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*Cardinal
Oct 19 - 1922*

ENGINEER MAG IS OUT TODAY

October Number of Wisconsin Engineer Makes Campus Debut

The College of Engineering is aquiver with anticipation. The October number of The Wisconsin Engineer is scheduled for appearance bright and early Tuesday morning, and the flannel-shirts, who have given up their \$1.50 in large numbers, are anxious to see what they are to receive. The staff has promised something just as tasty as anything dished up in the past.

Feature articles for the coming year include a series of papers by Professor L. S. Smith upon the housing situation both in this country and abroad. Professor Smith spent the past summer in Europe studying the situation there as a representative of the State of Wisconsin to the International Housing congress. Another series of articles will cover the development of the concrete ship. It is being prepared by several of the alumni of the college who have taken an active part in this development and promises to be of unusual interest. The Campus Notes will be edited by Frederick W. Nolte, a junior in the electrical course.

The Engineer is beginning its twenty-fifth year of publication. It is the oldest campus publication with one exception—The Daily Cardinal. This year it comes out in a form that is quite different from that which distinguished it in past years. The size has been increased to correspond to the size of the national technical journals, and the general arrangement has been modified to correspond to this change. In the language of the editor, "We are not so thick as our national competitors, but we are just as wide and long."

Willard A. Kates, the editor, is a senior in the electrical engineering course, and has taken a prominent

part in class activities. He is a member of Tau Beta Pi and Kappa Nu, honorary engineering fraternities, and of the varsity team. His home is in Arlington Heights, Ill.

Jennings Bryan Hamblen, is manager of the magazine. He is a senior in the chemical engineering course, and has been active in the Y. M. C. A. and the U. W. Engineering club.

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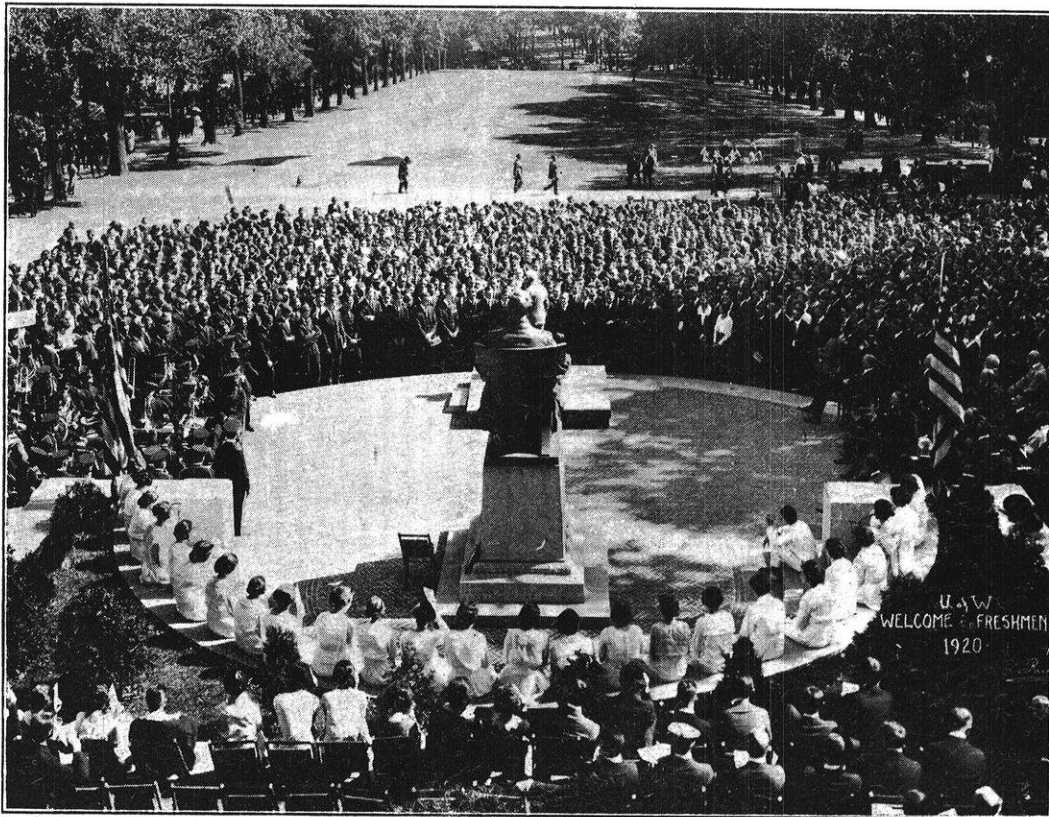
The Wisconsin Engineer

Published by the Engineering Students of
THE UNIVERSITY OF WISCONSIN

VOL. XXV.

MADISON, WISCONSIN, OCTOBER, 1920

NO. I.



THE VARSITY WELCOME, SEPTEMBER 24, 1920
President Birge Speaking

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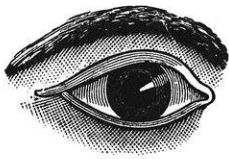
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The Wisconsin Engineer

UNIVERSITY OF WISCONSIN

VOL. XXV, No. 1.

MADISON, WIS.

OCTOBER, 1920

WISCONSIN WELCOMES YOU

By F. E. TURNEAURE
Dean, College of Engineering

The Engineering Faculty hereby extends a most cordial welcome to all students, old and new, who are now entering upon the year's work. A new student probably feels somewhat at a loss among such a large body of university people, and, in attempting to find his way about and to fit himself into the organized classes and other activities, he may have a feeling that his individuality has been lost in the crowd. This is far from the case. A body of students is quite unlike an army drilled and trained in large units. Each man is most decidedly a single unit, with his own individuality, to be developed and trained for the benefit of himself and society. Each man's talents are different from those of all his fellows, and it is a distinctive purpose of education to develop the individual according to his own ability. The University

endeavors to furnish for this task as good a teaching staff for its seven thousand students as it possessed for seven hundred many years ago, and, indeed, with the increased variety of courses and of teaching personalities, the opportunity for both special and general training is much greater than when the institution was small. The desire of the faculty is to promote the development of every student to the maximum, and its business is to offer the best in its power to this end. Upon the student rests the responsibility of making the most of the opportunities which the State of Wisconsin so generously provides. Let every student, both old and new, take up the work of the new year with vigor and spirit, and with a determination to do his level best to make it of maximum value in his educational life.

WORLD HOUSING AND TOWN PLANNING CONGRESS, LONDON, JUNE 3-12, 1920

By LEONARD S. SMITH
Professor of City Planning and Highway Engineering

From every point of view, the London Congress on housing and town planning, held June 3-12, 1920, was a great success, chiefly because it cannot fail to stimulate greatly world interest in this subject. The Congress supplied practical proof of the fact that the proper and adequate housing of our people is the most far reaching and fundamental of all present world problems. Even in America this fact is beginning to be understood, though unfortunately no municipal, state¹ or federal authority² has realized its own responsibility for providing a solution to this problem. This lack of our appreciation of the importance of the subjects dealt with by the Congress was again evidenced by only two states—Wisconsin and

Utah—sending delegates,³ while over 500 delegates were sent by thirty other foreign countries, including even South Africa, Liberia, Siam, China, and India.

Organization

- The membership of the Congress comprised—
- (a) Official representatives of governments.
 - (b) Representatives of leading municipal authorities.
 - (c) Representatives of national Associations interested in housing and town planning.
 - (d) Leading individual housing and town planning reformers.

The organization of the Congress was in the hands of the National Housing and Town Planning Council of England,⁴ acting in close cooperation with the French

¹ The only exception is in Massachusetts where a small and totally inadequate State Appropriation for an experimental housing was made.

² The important exception of the U. S. Housing Corporation housing in forty different communities should be noted as a war measure.

³ Seven national and municipal civic societies also sent delegates.

⁴ Too much praise cannot be given to Mr. Henry R. Aldridge, Secretary of this Council, for his efficient services to the Congress.

Ministry of Health, the British Ministry of Health, and other departments of the British government.

Program

In addition to the usual opportunity for discussion and interchange of views, the program provided for numerous inspections of actual housing operations in progress of construction as well as large and important completed housing installations, being the best examples of housing erected in recent years by private companies as well as by British governmental authorities. These inspections were at Bristol, Bournville (Birmingham), Well Hall, Hampstead Gardens, and at Letchworth, the first Garden City of England.

This program proved of the greatest interest to the members of the Congress and a brief description should be of interest to Americans, as it shows the character of the problem and the way in which England has tackled it. The present paper will deal with the discussions of the Congress and of the resolutions finally adopted.

Discussions and Resolutions

The discussions of the Congress were in the English and French languages, though as a rule the most important speeches were translated. Limits of space will allow of only the briefest statement of the topics discussed. The following include only the most important.

1. Actual post-war housing and town planning of various governments, especially with regard to new legislation and *financial provisions* to meet the great increase in the cost of labor and building materials.

2. The possibility of securing the preparation and official acceptance by the government of each country of a housing program,—acting in co-operation with State, municipal and private agencies,—sufficient in scope and character to provide that within 20 years every family shall be housed under proper conditions.

Housing Program

Even before the war, housing conditions,—especially for the working man—were totally inadequate in number and woefully deficient in character and in the five years subsequent to its beginning house building practically ceased, not only in the nations at war but in all others as well. This fact should emphasize the imperative need today of a housing program. Such programs have already been quite generally adopted in Great Britain, France, Norway, Sweden, Denmark, Holland, Belgium and other European countries, and public money has been appropriated to carry out the programs. The importance of this does not depend so much upon the total number of houses so constructed,—though this is most encouraging,—but rather upon the fact that at last, state and municipal authorities have made a brave beginning (and that on scientific planning lines) to secure decent homes for its citizens. The war seems to have made clear to all governments the overwhelming importance of man-power because it is now fully realized that the flower of each warring country's manhood has been sacrificed. As a result European countries, unhampered by written constitutions, are appropriating large sums of

public money to forward the building of homes. Sometimes the entire cost of such housing is met out of the public funds and sometimes the state aid takes the form of a subsidy equal to about 25 per cent of the cost of such housing. In the latter case, this percentage is the state's contribution to cover the abnormal cost of house building since the war. Such contributions were not made until it was seen that private enterprise would not assume the risk of subsequent depreciation expected upon the return of normal conditions. England, for example, frankly says that this shrinkage should be assumed by the state as a legitimate war cost not unlike the payment of pensions to the wounded.

It should be noted that American courts would likely declare similar laws unconstitutional as taking public funds for private purposes. Perhaps some modification, especially through municipal action, would likely fare better.

3. A third subject discussed by the Congress was minimum housing accommodations which should be provided for a normal working class family, due regard being had to the higher standards of comfort and life which are now recognized to be the right of all members of the community and indeed necessary for the full development of a happy family life.

A great step forward has recently been taken by the general recognition of the important fact that a country's claims for its greatness, not to say its safety, depend upon that country's manhood. We are now to recognize also that a country's manhood in large measure depends upon the housing and other related social conditions under which its citizens are born and live. Important as is the conservation of the water powers, timber, mineral and other great natural resources of a country, in which America has taken such interest, the conservation of human welfare and happiness of its citizens far transcends any and all other considerations. Small wonder then that at this time a great world congress should point out the supreme importance of setting at least a minimum requirement for housing.

