OBITUARIES

Van Zandt Williams

Van Zandt Williams, director of the American Institute of Physics and president of the Optical Society of America, died in London on 13 May at the age of 50. He had gone to London to explore the intricate subject of an adequate plan for international reporting and exchange of information in physics, a subject which he foresightedly recognized to be eminently important in the affairs of men.

Williams was born in Providence, Rhode Island, in 1916. He received the bachelor of arts degree in physics and mathematics from Brown University in 1937 and the doctorate in physics from Princeton University in 1941, where a graduate assistantship had been established for him by the American Cyanamid Co. He was led into his interest in optics, and particularly infrared spectroscopy, through association with R. Robert Brattain, Robert C. Herman and L. G. Smith, who was his thesis advisor in an investigation of the infrared spectra of formic acid and its deuterated forms.

On leaving Princeton in 1941 he joined American Cyanamid as a group leader in infrared spectroscopy, and by 1943 he had become assistant director of the physics division, a position he held until 1948. It was in the late thirties and early forties that the considerable usefulness of infrared absorption spectroscopy in the analysis of complex molecules was coming to be appreciated. There were three outstanding needs: detailed, precise absorption spectra of many molecular compounds, interpretation of them in terms of the chemical groups present in the molecule and a ready means of recording infrared spectra with less tedium than had characterized this intriguing branch of spectroscopy since its earliest beginnings. It was a period when most infrared spectroscopists built their own spectrometers and thermopiles or radiometers, and spent endless hours, often through the still periods of the night, in assuring the reality of some minuscule absorption band and seeking its explanation in terms of molecular structure.

It was to all of these problems that Williams devoted himself in these years—characteristically with a strong motivation for making generally available all that was good, and useful, and of potential value to society. With R. B. Barnes he developed an excellent infrared spectrometer that could be made commercially available to all laboratories, and the Perkin-Elmer Corp. built it and supplied it widely at what proved to be a highly strategic time. At about the same time Williams' former teacher, R. R. Brattain, developed a similar instrument that was made available by Beckman Instruments, both spectrometers emerging on the scene in time to play prime roles in wartime production of synthetic rubber and aviation gasoline. It has been said that there were four industrial infrared spectrometers in use at the beginning of World War II and approximately 400 at its close.

The pioneering work that made this possible was a great contribution to the national security, indeed; and the subsequent benefits to all mankind through the enabling role of these methods in the development and understanding of new materials is immeasurable.

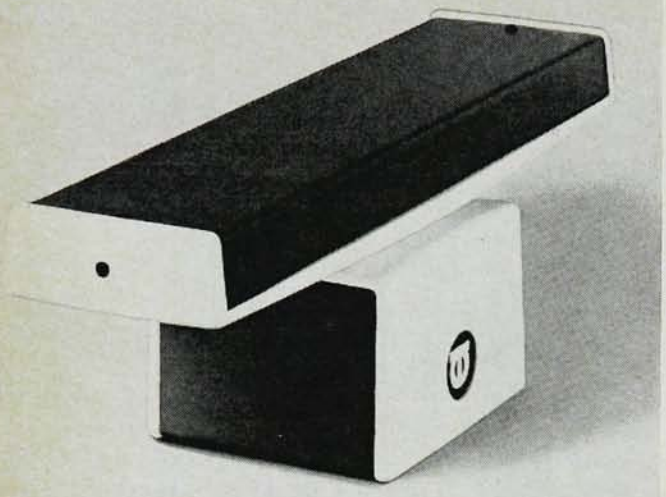
In 1948 Williams joined Perkin-Elmer, where he could devote himself fully to the conception and development of instruments to take full advantage of intricate fundamental phenomena of physics and chemistry in the understanding of matter. He was director of instrument development and sales until 1950, when he became vice president and director of sales, and then, from 1956 to 1957, general manager of the instrument division. In 1957 he was made executive vice president and in 1960 he became vice president for technical development.

It is well remembered of Williams that throughout his industrial career he was strongly dedicated to analytical instrumentation, enthusiastic about all he did and untiring in his willingness to travel, and discuss and explain, and help all interested persons understand the ways in which they might usefully employ infrared absorption spectroscopy and other analytical methods in particular problems. He was basically a teacher and happiest in areas of research and the practical application of science. He found time to encourage and to train young scientists and engineers wherever he met them. He was much in demand as a speaker, and rarely did he refuse a request. He was unselfishly outgoing in his eagerness to share his knowledge with others and to promote the potential value of new techniques, such as gas chromatography and atomic absorption spectroscopy, well ahead of their commercial development.

Through his travels and especially through his scientific papers, of which there were more than 20—including coauthorship of the important book *Infrared Spectroscopy*—he became widely known in the United States as well as in Europe and Japan. He was elected to the board of directors of the Optical Society of America, serving from 1960 through 1962. He was elected to the office of president-elect for the year 1965, and he became president of the society on 1 Jan. 1966.

