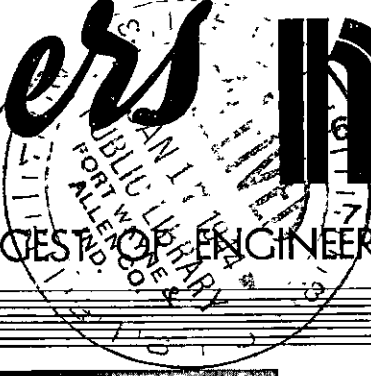


Engineers NEWS

B & TA DIGEST OF ENGINEERING DEVELOPMENTS CAF



Lieut. Charles Lang, with his Bomber and Norden Bomb Sight

Dr. W. L. Abbott to Speak

"COAL AND THE HEREAFTER"
Chamber of Commerce
Dinner, 6:30 — Meeting, 8:00 P.M.
JANUARY 20

"Statistics Bomb Berlin"

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Grady Roark, Editor, G. E. Co. A-2441
J. E. McNamara, Managing Editor G. E. Co.

Associate Editors

H. A. Kerby City Utilities
P. T. Brantingham International Harvester Co.
C. H. Osha Indiana Service Corp.
S. D. Shaffmaster G. E. Co.
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PRESIDENT'S MESSAGE

The importance of a non-partisan attitude in the participation of the Engineers Club in Civic Affairs cannot be overemphasized. Too often, when a civic organization enters into the consideration of a controversial issue, it is only too easy to find that somewhere along the line someone has "an axe to grind." This person, by one means or another, gets his ideas adopted. Even though the remainder of the group is honestly seeking the right answer, strong pressure by one man with preconceived opinions can wield great force. As a result, recommendations lose authority as the honesty of the considering group can easily be questioned.

The Engineers Club, on authority of your Council, is entering into consideration of the Post-War Planning for Highway and Street Improvements in Fort Wayne and the surrounding area. This important Civic duty will be handled by the Standing Committee on Civic Affairs. Thousands of words have already been printed in the local newspapers on the general subject and in some respects certain real differences of opinion have been exposed.

This Committee enters this project with an open mind. Its membership is chosen with the idea of getting a capable, honest, open-minded group to consider and weigh the plans already advanced and others which may subsequently be brought up. Your cooperation is solicited in giving this committee your views on the subject and your reasons for these views. From this mass of information, a report will be prepared which should be of benefit to the State Highway Commission, the City of Fort Wayne, and all citizens in deciding on the best Post-War Highway and street program.

LEW. Z. GOSSMAN.

V

NEW MEMBERS

Mr. Delbert F. Belt, 922 N. Warren St., Huntington, Indiana, was accepted as a non-resident member at the last meeting of the Council.

DR. W. L. ABBOTT TO SPEAK

Dr. W. L. Abbott, formerly Chief Operating Engineer for the Commonwealth Edison Company of Chicago, will be the guest-speaker at the January 20 meeting of F.W.E.C. which is to be held at the Chamber of Commerce Building. Dr. Abbott's subject will be: "Coal and the Hereafter."

Dr. Abbott is, by wide experience and training, eminently well qualified to discuss the future of coal. He is nationally recognized as an authority on coal, its combustion and its storage.

A graduate of the University of Illinois where he received his Doctors Degree, Dr. Abbott is Past President and Fellow of the A.S.M.E., a Fellow of the A.I.E.E., and Past President and honorary member of the Western Society of Engineers. He served for many years on the Board of the University of Illinois and for several years he was President of the Board.

Before his retirement, Dr. Abbott, as Chief Operating Engineer of the Commonwealth Edison Company, was a leader in developing the power system and particularly the great generating stations of that company.

He was honored by receiving the Washington Award for 1942. This award is presented annually by the engineering societies "to an engineer whose work in some special instance, or whose service in general, has been noteworthy in promoting the public good." In previous years this award has been made to such men as: Herbert Hoover, Orville Wright, M. I. Pupin, Bion J. Arnold, William D. Coolidge, Ambrose Swasey, C. F. Kettering, Frank B. Jewett, and Ralph Budd.

Dinner, with the speaker as guest of honor will begin at 6:30 and the meeting will start at 8:00 o'clock.

V

CAPT. MAHURIN NOMINATED FOR AWARD

The F.W.E.C. Council nominated, at its last meeting, Captain Walker Mahurin for the Military Distinguished Service Award. No nomination was made for the Civic Distinguished Service Award. These awards are sponsored by the Junior Chamber of Commerce and the winner of the award will be given a key suitably inscribed.

