

The M. A. C. Record.

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DEPARTMENT OF DRAWING.

PROF. W. S. HOLDSWORTH.

WOMEN'S COURSE.

DRAWING AND PAINTING.

The work in this course is not given with a view to teaching "accomplishments" or having the student learn to make "pretty things." Some knowledge of art is indispensable if one would attain a symmetrical development.

So we take up seriously these studies in order that we may get practice in drawing, some knowledge of the elements of art in its theory, practice and history, and its application to matters of every day life.

No one thing broadens and refines a person more and leads to a keener appreciation of the beautiful in nature.

The work is introduced early in the course because it is found that, apart from the use made of drawing in laboratory subjects such as botany and entomology, it is a most excellent means of developing and sharpening the faculty of observation. The training of the eye and hand to act in unison is very desirable.

FREEHAND DRAWING.

Freshman Year.—The first of the work may be described briefly as free-hand perspective or model drawing. This will be the principles of drawing as found by the study of certain type forms, geometric solids, such as cubes, prisms, pyramids, cylinders, spheres, etc.

The instruction will be given in a series of lectures amply illustrated, of which the student will be expected to take notes, illustrated by drawings as directed. Practice will accompany the instruction, as numerous carefully studied drawings from the model will be required.

Great stress will be placed upon good outline drawing, as this kind of work is found most useful in laboratory practice.

Systematic study in light and shade will be taken up, and in addition to work from the geometric models some time will be given to drawing from simple casts of plant forms, natural and conventional.

Toward the close of the term the work will be chiefly from plants obtained from the conservatory and fields, and from still life.

Sophomore Year.—A certain number of hours will be devoted to drawing during each term of this year. The work will be in advance of that of the Freshman year, and will consist generally of study in charcoal, or other black and white mediums, from the cast, blocked hands, feet and heads, and then to the round,

chiefly designed to lead up to serious figure drawing. Students in this work will be expected to take one or two hours per week with the sketch class in the winter and spring terms. (See elective work in drawing and painting.)

By arrangement with the instructor the work may take some special direction according to the taste and ability of the student, such as painting from the cast, still life, or drawing in pen and ink.

If it seems desirable some time during the last term will be devoted to normal instruction for the benefit of those wishing to use drawing in the class room.

THE GRAPHIC ARTS.

Junior Year.—In these days when illustrations in all sorts of periodicals are so numerous, some good and some bad, and illustrative pictorial work has become a part of every-day life, every one should know something of the methods employed in making the original pictures, and the processes by means of which they are reproduced.

The nature of the proposed work is suggested by the following outline:

A series of illustrated talks on the graphic arts, taking up some of the numerous mediums employed, as charcoal drawing, painting in black and white, both oil and water color, lead pencil, crayon, pen and ink, drawing in red chalk and other less common mediums, drawing on process paper for photo-engraving.

Reproductive processes in the arts; methods of reproducing pictorial matter in black and white and in colors.

Only a few of these will be considered, such as lithography in black and white and in colors (chromolithography), engraving on stone, wood engraving, etching, steel engraving, all kinds of "process" engraving, such as half-tone, zinc etching, photo-gravure, chalk plate engraving (for rapid newspaper work.)

Material for illustration will be collected and the study made interesting and practical.

HISTORY OF ART.

The work in this will be carried on partly by lectures and partly from text book, supplemented by a course of reading suggested by the instructor. One essay on a topic assigned will be required of each student and will count for equivalent work in English.

The subject will be considered under the three heads of architecture, sculpture and painting.

It is proposed as rapidly as time and means will allow to collect material to use in illustration, such as photographs of buildings, sculpture and paintings for permanent exhibition, while the stereopticon will be used on occasion.

Of course, talks on American art and artists will form a feature of the work.

The consideration of illustrators, among whom Americans are foremost, will come in the course in graphic arts.

ELECTIVE WORK IN DRAWING AND PAINTING.

The conservatories and botanic gardens afford very good facilities for flower studies, and there are capital sketching grounds easily accessible.

The opportunities for decorative work, both theoretical and practical, are excellent. Personal work in drawing and painting, in the studio as well as outdoors, will be given as occasion may require.

SKETCH CLASS.

It is proposed to form a sketch class of all students properly qualified who may care for this kind of work. Models will be secured, or the members of the class pose in turn, and the sketching may be done in any medium.

Any work for which credits are expected must be done under the direction of the head of the department.

DRAWING IN AGRICULTURAL COURSE.

The Freshmen devote one term of 10 hours per week to free-hand drawing, the work being the same as that outlined in the women's course. It is hoped that some opportunities for elective work of a more advanced kind will be afforded.

The work is carried on in a fairly well lighted and appointed studio.

It is hoped at an early date to put an elevator into College Hall and use the entire upper floor of that building for studio and lecture room. This will give a room, now used as a hall way, for the exhibition of photographs of pictures and sculpture and students' work.

DRAWING IN THE COLLEGE OF MECHANICAL ENGINEERING.

Drawing forms a prominent feature of the whole course; and the work during the first four terms is carried on in the drawing department, for the remainder of the course in the department of machine design.

FRESHMAN YEAR.

Fall Term.—Use and care of instruments, geometrical and projection drawing, conventional methods of representing parts, such as screw threads, bolts and nuts, etc. Especial attention is given to making the work practical, it being conceived that plain, strong drawings, easily read and reliable as to dimensions and descriptions, are what are desired in office and shop. Some attention is given to plain lettering, but ornamental work is prohibited. The term is generally closed with a drawing from some simple tool or machine.

