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SCIENCE NEWS LETTER

®

THE WEEKLY SUMMARY OF CURRENT SCIENCE

Flying Runway

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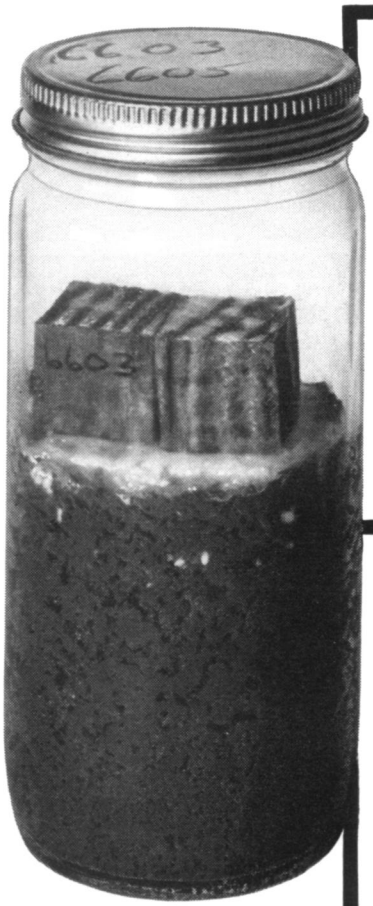
A SCIENCE SERVICE PUBLICATION



THIS BOTTLE TURNS SEVEN YEARS INTO SEVEN MONTHS

Test blocks of pole wood are fed to destructive fungi in bottles like this at Bell Laboratories. Wood rests on soil which controls moisture conditions and promotes fungus growth. Test speeds search for better preservatives.

This year the Bell System is putting 800,000 new telephone poles into service. How effectively are they preserved against fungus attack and decay?

Once the only way to check a preservative was to plant treated wood specimens outdoors, then wait and see—for seven years at least. Now, with a new test devised in Bell Laboratories most of the answer can be obtained in seven months.

Cubes of wood are treated with preservatives, then enclosed in bottles with fungus of the most destructive kind, under temperature and humidity conditions that accelerate fungus activity. Success—or failure—of fungus attack on cubes soon reveals the best ways to preserve poles.

The test has helped show how poles can be economically preserved for many years. It is another example of how Bell Telephone Laboratories works to keep down your telephone costs.

A boring is taken from a pole section to see how far preservative has penetrated. For poles to last, it must penetrate deeply and be retained for a long time.

BELL TELEPHONE LABORATORIES

Improving telephone service for America provides careers for creative men in scientific and technical fields.

What General Electric people are saying . . .

C. H. LANG

Mr. Lang is Vice President in charge of Public Relations

". . . In large measure, our Puritan ancestors insisted that liberty was dependent upon the general education of the country's citizenry. Our industrial system, as we know it today, is dependent on the education of that same citizenry. If we lose sight of this fact, we also lose sight of the fact that under a totalitarian system every industrial plan, or scientific research plan, becomes a State-plan. Every manager in industry becomes, in reality, a civil servant. Political democracy and industrial democracy depend on each other, and both depend on education.

There are two great educational objectives in America. First, we must endeavor to combine the British concern for training the "natural aristocracy of talents" with: Second, the American tradition and insistence of general education for *all* future citizens. If we can do this, then our industrial society will prosper, and at the same time the necessary degree of instruction will be provided for all people so that in their hands "our liberties will remain secure."

at a Meeting of Charles Coffin and Gerard Swope Fellows, Schenectady, New York

L. P. GROBEL

Mr. Grobel is Supervisor, Generator Mechanical Engineering, Large Steam Turbine and Generator Department, Turbine Division

". . . Precision balanced rotors have given smoother running turbine-generators with a great reduction in the amount of balancing needed at installation. High-speed 3600-rpm units placed in operation in 1949 had an average bearing vibration of 0.42 mils. By contrast, in 1950, when many of the present precision-balancing practices were adopted, this figure dropped to 0.30 mils. And during the years 1950 and 1952, it has remained nearly constant at 0.26 and 0.27 mils, respectively.

The 1949 turbine-generators were good machines. Current reduction of 35 per cent in vibration simply means that today's precision-balanced machines have still less vibration. Over the same four-year period—1949 to 1952—there has been a decided reduction in the amount of balancing at destination. An average of 7.4 balancing trials were taken on the 1949 machines; this figure decreased to 5.2 a year later, became 2.4 in 1951 and 2.0 in 1952. During 1952, 58 per cent of all turbine-generators shipped needed no further balancing at destination.

G.E. Review

C. D. GREENTREE

Mr. Greentree is Manager, Engineering and Consulting Application Services Department, General Engineering Laboratory

". . . A most important early activity of the project engineer is to decide what is known and what is unknown. In almost any large project, only 5 to 10 per cent of the total effort is involved with new knowledge. Some 90 to 95 per cent of the total effort is concerned with the manipulation of existing materials, mechanisms and circuits into different combinations by means of known laws, formulas and design data. Furthermore the bulk of each manipulated combination is straightforward development and design engineering. I equals E over R, Force equals Mass times acceleration. But some portions of some of the combinations do contain the new idea, the tricky circuit, the new knowledge or data. The problem of the project engineer, with the help of his task engineers, is to spot where these are and furthermore to spot them with a high degree of technical accuracy. Then he must start work on these new idea areas first before spending time and money on the straightforward part which will be wasted unless the key portions work.

at The American Society of Mechanical Engineers Philadelphia, Pa.

HERBERT SCHREIBER, JR.

Mr. Schreiber is an Industrial Product Engineer, General Electric X-Ray Department

". . . The first and obvious requisite for cathode-ray sterilization is the penetration or accelerating voltage required for the product and container size. Here two factors control the ultimate decision; namely, 1) Is complete penetration required or will surface sterilization be sufficient? 2) Can the physical dimensions of the product to be irradiated be changed for a more practical solution? The question of complete sterilization as opposed to surface sterilization can only be answered by the ultimate aim of the user. In many cases it is only desired to extend the shelf life of the product and a surface sterilization will often accomplish this purpose. In addition the severity of any organoleptic changes is usually increased with higher penetration thereby making higher voltage a detriment rather than an aid. Of course, if complete sterility is required then the cathode-ray generator must necessarily have sufficient voltage to penetrate the entire sample. The only alternative here is a change in the thickness or mode of packaging of the product thereby decreasing the ultimate penetration required. The factors controlling this decision are the additional costs of higher voltage equipment as opposed to the costs of changes in product dimensions or packaging technics.

Cathode Ray Sterilization Symposium, Milwaukee, Wis.