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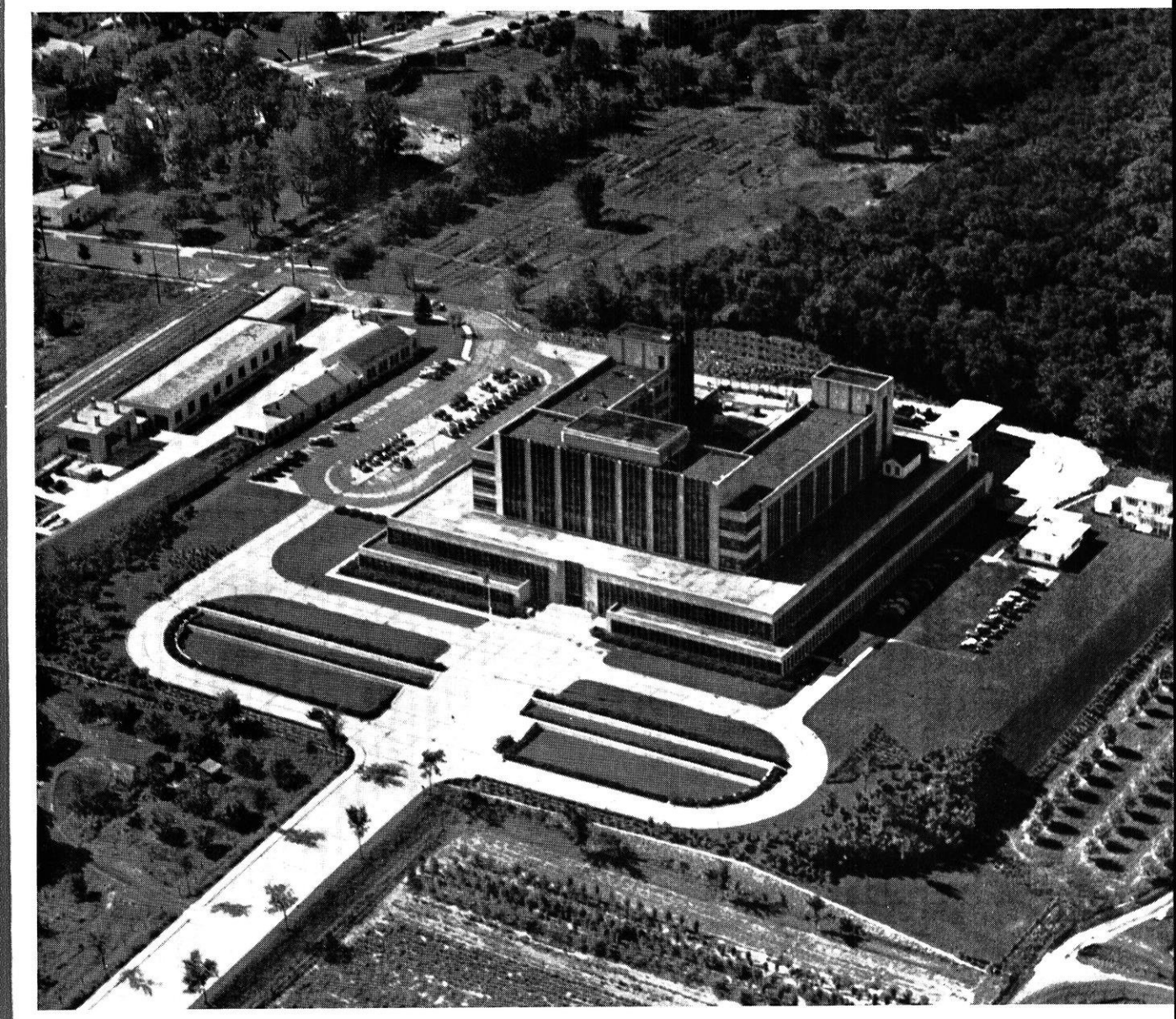
The

★ WISCONSIN ENGINEER



March, 1941 ★ Exposition ★ St. Pat Candidates ★ Research

COLLEGE MAGAZINES ASSOCIATED

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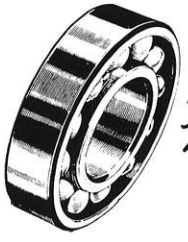

BALL BEARINGS

Nothing Rolls Like a Ball

The WISCONSIN ENGINEER

Founded 1896

Volume 45 | MARCH, 1941 | Number 6

MEMBER OF ENGINEERING COLLEGE MAGAZINES ASSOCIATED

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On The Cover . . .

REVOLUTIONARY in this wasteful world which each year closer approaches the end of its limited supply of oil, coal and timer, Forest Products Laboratory caused nation-wide interest since its completion. The keynote to the laboratory's activities is lettered over its threshold: "Wise timber use is the best timber conservation," and the institution is uniquely dedicated to the investigation of wood and wood products and their adaptation to diversified fields of use.

The present Forest Products Laboratory, representing an investment of more than $1,500,000, was designed and built by Frank Lloyd Wright in the years between 1930 and 1932. A federal institution, it is owned and maintained by the United States, though the property on which it stands was provided by the state of Wisconsin.

The heaviest piece of equipment in the laboratory, a machine capable of applying test loads of a million pounds, weighs over 80 tons. The research division for wood pulp and paper has complete equipment for paper making and, in many experiments, the laboratory's sawmill plays an important part.

Though the laboratory is not the only one of its kind, the men in charge answer inquiries from all over the world from those who seek advice on problems of wood usage.

Editorially Speaking . . .

THE WISCONSIN ENGINEER is a magazine devoted to the maintenance of the progress and ascendancy of the College of Engineering of the University of Wisconsin. It does not exist for the purpose of pleasure and profit but to present a two-fold service to past and present Wisconsin student engineers.

First, this magazine can directly aid the student as a news organ and professional journal. After graduation, the engineer as a matter of course reads and studies the technical journals of his profession. Likewise it behooves the student engineer to develop such a reading habit to keep himself posted on developments and happenings in both his college and the engineering world as a whole. The bill of fare of THE WISCONSIN ENGINEER includes articles of all kinds, but strictly technical treatises are de-emphasized for the sake of reader interest.

And the advertising—have you ever wondered what the companies whose advertisements appear here expect in return for their support of this magazine? It is as potential engineers that they regard you—men who will sometime be seeking employment and eventually buying or using capital goods. So let it be as true engineers that we read our magazine.

Many students are also directly benefitted by THE WISCONSIN ENGINEER as members of its editorial and business staffs. As an extracurricular activity, participation in the publication of THE WISCONSIN ENGINEER is educational and broadening, and the experience may stand the student in good stead before and after graduation.

A second, indirect benefit to the student is realized through the existence of THE WISCONSIN ENGINEER. By upholding and upbuilding the status of the College of Engineering, the status of each and every student, alumnus, and faculty member is similarly upheld and upbuilt. As a progressive city has its own newspaper, so should a progressive college have its own journal. THE WISCONSIN ENGINEER by reason of its existence is doing its part to maintain our college's reputation and prestige which is so valuable to all of us. Then again, this magazine represents an organized facility, which, whether used or not, is always available to the college and the university.

THE EXPO --- *It's Booming*

LAST SEMESTER you heard an occasional sizzle; a month ago it began to puff; soon it was whistling; and now it bursts forth into a full head of steam with everything running at top notch performance. Yes, the **UNIVERSITY OF WISCONSIN ENGINEERING EXPOSITION** is speeding on its way, and the outlook for this year is even greater than that of last year's wonderful success. As Ray Erickson, general chairman of the present Expo, puts it, "Every indication points to a bigger and better exposition for this year, and when we say bigger, we mean bigger." Our engineers are working fast and furiously to prepare for the crowning triumph of this 1941 edition on the days March 27 to 29, inclusive. The exhibits will be placed as previously in the Mechanical Engineering and Mining Buildings.

