



By Sydney M. Miner

EMERITUS PROFESSOR G. F. Gebhardt's statement in his book "Steam Power Plant Engineering," that "super-power is more or less of a dream" seems to be undergoing a slight change. President Roosevelt, by calling the recent "Power conference," and by all of his actions in connection with the power industry, is pointing the finger of time toward the realization of that "dream". This policy of the administration should be of particular interest to all engineering students.

THE DISTRIBUTION of power from large central stations and the development of such stations themselves has been one of the large fields in both electrical and mechanical engineering. The technical possibilities which would be opened up by the development of some means for undertaking the mammoth financial, social, and functional problems involved in an extension of the government's plans would be tremendous. Fields heretofore unexplored would be thrown open to the engineer. Development of existing equipment and theories would proceed upon a scale which at present would be unbelievable; these and many other points are of extreme interest to the engineer.

HOWEVER, from a social viewpoint, the problems and possibilities are even more involved and astounding. The question of "Big Business Monopolies" would here reach a new high. As to where the "smaller" power utilities (such as Commonwealth Edison and its like) would fit into the picture alongside of such organizations as can be visualized through the discussions of the Conference, only a seer could tell. On the other hand, complete government management might be the solution. But that brings up the old question of individual competitive enterprise vs. government competition and eventually Socialism. And so with all these problems in mind, it will be interesting to see into what the presidential power policy actually materializes.

A NEW NOTE is beginning to make itself heard in the insurance field in particular and in the financial world in general. This disturbing element—disturbing because it brings to view several financial questions which are rather discouraging—is the recently boomed annuity business. Simply explained, an annuity is a series of payments made to a man in return for a previous deposit of a lump sum or a previous series of deposits to the paying company. As opposed to life insurance—where the only way you can beat the company is by dying too soon—the annuity holds two intriguing arguments: first, there is a set income, upon which a person may rely for the remainder of his life; and second, the longer a person lives, the more profit he receives from his investment—that is, he beats the company, by living too long.

ANNUITIES WERE first made prominent by the insurance companies during the depression years, when they needed "ready cash". They have grown until the collections of New York Life Insurance company, for example, totaled \$41,654,538 for 1935, while premiums on new life insurance policies only amounted to \$30,898,349.

THE ANNUITY question, however, raises two important financial problems. With inflation in view, the investor's dollar, instead of increasing by drawing interest, will decrease because of its decrease in value. Secondly, with interest rates on the decline, and profit making investments diminishing, how can the insurance companies expect to meet the 3 to 3½ per cent interest rates computed on annuities? As yet, the insurance agent can only "hem and haw" when these two questions are put to him.

Potter Will Read Paper on Physics

Paper Is Result of Work for Thesis

When the American Physical Society meets at the University of Chicago this November for their annual convention, Mr. J. G. Potter of Armour's physics department will read his paper on "Contact Potentials," the result of work for his doctor's thesis at the Sloane Physics Laboratory of Yale University this summer. Mr. Potter's summer was spent in perfecting a method for the measurement of contact potentials between metal surfaces in vacuo. At the present time Mr. Potter is continuing his work at the Ryerson Laboratory of the University of Chicago. He is continuing the same work but is extending his measurements to include a number of other metals.

Metals Vary in Work Function

In the case of tungsten, Mr. Potter found that the work function of tungsten at 700 degrees centigrade exceeded that at zero degrees centigrade by about 0.02 volts.

Because of the technical nature of Mr. Potter's work, he has written a short explanation of it for the News.

"It is well known that the electrons in a metal are in agitation with a distribution of kinetic energies similar in many respects to that of molecules of gas in a container. However, the surface of the metal acts as only a partial barrier. Electrons may escape through the surface with a certain expenditure of

energy known as the "work function" of the metal. The size of the work function depends upon the kind of metal, and in the investigation herein described, it was found to depend to a slight extent on the temperature of the metal.

"As two unlike surfaces come to electrical equilibrium they acquire charges producing a voltage between the surfaces equal to the difference of their work functions. This voltage is known as the "contact potential" between the surfaces. It is in such a direction as to help pull electrons out of the surface of higher work function and to hinder electrons coming from the surface of lower work function. In equilibrium, as many electrons migrate in one direction as in the other.

Voltmeter Introduces Errors

"Although contact potentials may be of the order of several volts, they cannot be measured with a voltmeter since compensating contact potentials occur between the surfaces and the leads to the meter. However, in accurate work with vacuum tubes and other electronic devices it is important to correct the applied voltages for the contact potentials between the various elements of the tube.

"Lord Kelvin found that by using the surfaces to be investigated as plates of a condenser, whose capacity could be changed abruptly, he could measure the contact potential with the aid of an electrometer and suitable circuits.

