Mr. Newman's Trip.

EDITOR OF THE RECORD: I hope this somewhat lengthy account of my recent trip may be of some interest to you, for I wish it might be a form of greeting to you, your readers, from the many M. A. C. friends who met you at Ann Arbor, Monday at noon, May 20. I found the first M. A. C. people that I saw were Mr. R. Parks, who for so many years prepared the food for many of our stalwart "farmers" at Club B. She still resides with her family at Ann Arbor. At the University campus I first ran across A. J. Norman, '92, at the foot of the pit from which general chemistry is dispensed. A hearty welcome repaid my search for Richmond. We then directed our attention to the splendid library building, where we made a fruitless search for "a man." (C. J. Foreman, '94), among the archives of history and political science, where he is said to "live." We then proceeded to the Engineering building, where I started the inspection in my line of work. After some two hours in the department of drawing, Instructor Goulding accompanied me through the shops and laboratories of the Engineering School. Ann Arbor charms me with its picturesque feature in the way of two bright Filipino boys—students in engineering. With a trip to the power station, and a look into the underground conduits used for conducting power, heat and light to the various laboratories, my visit at our University ended, and I was soon speeding across country by train for the Detroit electric line, for the City of the Straits.

Tuesday in Detroit was a dismal day of continuous rain from daylight till dark, consequently I could not carry out my plans of shop visits. A call was made at the Bridge Department of the Michigan Central, and the engineer in charge very generously took the time to discuss various points of practical interest and to show how many working drawings. Later in the day an hour was spent at the Central High School, visiting a class at work in mechanical drawing. In the evening I enjoyed the hospitality of the home of Mr. Geo. A. Kinman, with '92.

Wednesday morning dawned with the promise of a fair day, and with the day dawned a season of delightful, well-weathered atmosphere, during the hours of inspection, for the ten busy days which followed. Most of the morning was spent in the manual training department of the University of Michigan. The work done is of a remarkable character. The evening was passed in a ride on the trolley line, along the Maumee River, a peep into Lake Erie, and a stroll in beautiful Woodbridge Park. At 3 o'clock I started on my trip across Ohio and Indiana to the quiet little city of Lafayette, the seat of Purdue University.

After miles of dusty railroad travel, and days and nights of rapidly changing scenes and monotonous hotel life,—I was well prepared for the peaceful and cool ride to the Purdue Campus, on Friday morning. I shall never forget the peaceful and cool ride to the Purdue Campus, on Friday morning. I shall never forget the peaceful and quiet ride to the Purdue Campus, on Friday morning. I shall never forget the peaceful and quiet ride to the Purdue Campus, on Friday morning. I shall never forget the peaceful and quiet ride to the Purdue Campus, on Friday morning. I shall never forget the peaceful and quiet ride to the Purdue Campus, on Friday morning.

Saturday morning Prof. Breckenridge gave me a personal interview. He invited me to supper at the boarding club, at which the weather was much too short to see all that interested me in the engineering department alone. F. E. Olsen, with '92, was given a. tour of the department this year. With a couple of the members in the department Prof. Troop, and Prof. W. C. Lattimer, '77, are giving their best efforts, and the office of the former, a lively drive to the railroad station where I had the good of a ride with Prof. Troop, and then I was away for the University of Illinois. This ride, a distance of about eighty miles proved to be an interesting experience. My train, a fast mail, was at a few minutes late at the connecting point for the local train. Through the error of someone the local train had been allowed to leave this place, thus leaving me without means of reaching my destination until the following day. Thanks to the good offices of the fast mail conductor who immediately took up my case, a special train following closely behind us, was given orders to take me on, and to let me off when it overtook the local. The train was held, down line, for twenty minutes until I arrived. Here I found an exasperated conductor, but my end had been accomplished—I had caught the train for Champaign.