This Expo, the second of its kind on the campus, is the result of an exchange for the St. Pat parades which became famous for their disastrous results to our fair city. St. Pat, the Patron Saint of Engineers throughout the country, is now honored by the entire exposition with as much profitable excitement as was formerly true in the reverse direction. All the engineers are behind the program with everything they have, and the whole affair of development is now under full swing.

Francis Albers acted as general chairman for last year's exposition, and everything was entirely new to him. Regardless of this handicap thrown in with the jeers of the many pessimists, Albers built the first major engineering exposition at the University of Wisconsin into a roaring success. Everything went over with a bang. The student and industrial cooperation was three times better than was even hoped for, and all the visitors left the scene of the exposition with such remarks as "a swell show," "wouldn't have missed it for the world," and "when's the next one?" Well, here it is, and it's everyone's opportunity.

Do you remember a few of the highlights from the '40 Expo . . . the grand opening with Governor Heil, Dean Garrison, and Dean Johnson taking part . . . the crowning of St. Pat . . . the forty some mammoth industrial presentations . . . the one hundred interesting student exhibits . . . the continuous movies . . . and how about that little device used to measure the potential of osculation, more commonly known as the kissometer? There was interest for all from young to old and weak to strong. What is still more important, this year's attractions will be even greater, and if the interest resulting equals the interest put into the exposition by the students, it is simply bound to be a show of the four star variety.

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In a foremost spotlight of the coming Expo stands the traditional St. Pat's dance that will be held at the Union on March 28. King Pat, nominated by the respective engineering societies, will be chosen on the basis of ticket and button sales. He will reign over the dance with his chosen queen, and the court of honor will consist of six knights of St. Patrick.

With the experience gained from the 1940 exposition, a very effective organization has been developed for the successful operation of this year's plans. A general chairman will be responsible for all with the aid of five assistant chairmen who have charge of the various departments.

For those students who have not yet entered into the swing of things, may we say that there is no time like the present. Practical experience, fun, business contacts, everything included in one! You bet! Simply call on the chairman who is in charge of the division in which you are interested, and he will be glad to help place you. Don't forget for a minute that outside activities such as this rate 50-50 with your school subjects when it comes to employment on the day of reckoning. The deadline for the registration of student entries has been set for March 8. Prizes for the individual student entries range from $15 to $5. Go to it!

As for the organizations that are not members of Polygon, there are three prizes in the offing. The first is a remuneration of $25, second $15, and third $10. Exceptionally keen competition is also developing in this field.

Prof. H. B. Wahlin

Physicist Wahlin Encounters

Problems in Research

by Jerome Baird, met'43

IF YOU ever intend to become a research man, this article may give you some idea of the precision required and the difficulties encountered in this field. Professor H. B. Wahlin, of the physics department, has been doing extensive research on the surface properties of various pure metals. During the past five years he has worked with tungsten, molybdenum, columbium, rhodium, iron, nickel, and cobalt. With the metals at a temperature of 1100° C. and in a high vacuum, he and his students have studied and recorded the thermionic emission, reflecting power, positive ionization, and the emission of secondary electrons when the surface is bombarded with high velocity electrons.

The thermionic emission is the emission of free electrons on the surface of the metal when heated. Radio tubes depend upon this property. It is measured by means of a device capable of measuring currents as small as 10^{-13} amperes.

All the metals with which Professor Wahlin has worked with have been as pure as it is humanly possible to get them. To obtain metals which are free from other metals as well as chemical impurities, and to get them into a stable condition, is the longest and most arduous part of this research.

Since the property of emission of electrons depends upon the condition of the surface, the presence of a small amount of oxide on the surface may change the electronic emission by a factor of as much as 100,000. Therefore, the metals must be heat-treated in a vacuum for several hundred hours until the oxide is broken down, leaving a pure metallic surface. Readings are made frequently on the specimen until the stable condition of a pure metallic surface is obtained and then at least once a day until sufficient data has been obtained.

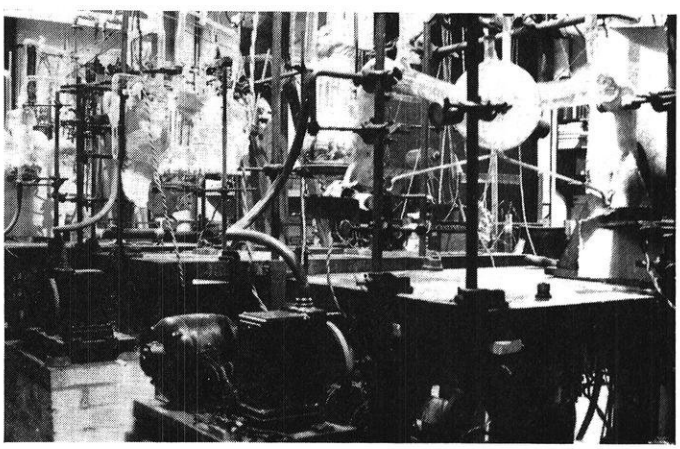
During the entire research the specimen is kept in a very high vacuum of $2(10^{-18})$ mm. of mercury, and at temperatures of 1100° C. or higher. If the vacuum should ever become faulty, the molecules of gas would adhere to the surface of the metal and cause erratic readings. The vacuum is maintained by a Cenco Hyvac pump which is backed by two mercury diffusion pumps in which the mercury streaming down the sides of a tube carries the gases with it. The pyrex glass of which the vacuum tube is made comes in for special consideration. Since it contains large amounts of gases which would prevent obtaining a vacuum if not removed, it must be heated for a considerable length of time before the specimen is placed in it.

The presence of an alloying metal also causes extreme difficulties. The presence of 1/10,000 of 1 percent of such a metallic impurity will change the properties of the metal completely. This very minute quantity causes so much trouble because upon heating for several hundred hours, this impurity may come to the surface instead of staying uniformly distributed throughout the metal. To show how careful it was necessary to be in the preparation of the metals, take the case of obtaining electrolytic nickel from a nickel chloride solution with a platinum anode. There is enough platinum present in this nickel to spoil it for this high grade metallic research. Pure nickel anodes must therefore be used. Fusion metals, that is, metals that have been prepared in a crucible, cannot be used because the crucible will contaminate the metal.

Professor Wahlin had extreme difficulty in extracting the last traces of cobalt from nickel. This is an intricate and laborious task when one considers that the physical and chemical properties of these metals are quite similar. All nickel ores contain cobalt, and the cobalt is alloyed with the nickel during the smelting operations. In cooperation with Professor A. J. Krombholz of the Chemistry department, Professor Wahlin has prepared many of his own specimens by electrolysis, since he was unable to obtain them otherwise with the desired purity.

Since there is no definite size of the specimen required for this research, Professor Wahlin has found it conveni-

(continued on page 14)



Vacuum pump with mercury diffusion flasks

Operation of an Activated Sludge Plant

by Don E. Bloodgood, c'26

Superintendent, Department of Sanitation, Indianapolis, Ind.

In the disposal of sewage, there are two chief methods used. The first is by chemical means. Sewage is purified by the addition of chemicals to the raw sewage to precipitate the impurities. Second is the biological method. In this method the sewage is purified by the action of bacteria on the raw sewage. The activated sludge process is the newest and probably the most complete and successful biological means to be developed. The following article explains the operation of one of the disposal plants using this process.

