THE M. S. C. RECORD
Established 1896

Published for the alumni and former students of the Michigan State College by the M. S. C. Association.

Published weekly during the college year and monthly during July, August and September; thirty-five issues annually.

Membership in the M. S. C. Association, including subscription to THE RECORD, $2.50 per year.

Unless members request a discontinuance before expiration of their memberships it will be assumed a renewal is desired.

Checks, drafts and money orders should be made payable to the M. S. C. Association.

THE M. S. C. ASSOCIATION
Union Memorial Building

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It is always interesting as well as instructive to occasionally "stand back" and view one's work perspectively to estimate its value to the world as a whole and to note how closely or how distantly related one's field is to that of his fellow-workers in other fields. From the standpoint of a bacteriologist, let us view engineering and see where bacteriology enters.

At Michigan State College, the department of bacteriology teaches students in every division. For many years students in agriculture, home economics and veterinary medicine have been required to take varying amounts of bacteriology and hygiene. In recent years chemical engineers have been required to take a course in industrial hygiene and civil engineers a course in the bacteriology of water and sewage. An advanced course in water and sewage is offered which is selected by a number of engineering students each year.

In the newly created engineering experiment station, bacteriology should play an important part. In a minor way, research in sanitary aspects of engineering has been conducted for a number of years. Several years ago a member of this department helped in a sanitary survey of rural water supplies of the state of Michigan and found that 66 per cent of the rural wells were polluted. In nearly every case of pollution, the type of construction was responsible for the contamination found. Dug wells were, without exception, polluted; while the deep drilled wells were found free from pollution in practically every case. At present the department is cooperating with the civil engineering department in studying various phases of rural water supplies, particularly the pressure systems that are being installed on most farms today. To assist the farmer in obtaining good water, bacteriological examinations are made free of charge. Not only is the farmer told of the condition of his water supply but he is aided in making improvements that will assure him of safe water at all times. Several hundred people in the state avail themselves of this service each year.

Another phase of engineering in which bacteriology plays an important part is the disposal of sewage. Michigan, because of its position as a summer resort center, is attempting to protect its fish life by prohibiting the admission of raw sewage into the streams and lakes. At the present time the conservation department of the state is waging a fight against cities and industrial plants that are dumping untreated sewage into the streams. Many streams of Michigan are now nothing more than open sewers, devoid of fish life and dangerous because of the disease bacteria that are introduced in the raw sewage. All of the cities and industrial plants that are offenders must build disposal plants. Bacteriology is important in this field, because the only satisfactory methods of disposal are biological processes. In the disposal of municipal wastes fairly satisfactory methods have been perfected, but in the disposal of industrial wastes, particularly the wastes from creameries, a real problem still exists. The departments of civil engineering, farm mechanics and bacteriology are cooperating in studying the disposal of dairy wastes. At present a graduate student in civil engineering is working on this problem. Studies are also being conducted on the bacteriology of disposal.
plants for municipal wastes by the department of bacteriology in cooperation with the Michigan department of public health. Studies on the bacteriology of small installations, particularly septic tanks for rural homes, have been made.

Bacteriology also plays an important part in the biological processes of manufacture. The bacteriology of the retting of flax has been studied for a long time.

**METAL INVESTIGATIONS BEING DEVELOPED**

By J. W. Percy, '23, Graduate Assistant

The division of the Michigan station dealing with metallography has for its work investigation and research in those properties of the metals which depend upon their crystal structure.

When a metal, either a simple element or an alloy, is produced in the molten state and allowed to cool and become solid, its properties and usefulness depend not only upon its chemical composition but upon the manner in which it reaches the temperature at which it is to be used. If it is cooled rapidly it may have entirely different properties than if it is cooled slowly. There are also other conditions in the forming of the metal which help to determine its properties, such as forging, rolling or drawing.

One of the recent tools which has been developed to help the engineer in determining the proper treatment of a metal to produce the desired result is the metallurgical microscope. This instrument is similar to the ordinary microscope but so designed that metallic specimens can be easily handled and illuminated and give magnifications from a few diameters to one thousand or more. Often the chemical analysis can be checked along with the physical properties. In order that the true crystal structure of the metal may be examined, it is necessary that the surface be polished so that no scratches are visible and then the surface must be treated so as to bring out the various constituents.