I arrived at the campus of the University late in the afternoon, and almost at once ran across Prof. L. P. Breckenridge. He invited me to supper at the boarding club, where he is taking his meals during the absence of Mrs. Breckenridge, who Prof. Goodenough, '93, and A. R. Curtis formerly of our wood shop, came in and took places at the table with us. The evening was passed in a most enjoyable way at Prof. Breckenridge's home, where Prof. Goodenough, '93, and Mr. Crane, '99, came in and spent the evening with us at the Woodworth's.

The next was taken up with visits to the Lewis Institute and to the Lewis Institute, where Mr. Hoyt met me, and we proceeded to the Woodworth's new home. Here another M. A. C. reunion was made out possible by Prof. M. C. S. P. M. Charnes, '96, and wife, G. N. Eastman, '95, G. E. Hoyt, and P. B. Woodworth, '98, and wife. The dinner hour was passed with Randall and wife, (My brother A. W. Crane, '93), and then I continued my journey.

Chicago was reached at early evening, and I soon reached Austin, where I was met by Mr. E. C. Green, '98, who kindly arranged to meet me and to conduct me through the University campus. Nature has prepared a remarkable place, with forest and lawn, which have been chosen as a setting for the halls of education, the Laboratories and the classroom of the University. The Engineering Building and shops gave me more to see than the Laboratory, and to visit the Lewis Institute, where Mr. Hoyt met me, and we proceeded to the Woodworth's new home. Here another M. A. C. reunion was made out possible by Prof. M. C. S. P. M. Charnes, '96, and wife, G. N. Eastman, '95, G. E. Hoyt, and P. B. Woodworth, '98, and wife. The dinner hour was passed with Randall and wife, (My brother A. W. Crane, '93), and then I continued my journey.

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The Diemer-Hudson Wedding.

Invitations have been issued by Mr. and Mrs. Lester H. Hudson, of Milwaukee, for their marriage to their daughter Mabel Natalie to Professor Hugo Diemer, on June 16, at their residence, 116 Washington Avenue, south.

Miss Hudson was one of the most charming and popular girls in the College, as well as one of the brightest students. Professor Diemer has accepted an offer made him some time ago by the Cutter-Hammer Manufacturing Co., of Milwaukee, builders of electrical controlling devices. His work will be in the line of shop organization, a field in which he has specialized for some years. We shall regret losing an able member of our faculty, we can not but rejoice at his success in winning a professional position.

Professor and Mrs. Diemer will visit Charlevoix, other northern resorts, and Chicago previous to establishing their home in Milwaukee. The best wishes of the College community go with them.

Mr. Newman's Trip.

(Continued from last page)

Thursday, Memorial Day, was spent with Hoyt seeing the city and the parade. After lunching I rode alone to Hoyt, and then came the homeward journey, and at last, but best of all, "home as found."

CHANCE NEWMAN

Y. M. C. A.

The union meeting was led last Sunday evening by Miss Lyford; subject, "Secret of a Strong Life," text, "For as many as are led by the spirit of God, they are the sons of God." The key note of a strong life is love, the predominating factor throughout Christ's life. Merely striving to be good will result in a selfish life. We must take that strong faith, that trust in God, that love for human beings that result in a peaceful, wholesome life.

The Bible classes held a union meeting in the Y. M. C. A. rooms one evening. The meeting was devoted to personal testimonies and suggestions in regard to Bible study. The interest taken in this Bible study during this year has been very encouraging. The average attendance for the year has probably been about that of any recent year. This improvement has been bought about by the efforts of the Bible study committee. Mr. Craig as chairman. This is a good object lesson to show what may be accomplished by active and persistent work. We hope that all will cooperate in making the work for the coming year's still greater success.

The meeting next Thursday evening will be led by Mr. Craig. The subject to be discussed will be "How to give brief farewell speeches."

Birds Observed at M. A. C. During Spring Migration of 1901.

American Crow, March 12.
American Robin, March 12.
Bluebird, March 17.
Yellow-bellied Sapsucker, March 17.
Song Sparrow, March 18.
Bobolink, March 18.
Maryland Yellow-throat, June 1.
Whip poor-will, June 3.

