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SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE



Wilderness Vista

See Page 90

A SCIENCE SERVICE PUBLICATION

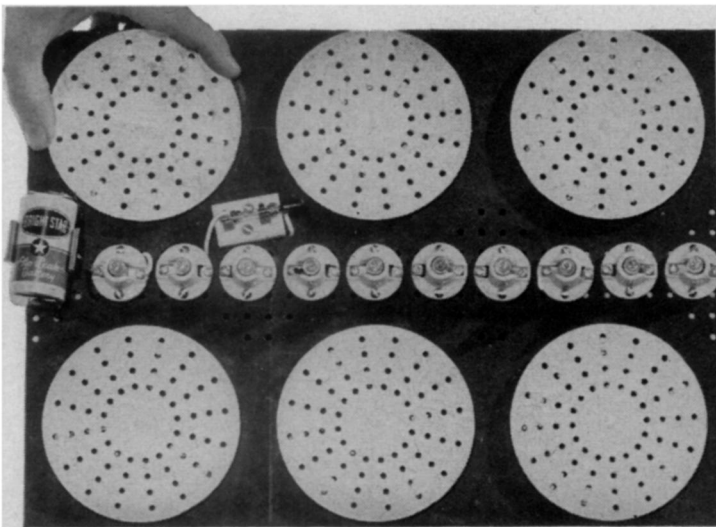
For Problem-Solving... Experimentation... Teaching... or Just Fun

BUILD YOUR OWN ELECTRIC BRAIN MACHINE

IN JUST A FEW HOURS!

Remarkable 400-Component Construction Kit Enables You To Create Any of 50 Brain Machines! Build **LOGIC MACHINES** That Compare, Reason, Test Intelligence; **ARITHMETICAL MACHINES** (Binary & Decimal); **GAME-PLAYING MACHINES** (Tic-Tac-Toe, Nim, etc.)

Teachers and Scientists: *Design Your Own Machines!*



1958 GENIAC® KIT CONTAINS (1) a complete 100-page text, "Minds and Machines"—a basic introduction to computers. (2) "How to Construct Electrical Brains at Home"—a fully illustrated text book on basic computer design theory and circuits with specific instructions for building 50 circuits. (3) Wiring Diagram Manual. A special booklet with full scale diagrams. (4) Beginners' Manual—fifteen extra experiments to teach the basic symbols of electric circuits. (5) Over 400 components and parts.

SOME INSTITUTIONS AND FIRMS NOW USING GENIAC®

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| Remington-Rand | Rohr Aircraft Co. | Schools |
| International Business | Southwest Missouri | Jefferson Union High |
| Machines | State College | School |
| Wheeldex Mfg. Co. | Albert Einstein | Oklahoma A & M |
| Manuel Missionary | Medical College | Kansas State University |
| College | Naval Research | Duke University |
| Walter V. Clarke | Laboratories | Coral Gables Senior |
| Associates | Board of Education, | High School |
| Barnard College | Teoumsah, Nebraska | Courtland Jr. High |
| Westinghouse Electric | Marshfield Public | School |
| Phillips Laboratories | Schools | Bell Telephone |
| General Insurance Co. | | Laboratories |
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GENIAC® is the only kit and text combination that presents the basic ideas of cybernetics, boolean algebra, symbolic logic and computer circuitry for all levels of knowledge and intelligence. Sold to all customers on a one-week return guarantee; actually use it during that time, return it if you decide not to keep it.

WITH GENIAC you build any of 50 electric brain machines in a few hours by following the clear-cut, step-by-step directions in the basic text provided. Advanced students and scientists can design machines for special problems. No soldering required, and little wiring. Change design of your machines in minutes! Build Binary Adding Machine • Secret Coder & Decoder • Machine for Arithmetical Carrying • Comparing Machine • Reasoning Machine • General Combination Locks • Games Requiring Logic • Machine for a Space Ship's Airlock • Intelligence Tester • Burglar Alarm • Puzzle Solvers and many others.

OVER 400 COMPONENTS AND PARTS

Circuits operate on one flashlight battery, and use ingeniously designed parts. 1958 GENIAC Kit has been constructed by the original inventor to provide all the advantages of previous electrical brain construction kits plus what we have learned in answering the questions and examining the new designs created by hundreds of users.

SELF-CONTAINED COURSE IN COMPUTER DESIGN

Each GENIAC comes as a self-contained course in computer design. All instructions are so simple that we have records of intelligent twelve-year-olds designing factoring machines and puzzle-solving circuits—while hundreds of schools and industrial training programs have incorporated our kits in their curricula.

YOUR COST FOR GENIAC KIT: ONLY \$19.95 POSTPAID

The coupon will bring your GENIAC Electric Brain Construction Kit and Manuals for only \$19.95 postpaid. You may return the Kit within 7 days if you are not completely satisfied. For schools we offer bulk rates on extra texts and parts; for teachers, we offer 10% deduction on GENIAC if ordered for use in institutions. Send for your Kit today!

SCIENCE KITS, Dept. SL 28-B

Oliver Garfield Co., Inc., 126 Lexington Ave., New York 16, N. Y.

ORDER GENIAC ON OUR MONEY BACK Guarantee!

SCIENCE KITS, Dept. SL 28-B
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 Please send me:
 1 GENIAC Electric Brain Construction Kit and Manuals.
 \$19.95 (East of Mississippi)
 \$20.95 (Elsewhere in United States)
 \$21.95 (Outside the United States)
 Returnable in seven days for full refund if not satisfied. I enclose \$..... in full payment.
 Name.....
 Address.....
 City..... Zone..... State.....

