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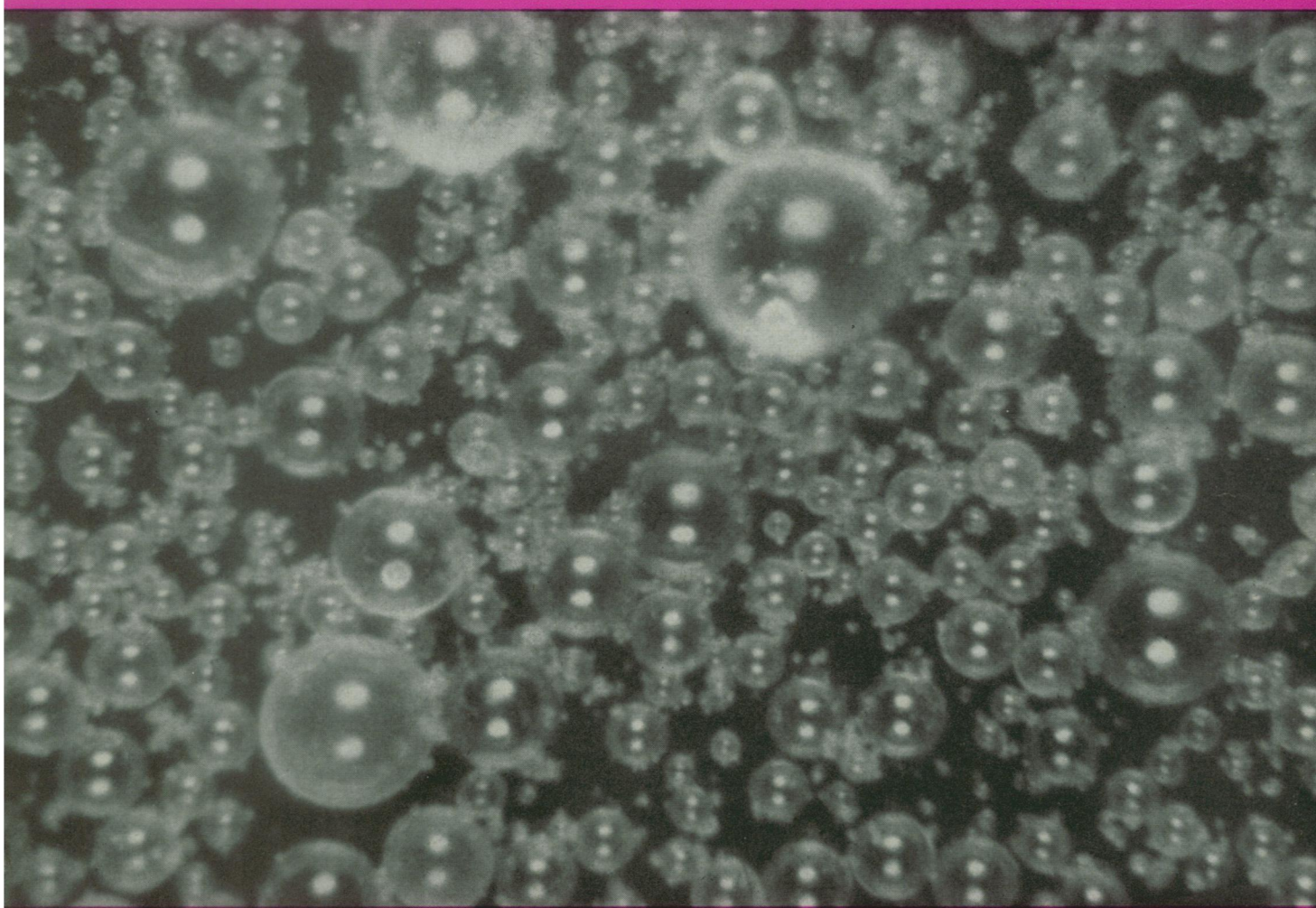
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SCIENCE NEWS LETTER

