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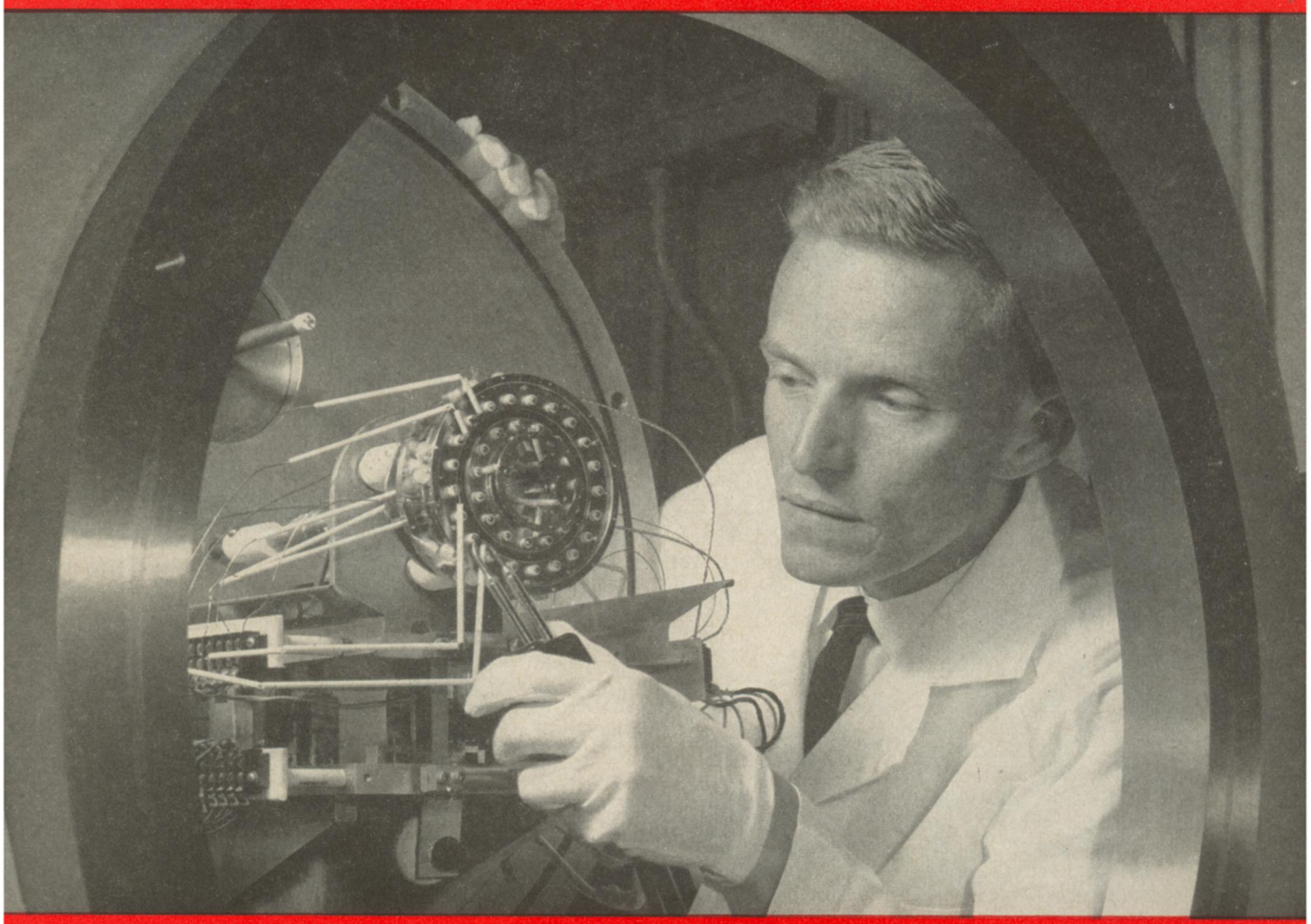
SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE



Engine for Space

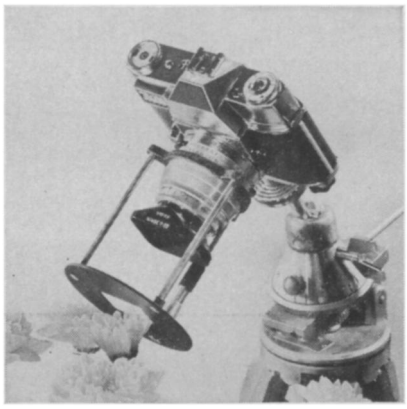
See Page 235

A SCIENCE SERVICE PUBLICATION

Kodak reports on:

how a clever fellow can cheat himself . . . the pencil that enrages the mind . . . where a disciple can look for details . . . 70,000,000 pounds per pound