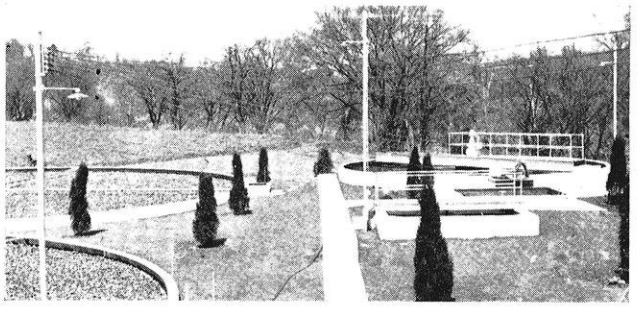
TO DATE the activated sludge method of treating sewage gives the most complete treatment which is economically possible. Though the courts have ruled by whom and how the process was developed, not all of the men in the field have agreed upon the decision. In fact, as one stands back and looks at the history of the process, it appears very much as though nature's ways, of perhaps several thousand years, has been modified to meet a necessity. There is a popular belief that a stream of water receiving pollution will purify itself in 20 miles. This is an entirely erroneous idea as the distance taken to purify polluted water depends upon the amount of pollution going to the receiving water or the amount of water receiving the pollution, together with many physical characteristics of the stream. It can be said, however, that any stream will purify itself in flowing some distance, but it must be remembered that a great deal of nuisance may be caused between the point of discharge and the point of final purification. Some streams do not have courses long enough to provide for the necessary biologic decomposition, furthermore, in this day of relatively high concentration of population there is not room for natural purification, so the engineers, chemists and bacteriologists have brought the self purifying stream into closer quarters and have concentrated the biologic activities in a small area calling them sewage treatment works. There are several different ways of doing this, but the one which will be discussed will be the activated sludge method of sewage treatment.

From the standpoint of the designing engineer, the sewage plant is built to eliminate the pollution nuisance, but to the sewage plant operator his plant is a group of organisms that have to be reared, fed, and marketed on the quantity of food coming to them in the sewage. If this attitude is taken there is little need for worry about the quality of plant effluent being discharged to the stream.

The influent raw sewage passes first through a series of screens and then through a tank to remove the grit it contains. Next, it flows into another tank which allows the grease contained in it to rise to the surface where it is removed. The raw sewage, with the grit and grease removed, is flowed slowly through long, narrow primary settling tanks. Here the suspended organic matter settles out, and is pumped into sludge digestion tanks.

The liquid from the primary settling tanks flows to the inoculating chamber where activated sludge is added forming a mixture of about "65 per cent by volume of effluent and 35 per cent by volume of activated sludge."[1] This mixture is then pumped to the aeration tanks.

The activated sludge is developed by supplying conditions so that the aerobic bacteria which are found in sewage can thrive and multiply. "The activated sludge consists of flocculent masses of microbial cells on which particles of sewage become absorbed during agitation and aeration."[2] The main condition is the supplying of oxygen to the organisms that are to be utilized. In some plants, and this applies to all of the larger installations, the air is supplied by large low pressure air compressors. The air is diffused through porous mediums in the aeration tanks that break the air into small bubbles thus furnishing a large air surface to the material in the aeration tanks. In



A typical sewage disposal plant
—Cut courtesy Sewage Works Engineering

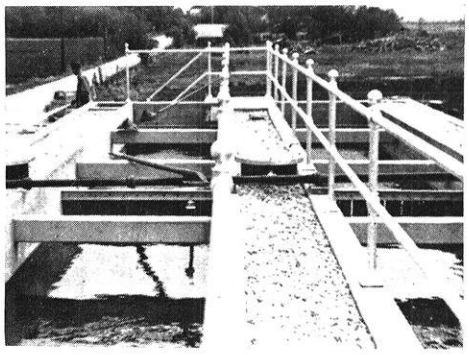
the smaller plants the air is supplied by beating the atmospheric air into the liquid with paddles or brushes or the liquid is thrown through the air with pump-like mechanisms. The air that is put into the liquid is taken up by the water and then utilized by the organisms which are there. The organisms use the oxygen of the air for the same purpose as do the higher animals. The oxygen assists them in utilizing their food found in the sewage. In the consumption of the sewage as food, polluting materials are assimilated by the organisms and are made a part of their bodies or are expelled as waste products in other forms.

In starting an activated sludge plant, the sewage is admitted to the aeration units until they are full, then the addition of sewage is continued at a comparatively slow rate so that the aerobic organisms of the sewage have a chance to acclimate themselves, and increase in numbers. The quantity of sewage added to the aerated mixture is

gradually increased from day to day. The return to the incoming sewage of the settled solids from the previously aerated sewage will gradually increase the solids concentration of the aerated mixture materially. The addition of more sewage has to be done very carefully so as to not supply more organic food to the organisms than they can consume. Over feeding of the organisms seems to have a very detrimental effect upon their existence. In a like manner underfeeding has a very detrimental effect, and it can be easily imagined that starved organisms do not thrive. Because of the complex nature of activated sludge, it is impossible at this time to count the bacteria in it so as to find out how many are present. But if they could be counted or seen, there would be no way of knowing whether they were active in regard to their habits of eating. Because of the oxygen utilizing power of these organisms, it seemed probable that their behavior and numbers might be ascertained if the amount of oxygen used by them could be determined. At Indianapolis, an apparatus and procedure has been developed which seems to be of material assistance in studying and following the activity of the organisms present in the activated sludge. It has been found that the amount of oxygen required by a mass of organisms is dependent upon the amount of undigested organic matter present in the activated sludge. It has been observed that activated sludge should have an oxygen demand, which is within limits established for the particular plant, when it has remained in an aerator the necessary length of time. To expand on this further, it is reasonable to say that the oxygen demand at the end of an aerator is an indication of the amount of the incoming sewage or food that has been utilized by the sludge. If it has not been used up as food, the bacteria will still be working on it and when they are amongst food that they can use, they use more oxygen. This figure gives the operator an idea whether the sewage coming to his plant has been used or not. The activity of this same sludge is obtained by adding a synthetic sewage to the sludge and observing the oxygen consumption rates in five minute intervals over a ninety (90) minute period. The activity figure expressed in parts per million per hour of oxygen used is an indication to the operator what he can expect his sludge to do.[3] The rate at which activated sludge settles is a valuable indication of the sludge condition and is important from the standpoint of plant operation. The laboratory test used to determine the settling rate is called the "sludge index" and is expressed in different ways. It is essential in plant operation control to know the concentration of solids in the aeration tanks. The concentration of solids in the mixed liquor must be given consideration when operating a plant.

As the biologic activity of an activated sludge is aerobic, oxygen must be supplied to the organisms. As has been mentioned before, the quantity of oxygen required by the organisms is dependent upon the number of organisms present in the sludge and upon the amount of food present and available. It has been reported by a number of plant operators that they believe that mixed liquor should contain 1.0 to 3.0 p.p.m. of dissolved oxygen at the end of the aerator. The air being such an important item in the support of the biologic masses, it must be carefully controlled by the plant operator. The quantity of air used is often spoken of as cubic feet per gallon of sewage, and varies from 2.0 to 0.5 cubic feet per gallon. A more recent method of expressing the amount of air used is cubic feet per pound of Bio-Chemical Oxygen Demand. This figure seems to be in the neighborhood of 700 to 1000 cubic feet per pound of B.O.D.. This latter method of expression seems more logical and of course is an assistance to the plant operator who has a strong sewage to treat and has to explain why he uses such a high per gallon air figure.

Imhoff settling tank showing closed gas vent with domes for gas collection



—Cut courtesy Sewage Works Engineering

Laboratory tests made on samples taken at various places throughout the activated sludge plant are essential to the plant operator. They inform him as to the efficiency of his plant and when properly tabulated and recorded are an official record of what he has done as an operator.

