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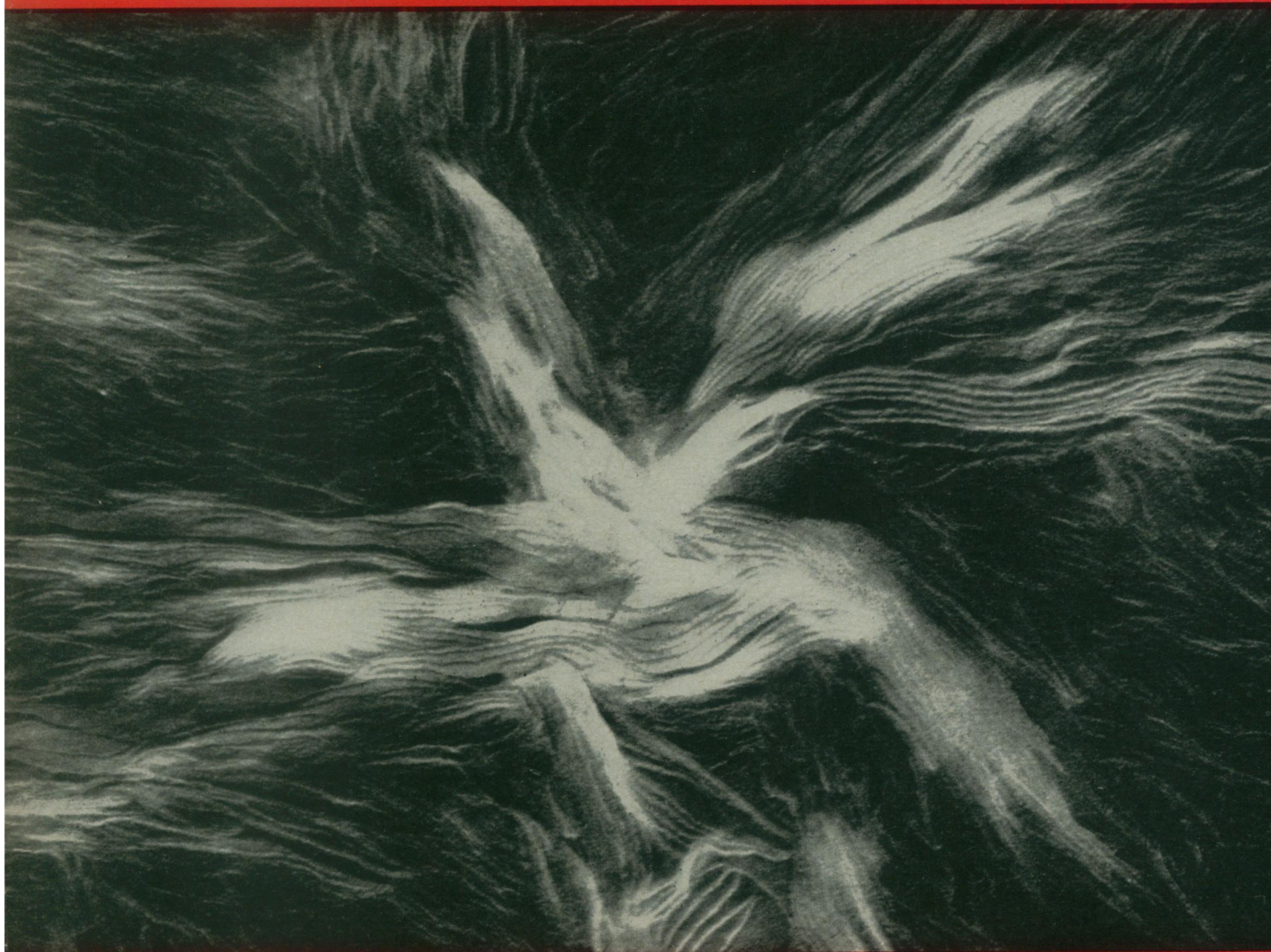
November 6, 1954

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SCIENCE NEWS LETTER

®

THE WEEKLY SUMMARY OF CURRENT SCIENCE



Polyethylene

See Page 302

A SCIENCE SERVICE PUBLICATION



Bell's new Telephone Answering Set. In use, the machine tells the caller when to start talking, and when his time—thirty seconds—is up.

He's out...
but he's answering his telephone!

This newly designed Bell Telephone Answering Set makes it possible for you to go out—but leave your voice behind.

Before you leave you twist a knob, dictate a message into your telephone, then switch the machine to "Automatic Answer." When somebody calls, the machine starts up and the caller hears your voice telling who you are, asking his name and telephone number, repeating what you have said. The reply is recorded too. On your return you play back all the calls that have come in, as often as you please.

The new machine features "talking rubber," a Laboratories-developed recording medium of rubber-like plastic and iron oxide which can be used over and over again millions of times. It is another example of how Bell Laboratories research works to help your local Bell Telephone Company serve you in new ways.

**Bell Telephone
 Laboratories**



*Improving telephone service for America provides
 careers for men in scientific and technical fields*

What General Electric people are doing . . .

QUIET TUBE

The U.S. Navy Bureau of Ships is interested in anything which would extend the range of its early-warning radar stations. Since a target is identified by distinguishing a pip on a radar screen from smaller, noise-generated irregularities, any reduction in noise would make the pip more discernible.

Our Research Laboratory has been working under Navy sponsorship for the past few years to design a strong, low-noise tube for microwave applications. Such a tube has now been developed, in collaboration with our Tube Department. In this tube noise is reduced by keeping the electrodes extremely close together, thus reducing the transit time the electrons require to travel from cathode to grid. The shorter the transit time, the smaller the noise factor.