Winter Term.—Free-hand drawing. This is in reality

machine sketching. Preliminary work is given in drawing from geometric models, with a few hints on free-hand perspective. Then follow sketches of conventional representations of bolts and nuts, valves, etc.

A simple machine is then placed before the class, sketched and dimensioned by the instructor, the student repeating the work, partly from the black-board drawings and partly from the machine. The work is closed by sketches from simple machines or parts, working drawings made from these, completing with tracing and blue print.

Spring Term.—Elementary Descriptive Geometry; treated as a laboratory subject, using some good text book for the basis of work, supplementing it with numerous black-board drawings, stereoscopic views, and models.

SOPHOMORE YEAR.

Fall Term.—Descriptive Geometry Continued. The work is carried on as in the previous term. This takes up the more advanced work as set forth in any of the accepted text books on the subject. The work is closed by a series of carefully executed drawings of important problems, including the practical application of descriptive geometry, and a model illustrating some one of these is constructed by the student. The draughting rooms in the mechanical laboratory are fairly well lighted and equipped, each student being provided with a locker for storing material and instruments.

AT THE COLLEGE.

Hon. C. J. Monroe spent Friday and Saturday at the College.

The Rev. David Howells conducted the services at the College Sunday afternoon.

Sheriff Peek, of Jackson county, and his two sons, spent a day at the College last week.

H. W. Mumford, Instructor in Agriculture, is spending a couple of weeks at his home in Moscow.

Miss Florence Greening, and her friend, Miss Smith, of Toledo, O., are visiting the former's sister, Mrs. A. L. Westcott.

Two teachers from Berlin, Mich., spent a portion of Tuesday looking through our laboratories. They were Myra and Mary Woodman.

Prof. Lutz and family, of Albion, were guests of Dr. Edwards, Friday afternoon. Yesterday they looked over the grounds more fully.

C. J. Foreman, who has been Assistant Librarian since his graduation in '94, has resigned to accept the principalship of the Centerville school.

Mesdames A. L. Westcott and P. M. Chamberlain gave a reception to the ladies of the campus Saturday afternoon in honor of Misses Greening and Smith of Toledo.

L. W. Spaulding, '90 m, spent several days at M. A. C. last week. He will return in a few days to spend several weeks in preparation for the civil service examination.

At the annual meeting of the Students' Organization last Friday, it was voted that last year's officers be continued for the present. There is a plan on foot to merge the Organization into an athletic association. Prof. Woodworth was elected foot ball manager, and S. J. Redfern, assistant.

E. E. Faville, '93, Iowa Agricultural College, director of the Nova Scotia school of horticulture, is spending a few days at M. A. C., and may remain for several weeks of post graduate work. At the Union meeting of Societies last Friday evening he paid our students a splendid compliment for their good order.

John Bowditch, Jr., Hillsdale; Clio J. Phillips, Acorn, the former a brother, the latter a cousin of B. A. Bowditch, '96, returned home Thursday on their wheels, after spending several days at the College. They think the better class of farmers generally recognize that the College is well equipped and is doing a great work, while a considerable number of those who read but little find fault with M. A. C., and in fact with most everything in general.

To make it possible to find hours in the day for the classes this term, the Agricultural sophomores work on the farm on Tuesdays and Thursdays in the forenoon instead of the afternoon, as has usually been the custom. This is a little foretaste of what will appear in the program next year. If these students could appear regularly five days in the week, instead of two days only, the present scheme would suit better.

Gilbert H. Hicks, '92, first assistant to the Botanist in the Department of Agriculture at Washington, with his wife, are calling on friends, with the view of

engaging quarters for their son, Gilbert, Jr., who they expect may be able to enter on a course at M. A. C. about 1913. Mr. Hicks leaves today for a trip to prominent seed growing farms in northern and eastern Michigan, after which he will visit many of the seed farms in New York, Massachusetts, Connecticut and New Jersey.

The Veterinary Laboratory, including the rooms in which investigations of bacteria are made, is a very interesting place, especially to one who is engaged in raising any kind of domestic animal, or the person engaged in dairying, in fact to any one who partakes of the products of the dairy. The model of a cow's udder, which may be taken apart to show the arteries, veins, lymphatics, etc., is alone an object worthy of long study, to say nothing about the model of a horse, which may be examined in a similar manner.

F. N. Clark, '89, Milford, Mich., who visited old friends here last week, has for a few years past been engaged in the raising of poultry, an occupation which he has believed in for a long time. He takes half a dozen poultry journals, and makes a study of the subject in every way possible, and in this way gets greater enjoyment and profit from the business. He is trying the use of machinery, and believes that in time it will be possible for one person to look after nearly twice as many fowls as he can at present. His main object in visiting the College at this time was to look over the poultry.

A tennis tournament has been arranged to take place this week and next. Prizes have been offered by Lansing business men, for which they deserve the patronage of our students. The same may be said of our own bookdealers, Elliott & Slocum. The prizes are as follows:

Doubles: First prize, to each winner, a Slocum, Jr., racket; given by Lansing Book & Paper Co., and Elliott & Slocum. Second prize, to each winner, a pair of white-duck pants and belt to match; given by C. E. Davis.

Singles: First prize, to the winner, a Delmar racket; given by J. H. Larabee. Second prize, to the winner, a pair of white-duck pants; given by Elgin Mifflin.

