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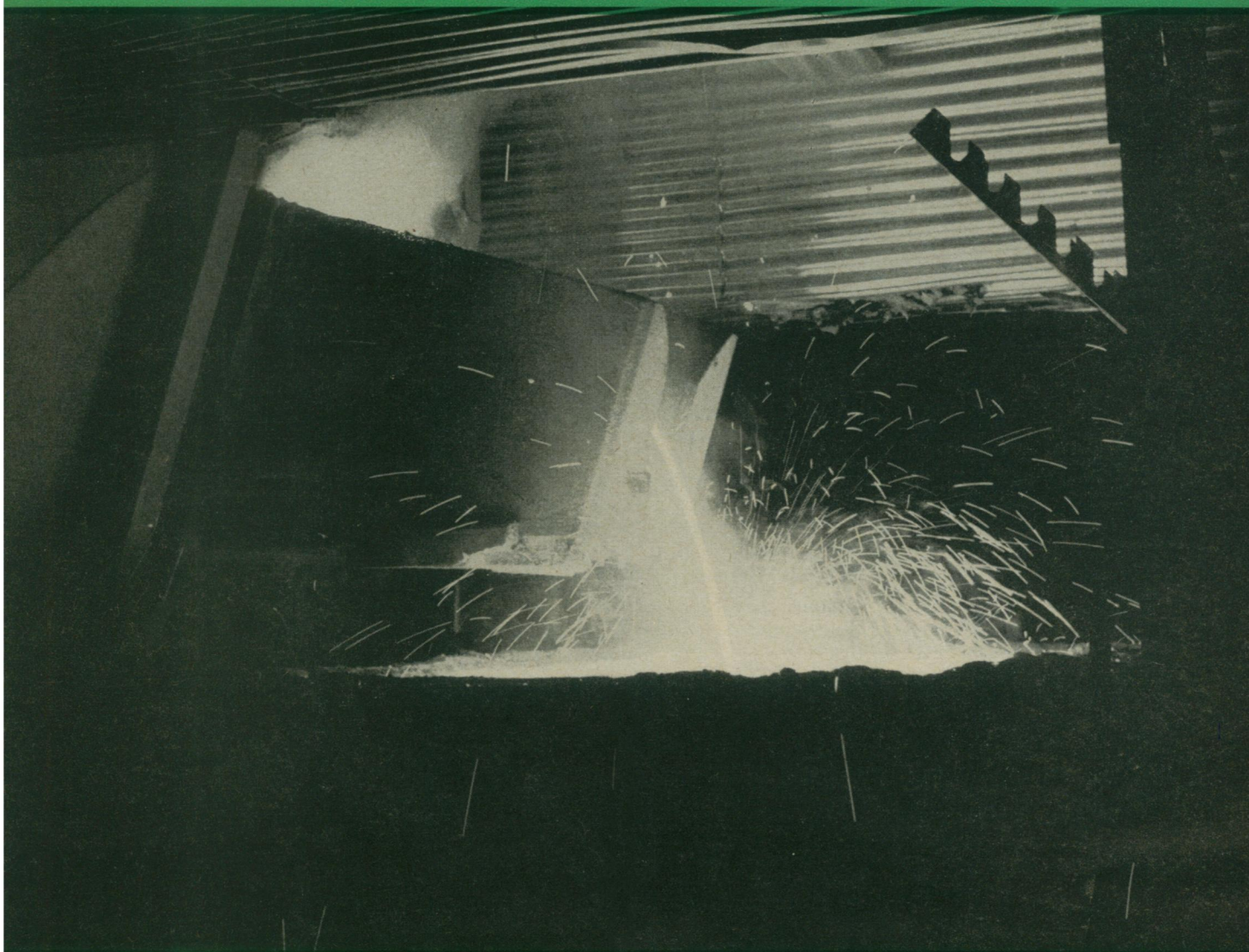
VOL. 67, NO. 19 PAGES 289-304

