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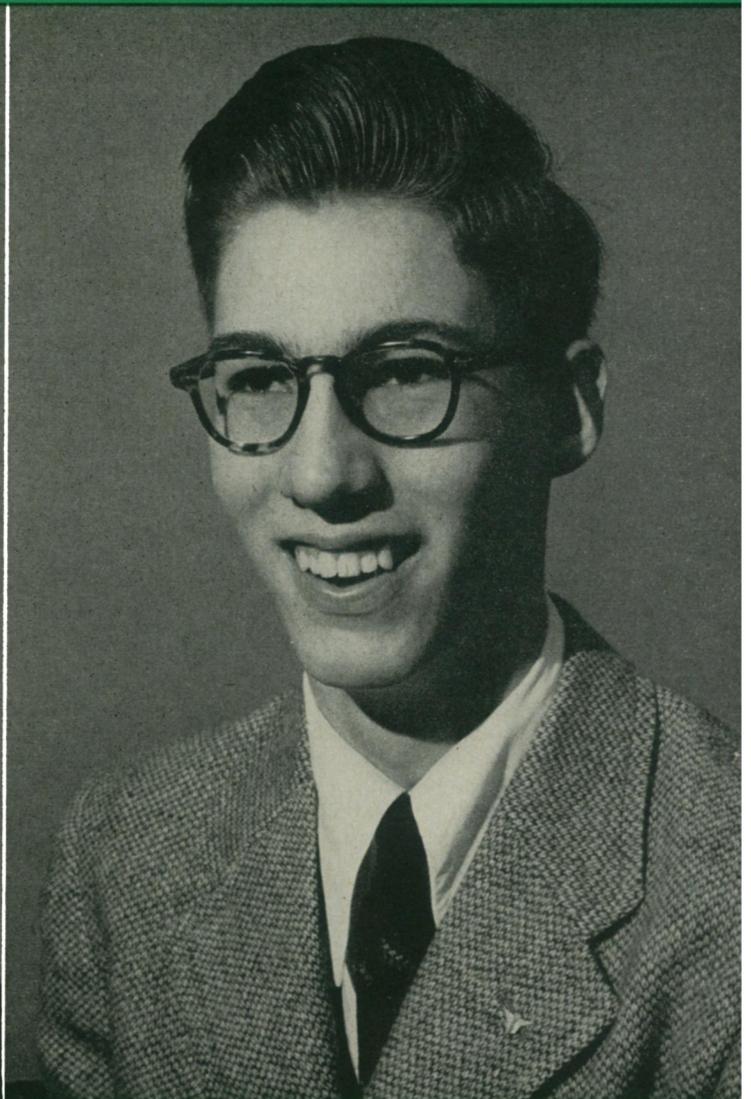
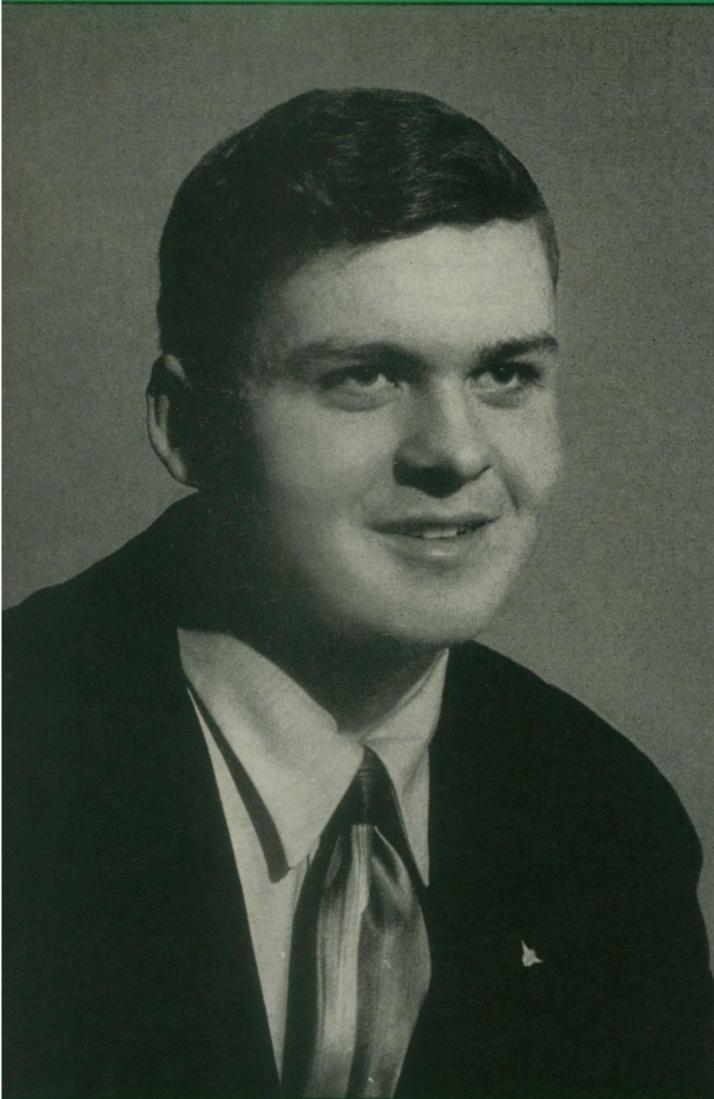
VOL. 65, NO. 11 PAGES 161-176