The equipment of the station for this work is excellent, consisting of the latest type of metallurgical microscopes and photomicrographic equipment for both high and low power work, together with electric and gas furnaces, polishing tables and temperature measuring and recording apparatus.

Of the many different types of machines used for testing the strength of metals, one of the least known is the Izod impact machine. It is designed to give the investigator some idea of the way in which the material being tested will stand up under shock. There has been a great deal of discussion as to the relative value of this test, particularly as to whether the results obtained by means of the test were of real value.

The first problem undertaken was in regard to impact tests on several types of nickel chromium steels. While these steels had the same chemical composition, they were widely different physically. It was found that the fracture test of material furnished a reliable indication of the impact value. In this work the Reo Motor Car company aided us greatly, giving us the use of apparatus and the results of their experience in the same line.

The projects under way at present consist of an investigation of the microscopic and physical properties of electric welds and work on grain growth in steel.

Electric welding is fast coming to the front and displacing many of the older methods of joining iron or steel. It has tremendous possibilities but as yet its value is a debated question where strength is concerned. If it can be developed to a point where its characteristics are known and standardized it will add another step to the cheaper production of many articles. One use is that of replacing riveted joints in steel work, both structural and mechanical. This work was undertaken with the hope that a careful microscopic analysis of different types of welds, made
under various conditions, may help in determining some of the factors upon which the strength of the weld depends.

As the competition in business increases, it becomes necessary, among other things, to cut the amount of waste material and consequently more careful specifications are drawn for the crude material. At one time, not so long ago, a chemical analysis specification of the steel to be used in the construction of different parts of an automobile was deemed good enough. But it was found that of two samples of steel, both having the same chemical analysis, one would fail, while the other would not, even though they were treated in the same manner. This has led to a great deal of investigation and one of the outgrowths has been that not enough is known about the control of the grain size and whether for a given chemical analysis there are methods which may be used to obtain a desired grain size and condition, without remelting the material, no matter what the previous condition of the metal.

If nothing more is accomplished than the opening of a door into a new field of research, we shall feel repaid for the work on the problem.

NEW COURSES ADDED
IN 1926 CATALOG

New courses will feature the College catalog when it appears in June. The new medical biology course comprises the greatest single addition. Work offered in liberal arts represents the other change in curriculum.

The medical biology course leads to the degree of bachelor of science. Dean Ward Giltner heads the committee of the faculty that has outlined the first details of this course. Students electing this course will be trained laboratory and technical workers in general pathology and bacteriology. It is not intended to interfere with medical courses of the University in any way as graduates of this course will be in line to become doctors' assistants rather than practicing physicians themselves. The inauguration of medical biology as a course has the fullest approval of the medical fraternity, it is said. Doctors claim that there is a great shortage of people trained for this kind of work.

In the division of liberal arts the outstanding addition is that of graduate work in English, leading to the master's degree. This work will be offered commencing next fall. Graduate work in English has introduced courses in Anglo-Saxon literature, Chaucer, bibliography and methods of investigation, theory and history of criticism, development of the English drama, regional literature of the United States and modern tendencies in American and English poetry.

Additions in undergraduate work in liberal arts include the introduction of four-year study of French. The continental novel will be expanded to a full year's work, including the German, Scandinavian, Russian, Spanish, French and Italian. The course in the English novel will be expanded to two terms. Advanced composition will also be offered, being designed especially for those who intend to follow up writing as a profession.

Courses in journalism will be rounded out to include magazine writing and editorial criticism. Agricultural writing and business management will remain fixed for the present as that work was offered for the first time last year. Journalism will comprise, with the new courses, two years of study.

Aside from the above there will be but minor changes in the general contents of the new catalog. Business administration will occupy a separate classification under liberal arts. A few new courses have entered into applied science, engineering and home economics while in the agricultural division students will begin majoring in their sophomore year.

