

As a practising physicist, Hermann understood the culture of the research he managed. Through ARO, he used funds from the Joint Services Electronic Program to help advance laser and maser research. Among the beneficiaries of this funding was Nicolaas Bloembergen, who shared the 1981 Nobel Prize in Physics prize for his work on laser spectroscopy. As Bloembergen recalled: "[In the early 1960s] I did not have to write a formal new proposal to start work in optics. The management of the JSEP in those years was very flexible. Dr Hermann Robl took a very active interest in our studies. . . ."

At ARO, Hermann was promoted successively—rising to become director of physics in 1957, chief scientist in 1973 and technical director in 1975—a position he held until his retirement ten years later.

Starting in 1959, he also taught courses in the physics department at Duke University, where he was an adjunct professor until his retirement. As an adviser to several graduate students at Duke, he declined opportunities to be listed as a coauthor on their manuscripts unless he felt he had participated significantly in the research.

Highly regarded for his contributions to the defense R&D community, Hermann received the Army's highest awards for civilian service.

Hermann's personal research interests were in quantum optics and the nonlinear interaction of light. In retirement, he remained active in solving theoretical problems, mostly with his personal computer. His keen interest in atomic physics and astronomy continued despite growing health problems that restricted him to a wheelchair.

Eager to always stay abreast of the latest research, Hermann could at times feel frustrated by an overload of administrative work in his demanding position at ARO. However, he took great satisfaction from having the ability to advance science through appropriate funding with a minimum of bureaucracy. This shy, gentle and generous scientist will be sorely missed by his family, friends and colleagues.

HORST MEYER
Duke University

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John Edward Wertz

John Edward Wertz, a pioneer in electron paramagnetic resonance (EPR) spectroscopy, passed away quietly in St. Paul, Minnesota, on 8 August 1997

after a lengthy illness.

Born in Denver in 1916, John studied chemical engineering at the University of Denver, where he earned a BSc in 1937 and an MSc in 1938. Under the supervision of Thomas "Tuffy" Young, he earned a PhD in chemistry from the University of Chicago in 1948.

John began his academic career in 1941 as an assistant professor at Augustana College in Rock Island, Illinois. Three years later, he moved to Gustavus Adolphus College in St. Peter, Minnesota, and, in 1947, to the University of Minnesota, where he remained until his retirement in 1981.

One of John's early interests was surface chemistry—the magnetic susceptibility of absorbed layers, for example. When he started work at the University of Minnesota, he acquired some surplus US Navy equipment, including a bank of submarine batteries, which he used to provide DC current for the magnet of his home-built EPR spectrometer. A Fulbright scholarship and a Guggenheim fellowship enabled him to polish his EPR spectroscopic expertise at the University of Oxford's Clarendon Laboratory in 1957–58.

A fire in the University of Minnesota's chemistry building in the early 1960s destroyed the home-built EPR spectrometer, but led to the purchase of a new Varian EPR spectrometer—but only its essential core. Fortunately, John had drawers full of microwave parts and loved to construct the special add-ons that were needed.

John was interested in many aspects of EPR spectroscopy, from the spectra of semiquinones in solution to those of point defects in solids. His 1955 review article "Nuclear and Electronic Spin Magnetic Resonance" (*Chemical Reviews* volume 55, page 829) enhanced his fine reputation. His work on the EPR and optical spectroscopy of point defects in magnesium oxide is undoubtedly his most important research legacy, and is summarized in the 1977 book *Defects in the Alkaline Earth Oxides* (Halsted Press), which he wrote with Brian Henderson.

In 1967, the American Chemical Society asked John to organize a short course on EPR. John invited Jim Bolton to join him in this effort, and together they presented at least five such courses all over the US. As the course notes grew and grew, it became obvious that they represented the core of a book on EPR. Over the next two years, John and Jim spent many weekends and evenings working together on writing *Electron Spin Resonance: Elementary Theory and Practical Applications* (McGraw-Hill, 1972), which quickly became recognized as the premier text-

book in the field. (A revised edition, with John Weil as lead author, was published in 1994.)

