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SCIENCE NEWS LETTER

®

THE WEEKLY SUMMARY OF CURRENT SCIENCE

Antibody Molecules

See page 147

A SCIENCE SERVICE PUBLICATION

Kodak reports on:

the question of whether or not instrumentation people really need ultra-fast film... the profit viewpoint on nondestructive testing... a gimmick the committee needn't resist... a new gravimetric reagent for potassium

1600—no waiting

How come after all those promises we have made to innumerable instrumentation people over the years that some day there would be 16mm, 35mm, and 70mm film as fast as *Kodak Royal-X Pan Recording Film* now is—Index 1600—how come we now find ourselves in the ridiculous position of being able to make it at a greater rate than they're buying it? How come?

Don't they know that a note or phone call to Eastman Kodak Company, Photo Recording Methods Division, Rochester 4, N. Y., will set up the channel to supply it through a local dealer?

Not too good, not too bad

One lady and 106 gentlemen, all materialists by profession whatever their private spiritual views, have labored long and brought forth two volumes of material philosophy that weigh in about average for newborn babes.

Title: *Nondestructive Testing Handbook*. Editor: Robert C. McMaster, The Ohio State University. Publisher: The Ronald Press Company, New York. Price: $24. No charge for the applause rendered the work here. What's good for nondestructive testing is good for Kodak.

Nondestructive testing seems to be analytical physics, counterpart to analytical chemistry. The public pictures the "purpose" of chemistry as mostly analyzing things, just as the physicist fashions atom bombs out of cosmic rays. This book shows that physics, too, can have a "purpose" in better, safer, more profitable living. However, the book is not written for the public. Deeply concerned with profit it is indeed.

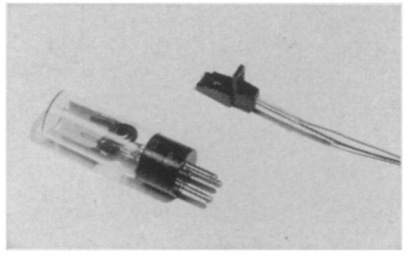
Too much control of product characteristics squanders resources. Too little squanders reputation. Profit perfumes the happy valley in the middle.

The first section develops these thoughts in a manner to interest and please the management, whether the product is bathtubs or Venus probes. The remaining 53 sections pursue the theme down every crevice of technical detail, not only in our own specialties of film radiography and optical gaging but in such others as liquid penetrants, magnetic particle tests, electrified particle tests, eddy currents, ultrasonics, brittle coatings, photoelastic coatings, strain gaging, radiation sources, fluoroscopy and x-ray image devices, x-ray diffraction and fluorescence, and even vision itself, properly aided.

Silicon over the sound track

Quietly, Kodak Pageant Sound Projectors have stolen a march, scored a scoop in their field. You have heard of the "solar battery" which generates useful electrical power when light falls on silicon? The power source for communication from satellites and interplanetary space? Here it is, in over-the-counter civilian hardware, doing a product-improvement job that is apparent even to those who can resist the temptation of a gimmick. If you are on a committee to select a sound movie projector for audio-visual instruction, the facts to lay before your fellow committeemen are these:

Early attempts at sound movies through a variable light pattern on the film employed selenium cells. They foundered. An EMF-generating selenium cell (not to be confused with a device that changes resistance in response to light) has an inherently slow time constant for adequate frequency response. The movies had to wait for the evacuated phototube to give them a good voice.



At left is a phototube such as employed today in most sound projectors. Being a little bulky, light that has passed through the sound track of the film must be somehow transmitted to it. At right is the new silicon "solar" cell. It holds 0.014 square inch of silicon directly above the sound track. It therefore requires a less critical optical arrangement. More important, it generates a varying EMF instead of valving from a constant EMF that must be supplied to it. This considerably simplifies the circuitry. There is less to get out of whack. Also, a solid-state generator happens to generate less random fluctuation than a photocathode system that must be kept under electrical tension. Less "white noise" shows up at the speaker. The old trouble from inadequate frequency response with selenium is gone.

If the old boys had known enough solid-state physics to place their bets on silicon instead of selenium, people with vivid memories of the silent movie queens would be even older, on the average, than they feel as it is.

We are talking about Kodak Pageant Sound Projectors, Models 8K5, AV-085, *and* AV-255-S. *Your local audio-visual dealer will take it from here.*

Made in U. S. A. under hygienic conditions

The Japanese have developed a new gravimetric reagent for potassium which we now offer as *N-(2,4-Dinitro-1-naphthyl)benzenesulfonamide* (Eastman 7828). And regardless of how scarce are good gravimetric reagents for potassium that can be used even in the presence of one-third as much sodium and magnesium as potassium, if that numeral in front of the "naphthyl" in the name had been 2 instead of 1, we would not offer it as Eastman 7828 or Eastman anything else. Our medical director feels so strongly about the carcinogenic properties of β-naphthylamine that it would seem wiser to let the science of chemistry go shift for itself than to observe the safety precautions he demands before he will let it into the plant. Pure α-naphthylamine is OK, as far as we know.