The Sophomore Prom will be held in the Union Memorial building on June 4. The committee in charge has announced that the party this year will be informal.
We are approaching a time when the prompt payment or default on subscriptions to the Union Memorial building fund is a matter of great importance to the organization. In order to make the building useful it was found necessary to borrow $300,000 and to issue bonds against the property as security therefor. The interest on these bonds and part of the principal come due regularly. It requires a large sum of money to meet the payments but the books show that there is now in overdue accounts more than enough money to handle the financing up to November 1 of this year. That is where the great difficulty lies. Those who owe the fund could do much by sending in a portion of the total charged against them, on thousands of small accounts this would soon mount into figures of respectable proportions. It is a time for putting the shoulder to the wheel, it is a time for close cooperation, it is a time to remember that the officers of the organization can do only things which the membership empowers them to do and for which the membership provides the necessary funds. The success of any organization rests more with the membership than it does with the leaders although leadership is an important factor in arousing the members to action.

Thus it is that with the coming of June 19 the Association faces anniversaries of various sorts. It also faces problems which have not been settled. In fact it faces many problems which need years of effort and the closest possible coordination of all factors for producing a satisfactory solution. It is well enough to celebrate accomplishments but such a celebration can not be justified unless it be the foundation for further accomplishments, unless it means pledging anew the allegiance which has made possible the fruits of past efforts.
Phi Lambda Tau, newly organized honorary engineering fraternity, entertained the freshmen engineers at a smoker in the Union on April 27.

It has been announced that construction on the new chemistry building will be started very shortly. Funds for beginning operations have been made available.

Captain Wyant, who has been senior cavalry officer of the R. O. T. C. during the past year, will be transferred to Fort D. A. Russell in Wyoming at the close of the year. Wyant has been at the College four years.

The freshmen swamped the sophomores in the annual track tilt of the two lower classes on April 17. The fresh took almost every first. Barratt came within an inch of smashing the shot put record, with a toss of 41 feet- one-half inch.

Members of the senior class have voted to have the commencement programs out of doors this year. The gymnasium has proved hot and generally too crowded for comfort and no other hall on the Campus is large enough to accommodate the groups.

A green boulevard, both on Grand River avenue and on the boulevard entrance to the Campus, is predicted for the Commencement activities. The College landscape artists are hard at work beautifying the appearance of the new Campus entrance.

Lee Miller, '28, Lansing, who represented the College chapter of Pi Kappa Delta, honorary forensic fraternity, at its national convention at Estes Park, Colorado, recently, won prominence as an extemporaneous speaker by reaching the semi-finals in such a speaking contest which the fraternity conducted as a feature of the convention.

It is estimated that more than 1,000 boys will visit the College May 13-15 when the Smith-Hughes high schools of the state will meet here for their annual conference.

Don Francisco, '14, submitted the winning name for the citrus products of the Avocado Growers association of California. Francisco proposed the name "Calavo," and it was chosen from the 3,277 suggested.

Musical organizations on the Campus will sponsor the appearance of the Chicago Symphony orchestra at East Lansing on May 16. There will be a concert in the afternoon and one in the evening. The auditorium of the new People's church will be used.

G. Ivan Collett, '27, Quincy, represented Scabbard and Blade at its national convention at Louisiana State university. Lt. Col. T. L. Sherburne, commandant of the College R. O. T. C., accompanied Collett and represented the College at dedication ceremonies at the university.

Pi Delta Epsilon, national honorary journalistic fraternity, initiated during the past week with the appearance on the Campus of "The Eczema" Campus "razz" sheet. The publication of this sheet constitutes the initiation into the fraternity. New members are Keith Himebaugh, '27, Lowell, editor State News; Norval Tyrrell, '27, Detroit, editor 1926 Wolverine; Eugene Moak, '27, Port Huron, business manager 1926 Wolverine; Gordon Whitburn, '27, Royal Oak, business manager State News; Paul Engle, '27, Lansing, associate editor State News; Donald Kline, '27, Grand Blanc, editor Michigan Agriculturist; I. S. Edwards, '27, Hubbell, humor editor Wolverine; James Buchanan, '27, Lansing, business manager Green Onion and James Gamble, program director WKAR.
FOLTZ DISCUSSES ELECTRICAL BRANCH

Professor of Electrical Engineering Tells of Field for Research and Work Already Undertaken; Late Discoveries Have Added to Equipment for Study of Phenomena Affecting Structure.