Kelvin's Method Used

"In the present work Kelvin's method was adapted to measurements of contact potentials between clean surfaces in a vacuum of about 10-11 atmospheres, that vacuum being necessary to obtain clean stable surfaces."

Oldenburger Attends Math Meet at Oslo

Dr. Rufus Oldenburger, Armour's new research man in mathematics, attended the International Mathematical Congress early last July. As the official representative of Armour Institute of Technology, Dr. Oldenburger delivered a report before one of the eight sections of the Congress, on recent investigations into properties of polynomials of the third degree and higher. The Congress, which meets once every four years, is considered the foremost mathematical body in the world.

Math Congress Received at Tea

Meeting at Oslo, Norway, the International Mathematical Congress was opened by the renowned Norwegian mathematician, Professor C. Stormer, in the presence of His Royal Highness, King Haakon. Only the Russian and Italian delegates were absent from the list of the thirty-five countries represented.

During the Congress, the mathematicians were received at tea by His Majesty and Queen Mande at the palace, and made a trip along the Osola fjord aboard the flagship of the Norwegian fleet, in company with the crown prince, honorary president of the Congress, and the crown princess.

Oldenburger Has Good Reputation

Dr. Oldenburger has acquired a reputation as a brilliant scholar, because of his papers concerning matrices. He has received distinction at many important mathematical meetings in this country, in fields other than matrices, as for example in conjugate networks.

ARMOUR INSTITUTE OF TECHNOLOGY

Enrollment for First Semester—1936-1937

	Graduates	Seniors	Juniors	Sophomores	Freshmen	Pt. Time	Total
Mechanicals	1	42	50	49		5	147
Electricals		35	25	25		10	95
Civils	1	28	19	16		2	66
Chemicals	5	40	43	45		1	134
Fire Protection	2	14	13	14		1	44
Architects	1	13	12	21	15	5	67
Science		6	1	6			13
Engineering and Science					258	1	259
Total	10	178	163	176	273	25	825

41 Students in A Group, Co-operative Course in Mechanical Engineering

40 Students in B Group, Co-operative Course in Mechanical Engineering

ODD FACTS

In a pamphlet now out of print, the son of Charles Goodyear forecast some of the "infinite variety of uses" to which rubber would be put. This prophetic list, published in 1844, named rubber a substitute for leather, oiled cloth, haircloth, paper, silk, and parchment, among other things.

Thirty-one types of welding are in common use today. Economic pressure and sharp criticism have been important factors in improving weld-

ing technique, materials, apparatus, and procedures. Tensile strengths of welded joints have been raised from 40,000 and 50,000 pounds per square inch to 65,000 to 75,000 pounds per square inch. With special materials, tensile strengths of 100,000 pounds per square inch are obtained.

A machine has been developed at the Massachusetts Institute of Technology which reproduces earthquakes. By means of an extremely sensitive electric eye, seismograph curves are followed and the resulting motions are studied in an attempt to learn more about the nature of earthquakes.

For Digestion's Sake . . . Smoke Camels

THE FIRST DAYS of the semester are usually crowded. But Camels help a lot. Camels give you a welcome "lift" in energy—stimulate digestion—bring a sense of well-being. And they never jangle your nerves.

With Camels, mealtime is more pleasant—digestion is stimulated—alkalinity increased

IN our busy lives, mealtime is apt to catch us at a disadvantage. We're often under nervous tension and physical strain. As a result, the free flow of digestive fluids is slowed down. How quickly Camels change this. For when you enjoy Camels the digestive fluids are gently and

naturally restored to fuller flow. Alkalinity is increased. Time and again, physiological laboratories have checked this welcome effect of smoking Camels.

Camels are mild—you can enjoy them any time. They never jangle your nerves or tire your taste. Camels set you right!

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PLUCKY DARE-DEVIL. Miss Uva Kimmey (left), America's outstanding girl parachute jumper with 48 jumps to her credit, says: "I smoke Camels for digestion's sake. They encourage digestion in a pleasant way."

"THERE'S NOTHING like a Camel to set you right," says Bill Ferguson (below), crack salesman. "Camels give me an extra sense of well-being and contentment. I always smoke them as an aid to digestion."

CULINARY MASTERPIECES by the chef of Washington's famous Hotel Shoreham. Here the joy of living is the keynote of the cosmopolitan patronage. Rare dishes gathered from world markets delight the taste. And Camels dot the tables of the diners. Robert—maitre d'hôtel—observes: "People demand the finest in foods and they also demand the finest in cigarettes. Camels are the outstanding favorite."

HOLLYWOOD RADIO TREAT! Camel Cigarettes bring you a FULL HOUR'S ENTERTAINMENT! Two great orchestras and glamorous Hollywood Guest Stars. Tuesday—9:30 pm E.S.T., 8:30 pm C.S.T., 7:30 pm M.S.T., 6:30 pm P.S.T. WABC-Columbia Network.

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