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SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE

Laboratory Mirage

See Page 5

A SCIENCE SERVICE PUBLICATION

What GENERAL ELECTRIC People Are Saying

E. DALE TROUT
JOHN VLACH

X-Ray Department

NEW TOOL FOR MEDICAL RESEARCH: Completion of the Cobalt-60 irradiator marks the beginning of an era which medical researchers look hopefully toward. Their need is for a simple low-cost source of high-energy radiation.

Pile-produced isotopes for teletherapy must, among other things, emit gamma radiation and have a half-life longer than 150 days. Radioactive Cobalt-60 emits gamma radiation, has a half-life of 5.3 years, and is obtained from the waste by-products of plutonium production. A 1000-curie Cobalt-60 source should produce a radiation intensity about equal to 1500 grams of radium.

Availability and cost of the source will generally determine the future of Cobalt-60 teletherapy.

The chief saving comes from the need for a smaller space in which to house the Cobalt-60 source. Until it becomes available at much lower cost, or another artificial source is accessible, the super-voltage x-ray machine will not be supplanted by artificial radioactive sources.

General Electric Review
November, 1952

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C. G. SUITS

Research Laboratory

THE ENGINEER IN INDUSTRY: Technology is based on science, and science seems to be boundless. Engineering is becoming more complex and specialized as new subject matter is added at an ever-increasing rate.

Increasing complexity of engineering practice is not leading to greater regimentation of the engineer, but rather to the contrary. While a project such as the development of an atomic reactor requires a high degree of co-ordination of many technical skills, the variety of such skills employed by modern industry provides a broad selection from which an individual may choose his field of specialization.

Thus, a great range of individual interests may be accommodated within the confines of a large co-ordinated project activity.

Continuing research will undoubtedly lead to new developments in science which will lead to new applications in engineering. This technological process appears to be an inexhaustible natural resource.

Yale University
New Haven, Connecticut

★

H. A. WINNE

Engineering

THE ATOMIC-ELECTRIC POWER INDUSTRY: It is unfortunate that our entry into the atomic energy era was by way of the atomic bomb—and when I say that I am not thinking at all of the use of the bomb. It seems to me that we may have entered the development path at the wrong end.

Most people undoubtedly feel that atomic energy development is so vastly expensive that it would not have come about unless government undertook it.

We certainly would not have had the atomic bomb, at the present time, nor submarine atomic power plants scheduled for the near future, without government financing, but I am not at all sure that we shall have a sound atomic-electric power industry sooner than we would have had if this development had taken a more normal course in the interested private industries.

Various studies now under way contemplate the possible construction of atomic-electric power plants, designed to produce plutonium, with electric power as more or less of a by-product.

This situation would not constitute a sound basis for an atomic-electric power industry. Certainly, barring war, at some time in the future our atomic bomb stockpile should reach an adequately high peak, and the government would not then be justified in continuing to purchase the plutonium output.

Atomic-electric power will be economically sound only when it can compete with conventional electric power without requiring a government-supported weapons market. It could not do that today—unless in some very peculiar and unusual circumstances—nor, in my opinion, for a good many years to come.

AIEE Machine Tool Conference
Albany, New York

★

R. BLOUNT

Lamp Division

ELIMINATION OF TV CAMERA LIMITATIONS: TV pictures with three-dimensional qualities are within reach of TV engineers today. With proper lighting methods and equipment this goal is immediately obtainable.

As an example, a brighter foreground increases the feeling of depth and makes the background seem to recede from the viewer, while lighter backgrounds appear closer to the viewer.

The following methods will help in obtaining required brightness differences: 1) providing 100 vertical foot-candles of base light; 2) developing form by applying modeling light 30 to 50 per cent greater than base light; 3) separating actors from the background by applying backlight 50 to 100 per cent greater than the base light; and (4) adjusting background brightness with respect to foreground subjects.

