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SCIENCE NEWS LETTER

®

THE WEEKLY SUMMARY OF CURRENT SCIENCE

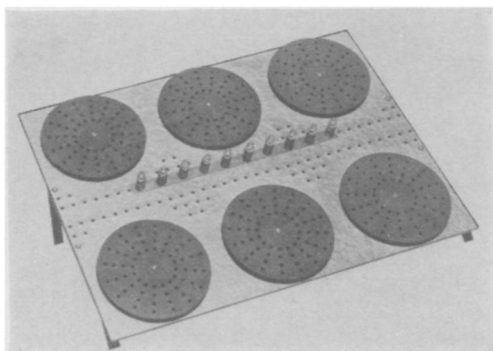


"Counting" a Winner

See Page 150

A SCIENCE SERVICE PUBLICATION

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**The ELECTRIC BRAIN
Construction Kit?**

Because GENIAC is the only kit and text combination that presents the basic ideas of cybernetics, boolean algebra, symbolic logic and computer circuitry so simply that a twelve year old can construct what will still fascinate advanced students!

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GENIAC is sold to all customers on a one-week return guarantee. You may actually use it in that time, returning it as is if you decide not to keep it.

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- SIMPLE MACHINES: Burglar Alarm; Automatic Oil Furnace Circuit.
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- ACTUARIAL: Douglas MacDonald's Will.
- SPECIAL: Machine to Compose Music, Machine to Forecast the Weather.

GENIAC parts are specially manufactured to high tolerance; they include a special six-deck switch of unique design and over 400 components plus a book "GENIACS: SIMPLE ELECTRICAL BRAIN MACHINES AND HOW TO MAKE THEM", plus six other books and manuals, parts tray and rack, shown in picture above. GENIAC is a remarkable buy for

only \$19.95

Kit and instructions are returnable for full refund in seven days. This is a perfect father-and-son project; your whole family and your friends will enjoy the finished machines. You can design new computers from the adaptable parts.

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- Marshfield Public Schools
- Los Angeles Public Schools
- Jefferson Union High School
- Oklahoma A&M
- Kansas City University
- Duke University
- Coral Gables Senior High School
- Courtland Jr. High School
- Bell Telephone Laboratories
- Lovell Public Schools
- Clearwater High School
- St. John's Seminary
- Orange County Community College
- Morningside College
- New Hampshire Public School
- Kentucky Wesleyan College
- University of Ottawa
- ... and hundreds of other individuals
and institutions

Kodak reports on:

a film that separates the lemons from the oranges . . . a device with enormous potentialities for inventiveness . . . the advantage of rising above a subject

Process E-3

Distinguished by the designation "(Process E-3)" from earlier versions, a new *Kodak Ektachrome Film* is aimed to please the worker who is pretty all-fired sure that for any trifling deficiency in his color transparencies the fault has lain not in himself, not in his technique, not in his equipment, but in his film.

Beyond the shadow of an illusion, this film is *sharper* than its predecessors. *Sharpness* differs from contrast and from resolving power. It represents ability to render a boundary—within how few microns the color on the transparency can change from (let us say) a certain yellow to a certain orange. This ability does not readily lend itself to quantitative statement.

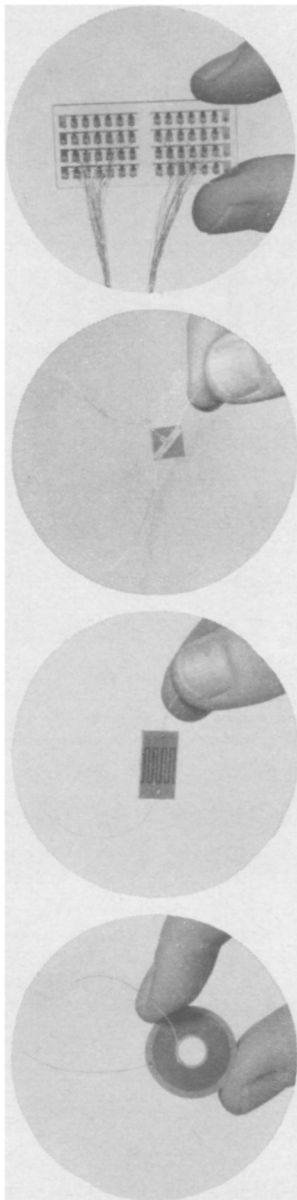
We mention yellow and orange advisedly. A classic challenge to any color photographic process has been to distinguish between the hue of lemons and oranges in one bowl of fruit. The new film meets it handily. Greens are better, too.

