENTS:—It will Pay You to Call
on W. G. PATTERSON for Boots, Shoes,
and Rubbers.

REPAIRING NEATLY DONE.

Washington Avenue, Lansing.

JOHN HERRMANN,

Opposite Opera Block,

MERCHANT TAILOR,

KEEPS THE LARGEST AND BEST STOCK OF

Merchant Tailor's Goods

IN MICHIGAN.

BEST FIT FOR THE LEAST MONEY

Students, Come and See Me.

W. D. SABIN,

JOBBER AND RETAILER OF

HARDWARE!

MANUFACTURER OF

Tin Sheet-Iron, and Copper Work.

105 WASHINGTON AVENUE,

LANSING. - MICHIGAN.

FIRST CLASS LIVERY.

STUDENTS' PATRONAGE SOLICITED.

JIMMY MARKEY.

ALWAYS AT THE FRONT

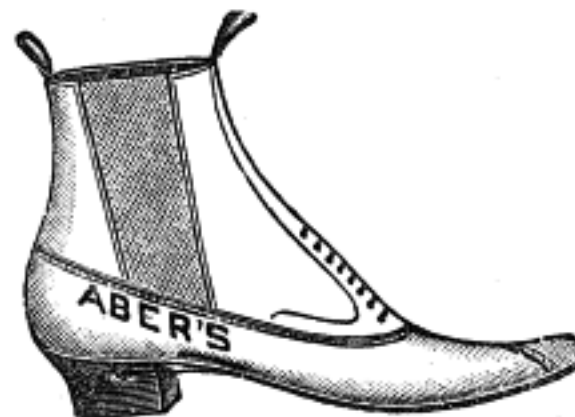
WITH GOOD

BOOTS

Always at the Bot-

LARGEST STOCK IN THE

Repairing Promptly Done.



SHOES!

tom with our Prices.

CITY TO SELECT FROM!

Students have Preference.

AT ABER'S!

≡≡≡ B. F. SIMONS, ≡≡≡

104 Washington Avenue,

DISPLAYS THE FINEST AND LARGEST STOCK OF

DRY GOODS AND CARPETS

THAT HAS EVER BEEN OPENED IN THE CITY.

YOU WILL ALWAYS FIND GOODS AS REPRESENTED AND OUR PRICES AT THE BOTTOM

E. W. DART,

DEALER IN

→ Heavy and Shelf Hardware, Glass, Etc., ←

ALSO THE

CELEBRATED GASOLINE STOVE,

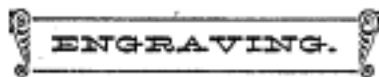
Golden Star and Garland Stoves and Ranges.

ALSO AGENT FOR

Fuller & Warren's, and Richardson, Boynton & Co's Furnaces.

B. P. RICHMOND,

JEWELRY!



LANSING, MICHIGAN.

STUDENTS FIND AT

G. W. FRARY'S STORE

A Large and Fine Stock of

GENTS' HATS AND CAPS

IN THE LATEST STYLES.

TONSORIAL PARLORS,

No. 106 Michigan Ave.,

LANSING.

STUDENTS SURE OF EXCELLENT WORK IN ALL ITS
BRANCHES, BY FIRST-CLASS ARTISTS.

ELI BIDELMAN, Proprietor.

FINE CIGARS AND TOBACCO

IN STOCK AT ALL TIMES.

W. RAPLER,

WHOLESALE AND RETAIL DEALER IN

Jewelry, Watches, Clocks, Diamonds,
Silver and Plated-Ware.

119 WASHINGTON AVENUE, - LANSING, MICH.

REPAIRING NEATLY DONE.

FURNITURE!

The Cheapest and Best Assortment in Central Michigan can Always be Found at

D. W. & M. J. BUCK'S!

301 AND 303 WASHINGTON AVENUE.

CURTAIN DRAPERY AND TRIMMINGS A SPECIALTY!

SPRING AND SUMMER

STUDENTS AND OTHERS

WILL REMEMBER THAT

LEDERER & SONS

ARE HEADQUARTERS FOR

FINE CLOTHING,

AND ALL THE LATEST NOVELTIES IN

Hats, Caps, and Gents' Furnishing Goods.

LARGEST STOCK,

MOST FASHIONABLE GOODS,

LOWEST PRICES.

This is our reputation, and we have maintained it for twenty years.

H. LEDERER & SONS, The Clothiers,
WASHINGTON AVENUE.

Lansing, April 1, 1885.

THE STATE AGRICULTURAL COLLEGE,

LANSING, - MICH.

This institution is thoroughly equipped, having a large teaching force; also ample facilities for illustration and manipulation, including

Laboratories, Conservatories, Library, Museum, Class-room
Apparatus, also a Large and Well-stocked Farm.

FOUR YEARS ARE REQUIRED TO COMPLETE THE COURSE,

— EMBRACING —

CHEMISTRY, MATHEMATICS, BOTANY, ZOOLOGY, VETERINARY, ENGLISH LANGUAGE AND
LITERATURE, MILITARY TACTICS, AND ALL OTHER BRANCHES OF A
COLLEGE COURSE EXCEPT FOREIGN LANGUAGES.

Three hours labor on each working day, except Saturdays. Maximum rate paid for labor, eight cents an hour.

RATES.—Tuition free. Club boarding.

CALENDAR FOR THE YEAR 1885.

February 25th Spring Term begins. May 20th Spring Term ends. May 27th Summer Term begins.
August 19th Summer Term ends; Commencement. August 26th College Year begins; Entrance examinations at 9 o'clock A. M.

For Catalogue apply to

R. G. BAIRD, SECRETARY.