Mighty magnification



Forty bucks for a few rings and rods to put over the front of the new *Kodak Retina Reflex III Camera?**

A mite under, actually, at the camera shop. Also includes an auxiliary lens. All nicely fitted together. Called the Kodak Retina 1:1 Copying Kit. *Switch the f/2.8 lens from the camera to the kit, snap the kit onto the camera, attach the auxiliary lens and the camera's lens hood, set the diaphragm between f/11 and f/22 and the distance scale at 5 feet. Snap, swish—just like that. Make pictures. Anything in the plane of the rectangular opening is focussed on the film same size. Depth of field at f/22 is 5.5 mm. When resulting slide is projected, magnification is mighty and can be useful for mensuration if a calibrating scale has been included in the picture. Handy for picturing platyhelminthes, coins, microcircuitry, the triumphant crystals of a new enzyme you have isolated. Kit also includes a slide holder and diffusion screen for making your own black-and-white duplicates of color slides.*

If you can make this kit yourself for less than $40, you are too clever a fellow to be working that cheap.

Forced drafting

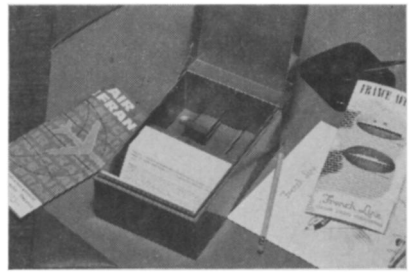
The truly creative mind tends to shy away from the petty problems of the drafting room. Then the creative mind gets angry and upset when damnable antiquated drafting procedures impede the swift and smooth transformation of its output into physical reality. Perhaps the petty problems are worth a few moments of the creative mind's time. They have solutions like

- speeding revision of drawings by picking up photographically everything from the existing drawing that is to appear in the revision
- converting drawings into rigid, dimensionally stable, non-staining, non-glaring, long-wearing overlays for contour projector screens
- making working drawings out of photographs of existing equipment instead of drawing everything
- photographic templates for standard or repeating elements in a drawing
- photographic intermediates for protecting original drawings, restoring old and worn ones, or avoiding waits for extra prints.

The Kodak Compass *is an irregular publication that will be sent free to whoever in your organization ought to be concerned with such matters. The first issue deals very plainly with pencils, inks, and eradication techniques for the new Estar Base drawing-reproduction films. Submit names to Eastman Kodak Company, Graphic Reproduction Division, Rochester 4, N. Y. Same address for quick answers to questions stirred up by these remarks.*

*Most versatile 35mm camera we make. Also works with *Kodak Retina Reflex S* and *IIIS Cameras*. Kit designed for f/2.8 models only.

Small print



This little file holds some 10,000 unabridged pages of technical reports of the French Atomic Energy Commission. The lady who lives in the house across the road may find this astonishing. Your boss may be astonished. Even you may be astonished. But to the reasonably alert librarian the micro-opaque card idea is old hat. Anything we can tell you about it your librarian can tell you better.* We merely draw attention to the following accretions to the available micro-opaque literature:

- **All the unclassified scientific reports released by the U. S. Atomic Energy Commission.**
  Even reduced 20× as they are in micro-opaque form, the complete set published to date would fill 250 boxes like the one above. The indexing mechanism for this incredible mass of information is *Nuclear Science Abstracts*, a periodical sold by the Superintendent of Documents, Washington 25, D. C.
- **The 1st Decennial Index to *Chemical Abstracts*, the brilliant chemical years 1907 to 1916.**
  Contains the roots of many a chemical concept since proliferated beyond the scope of a single mind. On some 60 3″ x 5″ cards sold by the American Chemical Society (1155 16th St. N. W., Washington 6, D. C.).
- ***All* the meteorological data gathered for the International Geophysical Year.**
  Purpose of whole shebang was to gather lots of data, remember? Here they are, ready to make use of. Ask the World Meteorological Organization (IGY Meteorological Data Centre, 1, Avenue de la Paix, Geneva, Switzerland).
- ***Justus Liebigs Annalen der Chemie* from 1832 to 1958 and *Berichte der Deutschen Chemischen Gesellschaft* from 1868 to 1958.**
  The New Testament comprises four Gospels; the science of chemistry seems to be founded on only three gospels, less influential spiritually but vastly more voluminous. Microprint overcomes the voluminousness but accomplishes nothing spiritually. The third gospel, *Beilstein*, got the treatment earlier. Microcard Editions, Inc.
- ***The First Six Million Prime Numbers.* 1 (controversial) to 104,395,289.**
  Result of a 4-day holiday weekend with a large computer and nothing better to do than a favor for mathematicians working in number theory. Microcard Editions, Inc.