More valuable to some users will be the fidelity of the new film to the visual appearance of such photographically elusive biological stains as eosin and fuchsin. The photomicrographer now gets not only an enhancement of the fine color discrimination for which *Ektachrome* was notable even before but a new advantage in speed. Exposure Index is 32 for the *Type B* (which requires only heat-absorbing and possibly U-V filters in the usual photomicrographic setups) and 50 for the *Daylight Type* (used with electronic flash). Statistics show that in 1/25 second you get only 20% of the vibration contained in 1/5 second.

Kodak dealers now stock the new Kodak Ektachrome Film (Process E-3) in the usual sheet-film sizes. For 120 and 620 roll-film cameras it's called Kodak Ektachrome Professional Film, Daylight Type (Process E-3). They also carry various-sized kits of the new processing chemicals that Process E-3 requires. The processing cycle takes about an hour.

If a) you want paper prints and duplicate transparencies, and if b) you want to be able to manipulate your color balance toward a conception of reality transcending what can be built into inanimate film, and if c) you are willing to process both a negative and a positive before you judge your results, don't even bother with this new stuff. Stick to Kodak Ektacolor Film and Paper.

They transduce



We make *Kodak Ektron Detectors* like these for transducing a visible or infrared pattern into electrical terms. The darker material is photoconductive lead sulfide or lead selenide; the electrodes (actually evaporated gold) appear grey here. Since we can lay down the photosensitive material in any configuration, enormous potentialities for inventiveness present themselves. Whether you seize them is entirely up to you. We offer a pamphlet,

"Kodak Ektron Detectors." You get it by writing Eastman Kodak Company, Special Products Division, Rochester 4, N. Y. It describes what spectral sensitivities and time constants can be selected and very, very briefly summarizes the circuitry considerations—a little rough, perhaps, for persons with casual interest in this sort of thing. It does tell enough to place an order for breadboarding purposes or a request for quotation.

Geologists as larks

In Washington last spring, at the annual meeting of the American Society of Photogrammetry, the photogeologists were there with bells on, giving papers and happy as larks.

The higher you fly, said one, the quicker and clearer the big picture comes through of structural trends, stream alignments (such as might reflect fracturing in the bedrock, either jointing or shearing), topographic anomalies. The lower you fly, said another, the more subtle color differentiation you can pick up unblurred with the new high speed aerial color films (which we happen to make), and the easier, then, to follow across the miles the contact of various stratigraphic formations with each other and with alluvial and slope-wash deposits. In flatland areas, said a third, where the evidences for geological analysis are difficult or impossible to obtain, modern exploration for petroleum and minerals demands geomorphological study from aerial photographs.

Do you see the problem? Saddle sores may still mark the field geologist who refuses to jump at conclusions, but his blinders can be struck off by a ride in an airplane mounting a suitable aerial camera in its belly. Does he have to go commercial or government to afford this, or beg for pictures to study? Maybe not. Maybe we can put him in touch with an aerial photographer who wants his modest business. Let him write Eastman Kodak Company, Government Sales Division, Rochester 4, N. Y. And if he wants to read the papers given in Washington, let him send \$1.75 to the American Society of Photogrammetry, 1515 Massachusetts Avenue N.W., Washington 5, D. C., for the September, 1958, issue of its journal.

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

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SCIENCE NEWS LETTER
1719 "N" N.W. Wash. 6, D. C.

Best Book Contest for 1959

\$1600 Cash Awards plus 40% royalty. All types of manuscripts invited. For Contest rules and details of famous publishing plan, write for free Brochure SN. Pageant Press, 101 Fifth Ave., N. Y. 3

DEMOGRAPHY
Seven-Year Baby Boom Slacks Off During 1958

► THE BABY BOOM that began in 1951 in this country is apparently slacking off, according to estimates released by the U. S. Public Health Service.

There has been a steady increase in the number of babies born each year since 1950. But estimates for the past year indicate that births have decreased by one percent, figures from the National Office of Vital Statistics reveal.

There were 4,301,000 babies born in 1957. The expected annual total for 1958 was 4,248,000.

Science News Letter, March 7, 1959

AVOID FLAT TIRES!
Carry Spare Air
AUTOMATIC TIRE INFLATOR



Spare Air is no bigger than an ordinary push button can and as easy to use. This revolutionary discovery inflates tires in seconds.

Spare air requires no tools. Just screw it onto tire valve and its action is automatic.

For safety and economy—Save wear and tear on your back and your pocketbook, Use Spare Air.

Spare Air Set, \$2.98

Refills \$1.98 each, tire Gauge \$1.50, Shipping charge 50¢
John Surrey, Ltd. 11 West 32nd St., Dept. SN-97, New York 1, N. Y.