Prof. Eugene Davenport, '78, Dean of the Agricultural Department in the Illinois University, arrived at the College last Thursday morning and remained several days. Friday morning he favored us with a short talk in chapel that was highly appreciated by those present. The thought he presented was that nowhere are there so many earnest, able men attempting to solve one problem as there are at M. A. C. There are certainly nowhere so many striving to solve the problem of agricultural education as here. This struggle is a climbing-up, accompanied by mistakes, to be sure, mistakes on the part of the faculty and the board of control, but notwithstanding, a steady progress. This institution is the pioneer in the work in which it is engaged and must make mistakes if it is active. It might avoid mistakes by doing nothing, but this is not its policy. Now, you who are here, know its weakness better than does anyone else. What should you do—peddle it about the state? No, that will not help matters any. It is for you to keep these little things to ourselves. It is for you to stand up for this institution at all times and in all places. "You are soon to have with you the other and better half of creation and I congratulate you. I will leave you, then, with this one thought, stand loyal everywhere and at all times for the institution you have chosen for your alma mater."

THE IMPROVEMENT OF MARKETS.

PROF. WILBUR O. HEDRICK.

The truth is palpable that increased profits must come to the farmer through securing better markets for his products, or through cheapening the processes of producing his crops. The whole tendency of agricultural development thus far has been toward the latter end. Improvements in farm machinery, in agricultural methods and the application of science to agriculture, have had the one aim to cheapen the methods of wresting wealth from the soil. The production of wealth, however, is directly influenced by wealth consumption. Both in quantity and quality farm products are produced as consumers demand them. In the words of Secretary Morton: "Demand is the creator of value in all legitimately exchangeable things. The relation of supply of wheat to the demand for wheat determines the value of wheat. And what is true of that cereal is likewise true of all products and commodities."

The two most apparent ways of improving markets are: First, by extending the num-

ber of customers for farm products—accomplished usually by developing foreign markets. Second, by educating present customers to a higher range of desires—in other words cultivating the tastes of home consumers. The improvement of markets in this country has been nearly always, thus far, of the first sort, and renewed efforts are now being made to commend our products abroad. The world of newspaper readers was almost amused in the winter of 1891 at the efforts of a Col. Murphy, representing our Department of Agriculture, to introduce the American corn to foreign consumers. His corn parties held in Paris, Berlin and other European centers gave to taste and sight all the varied products afforded by our "King of crops" and quite substantially enlarged the number of its consumers. Very commendably, also, the same department within recent years has asked from our leading consuls abroad reports upon the market for American agricultural products in the vicinity of their station, and a number of valuable bulletins embodying these reports have been published. In thus pushing their products into foreign markets, farmers are doing simply what wealth producers of a similar character—manufacturers—have done for years.

The second method is probably more practicable however, and will give more permanent results. The attempt here is to improve the demand for commodities. If a demand is cultivated for a high grade of products, it has just the same need of satisfaction as a demand for lower and cheaper grades of goods. In developing tastes for new things that are raised, in educating tastes to demand better qualities in things already produced, the farmer has an opportunity well worthy consideration of improving his market.

This belief that a high grade of goods can be called out by a high grade demand is receiving justly more and more attention. The Consumers' League of some of our large cities exemplify it. Their organization binds its members to pay fair prices for clothing, especially, that encouragement may be given to first-class products of this sort. Furthermore, no desires that clamor for satisfaction with human beings are so persistent, so powerful, as those which are acquired or cultivated. It is the cultivated love of country that make men patriots, or of religious ideals that make them martyrs. The farmer may be assured, therefore, that any furtherance given to a high demand will be permanent, and will grow rather than decline.

The way these endeavors may be promoted is already indicated by various organizations. In the line of industry of manufacturing, boards of trade and merchants and manufacturers' clubs, develop markets at home and abroad. Already the fruit growers, likewise, have a national organization for the improvement of markets and the regulation thereof, while frequent local attempts by fruit growers have been well rewarded.

More than in the past, the future seems to offer reward for such endeavors. The enlightened policy of the federal government in making its dietary investigations, the agitations in many states for pure butter, cheese and food laws to guarantee the farmer in his choice products, will certainly benefit him by promoting better markets. Add to this the tendency of farmers to abandon the exclusive growing of staples and to become specialists, and it would seem inevitable that organizations for the bettering of markets should come about.

Department of History and Political Economy.

V. V. NEWELL LEAVES FOR A NEW POSITION.

V. V. Newell left Friday afternoon for his home at Concord, Mich. From there he goes to Brooklyn, N. Y., where he has accepted a position with the Worthington Pump Company. With the departure of Mr. Newell, the Mechanical Department loses an efficient instructor, and the College parts with an officer to whom none can be more faithful in every duty. Mr. Newell entered the machine shops as foreman a few weeks before receiving his diploma in '94, and he has been steadily at his post since that time. The vigor and earnestness that marked the beginning of his work have continued to be special characteristics during the two years. On visiting the shops during work hours, one could not fail to be impressed with the cheerful enthusiasm which the students caught from their foreman and applied to whatever work lay in hand. They learned to appreciate the tenacity with which he clung to the theory that the shop is a place to acquire a practical knowledge of machine and bench work. Every stroke of the hammer and every application of the callipers left its valuable lesson with the growing mechanic. No student was seen loitering, and none were to be found at what should be paid drudgery.

These two years of studious activity have wrought a commendable change in the shops. Old work that had accumulated for years has been completed and dilapidated machinery has been skillfully repaired. As a result he is able to turn the shops over to his successor in first class condition.

Mr. Newell's associates at the College will long remember him as a fearless champion of what he believed to be right. When he stood firm as a rock and protested against the wanton destruction of property while the unthinking, unkind mob surged about him plying epithets and indignities, student honor seemed a myth. And when as chief prosecutor in the student court he called witness after witness and succeeded only in demonstrating that some memories are disciplined like faithful slaves to come and go at the will of their masters, the knell of The Students' Government was sounded.