Obviously no single standard can be set for all nations differing so much in history, local conditions and ideals, but a specification in significant though general terms was adopted, as follows:

Resolved "That this congress, while recognizing that the standards of types and designs of dwellings must be determined by each country in regard to its climate and other conditions, places upon record its conviction that each family in a civilized community possesses an inalienable right to a minimum standard of comfort in the home. Further, this Congress whilst of the opinion that the detailed definition of this standard is a matter of national determination, places on record its clear and definite belief that in a home for a family there shall be provided as a minimum of civilized need:

(a) A bedroom for the parents and sufficient sleeping rooms to separate the sexes of children as they grow to maturity.

(b) Separate sanitary accommodations for each family.

(c) Adequate bathing accommodations for every family either in each home or in accordance with the custom of the country concerned.

"This Congress also places on record its belief that the area of rooms should be such as is considered necessary by the housing experts of each country. Such standards should be embodied in the legislation of each country and no financial aid should be given for buildings except for houses complying with such standards."

European Conditions

Only those readers who are familiar with the filthy and shamefully crowded slums of our American cities can realize the advance which the general adoption of both spirit and letter set by these standards would bring to European cities. Certain it is that it would result in greatly reducing the mortality rate of all cities as well as in reducing the proportion of what may be called "human weeds," our reedless human flotsam.

In large part European cities are many centuries old and hence suffer from the evils of old age, the most obvious of which are overcrowding of the land with buildings and overcrowding of the buildings with people. Such conditions are rendered doubly dangerous when served by narrow, dark and crooked streets, scant even for the needs of the middle ages, and now totally inadequate for modern, fast moving traffic and modern appreciation of such blessings as sunlight, ventilation and sanitation. Because of later and fuller investigations, the writer has found it necessary to revise his admiration for the wide boulevards which commonly make such a lasting and favorable impression on the American traveler in Berlin, London, Paris, and other large European cities. For it appears too often that the wide and beautiful boulevard was cut through at the expense of increasingly crowding the remaining land for building purposes. As a result the wretched rears of the beautiful buildings lining such boulevards frequently present a great contrast to the beauty of their fronts. We find that what was formerly a rear garden now is quite fully built up with "back to back" dwellings denying sunlight, ventilation and privacy alike to themselves and to the rears of their more pretentious neighbors. Children born and brought up under such physical and social conditions are well nigh damned from the start. What meaning have the terms "liberty, equality, fraternity" to people who live under such conditions? Why should they, the victims of such a community, fight for their native land? Why should they be patriotic?

Is it not most logical and most fortunate then that after the close of a world war, fought to make the world safe for democracy, the minds of all peoples should turn to the great world problem of better housing, with its resulting better social condition and better equalization of individual opportunity? The world's failure to tackle this problem for years *before the war* has rendered the problem of far greater complexity now. Indeed the delay is largely responsible for the present world wide economic and social unrest. Contrary to common belief the war did not cause but only hastened the present crisis—

the general demand for something better. Naturally enough this was first felt to mean higher wages, but it is now clear that something more fundamental was needed, more homes, better homes and greater equalization of social opportunities.

The London Housing Congress, in setting the distant time limit of twenty years for the complete accomplishment of its housing ideals did so because the members were in a position to know the size of the job they were considering.

The writer was greatly impressed with the general and unusually intelligent interest which the British public of all classes are taking in their housing problem, an interest, too, which manifests itself in the very practical and substantial way of generous subscriptions to the many local housing bonds. City councils likewise are well informed as to the need for housing and quite generally have voted public money for houses, designed and constructed on modern standards and under the most expert direction. Many city councils are engaged in building programs of several thousands of houses, mostly for the working classes.

Royal Interest in the Problem

English interest in housing is not confined to any one class. King George V and Queen Mary have taken much interest in their country's housing problems. King George, in a State paper dated April 11, 1919, said in part:

"If this country is to be the country we desire to see it become, a great offensive must be undertaken against disease and crime, and the first point at which the attack must be delivered is the unhealthy, ugly, overcrowded house in the mean street, which we all know too well." And again, "But it is not merely 'houses' that are needed. The new houses must be also 'homes'. Can we not aim at securing to the working classes in their homes the comfort, leisure, brightness and peace which we usually associate with the word home?"

As a further evidence of his desire to assist the Congress in its propaganda for more and better homes, King George received an address from the Congress embodying its resolutions, which was presented at Buckingham Palace by two delegates from each state and colony represented in the Congress. To this address the King read a most statesmanlike reply which will be of undoubted assistance in carrying out the resolution of the Congress.

The foregoing statement of the interest taken by the English people in their housing problems could be made as well of other European countries. Norway, Sweden, Denmark, Holland, and France all have made nearly equal progress. In fact every foreign country seems to realize its responsibility for present deplorable housing conditions and to the extent of their financial abilities are striving to provide adequate remedies.

If old world methods and remedies are not suited to new world traditions, we in America can at least copy the helpful community spirit and the generous private and governmental interest shown in this great world problem.

ENGINEERING SOCIETIES

The Miners held their first meeting and reunion of the year on Wednesday night, Oct. 6. Smokes, eats, and drinks, were had in abundance, together with good talks, on the coming year's program. The next meeting will be in the form of a welcome to the new students in the course and will be celebrated with one of those famous Miners' feeds served in the Mining Laboratory.

The first meeting of the Chemical Engineers' society was held Tuesday, September 28. Talks by Hirshberg and Montgomery were given.

The U. W. Engineers Club held their first meeting on Friday evening, October 1st. Business matters and points of general interest to the club were discussed.

Ho, ye Civil Engineers! Did you know we had a society of our own? Well, it's a fact, and if you don't believe it come to Room 229, Engineering Building Thursday evenings at 7:30. On Thursday, October 7th, the society held a "get together" and smoker with big eats in addition. The smoker was preceded by a most interesting talk by Professor Leonard Smith on "Devastated Europe," and by a talk on the humorous events that took place last summer at Devil's Lake.

BRIEF NOTES ON THE A. A. E.

The American Association of Engineers was incorporated June 14, 1915, under the laws of the State of Illinois. On Sept. 1, 1920, it had 20,556 members. It is now the fastest growing national engineering society in America.

The Constitution provided that:

"The objects of the Association shall be to raise the standards of ethics of the engineering profession and to promote the economic and social welfare of engineers, especially by:

"Affording means for the interchange of information beneficial to members of the engineering profession, maintaining a service clearing house for the benefit of members, influencing proposed legislation affecting the engineering profession and taking action necessary or advisable to safeguard the profession's welfare, promulgating the Association's ideas through proper publicity, and fostering a brotherly spirit among engineers."

The minimum requirement for membership is good character and either one year of practical engineering experience or studentship in a recognized technical engineering school at the time of his application for membership.

Realizing the importance of cooperating with a national organization for the betterment of the engineering profession, a group of students organized the University of Wisconsin Student Chapter of the American Association of Engineers.

The membership consists of students at the University of Wisconsin holding any grade of membership in the national organization.

All regular meetings of the chapter are held the first Tuesday evening of each month of the school year. Both members and non-members are invited to attend. The meetings have been especially arranged so as not to interfere with any of the engineering societies. The local student chapter is in no way seeking to compete with the existing societies. It extends to all its hearty co-operation and it hopes that it will always be a common meeting ground for the students in the special lines of engineering work.

THE 1920 SURVEYING CAMP

By EARL K. LOVERUD

Junior Civil

For years, the University of Wisconsin Civil Engineers' Summer Surveying Camp had been located on the south shore of Devils Lake near the Kirkland Hotel, which endeavored to feed the mob of hungry engineers three times a day. Toward the end of the 1919 summer camp, some of the fun-loving surveyors felt like taking a ride on the lake and for the occasion used a large launch belonging to the hotel. It seems that the landlord wasn't so well pleased with the idea, the less so because the launch balked on the other side of the lake and was not returned. That is one reason why the 1920 camp was situated in Messenger Bay on the west shore of the lake.

The camp this year was made up of the finest bunch of fellows that ever came together for the serious purpose of studying the intricacies and pitfalls connected with running a rod.

Early Friday morning, June eighteenth, this bunch of good fellows got out of bed and made a race for the Northwestern depot in Madison to catch the 7:50 train for Devils Lake. All men were loaded with equipment, and the hour spent in waiting for the train to come, rested them for the journey. That was the last rest they had until camp broke up, except on Sundays, when breakfast wasn't served until eight o'clock. Arriving at the lake, we looked around for something to do, and just to prove that we could do something, we picked up the eighteen ten-by-twelve feet water-soaked wooden tent-floors and carried them from the south shore ice-house to the pier in front of the abandoned Lakeview Hotel, whence they, together with tent-poles, triangulation stations, and other paraphernalia were towed over to our camp.

Two heavy auto trucks, a university truck and a five-ton army truck, hauled the surveying instruments and other equipment from Madison to Devils Lake, and Mr. Owen also carried a good-sized load on his trailer. They all reached camp, the university truck having no trouble except with a broken cranker and a punctured tire. The big army truck got stuck in the sand and mud several times, and finally when within a mile from camp, it went into mud up to the hubs and had to be helped out by a dozen and a half of the best engineers we had. Mr. Owen, on his way up from Madison, once chanced to look back, found that his trailer was missing, and had to go back a half a mile to find it.

After everything had arrived at the camping ground, the rest of the day was spent in eating lunch and in constructing the camp, which was staked out by Assistant Chief Engineer Harbaugh. A city grew up overnight with twenty tents and twice as many residents. We had our own cook and waitresses, but we did the eating ourselves. At six o'clock that first night we did a few things to the first dinner served in camp. A cottage was used for dining purposes. It's a safe bet that not many of the crowd paid any attention to whether the army cots were feather beds or not the first night or any other night. Before the month was up, we all had learned how to sleep comfortably on the most irregularly-shaped rock in any kind of weather.

other dog Jack, four raccons, and two woodchucks. Barth was the keeper of the zoo.

Our first big showing at the north shore took place the first Sunday, and every night thereafter we were represented there by someone or other—generally by someone whose name has appeared on the first page of the University directory at various times during the past seven years. That first Sunday, Affleck and Fensel became tired of the company of ordinary men, and they sought out a couple of girls to chat with, but were sorely jilted. Affleck soon forgot it, but Fensel never quite recovered, though he was partly reconciled by a little yellow canary which he artfully captured with his winning ways.



The finest bunch of fellows that ever came together for the purpose of studying the pitfalls connected with running a rod.

Mathy, our ragtime bugler, called us Saturday morning at six o'clock. The following mornings, he called us as soon after six as he happened to wake up. However, most of us didn't wake until mess call was sounded a half hour later. Many a morning, after a couple of hours of sleep, Mathy started his first call in a clear resonant note, and then intoxicated with the beauty of it would strike the 'missing chord'; that always had a tendency to wake us out of the most profound slumber.

It is strange that one will eat so much at an engineers' camp. Even on Sundays the tables were filled for breakfast; and then after everything in sight was eaten, Powell and the rest would sing, "We're hungry as sin," etc.

During the first part of the camp, we had a dog, Gertrude, for a mascot. Other camp pets included an-

Snakes didn't bother us much, but Brady wanted to play safe; so he brought with him a snake-bite outfit, and one night tried to see what damage it could do to Doc Collins. The best snake catch was made by Christianson and Moxon, who got a seven-rattled rattlesnake one day while surveying on the bluffs.

The bridge over Messenger Creek was reconstructed by a group of huskies under Olson to enable it to withstand the strain of thirty-five men rushing back to work after meals. Fleet-footed Affleck was never in danger because he always led the rest at sixty paces, turning the corner so fast that his shirt pocket dipped sand.