Questions

ASTRONOMY—What is one name given to a device that photographs stars electronically? p. 147.

ENGINEERING—What standard crop will soon be used for manufacturing paper in Israel? p. 149.

INVENTION—What natural-born experts are being consulted to determine the oil content of land? p. 148.

Photographs: Cover, Fremont Davis; pp. 147 and 151, Massachusetts Institute of Technology; p. 149, Benito Tall; p. 160, Reynolds Metals Company.

AMAZING ELECTRONICS DISCOVERY!
Portable, Transistorized Tape Recorder Costs LESS Than Down Payment on Many Standard Recorders!



Here's the new, low-priced, battery-operated tape recorder you've been waiting for! Powered by ordinary flashlight batteries and transistors—a finely engineered instrument—not a toy! It is multi-staged utilizing transistors for superb tone clarity. Truly portable—weighs less than 2 lbs.

"CAN SAVE YOU MANY TIMES ITS COST THE VERY FIRST TIME YOU USE IT!"

You'll find a thousand and one uses for this amazing tape recorder. Use it as a dictating machine—to cut your office and home work in half. Use it to record sales meetings, interviews, group discussions, on the spot reactions wherever you go! Use it for wonderful new fun with your children and family—to store up memories that will never grow dim! It makes the perfect gift to give or get!

LET SOME OF AMERICA'S OUTSTANDING PRESTIGE MAGAZINES TELL YOU WHAT THEY THINK ABOUT IT!

American Legion—"While miniature tape recorders have been available for years, their price has kept them out of the mass market. Most of them sell for close to \$300, but now a machine is being sold for one-tenth of that!"

Cosmopolitan—"The Last Word! . . . Capture baby's first words or a memorable family occasion. Dictate letters, reports, speeches. You can even re-record phono discs and radio and TV shows!"

Popular Mechanics—"Provides low cost, variable speed recording and playback."

Complete with Microphone, Listening Device, Private Listener, Sample Reel of Tape, DeLux Fitted Attache Type, Simulated Leather Carrying Case, Set of Batteries.

\$37.50 Complete with Microphone, Listening Device, Private Listener, Sample Reel of Tape, DeLux Fitted Attache Type, Simulated Leather Carrying Case, Set of Batteries.

FREE! Extra 225 ft. Reel of Recording Tape!

Scholastic Teacher—"Recording is quite audible and easily understandable. Fine for small student group, interviewing community leaders."

Mademoiselle—"Very happy to report that anyone can afford it—and anyone can operate it!"

V.F.W. Magazine—"Imagine a precision-made, battery-operated tape recorder that weighs only two pounds, yet sells for this amazing low price."

FILNOR PRODUCTS INC., Dept. M-75—101 W. 31st., New York 1, N. Y.

Send Check or Money Order.
If COD—send \$3.00 deposit.

Do You Know

The *aurora borealis*, or northern lights, results when the noble gases, helium, neon, argon, krypton and xenon, are struck by charged particles such as protons or alpha particles; the gases glow as the particles pass through them.

Every year 30,000,000 tons of fish and plants are obtained from the oceans, but experts believe this supply can be greatly increased by improved methods of fishing.

MICRO-ADS

Equipment, supplies and services of special interest to scientists, science teachers and students, science-minded laymen and hobbyists. 25¢ per word, payable in advance. Closing date 3 weeks prior to publication (Saturday).

SNL, 1719 N St., N.W., Washington 6, D. C.

BIOLOGICAL STAINS

BIOLOGICAL STAINS. FREE PRICE LIST. ESBE
Laboratory Supplies, 459 Bloor St., W., Toronto, Ontario, Canada.