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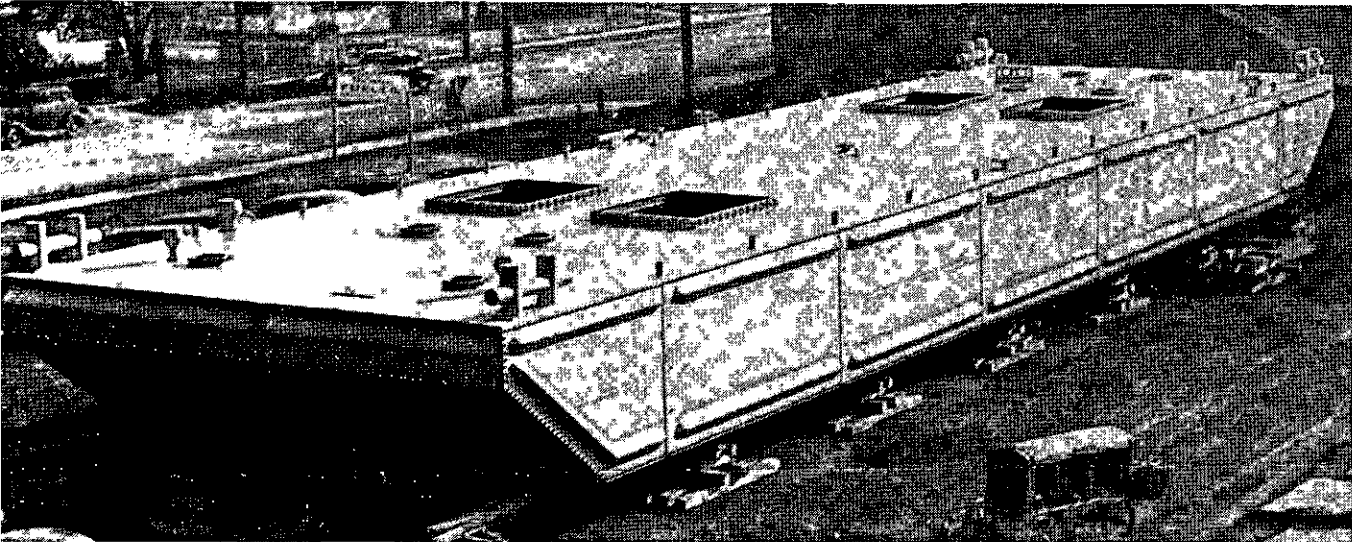
CARLSON LESS GLOOMY AT 46%

Mr. C. E. Carlson, aggressive treasurer of F.W.E.C., announced that as of January 1st, 46% of F.W.E.C. members had paid their dues. He indicated that he will not be completely happy until this percentage has reached the one hundred mark.

At Mr. C. L. Moffatt's suggestion, Mr. Carlson has agreed to accept checks, money order or bank drafts in payment of dues, mailed to his residence, 2115 Curdes Avenue.

The dues are \$3.00 for regular and associate members and \$1.00 for non-resident members.

DON'T DALLY—DIG DOWN—DISPATCH DUES TO CARLSON.



BOLTED SECTIONAL STEEL CARGO BARGE

Designed and built by American Steel Dredge Company Inc. for the United States Army.

AMERICAN STEEL DREDGE BUILDS FOR WAR

When the United States Army decided that it needed huge barges which could be quickly assembled near the point of operations to set either wet fuel or dry cargo ashore with or without harbor facilities, Army files indicated that one company was already in the business.

For years the American Steel Dredge Company Inc. had been fabricating sectional steel barges for dredging and cargo operations, and the same construction technique could be applied readily to building the type of craft needed by the Army. The dredge company engineers convinced the Army that the barge should be bolted rather than riveted in field assembly. The Army had previously contracted for riveted barges, but abandoned the idea when too many manhours and too much equipment were required for assembly.

After the ideas had passed successfully the blue-print stage, a complete bolted sectional steel barge was built, assembled, knocked down, and shipped to the Army to be reassembled for testing under simulated working conditions. The test was eminently successful. Orders for a large number of barges were placed and the local inland shipbuilders, having furnished the plans, specifications and engineering, then shared the orders with several other steel fabricators, all of whom followed the packing and shipping instructions developed by the American Steel Dredge Company Inc. The result has been a steady outpouring of barges which the Army is now using on several battle fronts.

American Steel sectional barges produced for the Army are of two sizes: one for cargo, being 64.0x28.0x8.0 feet; the other a crane barge, 12.0x52.0x9.5 feet, on which is mounted a crane
(continued, page 4, column 2)

THE A. I. E. E.

Dr. Hans Salinger will address the Fort Wayne Section of the American Institute of Electrical Engineers on Thursday, January 13, at the Fairfield Manor. His subject will be "Electron Optics." The talk will be primarily about the electron optics of television and the electron microscope. Dr. Salinger, who is a research engineer with the Farnsworth Television Corp., has done considerable original research in telegraphy, telephony and television. He is regarded as one of the foremost physicists in his field.

The meeting will begin at 8:00 P.M. and will be preceded by a dinner at 6:30 in honor of the speaker.

—V—

A. S. M. E. TO MEET

The Fort Wayne Section of the American Society of Mechanical Engineers held its first meeting of the New Year on Wednesday, January 12, at the Y.M.C.A. Dinner was at 6:30 and the meeting began at 8:00 P.M.