From the aeration tanks the sewage, which contains little activated sludge, flows to a final settling tank. Flowing slowly through this tank, the flocs of the activated sludge settle slowly to the bottom. The clear liquid flows out of the tank into the lake or river as the case may be. This effluent is free from organic matter and contains a comparatively small number of bacteria.

A part of the sludge which settles out in the final settling tank is returned to inoculate the raw sewage. The remainder is pumped into digestion tanks for several months to become stabilized. This putrification and fermentation generates quantities of gas which may be used to run the machinery used in the plant.

It must be remembered that the activated sludge process is a rather delicate biologic mass which requires technical skill in handling it to the best advantage. The process is new and there is a great deal to yet be learned about it. Because of this, the young sanitary engineer should be encouraged to go ahead, with the feeling that there is a great opportunity for him to help in developing the process to a higher degree of operating efficiency.

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[1] Bacteriology by Sarles, Frazier, McCarter, 1940 p. 144
[2] Ibid.
[3] Sewage Works Journal, November, 1938

GIRLS IN THE ENGINEERING SCHOOL

MARY O'KEEFE . . .

Have you met Mary O'Keefe? If you are an engineer you have for she has come in contact with roughly 7,000 of them since taking up her duties with the University.

Miss O'Keefe is assistant to the Dean, and a large part of her work involves freshman personnel. Assistant Dean of the Engineering School, A. V. Millar, is freshman advisor, but this is too large a job for one man so he trusts Miss O'Keefe to make judgments without questioning. For the conscientious, hard-working students, she always has a word of praise. If there are low grades she generally knows whether it is due to too much outside work, poor health, or other factors. But just try convincing her that that final you flunked "the morning after" was because the instructor didn't like you. She has at her finger tips the university records of the frosh engineers though one cannot help feeling that her own conception and understanding of the student and his problems is far more important in the solutions and suggestions she has to offer. "Of course all this personnel work requires a lot of statistics," says Miss O'Keefe, "but to me they aren't statistics but people."

Of course from the name you would never guess that Miss O'Keefe is Irish. She witnessed and enjoyed that last memorable stand of the St. Pat's parade in '38, but the exposition matches better her picture of the typical engineering student. Her friends will tell you that she is extremely modest and would far rather talk about her work than herself. A manifest interest is also shown in people by her activities outside her work for she refuses to play a game alone such as solitaire but enjoys playing bridge.

Although engineers may sometimes flunk out because of women, Miss O'Keefe has f r e q u e n t l y wrought quite the opposite effect.

Mary O'Keefe

Roma Jane Allinder

Betty Finn

ROMA JANE ALLINDER . . .

Those lucky chemicals have within their ranks one-half of our female engineering enrollment. Roma Jane Allinder is a junior chem engineer, but her blonde hair has nothing to do with chemistry. Roma's father is a construction engineer, but Roma herself is studying engineering for a singular reason—she likes it.

Unfortunately for the male engineers, Roma is a very proficient young woman. She is a real sportsman, liking especially horseback riding, swimming, and fishing (she caught a nine pound wall-eye once). She has taught diving and lifesaving. Carrying the matter to extremes, Roma is also proficient with the pistol, rifle and shotgun. All this and pretty, too! Before proceeding any further, it might as well be known that Roma is engaged to one Bill Barck of Langley Field, Virginia, a former chem engineering student here.

Just to prove that engineers need not be bewhiskered, brawny, he-men she takes her labs and shop courses without hesitation. All of the Allinder family are industrious, as Mrs. Allinder is one of Northwestern Mutual Insurance Company's crack woman agents. Roma Jane has had a diversified high school education, having matriculated at Wheaton High, Illinois, at West High in Green Bay, and Custer High in Milwaukee. Incidentally, Roma Jane and Betty Finn were in the same class at West High.

BETTY FINN . . .

From Green Bay West and Wisconsin High Schools comes Elizabeth (Betty) Finn to contribute her share toward keeping the engineering school from boredom. Her choice of civil engineering is a result of a suggestion of her uncle, a consulting engineer. To complete the engineering angle of the family we have her father as a railroad engineer.

Betty isn't waiting to get through school to get a job. She is already working eighteen hours a week tracing in the drafting department of the Gisholt Machine Company, enabling her to earn about fifty percent of her expenses while going to school. A certain mathematics instructor rates some of her time—not credited as class time.

"R a i l w a y l o c a t i o n" and "Strength of Materials" are two courses rated most highly in Betty's school career. Betty claims to have had loads of fun among the rattlesnakes at the civil engineering camp at Devil's Lake last summer. Her greatest scare came last summer at this camp, involving a lake, a canoe and a storm. Needless to say, she survived.

Since engineers do not get sufficient exercise traveling to and fro from the hill to the mechanical engineering building, Betty has added the Hoofers' club to her activities. She is also a Volunteer Red Cross Nurse. Other hobbies include figure skating, reading, and, of all things, short beers.

ALUMNI NOTES

by Roy McIntosh, met'42

Foundry Conference

Several alumni and members of the faculty were instrumental in the success of the Regional Foundry Conference, recently held in Milwaukee. Among those present were: Dean F. Ellis Johnson, Prof. Joseph F. Oesterle, Prof. Edwin R. Shorey, Prof. George J. Barker, and Philip C. Rosenthal; Arthur T. Baumer, M.S. '26, general manager, Wehr Steel Company, Milwaukee, Wis.; Laurence H. Hahn, M.S. '22, Sivyer Steel Castings Company, Chicago, Ill.; Lawrence J. Mattek, '35, Wisconsin Steel Works, Chicago, Ill.; Delos I. Dobson, M.S. '26, General Malleable Corporation, Waukesha, Wis.; Zuege, David C., M.S. '29, technical director, Sivyer Steel Castings Company, Milwaukee, Wis.; Arthur R. Higgins, M.S. '32, Allis-Chalmers Manufacturing Company, West Allis, Wis.; Walter W. Edens, M.S. '37, Ampco Metal Incorporated, Milwaukee, Wis.; C. H. Lorig, Ph.D. '28, Battelle Memorial Institute, Columbus, Ohio.

•

Chemicals

VELGUTH, WALDEMAR, '20, has been appointed chief metallurgist for the Buick Motor Company, Detroit, Mich. He was formerly a supervisor for the same company at Flint, Mich.

WAITE, PHILIP H., '31, has been put in charge of the laboratories of the A. F. Gallun and Sons Company of Milwaukee, Wis. This company is prominent in the tanning industry of the Milwaukee area.

KOEHLER, JOHN W., '39, research assistant in the chemical engineering department, has enlisted in the Chemical Warfare Division of the United States Army, and is now located at the Edgewood Arsenal, Maryland.

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Miners and Metallurgists

KRENZKE, FRED J., '40, who was a mining engineer with the Cerro de Pasco Copper Corporation, Maracaha, Peru, S. A., sailed the first part of January for Cristobal, Panama Canal Zone, to work for the Frederick Suave Company.

KEATING, JOSEPH M., '41, and Mary Louise Zander, S.C. '39, were united in marriage February 25 at St. Paul's University Chapel, Madison, Wis. They will make their home in Waukesha, Wis.

Civils

FALCONER, ROBERT C., '95, assistant vice president of the Erie Railroad, died at his home in Erie, Pa., on February 20.

COX, GLEN N., Ph.D. '28, professor of mechanics and hydraulics at Louisiana State University, shares with Prof. Germano, also of L.S.U., the authorship of a new text entitled, "Fluid Mechanics.'