Terror was struck into the hearts of the men at dinner the first Tuesday. A vivid yellow streak was seen coming across the lake from the north, and it stopped suddenly outside the cottage. Those that had become hys-

terical got the horse-laugh from those who were able to control themselves when it was found that the yellow streak was Ray Owen in his army shirt, rowing his wife and daughter Sarah into camp.

During the month we had several nearly fatal accidents, the first of which involved Mr. Beebe as the accidentee. It happened that during the construction of the pier he stepped off. The surface tension of the water not being great enough to support his weight, down he went, like Clementine. The next near-tragedy happened to Affleck's newly-cleaned palm-beach suit which went with that quiet chap into the briny deep while he was gracefully transferring a ten-penny nail from one boat to another. Bille figured in the third by non-chalantly stepping off from a bridge into the ravine below.

During the course of a topog lecture, Mr. Beebe told us to make all possible speed by having the rodman continually waiting for the transitman and the transitman always waiting for the rodman. Several parties tried the idea in a practical way, but it seemed to be unsuccessful, because it too often resulted in a deadlock, in which each member of the party went to sleep and waited for the other to get started. There was a snake nest on the west shore where Doc Collins did his rodding, and the playful snakes probably caused one or two of the deadlocks.

Our transits were used—especially on the north shore,—for more than taking the topography of the assigned areas. Late one afternoon the Evinrude was sighted off starboard, and in it were seated Chris Wiepking and his wife, holding hands just as sweetly as they might have done six weeks before.

The old 'kicker' seemed to balk just at the most inconvenient times; still it helped to keep Ray in condition like the rest of us. It was easier for him when little Merle and Betsey were with him, because they liked to row, anyway. It didn't make much difference to Frater whether the engine worked or not, as long as he had with him the inspiration for his song: "Oh, What a Pal was Mary."

During the month's 'vacation' we were visited by several faculty members and well-known engineers who looked us over and gave us interesting talks. The first of these visitors was Dean S. H. Goodnight, director of the summer session, who, with his family, spent a night with us the first week. He gave us a rousing talk on "Wisconsin Spirit," citing President Birge as one of the great exponents of that spirit. Other talks were given by Mr. C. Harrington, park commissioner, who talked about Devils Lake state park; Mr. W. G. Hoyt, U. S. District Engineer, who spoke about current meter work; Prof. J. G. D. Mack, Wisconsin Chief Engineer, who told us about the "Wisconsin Idea" and the work of the state engineering department; Mr. C. M. Larson, Chief Engineer of the Railroad Commission, who gave an account of evaluation engineering as done by his office; Mr. A. R. Hirst, Wisconsin Chief Highway Engineer, who reviewed the work of his department; Dean J. D. Phillips, who

gave an illustrated lecture on a trip made by him and his wife in the upper Sierras; and Prof. F. Williams, who gave a brief talk on the geological formations around Devils Lake.

One Saturday night it was imperative that half the camp go to Baraboo for haircuts and shaves. As a means of getting to the south shore, the Evinrude and a trailer were resorted to. As good an engineer as he is, Frater couldn't get a sound out of the engine. Plenty of sounds came from other parts of the boat, but they didn't increase the progress of the station-bound students. Finally Newing grabbed a pair of oars which were always carried, and rowed the boats to shore, whence ensued a stroll to the station in nothing-flat. The train walked in twenty minutes late. The last man home that night struck camp long after the sun had arisen to remind us that it was Sunday and ordinarily a day of rest.



A SOUNDING PARTY

The Baraboo River, used for making stream discharge measurements, is the next dirtiest thing to South Dakota politics. Henrichsen, in using a current meter, forgot that the thing should be fastened to the rope used to support it, and the meter dropped in the water. It stayed there until they found a boy willing to go into the dirty water after it.

Barth, Biersach, and Collins left on a Saturday night for points of interest to themselves alone, and three of them overstayed their leave, receiving an eloquent public bawling-out upon their return.

For four weeks, Biersach was kept busy answering letters from his nine women correspondents, and he always carried stationery with him to work, writing whenever Affleck's chats with fair passersby gave him an opportunity.

About the time camp was half over, the faculty realized that it became dark too early, and that lantern light was not the best to work by; so on Friday, the second of July, Ray asked at assembly to see the hands of all who would like to get up at five o'clock instead of at six, thereby finishing field work at half past four in the afternoon and giving another hour of daylight in the evening. We were all just crazy to get up at that time to see what

it was like, but only Affleck raised his hand. Ray said, "All right, we'll have it." He thought that if Herb could do it, anyone could. The next morning, Mathy started us out on the new schedule. Most of us never knew before that there was such a time in the morning as that. One of the nearby campers, who had used the bugle for an alarm clock, found his watch an hour slow that morning when he got up, and he waited an hour for his train to Baraboo.

July Fourth was not boisterous as it had always been before. There were no fireworks, but we were filled with the spirit of the day, and felt, since the following day (Monday) was legally set aside for the observance of Independence Day, that we ought to reverence it, thereby sacrificing a day of work. So reluctantly we signed a petition which Doc Collins had prepared, and sure enough the faculty granted us a holiday. Many of the fellows spent the day at the Dells of Wisconsin, while others stayed home to sleep or work.

The annual civil engineers' summer dance was held at the Kirkland Hotel, Friday, the ninth of July. It was engineered by Barth. A group of geologists from the University of Chicago, camping on the north shore, was invited down to see how engineers do things. The orchestra was procured in Baraboo. The party was chaperoned by Prof. and Mrs. R. S. Owen, Mr. and Mrs. C. A. Wiepking, and Mrs. R. B. Cordell. A little rain happened to fall before the dance, but it didn't put a damper on the good time. It was a tired bunch of surveyors who reported for breakfast at five-thirty the next morning.

Before we left Madison, we were told to bring with us baseball equipment and musical instruments. We played catch at noon, and three afternoons a week we played baseball games with the Chicago geologists who weren't good enough to play against our L. and S. team. At night we had a "choral hour" led by Powell, better known as Clementine. No one has really dreamed of azure skies and true pastoral love until he has heard Powell chant "Clementine."

Filled with inspiration, Biersach one night grabbed Barth and together they went to the hotel to order ferns to decorate two Madison homes, and the next day Herbie made stadia readings of twenty feet which a week later he remembered should have been two feet.

The last night in camp, Wednesday, July 14, after all (?) the final reports were handed in complete, the annual camp-fire was held as a fitting ending of a month of work, enjoyable though hard. May the friendships that were formed during that month never be forgotten, but be made stronger through future association!

THE FRAPPED FIREMAN

CHAUNCEY M. MORLEY

Senior Electrical

The young fireman, with the oil can held jauntily in his right hand, approached the Corliss, and with his left hand seized the bobbing oil cup that rode the eccentric. Resting the spout of the oil can against his thumb, he allowed

it to move in the same path as the oil cup, and gently introduced it into the oil opening. He had been working at the power house only a week, and this was a prized accomplishment. The first few times he had attempted it, he had tried vainly to hold the cup in one position, which called forth sarcastic comments from the old engineer, who remarked that the engine only developed two hundred horse power, and that when he—the young fireman—got a little older and stronger, he might be able to time, he would do well to learn to follow it around. Other remarks in the same vein, caused the young fireman's ears to turn rather red, and aroused in him an intense determination to learn to oil the eccentric or bust. His final triumph not only made it unnecessary for him to turn to the dread alternative he had mapped out in case of failure, which would assuredly have been unpleasant—and probably mussy—but it filled him with pride. As the oil mounted to the top of the glass, he flipped out the spout of the can and faced the old engineer with the air of one who has accomplished great things and turns to the rabble for deserved acclaim.

The old engineer nodded his approbation, and even went so far as to state that the young fireman was doing pretty well for a "new beginner." At this the recipient of the accolade looked a trifle too complacent, which moved the critic to add that he would do well to take a more passionate interest in the gage glass on the boiler, if he had his own health and well being and the best interests of his employer at heart. He illustrated the importance of his advice with a recital of the exceedingly unpleasant experience of another young fireman whom he had tutored, and who "Didn't seem to pay no attention to the gage glass neither." With the exception of this one point, this young man was apparently getting along pretty good.

"But," the old engineer went on, "One night when I stepped out for a while, he started the pump full blast, and went mooning around and forgot it. Thinking about girls or something, like as not." This last was said in such a way as to lead the young fireman to believe that, in the old engineers opinion, firemen who allowed their thoughts to stray to "girls or something" while they were on duty were hopelessly lost, and that the rules of conduct which obtain in the stricter monasteries should be his guide.

"He pumped the boiler full, and first thing you know the engine sucked over a few quarts of water, and POW! —out went the cylinder head. He got excited and rushed over and turned off the steam at the throttle, instead of on top of the boiler, and hence got pretty well cooked. When they took his clothes off, quite a bit of the skin and flesh come with them. He got better all right, but never come back to the plant. The last I heard of him he was conductor on a street car in Sioux City, Iowa.

"If the water is high, look out for the cylinder head. If it's low, look out for your own head," as the feller says."

The young fireman, his complacency gone, hastily suggested lunch. The pails were set out, and the can of

coffee brought from where it had been heating on the top of the cylinder. Then for a time there was silence, broken only by faint smacking noises suggestive of a vacuum cup tire passing over a wet pavement. The old engineer's eating was not, unfortunately, as noiseless as is usually dictated by the best usage.

"Won't you try some of my beans, Mr. Wilkins?" the young man said at last. "They're pretty good, except for being a little hard."

"Sure," said the old man graciously helping himself to a generous portion, "You can't get beans done around this section. Too high. Lowers the boiling point of the water till it boils before it gets hot enough to cook them right. There's a funny thing, son. How the boiling point gets lower as the pressure is reduced. If you get enough of a vacuum, water will freeze and boil at the same time. Its a funny thing." He shook his head musingly, and attacked the lunch in such a spirited manner that soon nothing was left but dishes and memories. Then, he tilted his chair back against the wall, and reaching for his pipe, he filled and lit it.

"Dil I ever tell you about how I lost the best fireman I ever had—or rather, how the best fireman I ever had lost me?" he inquired.

The young fireman owned that thus far he had never heard the tale.

"Well, then, you go out and throw in some coal, and I'll put you in full possession of the facts. And you might give a friendly glance at the gage glass while you're out there, too." This last was shouted at the back of the fireman as he disappeared into the boiler room. He soon returned, and, setting down in his chair, reported that there was half a glass of water and plenty of steam, and also that he was palpitant with eagerness to learn how the old engineer lost the best fireman he ever had—or vice versa.

"Well, son," said Mr. Wilkins, "this lad was with me in a little plant over in the eastern part of the state. Just a small plant it was, with two one-hundred-fifty Corliss engines, each connected to its own generator. The load was light, and we only needed to run one unit at a time, keeping the other for reserve in case of a breakdown. At the time I speak of, we were repairing the exhaust valves on one engine, and in order to keep the dirt out of the valve recess and prevent the edge of it from getting dinged, we had put a piece of sheet rubber we used for making gaskets over the lugs that held the exhaust bonnet on, and shoved it tight up against the bonnet seat. The boiler that this engine was connected to was leaking a little bit, so we had cooled it off, and opened the throttle valve of the engine to let the condensate drain out of the steam pipe. I had the fireman inside the boiler with a piece of candle, patching it up. I put the manhole plate in place, and then, it being dark inside the boiler and light outside, he could see the holes plain enough, and as soon as he got one located, he would light the candle and patch the leak with a little melted tallow."

The young fireman bent forward and looked intently at the old engineer, who was busily engaged in relighting his pipe.

