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SCIENCE NEWS LETTER

®

THE WEEKLY SUMMARY OF CURRENT SCIENCE

Guarding Tarantula's Young

See Page 282

A SCIENCE SERVICE PUBLICATION

Kodak reports to laboratories on:

film you can switch from black to white and back again (and again) . . . a movie camera for high altitudes and latitudes . . . bloody business at Fall River

We pre-expose, you de-expose and re-expose

Great reputations for cleverness around the laboratory have been built by that happy breed who carry around scraps of information like the following to bring forth at moments of decision:

There is a film (called *Kodak Autopositive Film* and sold by Kodak Industrial and Graphic Arts dealers) which comes from the factory with a stupendous latent blackness that can be wiped clean with yellow light and be put back with white light. The density it gives, if developed and fixed without exposure, is 6, which means that light passing through is attenuated by a factor of 1,000,000. If before processing, however, 3,000 foot-candles of illumination fall for two minutes on the film through a piece of *Kodagraph Sheeting, Yellow*, the same development and fixation leave it almost as clear as window glass. A briefer exposure without the yellow sheeting restores the latent density. One can swing back and forth thus dozens of times. The principle is simply that radiation of wavelength shorter than 420 mμ builds latent density and radiation from 420 mμ to 750 mμ cuts it.

K-100 in the cold

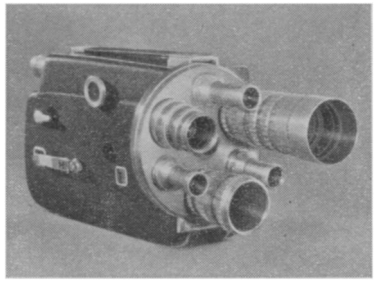
"Walt Disney Productions' Antarctic film will soon be shown on the Disneyland and Mickey Mouse Club TV Shows and will be released as a full-length movie which can be seen at your local movie theatre."

Printing the above sentence seems a fair price to pay for the privilege of saying that the *Cine-Kodak K-100 Cameras* of the Disney crews in Antarctica are functioning properly at −45F without the electric blankets which far costlier 16mm movie cameras require.

Actually, nowadays, smart outfits like the Disney organization find out from an environmental chamber test in advance just what they can or cannot expect from equipment being considered for strenuous duty. Then you hear from them only if the equipment failed to perform as in the test, in which case you hear plenty.

We could attribute the low-temperature performance of this camera to the extra care lavished by aging craftsmen on each *K-100* that leaves their devoted hands. A more credible explanation is afforded by the nylon gears, nylon pulldown cam, and the ball-bearing pulldown mechanism. The pre-stressed spring motor is also of some pertinence to the matter.

The *K-100* is now made in a turret model like this:



Those smaller tubes opposite each of the three *Kodak Cine-Ektar Lenses* contain their respective viewfinder telescope objectives. No Disney tie-in, unfortunately, because this model came out months after the Mickey Mouse emissaries shoved off.

Performance of the* K-100 *in the cold should be just as exploitable at high altitudes as at high latitudes. Data recording, for example? A Kodak dealer is nearby

Truly blood

John D. MacPhail likes ***p,p'-Benzylidenebis(N, N-dimethylaniline)*** (Eastman 3620) better than the classic benzidine for the identification of bloodstains because he finds it more specific. Doing business as Forensic Science Service (144 Third Street, Fall River, Mass.), Mr. MacPhail knows how to keep legal evidence intact. He moistens a filter paper with 0.1N saline and merely presses it against an edge of an old stain suspected as blood. Then he touches the paper (not the stain) with one glass rod dipped in a 1:240 solution of Eastman 3620 in 40% acetic acid. A second time he touches it with another glass rod dipped in an 11:30 solution of sodium perborate in 40% acetic acid. If the paper turns blue-green after the second touch, Mr. MacPhail knows the spot is truly blood. Such colored oxidants as potassium permanganate turn the reagent blue-green *before* contact with sodium perborate. Perhaps something in the bloodstain releases from the sodium perborate the oxygen to oxidize our compound to its far better known form, malachite green, a common dyestuff named for its color resemblance to the brilliant copper mineral malachite.