Last summer some very interesting radio fading tests were made in cooperation with the Bureau of Standards at Washington. About 15 radio stations cooperated in these tests which were made for the purpose of throwing light upon the propagation of radio waves in space, especially their action in passing through twilight regions.

Communication engineering and protective engineering owe a great deal to relays. Late developments have made wide use of slow acting relays for the control or operation of mechanism. The action of the relay is retarded by means of copper collars on the iron core. The literature on this type of relay is meager and while the theory is partially understood it is not developed to a point valuable in design. Effort is now being made through oscillographic study and mathematical analysis to reduce the theory of the action of this type of relay to a point where it can be effectively applied in design.

Another project that holds considerable promise is the application of the oscillograph to mechanical engineering problems. The oscillograph is an instrument for indicating and recording very rapid changes in electric currents. It has been used freely in electrical engineering and must be credited with many valuable contributions to the art. Lately the collapse of roofs, bridges and other structures has brought to the attention of engineers the great desirability of investigating mechanical structures for vibrations. By a study of vibrations it may be possible to record the deterioration in a structure and thereby prevent disastrous failure. Analysis of periodic shocks and their resultant vibrations will reveal condition jeopardizing the safety of structures before material damage is done.

It is expected that the oscillograph will be able to make valuable records of a large variety of mechanical shocks, pressures and deformations when it is properly equipped with detector devices. In some cases the creation of the detector will prove troublesome. This is apparent in the design of a device to study explosion pressures and pressure waves in explosion engine cylinders where the device must be sufficiently rugged to withstand the heat and pressure and sensitive enough to register the variations in pressure.

The electrical department has made conductivity tests, calibrated meters, tested radio equipment for various companies and individuals. It has presented various special courses for the benefit of certain industrial groups. It desires to be useful and invites the users of electricity and electrical apparatus to become acquainted with its facilities and personnel.

Electricity has entered almost every activity of mankind and is a most widely distributed factor in the world's work. It is to be found from the dentist's tiny drill to the huge freight locomotive, from the curling iron on milady's dresser to the steel furnace amidst the noise and smoke of Pittsburgh. Its field is widening every day and this department will cooperate with industries and individuals in their problems of design and development, application and maintenance.

Electric lighting is closely associated with electrical engineering and the department co-operates with municipalities, schools, factories, stores and homes in making lighting surveys and recommendations.

Facilities for service along the lines of electrical engineering and illumination engineering are at the disposal of those desiring such assistance and it is hoped that knowledge of such help may rapidly become much more widespread.
VARSITY TAKES GAME FROM SYRACUSE

Sixth Inning Rally Produces Winning Run After Visitors Gather Early Lead; Wakefield Holds Batters In Check Throughout; Errors Contribute to Losers Scores.

The Varsity took the game from Syracuse 4-3 on College field April 29. The Varsity hit to all corners of the lot and placed men on bases in almost every inning, but failed to score consistently.

After three uncertain innings, in which the visitors collected all their runs, mostly on errors, Wakefield settled down to steady pitching, which, substantiated by gilded support, held the Syracuse nine harmless during the remainder of the route. Spectacular fielding featured the game. Baynes made a one-hand catch on a Texas leaguer which almost knocked him over. Fleser connected with a long fly to center field which was grounded on the river side of the outfield bleachers.

Zimmerman, veteran fielder and lead-off man, appeared in the lineup for the first time this season. He celebrated his first game by knocking the ball into a tree on the bank of the Red Cedar. The tree turned a potential home run into a three bagger. Twice during the game Zimmerman was put out at the plate.

The summary:

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*Van Lane batted for Beischline in 9th. **Sweigel batted for Barnum in 9th. xBenzin out for interference in 3rd.

Syracuse: 2100000000000000-
Michigan State: 000000000000000-


Gerrit Masseling, '95, will enter the election next fall as the democratic candidate for lieutenant-governor. He was at one time editor of The Record and has been for years connected with Ferris Institute of which he is vice-president.
CLASS NOTES

'69
James Satterlee writes: "Will you kindly change my address to my home at 913 W. Ottawa street, Lansing. I expect to be at home about May 1. Have had a very lovely winter in Los Angeles. Beautiful weather."