HALL, GEORGE M., '34, for a number of years superintendent of the sewage treatment plant at Janesville, Wis., is sales assistant in the industrial department of the Wadhams Division of the Socony-Vacuum Oil Company, in Milwaukee.

LEFEVRE, WINFRED C., '34, who has been engineer with the Angola Diamond Company in the Belgian Congo for several years, is with Stone and Webster Engineering Corporation on the construction of an ordnance plant at Kankakee, Ill.

VOGEL, RALPH H., '36, was married on March 8 to Selina Hanson of Madison, Wis. He is engineer for the Vogel Brothers Building Company.

ANDERSON, BOYD, '36, has returned from work at the Panama Canal and is in Washington, D. C., as assistant engineer in structural design in the Navy Department.

BAUM, JOHN, '37, who was with the Reclamation Service in Denver, is now with the 28th Engineers (Aviation) building an airfield at Yakutat, Alaska.

SAVORIAS, J. LEE, '40, is a sergeant in the H. Q. Battery of the 57th Field Artillery at Camp Livingston, La.

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Mechanicals

ALBRIGHT, C. BARTON, '35, is the proud father of a son, Lewis Hutchinson, born February 10, 1941, at Mountinside, N. J.

ERWIN, ARTHUR F., '35, formerly general manager of the Zein Division of the Corn Products Company at Pekin, Ill., has returned to the Allis-Chalmers Manufacturing Company, West Allis, Wis., and is employed in the engine and condenser department, now engaged in producing antiaircraft gun bases.

KIRTLAND, EUGENE M., '37, is now proprietor of the Engineering Specialty Company, 318 W. Ridge Road, Gary, Ind. He was sales manager for the Perfex Corporation, Milwaukee, Wis.

DAGGETT, RONALD L., M.S. '39, married Dorothy Genevieve Ried on Wednesday, February 12, 1941, at Stockton, Ill. They will make their home at 107 Potter St., Haddonfield, N. J.

KINAST, A. J., '40, resigned his position with the Barber-Colman Company, Rockford, Ill., to enter the training course of the Boeing Air Craft Company. Address: Y. M. C. A., 4th Ave., Seattle, Wash.

SCHLINTZ, HAROLD H., '41, is working in the design department of the United Light and Power Service Company, Davenport, Ia.

•

Electricals

VOLLENWEIDER, ALBERT, 35, is now assistant chief engineer of the Siebenthaler Division of Aircraft Accessories Corporation, Kansas City, Mo. He was formerly with R.C.A.

DICKE, BENJAMIN C., '38, is working with the firm of J. S. Hartt, consulting engineers, Madison, Wis., and is at present engaged in the inventory and appraisal of the Interstate Power Company, Dubuque, Ia.

OSTERHELD, D. C., '40, formerly with the Westinghouse E. & M. Company, Pittsburgh, Pa., has returned to the campus, taking a position as assistant to the director of the Memorial Union.

ON THE CAMPUS

with Bob Diehl, e'43

FROSH WIN HONORS

Adding machines, computators, and slide rules (or what have you) have momentarily come to rest. As a result, here are the grade point averages of Wisconsin's up and coming engineers. If these happy fellows continue to breeze through steam and gas, quantitative, and hydraulics, setting the pace all the way . . . then they're **real** engineers. O. K., fellas, let's see ya do it.

HIGH HONOR RATE

Loeffler, Alvin F., ME	3.000
Wegener, Karl O., ME	3.000
Burger, Robert J., ChE	2.824
Christensen, Lester E., CE	2.824
Gohlke, Gerhardt A., ChE	2.824
Palmatier, Francois N., EE	2.824
Geiger, Felix E., ME	2.813
Jacobson, Elgin W., ChE	2.813
Niles, Donald E., ME	2.813
Pennau, Karl L., ME	2.813
Rawson, Edward R., ME	2.813
Uffenbeck, Robert P., ChE	2.813
Druckey, Irvin C., ChE	2.769
Verhaeghe, Robt. C., ME	2.765
Schmitz, Willard	2.750

HONOR RATE

Coliz, James T., ME	2.706
Koch, David G., EE	2.706
Plass, Harold J., EE	2.706
Possell, Clarence R., ME	2.733
Charley, Philip J., ME	2.667
Johnson, J. Richard, ChE	2.647
Schuette, John F., ME	2.647
Caldwell, John R., ChE	2.625
Larson, Raymond V., ChE	2.625
Tomlinson, Charles W., ChE	2.625
Tauschek, Max J., ME	2.600
Eck, Robert W., M&ME	2.588
Keating, James C., ChE	2.588
Sell, John H., EE	2.588
Hill, Gilman, EE	2.556
Ames, Donald P., ChE	2.538
Soffer, Morris, ME	2.533
Bauman, Merritt R., CE	2.529
Arnold, Philip E., ME	2.500
Dieckmann, Robert, ME	2.500
Spradling, Joseph W., ME	2.500
Wright, Richard E., CE	2.500
Mason, Richard G., ChE	2.471
Beyer, James N., ChE	2.438
Mikunda, Louis J., ME	2.438
Swanson, Robert R., ChE	2.438
Pubanz, Harleth H., ChE	2.429
Morman, Franklin C., ChE	2.412
Yundt, Charles G., ChE	2.412
Dzirbik, Edward M., ME	2.400
Crabb, Raymond R., ChE	2.385
Entringer, James S., ME	2.375
Kluenker, Frederick W., ME	2.375
Devine, James E., ChE	2.353
Carey, Thain H., ME	2.333
Ehlers, Walter H., EE	2.333
Klang, Donald E., EE	2.333
Rohde, Robert L., ME	2.333
Gehrke, Forrest, EE	2.313
Kazan, John, ChE	2.313
Schafer, William F., ChE	2.313
Duff, Philip, ME	2.294
Porath, Donald A., CE	2.294
Woerpel, Marvin D., ChE	2.294
Calabresa, Thomas A., CE	2.286
Haugen, Arthur V., ME	2.250
Luell, Richard E., ChE	2.250
Martin, A. Harold, ChE	2.250

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THE NAVY AGAIN

Professor R. A. Rose of the steam and gas department received a telegram February 29 from the Bureau of Navigation calling him back to the navy. He will be Chief Engineer of the naval gunboat Kilauea which has been recently converted to diesel drive. Professor Rose, who is well known for his diesel research at Wisconsin, regretted to leave his work and associates, but he is willing to serve in the navy for whatever length of time he is needed.

•

A.S.M.E. - S.A.E.

A.S.M.E. - S.A.E. held a joint meeting on Friday, February 28, at the Memorial Union. The meeting was held in the interest of the St. Pat election. The combined group agreed that Bill Zunke would be their candidate. After the business was dispensed with, a very fine talk was given by Mr. Van Epps, of Westinghouse Electric, on "The Precipitron," a subject of vital interest to engineers. After the refreshments were consumed, the meeting gradually broke up.

A.I.E.E.

Thursday, Feb. 27, at 7:30 p. m. in the Mechanical Engineering Building Auditorium was the time and place of the A.I.E.E.'s last meeting. The business of the evening was the election of the Electricals' St. Pat candidate. The popular opinion of the group was to place their money on Tony Krancus. After this business was taken care of, the group heard a talk by Mr. H. L. Olesen of the Weston Co. The subject was "Electric Meters." Mr. Olesen discussed the six basic moving elements of indicating instruments. The lecture was illustrated with a display of the more interesting parts. Complete operating instruments in transparent cases, or with windows cut in standard cases, were displayed to show construction and operation.

Everyone agreed that Mr. Olesen was a very interesting speaker. The meeting ended with the general rush for the refreshments.