Blue Jay.
Cardinal.
Goldfinch.
Hillbopper.
Frohocke.
Brown Thrasher.
Golden-crowned Kinglet.
Tree Sparrow.
Red-winged Blackbird.
White-brested Nuthatch.
Black-capped Chickadee.
Hairy Woodpecker.
Downy Woodpecker.
Red Crossbill.
Sweeeet Owl.

Dr. Beal tells the following: Two years ago the lawn mower needed sharpening and for this purpose it was turned backward using oil and emery. I helped Mr. Carrott get the machine ready for the operation, and we worked for some hours. We have tested, and two of these times, occupying half an hour or more before I discovered that the lawn mower was used in place of emery. Just the other day, the curants and gooseberries in the bed were all gone, as if the birds were being eaten. I told the new gardener to use a span full of London purple in a large pail full of water and pump it onto the bushes. The next morning the bushes were not in good condition, though the man said he had dosed the bushes well. He gave them a second dressing the day after that, and the worms were healthy and at work. I went to see a sample of what was used on the bushes. It was a London purple from England. It was the emery that was bought to sharpen lawn mowers. I told the gardener to label them.

Two men were passing the orchard where large numbers of paper sacks were tied over flowers for protection. "I wonder what those sacks are tied on the trees in that way for?" the other, more observing, said, "You fool, they have been used to protect flowers and those sacks were put on to keep the sun from melting the wax."
JUNE IS, 1901.


Professor of Mechanical Engineering.

involved in the correct practice of the practice of the specific profession.

tools, wood-working machinery, laboratories, class and lecture rooms.

compares favorably with the equipment carried on in shops, drawing rooms, and laboratories.

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Thesis work is taken by senior stu-

and machine symbol. The patterns for any machine may thus be found among a miscellaneous collection, and in commercial work duplicate

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materials such as metal, iron, and machine.

Also, the effect of giving the student a sense of responsibility which tends to due caution and accuracy in exe-

have been obtained in the given time

ions, which were of great value in

As a matter of fact, most of the detail
drawings are now in the pattern

First, the equipment and machine symbol. The patterns for any

projects collection were brought before the class. Photographic print of the nearest standard size is

Thesis Work.

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is concerned, the foreman of that department must be notified. In practice it is sometimes necessary to modify frame work and other parts, to suit the equipment of the machine. It is of the utmost important consideration, which is likely to be overlooked by the inexperienced designer, requires careful attention in the class.

The unnecessary multiplication of sizes is not permitted. If, for in-

shift or crew which has been designed for a certain part can be used fairly well in another con-

Moreover, much of the work will be of a very different character, and on different dimensions than those that are likely to be used in a machine of the same size and type.

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have obtained. If discrepancies exist which he might be led to believe, by the journals consulted by the technical journals consulted by the

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but rarely be strictly adhered to, since points will arise which cannot be settled by the beginning. The object of the "outline of procedure" is more to make the men familiar with the object of the thing than to give them laws to follow.

The erection of experimental apparatus is too generally a matter which may require weeks, in case the thesis subject has not been taken up by any one of a previous year. This, then, is a brief sketch of the work in general.

Having taken up each thesis separately, describing the work and telling what has been accomplished in each case, a general statement will be given of what has been obtained. Results can scarcely be expected at this early period, for the theses are all of such character that, in the present year, many weeks have been required in erecting apparatus and getting same in proper shape.

The subjects of thesis work, this year, are given below, together with names of the men carrying on the work:

**Tests of a 12 H. P. Gasoline Engine.**

**Power Developed by Wind Mill.**

**Determination of the Effect of Different Materials and Methods of Loading on the Horsepower Developed by a Power Wind Mill.**

**Settling Points in Pipe Lines.**

**The engine used in the work of Aldrich and Thomas was furnished by the Lansing Engine & Bailer Works, and is, I believe, a design of engine not before tested. It will, therefore, be of much interest to the manufacturers to know the results of these tests, regard less of outcome. The engine has been very carefully fitted up for testing, and is thought good final results may be expected. In a few preliminary runs made with the engine it was not found possible to develop the horsepower claimed by the manufacturer, under the conditions.**

