Plant Sciences

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Electricity

ORDNANCE SPELLES IT F-U-Z-E, when referring to the mechanical device that keeps bombs safe to handle, but sets them to detonate on impact. If bombs are to be both safe and effective, fuse-timing must be accurate to a split second. To test them, Westinghouse engineers designed a new miniature wind tunnel, in which a blast of compressed air simulates speeds up to 800 miles an hour. A photoelectric cell device checks the timing to one one-hundred-twentieth of a second.

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TOO GOOD. A short time after a large non-condensing turbine was placed in service by a large industrial company, the designer was called back to do further work in it. Reason: it was too efficient! Temperature of the exhaust steam was too low for plant process work. Machine is now operating with a satisfactory degree of inefficiency.

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NEW HURRICANE is now in service with Boeing Aircraft Company. Westinghouse has just installed an 18,000 horsepower electric motor to drive the multi-bladed fan in Boeing’s new wind tunnel. One of the largest operated by a private aircraft manufacturer, the new tunnel will be able to test airfoils, etc., at speeds up to 700 miles an hour.

When .0001 inch = 1000 hours

Problem: To provide an air-tight joint where the insulated connectors of an airplane radio vibrator project through the metal shell. (Vibrator contacts disintegrated in ten hours at high altitudes, when shells were not air-tight.)

Westinghouse research engineers were ready with the answer—a method of soldering metal to porcelain.

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This gold-platinum film—barely one ten-thousandth of an inch thick—is the reason radio vibrators today last as long as the plane.

Soldor Seal is the only known method of completely and permanently hermetically sealing a porcelain-to-metal joint. It is another example of Westinghouse leadership in every phase of electrical development.


WESTINGHOUSE PRESENTS: John Charles Thomas, Sunday 2:30, EWT, NBC. "Top of the Evening," Mon. Wed. Fri. 10:15, EWT, Blue Network
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The New "Photometer" is a barrier-layer type instrument consisting of basically a low voltage light source, an adjustable light aperture, a three-color filter holder, receptacles for tubular or rectangular absorption cells, a single photoelectric cell, and a sensitive current-measuring instrument with a 2½-inch scale. The scale reads from 0–100 in 50 divisions.

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It is now the eleventh year since riboflavin (vitamin B₂ or G) was first isolated. Then, 1933, it took from 5,000-11,000 quarts of whey to yield a single gram.

In 1935, when Karrer, collaborating with the Hoffmann-La Roche Scientific Laboratories, announced the first synthesis of riboflavin, the first gram cost $2,500. Commercial production seemed a baffling problem.

Nutritional data, too, were slow in accumulating. Pure crystalline riboflavin (made from liver) was experimentally used in animal feed in 1935. Later, reports began to tell of its growth-promoting properties. In 1938, deficiency symptoms in chicks were described, evidence given that the vitamin could prevent them. Different groups of scientists reported also on hatchability studies. Still later, reports began to establish the precise percentages of riboflavin for various types of feeds and food products.

By 1940, date of the Food and Drug Administration’s first hearing to consider the addition of vitamins to white flour, nutritionists were convinced that riboflavin deficiency was widespread among our human population, so agreement was reached that it should be included with the other enrichment ingredients.

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ADDRESS OF THE PRESIDENT OF THE ROYAL SOCIETY

By Sir HENRY DALE, G.B.E.

The council's report, covering the period of a year ending September 30, makes mention of the scientific mission to Australia now completed by our Foreign Secretary, Sir Henry Tizard, whom we are glad to welcome on his return. The report does not extend, however, to the later departure for India of our secretary, Professor A. V. Hill. The Government of India, through the Secretary of State, asked the Royal Society to depute a distinguished scientist to visit India for consultation on scientific matters, and in particular to advise on scientific and industrial research in relation to measures of post-war reconstruction and on the coordination of such plans in India with corresponding activities here and elsewhere. We felt that our proper response to such an invitation was to let India have a man of the highest qualification from our own fellowship; and I feel confident that the fellows will approve of our action in releasing for the necessary period our senior secretary, who is also one of our research professors, to enable him to accept this important mission. I ask you, further, to send from this meeting a message to Professor Hill of good wishes for the full success of his undertaking and of hope that one of its results will be to strengthen the bonds of understanding and true comradeship between our Indian colleagues and the men of science of this country. In that connection I ought further to report to you a step which I have taken, with the approval of the council, and for which I have not found any precedent in our records. It was brought to my notice that of the six distinguished Indian men of science who are at present on the roll of our fellows only two have hitherto been able to present themselves here in order to subscribe the obligation in our charter book and to be admitted according to the statute. It seems certain that the war will create still further difficulty and delay for the attendance here of the other four, and I have accordingly