"Did you say he mended the boiler with tallow, Mr. Wilkins?" he asked. "Why, I shouldn't think that that would hold much pressure."

"That's exactly what I said, son," said the old engineer, severely. "It seems like you should have been able to hear me, sitting that close. If you ever expect to be an engineer, your ears have got to be good. And as for strength, when you say that you don't believe that that repair would hold much pressure, you merely discover your boundless ignorance on engineering and chemical lines. I'll bet you never even heard of talliferric oxide." Here he leaned forward and gazed fiercely at the young fireman, who weakly confessed that the old engineer's supposition was true—he never had heard of it. At which Mr. Wilkins, much mollified, leaned back again in his chair, and contributed from his immense store of knowledge some facts designed to enlighten the young fireman.

"Talliferric oxide, son, is one of the hardest substances known to modern times. Boiler iron is cheese beside it. It is formed by the chemical union of tallow and iron rust. The only reason it isn't used more is because, as far as I know, I am the only man who ever figured out the right conditions of temperature and pressure to get them to mix. After you've taken a correspondence course in engineering like I have, son, you'll understand these things better.

"Well, as I was saying when I was interrupted, the fireman was inside the boiler, and I had put the manhole plate in place and gone over to throw a little coal in the other furnace. Right then was when things commenced to occur!

"One of the kids in the neighborhood strolled into the engine room, and, not seeing anyone around to run him out, he went over to the switch board to satisfy his deep seated curiosity as to what the funny little dinguses on it did when you fooled with them. The main switch on the idle unit was standing open, of course, and the first experiment he performed was to slam it in—which tied the dead generator and the live one together.

"Son, that dead generator let out a screech like you never heard in all your life. Fire flew all over the place; and the idle generator started to run backwards as a motor, running its Corliss backwards too, of course. And that Corliss, fixed the way it was, made as nice a pump as you ever saw. On the suction stroke, the rubber set up tight against the bonnet seat, and sealed the opening. And on the back stroke, the water in the cylinder, and what air had been pumped, forced the rubber away, and let water and air out.

"I was just paralyzed. Couldn't imagine what had happened. And while I was standing there with my mouth open, the Corliss was pumping the air out of the boiler and bringing down the pressure inside it pretty fast. The water in the boiler was at about seventy degrees, and pretty soon the pressure got down to the point where the water started to boil. And that where the hard

luck started for my poor fireman, who's laying inside the boiler on top of the flues.

"The boiling water of course started to evaporate. When water evaporates, it must take heat from somewhere and in this case the only source was the flues and shell of the boiler—and my poor fireman. It got colder and colder inside, and at last he froze to the flues. And when I finally came too, and ran out and pulled the switch, and kicked the kid through an adjacent window by way of admonition, and ran back and got the manhole plate off, there laid my poor fireman, froze stiff."

Here emotion apparently overcame the old man and he turned away, his shoulders heaving. In a few moments he regained control of himself, and resumed;

"I was afraid to pry him off the flues, for fear of breaking him. So I called in the night shift, and we cut the end out of the boiler and pulled out the flues he was froze to. We debated for some time how to get him loose, for we didn't want to take him home attached to the flues. At last I figured that the best way to do would be to shoot a couple of hundred amps through the flues and heat them up till he was disconnected. So we tried it, and after we got it hooked up, I told the night shift they could go home, and I stayed on alone."

Mr. Wilkins stopped, and refilled and lighted his pipe reflectively. Blowing out an immense cloud of smoke, he resumed.

"Everything might have been all right, if Wilburforce Mulvaney hadn't come around. Wilbur was awful fond of playing smear, and usually come around every day for a game or two. Just after we had got the flues hooked up to the juice I was standing mornfully around when Wilbur came in. After he had heard about the accident, he suggested that we play a game while waiting the detachment of decreased. He said it would take my mind off my sorrow; and as nothing was to be gained by standing around, I consented.

"Well sir, we got so interested that I totally forgot about my fireman. The first thing I knew, I heard an awful yell, and looked up; and here he was coming at me, with his clothes smoking and a large monkey wrench in his hand. I didn't stop to make any inquiries about his resurrection or his intentions, which looked warlike. I just sailed out of that plant on high and made a set of foot prints six inches deep and twelve feet apart leading away from there, and I never went back. The fireman came around several times later looking for me, so they said, but I was absent.

"Friends told me the fireman's story later. The flues warmed up and thawed out the ice that bound him to them, but they didn't thaw him out right away. And there he laid, not able to move a muscle, listening to us playing smear, and the hot flues burning into his back. He kept getting madder and madder, and as soon as he thawed out sufficiently to navigate, he accumulated a monkey wrench and started on his pilgrimage with the intention of massacring me—which resulted in my sudden departure, as I told you. He wasn't hurt bad, except that his back was kind of corrugated from the hot

flues. But he never did seem to get over his aversion to me, so I left town."

Mr. Wilkins rose and knocked the ashes from his pipe.

"And that," he said, "is the story of how I came to lose the best fireman I ever had,—or the best fireman I ever had lost me, which ever way you want to say it. What do you think of it?"

The young fireman rose also, and looked intently at Mr. Wilkins. "I think," he said defiantly,—then hesitated under the old man's steady look. His eyes shifted. "I think," he said a little weakly, and hesitated again. Then his eyes fell on the steam gage. "I think," he said again—this time decidedly,—"that I will go out and throw some more coal on the fire."

And he turned and walked slowly and reflectively into the boiler room.

CENTRIFUGAL PUMP PERFORMANCE AFFECTED BY THE SUCTION LIFT

By CHARLES I. CORP

Professor of Hydraulic and Sanitary Engineering

Engineers who have to design or select centrifugal pumps have known that their capacity and efficiency are affected by the suction lift. While this has been recognized little has been published which would be a guide to

*Build for
14 ft*

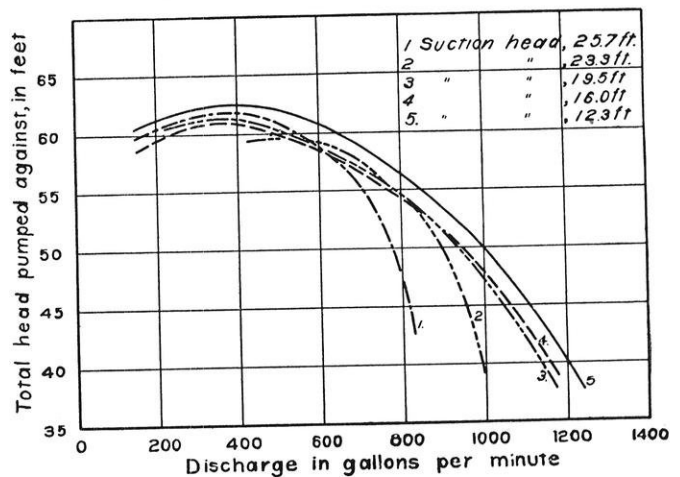


FIG. 1.—Discharge—Total Head curves for 6-in., single stage, double suction, centrifugal pump. Constant speed of 1300 r. p. m. Variable suction lift.

the practicing engineer and no data has been compiled which would show the reasonable extent of variation in capacity which might be expected.

When care has been taken to see that air does not leak into the suction pipe or pump there is still a certain amount entrained with the water which will be liberated at high suction lifts. This together with water vaporization will tend to reduce discharge and hence also the efficiency where very high suction lifts are employed.

The writer first met this problem in an acceptance test for a two stage centrifugal pump which was to be used for water supply and fire service. The specification called for a 14-foot suction lift. When the pump was installed, the total suction lift (actual lift plus friction loss) was found to be 21 feet. The pump did not meet either it's capacity or it's efficiency guarantee under this

higher lift. Later, in an effort to determine the extent of the effect of suction lift, the suction well was flooded from another source. When the water surface was raised, we succeeded in getting the guaranteed performance for the pump. In this case, changing the suction lift from 21 feet to 14 feet increased the capacity from 1415 gal-

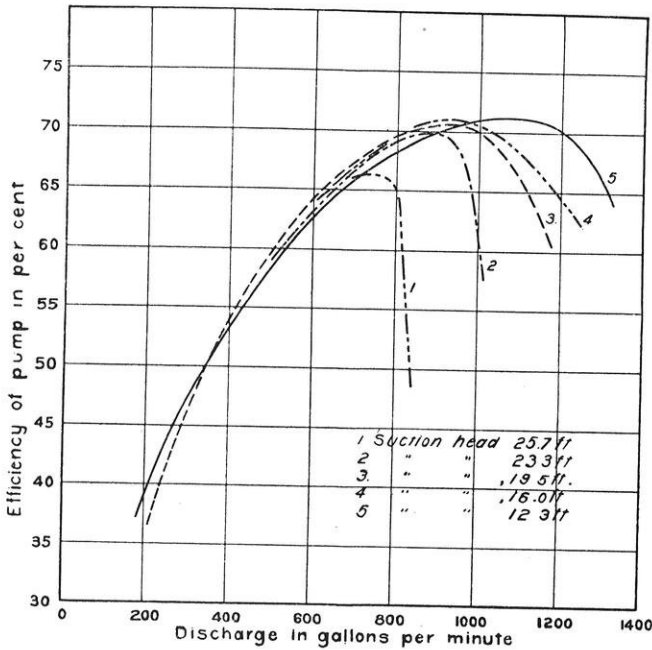


FIG. 2.—Discharge—Efficiency curve for 6-in., single stage, double suction, centrifugal pump. Constant speed of 1300 r. p. m. Variable suction lift.

lons per minute to 1640 gallons per minute, and the efficiency more than six per cent.

In the fall of 1918, "The Effect of Suction Head upon the Efficiency and Capacity of a Centrifugal Pump" was assigned as one of the theses problems in the Hydraulic Laboratory of the University of Wisconsin. The work was done on a 6-inch, single stage, enclosed impeller centrifugal pump. Figures 1 and 2 show the head-capacity and efficiency-capacity curves obtained under the different suction lifts.

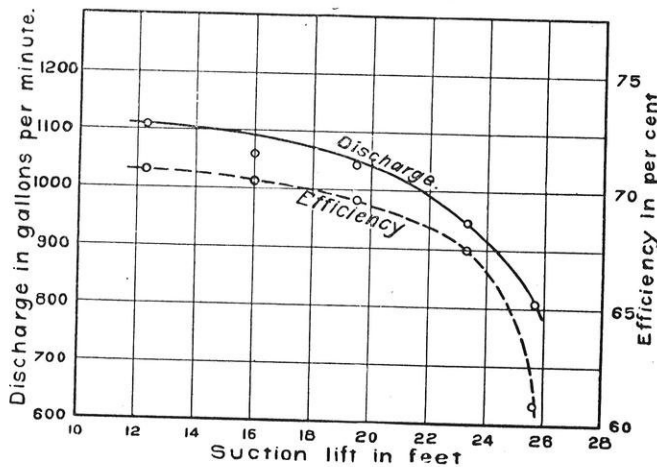


FIG. 3.—Discharge and Efficiency curves for 6-in., single stage, double suction pump. Variable suction lift. Constant speed of 1300 r. p. m. Constant Total Head of 45 feet.

Figure 3 is taken from the curves of Figure 1 and Figure 2 for a constant total head of 45 feet. It indicates in a general way the effect of varying suction lift upon discharge and efficiency. It will be noted that below a suction lift of 12 feet there is no change in either capacity or efficiency, but as the lift is increased above 12 feet there is an increasingly rapid loss in both.