His studious habits and broad experiences have given him a wealth of information, which, with his genial disposition, has made him an associate whose society will be missed by those who have known him. It is a pleasure to pay a parting tribute to such a friend. We who have had the privilege of his acquaintance, join in wishing him that full measure of success that we are amply assured he has the ability and qualities to make his own. C. C. P.

REPORT OF A TEST.

C. E. MEYERS, '96m.

On June 20 a test was made on the boiler and engine at the Portland flour mill, for the purpose of finding the cost of manufacturing a barrel of flour, and also to make an efficiency test of the boiler for comparison with other boilers.

The engine is a tandem compound condensing engine, built by the Lansing Iron and Engine Works. The bed was originally a bed for the low pressure cylinder of a cross compound engine. The engine is automatically governed, and the valves, which are of the ordinary D type, are both operated by the same valve rod.

The condenser is a Conover jet condenser, and receives its condensing water from the city water mains.

A Frost steam pump takes its water from the condenser and delivers it through a system of piping in a disused water heater, to the boiler.

The boiler is of the water tube type, built by Abendroth & Root, and was installed in 1893.

The steam pipes are covered with several layers of common brown paper, affording but little protection from radiation.

The calorimeter used during the test was a Peabody throttling calorimeter. The samples of steam were taken from the vertical steam pipe leading to the engine, just above the valve.

The reducing motion for the engine consisted of a lever pivoted to the cross-head and sliding up and down in a tube which is pivoted above the pin in cross-head when the latter is in mid-position. The cord running to the Tabor indicators was attached to the tube by means of a sliding nut, with which one could vary the length of cord.

The following gives the general dimensions of the engine:

- Diameter of high pressure cylinder, 12 in.
- Diameter of low pressure cylinder, 21 in.
- Length of stroke, 20 in.
- Diameter of piston rod, high pressure, 2 1/4 in.
- Diameter of piston rod, low pressure, 2 3/4 in.
- Area of piston, high pressure, 113.09 sq. in.
- Area of piston, low pressure, 346.36 sq. in.
- Revolutions per minute, 146 to 150.

METHOD OF CONDUCTING THE TEST.

In the morning after steam was brought to the required pressure, and the boiler full of water, the fires were burned low, and at 7:47 the fires were observed and the test started. The fires were kept thin all day, thereby insuring good combustion.

For use during the test a Marsh steam pump was loaned me by the Battle Creek Steam pump Co. This was so placed that it took its water from the condenser and delivered it to the weighing tanks. The Frost pump was piped to take the water from the tank and deliver it to the boiler. Thus the test was carried on under very nearly actual working conditions, the only difference being in the manner of obtaining the water for the boiler, from the tank instead of the condenser.

About 11 o'clock the packing blew out of the check valve on the pipe leading to the boiler, and allowed considerable water to leak out, but enough of this was

caught and weighed to allow of a very close approximation of the amount lost. The leakage from the pump was also caught and weighed.

At the end of the test everything was brought to the same condition as at the start, and the test was ended at 4:47.

The results obtained are found in the following. The amount of flour made was determined by the millers:

BOILER TRIAL.

- Type of boiler, Root Water Tube.
- Duration of trial, 9 hours.
- Heating surface, 1,470 sq. ft.
- Ratio of heating surface to grate surface, 1: .0245.
- Average steam pressure in boiler, by gauge, 109.8 pounds.
- Average absolute steam pressure in boiler, 124.08 pounds.
- Average atmospheric pressure, 14.28 pounds.
- Average force of draught in inches of water, .625".
- Average temperature of external air, 79.6 degrees Fahrenheit.
- Average temperature of boiler room, 88.5 degrees Fahrenheit.
- Average temperature of steam, 343.57 degrees Fahrenheit.
- Average temperature of escaping gases 519 degrees, Fahrenheit.
- Average temperature of feed water, 145.4 degrees Fahrenheit.
- Total amount of coal consumed, 4,250 pounds.
- Moisture in coal, 106.25 pounds.
- Dry coal consumed, 4,143.75 pounds.
- Total refuse, 355 pounds.
- Total combustible, 3,788.75 pounds.
- Dry coal consumed per hour, 460.42 pounds.
- Combustible consumed per hour, 420.96 pounds.
- Moisture in steam, 2.7%.
- Total weight of water pumped into boiler and apparently evaporated, 27,896 pounds.
- Water evaporated, corrected for quality of steam, 27,142.8 pounds.
- Equivalent water evaporated into dry steam from and at 212 degrees Fahrenheit, 30,138.9 pounds.
- Equivalent total heat derived from fuel, 29,133,452.95
- Equivalent water evaporated into dry steam from and at 212 degrees Fahrenheit, per hour, 3,348.77 pounds.
- Water actually evaporated per pound of dry coal from actual pressure of steam and temperature of feed water, 6.55 pounds.
- Equivalent water evaporated per pound of dry coal from and at 212 degrees Fahrenheit, 7.27 pounds.
- Equivalent water evaporated per pound of combustible from and at 212 degrees Fahrenheit, 7.55 pounds.
- Dry coal actually burned, per square foot of grate surface per hour, 12.8 pounds.
- Horse power developed on a basis of 30 pounds of water per hour evaporated from a temperature of 100 degrees Fahrenheit into steam at 70 pounds gauge pressure, 97.
- Horse power, manufacturer's rating, 116.

Mechanical Department.

AUTUMN'S LITTLE PAINTERS.

