



*Gerald L. Pearson*

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1905–1987

By John G. Linvill

Gerald L. Pearson, professor emeritus of electrical engineering at Stanford University, died on October 25, 1987, at the age of eighty-two. He was a key participant in the research effort at the Bell Telephone Laboratories (BTL), which brought the transistor and related semiconductor devices into being. In 1960 he took early retirement from the Bell Laboratories and initiated a faculty career at Stanford in the newly started solid-state electronics program. His faculty career, which started when he was fifty-five, produced thirty outstanding Ph.D. graduates and a rare kind of professional collegueship with faculty members and Ph.D. students as well as a continuing flow of personal research results.

Gerald Pearson was born in Salem, Oregon, on March 31, 1905. He attended Willamette University in Salem and obtained an A.B. in mathematics and physics in 1926. In 1927 he undertook graduate study at Stanford and obtained his M.A. in physics in 1929. He went directly to the Bell Telephone Laboratories to begin his career as a research physicist.

Pearson's research at BTL in temperature-sensitive resistors had an important impact on the telecommunications industry. His work led to thirteen patents related to thermistors. Then he joined the research group at Bell Laboratories doing fundamental research on semiconductor materials. He conceived and carried out an elegant series of experiments on semiconductors,

experiments that were crucial in identifying physical models of behavior of materials, pn junctions, and semiconductor devices. His experimental results were essential to the development of models of semiconductor behavior developed by his colleagues William Shockley and John Bardeen, models that led to new device and systems conceptions in an industry just being born. His best-known invention is the silicon solar battery, which evolved into the power source for satellite communication. He invented the solar battery jointly with C. S. Fuller and D. M. Chapin.

In the late 1950s Stanford University was initiating a semiconductor electronics program and planning an industry-class experimental facility to promote research that could only succeed in such a facility. Pearson's experience and perspective were central to the realization of that objective. He joined the Stanford faculty in 1960 and made the transition from the Bell Laboratories to Stanford with rare flexibility and insight. He promptly developed a team of research students, mastered the task of getting governmental support for his and their research, and established expectations in his team for excellence of work and publication that had long characterized his research at Bell Laboratories. One of Pearson's BTL colleagues remarked that when new facets of solid-state research emerged, he usually found that Pearson had already done a few definitive experiments. That characteristic continued at Stanford, where he undertook research on compound semiconductors and set up one of the first university programs in that area. When he became emeritus professor in 1970, his research activity was at full volume. He was recalled to active duty annually through his seventy-ninth year.

Gerald Pearson's career was rich with recognition and awards. In 1956 Willamette University, his undergraduate school, conferred on him an honorary doctoral degree. In 1968 he was elected to membership in the National Academy of Engineering and, later, to membership in the National Academy of Sciences. He was a fellow of the American Physical Society and the Institute of Electrical and Electronics Engineers and a life member of the Franklin Institute and the Telephone Pioneers of America.

Pearson received the John Scott Award from the city of Philadelphia Board of Directors of Trusts, the John Price Wetherill Medal from the Franklin Institute, the Medal Mariana Smoluchowskiego from the Polish Physical Society, the Golden Plate Award from the American Academy of Achievement, the Solid State Science and Technology Award from The Electrochemical Society, and the 1981 Gallium Arsenide Symposium Award from Japan.

Gerald Pearson was a colleague inclined to work productively and congenially outside his own domain. As an experimentalist, he sought and was sought by theoreticians. In the university he was a colleague to other academic types but also retained his contacts with industrial contemporaries who valued his work and ideas. He bridged the generations in the university, working closely with the graduate student population even while he was an emeritus faculty member. He left a trail of constructive interactions because of his intellectual and professional standards and magnanimous personality.