The Allis Chalmers Manufacturing Co. published a bulletin on Centrifugal Pumps (copyright 1915) in which appeared the curves of Figure 4.

These curves were obtained by tests on a Type "SS" pump, which they describe as a small horizontal, single suction, single stage enclosed runner pump which was originally built to be used as a hot well or condensate lift pump with condenser equipments. They say, "On account of the severe character of this service the design of this type of small pumps is as carefully considered as the design of our larger sizes." These curves show an actual increase when the pump is operating with high

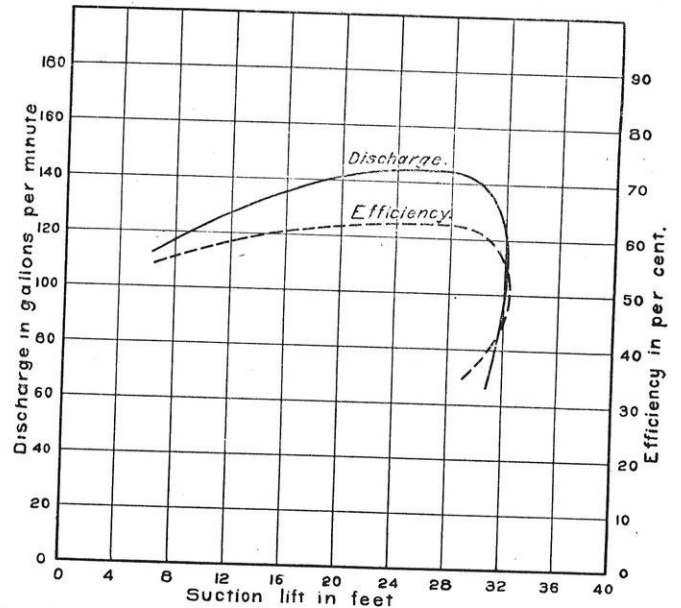


FIG. 4.—Discharge and Efficiency curves for Allis-Chalmers Type "SS" 2-in. centrifugal pump under variable suction lift. Constant speed. Total Head of 90 feet.

suction lift. In explanation they say, "This is a condition encountered in hot well service where the pump takes its suction from a vacuum. The usual effect of this condition on the operation of a centrifugal pump is to cause a falling off in capacity and efficiency."

From experience and that which has been said above the following conclusions may be drawn: (1) that, depending on design, pumps are affected in different ways and in different degree by change in suction lift: (2) that the effect of suction lift is probably more pronounced where installation is made under other conditions than those for which the pump was designed.

Tag days have started again. Any one who can think of a worthy cause should help our pockets out by organizing a tag day. These dimes hang heavy in our thinly worn pockets.

EDITORIALS

HOWDY, FOLKS!

We feel impelled to remark with a certain exuberance of youthful spirits, "Look us over, kid, look us over." We start our twenty-fifth year of existence all dolled out in new raiment. We have expanded in length and breadth, even though we cannot brag about our thickness. We can promise just one thing about that matter of thickness,—we will be just as corpulent as our admiring supporters will permit us to be. The more subscribers, the more pages.

The change in size has been made in order to comply with the standards adopted by a group of college technical magazines that have formed themselves into an association during recent months. We liked the old size and hesitated about changing; but the new size has advantages, and after the matter had been pretty well threshed out by the Directors, the change was approved.

The present year promises to be a critical one. The cost of printing has soared until it is just at the point of being prohibitive. It has been necessary to increase subscription and advertising rates. The change in advertising rates and in the size of the magazine cancelled all advertising contracts so that we have had to start anew in that direction.

Fortunately, we start the year with a competent and enthusiastic staff. If it is possible to make the magazine go, the men now working to that end will succeed. They feel that the College is behind the ENGINEER, and that they are, in a sense, trustees. They will safeguard their trust.

L. F. V.

A NUMBER OF THINGS

As we settle into the harness this year, after our long vacation, we cannot help but feel that this is going to be a big year for Wisconsin. Whether this feeling comes from witnessing the big, open air Varsity Welcome, our latest established tradition, or from the report of an extra large enrollment, or whether it's just a hunch, is hard to tell, but surely it IS going to be a big year.

As Engineers this fact should concern us vitally, for here is our golden opportunity to bring back to the campus that loyal Engineer spirit, which is famous throughout the state, and which the trials of three years of abnormal conditions, due to the war, have somewhat damped. Why can we not have some of the old favorites sung from the steps between classes, as they were in the "good old days?" Why must the bar rats across the campus start the razzing most of the time? Why can we not throw our mixer soon enough to give our Frosh and upperclassmen a chance to get acquainted before the other Colleges have the jump on us? The Commerce

and Country Mag mixer were held October 1st this year, while last year our mixer was held Nov 7th. Why, with all the masculine beauty and brawn of which we are so justly proud, can we not throw several Engineers' dances during the year, rather than one, which comes so late in the spring that it really serves no purpose, and gives no opportunity for Engineers to get other than a glimpse of a social feature which is essential to an all-round University career. Why, after the preference shown us in the "What I want in a husband" contest last year can we not throw an engineers' mixer, and invite the girls from one of the other Colleges to mix with us!

Again there is another side from which we may grasp opportunity. There are various clubs in the College for the respective branches of Engineering, but how much does one group know of the field peculiar to another, or common to both? Would it not be interesting for men from one group to speak from time to time during the year before the other groups, correlating the different branches of the profession, and bringing a better understanding and comradeship between the men in different courses? Here, too, is a splendid opportunity for debates between the different societies, and this art of expressing oneself has been almost entirely neglected in our College, although no man can hope to be a successful executive if he is not able to go before a board of directors, or any other body of men, and put his proposition clearly and forcefully. In our earlier history there were two Engineering debating societies which had their own "Joint Debate" each year, and there is no reason why history cannot repeat itself.

Clearly, then, there are many things we can do to bring back pep and enthusiasm in the College, and of all years this should be the most opportune, because of the newly invigorated spirit on the campus as a whole, because this is the first time for several years that Engineers' classic, the Minstrel Show, is to be staged, and because we are singularly blessed with able leaders at this time. Erin Go Braugh Engineers! Remember St. Pat!

B. F. M.

ARE YOU IN IT?

After an absence of several years the Minstrels are back with us again. The chairman and the committee have been working diligently throughout the summer, gathering the best of blackface jokes and melodies, and consulting the leading authorities on minstrel work. Their efforts promise a first-rate production.

To make the Minstrels a complete success the cooperation of every engineer is necessary. Those in charge have done and are doing their share. Come forward with the old time spirit and boost! Show the campus that even in the field of music and comedy the engineers excel.



The Varsity's Biggest Fun Show

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Two Performances

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8:15 P. M., Saturday, Nov. 13 } **At Home=Coming**

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THE HOUSING SITUATION

Professor Smith's article describing the Housing Congress which he attended this summer as Wisconsin's representative, contains some suggestions which our own state officials would do well to consider. The Legislature, during the extra session this year, passed a law which gives the Railroad Commission certain power over renting properties, primarily for the purpose of controlling rent profiteering in Milwaukee. The Commission is represented in Milwaukee by a "Rent Arbiter" who hears complaints from tenants and makes such adjustments between tenants and landlords as are possible. According to newspaper reports, the arbiter has been determining reasonable rents upon the basis of a return upon investment of between 6 and 7 per cent. It is safe to assert that, if this ruling is made effective, there will be practically no new renting buildings constructed for some years. The reason is that any building constructed at present high prices will lose a large part of its cost value whenever prices drop,—which may be at any time within the next few years. This loss must be made up out of rents before prices drop, for, after prices come down and building begins, rents will be fixed upon the basis of the cost of the new, low priced buildings and not upon the cost of the old, high priced ones. There will be no rent arbiter to force the tenant to pay a high rent for an old apartment when he can get a new one at less money. England has recognized this condition and has met it by making gifts, out of the National Treasury, to home builders. British statesmen are working upon the theory that the loss, which must ultimately be met by those who build under present conditions, is a war expense which may properly be borne by the nation as a whole.

In this country, we are witnessing the working out of a short sighted policy. Simply keeping rents down is not enough; we must make it possible to do a large amount of building immediately. Either landlords must be allowed returns sufficiently large to reimburse them for the losses they must soon meet, or the government must stimulate building by some form of aid.

PROFESSOR FRARY

Professor Hobart D. Frary, Assistant Professor of Steam and Gas Engineering, was drowned August 15th, while swimming in the Wisconsin River. Accompanied by his wife, Mr. Frary left the cottage where he was spending the summer and went up the river, intending to go swimming during the evening. How or just when they met their death is not known, as search was not instituted until the following morning. They leave a small daughter.

Professor Frary received his bachelor's degree in engineering at the University of Minnesota, in 1908. In 1909, the same institution conferred upon him the degree of Master of Science. The following year he was appointed magnetic observer on the Magnetic Survey ship which was sent out on a two-and-one-half year cruise around the world by the Department of Terrestrial Mag-

netism of the Carnegie Institution of Washington. During 1913 he spent six months with the General Electric Company, and then went to Germany to spend a year in the study of applied mathematics. Upon his return he taught mathematics at the University of Iowa for a year and then went to the University of Illinois. Here he taught mathematics and took graduate studies preparatory to receiving the degree of Doctor of Philosophy in 1918. Before becoming associated with the steam and gas department he had been on the staff of the Forest Products Laboratory for a year and a half.

ENGINEERING FACTULY CHANGES

Promotions

From Associate Professor to Professor:

C. I. CORP, Department of Hydraulic Engineering.

L. F. VAN HAGAN, Department of Railway Engineering.

M. O. WITHEY, Department of Mechanics.

G. L. LARSON, Department of Steam and Gas Engineering.

W. S. KINNE, Department of Structural Engineering.

From Assistant Professor to Associate Professor:

H. D. ORTH, Department of Drawing.

P. H. HYLAND, Department of Machine Design.

From Instructor to Assistant Professor:

L. E. A. KELSO, Department of Electrical Engineering.

HAROLD CROTHERS, Department of Electrical Engineering.

Transfers

EDWIN ANDERSON, m '18, instructor in the department of drawing, has been transferred as instructor to the department of steam and gas engineering.

Appointments

JOHN M. GALLALEE, associate professor in the department of steam and gas engineering. Mr. Gallalee was graduated from the University of Virginia in 1911, and has since served as testing engineer for the U. S. Navy department, and as engineer for the E. I. Dupont Co. He was professor of mechanical engineering for eight years at the University of Alabama.

A. H. ANDERSON, assistant professor in the department of steam and gas engineering. He was associate professor of experimental engineering for thirteen years at Armour Institute, Chicago. He was also consulting engineer on combustion engineering work for the W. A. Blonck Co. previous to his arrival at the University.

GROVER C. WILSON, instructor in the department of steam and gas engineering. He is a graduate of the University of Illinois, class of 1917, and comes to Wisconsin from the Commonwealth Edison Co. of Chicago, where he was engaged in efficiency engineering work.

O. A. HAUGEN, assistant professor of chemical engineering. He was formerly instructor in that department, but entered the Chemical Warfare Service in May, 1918.

R. E. RAMSAY, ch '17, and R. A. RAGATZ, ch '20 instructors in the department of chemical engineering.

E. B. KECK, instructor in the department of drawing. Mr. Keck is a graduate of the University of Minnesota.

P. W. ROMIG, m '21, is student instructor in the department of drawing.

W. C. MACKEY, ch '17, instructor in the department of drawing. He was formerly assistant engineer on tests at the Forest Products Laboratory.

