

David Richardson

An internationally known authority on diffraction gratings, Bausch and Lomb senior scientist David Richardson, died of cancer on 1 Aug. at the age of 59. He had been confined to his home for five weeks and in the hospital for the last three.

Richardson, a native of East Orange, N.J., received his chemical engineering degree from the University of



RICHARDSON

Cincinnati in 1930, studied medicine at Boston University for two years and received a master's degree in applied physics in 1937 from Massachusetts Institute of Technology. For the next eight years he was engaged in spectroscopy for American Cyanamid Co. in Stamford, Conn., then was appointed head of the scientific division of Fischer Instruments Co. in Pittsburgh, Pa.

In 1947 Richardson joined Bausch and Lomb as physicist in charge of research and development of gratings, precision ruled-products and spectroscopic instruments. Many diffraction-grating "firsts" were achieved at Bausch and Lomb during the years that Richardson directed its grating research. The first large commercial grating was ruled in 1950 for the National Research Council in Ottawa where it is still in use. Other firsts include application of microinterferometers, control of diffraction-grating groove shape, the first mosaic of several diffraction gratings and the first

multiple blazed gratings. The most important first was Bausch and Lomb's ability to produce grating replicas equal in quality to original gratings. This achievement has made diffraction gratings of the highest quality readily available for all researchers.

In 1962 Richardson learned he was afflicted with cancer. Even so, he continued to make lecture trips abroad to universities, laboratories and manufacturing plants. Among the many groups he addressed were the Société Française de Physique and the International Colloquium for Spectroscopy in Gmunden, Austria. His work also brought him into contact with the British atomic-energy center in Harwell and the Vatican observatory at Castel Gandolfo. William McQuilkin, Bausch and Lomb president, said of Richardson, "His personal dedication was exemplified by the fact that he maintained communication with every one of the company's many customers both here and abroad."

On 15 Feb. of this year, Bausch and Lomb named its multimillion-dollar grating and scale laboratory after Richardson. It was dedicated to him "in recognition of his contributions to the science and technology of diffraction gratings." In April, Richardson was the first to receive the Optical Society of America's David Richardson Medal in Applied Optics. It was presented to him in Washington, D. C., at the society's 50th anniversary meeting (PHYSICS TODAY, May, page 66).

Richardson was a member of the Optical Society of America, the American Chemical Society, the Society for Applied Spectroscopy, the Colblentz Society and Tau Beta Pi, an honorary engineering fraternity.

"The many, many inquiries received from colleagues the world over about Richardson are testimony to the esteem in which he was held by those who knew him."

—HERBERT J. MOSSIEN

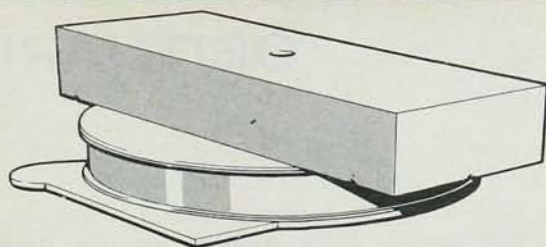
—ROBERT MELTZER
Bausch and Lomb

Felix Andries Vening Meinesz

Dutch geophysicist and cowinner of Columbia University's Vetlesen Prize, Felix Andries Vening Meinesz, died on 12 Aug. in Amersfoort, the Netherlands at the age of 79. He won the prize in 1962 with Sir Harold Jeffreys of Cambridge University for "outstanding achievement in the sciences resulting in a clearer understanding of the earth. . . ."

Vening Meinesz was the son of a burgomaster of Amsterdam. He studied civil engineering at the Technical University at Delft, and began his career as a geodesist with the Netherlands Geodetic Service, making a gravity survey of the Netherlands. He was made professor of cartography at the University of Utrecht in 1927 and professor of geophysics in 1935. While still retaining his position at Utrecht, he became professor of physical geodesy at Delft in 1938. During the German occupation he took part in the activities of the underground, and with the liberation became director of the Royal Meteorological and Geophysical Institute at De Bilt. Between 1938 and 1955, he was president of the International Association of Geodesy.

Vening Meinesz' geodetical work culminated in a hypothesis of the earth's history, whose observational basis was measurements of gravity. He developed a pendulum apparatus that employed several elements swinging in different phases to eliminate disturbances due to ground movements, and eventually elaborated the method for use at sea. Some of his work, to eliminate ship movement, was done aboard submarines belonging to the Dutch and US navies. Between 1923 and 1930, he plotted a belt of negative gravitational anomalies along the Indonesian Archipelago, from the Mentawai Island chain to the Mindanao Trench, caused by a downward buckling of the earth's crust. His interpretation of these results was that a strong convection current in the mantle, caused by the cooling of the



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¹Be⁹ (d,n)B¹⁰ thick target, n/cm²/sec

¹With paraffin moderator, n/cm²/sec

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earth at its surface, produced the crustal deformation and that the present continents were formed when the primordial "urcontinent" was divided by the mantle currents.

