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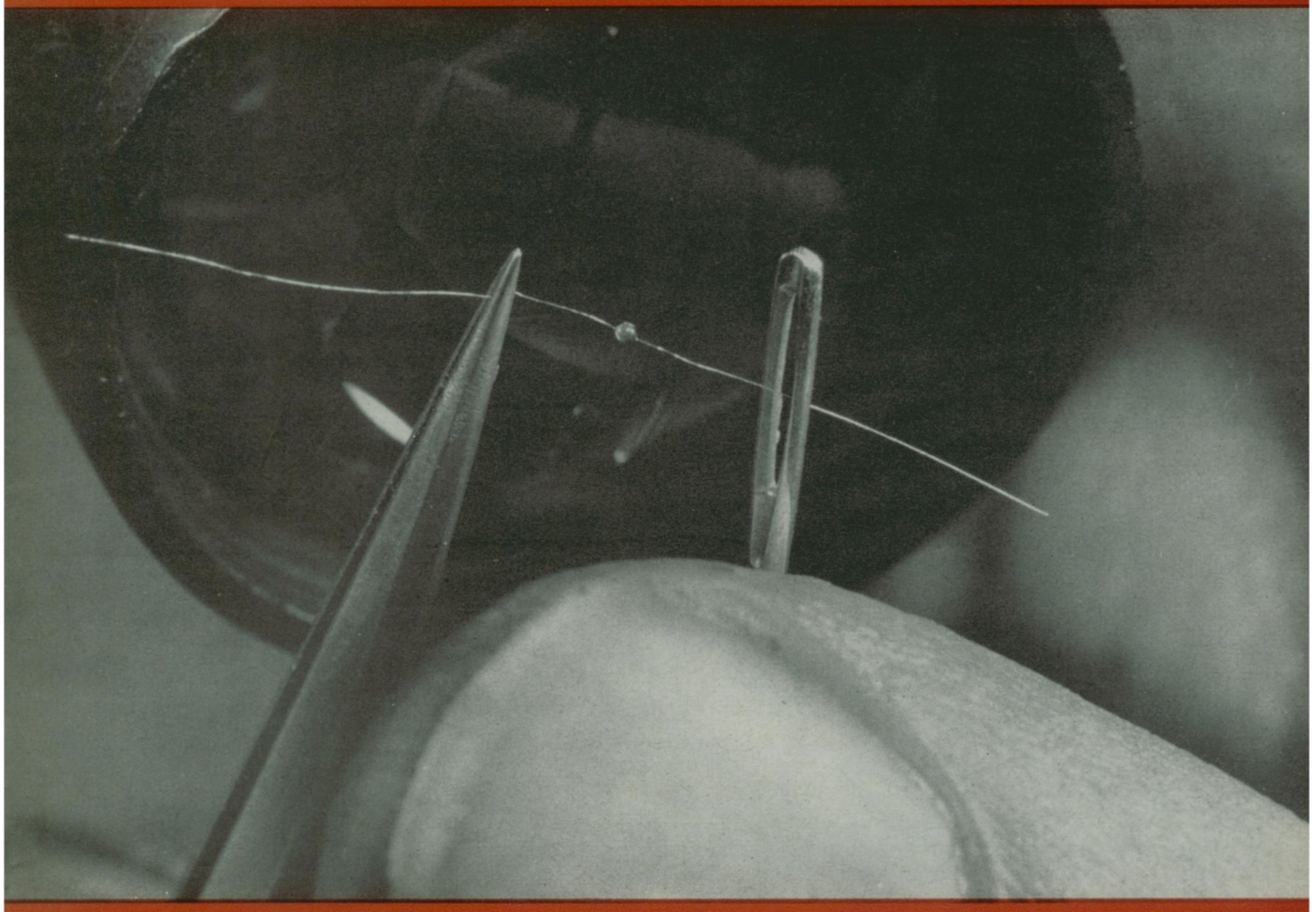
SCIENCE NEWS LETTER

