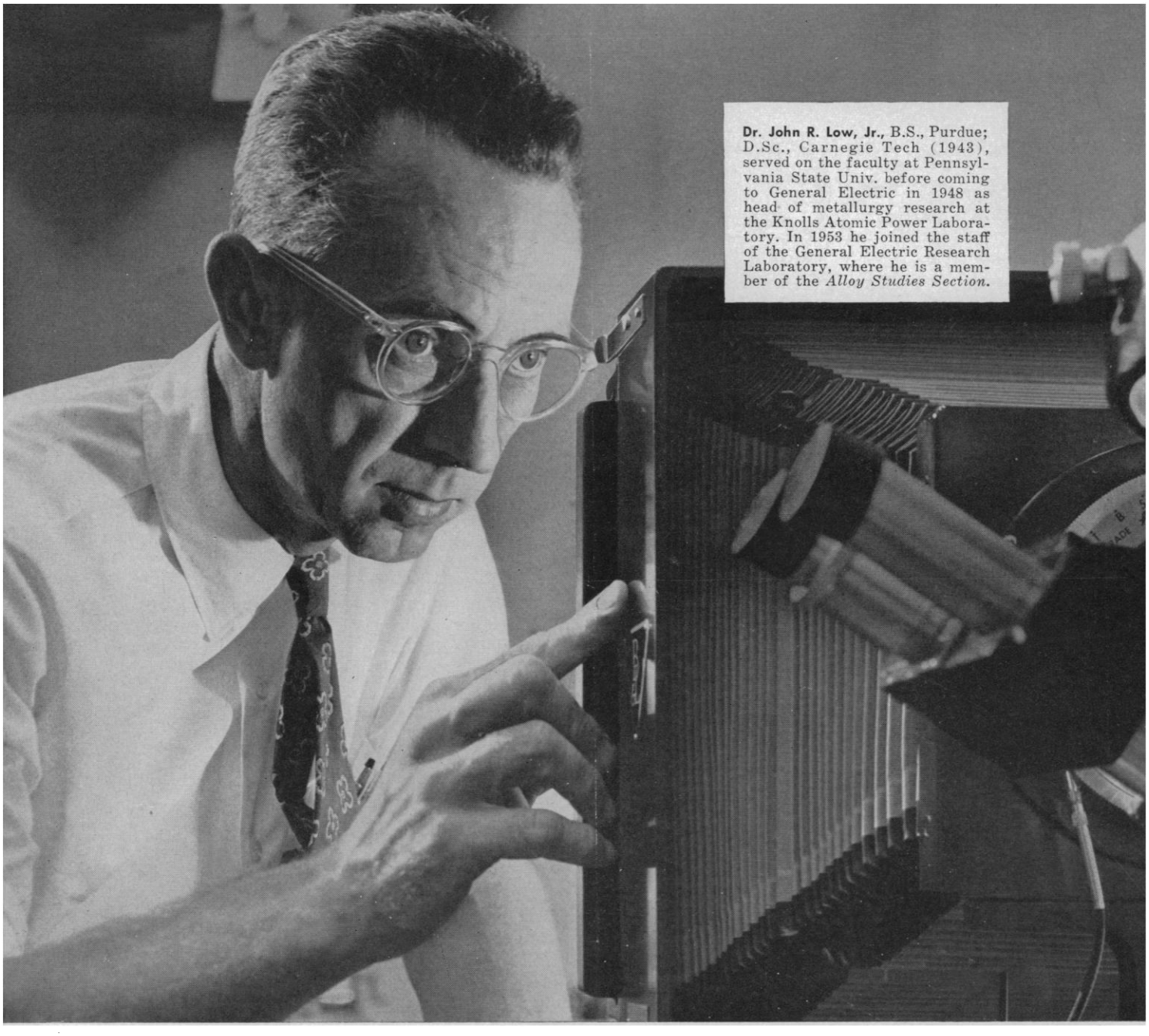
SCIENCE

11 January 1957

Volume 125, Number 3237

AMERICAN ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE



Dr. John R. Low, Jr., B.S., Purdue; D.Sc., Carnegie Tech (1943), served on the faculty at Pennsylvania State Univ. before coming to General Electric in 1948 as head of metallurgy research at the Knolls Atomic Power Laboratory. In 1953 he joined the staff of the General Electric Research Laboratory, where he is a member of the *Alloy Studies Section.*

Searching for safer metals

Dr. J. R. Low, Jr., of the General Electric Research Laboratory, provides theories to explain the fracture of materials

A history of wintertime tragedies involving broken ships, collapsed bridges, and ruptured pipelines testifies to the importance of understanding why metals break as they do. Dr. J. R. Low, Jr., of the General Electric Research Laboratory, began his attack on the problem of *low-temperature fracture* by looking for the very first evidences of cracks in a stressed-metal sample. He found that tiny breaks — microcracks — actually are present in the grains of the metal well before catastrophic failure occurs.

Recently, Dr. Low has been able to assemble the known facts about fracture into a consistent theory and thus has provided a mathematical relationship between the grain size and the brittleness of metals.

Dr. Low's work is being applied to making better and safer *metals* — and also to the development of *ceramics,* where a reduction in brittleness at both high and low temperatures could mean a revolution in materials for tomorrow.

At General Electric, such research is motivated by a belief that providing scientists with the tools, the incentives, and the freedom to seek out new knowledge is the first step toward progress for everyone.

Progress Is Our Most Important Product

GENERAL ELECTRIC

(Left to right) Dr. John Bardeen*, Dr. William Shockley* and Dr. Walter H. Brattain, shown at Bell Telephone Laboratories in 1948 with apparatus used in the early investigations which led to the invention of the transistor.

Bell Telephone Laboratories Salutes Three New Nobel Prize Winners

Drs. John Bardeen, Walter H. Brattain and William Shockley are honored for accomplishments at the Laboratories

The 1956 Nobel Prize in Physics has been awarded to the three inventors of the transistor, for "investigations on semiconductors and the discovery of the transistor effect."

They made their revolutionary contribution to electronics while working at Bell Telephone Laboratories in Murray Hill, N. J. Discovery of the transistor was announced in 1948. Bell Laboratories is proud to have been able to provide the environment for this great achievement.

This is the second Nobel Prize awarded to Bell Telephone Laboratories scientists. In 1937 Dr. C. J. Davisson shared a Nobel Prize for his discovery of electron diffraction.

Such achievements reflect honor on all the scientists and engineers who work at Bell Telephone Laboratories. These men, doing research and development in a wide variety of fields, are contributing every day to the improvement of communications in America.

**Dr. Bardeen is now with the University of Illinois, and Dr. Shockley is with the Shockley Semiconductor Laboratory of Beckman Instruments, Inc., Calif.*

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