Bailey and Lickly have very interesting work before them in determining the horsepower developed by a power wind mill in different positions and velocities of wind. The mill used in the experiments was furnished and erected by the Maud & Wind Mill and Pump Company of Lansing, and without expense to the College. The mill has a fourteen-foot wheel with adjustable sails and is provided with a fifty-foot chimney. A novel feature of this work is the manner in which the power of the mill is absorbed. It is desirable, and in fact, absolutely essential, that the mill should be kept constantly loaded, so that somewhat different from the grossest, and is the governing factor here. The problem of the wheel and the manner in which the power of the wind is absorbed is a lesson in the principles of mechanism. It hardly needs to be said that the engineer must have a tolerably intimate acquaintance with the science of mechanics. A very large part of a young man's preparation for usefulness in engineering must, of necessity, consist of effort to acquire familiarity with mathematical truths. This is partly because of the unlimited utility of the truths themselves, and partly because other engineering studies belong so generally to the group of sciences known as mechanics.

In preparing the list of mathematical studies for a course such as ours, no great difficulties arise in the selection of the subjects, but there are however other serious questions to decide. Of these the most important are the extent of ground to be covered and the manner of presentation of the subject. The limits of the space for this great detail but it is possible to outline one or two general principles which are applied in this connection. First, the amount of subject studied shall be only so much as shall be of useful application in future work. That is, utility out and numerical computation in addition to the above list.

A department entrusted with the above work is also charged with instruction in mechanics of engineering, graphical statics, surveying and hydraulics, all of which except the last are required subjects for students of engineering. Hydraulics is an elective of the senior year. H. K. Vader.

**Drawing.**

A number of considerations enter into the arranging of subjects and appointing of time to each in that part of the course in mechanical art devoted to drawing. It is needless to say that we aim to have the work lead up properly to the related subjects. There are a few technical schools in which the students have so little work in drawing before entering as ours. For some reasons it is desirable to start such men on instrumental drawing. At one school every period of five minutes is set aside for instrumental drawing, at another, for instrumental drawing in every period, for the theses are all of such character that many weeks have been required in erecting apparatus and getting same in proper shape.

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**Mathematics.**

While the same general purpose may be said to govern the direction taken by the work in physics done by the mechanical students, as has already been stated, the work that done by agricultural students, viz: the development of the true scientific spirit; yet the subject touches the other line of work done by the former students in this College at so early an stage of specialization in certain directions becomes inevitable, as the courses develop. This specialization may in some cases become the dominant factor in some phases of the work and properly so. Yet the underlying thought of all courses is to lead up properly to what becomes the governing factor in some phases of the work and properly so. Yet the underlying thought of all courses is to lead up properly to what becomes the dominant factor in some phases of the work and properly so. Yet the underlying thought of all courses is to lead up properly to what becomes the dominant factor in some phases of the work and properly so.

The first term, which by the present arrangement of schedule is brief, is devoted to the study of the fundamental problems relating to the point, line, and plane. But few finished drawings are required. The second term takes in the usual series of problems in descriptive and a number of carefully finished drawings are required. For the benefit of the student the choice of making a model of some assigned problem or not making and in this way we have acquired some good illustrative material.

The constant aim of the drafting department is to have the work thoroughly in union with the other work in the course in Mechanical Engineering.

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The spending of money rather than the getting of it, is the dangerous factor in our social problems, calling for integrity, discernment, fidelity, sympathy, and humility; all fabrics to be used in character building. It is with such building that we are being driven by the impersonal forces. There is a lower, in common with all given in other departments, should be chiefly concerned. Turn out students who fill up the whole sphere of activity, and the result will justify the outlay.

METHODS OF INSTRUCTION.

Instruction is given in all courses by the usual method of lecture demonstration. As a general rule, the work done by the student in the laboratory is the key to his success. Because of the large number of subjects carried by our students, economy of time demands the application of every possible device for reducing the number of experiments required for doing any specific task. Such devices as do not impair the end in view are welcomed in the arts; and where it is possible, the same texts where the principles involved, for sketches of apparatus, and ruled laboratory work have been prepared, to economize the same.