'79
O. P. Gulley, who has been in Florida, is back at 14374 Grandmont road, Detroit.

'84
C. E. Smith, according to postal advice, is living at 5046 Maplewood avenue, Los Angeles, Cal.

'01
Dear Classmate:
Nearly 25 years have sped since we parted from Michigan State. They have been years of struggle for success, reckoned by wealth, honors, place or that which to each has seemed most worth while. Unfortunately the struggle has made them years of separation. Now it is natural to desire reunion, even if it be but for a day.

Each of us has spent this quarter century with a view to making the next quarter a more pleasant and satisfactory one. With all our differences in viewpoint, ideals and experience, has life taught us any lesson more forcibly than the value of friendship and that old friendships (they used to add, "like old wines"'), are best. Have we not all been living these long years for the pleasure of coming back to meet and greet each other at our 25th graduation anniversary on June 19, 1926? We must take life's pleasures as they go. Our 25th anniversary will never return.

We shall little care nor long remember what the other fellow wears and whether we can boast of as much or more success than our classmates. If that was primary my store of this world's goods might bar me from your society. It isn't the exterior show that counts now but that yearning for the friendship underneath which brushes these distinctions aside.

Then there is the loyalty to old Alma Mater for the good true start she gave us. We are proud of our Michigan State. We yearn to do homage to her and to witness her development. I know you share these desires with me. The whole question is: Will you be there? I shall, both halves plus. Will you?

Please give me your assurance in order that the editor of the M. S. C. Record may publish the fact to your waiting classmates. Do not fail to send me at once the address of at least one of our classmates who did not graduate. The editor supplied one for graduates only and gave me a lost list as follows:

J. Guy Aldrich, Roy L. Brown, John Franklin

Coats, Clare W. Haven, Charles W. Taylor, Mrs. Thomas M. Marshall (Vesta Woodbury).

Very sincerely yours,

MARK L. IRELAND,
Jeffersonville Quartermaster Depot,
Jeffersonville, Indiana.

'04
Harvey D. Hahn, vice president of the Union Title and Guaranty company of Detroit, is living at 2030 Hazelwood avenue in that city.

'11
G. P. Springer is a consulting civil engineer, taking anything that comes my way and lying within range of my operation. Structural steel, reinforced concrete, general surveying and subdivisions." Spring adds: "To help pass away the time which might otherwise hang heavy on my hands I am on the faculty staff of Drexel Institute, as assistant professor of civil engineering, handling structural design and railway engineering. Any Staters coming to Philadelphia for the Exposition are urged to look me up. I can be found at the Drexel Institute building, 32nd and Chestnut streets, West Philadelphia, in office 2307.

"May, 1926 will complete my first five years with the Public Utilities Service company of northwestern Illinois," writes Emerson A. Armstrong. "Our general offices are located at 72 W. Adams street in Chicago. Under the title of power engineer I am in charge of power sales, directing the work of about 20 power salesmen who are giving consulting engineering service to the trade and arranging the contracts for best use of the service we offer. Room 1300 in the Edison building, above street address, is my business address. The 1300 stands for 'one hundred times unlucky for any competitor trying to sell a customer a substitute for the best power service. I am enjoying this work very much for I feel that we are giving our customers more for a dollar than they get in many other places and that we are filling an economic need in the conservation of natural resources and in the elimination of waste. We live at 1026 W. 41st street, La Grange, Illinois. We prefer the suburbs to the 'pigeon-hole apartments' of the city."

M. C. Greenleaf writes: "Still with the Cummins Engine company, Columbus, Indiana, explaining to the curious how a solid injection Diesel operates. The big question is, 'Why not more time and interest for good old M. S. C. and our friends who were there in the days we remember.'"

L. O. Benner is in charge of the pressed steel contract sales for the Motor Wheel corporation, Lansing. "We live at 1010 W. Michigan avenue. Am married, have two children, a girl eight and a boy three. To date have managed to provide
Will It Remain An Alumni Memorial

OBLIGATIONS DUE

on the

Union Memorial Building

MUST BE PAID PROMPTLY IF THE BUILDING IS TO RETAIN ITS SIGNIFICANCE.
YOUR PLEDGE IS COLLATERAL FOR FULL PAYMENT OF THE INDEBTEDNESS

Your Support Will Keep It An Alumni Affair
three square meals a day for everybody and hope
to do as well in the future."