®

THE WEEKLY SUMMARY OF CURRENT SCIENCE



Midget Measurer

See page 123

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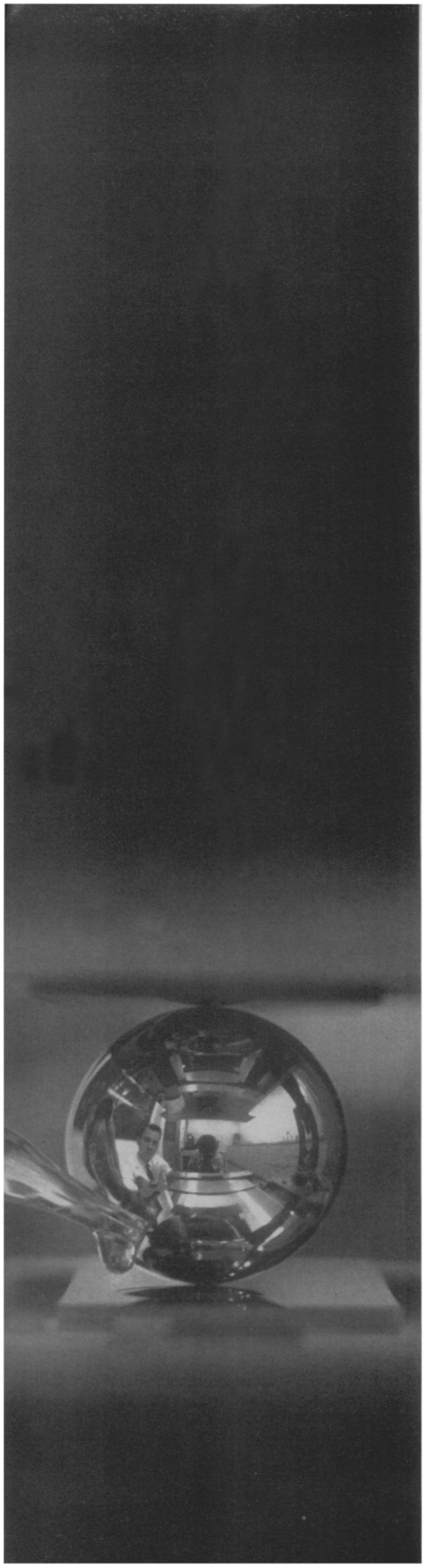


One of a series

On the riddle of rolling friction

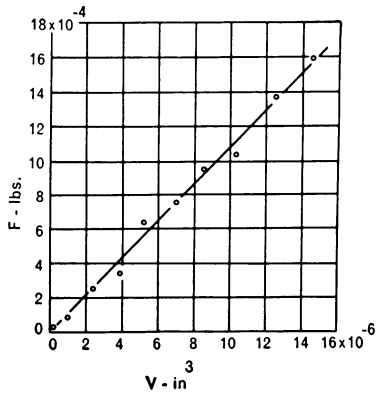
It doesn't take much to roll a hard ball across a hard, smooth, level surface — actually only about 0.00001 times the normal force acting vertically on the ball. But by careful measurement of this tiny rolling force, scientists at the General Motors Research Laboratories are helping to unravel the riddle of rolling friction.

An important relationship recently uncovered in this fundamental study: the rolling force is proportional to the volume of material that is stressed above a certain level. As a result, a GM Research group have not only confirmed the hypothesis of *how* a rolling ball loses energy (Answer: elastic hysteresis) but also have learned *where* this lost energy is dissipated (Answer: in the interior of the material, not on the surface). Mathematical analyses have indicated the exact shape of the elastically stressed volume in which all the significant frictional loss takes place.

The purpose of friction research at the GM Research Laboratories is to learn more about the elastic and inelastic behavior of materials. This knowledge — of academic interest now — will eventually give GM engineers greater control of energy lost through friction. This is but one more example of how General Motors lives up to its promise of "More and better things for more people."

General Motors Research Laboratories

Warren, Michigan



Relationship of rolling force to elastically stressed volume.

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- Complete descriptions of 201 experiments and machines.
- Over 170 circuit diagrams including 46 exact wiring templates.
- Manual "Brainiacs—Small Electric Brain Machines —Introduction and Explanation" by Edmund C. Berkeley, 1959.
- "Introduction to Boolean Algebra for Circuits and Switching" by Edmund C. Berkeley.
- "How to Go from Brainiacs and Geniacs 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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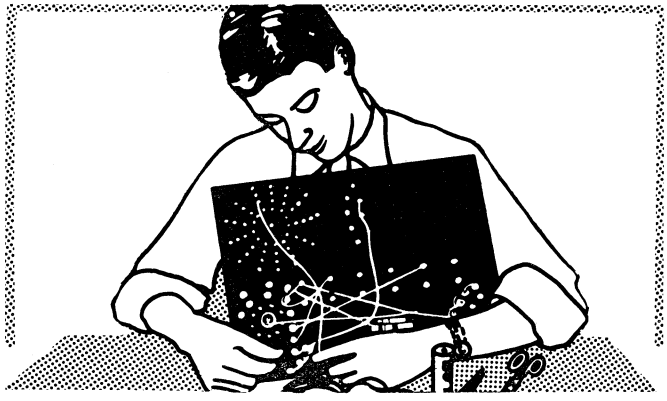

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WHO IS EDMUND C. BERKELEY? Author of *Giant Brains or Machines That Think*, Wiley, 1949, 270 pp. (15,000 copies sold); Author of *Computers: Their Operation and Applications*, Reinhold, 1956, 366 pp.; Author of *Symbolic Logic and Intelligent Machines*, 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, more than half of the 33 Geniacs (1955); Designer of the patented Multiple Switch Disc and other features in the 1955 Geniac kit.

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