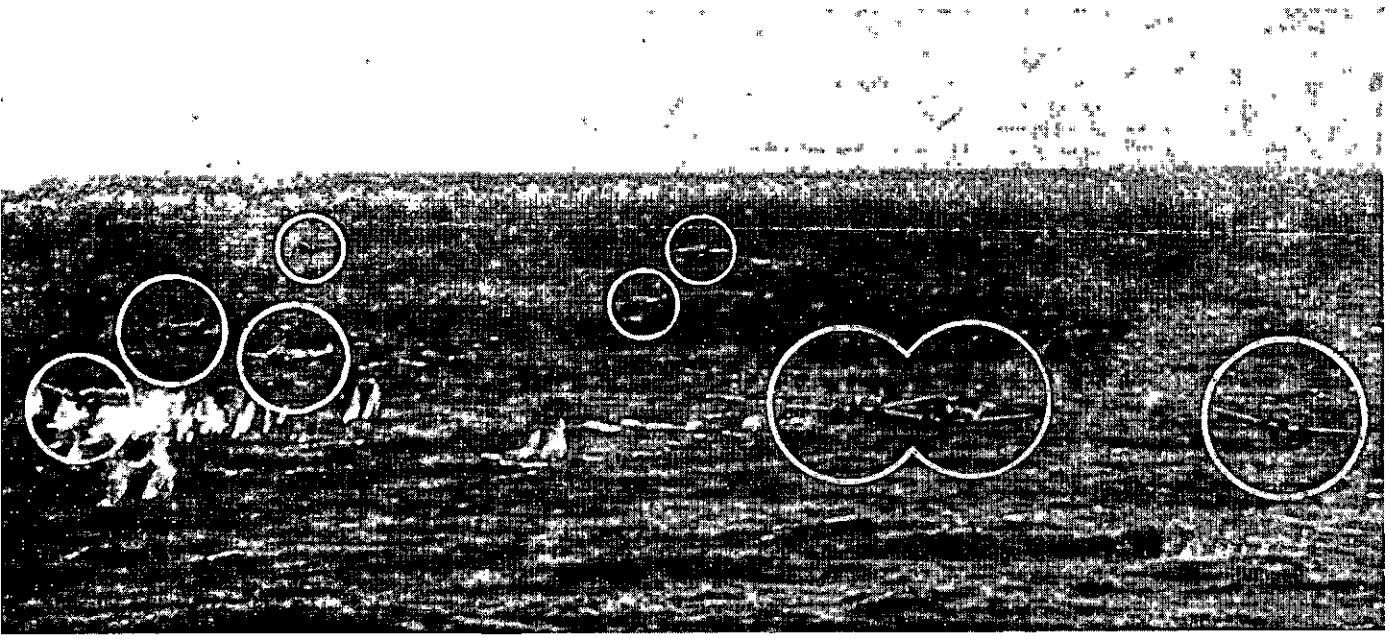
B & T
Engineers NEWS
A DIGEST OF ENGINEERING DEVELOPMENTS



Magnavox Products Help Down Nazi Troop Carriers in Mediterranean

Senor Roberto de la Rosa to Speak Thursday, October 21st

("Mexico And Her Relations With The United States")

Dinner, 6:30 — Meeting, 8:00 — Chamber of Commerce — Ladies' Night, Bring Your Wife or Sweetheart

"SIKORSKY'S FLYING CARPET" — (THE HELICOPTER)

WOMEN WANT F.W.E.C. MEMBERSHIP — (Editorial)

Magnavox on the Firing Line

Many people, but more particularly Magnavox employees, like the story behind the photograph shown on the cover page. Recently a group of P-40 American planes intercepted a large formation of German transport planes flying over the Mediterranean Sea, heavily protected by fighters. In the encounter, 58 Germans JU-52's, 14 ME-109's, and 2 ME-110's were shot down. One ME-109 was probably destroyed and 19 JU-52's and 10 fighters were damaged. Six P-40s were lost. In this terrific action all the guns were actuated by Magnavox gun-firing solenoids and approximately 25,000 rounds of ammunition were fired without a single gun failure.

While heretofore the solenoid may have seemed devoid of romance, its reliable performance must be a great source of satisfaction to

(*continued page* 4, *column* 2)

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"Lou" Gossman (who introduced Mr. Hawgood as Mr. Kilgore) favors possible admission of women to membership in F.W.E.C. on the basis of physical charm rather than mental or professional attainments.

