In 1968 he established the International Laboratory for High Magnetic Fields and Low Temperature created by agreements among the academies of sciences of Bulgaria, the German Democratic Republic, Poland and the Soviet Union. He was director of this laboratory up to his death.

The scientific community in the world, and particularly in Poland, has lost an outstanding scientist.

BOHDAN STALINSKI
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Irving Wolff

Irving Wolff, retired vice president for research at RCA Laboratories, Princeton, died on 5 December 1982, at the age of 88. He was a pioneer in microwave radar research, having made transmission and reflection tests with 9-cm waves at Atlantic Highlands, New Jersey, as early as 1934. In those tests, in which I collaborated, we detected a ship entering New York harbor and such other objects as a water tank and large trees. The Army, in a Signal Corps history published in 1956, said that these tests "may well have been the first successful use in the United States of microwave radar, or of what eventually became microwave radar."

Wolff led programs at RCA on altimeters and various navigation and missile-guidance systems, such as Teleran for air guidance and traffic control.

Wolff was born in New York City, graduated from Dartmouth College in 1916, and received his PhD in physics from Cornell in 1923. Subsequently he joined the RCA Technical and Test Laboratory in New York, and then, in the early 1930s, he transferred to the RCA Research Department at Camden. In 1951 he was appointed director of research of the RCA Laboratories in Princeton, and in 1954 became vice president for research. He retired in 1959.

WOLFF

In addition to his work on microwaves, Wolff contributed to acoustics, optics, radio, infrared detection, and radio-frequency heating. He was intensely interested in aviation, being a licensed pilot and joint owner of a plane. This interest, no doubt, influenced the early direction of RCA microwave development toward aviation applications.

In his later years Wolff worked toward the improvement of scientific education. He was an adviser to several educational institutions, including the Princeton University physics department, the Manhattan College electrical engineering department, the Scientific Advisory Committee for the Association of Applied Solar Energy and the New Jersey Committee for the Improvement of Secondary Education in Science.

ERNEST G. LINDER
Boynton Beach, Florida

John W. Cleland

John W. Cleland, a physicist at Oak Ridge National Laboratory, died 16 October 1982 at the age of 61.

He received his BS degree from Monmouth College in 1943, and after serving in the US Army received his MS in physics in 1949 from Purdue University. Cleland joined Oak Ridge in 1949 and was a member of the research staff of the Solid State Division until his death. With J. H. Crawford he performed a long series of pioneering studies of the effect of nuclear radiation on the properties of semiconductors. Cleland published the first work on the doping of semiconductors by neutron transmutation, a process that is now widely used for the doping of silicon in the semiconductor industry because of the spatial uniformity of doping that can be attained in this way. His interests also included crystal growth and characterization, primarily in semiconductors. During the past few years he worked on developing techniques for improving efficiences of photovoltaic cells and on the long-standing problem of the interaction of dissolved oxygen with defects in silicon.

R. F. WOOD
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