Toward the end of his academic career, John became very involved in the Metric Commission and tried fervently to push the US toward the use of metric units in schools and society.

John will be remembered warmly by his friends as a quiet pioneer of EPR spectroscopy, a fine researcher, a wonderful teacher and a kind, gentle person who always laid out the welcome mat for visitors from near and far.

JIM BOLTON

University of Western Ontario
London, Ontario, Canada

JOHN WEIL

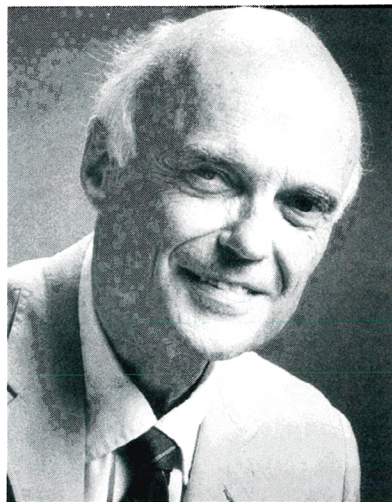
University of Saskatchewan
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Ross Edward Williams

Ross Edward Williams, who made valuable contributions to the field of underwater acoustics, died of pancreatic cancer in Branford, Connecticut, on 8 November 1997.

Ross was born on 28 June 1922 in Carlinville, Illinois, but was raised in Scarsdale, New York. After earning a BS in physics and mathematics from Bowdoin College in 1943, he joined the US Naval Reserve and served as a radio officer on the aircraft carrier *USS Yorktown* for the remainder of World War II.

After the war, Ross worked at the



ROSS EDWARD WILLIAMS

Office of Naval Research (ONR) before beginning graduate studies in the physics department at Columbia University. While studying at Columbia, he worked as a senior research engineer for Sperry Products, then as a graduate research assistant at Colum-



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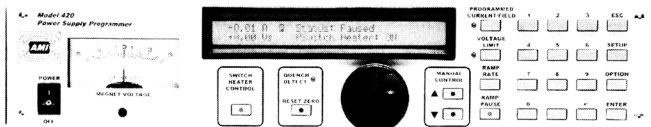
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bia's Nevis Laboratory and later as a private consultant. He earned his PhD in 1955 for experimental work on the scattering of π mesons by various nuclei.

Starting in 1960, the year he joined Columbia's Hudson Laboratories as a senior research associate, Ross devoted most of his professional life to underwater acoustics and related areas. Two fundamental questions interested him throughout his career: How can we detect and identify what—whale or submarine—is in the ocean, and, When can our own submarines be detected?

In 1965, he became Hudson Laboratories' assistant director, and, a year later, he became associate director.

Much of his work at Hudson was with the ONR-sponsored Artemis project—a large-aperture, active sonar research effort that involved thousands of listening devices anchored to the ocean floor off Bermuda. Ross, who directed the Artemis lab in Bermuda, worked on the theory, processing and interpretation of the combined signals.

When student protests led to the closure of Hudson Laboratories in 1968, Ross became a professor of engineering and applied science and, until 1974, directed the ocean engineering program at Columbia.

In 1969, Ross helped to found Ocean & Atmospheric Science, Inc, which, in its early days, undertook research in underwater acoustics as well as various commercial engineering projects—including control systems for chlorine plants, ship-loading computers and one of the first telephone billing systems for a PBX switchboard. He began to take a more active role in OAS when he became chairman of the board in 1972. Under his leadership, the company broadened its efforts in computerized controls and energy management systems. At the same time, he continued his consulting work on active sonar systems. He became the company's president in 1977 and its CEO in 1995.

Throughout his life, Ross loved the woods of New Hampshire and spent as much time there as possible. He also enjoyed collecting and driving old cars (some were antiques, some were jalopies—which created interesting challenges for him and his passengers whenever they broke down!) He went jogging well into his seventies and was an active lay leader in his church.

Ross will be fondly remembered by his many friends and colleagues.

FREDRICK W. COTTON

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