# SCIENCE NEWS LETTER



®

THE WEEKLY SUMMARY OF CURRENT SCIENCE



**Tops in Talent**  
See Page 166

A SCIENCE SERVICE PUBLICATION

## Kodak reports to laboratories on:

identifying multicarbide phases by color photomicrography...reproducing pictures on a photocopying machine...some things you can do with oxidized cellulose

### Metallography in color



Meet Mr. Foster. Charles S. Foster is our ace photomicrographer. Charlie's function with us is to dole out individualized advice on how most expeditiously to get where you want to go with a photomicrographic or metallographic undertaking.

A year or two ago the chief metallographer in the Powder Metals Research Department at Firth Sterling Inc. in Pittsburgh thought he would ask Mr. Foster for a little help on the problem of identifying constituents and phases in multicarbide mixtures through photomicrography in color. *Steel* carried a short illustrated article on the results. It may turn out to be something of a landmark in metallography.

The technique is heat-tinting at 900 F for 5 minutes after careful polishing and electrolytic etching in 5% sodium carbonate. The various phases assume characteristic colors: grey for tungsten carbide grains, yellow for tantalum carbide, tan for the solution areas of tungsten carbide plus titanium carbide, deep purple for the eta phase formed by carbon deficiency, blue for the cobalt matrix, and so on. Though Mr. Foster is no metallurgist, he did prove helpful on the important matters of illumination and filtering to record these color nuances reproducibly on *Kodak Ektachrome Film, Daylight Type*.

Bulking large in making the project practical was the fact that this film can be processed on the spot to judge the results.

Perhaps life is not really that simple, but we like to think that in superior creep properties, better service in jet engine blades, etc., Firth

Sterling products are now or soon will be reflecting the knowledge gained through heat-tinting.

*Mr. Foster will be most happy to send you a reprint of the Steel article if you want to see color reproductions of Firth Sterling's heat-tinted carbides at 1500 diameters. Also, if you have problems of your own in photography through the microscope, don't hesitate to write him about them. His address: Eastman Kodak Company, Industrial Photographic Division, Rochester 4, N. Y.*

### Predotted

The trouble with drawing reproduction materials is that they do not give intermediate densities. They just cannot handle the gradations of light and darkness that make up what everybody thinks of as a "photograph."

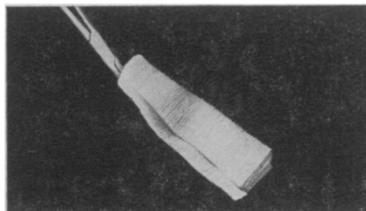
Let us, then, solve this problem just as printers do with ink. Let us break up a picture into tiny dots, all of the same density but of varying size. But, instead of using a great big process camera with trick stops in the lens and ruled glass screen placed just so many thousandths of an inch in front of the film, let's just use an ordinary camera to copy your picture on some all-or-none film that has a dot structure pre-exposed into it at the factory. Make a negative that way; combine it with any drawn, printed, or written material you want; and make your photocopies of the whole thing as a unit.