The first term is devoted to the study of the inorganic chemical compounds of nature, minerals. By the use of the blow pipe, and a few simple experiments, guided by one of the modern works on determinative mineralogy the student soon has the power to determine and classify the most of the common and more important minerals. Each student saves a specimen of minerals which he has determined so that at the end of the term he has a little nucleus for a mineralogical collection, and has also learned to recognize by their appearance the ores of the common metals.

The course in general chemistry for engineering students is devoted to a line of quantitative work which will impart some analytical skill and also teach something of the applications of chemical science. In the chemistry work, the student learns the properties of pure substances, how to separate and identify them, and how to prepare and use them in the laboratory. He is taught to recognize the nature of the materials with which he has to deal, and to determine the presence of the elements that are present.

In the fall term, in a class meeting five times a week, the student learns the principles of grammar and composition, which he is supposed to apply in his work as a writer. The purpose of teaching English, no matter what the school or student's purpose is to be, is to make him a member of society, into a human relationship whose existence depends on, and the measure of whose success is in proportion to, its ability to communicate ideas accurately, with no waste of time. English interpreted as composition, and English interpreted as oratory and elocution, the elements of the work done in this department as, indeed, they underlie the work of the whole college. Our purpose, the worth of a workman, is the value of speaking and writing with accuracy and effectiveness, to point out the mistakes that he makes for himself, and to encourage his perseverance in the pursuit of this end. The training in the English department is, mathematicians, is never more important than in process of attainment. And this encouragement is a more important factor than the correct pronunciation of English is different from that which mathematics, physics, chemistry and some other sciences are likely to suppose. A mediocre effort to correct a student's pronunciation is often accomplished with a definite fact or facts of the end of a term, but works should be learned and understood. The purpose is to come with a little knowledge, and for a mineralogical collection, and has the student is given to the student who separates it out from its own experiences, home-reading, and new experiences. He is taught that grammatical correctness, and the principles of grammar apply to the same as the principles of grammar applied to the same. The strictest attention is here paid to the grammar of certain problems with which life is sure to bring each one face to face.

Physical Geography.

The course in general chemistry is divided into the Fall term and the Spring term, and is devoted to a line of quantitative work which will impart some analytical skill and also teach something of the applications of chemical science. In the chemistry work, the student learns the properties of pure substances, how to separate and identify them, and how to prepare and use them in the laboratory. He is taught to recognize the nature of the materials with which he has to deal, and to determine the presence of the elements that are present.

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The second term is devoted to the study of the inorganic chemical compounds of nature, minerals. By the use of the blow pipe, and a few simple experiments, guided by one of the modern works on determinative mineralogy the student soon has the power to determine and classify the most of the common and more important minerals. Each student saves a specimen of minerals which he has determined so that at the end of the term he has a little nucleus for a mineralogical collection, and has also learned to recognize by their appearance the ores of the common metals.

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story-making. The object, I need scarcely say, is not that of forming stories, it is believed that a definite object in view gives the student a guide, a map and compass if you will, to lead him on the right path. Always where he is and what he is trying to do; meanwhile, if he can write best by oral expression it is likely that he has learned some things applicable to all departments of composition.

The criticism in this course still concerns itself with the forms men should be expected to know. The student soon learns that he can write a narrative style, simple and natural language can accomplish very little. Consequently we ask him to choose as his object only one of the several valuable ends to be attained in this study. Those ends are: (1) 'Atchomness' with a language gained by mastering a conversational vocabulary; the scientific vocabulary of special reference to the technical student; the mental discipline derived from an intelligent study of forms and connections that are special subjects under consideration.

MEDICAL LANGUAGE.