J. T. ROOD, professor in the department of electrical engineering. He was graduated from Worcester Polytechnic Institute in 1898, and in 1906 obtained the degree of doctor of philosophy at Clark Institute. He taught for nine years at Lafayette College, and for the last two years at the University of Illinois.

L. J. PETERS, e '19, EE '20, is now instructor in the department of electrical engineering, where he intends to make a specialty of high frequency currents.

R. O. RUBLE, instructor in the department of hydraulic engineering. He is a graduate of the University of Kansas, class of 1920. He served in the engineering unit of the 35th Division overseas.

H. GUMPRECHT, instructor in the department of hydraulic engineering. He was previously engaged in water power plant construction for the Knoxville Power Co., at Yellow Creek, Tenn.

A. A. NEFF, assistant professor in the department of machine design. He was graduated from the University of Nebraska in 1910, and was instructor in machine design at Purdue University. At present he is Superintendent of Industrial Education at the Moosehart Industrial School, Moosehart, Illinois.

ARTHUR DAHLBERG, instructor in the department of machine design. He is a graduate of the University of Michigan.

R. E. PUERNER, m '19, instructor in the department of machine design.

J. J. MALONE, instructor in the department of shop practice. He has been engaged in similar work at Whitewater, Wis.

ARTHUR WALD is a new instructor in the department of shop practice.

RAYMOND ROARK, assistant professor in the department of mechanics. He served in the capacity of captain in an overseas division of field artillery. For a time he was professor of mechanical engineering at the University of Iowa.

D. M. WILSON, instructor in the department of mechanics. He is a graduate of the University of Michigan, class of 1919. He was in the employ of the engineering department of the city of Detroit, and was also engineer for the Texas Co., at Port Arthur, Texas.

C. A. WIEPKING, c '20, instructor in the department of mechanics.

E. R. STIVERS, instructor in the department of railway engineering. He was the first of a large number of men who came to Wisconsin in 1912 from Baltimore Polytechnic Institute, and received his C. E. degree in 1915. He has been employed with the Chicago, Burlington & Quincy Railroad on maintenance work, and with the Pennsylvania Railroad on valuation work. After that was instructor in charge of surveying and railroad courses at the University of Florida. During the war, he served

as second lieutenant in the same company of engineers with Lieut. Shorey, of the department of mining engineering.

C. F. SLOAN, instructor in the department of structural engineering. He is a graduate of the University of Kansas. He received his C. E. degree at the University of Wisconsin.

H. G. LINDNER, e '21, and D. W. McLENEGAN, m '21, are student instructors in the department of mathematics.

Leave of Absence

PROF. J. B. KOMMERS, of the department of mechanics, is still on leave of absence at the University of Illinois, where he is engaged in joint investigation of the fatigue of metals. The investigation is being carried on by the National Research Council and the Engineering Foundation.

Resignations

H. C. PERKINS, instructor in the department of mechanics, returned to Cornell University, where he graduated, to become an instructor in mechanics.

H. W. BROWN, instructor in the department of mechanics, has accepted a position as research engineer for a Boston housing corporation and is especially engaged in the developing of concrete dwellings.

PROF. J. G. CALLAN of the department of steam and gas engineering is now professor of mechanical engineering at Harvard University. He will teach factory management and also act as consulting engineer for an eastern manufacturing company.

G. H. MONTILLON has resigned as instructor in the department of chemical engineering. He is a graduate of the University of Minnesota, and has returned to that University to instruct in chemical engineering.

W. A. KOEHLER, ch '20, assistant in the department of chemical engineering, will enter into research work with the Carborundum Co., at Niagra Falls, N. Y.

J. O. KAMMERMAN, assistant professor in the department of electrical engineering, has entered into general engineering work. His present address is Champaign, Ill.

H. C. POLLAK, e '16, instructor in the department of electrical engineering is now working with the Wisconsin Railroad Commission.

J. L. ELLIS, instructor in the department of electrical engineering, has resigned to become instructor at the Georgia Institute of Technology.

H. T. DYSLAND, instructor in the department of drawing, has resigned.

F. L. FISBECK, c '19, instructor in the department of hydraulic engineering, has taken up work with the Wallis & Tierman Co., manufacturers of chlorination apparatus for water purification.

J. D. McLEAN, m '11, M E '16, instructor in the department of machine design, has accepted a position as engineer on wood preservation tests at the Forest Products Laboratory.

J. H. PLATT, instructor in the department of machine design, is now an instructor at Rice Institute, Texas.

CHARLES and JOSEPH LONGFIELD, instructors in the department of shop practice, have resigned.

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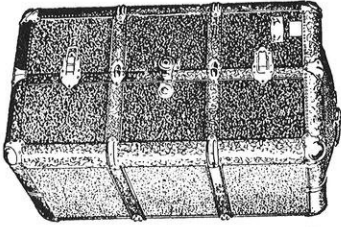
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THE MINSTRELS

Off with a bang! That's the boast of the Engineer's Minstrels. A few more weeks will see St. Pat's boys disguised under layers of burnt cork and clothed in darktown's gaudiest, dancing their way to campus fame as a part of Wisconsin's biggest Homecoming. Two performances will be held in the gym on Friday and Saturday, November 12 and 13.

The show is an old-fashioned minstrel, patterned after the best in the footlight world. Opening with a musical melange the program will proceed with jokes, solos, specialty acts, and finally a lively white face comic opera. Latest song hits not only of New York, but also of Paris and Copenhagen will be featured. Professionals will train the soloists and the chorus in the catchiest steps of trampichorean art.

The gym is to be specially fitted for the performances. Foster Strong is handling the production, and Ross Rogers is in charge of business.

ALUMNI NOTES

By DAVID W. McLENEGAN

E. A. ANDERSON, m '18, has changed from the department of drawing to the steam and gas department, where he now has charge of the junior chemicals.

GEORGE H. ANDRAE, e '16, was married to Miss Margaret Orth of Milwaukee, Wis. on September 23, 1920.

LELAND R. BALCH, c '05, C. E. '09, is an assistant engineer with the firm of Mead and Seastone, Madison, Wis. He has applied for transfer from the grade of associate to full member of the A. S. C. E.

GEO. J. BARKER, assistant in mining here last year, is in the testing department, Anaconda Copper Co., at the Great Falls Reduction Works, Montana.

THOMAS E. BENNETT, e '16, writes from Dayton, Ohio, that he wants the Engineer for another year. Mr. Bennett, who spent sixteen months in the U. S. air service, is secretary of the Aero Club of Dayton and is an engineer with the Dayton Power and Light Co.

MR. JOHN BERG, c '05, was appointed State Engineer of South Dakota last July. In his letter he asks us to "Say hello to the old standbys for me."

"ED" BLOWNEY, e '20, editor of the Engineer in 1917-18, is in the Turbine Engineering Department of the General Electric Co. His address is 419 Union St., Schenectady.

HOWARD "CUB" BUCK, c '17, has returned to Wisconsin as assistant to Coach Richards. Buck is coaching the linemen, and is already a familiar figure to all the frosh who turn out to watch the team.

LANCASTER D. BURLING, g '05, has resigned the position of paleontologist on the Geological Survey of Canada, to become geologist for the Whitehall Petroleum Corporation of London, England. He is now in Trinidad, British West Indies.

L. L. CALL, e '19, is in the research department of the Detroit Edison Co.

W. J. "BILL" CAMLIN, c '18, is in the Structural Engineering Department of the Ford Motor Co. His address is 316 Elsmere Ave., Detroit, Mich.

A. B. CHADWICK, ch '10, is an engineer in the operating department of the Solvay Process Co., Detroit, Mich.

H. W. CLARK, c '20, lives at 517 Cedar Ave., Niagara Falls, N. Y.

MANLEY H. CLARK, ch '21, has gone to Kennecott, Alaska, for this year where he will be employed by the Kennecott Copper Co.

JULIAN D. CONOVER, L. S. '18, has been granted a fellowship in mining engineering.

"MIKE" CORNISH, c '15, and "ART" SIPP, e '15, are with the Dayton Fan and Motor Co., Dayton, Ohio.

HAROLD P. S. DAY, e '20, is with the Wisconsin Telephone Co., Milwaukee.

"JOE" DRESEN, ELMORE FIELDER, and WALDO HANSON, m '20, are with the Fairbanks-Morse Co., Beloit, Wis.

ALEXANDER W. ELY, c '12, was married on June 13th at Cleveland, Ohio, to Mable R. Newell. They are living at 438 N. Pearl St., Janesville, Wis.

WALTER "BUD" EMANUEL, min '20, who was Varsity baseball captain last spring, and O. A. RAY, min '20, are working in the testing department of the Anaconda Copper Mining Co., Anaconda, Mont.

ARTHUR W. GAUBATZ, m '20, is employed by the Elwood Tractor Co., Madison, Wis., on design and development work.

PAUL C. GILLET, C E '18, is doing appraising of general engineering nature for the H. D. Walbridge Co. of Johnstown, Pa.

"HERB" GLAETTLI, c '19, is with the Prairie Pipe Line Co., Independence, Kansas. He resides at 206 N. 6th St., Independence.

PASTOR GOMEZ, c '09, died on June 22, 1919, in Manila, P. I., where he had been a district engineer for the Bureau of Public Works.

ED GOULD, c '17, is working for the firm of Meade & Seastone on a water power project on the Missouri River for the state of South Dakota.

C. F. GRAFF, c '04, is president and general manager of the American Nitrogen Products Co., in Seattle, Wash.

ARTHUR B. GRINDELL, g '02, died February 23, at Vladivostok, after a weeks sickness with bronchial pneumonia. He leaves a wife and daughter. Capt. Grindell had completed a year's service as Manager of Purchases and Supplies for the Siberian Commission of the American Red Cross. Since his graduation he had been engaged in newspaper and publicity work up to the time when he became connected with the Red Cross.

H. F. "HANK" GRISWOLD, m '20, resides at 619-7th Ave., Wilmette, Ill.

F. W. GUESSENHAINER, ch '20, is a cadet engineer with the Eastern Wisconsin Electric Co., Fond du Lac, Wis.

O. E. HAGEN, m '17, is the centrifugal pump department at Allis-Chalmers, in the office of Mr. W. M. White.

F. E. HALE, c '09, is now chief draftsman for the Alabama Power Co., Birmingham, Ala.

FRANK H. HANSON, e '04, who has been a member of the engineering staff of the Wisconsin Railroad Commission for many years, has resigned to enter the Valuation Department of the Milwaukee Electric Railway and Light Company.

"MOOSE" HANSON, c '19, is employed by the Worden-Allen Co. of Chicago on the construction of two buildings at Kewanee, Ill., but expects to be transferred to work at Niagara Falls soon. He writes that: "A typical day's work is—check up in the field, O. K. a score of invoices, wheel a little sand, shovel a little concrete, give a line or two, study 57 varieties of places, and throw a little B." Moose also sends his one-fifty for the Engineer, which doesn't discourage us at all.

C. F. HAYDEN, ch '18, is on the engineering staff of the Richardson-Phoenix Co., lubricating engineers, Milwaukee.

RAY A. HEFFERNEN, c '20, is with the Greiling Bros, Co., 110 E. Walnut St., Green Bay, Wis. He is superintending the construction of the new Main St. bridge at Kenosha, Wis.

H. B. HEYN, ch '15, is chief engineer for the Armstrong Company of Los Angeles, erectors and operators of plants for extracting gasoline from natural gas.