®

THE WEEKLY SUMMARY OF CURRENT SCIENCE



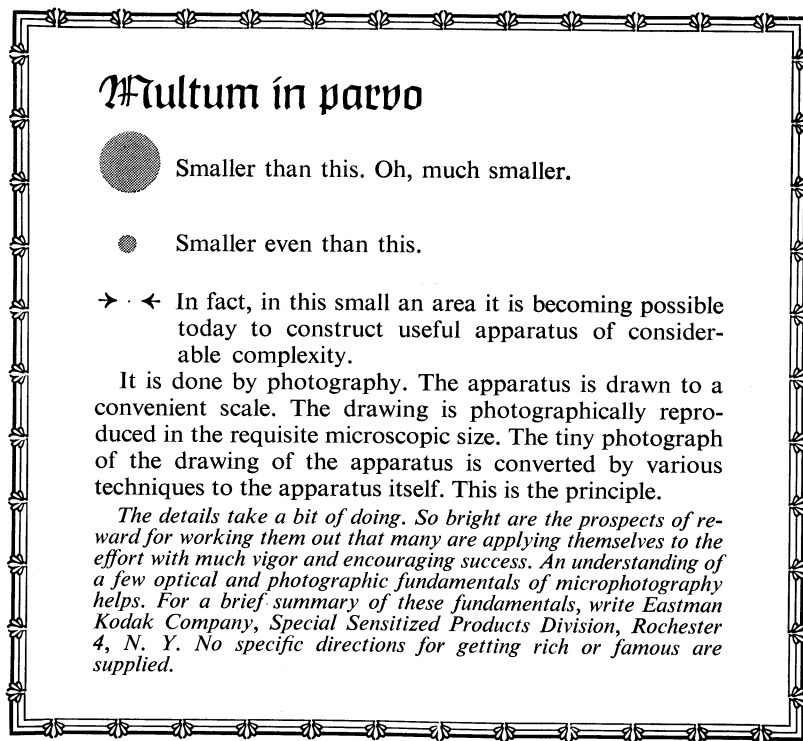
Glass Microballoons

See Page 211

A SCIENCE SERVICE PUBLICATION

Kodak reports on:

useful pictures this big . . . how to overcome boredom with polyethylene . . . faster, prettier
Kodachrome II



Colloquy on floor polish

One man's poison is another man's meat, the millstone around one man's neck becomes the keystone in another's arch. Take floor polish. There must be quite a few chemists who have worked, slept, and eaten floor polish for so long that they know all there is to be known about it and feel trapped by the subject in a boredom of unplumbed depth.

Then along come you, fresh-faced and full of fun and optimism. What, you ask, do they put in floor polish? *Polyethylene.*

Have they always put in polyethylene? *No.*

Would it be fair to state then that, seen from the long vista of floor-polish history, one currently finds oneself safely over the threshold into the polyethylene era? *Yeah.*

Does this differ from the familiar polyethylene? How? *Through molecular weight frequency distribution, degree of branching, and percentage of hydrogens oxidized to hydroxyls, you pick your density, hardness, viscosity-temperature behavior, and emulsifiability.*

How is emulsification effected in water of a solid like polyethylene? *With emulsifiers. Most floor polishes have used anionic emulsifiers like oleic acid-morpholine. Hard to keep them*

light in color. Amine-type cationic emulsifiers have also been studied. But the non-ionics look the most promising. And that goes, too, for polyethylene emulsions used to modify the finishing resins for wash-and-wear cotton goods. Restore strength to the cotton and improve its sewability.

See here. If you find this so all-fired fascinating, that could mean you see a commercial angle. It could become vital for us to get to know you better right away. If only you would disclose your name, address, and interest in the topic to Eastman Chemical Products, Inc., Kingsport, Tenn. (Subsidiary of Eastman Kodak Company), a kit of information on our Epolene polyethylenes and their emulsification will become the initial token of our common intellectual interests.

Piteous

Rumors you may have heard that there is an improved Kodachrome Film are true.

Kodachrome Film has been on the market for 25 years. It has been a smashing success. Braggarts are odious, but facts must be faced. Kodachrome Film has been a smashing success for 25 years. Nobody needs to be told any more that it yields excellent

color movies and slides. The user is reminded that exposure index is 10 for Daylight Type, 16 for the indoor Type A, and enough said.

Why tamper with a winner? Well, progress must not be denied, even though with a product as big as Kodachrome progress presents its logistic problems. Now, in the 25th year of Kodachrome, we can raise the Daylight Type index to 25 (and the Type A to 40).

There is a temptation to devise an ad slogan around the conjunction of 25's but to resist this temptation is not difficult. Indeed, the far greater difficulties of the logistic problem compel us to direct the advertising of Kodachrome II Film largely to the likes of you, who read such magazines as this one.

You can quickly grasp the implications of the fact that despite the increase of speed, there has been improvement in sharpness and graininess characteristics, not sacrifice as one would expect. Furthermore, bright colors are brighter, pastels cleaner, contrast lessened to cover a wider subject-brightness range. With the "bright sunlight" setting for 8mm movies reduced from $f/8$ to midway between $f/11$ and $f/16$, you have more depth of field. On a "cloudy bright" day you can use $f/8$ and be in focus as close as $3\frac{1}{2}$ feet without a close-up attachment over your regular 13mm lens. Indoors, with only two reflector flood lamps at the camera and an $f/1.9$ setting, you will be able to move farther back than before—as far as 20 feet.

Alas, the logistics. You grasp the implications but you wear no mark on your brow that entitles you to Kodachrome II Film if the dealer has just sold his last roll to your less scientifically inclined neighbor. Pity the dealer trying to deal fairly with the probably insufficient quantity of Kodachrome II that is currently reaching him. Pity us trying to fill those long, long pipelines with Kodachrome II Film while also keeping Kodachrome I flowing through the same pipelines without turbulence. Pity us trying to do this with a product which has to go through a production line twice—and be retained in the purchaser's possession for an uncontrolled period of time in between. Pity us.

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

Make over 200 Small
Computing and Reasoning
Machines with . . .