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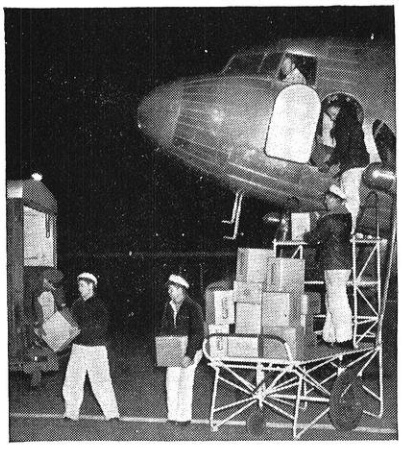
A.I.Ch.E.

Henry Schmalz, a junior chemical, was elected as the A.I.Ch.E.'s new representative to the polygon board. The Chemicals then formally adopted their constitution. As this completed the business, both old and new, the group settled back and enjoyed a discussion of "Corrosion of Metals" by Professor O. P. Watts.

At the next meeting of the Chemicals on Feb. 19, a talk was given by Mr. Charles Rowe of the chemical engineering staff. Mr. Rowe's subject was a very timely one, "The Production of 100 Octane Gas". He outlined the procedures that are taking place in the basement of the Chem. Engineering Building.

The next meeting of the A.I.Ch.E. will be on March 12. Definite plans have not as yet been made as to the program for the evening.

2 ***Damage to telephone lines*** **by storm and fire. Then an urgent call to Western Electric for supplies. And a quick answer—deliveries by truck, train and plane.**



3 ***On the weather front,*** **repair crews find everything they need at an emergency supply depot and go into action fully equipped. Geared to render such supply service to Bell System companies, Western Electric aids these telephone men to restore service quickly . . .**

4 **. . . so that the telephone subscriber can say:**

"YES, THANKS, MY TELEPHONE'S WORKING AGAIN."

Western Electric

. . . is back of your Bell Telephone service

POLYGON HOLDS SMOKER

Urging nation wide athletic participation as a means to rebuild America's youth and rescue this country from the physical slump into which it has been unconsciously sinking, Athletic Director Harry Stuhldreher addressed two hundred student engineers in the Memorial Union's new theater at the Polygon Smoker, February 26. In coordination with his talk, Stuhldreher showed a composite movie of choice action shots taken during Wisconsin's 1940 football season.

Ray Erickson, general chairman of this year's Engineering Exposition, asked for willing students to offer their assistance in staging the show by serving on any committee of their choice.

In his talk, Stuhldreher pointed out that modern engineering has so eased the daily routine of Americans that we are no longer the robust, energetic race that we used to be, but rather a soft people surrounded by luxury. Rather than discard the modern miracles of scientific engineering, Stuhldreher suggested that we take up this slack by body building measures such as athletics, severe or mild, and our youth will be able to carry on in generations to come.

Cider and doughnuts, beer and pretzels, and cigarettes a plenty rounded out the Polygon Smoker in the Memorial Union's Great Hall.

•

A.I.M.E.

The usual dinner preceding the regular meetings of the A.I.M.E. was given on Feb. 12 in the library of Mining building. The business of the evening was the election of a polygon representative. The fellow getting the call at this post was Ervin Waulters. Afterwards the miners heard a talk by Mr. William Brewster on the subject of "What the Student Should Expect on Leaving School." Mr. Brewster covered his subject so thoroughly that when the fellows were asked if they had any questions, there was no response. The other guest of the evening was Mr. C. M. Bradburry.

Tuesday night, Feb. 25, the A.I.M.E.'s held a business meeting. The first thing taken care of was the election of a St. Pat's Day candidate. Popular Bob Schroeder was the miner's choice. Fred Thoke was then chosen as chairman of the miner's exhibit in the approaching expo. When the baseball season rolls around, one will find the A.I.M.E.'s well prepared, for those fellows interested in playing got together Tuesday night and talked things over.

•

S.A.E.

March 6 has been set as the date of the next meeting of the S.A.E.'s. The lecture for the evening will be titled "The Four Wheel Drive."

GO TO MIL BALL

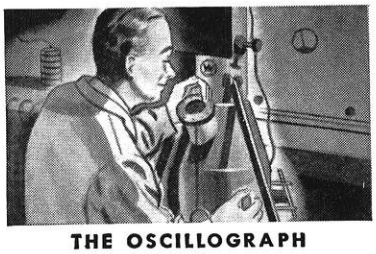
FREE!

● Mil Ball promises to be *the* event of the school year . . . of course you want to go . . . and you can go FREE as the BADGER'S guest by selling 10 Badgers between March 15 and April 4, the day of the Ball. A one dollar down payment credits you with a sale . . . A sale made easy by the inclusion of this year's championship basketball team in the BADGER. Get your subscription blanks at the BADGER office, 3rd floor, Memorial Union!

Your 1941 **BADGER**

What do you know about Electricity?

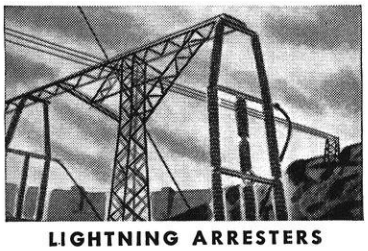
No. 2 of a Series of Modern Engineering Tests!



THE OSCILLOGRAPH

The Westinghouse cathode-ray oscillograph makes written records of electrical events occurring in as short a time as:

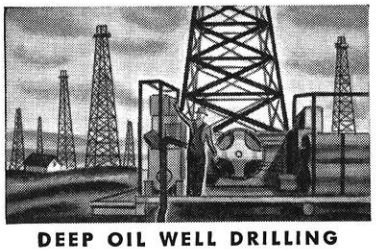
1. One second
2. One cycle of a 60 cycle per second wave
3. One-thousandth of a second
4. One-millionth of a second.



LIGHTNING ARRESTERS

Lightning is a constant threat to transmission lines. Westinghouse has constructed lightning arresters that protect the highest voltage carried, which is:

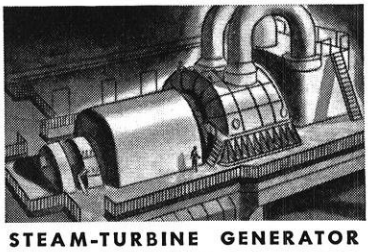
1. 33,000 volts
2. 66,000 volts
3. 220,000 volts
4. 287,000 volts



DEEP OIL WELL DRILLING

Great depth is being attained with electric rigs using Westinghouse equipment. To date, holes have been drilled as deep as:

1. 1200 feet
2. 4800 feet
3. Two and one-half miles
4. Six and one-third miles.



STEAM-TURBINE GENERATOR

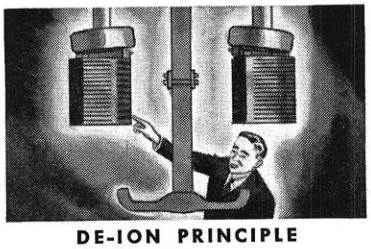
Installed in Philadelphia is the largest single-shaft steam-turbine generator ever constructed. It was built by Westinghouse and can develop:

1. 17,500 kw
2. 72,500 kw
3. 165,000 kw
4. 850,000 kw

SEADROME CONTACT LIGHT

The Seadrome Contact Light, developed by Westinghouse to facilitate night landing of seaplanes, is turned on and off by:

1. A man in a launch
2. An electric eye
3. Radio signals from shore
4. A submerged cable.



DE-ION PRINCIPLE

As pioneered in 1928 by Dr. Joseph Slepian, Westinghouse Research Engineer, the De-ion principle is concerned with:

1. Faster, more efficient extinction of electric arcs
2. A new method of charging for electric power
3. The theory of magnetism
4. Harnessing the power of the atom.