Television Studio Clinic
Cleveland, Ohio

Kodak reports to laboratories on:

our new spectrophotometric solvents . . . an f/0.75 lens . . . reducing records by microfilming . . . our new guide to successful photomicrography

Spectrophotometric solvents

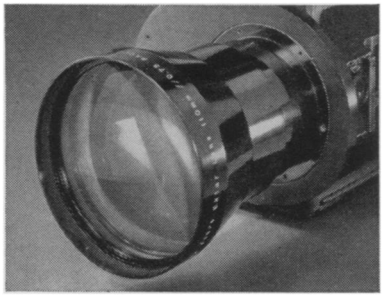
The solvents employed in infrared and ultraviolet spectrophotometry are mostly such common ones as

chloroform, cyclohexane, carbon tetrachloride, methanol, iso-propyl alcohol, etc., but highly uncommon is the freedom required from optically absorbing impurities. The primary producers from whom these solvents flow by the tank car are rarely prepared to supply them in spectrophotometric grade and in contamination-resistant 500 cc packaging. We are. (In special 3-liter bottles, too.) In the new 38th edition of the famous Eastman Organic Chemicals catalog we designate them by the prefix "S" before the catalog number. There are an even dozen of them (so far), and we shall be happy to send you a small wall chart that gives their infrared "windows" and ultraviolet cut-offs.

For a free copy of the catalog and/or the chart, or to place your order for solvents, write Distillation Products Industries, Eastman Organic Chemicals Department, Rochester 3, N. Y.

f/0.75

For cases where light must be husbanded to the utmost, as in certain experiments in cine-fluorography, we have developed a lens that forms an image at an effective relative aperture of *f*/0.80 or an equivalent *f*-number of 0.75. Hereby is announced the availability of this lens for any job requiring an optical system capable of laying down an exceedingly sharp, flat image with just about the highest utilization of light rays that today's lens designers can achieve. Here are some vital statistics about this new Kodak Fluro-Ektar Lens, 110 mm *f*/0.75. It's achromatized in the middle of the green (not for ultraviolet use). Designed for 16:1 minification. Gives excellent definition of a 12″-diameter object circle on a ¾″-diameter image, good definition over a 1″-diameter image, acceptable definition out to a 1¼″-diameter image (which corresponds to the corner of the ¾″

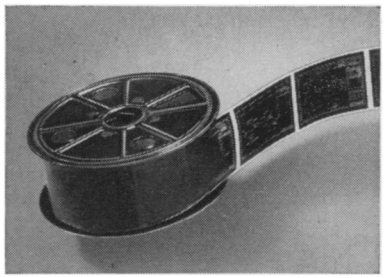


by 1″ standard silent 35mm movie frame). Length of element array, 208 mm; distance from object plane to first surface, 1808 mm; distance from rear surface to image plane, 7.3 mm. Price on request.

If you have need for such prodigious lens "speed," we suggest you get in touch with Industrial Optical Sales Division, Eastman Kodak Company, Rochester 4, N. Y.

Microfilming

There comes a day in the growth of a laboratory when the sheer physical volume of accumulated records becomes a menace. One way to keep from being inexorably drowned in paper is to take recourse in a giant-sized wastebasket. But, as night follows day, what is thrown out now winds up next week as a vitally needed scrap of paper reposing somewhere in a bale of waste. The answer, of course, lies in a well-planned system of microfilming which lops off some 98% of the bulk of a mass of records. If you'd like to start thinking about it now, you can



find all the facts in a new 60-page booklet we have prepared.

Just ask your Kodak dealer for the Kodak Industrial Data Book, "Microfilming with Kodagraph Micro-File Equipment and Materials." It costs 50 cents.

Photomicrography

Books, good ones, on the microscope and its use are not particularly scarce. One of them came out in its 17th revised edition in 1947, running to 617 pages. We have just published a brand new one on photography through the microscope that has just 68 pages, in the course of which our photomicrographic experts hit the highlights on such matters as resolution, choice of camera and light sources, characteristics of photographic materials for photomicrography, determination of exposure, and the use of filters. Rung by rung, we take the reader up the ladder of procedural sophistication from a simple hand camera setup through bright-field, dark-field, reflected light, and polarized light techniques and on into the realms of color. We discuss the salient facts about ultraviolet, infrared, phase contrast, cinephotomicrography, and electron micrography. It's quite a booklet, and you can get it for just 50¢ from your Kodak dealer. Ask him for the Kodak Industrial Data Book, "Photography Through the Microscope."

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
TRADE-MARK