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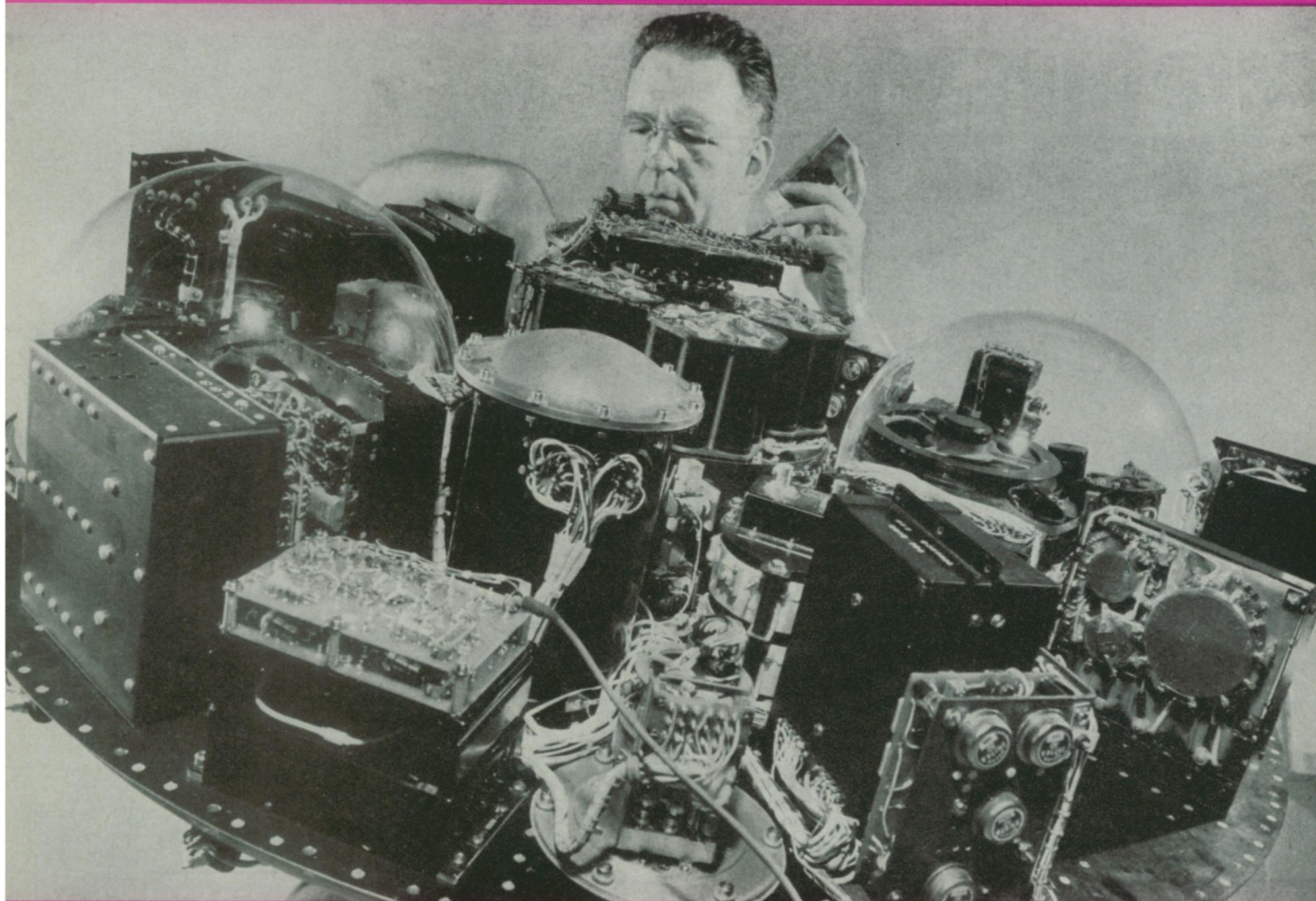
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April 16, 1960

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# SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE



**Inside Tiros**

See Page 246

A SCIENCE SERVICE PUBLICATION



Research Model ECBi

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## Payoff in portable photons

**Samarium-145, Samarium-153, Gadolinium-153.**

Scientists at the General Motors Research Laboratories began three years ago to measure and re-evaluate the nuclear characteristics of these rare earth isotopes — their half-lives, photon emissions, thermal neutron cross sections.