*Very well, you may ask, but where can you get such factory-predotted film? Answer: from your favorite Kodak Graphic Arts Dealer. If you don't believe it, call him up right now and ask him to rush you out a box of his brand-new Kodalith Autoscreen Ortho Film. If his name escapes you, write Eastman Kodak Company, Graphic Arts Division, Rochester 4, N. Y.*

### Slightly degenerated cotton

Instead of oxidizing cellulose as man has done from time immemorial to take the chill out of his bones, cook his dinner, and dispel his gloom, we have a trick of oxidizing it only to a 10% to 22% carboxyl level. This we do by treatment with nitrogen dioxide. The product,

called, surprisingly enough, "oxidized cellulose," looks like this:



It has the appearance and even some of the strength of ordinary cotton, along with some rather extraordinary properties. The most recent of these to come to light is its use in the diagnosis of congenital hyperplasia (enlargement) of the adrenal gland in children. This comes about from the remarkable affinity of oxidized cellulose for ACTH, which it absorbs quantitatively. ACTH is not detectable in the blood of normal children but does appear where this affliction exists. After cortisone treatment, no ACTH is detectable.

This is not the debut of the stuff as a tool in the healing art. Its first flush of prominence a few years ago was based on the surgically useful fact that it has the physical attributes of cotton gauze, yet is wholly absorbed in the blood stream after fulfilling its mechanical function.

Aside from its medical use, oxidized cellulose is an ion exchange medium, plucking cations out of aqueous solution to form metallic salts of cellulose. Plain cotton as far as the eye can see and the finger can feel, it bewitchedly vanishes into solution when popped into a 2% sodium hydroxide solution. When kept dry and cold, however, it survives indefinitely without change.

*Trimming the cellulose chains with 10 to 22 percent of carboxyls drives the price of cotton up to \$62.25 per pound, FOB Kingsport, Tenn. If you can develop some decent volume of demand for it, we'll probably drop the price. For the cold facts, write Eastman Chemical Products, Inc., Chemical Division, Kingsport, Tenn. (Subsidiary of Eastman Kodak Company.)*

Price quoted is subject to change without notice.

**This is one of a series of reports on the many products and services with which the Eastman Kodak Company and its divisions are . . . serving laboratories everywhere**

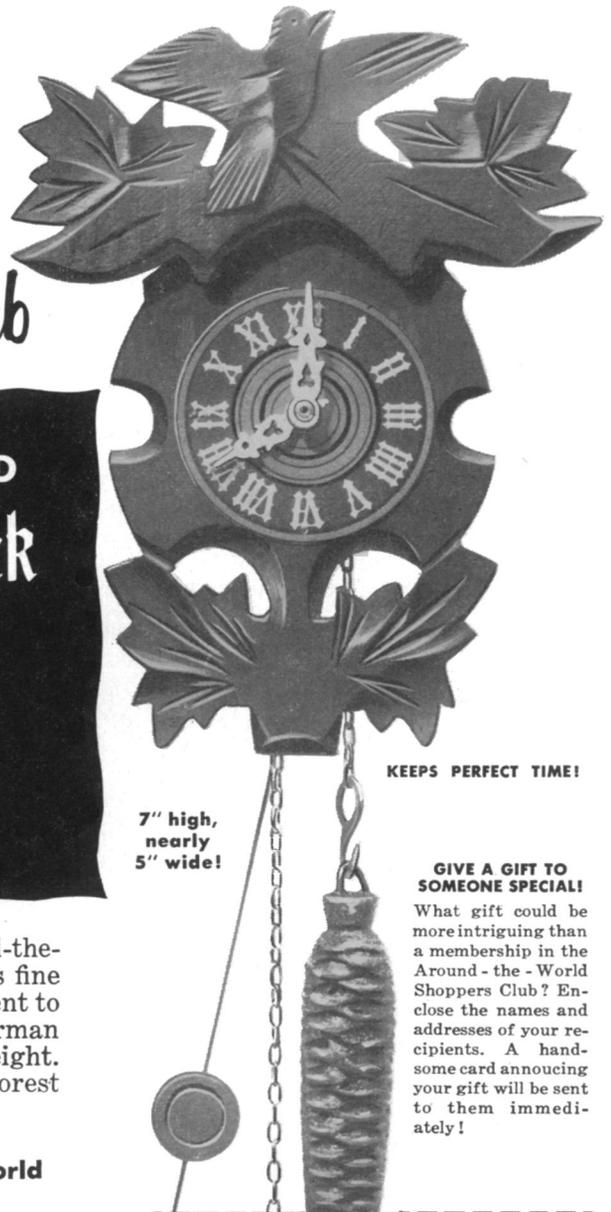
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