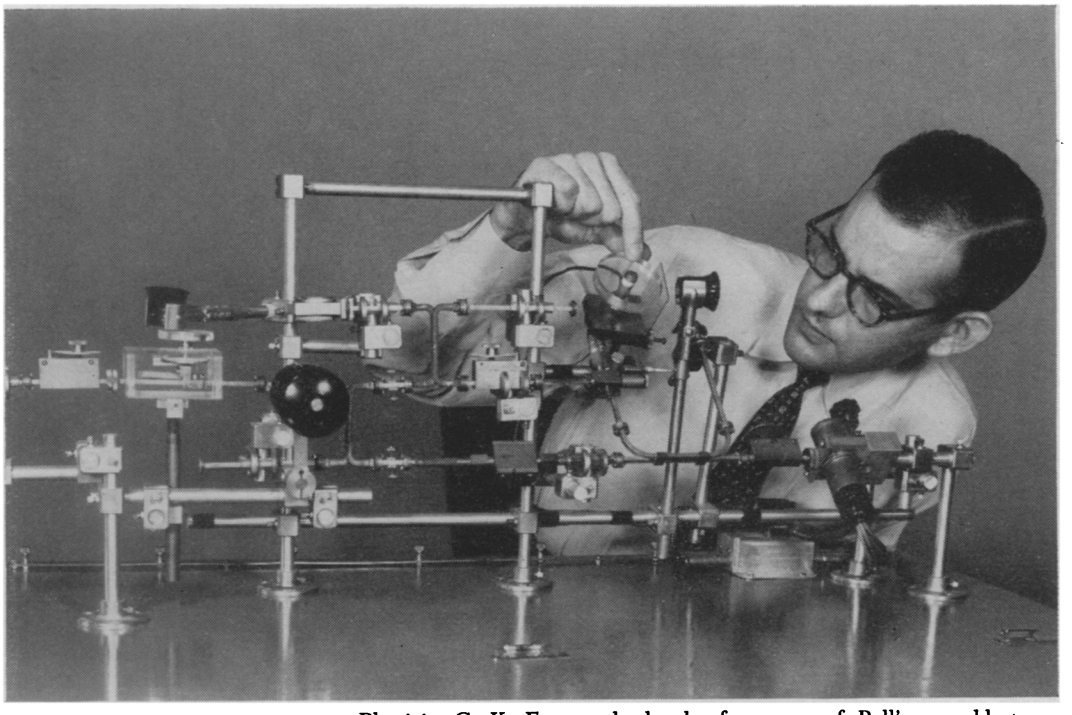
The first supply of our *leuco*-malachite green that Mr. MacPhail laid in worked fine down to the last grain; presto, twenty years of human violence had gone by and it was time to reorder. (The price is $2.20 for 5 g.) The second lot we supplied worried Mr. MacPhail. It was green enough in the stock solution to invite sarcastic questions from lawyers. Our man who signed the papers to manufacture the first batch is still on the job, however. He suggested that Mr. MacPhail add a little sodium bisulfite to redress the redox balance *leuco*wards. Now Mr. MacPhail reports he is all set again.

Yes, and if you want the balance the other way we can supply Malachite Green Oxalate (*Eastman 1264*). *Among 3500-odd organics, the chance of finding what you want is encouraging. All from Distillation Products Industries, Rochester 3, N. Y. (Division 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*

Kodak
TRADEMARK



Physicist G. K. Farney checks the frequency of Bell's new klystron, which is located at far right. Tube's output is about 20 milliwatts.

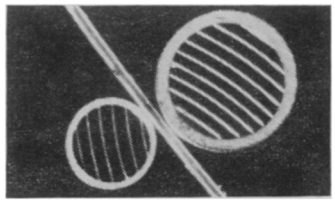
Sixty billion vibrations per second

A great new giant of communications—a waveguide system for carrying hundreds of thousands of voices at once, as well as television programs—is being investigated at Bell Telephone Laboratories.

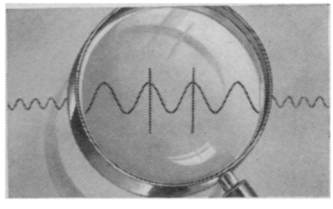
Such a revolutionary system calls for frequencies much higher than any now used in communications. These are provided by a new reflex klystron tube that oscillates at 60,000 megacycles, and produces waves only 5 mm. long.

The resonant cavity that determines the frequency is smaller than a pinhead. The grid through which the energizing electron beam is projected is only seven times as wide as a human hair, and the grid "wires" are of tungsten ribbon 3/10,000 inch in width.

G. K. Farney, University of Kentucky Ph.D. in nuclear physics, is one of the men who successfully executed the development of the klystron. Dr. Farney is a member of a team of Bell scientists whose goal is to harness the immense bandwidth available with millimeter waves . . . and to keep your telephone system the world's best.



Grids in new tube, enlarged 30 times, with human hair for comparison. Electronic beam passes through smaller, then larger, grid.



Wavelengths produced by the klystron tube are only .2 inch long—1/15 that of the transcontinental radio relay system.

BELL TELEPHONE LABORATORIES

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