we hear that

American Vacuum Society. He is the twelfth person to receive this honor in the 25-year history of AVS.

Margaret Law is now Registrar of the Faculty of Arts and Sciences at Harvard University. She was a lecturer and senior research associate in physics there.

E. Kevin Cornell, a staff member on the Senate Committee on Environment and Public Works, has been appointed deputy executive director for operations of the Nuclear Regulatory Commission.

obituaries

Ralph A. Sawyer

SAWYER

Ralph Alanson Sawyer, physicist and science administrator, died 6 December at the age of 83. A native of New Hampshire and a graduate of Dartmouth College, he received his PhD from the University of Chicago in 1919. After a period of service as an ensign in the Navy he joined the University of Michigan, in whose service he continued, except for temporary leaves, until he retired in 1964. Sawyer had two principal talents and an outstanding career in each: one as a research physicist and teacher, the other as an administrator of science and education. Space will permit the recounting of only the highlights.

Sawyer's period of intensive research ran from the time he worked for his PhD until the time World War II began, when he turned his energies to the service of the US Navy. Early in that period (1926) he won a Guggenheim Fellowship, which enabled him to study with, and collaborate with, the eminent spectroscopist Friedrich Paschen at the University of Berlin. By the time the war came along he had published well over 50 papers, mainly in the area of vacuum ultraviolet spectroscopy. Not only had he measured and analyzed many new spectra, but he had developed apparatus that had been widely adopted. He had advanced the art of using hollow-cathode light sources, and had introduced changes in the vacuum spectrometer to make it capable of recording spectra in rapid succession. In the mid 1930's he, with a colleague, H. B. Vincent, had carried the technique of rapid quantitative spectrochemical analysis to the point where a technician could make "on-line" determinations of the composition of samples of the metal in a steel mill at the rate of one every six minutes, thereby making possible adjustments in a batch of steel while it was still in process. The technique was also applied in the bio-medical field, notably in the detection of traces of heavy metals in human blood and urine. Sawyer brought together the existing techniques of spectroscopy, many of which he had developed, in a book *Experimental Spectroscopy* which he first published in 1945 and which was widely used for a long time. In recognition of his pioneering work in the field he received the prestigious Frederic Ives Medal of the Optical Society of America, and the Award of The Society for Applied Spectroscopy.

The practical knowledge of the kind that Sawyer possessed was in great demand at the onset of the war. He soon found himself directing the Armor and Projectile Laboratory at the Navy Proving Ground at Dahlgren, Virginia, and then in charge of all the technical work there. After the war (1946) Sawyer was given an assignment of an awesome nature: he was made scientific director of the atomic bomb tests at Bikini Atoll, with a scientific staff numbering more than 500 under his charge.

Sawyer's talents for administration did not go unnoticed at home: while he was still in Bikini he was appointed Dean of the Graduate School at Michigan. More appointments followed. In addition he was made director of the Michigan Memorial Phoenix Project (a project "for the peaceful uses of atomic energy"), and later (1959) was made Vice President for Research, a newly created post at Michigan. The period in which Sawyer was Dean and Vice-President was that of the new and rapidly expanding Federal support of university research. He devoted a great share of his time to developing that participation at his university. His efforts

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were in large measure responsible for establishing the University of Michigan as one of the leaders in Federally sponsored research.

Although Sawyer's work for the Navy and the University kept him busy, he still found time for an amazing amount of outside service, mainly to scientific societies and to the National Laboratories. He served a term as president of the Optical Society of America, and as an associate editor of its journal. For 12 years (1959–71) he shepherded the American Institute of Physics, as chairman of its board of governors. The years of his chairmanship were those in which many hard decisions had to be made, and Sawyer was a benevolent but firm leader, deeply respected by all. In two intervals during his period of chairmanship the Institute was without a director, and Sawyer took over, spending much of his time at the New York headquarters. Old-time board members will still recall fondly how the meetings were conducted: all the business got done, and adjournment occurred at the scheduled minute. In 1971, after his retirement from the chairmanship, the American Institute of Physics bestowed its highest honor upon Ralph Sawyer: the Karl Taylor Compton gold medal "for distinguished statesmanship in science."

Sawyer found time to do many more things: among them he was President of the Association of Graduate Schools in the AAU, and he served on the councils of many of the nation's major laboratories.

Ralph Sawyer is deeply missed by all who had the privilege of knowing him, both for his warm friendship and for his wise leadership in the affairs that affect all of our lives.

H. RICHARD CRANE
University of Michigan

Ralph B. Kennard

Ralph B. Kennard, emeritus professor of physics at The American University, died 5 November at 86. Kennard earned his undergraduate degree in chemical engineering in 1916 and his masters in 1919, both from Columbia University. He travelled to China in 1919 to head the physics department at Shanghai College. After Kennard received his PhD in physics in 1924 from the University of Chicago he left the country again, this time for Constantinople, where he headed the physics department at Robert College until 1930. After a two-year fellowship at the National Bureau of Standards, he was hired to head the physics department at Wilson Teachers College. During World War II, he worked at NBS's aeronautical instruments section. Between 1946 and 1967, Kennard held positions with the US Naval Ordinance Laboratory, the US Air