WRITTEN FOR THE FRESHMAN CLASS IN RHETORIC BY D. E. HOAG, '99 m.

All Fairyland was turned into a vast paint factory. Here, there, and everywhere, were fairies seated on the ground, each with her mortar and pestle, mixing and grinding paints. Had you asked why this sudden great demand for paint, you would have been told that the good fairy Summer and her troop of helpers were just finishing their work, and that Autumn must be ready to take her place and carry on the work of the year. Autumn always had to have large quantities of paints of every tint and shade imaginable, so the fairies were working away as hard as they could to get the colors ready in time. Some were grinding in their mortar, some were bringing the colors to make up the right tints, and others were carrying the prepared colors to new bins, where they were to be kept until wanted. These bins bore curious names. One was "Peach Yellow," another "Grape Purple," another "Oak-leaf Red," and still another "Frosted-Maple-leaf Gold."

The fairies finished mixing paints that day, and the next day the brushes and pots were brought out and cleaned, ready for use as soon as Summer and her helpers should leave the earth.

The first day of Autumn's reign dawned bright and clear, and as she called her troop of fairies around her they sang and danced for joy because it was now their turn to go to work. "Now, my dears," said Aut-

umn, "you know why I have called you together; it is time for us to go out and paint the fruits and flowers, and color the leaves and grasses, and so make the old world beautiful. We have a great deal of work to do, so hasten to get your paints and brushes, and let us away, for Summer has just left the earth." Then the fairies ran to get their bundles of brushes and pots of paint and followed their mistress, the good fairy Autumn, to the earth, where they set to work immediately.

Some alighted on the grape-vines and began painting the grapes a deep purple. Others, with pots of pink and red and yellow flew to the peach-trees, and began tinting the cheeks of the peaches until some blushed like Summer's roses and others were a delicious, golden yellow. Others, and among them those who were most skillful in spotting and striping, flew to the apple trees. Soon the children who were playing under the trees looked up and cried out joyfully, "Oh see! Apples are getting ripe! Apples are getting ripe! Hurrah!" This pleased the fairies very much, and they worked away harder than ever, coloring, spotting, and striping the apples, for they liked to please little children.

The days slipped by like the links of a golden chain, and the fairies painted away as hard as they could, making the old world very beautiful. The grapes hung in deep purple clusters, the peaches were all red and yellow, and the apples glowed and burned among the leaves like coals of fire. The oaks were gay in every shade of scarlet and brown, and the maples looked, in their new dress, like tall yellow flames.

"How beautiful the world is!" exclaimed the fairies one day, as they were leaving Fairyland with fresh supplies of paint. Just then they saw a strange sight. An old man, with long gray hair and beard, had come to the earth, and was driving their beautiful mistress before him wherever he went, and blowing upon her his icy breath, which made her shrink and shiver pitifully. At length she came back to Fairyland, and with tears in her eyes said, "Put away your paints and brushes my dears; you will need them no more, for winter has come, and we cannot paint any more apples and grapes and leaves for the dear little children." The fairies all wept at this, but Old Father Time heard them and asked what it was all about, and when they told him he said, "Well, well, dry your tears, little ones, for next year you shall have another chance to make the children happy." This comforted the fairies, so they dried their tears and ran away to find something else to busy their little hands with.

UNION MEETING OF SOCIETIES.

Last Friday evening the thirteenth annual meeting of societies and fraternities was held in the College chapel. The large audience filled not only the chapel but the hall and stairway; and the well executed program was a credit to those participating.

S. B. Young, of the Union Literary Society, presided. The following program was presented: Music, The German Patrol, Union Literary Instrumental Quartette, followed by an encore. Reading, Beyond the Alps Lies Italy, W. J. Judson, Delta Tau Delta Fraternity. Oration, The Money Question in the U. S., W. G. Amos, Phi Delta Theta Fraternity. Piano duet, Sonnet, Feronian Society. Story, The Priest's First Confessor, A. M. Patriarche, Olympic Society. Poem, The College Bell, J. D. McLouth, Hesperian Society. Music, Moonlight Will Come Again, Union Literary Vocal Quartette. College Paper, The Prevaricator, T. A. Chittenden, Columbian Literary Society. Sermon, Miss M. E. Green, Feronian Society. Music, Guitar duet, Union Literary Society. The last number was also followed by an encore.

After the meeting the various societies enjoyed an hour or two of dancing in their respective assembly rooms.

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For various reasons THE M. A. C. RECORD is occasionally sent to those who have not subscribed for the paper. Such persons need have no hesitation about taking the paper from the post-office, for no charge will be made for it. The only way, however, to secure the RECORD regularly is to subscribe.

Young persons enter College for several reasons. A few thus decide because they have little else to do; because their parents or some respected friends took such a course; because it is believed to be genteel; because by so doing they can have a good time. Let us take it for granted that all who enter M. A. C. take this step with the view of bettering their condition. They believe a thorough course of study will help to command better wages and will enable them much sooner to win success in their chosen occupation—that it will be a passport to good society and assist them to become leaders in church, in politics, and in business affairs. They believe it will give them mental power and be a source of satisfaction throughout life. All of these objects are worthy of the best efforts of a young man or woman.

The beginner, first of all, has very likely never learned how to apply himself diligently to study. He should understand that it is of the very first importance to learn to train his mind to such a degree that he can command it at any time. This discipline of mind is worth more than any amount of knowledge on any subject, because it enables a person to acquire knowledge easily and rapidly.