# SCIENCE NEWS LETTER



®

THE WEEKLY SUMMARY OF CURRENT SCIENCE



**Fiery Silicon**

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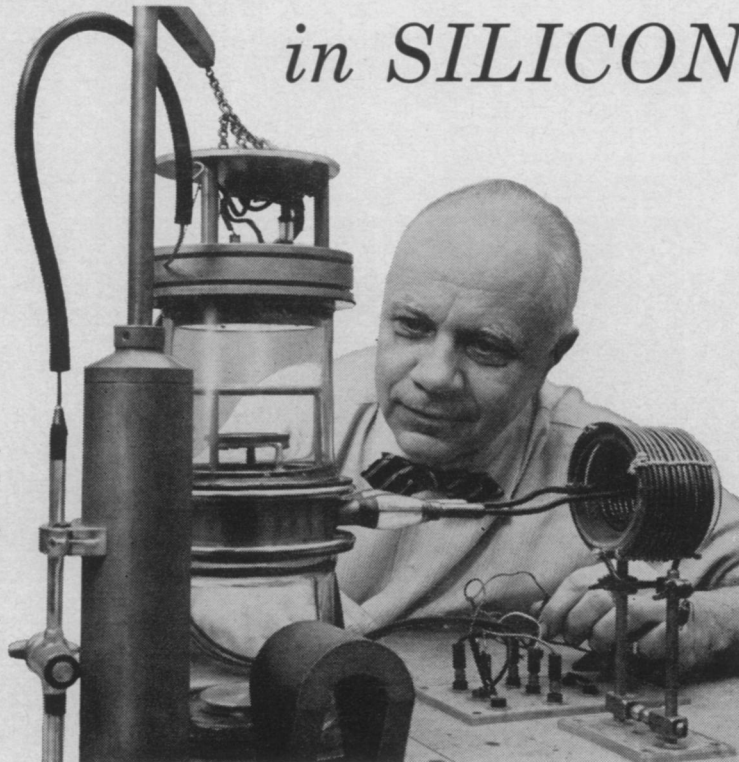
A SCIENCE SERVICE PUBLICATION



## AN ADVENTURE

# in *SILICON*

*One example of junction technology at Bell Laboratories. Here a junction is produced on the surface of silicon by bombardment with alpha particles. Bombardment enhances silicon's performance at very high frequencies.*



One day in the 'thirties a revolutionary adventure began for Bell scientists. They were testing an experimental silicon crystal they had grown to make microwave detectors.

Intriguingly, they found that one end of the crystal conducted by means of positive charges, the other end with negative. Positive and negative regions met in a mysterious barrier, or junction, that rectified, and was sensitive to light. It was something entirely new . . . with challenging possibilities.

The scientists went on to develop a theory of junction phenomena. They showed that two junctions placed back-to-back make an amplifier. They de-

vised ways to make reproducible junctions. Thus, junction technology came into being, and the 20th Century had a new horizon in electronics.

This technology has already produced at Bell Telephone Laboratories the versatile junction transistor (useful in amplifiers and switches); the silicon alloy diode (surpassingly efficient in electronic switching for computers); and the Bell Solar Battery which turns sunshine directly into useful amounts of electric current.

This is one of many adventures in science which make up the day-to-day work at Bell Laboratories . . . aimed at keeping America's telephone service the world's best.



## *Bell Telephone Laboratories*

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

# Kodak reports on:

method in the movie madness . . . making emollients the way the public wants . . . investigating photoelasticity

## Breaking into the movies

Madison Avenue is a thoroughfare in the Borough of Manhattan, City of New York, and a place-symbol for the art practiced there of creating your neighbor's aspirations and anxieties. (Not yours, your neighbor's.) Appropriately housed at No. 285 is the headquarters of the Association of National Advertisers, to which belong about 500 of the principal corporations that endeavor successfully to preserve the economy from stagnation.

