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SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE • JUNE 10, 1944



Your Bonds
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A SCIENCE SERVICE PUBLICATION

KEEPING UP WITH
Electricity

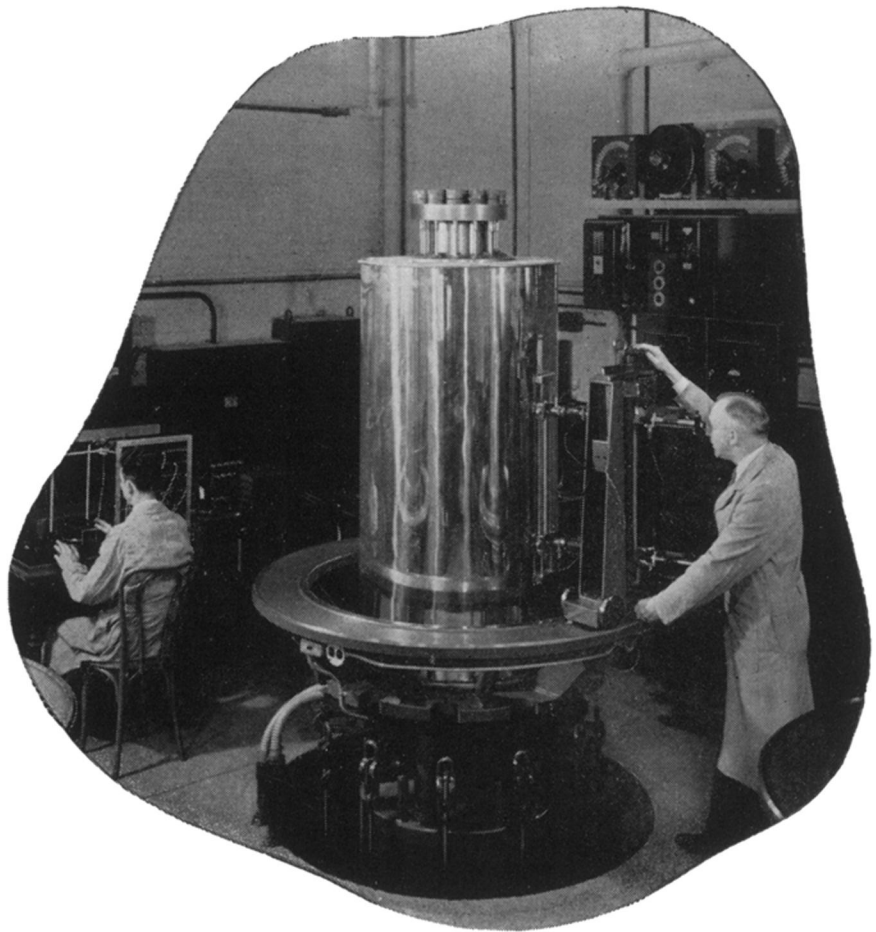
BACK ON THE JOB after a 25-year layoff are the original Westinghouse generators at Niagara Falls. These went into service in 1895 as part of the first great a-c poly-phase power system. Replaced in 1917, they were kept as standby equipment until the beginning of the present war. Rewound and re-conditioned, they are now back in full-time service, delivering *more* power than when new.

LIGHTS FOR HEAVYWEIGHTS. Those new super-bombers we've been reading about brought trouble on landing fields. Contact lights, sunk in the concrete runways, weren't built to stand the weight, so structural strength had to be increased to 200,000 pounds, without any change in dimensions. As late as 1942, 35,000 pounds was standard.

SIX-ROOM TRANSFORMERS—rather transformers as large as a six-room house are now serving a new war industry. They're rated at 75,000 kva each, and require 188 tons of steel, 130 miles of copper wire. Separately-mounted radiators, and use of Hipersil for cores kept down size and weight. Otherwise, say engineers, problems of shipment and installation would have been insuperable.

"MAKE WAY FOR A SAILOR" may be the new slogan in locomotives. Steam turbines, so efficient in ship propulsion, are being adapted for railroad use. Tests of one Westinghouse experimental 6,500 hp unit indicate a saving of one-fourth in steam required, compared to conventional reciprocating engines of the same power.

INSPECTING THE INVISIBLE. Tiny pinholes, invisible to the naked eye, mean defective tin plate and possible spoilage of badly needed food. A Westinghouse photoelectric device detects these defects every time, though the tin plate rolls past at 1,000 feet a minute. Flawed sections are automatically marked, to be later cut and removed.



Research behind gas turbines

The known simplicity and theoretical efficiency of the gas turbine has challenged generations of engineers. But the gas turbine as a *practical producer of power* could not exist until new alloys were created—alloys which could withstand high temperatures for long periods.

In the testing machine shown here, Westinghouse scientists tested alloys, subjecting them to stresses of thousands of pounds per square inch at temperatures as high as 1,000 degrees Fahrenheit. This was the research that provided better materials for steam turbines.

It was also an important step toward gas turbines. As the work continued, with new alloys and new testing machines, positive results were obtained at the high temperatures required for efficient gas turbine operation. *Thus, research developed the materials which make the gas turbine a practical possibility.*

Another example of the Westinghouse research that is constantly providing new tools for industry. Westinghouse Electric & Manufacturing Co., Pittsburgh 30, Pennsylvania.

WESTINGHOUSE PRESENTS: *John Charles Thomas, Sun. 2:30 p.m., EWT, NBC. "Top of the Evening," Mon. Wed. Fri. 10:15 p.m., EWT, Blue Network.*

Westinghouse
PLANTS IN 25 CITIES OFFICES EVERYWHERE