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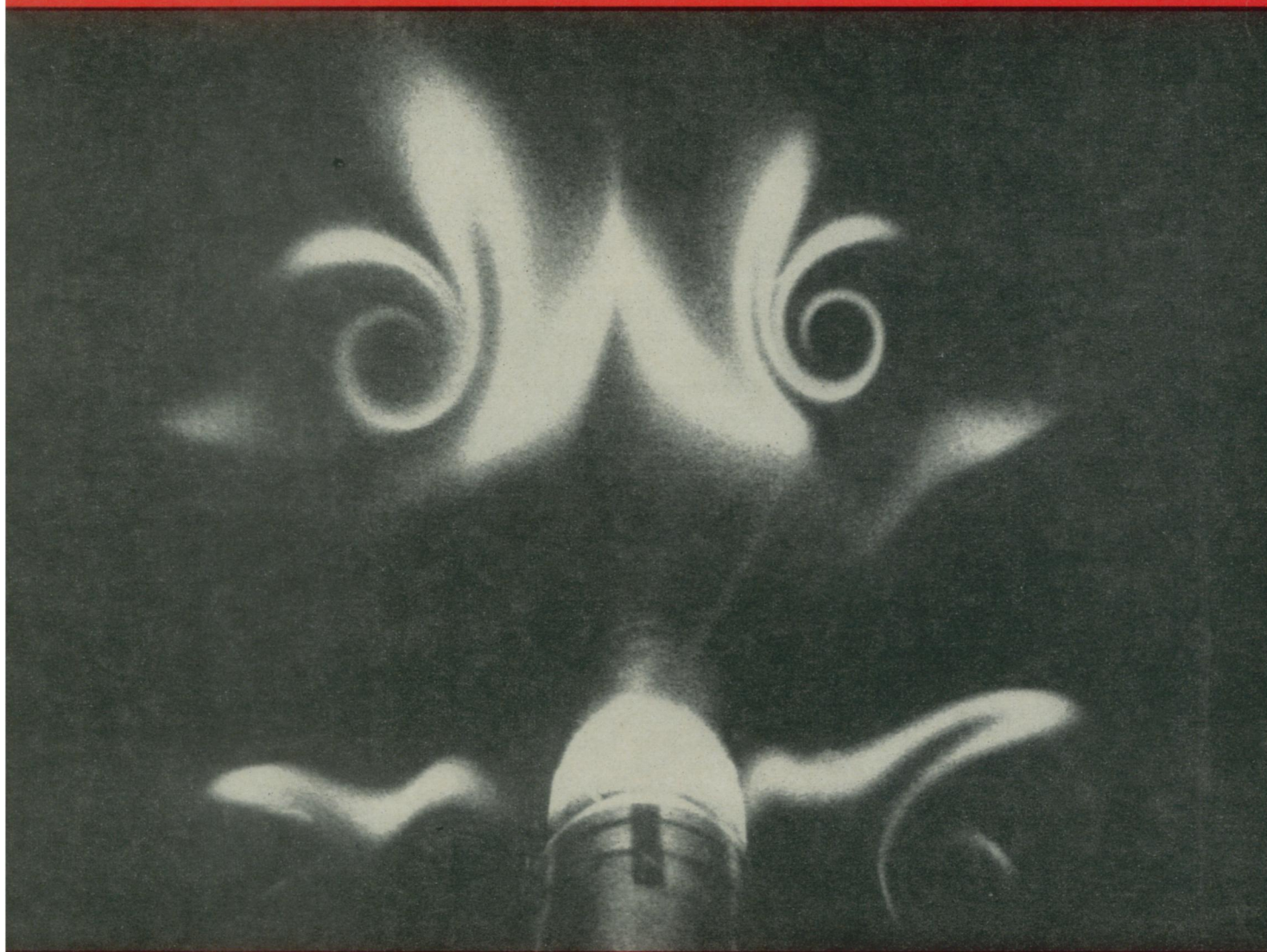
\$5.50 A YEAR

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SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE



Wind Tunnel Face

See Page 168

A SCIENCE SERVICE PUBLICATION

Kodak reports to laboratories on:

replacing protein in ruminant diets . . . an old technique for color photomicrography of colorless objects . . . a movie projector that brightens up at sound speed

Thirty wether lambs

They took thirty wether lambs of fine wool breeding at Ames, Iowa, and fed them various non-protein nitrogen compounds. They were exploring the biochemistry behind the current drive for replacing protein with urea, which is cheaper, in ruminant diets. It has been shown that all ten essential amino acids are synthesized in the rumen when urea supplies all the nitrogen. But no sheepman (or cattleman) dares supply all his nitrogen that way. What makes it dangerous? asked the men of Iowa State.