In this endeavor it appears that money is spent like water. Millions for a single television comedian. Millions for microwave relay networks, for costumes and sets, for writers of international repute, for multi-page, multi-color inserts in magazines of multi-million circulation, for mountainsides of timber converted to coupons and point-of-purchase displays, for neon waterfalls and consulting psychologists and puppeteers.

Yet in their madness there is method. No super-cyclotron builders ever had crueler fiscal watchdogs to placate. No civil engineers ever had more faith in figures than these watchdogs.

We wish now to draw attention to one particular set of their figures. These will interest persons who contemplate the production of a movie. Movies primarily entertain, but sometimes they exhort. Sometimes nothing else exhorts as well. Movies can exhort chairmen of boards, admirals, or 8-year-old girls. They can be subtle. They can be direct. They can put an attractive face on a complicated idea. They cost money.

How much they cost, where the money goes, how many people of what kind are reached, how they're reached, what the life span of a film is, why it's done in the first place, and a great many other questions are answered through statistics in a new book called "The Dollars and Sense of Business Films." It has well-illustrated charts and hard covers and is based on hitherto confidential data supplied the Association of National Advertisers by 67

of the nation's leading companies about 157 non-theatrical films representing a total investment of \$12,000,000.

*The book is available for \$5 from Association of National Advertisers, located, as we said, at 285 Madison Avenue, New York 17, N. Y. By helping publicize it, we hope to assist anyone with a big story to tell. This is little enough for us to do. The movie business is a very good customer of ours.*

## Greaseless fat



Thus we shout to the great industry that ministers percutaneously to the psyche. The industry is as basic as can be, for mankind has long daubed itself with grease when it has wanted to feel extra good. As the veneer of civilization thickens, we acquire a tactile distaste for "grease." Cosmeticians abandon the term to lubrication engineers. The public wants its emollients non-greasy, and it knows what it wants.

Enter the chemist. He has made monoglycerides a commodity of commerce after having been for all time up to then only a passing phase of fat digestion in the alimentary canal. Lately he has found that the more of the hydroxyls in a monoglyceride that are replaced by acetyl groups, the more the melting point is depressed and the more the resistance to oxidative rancidity is raised. This is quite different from the effect of another variable at the disposal of the fat chemist, degree of unsaturation. Unsaturation makes for lower melting point with

poorer stability.

Now we get into the act. We're interested because our unique molecular distillation process is very efficient at picking out wanted glycerides from reaction mixtures. We work enough with molecularly distilled monoglycerides of varying degrees of acetylation and unsaturation to be impressed with the strangely non-greasy yet full-bodied character of the liquid forms and the remarkable flexibility of the waxy solid form.

On a hunch we engage cosmetics-experienced consultants to evaluate them in lipstick, baby oil, electric shaving lotion, hair dressing, and any other cosmetic preparation worth mentioning. They find that every one of them should be better off for at least one of the benefits conferred by distilled acetylated monoglycerides. We assign the trade-mark "Myvacet" and spread the word. The orders start coming in. We step up production from experimental to semi-commercial. The psyche prospers.

*If there is anything you want to know about Myvacet Distilled Acetylated Monoglycerides, write to Distillation Products Industries, Rochester 3, N. Y. (Division of Eastman Kodak Company).*

## Stress without strain

Photoelastic stress analysis is a technique for studying experimentally the relationships that link the shape of a solid body, the external mechanical forces acting on it, and the resultant internal forces. This is done by making a model out of transparent material and examining the induced birefringence pattern between crossed polarizers. Photography comes in because it is generally desired to record, compare, and ratiocinate about what is seen. Thick books and learned engineers are dedicated to this study, but if you want to find out just enough about it to decide whether it has any bearing on your problems, you buy from your Kodak Industrial Dealer for 35¢ a little Kodak Data Book entitled "Photoelastic Stress Analysis."

*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 science and industry**

**Kodak**  
TRADE-MARK