Let's Try It Again!

Regardless of how you came out on the last series of questions, here's another chance for you to see how familiar you are with important developments in the field of electrical engineering.

Optional answers are provided for each of the six questions listed at the left. Your task is to check the correct answer in each instance. To eliminate any peeking, the answers are printed below, upside down.

If you get four out of six correct you'll be doing all right. Five out of six passes you with honors. If you should know all the answers you can give yourself a good pat on the back.

★ ANSWERS ★

1. De-ion Principle ..... Ans. 1.
2. Seadrome Contact Light ..... Ans. 3.
3. Steam-Turbine Generator ..... Ans. 3.
4. Deep Oil Well Drilling ..... Ans. 3.
5. Lightning Arresters ..... Ans. 4.
6. The Oscillograph ..... Ans. 4.

WESTINGHOUSE Westinghouse "The name that means everything in electricity"

One Will Be . . .

1941 ST. PAT

• *Presented here are the five men selected by the respective engineering societies as candidates for the ancient, sacred honor of St. Patrick. The winner of this exalted position is determined by ballot, one vote for each ticket or button sold, and will be announced during the premier night of the Expo. King Pat will reign at the Expo Ball, Friday night, March 28, to the suave strains of Stephen Swedish's smooth syncopation.*

LOUIS LANZ . . .

Louie "Ozark" Lanz, the chemical engineers' candidate, is leading all competitors in the beard-growing contest to date. A thick, bushy mat of red adorns his cheek and chin, which promises to be a beauty by March 17.

Lanz

In case you're wondering, the "Ozark" is a nickname handed to Louie because of his home abode. He hails from Webster City, Mo., 'way down mountaineer way. Despite his nearness to the Arkansas mountains, Louie still prefers the hills of old Virginny, where he spent several summers.

That beard of Louie's has already stood him in good stead. In 1939, he was awarded a prize at the St. Pat's dance for growing the reddest beard among the engineers. Funny thing about that contest . . . Louie and some of his pals got together and proceeded to use some red hair dye on his already cardinal beard. Well, the beard put the dye to shame.

One day last fall while they were building ye "Rock," Lanz and some of his dorm companions, coming home from an evening's date, spied one of the caterpillar bulldozers resting along the road. Louie, being a good engineer, of course knew how to drive it, so the boys rode home to the dorms that night by a rather direct route (right down the hill). They got a big kick out of the workmen following the "cat" tracks the next morning, looking for the dozer.

Louie goes for outdoor sports and women, but not the Wisconsin women. Just give him the gals from Missouri that you hear about in St. Louis Blues.

BOB SCHROEDER . . .

"Share, and waren't the Cornish miners of England (close to Ireland) the best in all the land?" And so Bob Schroeder, though not blessed with a name like McCarthy or Murphy, fills the mining engineer's conception of what St. Pat should be.

Schroeder

Bob, a big six foot three boy, famed around the mining school for his innumerable pranks, such as devouring mice, is doing his best to cultivate a beard suitable to the occasion. So far, there are just enough barren stubbles here and ther to keep him encouraged.

Varsity crew is his biggest outside activity right now, although Bob did what he considers his fanciest rowing two summers ago. He and a buddy climbed into a canoe in a little river in northern Minnesota and paddled with a good many portages all the way to Hudson Bay. In genuine mining style, they prospected all along the way. Every two weeks or so brought them to a new trading post or settlement until they finally reached the bay, two and a half months later.

After graduation, Bob has his eye on a mine in Cuba. So far, it is just a mine on paper, but he hopes to help build it from the ground down, should we say. Tests show that antimony is present and a complete unit for extracting it is to be installed.

When queried about the St. Pat's episodes of days gone by, Bob replied, "I still think those shysters were behind the plan to have the cops ban those parades." Perhaps, but the eggs came first.

BILL ZUNKE . . .

From the university pumping station comes Bill Zunke to take his chances as the mechanicals' candidate for St. Pat. Bill is another of these big boys measuring an inch over six feet. Already he has a nice black beard started.

Zunke

Bill may well have earned his nomination on merit because he not only worked on the Exposition last year but is assistant General Chairman in charge of exhibits this spring. In addition, he is the secretary of the student branch of the A.S.M.E. at Wisconsin.

After graduating from Washington Park high school in Racine, Bill worked with the Modine Manufacturing Company for four years. During summer vacations he has been working as draftsman for the J. I. Case Company and this year is assistant engineer in the university pumping station. With all this experience under his belt Bill is casting his lot after graduation this spring with the Babcock and Wilcox Boiler Company of New York.

The queen is all picked if Bill is elected; one of those rather permanent kind. Here's hoping she won't mind a few whiskers for the next month. Bill promises us that the mechanicals have the most novel scheme ever conceived for a St. Pat dance, but that as yet seems for only mechanicals to know about. In fact, Bill promises us that the mechanicals have a few spectacular things up their sleeves for the Expo.

ANTHONY KRANCUS . . .

Tony, the crew captain, who is the electricals' Son O' Erin, will be swinging a shillelah instead of an oar for the next couple of weeks.

Krancus

Since Tony was featured in this column two months ago, once over lightly is all he will get in this write-up.

In true St. Pat style, Tony is worrying about the development of that necessary whisker patch. He says that he would appreciate any stimulant offered to such growth, but confidentially it looks as if the beard O'Krancus will be a credit to the shamrock.

For six years Tony dropped out of the life of a scholar but since coming to Wisconsin he has cut a wide swath. Besides pulling his own in varsity crew for three years he managed to attain membership in Eta Kappa Nu, honorary electrical engineering fraternity. Just recently he was made lieutenant-colonel in the R.O.T.C.

BOB HOGENSON . . .

The civils have picked a man who promises them the longest and blackest beard conceivable on any of the St. Pats in past, present or future. Bob Hogenson is a senior in civil engineering from Wind Lake, Wis. In spite of Norwegian ancestry, Bob's dark hair indicates a potential beard as promised. "Had to shave twice for that interview," says Bob, "but you can see that my campaign started this morning."

Hogenson

The interview mentioned was with the Pennsylvania Railways, where Bob is hoping for an opening.

Bob is a member of Chi Epsilon, honorary civil engineering fraternity, and Pi Mu Epsilon, honorary mathematics fraternity, as well as secretary of the Wisconsin student branch of the American Society of Civil Engineers.

"With everything on the percentage basis, we civils have got a chance," says Bob, "and if hard work will do it, the civils will elect their man." The only flaw in the scheme as Bob sees it is that the parade has been abandoned. "Remember the layer of unhatched chickens on State street that night in '38?" he grins.

As all good civils must, Bob put in his term in the Devils Lake summer camp. He says there was nothing very exciting about it but he did find out just how good a beard he could grow. Really, that green cape will look fine draped from Bob's shoulders on the 27th of this month if his boys give him the support that every St. Pat must have. After the dance, too.

"STATIC"

by Bob Zenk, m'43

Advice

With Lent at hand and quizzes once again rearing their ugly heads, we feel this an opportune time for the presentation of some rules for righteous living—and success.

First of all don't plan to give up attending classes for forty days—and when you're thinking, "I'll only do a little of this or that" remember that though every little bit helps it only helps a little bit. This sort of an attitude is usually the prelude to extra-curricular activities — w h i c h have their place—but bear in mind that he who sows wild oats soon acquires that seedy look—however, if you must, at least don't plant any on a cop's chin—and women—remember that boy constrictors soon come to be known as snakes in the grass.