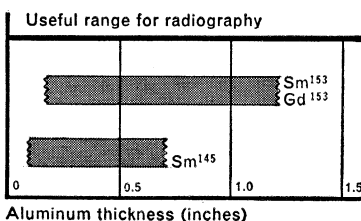
**Conclusion:** the radioisotopes had attractive possibilities in industrial and medical radiography, emitting almost pure gamma rays or X-rays (photons) in the low energy range of 30 to 100 kev.

The transition from research to hardware came through two key developments. First, cermet pellets were fabricated using only a few milligrams of the rare earth oxides. Then the irradiated pellets were packaged in special bullet-size holders.

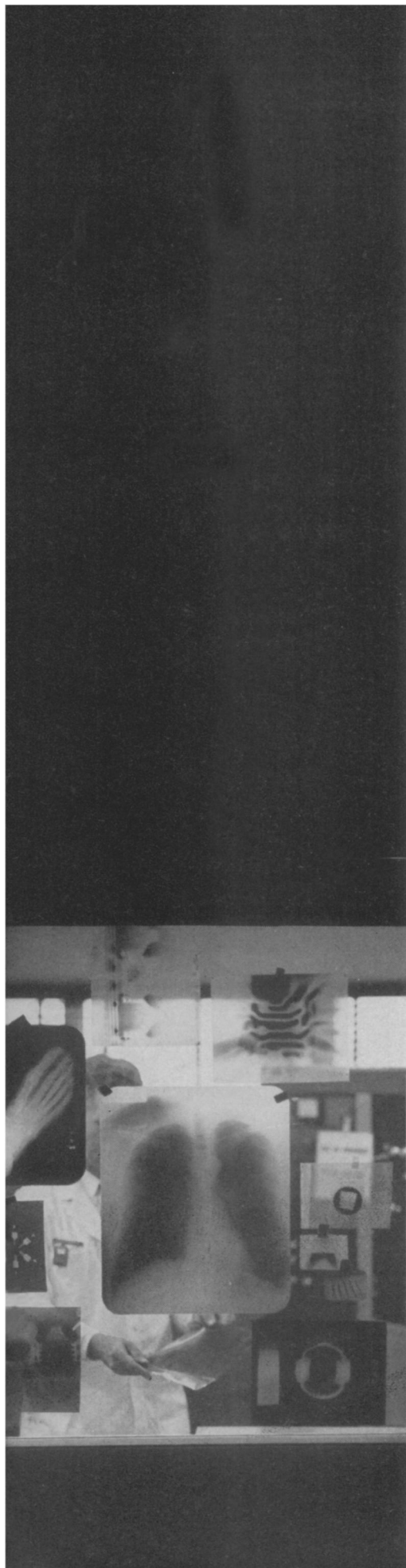
The resulting small, sealed radiographic sources are now being field and laboratory tested. Two excellent applications: "inside-out" checks of hollow shapes inaccessible to X-ray tubes, and radiography of thin steel sections and low density materials such as aluminum or human bone. For example, a recent medical milestone was a chest radiograph of a living person made with a  $\text{Sm}^{153}$  source. The portable exposure unit to shield the source weighed only 18 pounds.

This isotope radiography program is but one example of the work underway in GM Research's modern isotope laboratory — work that means, through science, "more and better things for more people."

## General Motors Research Laboratories Warren, Michigan



$\text{Sm}^{153}$  exposure unit.



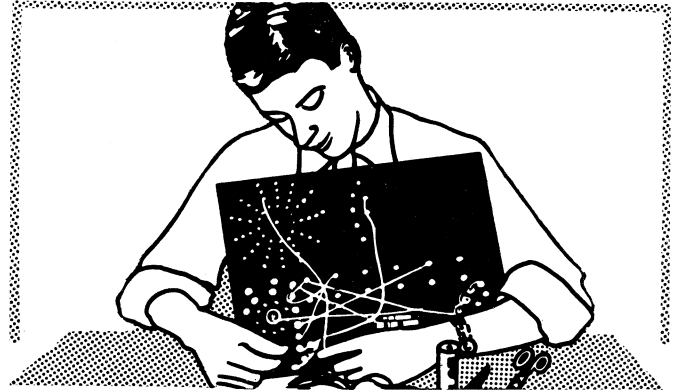
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- Manual "Brainiacs—Small Electric Brain Machines—Introduction and Explanation" by Edmund C. Berkeley, 1959.
- "Introduction to Boolean Algebra for Circuits and Switching" by Edmund C. Berkeley.
- "How to Go from Brainiacs and Geniacs to Automatic 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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**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, 208 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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