F. H. HIESTAND, c '20, is doing field work for the Wisconsin State Highway Commission.

PRESLEY D. HOLMES, ch '20, is assistant superintendent of the Archer Tire and Rubber Co., Minneapolis, Minn.

W. A. JANSSEN, ch '07, has become associated with the American Foundries Chicago, Ill. He was formerly manager of the Canadian Foundries, Ltd, Montreal, Canada.

C. F. KOTTLER, e '18, is sales engineer in the New York office of the Mechanical Appliance Co., of Milwaukee, Wis.

CHARLES M. KURTZ, c '97, is with the engineering department of the Southern Pacific Co., at Room 1057, S. P. Co. Bldg., 65 Market St., San Francisco, Calif.

The engagement of E. B. KURTZ, e '17, to Miss Florence Warner of Oconomowoc has been announced.

A. L. LIEBERT, m '20, is working at the Worthington Pump Co. plant, Milwaukee. His home is at 685 Holton St.

HERB. LORD, c '20, is inspecting the construction of the new filter works at Dawville, Ill., for the firm of Mead and Seastone.

J. D. MAC LEAN, m '11, has resigned his position as "the formula king" of the machine design department, and is now employed in the Forest Products Laboratory at experimental work on the preservation of wood.

"GENE" MAURER, m '20, is working for the Lyon Metallic Mfg. Co. here in Madison.

M. J. MCKINLAY, min '20, is doing research work on flotation oils for the Butte & Superior Mining Co., Butte, Mont.

H. W. MEAD, c '20, is working for the firm of Mead and Seastone on a water power project on the Missouri River for the State of South Dakota.

RICHARD H. MERKEL, c '13, is in charge of all building construction for Frank Hill Smith, Inc., in Cincinnati, Ohio.

PAUL D. MEYERS, ex-ch '18, is making a tour of Europe as private secretary to W. S. Kies, U. of W. 1900, Vice President of the National City Bank, New York City.

THOMAS G. NEE, e '99, 51 Chambers St., New York City, is vice-president of the Allied Machinery Co., of America.

CLARENCE L. NELSON, c '00, is in charge of all U. S. Geological Survey work in Texas, with headquarters at the Gunter Hotel, San Antonio, Texas.

RALPH T. OSMAN, m '20, is at present busy with his Dupont motor, designs for which he completed here last spring.

HALSEY OWEN, m '20, is with the Ingersoll Milling Co., Rockford, Ill.

HARRY C. POLLAK, e '16, has left the department of electrical engineering and is now with the Wisconsin Railroad Commission.

FRANK K. QUIMBY, c '20, is assistant engineer to J. G. Thorne, Clinton, Iowa.

ORVILLE RADKE, e '20, is employed at inventory work in Memphis, Tenn. A daughter was born to Mr. and Mrs. Lester C. Rogers on June 24 Mr. Rogers was a civil, class of '15, and is now in charge of concrete road work at Milford, Ill.

FRANK REIMAR, m '19, is located at Aurora, Ill., with the Lyon Metallic Mfg. Co.

"BILL" RHEINGANS, c '20, and business manager of the Engineer last year, has entered the two year contract course at Allis-Chalmers. It's a long trail, says Bill, but a good place to learn the Hydraulic game.

LOUIS REINHARDT, E E '07, chief engineer for the Michigan Axle Co. has resigned to take a position with the Geuder Paeschke and Frey Co. of Milwaukee, Wis.

ED. SCHMIDT, m '18, was married June 9, 1920, at Milwaukee to Miss Mayer of that city. Ed is in the employ of the Cutler Hammer Co. where he is interested primarily in the adaptation of the Thomas Meter to the blast furnace.

N. B. THOMPSON, ch '15, is operating the benzol plant of the National Tube Co.; Lorraine, Ohio.

ANTHONY M. TRESTER, c '06, is in charge of the construction and sinking of four artesian wells for the new 5,000,000 gallon water works at Rockford, Ill., for the firm of Meade & Seastone.

H. M. TRIPPE, c '96, of Whitewater has recently accepted a commission as major in the 318th Engineers, regular army. Major Trippe has seen service in three important engagements, one of which was the second battle of the Marne.

H. G. TUFTY, E. E. '17, made known his engagement to Esther Van Wagoner, Pontiac, Mich., during the summer months.

L. F. VAN SLYCK, ex-e '18, is in the research department of the Cutler-Hammer Mfg. Co., Milwaukee, Wis.

W. K. WALTHERS, e '16, is with the Mechanical Appliance Co. of Milwaukee.

The General Electric Company lost a half-interest in GLENN WARREN, m '19, when he was married to Miss Gertrude Sauer, of Girard, Kansas, on September 16.

WARREN WEAVER, ce '16, is back on the campus as an instructor in higher mathematics for engineers. Mr. Weaver has been an assistant professor of mathematics and physics in the California Institute of Technology at Pasadena, Cal.

G. R. WELLS, e '15, is now residing at 350 Smith St., Peekskill, New York.

EDWARD O. WERBA, min. '18, is junior engineer at the gas works of the Grand Rapids Gas Light Co., Grand Rapids, Mich.

N. D. WHIPPLE, ch '17, is sales engineer for the Maurice Knight Stoneware Co., East Akron, Ohio.

C. A. WIEPKING, c '20, editor of the Engineer in 1919-1920, was married in June to Miss Dorothy Whelan of Madison. "Chris" is at present an instructor in the department of mechanics.

JOHN H. WOLFE, ch '12, 309 Dolphin St., Baltimore, Md., announces the birth of John Henry, Jr., September 2.

J. B. WOODSON, c '16, has been chief of the party of location of a high tension power line for the Alabama Power Co., Birmingham, Alabama. At present he is engaged in hydraulic work for the same company.

R. A. SCHMIDT, ch '15, is an engineer in the statistical department of the Kimberly-Clark Paper Co. at Kimberly, Wis.

E. S. SCHRANCKE, m '18, is now with the Consolidated Water Power & Paper Co. at Wisconsin Rapids, Wis. He was formerly an inspector at the Watervliet Arsenal.

Records in the patent office show that WALTER B. SCHULTE, ch. '10, Ch E '11, was granted a patent on a dry cell last June.

DON V. SLAKER, min '20, is with the Stowell Co. at South Milwaukee, Wis.

R. M. STARER, ch '18, is in the mechanical engineering department at the Sugar Creek, Mo., Refinery of the Standard Oil Co.

"TOOTH PICK" HAROLD TIMM, m '20, has entered a contract course with the Cutler-Hammer Co., Milwaukee.

M. S. THOMPSON, ch '15, is a chemist in the research laboratory of the dye works of the E. I. Du Pont de Nemours Co. at Carney's Point, N. J.

A RECORD ENROLLMENT

The enrollment for the University as a whole will be about the same as last year. The freshman class is smaller than last year. In spite of that fact the College of Engineering has made a gain of about 70 students. The enrollment for the College by years and courses is as follows:

Course	Year				Total
	1	2	3	4	
Electrical	112	144	68	33	357
Mechanical	100	115	55	27	297
Civil	79	89	40	27	235
Chemical	35	63	40	31	169
Mining	20	21	21	13	75
Undecided	7	0	0	0	7
Totals	353	432	224	131	1140

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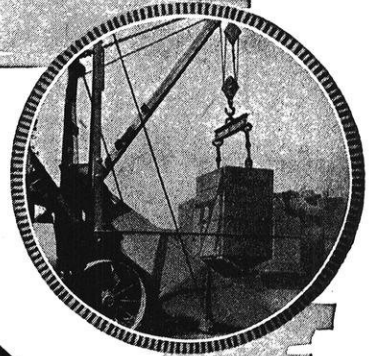
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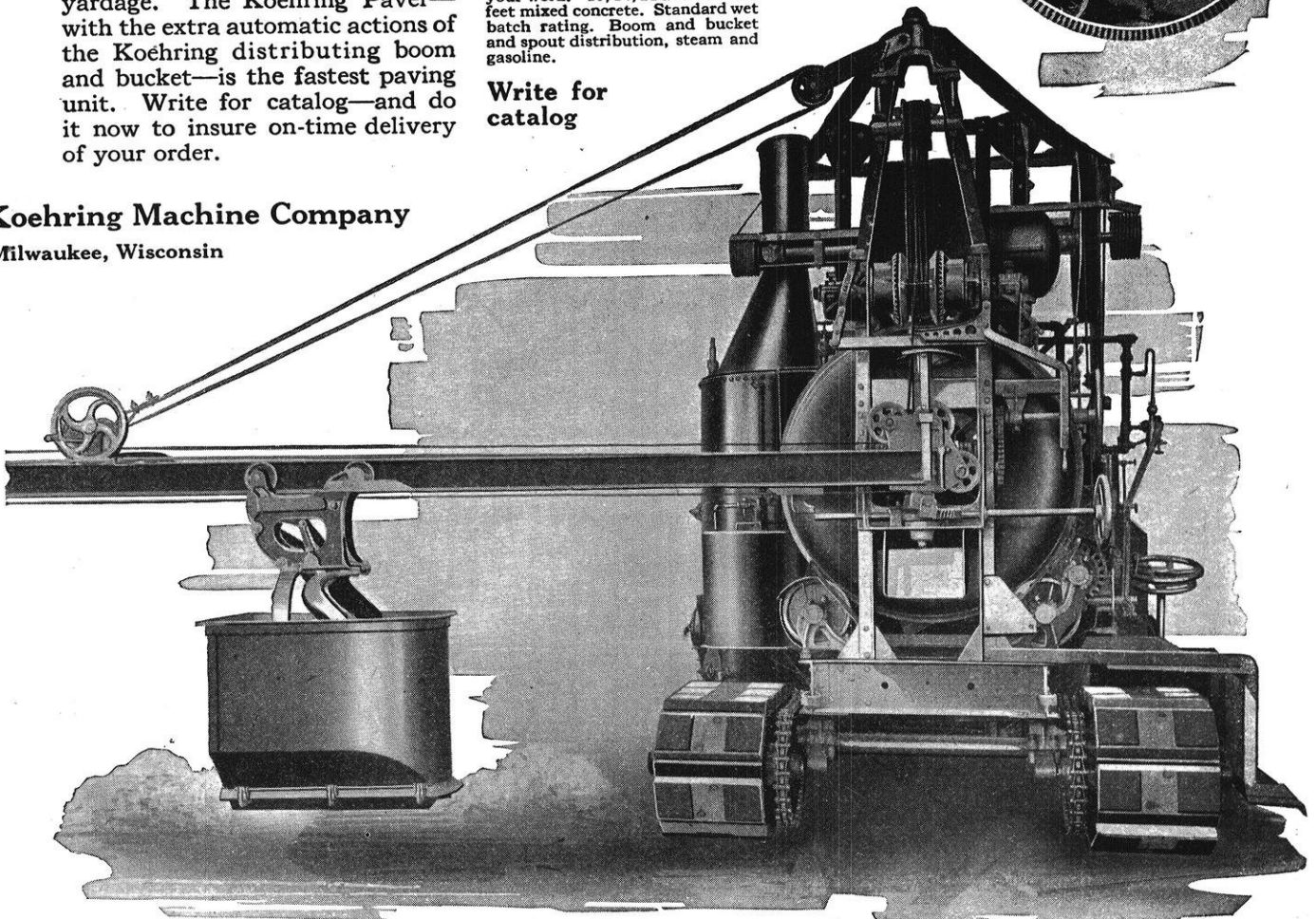
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CAMPUS NOTES

By FREDERICK W. NOLTE



Greetings, Brother Plumbers.