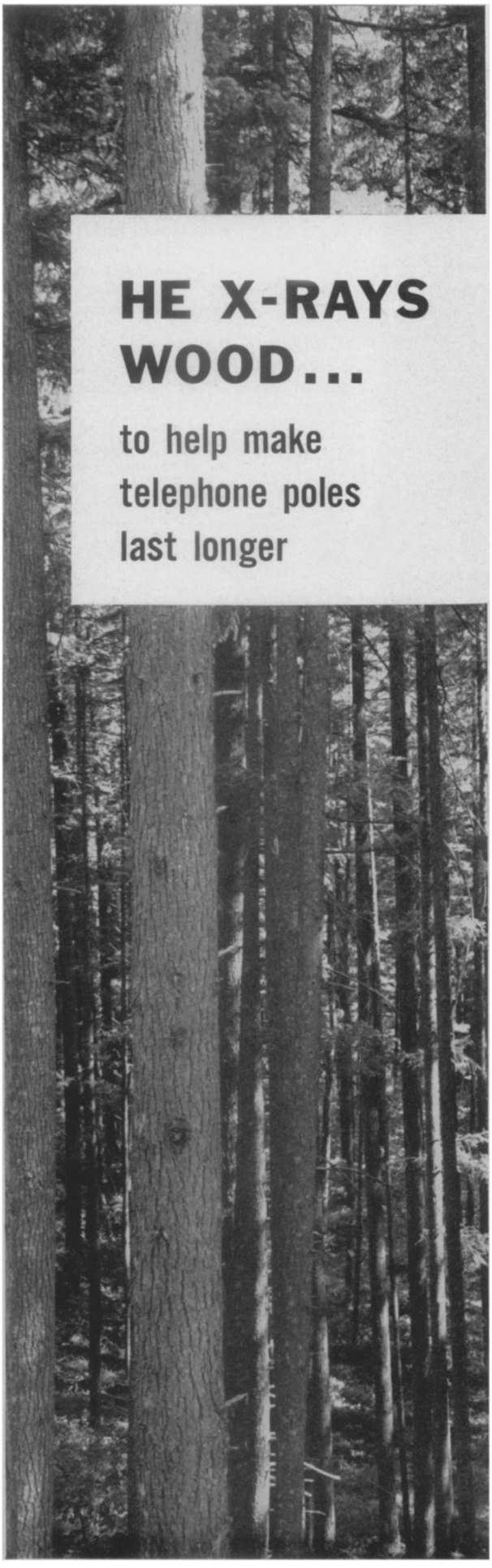
You dissolve the new reagent in lithium chloride solution and use it for the precipitation and conductometric titration of potassium. The precipitated potassium salt of the reagent is washed with the saturated solution of potassium salt and dried at 100°C for an hour. As for the fine details of the procedure, you can either buy 10 grams of Eastman 7828 from us for $4.45 and work them out for yourself, or you can first read up on them in *Nippon Kagaku Zasshi, 79*, 598 (1958).

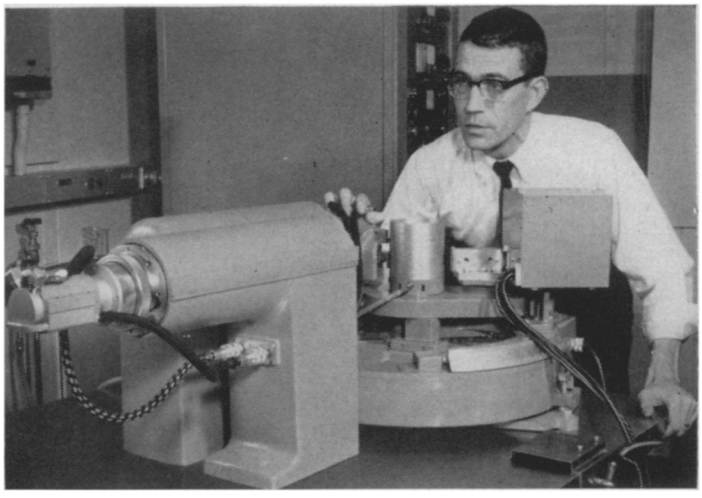
We expect no flood of $4.45 checks for potassium reagent. We merely make the point that some 3800 Eastman Organic Chemicals with a multitude of uses are stocked by Distillation Products Industries, *Rochester 3, N. Y. (Division of Eastman Kodak Company).*

Price is list and subject to change without notice.

Kodak
TRADE MARK

This is another advertisement where Eastman Kodak Company probes at random for mutual interests and occasionally a little revenue from those whose work has something to do with science





Chemist Jack Wright developed the use of this X-ray fluorescence machine for testing the concentration of preservatives in wood. Here he bombards a boring from a test telephone pole with X-rays.

This Bell Labs chemist is using a fast, new technique for measuring the concentration of fungus-killing preservative in telephone poles.

A boring from a test pole is bombarded with X-rays. The preservative—pentachlorophenol—converts some of the incoming X-rays to new ones of different and characteristic wave length. These new rays are isolated and sent into a radiation counter which registers their intensity. The intensity in turn reveals the concentration of preservative.

Bell Laboratories chemists must test thousands of wood specimens annually in their research to make telephone poles last longer. Seeking a faster test, they explored the possibility of X-ray fluorescence—a technique developed originally for metallurgy. For the first time, this technique was applied to wood. Result: A wood specimen check in just two minutes—at least 15 times faster than before possible with the conventional microchemical analysis.

Bell Labs scientists must remain alert to *all* ways of improving telephone service. They must create radically new technology or improve what already exists. Here, they devised a way to speed research in one of telephony's oldest and most important arts—that of wood preservation.

Nature still grows the best telephone poles. There are over 21 million wooden poles in the Bell System. They require no painting, scraping or cleaning; can be nailed, drilled, cut, sawed and climbed like no other material. Scientific wood preservation cuts telephone costs, conserves valuable timber acres.

BELL TELEPHONE LABORATORIES

World Center of Communications Research and Development