Throughout his membership on the board of directors, during the interim years 1963 and 1964, and while he was president-elect and president, Williams distinguished himself and brought distinction to the society through his foresightedness and his energetic pursuit of goals of importance not merely to the science of optics, but to the general welfare as well. In 1962 he served as chairman of an Optical Society committee on needs in optics, which was charged with exploring ways of improving the supply of well trained optical physicists to meet clear industrial and governmental needs.

This committee worked quickly, and in Oct. 1962 it recommended a specific program titled "Optics—an Action Program." Five major areas or tasks were considered worthy of exploration. Although pressed with other duties Williams agreed to direct this program,



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and those who were associated with him in it were rewarded through ever increasing appreciation of his persuasive leadership, his integrity and his good humor.

It is not inappropriate here to recall Williams' great good humor, even in the midst of his ceaseless activity. On 1 April 1965, the day he officially became director of the American Institute of Physics, he was in Dallas at a meeting of the board of directors of the Optical Society. Having in mind what day it was he sent himself a telegram, addressed to the institute, which read, "Congratulations to the institute and myself from myself on starting my association with AIP."

Williams' appointment as director of AIP enhanced rather than diminished his attention to Optical Society programs. His intense interest in education, and his particular interest in aiding and strengthening smaller colleges as potential sources of graduate students and professional physicists to avoid a predicted shortage, will stand out in recollection and will encourage many in their work.

Williams was a member of Phi Beta Kappa, Sigma Xi, the Coblentz Society (of which he was a founder), the Society for Applied Spectroscopy (and a past president of its New York Section), the American Chemical Society, and all original member societies of the American Institute of Physics.

—R. Bowling Barnes
—Richard Perkin
—John A. Sanderson
—Mary E. Warga

Other comments on Van Zandt Williams appear on pages 9 and 136.

John Harry Williams

With the death of John Harry Williams on 18 April, science lost one of its outstanding colleagues and an unusual and valuable friend.

Born in Asbestos Mines, Quebec, on 7 July 1908, John Williams was the son of an American-born Canadian mining engineer. He grew up in Canada and attended the University of British Columbia where he received his bachelor's degree in physics in 1928, the same year that he married Vera Martin of Vancouver.

To pursue as a graduate student the scientific studies he had begun in Canada, Williams went to the University of California at Berkeley where he received his master's degree in 1930 and his PhD in physics in 1931. His major interest was the study of x rays, and this interest led him into nuclear research.

After working from 1931 to 1933 at the University of Chicago as a National Research Council Fellow, Williams moved to the University of Minnesota where he began a long but often-interrupted career as a teacher of physics. It began with his appointment as an

JOHN HARRY WILLIAMS

assistant professor in 1933. By 1937 he had advanced to the position of associate professor—a remarkable accomplishment for a man who was only 29 years of age. While he enjoyed teaching and took great pride in being a good teacher—he claimed he was a "professor at heart"—he was also dedicated to the nuclear research that was to play a growing role in his life and in the world's future.

John Williams was a thoughtful man and very helpful to young scientists. I shall never forget my initial encounter with him. It was during the summer of 1940, when I visited him at the University of Minnesota to have a first-hand look at his research program in nuclear physics. He was already well known for his work and I had some doubts whether he might have any desire to spend time with me. But he served as a gracious and thoughtful host to a then relatively unknown nuclear chemist, giving generously of his time to describe his experiments. I think this was typical of his helpfulness toward others.

In 1942 Williams became a US citizen, and late in 1943 he left Minnesota and his university teaching and research to serve his country on a full-time basis in the secret work of the Manhattan Project. He had already been at work at Minnesota on nuclear work involving analytical methods and the calibration of neutron sources—work that was to contribute to the success of the Manhattan Project.

At Los Alamos, where he served as deputy to test director Kenneth Bainbridge, he played an important role in the nuclear-physics program, which was basic to the design and construction of the first nuclear weapons. Among the important contributions of his group was the experimental demonstration that plutonium emits neutrons when it undergoes fission induced by neutrons. This emission, of course, was basic to the successful operation of a nuclear weapon charged with plutonium, and the Williams group was able to measure by different methods the number of neutrons emitted in the fission process. I had a degree of personal involvement in this experiment since it utilized a precious 200-microgram loaned sample of plutonium which had been prepared by our group at Chicago and which was needed so urgently by our group that I brought it back to Chicago myself after a visit to Santa Fe.

In 1946 Williams returned to the University of Minnesota where he was awarded a full professorship and where his continued career in teaching and nuclear research brought him and the university a growing renown in science. Some of this renown was due to his efforts in obtaining for his physics department in 1949 AEC authorization for a 50-MeV linear proton accelerator and for support of a continuing research program in nuclear physics to be made possible by this new apparatus—the most powerful accelerator of its type at the time. With this linac fully operational and reaching an energy level of 68 MeV in the mid-1950's, Williams and his associates were able to perform much new and significant nuclear research.

Asked to serve his government once again, Williams in 1958 took on the position of director of AEC's Division of Research. In 1959 he was appointed