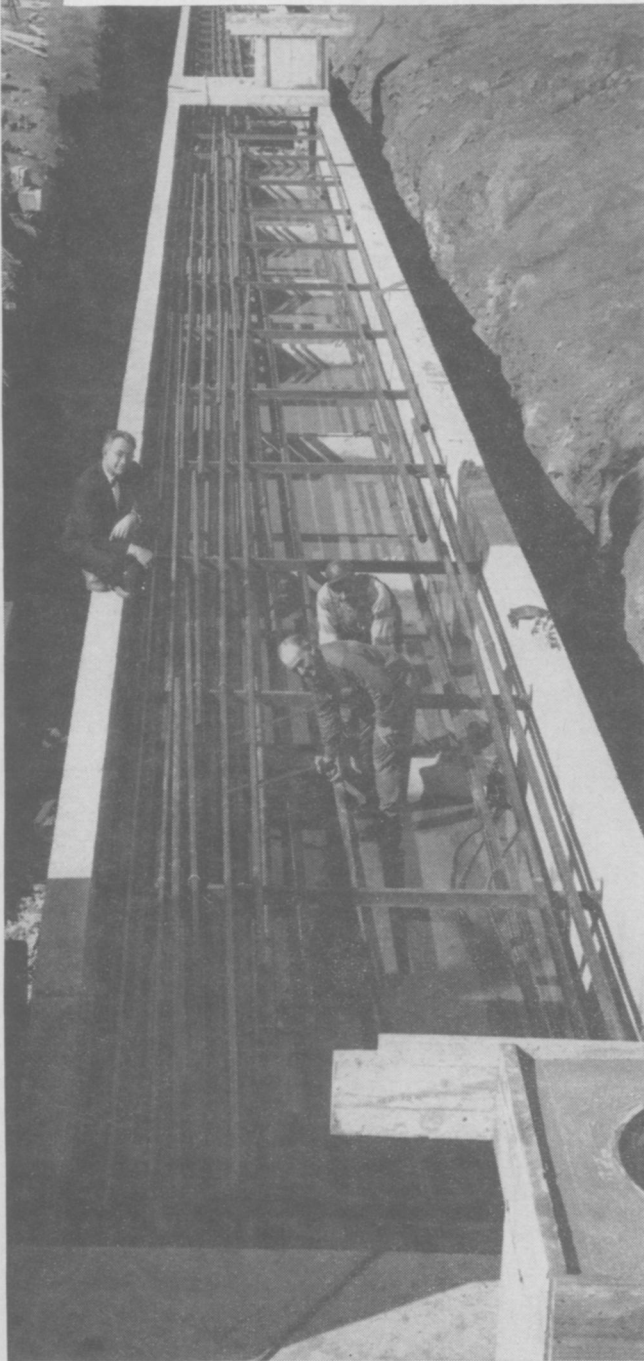
BOOKS

ROCKET SCIENCE FOR AMATEURS—New Book! Featuring: Zinc-Sulfur Rocket Plans, Theory, Performance. Well-illustrated! \$2.00. Sooner Science, Box 145, Norman, Oklahoma.

PLASTICS

NEW LIQUID CASTING PLASTIC, CLEAR COLORS. Embed real flowers, minerals, biological specimens, delicate instruments, electronic parts. Also cold setting resins and fiberglass for laminating, casting, molding, coating. Manual 25¢. Castolite Company, Dept. C1-30, Woodstock, Illinois.

THEY PROBE THE FUTURE OF DEEP-SEA TELEPHONY

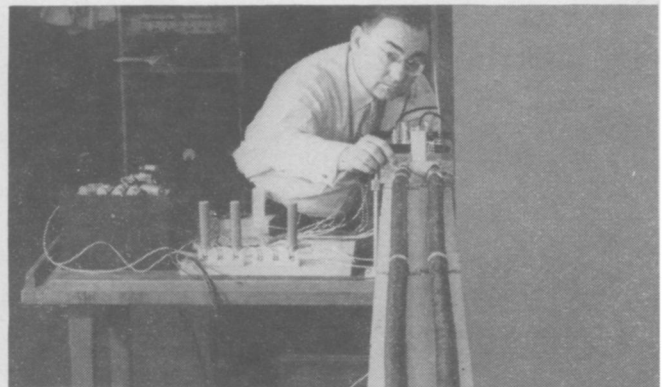


"Dry Land Ocean," under construction at Bell Laboratories, simulates ocean floor conditions, is used to test changes in cable loss. Sample cables are housed in pipes which contain salt water under deep-sea pressure. The completed trough is roofed in and is filled with water which maintains the pipes at 37° F., the temperature of the ocean floor.

Deep in the ocean, a submarine telephone cable system is extremely hard to get at for adjustment or repair. This makes it vitally important to find out what can happen to such a system *before* it is installed.

Bell Laboratories engineers do this by means of tests which simulate ocean floor conditions on dry land. Among many factors they test for are the effects of immense pressures on amplifier housings and their water-resistant seals. They also test for agents which work very slowly, yet can cause serious destruction over the years—chemical action, marine borers and several species of bacteria which strangely thrive under great pressures.

Through this and other work, Bell Telephone Laboratories engineers are learning how to create better deep-sea telephone systems to connect America to the rest of the world.



Highly precise instruments developed by Bell Laboratories engineers are used to detect infinitesimal changes in cable loss—to an accuracy of ten millionths of a decibel.



Seawater and sediment in bottle characterize ocean floor. Test sample of insulation on coiled wire is checked for bacterial attack by conductance and capacitance tests.



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