

15¢

\$5.50 A YEAR

November 4, 1961

VOL. 80, NO. 19 PAGES 297-312

SCIENCE NEWS LETTER

®

THE WEEKLY SUMMARY OF CURRENT SCIENCE



Precision Reflector

See Page 303

A SCIENCE SERVICE PUBLICATION

Kodak reports on:

weakness in bees' knees . . . new personal monitoring film, very sensitive . . . Ektaline, sweet Ektaline

Easy honey

Bees flee from the vapor of *Propionic Anhydride* (Eastman P1291) to sheltered parts of the hive. There they cower timorously and submit to robbery. Neither bee nor honey nor thief is in any wise damaged, finds the USDA Agricultural Research Service.

Distillation Products Industries, Rochester 3, N. Y. (Division of Eastman Kodak Company) supplies a kilogram for \$2.55; also a copy of "List No. 42" to facilitate quick action upon receipt of intelligence concerning any other of some 3900 Eastman Organic Chemicals.



Down with the administrative dose

Two little packets of film are extracted from a factory-fresh carton. One is locked away in a clean safe. The other is worn by a worker in the vicinity of ionizing radiation. After a month the two are processed together. Both turn out equally blank. A good densitometer discloses no difference in their optical densities. What can be inferred about the quantity of ionizing radiation the worker has absorbed?

Anybody who draws the obvious conclusion has failed fully to engage his brain cells in thought. The answer to the question depends on the sensitivity of the film. Once that is known, one can say how much of a dose the worker has probably had less than.

Social ethics in advanced countries require the assumption that the worker has actually *had* that much radiation. This is known as the "administrative" dose. Records are kept as in a bank. When administrative and physical doses add up to a critical figure, the worker is shifted to a different job. He may habitually spend every Saturday night cruising the center line of a busy highway at 80 m.p.h. Nevertheless, the critical figure assumes that he wants to live forever and become the progenitor of an infinite line of biologically perfect descendants. Pressure to squeeze it down will never let up, we hope.

Without relaxation of solicitude, we have taken steps to cut down the waste of his job experience. By reducing the administrative dose (which is the only kind of radiation dose he really ought ever to get on the job), we can keep him in his slot longer. It is within our power. All we have to do is make more sensitive film. This we have now done.

It is called *Kodak Personal Monitoring Film, Type 3*.

The packet it comes in also includes a piece of low-sensitivity film. Its sensitivity is so low that it can measure 1800 roentgens, a horrible thought. The lower limit of dose measurement for the high-sensitivity film in the packet runs somewhere below 10 milliroentgens. The vague phrasing of that statement doesn't mean that the exact value is unimportant. The main point of this discussion is the importance of the figure. It's just that its precise determination depends on such a complexity of factors that we won't try to explain it here.

If interested, prepare yourself by studying pp. 10-53 to 10-75 of Radiation Hygiene Handbook (McGraw-Hill Book Company, Inc., 1959). Then bring your knowledge up to date by requesting a data sheet on Kodak Personal Monitoring Film, Type 3 from Eastman Kodak Company, Special Sensitized Products Division, Rochester 4, N. Y. Be impressed with the fact that the boys who built this film have just finished measuring the dose to which a recent Discoverer satellite exposed itself in its travels. It's no administrative dose.

THIS paper

"My husband sells oscillograph paper. Competition is fierce. He comes home beat every night."

Few overhearing her would know what the poor soul is talking about, yet she speaks the truth. With research and development activity now constituting such a respectable fraction of the Gross National Product, oscillographs probably outnumber pickle barrels in this country at the present time. Oscillographers are correspondingly numerous. Methods that one sect of oscil-

lographers prefers above all else another sect can't see for dirt. One sect prefers automatic oscillogram processors. Paper manufacturers like us find their favor worth competing for. Therefore we announce a new advance in media for their use.

An advance in the old art of paper-making came first. Then new emulsions were devised to work properly with the new base. Then proper processing chemicals were devised for the new emulsions. Then the combination was extensively proved out under practical conditions of use by parties interested only in end results and hardly at all in the how and why. They found that

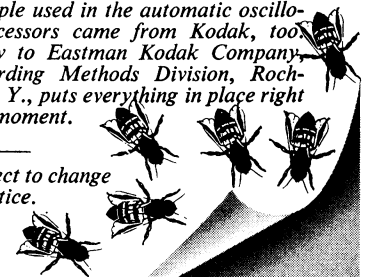
1. THIS paper dries thoroughly at high processor speeds *without creases*. **180 in./min. is not too fast.**
2. THIS paper gives trace lines that stand out as black as the ace of spades. **Background is nice and clean.**
3. THIS paper isn't fussy about how long it sits around before use. **O.K. to keep plenty on hand.**
4. THIS paper is rugged. **No cracking, no crumbling.**
5. THIS paper holds its dimensions. **Justifies careful measurement.**

"THIS" won't do for a trademark. (The code name for the field trials was "Kind 1534.") Let's call it Kodak Ektaline Paper. It comes in the two usual speeds for oscillographs, Kodak Ektaline 16 Paper and Kodak Ektaline 18 Paper. Kodak Ektaline Chemicals come as liquids. The stabilization principle used in the automatic oscillogram processors came from Kodak, too. An inquiry to Eastman Kodak Company, Photorecording Methods Division, Rochester 4, N. Y., puts everything in place right up to the moment.

Price subject to change without notice.

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

Kodak
TRADE MARK





Look into these NEW ELGEET STEREO MICROSCOPES

The newest features...
the most advanced performance...
the newest design from Elgeet

Elgeet brings you a significant advance with modular stereo microscopes, including all of the most desirable features for 3-dimensional viewing ease. An outstanding series of microscopes for inspection, identification, quality control, research, metallurgy, dissection, pathology, botany, bacteriology, biology, petrography, textiles, gem stones.

- Binocular body inclined 45° for comfort and ease while viewing
- Rotatable head
- Erect, unreversed image
- Optics coated for low reflection
- Long working distance objectives
- Wide range of magnification available
- Diopter adjustment to compensate for differences in visual faculties
- Maximum wide field of vision
- Rugged, well balanced body
- Excellent depth of focus
- Adjustment for varying interpupillary distance
- Priced from \$179

For further information write for Booklet SM-761.
Elgeet OPTICAL COMPANY, INC.
838 Smith Street, Rochester 6, New York