Simply that ammonia is released into the blood, they found. No harm is done—unless the urea feeding is overdone to a certain critical and fatal point. Likewise ammonium formate, ammonium acetate, and ammonium propionate can release lethal concentrations of NH_3 in the rumen. Not so the amides, for the rumen has little amidase; on propionamide, formamide, or biuret sheep may safely graze, as far as ammonia is concerned. The Iowans therefore looked further at these.

Formamide turned out to have some toxicity problems of its own, but propionamide was fine, gave the same weight gain as urea, and in one trial was equivalent to conventional protein at the replacement level of 30 percent. Propionamide appears to release ammonia at a rate just sufficient for adequate protein synthesis by rumen microorganisms, once they and the lambs get used to it.

One thing is sure. If *Propionamide* ever achieves practical importance for stock feeding it will have to come down in price many times below what it had to fetch as the highly purified Eastman 675 which we shipped to Ames for these experiments. Somebody other than we will doubtless be manufacturing it. If so, it won't be the first time that a compound becomes a big item of

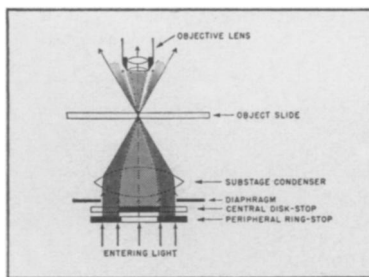
commerce from a lead it first gave as an Eastman Organic Chemical.

After all, there are a lot of them . . . some 3500 organic compounds sitting on our stock shelves and set down in our List No. 39. If you don't have the list, write to Distillation Products Industries, Eastman Organic Chemicals Department, Rochester 3, N. Y. (Division of Eastman Kodak Company).

Quekett, 1897

Dental chap came in with a live hamster for help in photographing its molars, and when that was done, he asked what's new in photomicrography. We told him about Julius Rheinberg's papers in the *Journal of the Quekett Microscopical Club* for April and November, 1897. Some beautiful Ektachrome photomicrographs of tooth structure have come out of this.

Wratten-Rheinberg is an adaptation of dark-field microscope illumination to introduce color differentiation in colorless objects by means of light rather than stains and it works like this:



At all of \$3.75 each, a Kodak dealer can order in *Kodak Wratten Rheinberg Differential Color Filters* even though he hasn't heard of them before. Then one sees things like a red paramecium swimming in a green pool, or vice versa as fancy and good seeing may dictate.

Of course, it doesn't work with high-powered objectives that take all the available aperture of the condenser to fill them, in which case you had better look into phase microscopy after all.

There is one more string to the

Wratten-Rheinberg bow, however—the luxury model *Sector Stop* for \$9.50 with alternate 90° sectors of red and blue. Lined up with a transversely striated object like a textile, it can make warp red and woof blue.

Wratten-Rheinberg questions should go to Eastman Kodak Company, Medical Division, Rochester 4, N. Y.

Invention

Unless you are getting a projector for personal movies only, it's a pity not to get a sound projector so that you can take advantage of the wealth of sound-and-color films available today from all sorts of sources on all sorts of subjects. It used to be that projectors capable of showing both silent and sound 16mm movies would waste 40% of their light at the 24-frames-per-second sound speed. At the standard 16-frames-per-second speed of 16mm silent movies, three interruptions of the light per cycle are required in order to exceed the critical frequency of 40 at which, under the average brightness and visual field in projection situations, the perception of flicker vanishes. But at 24 frames/sec, two interruptions of the shorter cycle achieve the same rate. The third blade of the shutter then does nothing but waste light that the projector might well use in fighting the high natural light levels so generously provided by modern architectural design.

Now we have come along with a three-bladed shutter which, thanks to centrifugal force, presents two blades when and only when whirling at sound speed. "Greatest invention since the stem-winding watch," one of our younger and more enthusiastic ad men proclaims it.

Called the Super-40 Shutter, it is one of the features that make the three new models of Kodascope Pageant Sound Projectors the best movie projection buys which your Kodak Audio-Visual Dealer can show you. Eastman Kodak Company, Cine-Kodak Division, Rochester 4, N. Y., can put you in touch with him if you like.

Prices quoted are 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
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