C. W. Knapp, 258 Fourth street, Niagara Falls,
N. Y., is with the Electro-Metallurgical company
in the operating department. "Am still single
and enjoying a busy life. Visited the campus
last summer and was agreeably surprised in the
growth of our Alma Mater. Need not tell you
how happy I am over the change of name." In
answer to Knapp's request regarding the college
radio station, WKAR, the wave length is 285.5
meters. Programs have been reduced consider­
ably for the remainder of the spring term. Knapp
concludes: "Am looking forward to a trip to
Ithaca this fall to see our team give Cornell a
run for their money."

H. M. Ward writes: "I met George Stege
during the month of January while enroute from
Chicago to Grand Rapids. We looked one an­
other over carefully, decided we had met before
and gave the old Michigan State "Bill's"
Hall
greeting. George is with the Standard Electric
Time company, Mercantile Bank building,
Dallas, Texas. It appears that Stege is a sales
manager for this concern and I am willing to
agree that he can put across his work in the
same efficient style for which his cribbage game
was famous. Incidentally, he wishes me to broad­
cast for the benefit of 'Pat' Kelley that he still
claims the championship of Williams hall." Ward
is county engineer with headquarters at Paw
Paw.

C. L. Snyder, 834 Delaware avenue, Detroit, is
with the Detroit Testing laboratory. Snyder
writes: "I have been able to keep in close
contact with the College and believe that the future
for State is exceedingly bright."

Fred Harris, who recently took up his duties
as city manager of Jackson, must have departed
from Escanaba with at least some regret, judging
by the farewell dinner tendered him by his many
friends in the northern city. Benjamin Purdy
Pattison, as poet laureate of the occasion, contrib­
uted a song written especially for the send­
off, which the entire party sang to the tune of
"Tramp, Tramp, Tramp the Boys are March­
ing." The words follow:

TELL HIM NOW

"If with pleasure you are viewing
Any work a man is doing,
If you like him or you love him,
Tell him now,
Don't withhold your approbation
Till the parson makes ovation,
And he lies with snowy lilies
O'er his brow.

"Oh! Freddie dear, your hair is gone,
Your feet toe in, your arms are long
And your clothes they do not seem to fit at all,
Your golf is bad—you slice and hook,
Your line of bunk would fill a book,
But we're sad that you must leave us just the
same,

Chorus

"Yes, you bet we'll all miss Harris
He's our comrade and our friend.
If you think some praise is due him,
Now's the time to slip it to him,
For he cannot read his tombstone when he's dead."
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The new church, with large student parlors for men and women, and an auditorium seating 1,400, will be dedicated May 16th, Deo volente.
Overmyer developed these lacquers and has charge of their manufacture.

'20

L. L. Bateman writes: "Still county engineer of Huron county and living in Bad Axe. Feel much closer to the College since the radio station was established. Why don't you give a little engineering information once in a while along with the agricultural? Bad Axe is mighty proud of its M. S. C. baseball battery."

H. H. Schnur can be reached at Hotel Cedar, Cedar Rapids, Iowa.

C. F. Ramsey lives at 400 N. Pennsylvania, Lansing, Michigan.

'21

Larry Ross has moved to 1961 Webb avenue, Detroit.

John J. Proctor resides at 5390 Ivahoe, Detroit.

Fred M. Hill has been transferred to the Tennessee Electric Power Company division of the Commonwealth Power Corporation. His address is 1714 Vance street, Chattanooga.

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"The Song of the Shirt"

With fingers weary and worn,
With eyelids heavy and red,
A woman sat, in unwomanly rags,
Plying her needle and thread.
Stitch—stitch—stitch!
In poverty, hunger, and dirt;
And still with a voice of dolorous pitch
She sang the Song of the Shirt.

"O men with sisters dear
O men with mothers and wives!
It is not linen you're wearing out,
But human creatures' lives!
Stitch—stitch—stitch!
In poverty, hunger, and dirt—
Sewing at once, with a double thread,
A shroud as well as a shirt!"

—Thomas Hood

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