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# SCIENCE NEWS LETTER



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**For Sandy Plains**

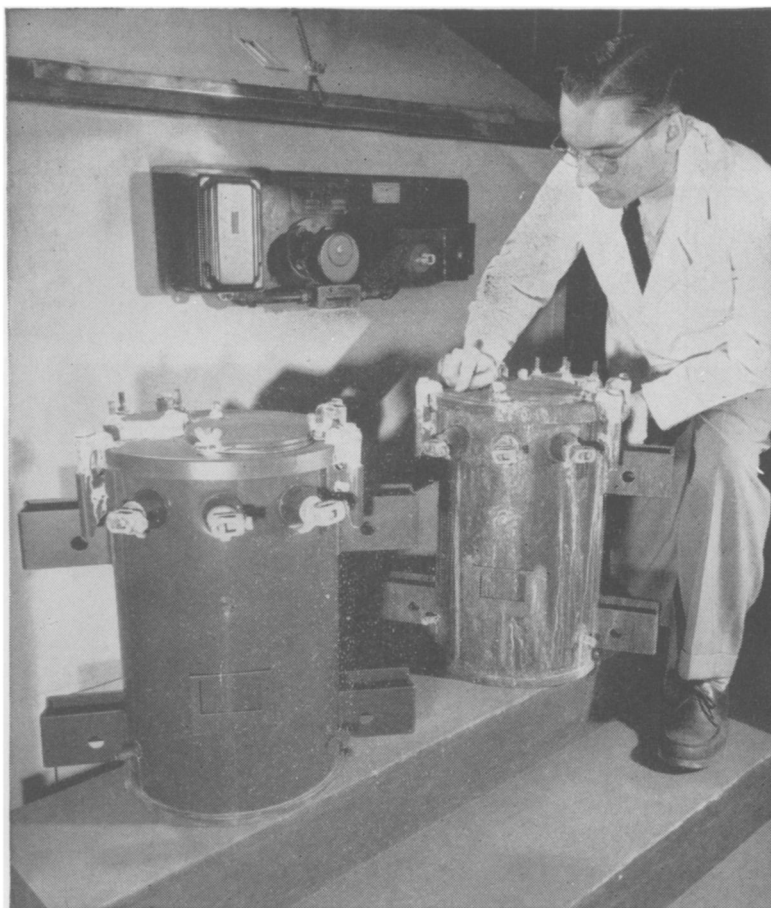
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# Scientists Solve Another Secret of Transformer Life-Span



Transformer failure is costly—far more than the cost of a new unit. So Westinghouse is constantly seeking ways to lengthen transformer life.

Of three major causes of transformer failure, two are well under control, namely, “burn-outs” resulting from “electrical overloads”, and “lightning strokes”. Now, a new painting system developed by Westinghouse engineers should go a long way toward solving the third problem—the problem of corrosion.

Transformers take a terrific beating from the weather. Boiling sun. Driving rain. Sleet. Snow. Salt-water spray along sea coasts. Acid and alkali exposure . . . all these conditions cut life expectancy sharply.

With the same determined effort that licked “electrical overload” and “lightning stroke” problems, Westinghouse scientists took up the fight against corrosion . . . came up with a three-deck “paint sandwich” that doubles transformer tank life—even where corrosion conditions are most severe.

Key to this improved finish is a middle layer of paint containing mica flakes in a syrup-like plastic

that forms a coating like a shingle roof. First, a special primer is applied that seals the steel from the air. Then the insulating, weather-resisting coat is applied. Over that, a pleasing finish that shuts out ultraviolet light completes the job.

The illustration of the transformer tank at the left shows the effectiveness of the new finish. After 1000 hours of continuous exposure to corrosive salt-water spray, it is still bright and shiny, while the tank at the right, coated with standard finish, fell victim to the salt-water attack. The new finish is expected to provide the same results when exposed under all climatic conditions including sub-zero cold, desert heat and harmful sun rays.

Problems like this are just as important in research at Westinghouse as those which probe the depths of uncharted areas, because our concept of research is not only confined to a quest for the new, but includes an everlasting interest in improving the old as well. Westinghouse Electric Corporation, Pittsburgh, Pennsylvania.

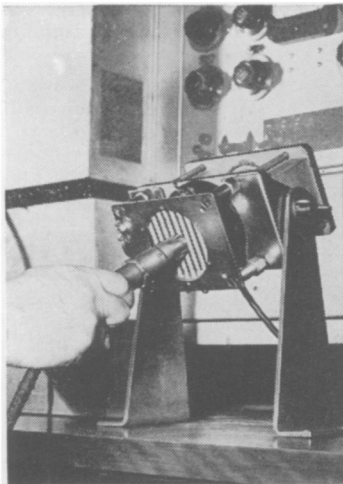
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**YOU CAN BE SURE..IF IT'S Westinghouse**



*This Western Electric employee mounts a transmitter in the test fixture which is swung down to face an artificial mouth at 45-degree angle, just as transmitters are held in use. More than a million transmitters are tested each year.*

## **T**his mouth speaks to millions



*At Bell Laboratories a scientist employs a condenser microphone to check the sound level from another type of artificial mouth, used in transmitter research.*

To serve the changing needs of telephone subscribers millions of telephone sets have to be moved each year. Before being put back into service most of them are returned to the Western Electric Company's Distributing Houses where they receive a thorough checkup.

Western Electric engineers needed a rapid method of testing transmitters over a range of frequencies. At Bell Telephone Laboratories, scientists had just the thing—a technique they had devised for fundamental research on transmitters. In co-operation with these scientists, Western Electric engineers developed the practical tester in the illustration.

The transmitter is removed from the handset and put in front of an artificial mouth which emits a tone that swings several times per second over a band of frequencies. A signal lamp tells if the transmitter is good. A test takes 5 seconds.

This new tester illustrates how Bell Laboratories research and Western Electric manufacturing skill team up to maintain your telephone service high in quality yet low in cost.



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