In the junior year of the mechanical course or the French or German is required. One year of a foreign language can accomplish very little. Consequently we ask him to choose as his object only one of the several valuable ends to be attained in this study. Those ends are: (1) "Atchomness" with a language gained by mastering a conversational vocabulary; the scientific vocabulary of special reference to the technical student; the mental discipline derived from an intelligent study of forms and connections. Applying this principle to the course proposes to emphasize the bearing on the work in which he is engaged, the subject, the mental discipline derived from the study of isolated masterpieces of oratory, in order to put him in possession of the principles of vocal expression, in order that he may use them intelligently; (2) an ability to articulate words distinctly; and (3) such an appreciation of the fundamental principles of vocal production that he will be enabled to take up the subjects of reading and of speaking with the advantage of intelligent and profitable manner.

The subject, proper, of vocal expression is taken up in the fall term of the Sophomore year. The language to be used in this subject is the German language. The study is to be continued until the end of the Sophomore year. In the winter term the text is the "Art of Speaking." The language to be used in this subject is the French language. The study is to be continued until the end of the Sophomore year. In the winter term the text is the "Art of Speaking." The language to be used in this subject is the French language.

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In the fall term a careful study is made of isolated masterpieces of oratory, in order to put him in possession of the principles of vocal expression, in order that he may use them intelligently; (2) an ability to articulate words distinctly; and (3) such an appreciation of the fundamental principles of vocal production that he will be enabled to take up the subjects of reading and of speaking with the advantage of intelligent and profitable manner.

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another vacation of one week about the first of April.

20. Do the students room at the College?

Yes; the College owns a few handsome dormitories, but does not provide accommodations for the young women, the other three for the young men. Living can be obtained just outside the College grounds. It is perfectly free from all the usual college rules, and the students enjoy a large degree of freedom.

21. What is the cost of board at the College?

The cost of board is $1.60 to $2.50 per week, depending upon the student's ability to pay. Therefore, the student must bear the expense of living on the College grounds. There are six dormitories. One of these is for young women, the other three for the young men.

22. What is the size of the teaching force at the College?

There are twenty-five faculty members, including five professors, five assistant professors, and fifteen instructors. Each instructor specializes in his own field.

23. What are the expenses for a four years' course at the College?

The following table answers this question:

<table>
<thead>
<tr>
<th>Year</th>
<th>Total Expenses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1890-1901</td>
<td>$70.00</td>
</tr>
<tr>
<td>1891-1902</td>
<td>$75.00</td>
</tr>
<tr>
<td>1892-1903</td>
<td>$80.00</td>
</tr>
<tr>
<td>1893-1904</td>
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<tr>
<td>1896-1907</td>
<td>$100.00</td>
</tr>
<tr>
<td>1897-1908</td>
<td>$105.00</td>
</tr>
<tr>
<td>1898-1909</td>
<td>$110.00</td>
</tr>
<tr>
<td>1899-1910</td>
<td>$115.00</td>
</tr>
</tbody>
</table>

From expense accounts carefully kept by a number of representative students it is found that for agricultural students the average yearly expenditure runs from $3.00 to $4.00, and for students in the College, $5.00 to $6.00. The price now runs from $1.60 to $2.50 per week, depending upon the student's ability to pay.

24. Do the students room at the College?

No; only productive labor is paid for. Labor that is merely for the purpose of developing skill is not paid for. On the other hand, on so large a farm and plant, there is a great deal of work that can be done. All students get a part of this labor, and those who especially desire it can get, probably, as much as they can find time for and do their regular college work.

25. Who are the students thereto ?

There are a number of voluntary Bible classes. Chapel exercises begin the work of each school day. When you come, join the V. M. C. A. or V. W. C. A., united with your church at Lansing; attend chapel exercises.

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Furniture Headquarters.

COMPLETE LINE OF FURNITURE FOR STUDENTS' ROOMS

<table>
<thead>
<tr>
<th>Material</th>
<th>Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wood</td>
<td></td>
</tr>
<tr>
<td>Leather</td>
<td></td>
</tr>
<tr>
<td>Wicker</td>
<td></td>
</tr>
<tr>
<td>Metal</td>
<td></td>
</tr>
</tbody>
</table>

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