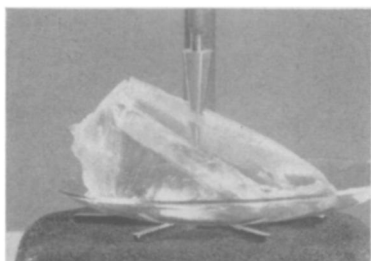
Kodak reports on:

ideas that gel, or turn thixotropic . . . a bid for free service from scientific Americans . . . what every practical-minded photomicrographer should know

Mono-and-water

We have run into a few matters in the field of colloid chemistry that can stand being presented straight. They concern monoglycerides, a kind of fat widely used in baking. Monoglycerides can seize water and imprison it.

- When a monoglyceride at a temperature above its melting point—which for some may not much exceed that of water—is poured into water at the same temperature, a firm gel is instantly formed. The gel contains 15 to 25% of water. Child of what appears to be hydrogen bonding of water to oil, it is dispersible in the former not at all and soluble in the latter only with difficulty. Turbid when first formed, this gel turns quite transparent shortly thereafter. As long as kept warmer than the melting point of



the monoglyceride, the gel is indefinitely stable. Its life is limited by evaporation loss of the water if left open to the atmosphere.

- When the pouring is done the other way—water into the liquid monoglyceride—viscosity of the equilibrated system rises continuously until a non-pourable transparent “solid” results. By severe manipulation, it is possible to make thus a gel as firm as putty, containing up to 45% water without leaking. Its conductivity is that of water, which is very much higher than that of water-in-oil emulsions.

- Clear homogeneous liquids can be made from water, plain fat, and monoglyceride. The water can carry water-soluble substances while the fat carries oil-soluble substances.

- With liquid monoglyceride, water, and soap, one can make a translucent thixotropic liquid that is “springy,” like egg white. When cooled below a certain point, it changes to a crystalline character in which it is like translucent pudding,

but still thixotropic. A word like “thixotropy,” casually dropped in non-rheological company, can help a person.

Notice how nothing is said about applications? That's because we want you, gentle reader, to have a head start over your competitors. For a full report on mono-and-water, as we see it to date, write Distillation Products Industries, Rochester 3, N. Y. (Division of Eastman Kodak Company).

Get thee to a marker

Scattered over the land area of the United States lie more than 100,000 U. S. Coast and Geodetic Survey triangulation station markers. The Smithsonian Astrophysical Observatory and the U. S. National Committee for the International Geophysical Year would be grateful if you would arrange to have a camera over one of these markers at a time when some artificial satellite or other is in view, and photograph it. The camera should be tripod-mounted and cover at least a 4" x 5" negative with a 5" or 6" lens, f/4.5 or faster. The observer should have sufficient dexterity or cleverness at home-made instrumentation so that he can interrupt his trace for a few seconds and know the start of his interruption within 0.1 second against the time signals broadcast by Radio Station WWV. In addition to a reliable radio he needs a certain attitude.

The possessor of the requisite attitude does not consider himself traduced by the big surprise of October 4, 1957. On the contrary, he is pleased at the opportunity thrown his way when the large plans for optical tracking equipment proved too ponderous for the blistering pace set by our eager IGY collaborators on the other side of the barbed wire. He thinks it would be a healthy thing if it turned out that simple equipment, skillfully operated with amateur enthusiasm, could reveal almost as much about the shape of the earth and its gravitational field as had been expected of the optical heavy artillery.

If you are game, write to W. F. Swann, Eastman Kodak Company, Rochester 4, N. Y. Ask him for the details of the “Phototrack” assignment that the Society of Photographic Scientists and Engineers is issuing to scientific Americans.

Up two bits

Whoever wants to learn how to do photography through the microscope should read “Photography through the Microscope.” Kodak dealers stock it or can order it from us, the publishers.

The main difference between the 75¢ Second Edition and the 50¢ First Edition is that the didacticism on the theory of the photographic process has been eased off. In its place there is a tour under escort of a practical-minded photomicrographer along the shelves of new photographic materials uncorked in the last few years.

Contents:

The Microscope

- Objectives
- Oculars
- Substage Condenser
- Resolution

The Microscope and the Camera

- Simplified Photomicrography
- General Photomicrography
- Equipment
- Light Sources
- Magnification

Photographic Materials for Photomicrography

- Negative Sheet Films and Plates
- Negative Roll Films
- Negative Material Characteristics
- Color Films

Illumination of the Subject

- Bright Field
- Dark Field
- Methods of Illumination
- Abbé-Nelson Illumination
- Kochler Illumination
- Reflected-Light Technique

Procedure

- Semiprofessional Setup
- Simplified Setup with a Hand Camera

Filters

- Kodak Wratten Filters
- Liquid Filters
- Filter Factors
- Filters for Color Photomicrography
- Biological Stains

Determination of Exposure

- Criteria for Judging Exposure
- Calculating Exposure for Different Conditions
- Light Meters in Exposure Determination

Special Techniques

- Metallography
- Photomacrography
- Polarized Light
- Ultraviolet Photomicrography
- Fluorescence Photomicrography
- Infrared Photomicrography
- Phase Contrast Photomicrography
- Cinephotomicrography
- Electron Microscopy

Price quoted is subject to change without notice.

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

Kodak
TRADE-MARK