In an interview, which Mr. Gossman indicated was not for publication, he said that he always has been intrigued by the idea of F.W.E.C. meetings attended by beautiful, buxom, blonde "bits of fluff" but that he feels the average age of the council is too advanced to allow such a thing.

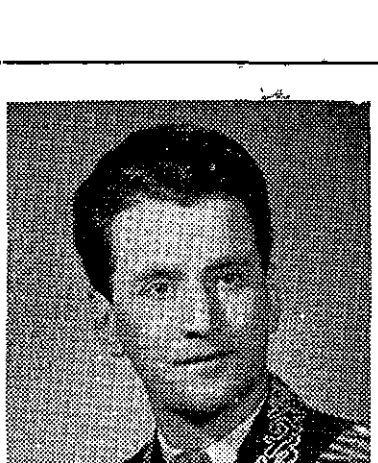
With beautiful female engineers clamoring for admission, the council should meet (with more than three members present) to set down a policy on women.

—V—

PRESIDENT'S MESSAGE

Elsewhere in this issue you will find a resume of preliminary plans for the annual meeting of the Indiana Engineering Council. In these busy times and with present transportation difficulties we realize that few from Fort Wayne will be able to attend. Any of our members who can be present, however, will be welcomed and their time will be well repaid. It is hoped that in happier times Fort Wayne can again be host to an annual Indiana Engineering Council Meeting such as was held several years ago in this city.

You will also note in this issue the report of our extremely well-attended October Luncheon meeting at which our subject was the Kilgore Bill. Your Council has authorized immediate, energetic, concerted action by the Club to defeat this piece of legislation, which would regiment and enslave the entire engineering profession. Mr. Harvey Hawgood, our speaker at the luncheon, also emphasized the value of individual letters from Club members to their Senators and Representatives to oppose the bill. It is hoped that many will, in their own interest, and to protect their profession, take time to write such letters. Names and addresses of Congressmen will be furnished to you on request. Don't delay, but write soon. —L. Z. Gossman.



Roberto de l Rosa, graduate National Univer sity of Mexico Mexico City, is 'Good Will Envoy of the Mexica Government t promote better un derstanding be tween our people Son of a Gener in the Mexican Ar my, he is prepar ing for entranc into the Diplomat Corps of his cour try. He will spea on: "Mexico an Her Relation With the Unite States."

—V—

SCOOPED ON GOLF TOURNAMENT

We were definitely scooped on the results o the golf tournament by that dirty "old deal" rag the *GE Works News*. It should be noted, how ever, that the sports writer had to resort to th low down trick of publishing this news in th edition that came out immediately after the tour ney. This act is akin to perjury, (or whateve the word is), which means stealing someone else' plot. He told of the club prize winners, Maneck J. Yopst, M. Edgar, J. Murray and J. Rosencran He also mentioned the side cash bogey winner Stonehill, A. Lee, J. Yopst (he was a glutto wasn't he?) and L. Hemphill. The story he com pletely missed was the fact that Elder shot a 9 Feustel a 92, and Kehoe a 93. These boys ar probably excellent pool players, if they score like that on those greens. Another point he omi ted was something that came out about our esteem ed editor, (and don't "blue line" this). It seem that in order to be sure of getting a little fre publicity Gradv goes in 65 and back in 63 for sizzling 128. So you see, Mr. Sunier, you didn really scoop us at all.

—V—

INDIANA ENGINEERING COUNCIL

The Annual Meeting of the Indiana Engineer ing Council will be held at Indianapolis on Satur day, October 30. This meeting, held in collabor ation with the Indiana Society of Professiona Engineers and the Indiana Section of the Amer can Society of Civil Engineers, will be at th Claypool Hotel. The general theme of the mee ing will be "Postwar Planning."

It is hoped that as many as possible from For Wayne will attend this meeting.

SIKORSKY'S FLYING CARPET

If the present rate of technological development continues unabated for a decade after the conclusion of the war, it is quite possible that a family flying machine will not be uncommon. A week end jaunt to Mexico will not be extraordinary. This hope lies with the helicopter—a twentieth century version of the flying carpet.

The helicopter—which is the brain-child of Igor Sikorsky, the renowned aircraft designer—is hardly more than a three-bladed fan with a stabilizer. Unlike the conventional airplane, the helicopter has one rotating rather than two stationery wings. All of its lifting force is derived from this rotating wing which is a three-bladed propeller rotating in the horizontal plane above the machine. In Sikorsky's latest model, the VS-300, the main propeller, or rotor, describes an arc about 28 feet in diameter. It is by means of this rotor that control is maintained over the rate of ascent and descent, and the direction of travel, whether it be forward, backward, to the left or to the right. Another salient feature of the helicopter is the rear propeller or rotor which operates in a vertical plane. The function of this rotor is to counteract the thrust of the main rotor. It is about seven feet in diameter and is driven about five times as fast as the main rotor.