The featured speaker was Mr. Walter L. Fleischman of the Works Laboratory of the Fort Wayne Works of the General Electric Company. His subject was: "Industrial Radiography." Mr. Fleischman, who received all of his formal training abroad, is a graduate of the Technische Hochschule, of Berlin. He has not attended any homecomings recently.

Among other things, Walter Ludwig Fleischman holds a professional engineering certificate from the State of New Jersey. His accomplishments have gained for him the unbounded admiration of his co-worker Robert Timothy Reardon, who has impersonated him on occasion.

STATISTICS BOMB BERLIN

By LIEUT. CHARLES LANG

Not all war-winning tools are as substantial as G.E. power-operated turrets or G.E. generators that keep the Liberator Bombers in the air.

Would it surprise you to learn, for instance, that a decimal point can sink a battleship — that a table of figures can blast a munitions dump off the map?

Well, it is true. The word for it is "Statistics." In modern precision bombing, American style, statistics plays almost as vital a part as bombs and bombsights. Today, "bombardiering" is no longer the hit-and-miss affair—to use a pardonable pun—that it was in World War I.

Today, under the tutelage of U. S. Army Air Forces experts, bombing has graduated to a science. Bombardiers nowadays learn to rely upon statistics, and the Statistician is as much a part of a raiding foray as the lineman who keeps the ship in flying condition.

Bombardiers, during their training, take a course called Probability of Errors, which teaches them to expect errors and to adjust for them scientifically. Here they learn that Statistics is the secret weapon of modern precision bombing.

The Statisticians of the Army Air Forces know that no one is perfect, not even the scrupulously trained American bombardier. So the statistician pins down each man's imperfection and provides the means to overcome it.

The tools of the bombardier statistician are graphs, tables, and charts. Using these, the statistician can predict the probable results of any bombing raid on any target that any given bombardier will take part in.

The statisticians can do this because they have a complete statistical history, or performance record, of every bomb that any American bombardier has ever dropped since the beginning of his training period. This record includes the weather conditions, altitude, wind direction and velocity, compass bearing, air speed, ground speed, elevation of the target above sea level and the hour and minute that the bomb was dropped. When the bombardier goes into combat, the statisticians continue to record his bombing history like aerial Boswells.

Many times the results obtained by the use of bombing statistics appear as sheer magic. Army Air Forces statisticians can predict, with an accuracy that is nearly unbelievable, the number of bombs it will be necessary for any given bombardier or squadron to carry to insure any given number of hits from any given altitude on any pre-determined target.

This is how it works:

First we select the target. Let us say it is a Jap cruiser. We consider the altitude the cruiser's anti-aircraft can put up. Say it can reach 11,000 feet. O K, we plan to bomb from 12,000 feet. Checking over our statistics we find that Bombardier Lt. Jones does his best bombing from 12,000 feet. He is our man.

We also learn from statistics the error in range, (over or short) that we can expect from Lt. Jones, as well as his expected error in deflection, (right or left).

Now we really go to work. We already know the exact dimensions of the cruiser we are out to sink. We also know, from a study of the cruiser's construction, how many bombs will be required to send her to the bottom. So now, all that is necessary is to consult our probability-of-error chart. From that chart we can determine exactly how many bombs our Lt. Jones will need to carry to insure the required number of hits to splatter that cruiser all over Davy Jones Locker.

But the bombardier statistician doesn't stop there. After everything is set to make certain that the cruiser can be sunk, it is his job to figure out exactly how important the destruction of the cruiser is. If it has been pretty troublesome, the odds set against it are put at 90 to 10. Then, with a series of arithmetic gymnastics which frighten many a physicist, is figured out what the danger is to the bombardier and his crew if the boat is given but a 90 to 10 chance.

In the American Air Forces, the lives of the men come first, and, if it is found that by making the odds 90 to 10 against the cruiser, there is too much danger to the airmen, another chart is consulted on which the odds are 80 to 20.

It seems a lot of figures, but it gets results. It is not only the training bombs that are recorded in this manner. Even bombs dropped in actual combat leave a tell-tale record for the eager statistician to pounce upon, weigh, juggle, and to come up with an even more accurate prediction for the next raid.

Yes, it seems like a lot of figures. But when Bombardier Lt. Jones takes off, he carries enough bombs to hit that cruiser, and to hit it often enough to send it to the bottom. That is all anyone could ask of a batch of figures.

V

AMERICAN STEEL DREDGE (continued)

having a capacity of 30 tons at a 65-foot radius. Both have been designed so as to enable them to be shop fabricated in sections which may be stored in the holds of ships without loss of space. All packages are marked in such a manner that a supervisor can, with unskilled labor, lay out and assemble a barge in short order.

Joints are made up with formed gaskets, plastic cement and grommetted bolts to render them water tight. A unique marking system was devised for speeding assembly. Each section has an indestructible marking plate which locates its particular place on bottom or deck, starboard or port, and its distance back from the bow.

When these packaged units leave for their overseas destination, they go complete with towing bits, keels, ventilators, davits, hatch covers, paint, tools, erection supplies and every item necessary for assembly and operation of the units.