The blacksmith learns to hit the horseshoe nail with his little hammer by persistently making the effort. If the mind of a freshman often turns to other things, he must as often bring it back to the lesson in hand. He will divide each of the 60 minutes of the 24 hours of every day of the week for a whole term at a time, setting aside a reasonable period for each task. In this way he will soon be surprised to see how much time he has at his disposal. He cannot always work to a schedule, but the nearer he can come to it the better will be his progress. He will resolutely close his door or turn his back to a friend, when duty calls him to study. He will make the attempt to perform to the best of his ability every task assigned him. If there is music, laughter, or boisterous conduct in the hall or adjacent room, it makes little difference, he is found at his desk. If visitors call, he will invite them to attend his classes instead of asking for an excuse and losing the lessons for a day, knowing that to lose a lesson unfits a person for the duties of a week. He will have some fixed places in which to get lessons, in his room, in the library, or at the table in the laboratory, and not make the attempt to study while sitting under a tree, in the room of a friend or next the open window. If he is suddenly overtaken with a strong desire to "wake up somebody," or if he is "spoiling for a muss," the temptation is unheeded till the proper time during hours for recreation.

A few persons not unfrequently manage to pass enough studies to be listed with juniors, possibly by a generous estimate with the seniors, and yet never fully realize what is meant by close application to study. They visit students' rooms, gossip, read unprofitable books or papers, entice others to engage in boyish pranks, in fact, they contrive in all sorts of ways to delay the time for beginning to learn a lesson. They don't feel first rate; they go to town, visit at home during the term, and contrive to miss some lessons during the term and are sure to rank low. Becoming unsuccessful and discouraged, they are a menace to good order, liable to get into trouble and sooner or later have a sudden call to pack up and leave "all that is dear at M. A. C."

Every teacher knows these persons, their classmates know them. They are deceiving themselves and some of their friends at home by attempting to be students when they are not entitled to rank as such. They waste their time, spend the money of their parents to

little purpose, make a failure of life simply because they never learned how to study.

* * *

Don't throw your envelopes or wrappers torn from papers about the steps of buildings, or along the paths or on the sidewalks or about the lawn, because people who are neat and orderly will see that you are not to be included in that class. Is it pessimistic to wish that every bit of waste paper, orange peel, apple cores, grape skins and other bits of rubbish likewise contained the name of the person carelessly dropping the same? Neat habits have helped many a person to secure desirable positions, while slovenliness has helped to lose many.

THE HEALTH AT THE COLLEGE.

Health is a condition of first importance. Life itself is a poor boon in its absence. The sanitary condition of the College is a matter of interest not only to those who are here, but to those who contemplate a temporary home at this beautiful place. Whatever may have been the unsanitary conditions here some years ago, they have been entirely removed and the health at the College is now excellent.

It may not be out of place to mention some of the improvements in our sanitation. The drainage, both surface and subterranean, is now so complete, that malarial troubles have ceased. The supply of water for domestic and potable use is no longer drawn from surface wells, but every hall, laboratory and dwelling at the College is supplied with pure water from an artesian well 343 feet deep, and more than 200 feet of this drilled through sandstone rock, so that surface contamination and pollution of every kind are practically impossible. This "water out of the smitten rock" brings health and refreshment to every person on the College campus. Chemical analysis, repeated over and over and year after year, shows it to be of excellent quality. The absence of zymotic diseases is good evidence of its potable quality.

The introduction of water closets into the dormitories, halls, and laboratories of the College has removed what was once a just ground of criticism.

We have a small, but well arranged hospital, free for all students who may be seriously sick at the College, but only one patient has occupied it since it was erected, and his sickness (pleurisy) was the result of gross carelessness and exposure such as would cause sickness in any locality. Of the resident students, this young man was the only case of severe sickness during the year. The resident graduate, whose death is noticed in this issue of THE RECORD, did not live on the College grounds.

Not the least of the sanitary improvements at the College are the miles of stone walks that connect all the College halls and laboratories. Not only are the students free from the mud, but they are protected from that prolific source of disease, wet feet. No improvement at the College in recent years has contributed so much to the comfort and health of our community.

In brief, we may congratulate ourselves and the families whose sons and daughters are students here, upon the exceptional good health of the College community.

DEATH OF GEORGE E. HANCORNE.

It was with considerable surprise and deepest sorrow that on Wednesday morning we learned of the death of Mr. Hancorne. After the operation on Sunday, he was at all times cheerful and hopeful, and those who watched with him were not aware that life was slowly slipping away. When his wife arrived Tuesday evening he said he was getting along "first rate," and during most of that night he rested well. Toward morning, however, he sank rapidly, and with the coming of the morning he was ushered into the eternal light of Heavenly day.

College work was suspended at noon Thursday, and at one o'clock brief funeral services were held in the chapel. After music, and prayer by Rev. Fayette Thompson, Dr. Kedzie spoke feelingly of his former pupil in the following words:

"The friends of the deceased have thought it a fit and proper thing that one of his old teachers should say a few words about his student life. While he was a good student in chemistry, yet it was to other fields of science—what I may call the laboratory of all-outdoors, embracing field and forest, and roofed in by the sky—that his heart naturally turned, and botany was his chosen science. It seemed to me that Prof. Beal should have been chosen to speak for his beloved scholar, but the duty has been assigned to me, and I tenderly lay a wreath upon his coffin.

"At the age of 18, George E. Hancorne entered Col-

lege, Feb. 21, 1882, according to the students' record, having 'left the district school the day before.' Enrolling himself 'for the full course,' and his chosen 'occupation, a farmer.'

In glancing over his record, I find quite a number of excused absences from College exercises, ranging from five to fifteen days, to allow him to finish his winter school and thus earn the means for carrying on his studies at College; but in all the four years' of his College course I find only two unexcused absences from classes.