The main rotor, in which most of the control of the helicopter is vested, accomplishes its functions not by a change in speed of rotation, but by changing the angle of incidence of the rotor blades. To take off, the pilot brings the main rotor up to speed (about 280 RPM) with a low angle of incidence. For direct ascent, the angle of incidence of the blades is increased uniformly until the machine begins to rise. When sufficient altitude has been attained, and it is desired to go in a horizontal direction, the angle of incidence of the blades of the rotor is changed as they rotate. To go forward, the pilot pushes the control stick forward, which causes the angle of incidence of each blade to be at a minimum when it is pointing forward. This tilts the machine down slightly toward the front, which results in a component of force in the forward direction. The machine will always travel in the direction in which the angle of incidence is at a minimum. In the event of engine failure, the main rotor is disengaged from the engine (free wheeling), permitting the ship to operate as an autogyro and to land safely at a ground speed of about 20 miles per hour.

An indication of the maneuverability of the helicopter was displaved by Sikorsky holding the ship over the area of half an acre for ninety minutes. In another demonstration, a tire was changed while the helicopter was aloft, about four feet from the ground.

The VS-300, which is powered by a 90-HP engine, can attain speeds of about eighty miles an hour and has an average gasoline consumption of from ten to twelve miles per gallon. The body of the helicopter is made of light weight tubing sim-

(*continued, next column.*)

MAGNAVOX COMPANY

The Magnavox Company is one of the East End Kids, and quite a husky one. Born on the West Coast in 1911, as the Commercial Wireless and Development Company at Napa, California, it was renamed The Magnavox Company, and the plant was moved to San Francisco and thence to Oakland. In 1930 the operation was transplanted to Fort Wayne in order to get closer to market. At this time, the patents and key personnel of the Amrad Corporation were absorbed. Outstanding Amrad contributions were the first Domestic A. C. radio receiver set and the "know how" of capacitor manufacturing.

Magnavox history includes a claim to being the oldest name in Radio together with the following outstanding "firsts" in the electronic field: Loud Speaker, 1911; Electro-Dynamic Speaker, 1915; Amplified Phonograph, 1915; Amplified Radio Phonograph, 1922; Single Dial Radio Sets, 1923.

Other Magnavox "firsts" are: Introduction of Commercial Crystal Pickup, 1936; Duosonic Wide Range (Double Cone) Speaker, 1937; High Fidelity Reproduction, 1937; Low Pressure ("Pianissimo") Pickup, 1939; and of special pride to them, first Navy "E" award in this city and in the radio receiving industry.

Glorifying their present location on Bueter Road, is the remodeled general office, factory and engineering department with its two-storied front of modern, distinctive lines. On the cap plate, supported by the four central columns, rests their trade mark "Magnavox," from the latin "magna vox," which now means "The Great Voice of Radio."

("Magna vox" has always meant "great voice." About 1919, my father bought a herd of Aberdeen-Angus cattle—the one possessing the most sonorous "moo" was named "Magnavox." No copyright violation intended, Mr. O'Conner — besides, the heifer, too, was a thoro-bred, and has been gone these many years.)

—V—

I. S. P. E. ELECTS OFFICERS

In an October 1st meeting held at the Chamber of Commerce, the Anthony Wayne Chapter of the Indiana Society of Professional Engineers elected officers. They are: John W. Dickens, President; Paul Spears, Vice-President; James T. White, Secretary, and Richard J. Erb, Treasurer.

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ilar to that used in a bicycle, a method of construction which readily lends itself to mass production. If reasonable production can be attained, it is quite possible that the price of a helicopter will be about that of the average automobile.

It is highly probable that the helicopter will play an important part in the present war due to the fact that it needs no horizontal run for take-off or landing. It can land in many places which would otherwise be inaccessible. A mountain side landing is not difficult. Its uses are limited only by the imagination.

ON ALL FRONTS

If, when this war is won, victory shall have been decided by a margin of one family's efforts, the family might well be that of S. T. Woodhull.

"Woody" is a member of the Fort Wayne Engineers Club; Magnavox claims him as one of its older staff members — both are proud of him.