Vening Meinesz also won the Penrose Medal of the Geological Society of America and the Bowie Medal of the American Geophysical Union. He was a foreign associate of the National Academy of Sciences.

Samuel James McIntosh Allen

A physicist who began his studies in radioactivity while a student of Ernest Rutherford, Samuel James McIntosh Allen, died on 2 June in Chester, Nova Scotia. He had served continuously on the University of Cincinnati physics faculty since 1906.

Born on 5 Oct. 1877, in Maitland, Nova Scotia, Allen received his baccalaureate degree in 1900 from McGill University, where he also earned his master's degree in 1901. From 1900 to 1903 he acted as demonstrator for the department. He received his doctorate at Johns Hopkins University in 1906.



ALLEN

Allen was affiliated with the University of Cincinnati for practically his entire professional life. Coming here in 1906, he served with the rank of instructor until 1909. Afterward he spent three years as assistant professor and three years as associate professor. He was promoted to the professorship of experimental physics in 1919 and became the chairman of the department of physics in 1940, a position he held until his retirement in 1947.

While Ernest Rutherford had the chair of experimental physics at McGill, Allen began his studies in radioactivity, which led to investigations into the passage of alpha particles and x rays through matter, to a study

of smoky atmospheres, and to researches in the relationships among x-ray wavelength, atomic numbers and mass absorption coefficients. For many years Allen was a contributor to the *Handbook of Chemistry and Physics* on mass absorption coefficients. During the 1920's he was a research associate in the Department of Terrestrial Magnetism and Atmospheric Electricity at the Carnegie Institution in Washington, and he was a frequent contributor to scientific journals during his entire career.

Allen was as equally at home on the deck of a coasting vessel as he was behind the lecture table in a physics building. He was always happy to exchange yarns and to reminisce about boating, whether on the Ohio River or on the deep sea. His later years were spent in his beloved Nova Scotia, much of the time cruising in Marlotte's Bay (named after the codiscoverer of Boyle's Law!).

Dr. Allen was a fellow of the American Physical Society and a member of the Ohio Physical Society, Phi Beta Kappa, the American Association for the Advancement of Science, Sigma Xi and the Cincinnati Torch Club, an honorary society for men of letters in science.

—C. HARRISON DWIGHT
University of Cincinnati

Otto A. Kuhl

Brookhaven engineering physicist Otto A. Kuhl died in Karlsruhe on 10 June, while attending a symposium on food irradiation. He was 55 years old.

Kuhl was born in New York City and majored in electronics and physics at Brooklyn Polytechnic Institute and at Hofstra University. He had been at Brookhaven since 1948, and at the time of his death was supervisor of the High Intensity Radiation Development Laboratory and the Radiation Engineering Section of the Radiation Division of the Nuclear Engineering Department. An authority on gamma-radiation facilities, he was responsible for gamma-ray source development studies.

Uco Van Wijk

Theoretical and observational astronomer Uco Van Wijk died in Wash-

ington, D.C. on 10 August after several weeks of illness.

Van Wijk was born in Java in 1924. His early education was in Java, and he served with the Dutch army in the Pacific during World War II. After receiving his doctorate at Harvard University, he taught at Princeton University until 1961, when he joined the faculty of the University of Maryland. He was associate professor of astronomy there at the time of his death.

Van Wijk made extensive contributions to theoretical stellar and galactic dynamics. He worked on photoelectric photometry and played a large role in the development of Maryland's educational program in astronomy. For two years before he died, he had been in charge of the University's observatory.

William J. Kroeger

One of the inventors of the recoilless heavy weapon, William J. Kroeger, died on 23 July in Philadelphia. He had been at the nearby Frankford Arsenal since 1940, and there established the scientific rationale for the interior ballistics of the recoilless weapons first used in World War II. Later, with C. Walton Musser, he was responsible for the development of the 57mm, 75mm and 105mm models.

Kroeger was born in Duquesne, Pa., in 1906. He did his undergraduate work at the Carnegie Institute of Technology, and began his career as a field engineer for Westinghouse Electric Co. Between 1931 and 1938, he taught and pursued graduate studies at the University of Pittsburgh. He was awarded the PhD there in 1937. His interest in ballistics began when he served for a time as a technical assistant to the FBI.

After joining the staff of the Pitman-Dunn Laboratories of the Frankford Arsenal, he established there an Institute for Research, the first of its sort in the Ordnance Corps. Kroeger was decorated by the War Department for exceptional civilian service, and held the Emblem for Civilian Service of the Frankford Arsenal and the John C. Jones medal of the American Ordnance Association. He was a member of the American Physical Society and the Optical Society of America. □