For any sustained use of micro-opaques, you need a micro-opaque reader. Ten years ago they were rare. Today the central research library that lacks one is rare. Any scientific discipline that needs to communicate large masses of data to a limited number of its disciples should consider microprint. For suggestions on how to proceed, write Recordak Corporation, 415 Madison Avenue, New York 17, New York (Subsidiary of Eastman Kodak Company).

*The reason *we* try to tell you is that we want to sell the raw photographic materials on which microprint cards are printed. We also want to sell microfilm. The librarian can tell you about *that*, too. A new conventional-sized reference, "Guide to Microforms in Print" ($4, Microcard Editions, Inc.), summarizes everything available.

How to stick together

The naive dream of a stickum to stick metal to metal without heat, waiting, clamping, or shrinkage came true in November, 1958, with the announcement of *Eastman 910* adhesive. Because it is the costliest adhesive on the market, pound for pound, we dubbed it "the adhesive to use when no other will do." This is candor gone wild. It neglects the fact that a pound yields about 14,000 drops, each of which can bond one square inch of almost anything—not just metal—to a square inch of almost anything else so that as much as 5000 pounds can be required to pull them apart. (Porous materials drink up more adhesive.)

Thousands have bought samples by mail order. Hundreds of the sample-buyers have solved serious assembly problems with the stuff. Techniques have evolved. They have to be seen to be believed. To show some of them, we have made a 15-minute sound movie for showing to professional and industrial groups. It demonstrates how-not-to's along with the how-to's.

To borrow the film for a showing, write Eastman Chemical Products, Inc., 260 Madison Avenue, New York 16, N. Y. (Subsidiary of Eastman Kodak Company).

Price is subject to change without notice.

Kodak
TRADEMARK

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

Can you handle a googol?

A googol* looks like this:
1,000000000000000000000000000000000000000000000000000000000-
000000000000000000000000000000000000000000000000000000000.
(But it's much more manageable when written: 10^{100}.)

IF you want to understand modern scientific research, you have to be able to handle a googol. You might even find yourself tangling with a number as unwieldy as the googolplex (10^{googol}) – or as infinitesimal as $\frac{1}{\text{googol}}$.

The relation of numbers to nature–both in terms of understanding actual phenomena and of thinking abstractly about ideal concepts – has fascinated the great minds of many centuries. Mathematics is a mainstream of thought – the queen and handmaiden of modern science. Nothing can equal its power to delight, absorb, and stretch the human mind.

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Who is behind the NEW MATHEMATICAL LIBRARY?

The School Mathematics Study Group – a national organization of scholars and educators with headquarters at Yale University. It was set up through the cooperative efforts of America's three major mathematical societies:
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The Mathematical Association of America
The National Council of Teachers of Mathematics
with financial support from
The National Science Foundation
to strengthen the teaching of mathematics in the United States.

The Monograph Panel of the School Mathematics Study Group is an editorial group composed of noted mathematicians from universities and industry, as well as experienced high school teachers. Its aim is to issue publications covering interesting aspects of mathematics not usually discussed in texts or in classrooms. This panel – which has offices at the Institute of Mathematical Sciences, New York University – supervises the writing and publication of the NEW MATHEMATICAL LIBRARY.

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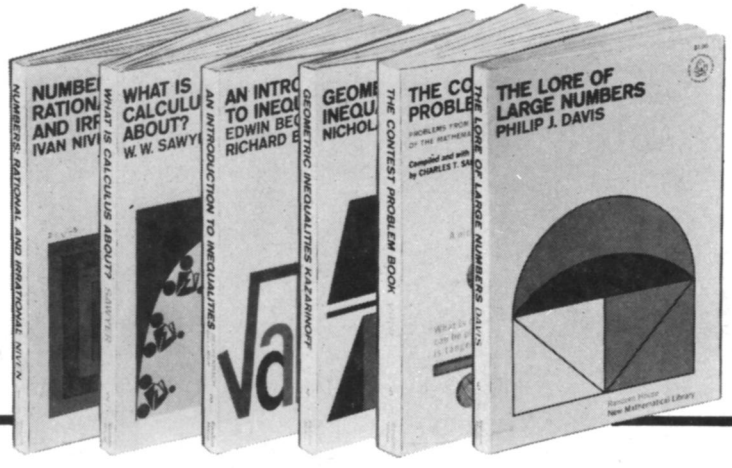

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6. THE LORE OF LARGE NUMBERS. By PHILIP J. DAVIS (*National Bureau of Standards*). This delightful volume takes you from billions to googols, and beyond – and explains clearly many interesting properties and uses of numbers.

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