BRAINIAC®

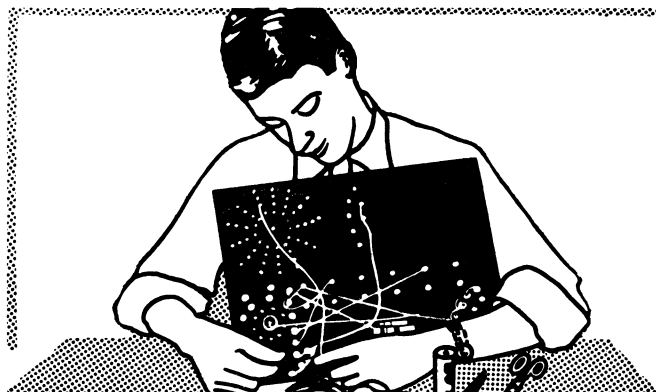
ELECTRIC BRAIN CONSTRUCTION KIT

EQUALS THE ORIGINAL 1955 electric brain construction kit PLUS many improvements and additions: over 600 parts—including 116 improved patented wipers so that all switches work well. The BRAINIAC K18 Kit gives full specifications for 201 computing, reasoning, arithmetical, logical, puzzle-solving and game-playing machines . . . 155 BRAINIACS (1957-58-59), etc., 13 TYNIACS (1956), and 33 original GENIACS® (1955).

WITH OUR BRAINIAC KIT K18, you can build over 200 small electric brain machines and toys which "think," compute, reason and display intelligent behavior. Each one works on a single flashlight battery . . . is FUN to make, FUN to use and play with, and TEACHES you something new about electrical computing and reasoning circuits. All connections with nuts and bolts—no soldering required. The Brainiac K18 kit is the result of 12 years' design and development work with miniature mechanical brains including: the original 1955 kit, Tyniacs (1956), Relay Moe (automatic relay machine playing tit-tat-toe—pictured in Life Magazine, March 19, 1956), Simon (miniature automatic digital computer with 129 relays—see "Simple Simon" by E. C. Berkeley in Scientific American November 1, 1950), Squee (electronic robot squirrel—see "Light Sensitive Electronic Beast" by E. C. Berkeley in Radio Electronics, December 1951), etc.

PROGRAMMING YOUR OWN PROBLEMS FOR THE BRAINIAC

The Brainiac is the smallest and lowest-cost semi-automatic, general-purpose digital computer existing. Many problems in ALL fields of knowledge and business can be programmed for the Brainiac—to the extent that a number of versatile multiple switches can express the problem. We shall be glad to program YOUR OWN problems. Write us—no charge for simple problems, modest charge for complicated ones.



WHAT CAN YOU MAKE WITH BRAINIAC KIT K18?

Over 200 machines including—LOGIC MACHINES: Syllogism Prover, Intelligence Test, Boolean Algebra Circuits, Douglas MacDonald's Will Analyzer, A Simple Kalin-Burkhart Logical Truth Calculator, Diagnosing Motor Car Trouble, etc. GAME-PLAYING MACHINES: Tit-Tat-Toe, Nim, Wheeled

Bandit, Black Match, Sundorra 21, etc. COMPUTERS: To add, subtract, multiply or divide using decimal or binary numbers, Forty-Year Calendar, Prime Number Indicator, Money-Changing Machine, etc. CRYPTOGRAPHIC MACHINES: Coders, Decoders, Lock with 15,000,000 Combinations,

etc. PUZZLE-SOLVING MACHINES: The Missionaries and the Cannibals, Age-Guessing Machine, Submarine Rescue Chamber, Daisy Petal Machine, Fox-Hen-Corn & Hired Man, Uranium Space Ship and the Space Pirates, The Three Monkeys Who Spurned Evil, General Alarm at the Fortress of Dreaderie, etc. QUIZ MACHINE: How to Tell an Aardvark from an Armadillo, The Waxing and the Waning Moon, Polar Air Routes, history, geography, trigonometry, grammar, statistics, calculus, etc.

WHO IS EDMUND C. BERKELEY? Author of *Giant Brains or Machines That Think*, Wiley 1949, 270 pp. (15,000 copies sold); Author of *Computers: Their Operation and Applications*, Reinhold, 1956, 366 pp.; Author of *Symbolic Logic and Intelligent Machines*, Reinhold, 1959, 203 pp.; Editor & Publisher of the magazine, *Computers and Automation*; maker and developer of small robots; Fellow of the Society of Actuaries; Secretary (1947-53) of the Association for Computing Machinery; Designer of all the Tyniacs and Brainiacs.

BRAINIAC KIT K18 . . . the kit with limitless possibilities—backed by an organization of 12 years standing in the computer field—\$18.95. (For shipment west of Mississippi, add 80¢; outside U.S., add \$1.80.)

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- Manual "Brainiacs—Small Electric Brain Machines—Introduction and Explanation" by Edmund C. Berkeley.
- "Introduction to Boolean Algebra for Circuits and Switching" by Edmund C. Berkeley.
- "How to Go from Brainiacs to Automatic Computers" by Edmund C. Berkeley.
- List of references to computer literature including "Minds and Machines" by W. Sluckin, published by Penguin Books (Baltimore), 1954, 233 pages, and other references.

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My name and address are attached