You Upperclassmen: Have you met your frosh girl yet?

And You Frosh: Why not get acquainted with your senior or junior "steady" now and enjoy the remaining few weeks of good weather with her?

First Frosh. (referring to the shop's "prime mover.") Is that a Kissel type? It isn't? Well does it use kerosene or gasoline?

Second Frosh. (looking at the same engine) Is that a punch?

We notice that the University has added to its collection of buildings and now claims the distinction (?) of a Law Building. So we infer from the nice new sign on that bar room across the campus.

An impressive Varsity Welcome was extended to the entering class on the Upper Campus, Friday, September 24. The students lined up by classes and marched up the Hill to assemble by the Lincoln Statue. Addresses were given by prominent faculty members and citizens.

St. Pat has given us a tip that the minstrels of this year will be the best ever produced by his boys. Reserve your tickets and girls early for there is bound to be a rush at the last moment.

Shop 7 men were asked to recommend changes in the shop buildings as an instructional stunt—luckily not as a practical one.

"Improve the ventilation," one writes. "When an ordinary sou'easter is blowing a fellow in the shop cannot hold his hat on."

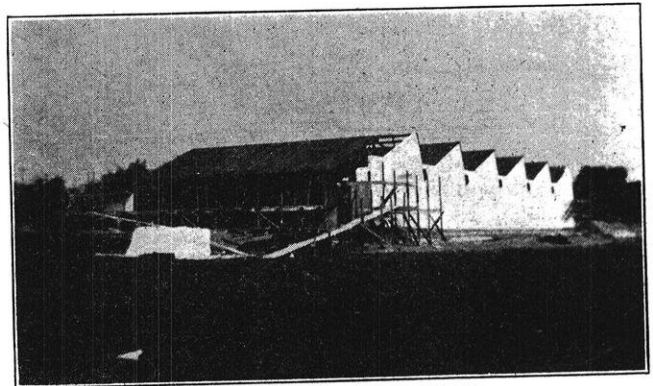
Another suggests providing an electromagnet to pick up pig iron and carry it to the cupola. Evidently he has remembered that winter day when he picked iron from the snow and operated that "fool railroad."

"Why not provide an automatic gear cutting machine upon which to teach gear cutting?" writes another.

One thinks that a bench with "weisses" should be installed.

The lighting system should be changed, thinks another, for "although one light doesn't have to be lit to see the others, the entire system should be modernized."

The construction of the new Camp Randall Shops is well under way. The first unit only is being built. It will take care of the forge shop, the foundry, and the pattern shop, leaving more room for the remaining branches in the old building. A quantity of new equipment has been secured and some of the old machines will be transferred to the new building. Occupancy is expected about the first of the second semester.



THE NEW SHOPS

Prof.: What's a counter-shaft?

Frosh: (hastily volunteering). It's one of those little things that you hold on a shaft to see how fast it's going.

Who says we cannot go joy riding cheaply now with the price of Fords lowered. Now lower the price of gasoline and we can ride in other cars too; Fords do not need such stuff.



PROF. CORP DEFIES THE H. C. L.
OR
APPLIED HYDRAULICS

The Government Mine rescue car was here for a week starting Sept. 27, for the purpose of giving the mining upperclassmen instruction. The juniors were given 15 hours of first aid work, under the supervision of Marvin B. Orfold, 1st Aid Miner, while the seniors were given instruction in mine rescue, and put through a drill with the oxygen apparatus in a room in the Mining Lab, which was filled with formaldehyde gas. On Wednesday, Dr. C. E. Kindall of the Bureau of Mines gave two talks,—one in the afternoon and one in the evening—on Industrial and Personal Hygiene. This work is a requirement for graduation for the Miners, and at the end of the two courses they will receive certificates from the Bureau. The car left Friday for Minneapolis, and will spend a week at the Minnesota School of Mines after which it will return to the Minnesota Iron Range.

For several years Professor Withey has been carrying on abrasive tests of concrete with special reference to use of that material for roadway construction. A standard rattler is used for the test. (It consists of a strong cylinder, about 28 inches in diameter and 20 inches long, mounted on trunnions so that it can be rotated about its axis.) The inner cylindrical surface is lined with specimens ($4\frac{1}{2}$ inches thick) of the concrete to be tested, and 200 pounds of cast iron shot ($1\frac{1}{8}$ and $3\frac{3}{4}$ inches in diameter) are put in the cylinder; then the cylinder is rotated, the cubes falling about on the concrete lining and wearing it away more or less rapidly. After 3600 revolutions (made in 2 hours) the blocks are removed and the wear is noted. By means of this test, it has been possible to judge the suitability of stone and gravel from different localities in the state and to compare different proportions of mix of the same materials.

This past summer Professor Withey has been making such tests for the State Highway Commission on specimens taken from newly laid concrete roadways. To provide a specimen, suitable forms are laid down on the grade where road concrete is to be poured, and in such manner that when the forms are filled the contained concrete constitutes a part of the finished roadway. In due time the specimens are removed for testing. Thus it has been possible to make the rattler test on true samples of concrete as poured on the job, and also to compare, for abrasion, such concrete with concrete made of the same material in the laboratory.

First Frosh: "Can you tell me, please, where Bascom Hall is?"

Upper Classman: "You are in the wrong town, buddy; there is no such place here."

Second Frosh: "Why Bascom Hall is on the Hill, that long building way at the top."

Instructor: Now where do you meet Monday?

Frosh: In the machine shop—third floor.

There has been a considerable extension to the College of Engineering Library. Prof. Smith's former office on the first floor rear, and the corner recitation room have been remodeled and fitted up with steel stacks to accommodate the overflow of books and magazines from the old library. At present the stacks extend only half the height of the room and the upper portion is to be used as a reading room. In time the stacks will be extended the full height. A study table will be built along the two outside walls.

Several changes have been made in the old shops building as a result of the removal of some of the units. The class room on the second floor and the pattern shop adjoining have been taken over by the electrical department for laboratory use. Power terminals will be run to these rooms during the semester and they will be used for the Circuits Laboratory and for the Communications Laboratory. Many of the new machines recently purchased have been installed in the machine shop to relieve congestion.

The frosh are learning fast. The other day we saw a herd coming up the middle of the upper campus with their coats inside out, their pants rolled up, and their socks down; when they got opposite the Law Shop they stopped and gave the engineer's famous "Well! Well! Well!" The Laws nearly shuffled off this mortal ball at the audacity.

Expenses

Scene: Small town hotel, worried salesman at writing desk. Before him a small pile of money and a sheet containing a column of expense account figures.

He adds and frowns. Counts money and frowns again. Thinks hard. Frowns harder. Thinks harder. Frown disappears. Smiles. Leans back in chair.

Holds left hand out in front of him, and says, "Giddap, hoss, giddap." Holds attitude a minute. Then, "Whoa, hoss."

Adds to column of figures:

"Livery \$6.00."



THE RAILWAY SURVEY, 1920

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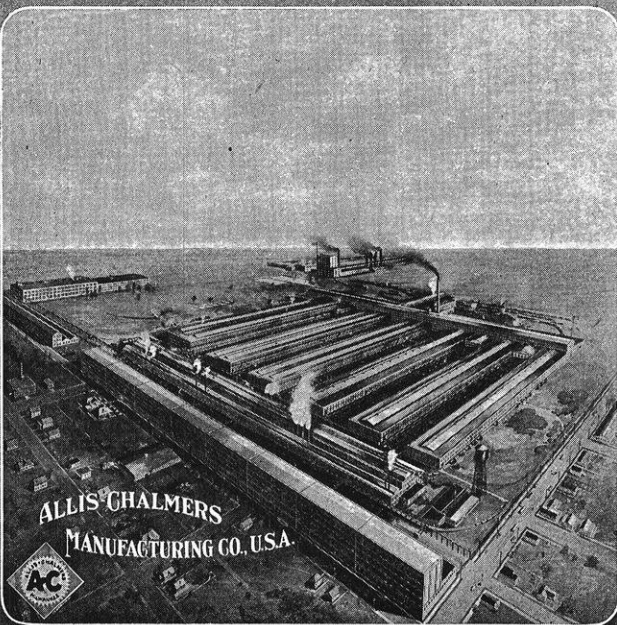
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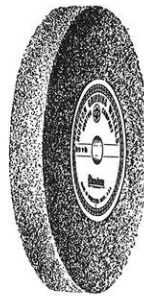
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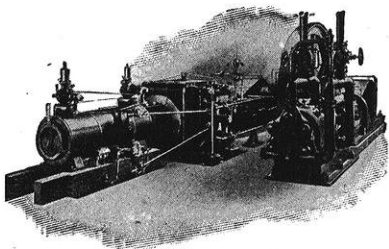
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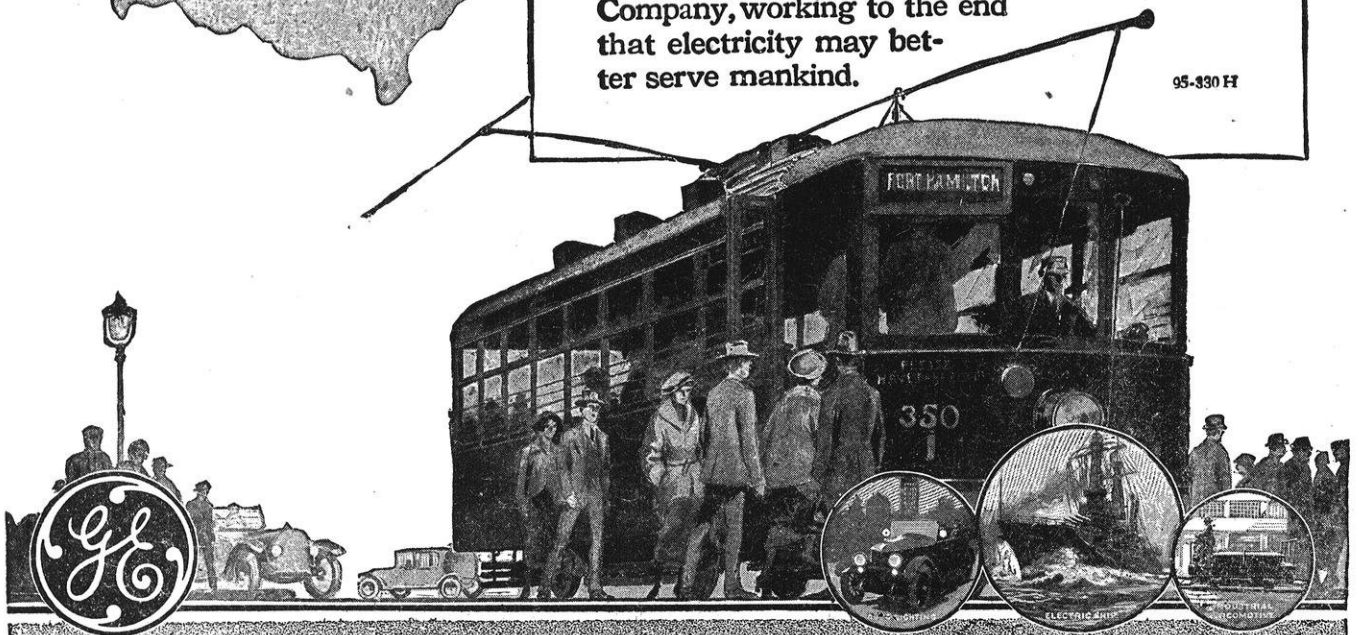
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