Vocationally, Woodhull is Chief Capacitor Engineer of Magnavox; avocationally, he is the father of the "Warring Woodhulls." He has two sons, a daughter, and a son-in-law in the armed services. Mrs. Woodhull serves at the transient USO lounge in the Pennsylvania R. R. station; Sam, in South Side High selling bonds and stamps, is adding punches in a grocery store after school, while "Woody" engineers the designs and production of electrolytic filter and by-pass capacitors used by the Army, Navy, Marine Corps, Coast Guard, and Maritime Commission.

Meet these warriors:

Lt. Charles N—USN—enlisted 1940—Combat Troop Ship—Pacific Theatre—more specifically, Solomons and Munda beach landings.

1st Lt. Benjamin I.—Army Air Corps—enlisted 1941—Troop Carrier Command—Mediterranean action—Awarded Air Medal and Oak Leaves.

2nd Lt. Mary A. (Polly)—U. S. Army Nurse—Enlisted 1941—General Hospital in England.

Lt. (j.g.) George T. Glacken (Peggy's Husband)—USNR)—Dive Bomber pilot on U.S.S. Carrier in South Pacific.

The Woodhulls have ever been a sea-faring family (four of "Woody's" five uncles went to sea) and it is evident that this tradition is still alive. The fighting record of this splendid family is a real demonstration of true Americanism.

V

A. I. E. E.

The American Institute of Electrical Engineers will hold the first meeting of the 1943-44 season at Fairfield Manor on Thursday, October 14. Mr. P. G. Downton, Sales and Application Engineer for the Electric Storage Battery Co., will speak on "New Developments and War Problems in Battery Manufacture."

The speaker for the November meeting, Thursday, November 11, will be Mr. C. M. Ripley of the General Electric Company. His subject will be "Power for War." All FWEC members are invited to attend. The meetings will begin at 8:00 P. M.

V

A. S. M. E.

The officers of the Fort Wayne Section of the American Society of Mechanical Engineers for the coming year are: Kenneth K. Cooper, Chairman; Everett S. Buck, Vice-Chairman; Frank C. Mason, Treasurer; Dr. Ivan A. Planck, Secretary.

The first meeting of the year will be on Thursday, October 28.

Continued from page one —

those, whose responsibility it is.

Noah Webster's definition that "a solenoid is a tubular coil to produce a magnetic field," does not tell the whole story as the engineers at Magnavox think of it. They think of a solenoid as a non-rotary electric motor which, like the moving coil loud speaker, does its work by causing motion in a straight line against a resisting force.

The solenoid consists of a coil of copper wire, a magnetic circuit with a moving member called a plunger, and fixed core. When the coil is excited electrically, the plunger is attracted to the core with a force that depends on the space between the core and the plunger, the strength of the magnetic field in the space between the core and the plunger, and in the physical shape and dimensions of the entire unit. Modification of the pole faces, changing them from "flat face" to "conical face" gives control of the force travel characteristic; that is, the flat plunger works best at short load strokes while the conical faced plunger fits in better at long load strokes.

For application to gun firing, the solenoid assembly which is subjected to heavy continued vibration, must be ruggedly fastened together and to the gun. Since the machine gun for aircraft use can be fired for short times only, the electrical power input to the solenoid can be fairly large without over heating since it is energized for only short periods. By taking advantage of this fact, the solenoid physical size can be reduced until assemblies weighing only two pounds can exert forces of eighty pounds.

Magnavox Solenoids are firing guns of nearly all types and calibers on every front, in aircraft, ships, tanks and on submarines, but firing guns are not the only jobs they do. They turn valves, arm bombs, and a number of other jobs where a pull or a push must be done at a remote spot in a ship, tank or plane.

Solenoids are by no means the only product manufactured by Magnavox during these war times, but details of everything else is subject to very rigid censorship.

However, the list below indicates that the plant is not doing a one-handed job. These are for the government: Army and Navy Radio Receivers, Aircraft Interphone Communication Equipment, Loud Speakers for all purposes, Antenna Reels, Aircraft Carbon Microphones, Tank Receiver Head Set and Microphone Equipment, Sound-Slide Projectors, Radio Detection Equipment, Radio Direction Finders, Electrolytic Filter and By-Pass Capacitors, Firing Controls and Arming Controls.

EDITOR'S NOTE—We are indebted to Mr. R. H. Severance of the Magnavox Company for the above description of the solenoid.

V

"An optimist, my son, is a man who thinks his wife has quit cigarettes when he finds cigar butts around the house."