It is indeed a sad thing, but drinking is said to be a part of some of these activities. Now we are aware of the fact that whiskey kills more people than bullets chiefly because bullets don't drink—and we feel that, once in a while, it's all right to be out-drinking—**but not a camel.**

Don't gamble! — which reminds us — you can lead a horse to water and drown him, as far as we're concerned, if he's the one we bet on last week—also you can lead a man with good horse sense to water and he'll drink it.

Don't kick a man when he's down—he may get up.

Remember that he who feels he is the salt of the earth, and says so, is due for a sprinkling.

And here's a lesson for some of the more amorous Engineers, who should be told that no woman tries to collar a man who has lost his shirt.

•

The only time some girls show pluck is when they're out to feather their nest.

•

With all apologies to fellow Engineers, can't you just see some of those senior Civils a few years from now—"But Chief, it wasn't my fault the b r i d g e collapsed. I though that fly speck was a decimal point."

•

We were given the following as one of the reasons for the discontinuation of the pattern shop courses—"Too many of the students had their calculations a bit confused—they were getting bored feet from stepping on nails.'

RESEARCH . . . (continued from page 3)

ent to use a piece of metal 12 cms. long, 2 mm. wide, and .1 mm. thick. A strip of iron that has been heated at high temperatures for a long time looks as though it has been galvanized. It is very lustrous and has many crystals that have grown to 1 or 2 mm. in diameter.

The temperature of the specimen is read by means of an optical pyrometer with a disappearing filament. The current passing through a special filament in the pyrometer heat it up, and when the temperature of the specimen and filament are the same, they each radiate equal amounts of light so that the filament disappears. The amount of current passing through at the time is measured on an accurate potentiometer, and the temperature is calculated from the currents.

A cylindrical asbestos covered furnace 6 inches in diameter and 20 inches high is used in this research. The glass vacuum tube that contains the metallic specimen is placed in a vertical position in the furnace and is connected with the vacuum pumps by a glass arm extending from the side of the vacuum tube. There is another break in the asbestos wall to allow the pyrometer to sight the vacuum tube. Wires extend from the top and bottom of the tube for the purpose of heating the furnace, and for measuring the emission of electrons.

The patience and diligence with which this research has been conducted is reflected in the accuracy of the results obtained. If you think you are annoyed when the lights go out for a few minutes due to transmission difficulties, you can sympathize with Professor Wahlin for he must start his research on that specimen all over again every time this happens.

During this research Professor Wahlin has discovered an entirely new method for determining the A_3 point in the iron-carbon equilibrium diagram. The A_3 point denotes the temperature at which the alpha iron is transformed into gamma iron, alpha iron being stable below this temperature, and gamma iron stable above it. By working with carbon steel, he has determined the emissivity factor of alpha iron to be .445, and that of gamma iron as .415. The emissivity factor is the percentage of light that radiates to the pyrometer as compared with that from a black body and can be measured. Thus a direct reading on the surface of a metal will show a temperature lower than the correct temperature. The true temperature may be calculated from the surface temperature and the emissivity factor. Since the emissivity of a black body is 1, true temperatures are obtained by sighting on such a body. A black body is obtained by drilling a small hole in the side of the hollow cylinder of metal. By sighting the metal inside the hole, Professor Wahlin obtains the correct temperature, and by sighting the surface of the metal, he obtains an apparent temperature. By noting the correct temperature when there is a sudden drop in the apparent temperature, he has found the temperature at which the emissivity of the surface changes, and therefore the temperature of the alpha to gamma transformation or the A_3 point.

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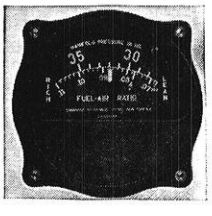

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166-1

MORE STATIC . . .

Our lawyer (that word) has gone to New York on business so we can't leave ourselves open to libel by mentioning any names, but there is a certain professor in the Law School who is so absent-minded that he eats his newspaper and reads his alphabet soup—and speaking of professors—the Engineering Prof who comes to class late is rare—in fact, he is in a class by himself. (Sorry)

•

. . . C's . . .

I think that I shall never see
A grade much better than a C.

Although my hungry mind is pressed
'Gainst learning's full and flowing breast

I find my lot to ever bear
A world of worry, woe and care.

Upon my bosom work has lain,
And lain and lain and so they claim

That verses come from fools like me
But only God could raise my C.

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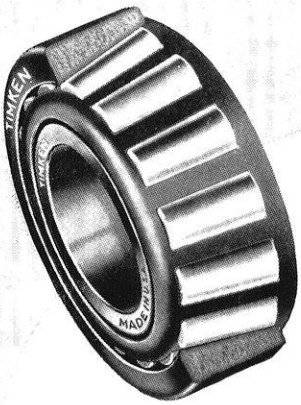

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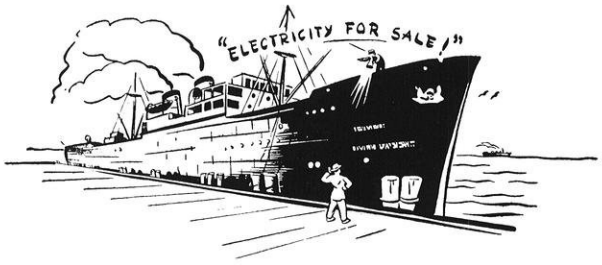

FLOATING POWER

BACK in '29, when the water supply in Tacoma, Washington, was so low that the hydro-electric stations could not generate enough electricity for the city's requirements, the U.S.S. *Lexington*—a turbine-electric drive airplane carrier—supplied the power necessary to tide the city through the emergency.

A year later on the opposite side of the country, the *Jacona*, a ship built during the last war, was made into a floating power plant by installing two 10,000-kw turbine-generators in its hull. It is at present in service on the Piscataqua River near Portsmouth, N. H.

General Electric is now studying the possibilities of a 50,000-kw floating power plant, which could be towed through America's coastal and inland waterways and hooked up to regular distribution lines to generate electricity in emergencies. Such a generating station could be housed in a hull similar to that of a lake freighter.

GIANT ATOM SMASHER

SO powerful that its atom-smashing beam of ions would melt an ordinary brick as fast as a blowtorch would melt a pound of butter will be the U. of California's new 100,000,000-volt cyclotron. The 4900-ton giant—16 times more powerful than the present outfit—will generate atomic energies greater than any now in existence except in distant stars or elsewhere in cosmic space.

Atomic particles will be fed into a circular chamber where they will receive successive "kicks," whirling them around in continually widening circles until they reach a window or port on the side of the chamber. The element to be bombarded will be placed over this window where it will receive the full force of the ion beam.

For this machine General Electric is building electric equipment, which will occupy the space of a two-story house. The chief function of this equipment will be to make ordinary electric current capable of operating the giant atom smasher.

DETECTIVE STORY

ALBANY HOSPITAL was in an uproar. The technicians in charge of the hospital's radium supply had lost a radium "needle"—only 3.3 milligrams to be sure, but enough to burn a person seriously if the needle were caught for long in his shoe or clothing.

An appeal for help was sent to the General Electric Research Laboratory in Schenectady for a "Geiger Counter"—an electric "ear" which detects and amplifies the otherwise inaudible "explosion" of the radium as it breaks down.

When Dr. C. W. Hewlett (N. C. State, '06) of the G-E Research Laboratory entered the suspected operating room, the counter immediately began to "cluck" its warning of radioactivity nearby. After a false start, the counter took to the trail like the Hawkshaw it is, and eventually, as Dr. Hewlett lowered it to the floor in front of a radiator, the clucks became barks. And there, snuggled against the wall under the radiator, was the missing radium.

GENERAL ELECTRIC

953-15