The new tube, designated GL-6299, is not a single-frequency device, although it was designed for use at microwave frequencies. In fact, it exhibits improved performance throughout the radio and audio-frequency ranges. For usefulness over a large frequency range, it has been made adaptable for use in circuits of the cavity, parallel-line, or lumped-constant type. Despite its small size, it operates at currents and voltages comparable to those of conventional receiving tubes. It is being marketed by our Tube Department in Schenectady.

MAGNETIC SIGNATURES

Determining the magnetic characteristics of a metal can be a long and tedious business. The usual method requires long calculation, using data gathered from sensitive ballistic galvanometers. But that's been changed.

Our General Engineering Laboratory in Schenectady has developed a device called a D-c Recording Hysteresigraph, which eliminates the hours of laborious measurement and calculation. It traces the magnetic

"signature" of a metal directly onto a scaled chart in a matter of minutes. It is able to do this with the use of two fluxmeters, which integrate the flux voltage continuously.

The new instrument is expected to be a valuable quality-control device for manufacturers of special steel. Laboratories can also make use of it in obtaining accurate data on commercially-available materials and in the development of new alloys.

LIFE PREDICTER

The conventional way of finding out how long a fluorescent lamp will burn before it fails is to let it burn until it fails. But now the engineers of our Lamp Division at Nela Park, Cleveland, can make a pretty good prediction beforehand.

Other things being equal, they find, the life of a fluorescent lamp is proportional to the amount of emission coating on the cathode. By weighing this emission coating, the life of the lamp can be estimated.

Our engineers at Nela Park have developed a rapid method of testing such lamps for the quantity of chemical on their cathodes without breaking open or lighting the tubes. The lamp is compared in an electronic circuit with one having an uncoated cathode. When current is applied, the coated cathode is slower to increase in temperature. The difference is roughly proportional to the weight of the emission coating, and it can be read on a meter.

RADIOACTIVE SILICONES

Our Silicone Products Department in Waterford, New York, recently made joint announcement with Abbott Laboratories of North Chicago, Illinois, of an Abbott Laboratories project making radioactive silicones available for medicine and industry. Such silicones may prove to be a valuable research tool in certain areas. Radioactive silicone fluids, for

example, are made readily measurable in minute amounts by the incorporation of Carbon-14, and they are expected to offer a clearer insight into the behavior of silicones in the human body than could previously be obtained.

The new fluids have been designed for laboratory and clinical test work. They will not be a part of finished medicinals sold to the consumer. In conformity with Atomic Energy Commission practice, such initial studies must be conducted on animals only.

FILM FIXER

What camera fan hasn't spent hours in a darkroom trying to minimize the harmful effects of scratches, dust, or fingerprints on his favorite 35-mm negative? Thanks to Dr. C. Guy Suits, vice president and director of our Research Laboratory, all three of these defects can now be corrected.

Dr. Suits, one of whose hobbies is photography, found that most of the troublesome damage from scratches occurred in the film base or in the gelatine overcoat, rather than in the silver image between. He reasoned that a liquid with the right properties might fill the "valleys" formed by scratches and eliminate the valley side surfaces that scatter light. Although glycerine has been used for this purpose, it is very viscous and forms bubbles.

He finally found the solution in a silicone oil, which has been named Refractasil. Not only did it solve the scratch problem, it also turned out to be a highly satisfactory cleaner, removing fingerprints like magic. And with a special circulating container designed by Dr. Suits, it served to remove dust particles, as well.

Equipment using the Suits technique may soon be marketed by another manufacturer. Refractasil, the silicone oil, is already in production in our Silicone Products Department at Waterford, New York.

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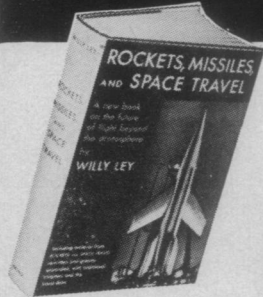
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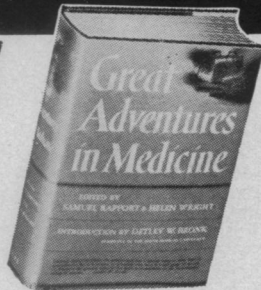
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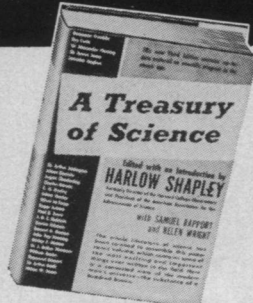


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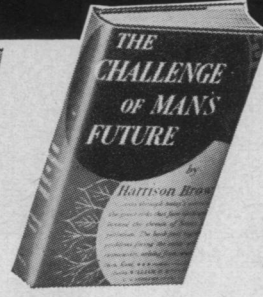


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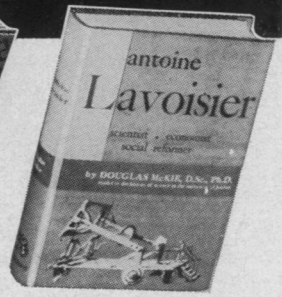
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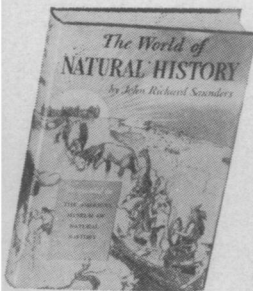
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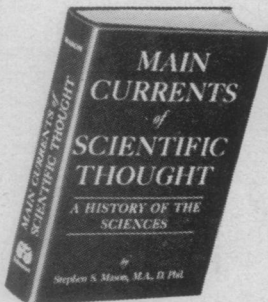
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