"Hancorne belonged to that sturdy class—the bone and sinew of our College—who to a large extent, have to earn the money to pay their way. He did not slide through College, but literally worked his way, and thus became a member of the most honorable brotherhood of earth—the workers. The Lord Jesus knighted the laborer when he said: 'My Father worketh hitherto, and I work.' It is God's nobility.

"Hancorne did not belong to that illusive class—the 'brilliant scholar'—glib and corruscating in the recitation today, and forgetting all tomorrow—but he 'boned down to his work,' and was the patient, persistent scholar that earns success. Everywhere, in classroom, in workfield, and in his College society, he was faithful. In these days of vacillation, turn-coats and shifty expedients, how much that word faithful means! 'Thou hast been faithful in a few things, I will make thee ruler over many things.' The faithful soul rules at last, and George was faithful and true.

"How unsearchable are the ways of God. A few weeks ago Hancorne came to the College to finish his work for an honorable distinction and receive the Master's Degree from his Alma Mater, when the Supreme Master interposed and conferred the Master's Degree that fadeth not away. With saddened hearts we bow to the decree of the Highest.

"Finally, and best of all, George was a Christian; lived a Christian and died a Christian. The most important and significant event of the spiritual life was not postponed to 'a more convenient season,' but in the full vigor of his young life he gave himself to the Savior of men. What a consolation to us in this dark hour! His life was not of the emotional type, like the candle flame that flickers and flares with every passing breeze, but was of the enduring kind that shines like a star. And when the supreme hour came to him, as it will come to us all, he was ready, when the Messenger came with the morning sun.

"He went not like the quarry slave at night, scourged to his dungeon; but sustained and soothed by an unfaltering trust, approached his grave like one who wraps the drapery at his couch about him, and lies down to pleasant dreams."

"Asleep in Jesus! blessed sleep!"

The Rev. Thompson then added a few words of comfort, which were followed by music and the benediction. The faculty and students escorted the remains to the college entrance; and, standing on either side of the gateway, with bowed heads and saddened hearts his teachers, fellow-students, and friends bade a silent farewell to the earthly remains of George E. Hancorne.

Among the floral offerings was a beautiful representation of the open book of life from the Nashua schools, to their superintendent. The Union Literary Society, of which he was an honored member, presented a large floral representation of the society badge; and two members of the society accompanied the remains to their last resting place at Lowell.

George Edward Hancorne entered College from Lowell in February, 1882, and nearly completed the Agricultural course in ten terms, graduating later with '90. He was a member of the Union Literary Society and its president in 1886. For a year he was farming at home, late in 1886 he entered the State Normal, graduating in '87. He taught school at Hesperia, Gaylord, and Mendon, Michigan, and from 1894 to 1896 taught at Nashua, Iowa. In the summer of '90 and winter of '92 and '93, and summer of '96, he took special work in Botany and Entomology for an M. S. degree. In his recent studies he had nearly completed the requirements for his second degree, when sickness overtook him. He was intending, however, to return and engage in some work at teachers' institutes, about the time he was taken ill. The work for his thesis consisted in notes and drawings of the weeds in the family containing the chickweeds, cockle and the like. He worked at his desk incessantly from seven or eight in the morning till six at night with scarcely an hour for dinner. It was most interesting from year to year as he returned to the College to observe his mental growth. The hard honest work of years had begun to show itself, as it assuredly will with such application. He leaves a wife and two children, a father and mother.

THE COLLEGE WHEAT CROP.

Judging from the appearance of the field, the outlook for a good yield of wheat was seldom better on the College farm than it was this year before harvest. Those who knew, however, that fully one-half of the wheat plants carried in their stems the "flax seeds" of Hessian flies, were not surprised at the large per cent of shrunken grains. The yields of seven varieties sown side by side in acre plots averaged seventeen bushels per acre. An instructive fact in regard to these varieties is that their relative standings are in some cases almost reversed from last year. An example of this is the Currill from Kansas, which last year stood at the bottom of the list, and this year is close to the top.

Of the Golden Chaff thirty acres were sown. The seed had been treated very severely, which weakened the plants and greatly lessened the crop. Five acres, however, yielded at the rate of seventeen bushels per acre. We are sorry to report that, harsh as the treatment of the seed was last fall, the resulting crop is not entirely free from smut, though the per cent of smut is now so small as to be with difficulty expressed in numbers. The foreign varieties have nearly all proved tender, the exception being the dwarf Russian variety introduced from Germany. The Buda Pesth is not yet threshed. It promises a fair crop. It is not as hardy as the Golden Chaff or the Clawson, but is sufficiently so for most parts of the state.

FRESHMEN IN THE DAIRY.

During this term the Agricultural Freshmen in companies of six to nine are receiving instructions for three weeks or more in making butter. Among the students are some members of higher classes, who for some reason were unable to get the work sooner. Two resident graduates take the work. The students are up at five o'clock to weigh the milk and run the separator and henceforth take charge of the cream till the butter is placed in the refrigerator ready for market. These students, each in turn, try several kinds of churns, look after all the plans of ripening cream, working, packing, judging butter. All become familiar with the use of the Babcock Test—a machine of great value in the dairy. It is a weeder of cows. Throughout this work there is little or no guess work. Everything is measured or weighed. The acidity of the milk and cream is measured; the temperature is known, the amount of salt is known to be a certain fixed quantity. The late ex-Senator and Lecturer of the State Grange, Mickley, used to tell a story of the old woman who made good biscuits. When asked to give the recipe she could not do it, but said there was no rule. It was all a matter of judgment every time. Not so here in making butter, the judgment comes into play all along, but the chief reliance is placed on the weights, measures and other exact tests. The students all learn to Pasteurize milk. A bottle five days old was opened for us to taste. It seemed sweet and good, although an expert assistant guessed the milk would not have kept nice very much longer.

They are trying a butter worker which revolves very rapidly, throwing out the buttermilk much as a revolving clothes wringer throws water from the washing.

HORTICULTURAL SCHOOLS FOR WOMEN.

The *Nation*, of New York, states that a horticultural school for young women was opened by Fraulein Dr. Castner at Friedenau, near Berlin, Germany, in the autumn of 1894. The first class of seven members will be graduated next fall, when one of the graduates will enter as teacher a similar school recently established at Riga, in Livonia. Oct. 1 next, the second institution of the kind in Germany will be opened on the estate of the Baroness von Barth-Harmating, near Plauen, in Saxony. The courses of study extend over two or three years, and include the varied branches of gardening and horticulture, as well as scientific and commercial instruction needed for successful conduct of the business. Two students of the first-named school have already established themselves on rented land and proved their occupation profitable. There is a demand for thoroughly trained female horticulturalists as superintendents of gardens on large estates.—*The Country Gentleman*.

This statement by a sweet girl graduate in her commencement essay, almost explains itself: "All along the untrodden paths of the future we can see the hidden footprints of an unseen hand." And here is another specimen: "We pursue the shadow, the bubble bursts and leaves the ashes in our hands."—*Exchange*.



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 L. R. Love, President. J. W. Rigterink, Secretary.

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Columbian Literary Society—Regular meeting every
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NEWS FROM GRADUATES AND STUDENTS.

A. T. Stevens, '93, left for northern Michigan last Friday.

H. E. Harrison, '88, Trenton, Mich., spent Sunday in Lansing.

John D. Nies, '94 m, expects to spend commencement week with us.

C. H. Alvord, '95, is a delegate to the Republican State convention from Hillsdale county.

William E. Davis, '89, has been elected superintendent of the Lacon, Ill., schools, with a salary of \$1,150.

Married, July 26, at Leroy, Mich., E. A. Greening, with '97, to Miss Grace E. Wolverton, both of Leroy. At home after the first of September.

Bert Cook, '93, writes that he and Otie Cook, with '95, expect to drive over from Owosso to attend the '93 picnic at Leadley's Park, next Saturday.

After a very pleasant wheel trip through Canada to Niagara, G. Masselink and C. Tallman, '95, returned by boat, rail, and wheel to their homes. At London, Ont., they saw Roy C. Fisher, '95, who is pitching winning ball in the Canadian league. Roy is a "farmer" from the Detroit league team, but if he keeps up his present fast pace will soon be recalled.

Friday afternoon Prof. Woodworth received a telegram announcing the death of his brother, Robert S. Woodworth, '94. No particulars are known. The same afternoon Miss Essa Singleton was informed that her mother had fractured her ankle. Prof. and Mrs. Woodworth and Miss Singleton left for Caseville Friday evening. Later, we learn that Mr. Woodworth was working on one of the farms several miles from home, when he was taken suddenly ill. Some farm hands who were with him started to take him home, but had gone but a short distance when he died. His death was probably the result of heart failure, brought on by diabetes, from which he had been a sufferer for several years.

James H. Tibbitts, '73, employed at Washington, D. C., in the office of auditor of the State Department, called at the College to remove part of the ivy from the "big stone," as it had begun to cover up the inscription. This big stone was moved from the east part of the delta near the North Lansing road, and set in its present place by the class of '73. The members of the class did not actually move the stone by main force, but they did a great deal of planning for the guidance of the man they employed from Lansing, who brought machinery with him. In looking at the inscription you will see at the left a peculiar triangular-shaped cut. This was not intended to represent the delta from which the stone was taken, but happened to be put there in this way. The stone cutter did not know how to spell "class," supposing it contained but one "s." After he thought his work done, some of the class discovered the mistake, which annoyed them considerably. Finally, at the suggestion of one of their number, the extra figure at the left was inserted to make it look symmetrical after adding the final letter. Incidentally Mr. Tibbitts took occasion to look about, call on some of the old professors, compliment the College and THE RECORD in particular.

We feel in duty bound to report still another invasion by M. A. C. This time Illinois is the field of conquest. Last Thursday, Friday and Saturday Professor Eugene Davenport, '78, M. S., '84, Director of the Experiment Station and Dean of the College of Agriculture in the State University at Urbana, Illinois, visited numerous friends at the college. Perry G. Holden, '89, M. S., '95, is Assistant Professor of Agricultural Physics. W. H. Vandervort, '89 m, is Assistant Professor of Mechanics; we should include his wife, Mary M., '89. A. C. Burnham, '91 m, Instructor in Mathematics. George A. Goodenough, '91 m, is Instructor in Mechanical Engineering. L. P. Breckenridge, Professor of Mechanical Engineering here in 1891-93, occupies a similar position in the same university. A. R. Curtiss, foreman of the wood shops in 1890-93, occupies a similar position in Illinois. They all seem to be well entrenched and able to hold the fort. Mr. Burnham has leave of absence to study in Europe for a year. It is said of Prof. Goodenough that he attended the University of Michigan for a part of two winters, and took all the mathematics offered in all of their courses and was hungry for more. He thrives on such diet as that and is still far from a wreck physically.

The rhetoric class of the University of Michigan is engaged in collecting all slang words and phrases in common use. These will be published with definitions, together with a list of slang in use ten years ago.—Delphie.

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