obituaries

To notify the community about a colleague's death, subscribers can visit http://www.physicstoday.org/obits, where they can submit obituaries (up to 750 words), comments, and reminiscences. Each month recently posted material will be summarized here, in print. Select online obituaries will later appear in print.

William Ian Axford

On 13 March 2010, William Ian Axford, a towering figure in cosmic research, died at his home in Napier, New Zealand, after a long battle with intestinal cancer.

Ian was born 2 January 1933 in Dannevirke, New Zealand. Having received his bachelor's (1954) and master's (1956) degrees in both science and engineering from the Canterbury University in Christchurch, he joined the Royal New Zealand Air Force as a flight lieutenant in 1957. He proceeded to the UK on a defense science scholarship and obtained his PhD in cosmic gas dynamics from the department of applied mathematics at the University of Manchester in 1959, under the guidance of James Lighthill, the leading aerodynamicist of the time. He then spent 1959–60 doing postdoctoral research at the University of Cambridge. From 1960 to 1962 he was a researcher on the Defense Research Board of Canada, then he spent four years as a professor at Cornell University before moving to the University of California, San Diego, as a joint professor in the departments of physics and applied electrophysics. He moved to Germany in 1974 to be director of the Max Planck Institute for Aeronomy (MPAE; now the Max Planck Institute for Solar System Research), from which he retired in 2001. From 1982 to 1985, Ian also served as the vice chancellor of the Victoria University of Wellington in New Zealand.

During his distinguished research career, which spanned almost half a century, Ian made seminal contributions to our understanding of a wide range of cosmic phenomena. More than two dozen of his papers are considered "citation classics." In a remarkable early paper he wrote with Colin Hines more than 50 years ago, Ian drew on a vast number of ground-based observations to infer the global structure and dynamics of the terrestrial magnetosphere–ionosphere system and provided a unifying model for the understanding of diverse phenomena, including the radiation belts, aurorae, and geomagnetic storms and substorms.

William Ian Axford

In 1962 Ian was the first to predict the existence of a bow shock upstream of the magnetosphere. He was also the first to predict the existence of an extended magnetotail. Both were subsequently observed by satellites.

Another major area to which Ian made trailblazing contributions is the origin, acceleration, and modulation of cosmic rays. His concept of diffusive acceleration at interstellar shocks laid the foundation for our current understanding of cosmic-ray acceleration to very high energies.

Among the other areas to which Ian made highly influential contributions are solar-wind and heliospheric physics, cometary physics, and the physics of satellite–dust interactions in magnetospheres.

An outstanding teacher and mentor, Ian had several of his graduate students go on to become prominent members of the space science community. They include Len Fisk, onetime associate administrator of NASA, and Tom Holzer, onetime director of the High Altitude Observatory in Boulder, Colorado. Ian also inspired the research of numerous younger colleagues, including the two of us, who first met Ian at the University of California, San Diego. We not only learned a great deal from Ian but also were greatly influenced by his general approach, which was to describe complex cosmic phenomena with simple but insightful models that underscored the essential physics and to begin by making back-of-the-envelope calculations before proceeding to more detailed analyses.

Ian was a strong advocate of unmanned space missions and was involved in the spectacularly successful NASA Voyager program, whose scope of discovery spanned all of Ian's interests—from planets to the solar wind, including its termination via the interaction with the local interstellar medium. During his tenure as the director of the MPAE, he not only transformed the institute, arguably into the leading space science center in Europe, he also got it heavily involved in the *Ulysses* and the *Solar and Heliospheric Observatory* interplanetary missions and in the spectacular *Giotto* mission to comet Halley in 1986.

Those successes all attest to Ian's political and administrative skills, which are almost surprising considering Ian's unassuming nature and his laid-back demeanor. Perhaps those qualities were his secret. Another quality that no doubt helped him was his deeply ingrained sense of fairness and inclusiveness. Early in the international space program, Ian stood up for Russian colleagues whose contributions, he felt, were not properly acknowledged. He also did much to help scientists from the third world and Eastern bloc countries.

Ian had several interests besides science. He was an avid reader with a particular interest in world history. He was also a keen follower of the popular New Zealand sports cricket and rugby. What concerned Ian greatly in recent times

Recently posted notices at http://www.physicstoday.org/obits:

Edwin E. Kintner
1 May 1920 – 7 May 2010
Norihiko Fukuta
11 May 1937 – 3 May 2010
Alexey N. Sissakian
14 October 1944 – 1 May 2010
Richard Allen Arndt
3 January 1933 – 10 April 2010
Boyd Balford Cary
29 October 1923 – 18 February 2010
Howard See
28 July 1963 – 15 February 2010
Edward Scott Claflin
15 August 1943 – 3 April 2009
Raul A. Stern
26 December 1928 – 22 June 2008

was climate change. It was the main topic of conversation when each of us visited him at his home in Napier during the past four years, when he was already in failing health. He clearly saw climate change as the biggest issue facing humanity at present.

Ian has been honored with many prestigious awards from scientific societies and national academies around the world. He also had the distinction of being awarded a knighthood in 1996.

We join the space science community in mourning the passing of an outstanding scientist, inspiring mentor, and valued friend.

Asoka Mendis
University of California, San Diego
La Jolla
Wing-Huen Ip
National Central University
Jhongli City, Taiwan

Howard Glenn Voss

Howard Glenn Voss, emeritus professor of physics at Arizona State University (ASU) and an exemplary leader in the national physics education community, passed away on 29 March 2010 after a brief illness.

Howard's story is one of persistence, insight, and leadership. He was born in Holland, Michigan, on 11 October 1935. In 1957 he received his AB degree from nearby Hope College, where he majored in physics, mathematics, and secondary education. He began graduate work in physics at Michigan State University, while simultaneously teaching physics 40 miles away at Byron High School. His wife, Helen, was afflicted soon afterward with a severe respiratory illness, so they moved to Arizona, where Howard continued his teaching career at Scottsdale High School.

In 1962 Howard accepted an opportunity to pursue graduate studies at ASU with support from an NSF-sponsored Academic Year Institute. Two years later he received a master of natural science degree from ASU and an MS in physics from Purdue University through an NSF-supported three-year summer program for high-school science teachers. Recognizing his teaching abilities, ASU hired him as an instructor without expectation of tenure or promotion.

That restriction was soon lifted as his colleagues realized the breadth of Howard's influence in the department and of his contributions to the university at large. In 1969 he was promoted to a tenure-track assistant professor position and simultaneously was made assistant chair of the department. Among other duties, he helped found and was assigned full responsibility for the Physics Service Course Facility, which provides additional help to students enrolled in introductory physics courses. In 1976 he was promoted to associate professor with tenure.


DEPARTMENT OF PHYSICS, ARIZONA STATE UNIVERSITY

Howard Glenn Voss

Howard's ambition to pursue doctoral studies in physics was thwarted by university restrictions against granting a degree to a member of the faculty and by his wife's ongoing medical issues, which prevented their leaving the Arizona climate. In 1984 the department, recognizing his wise and incisive judgment, his mastery of teaching physics, his work ethic, and his growing influence on the national level, promoted Howard to the rank of full professor. From 1994 to 2000 he served as chair of the department.

Early in his years at ASU, Howard joined the American Association of Physics Teachers (AAPT) and became active in both the Arizona section and the national organization. Through his section activities he mentored and provided inspiration to many high-school and college teachers in Arizona.

Howard was the AAPT section representative from Arizona starting in 1972, and in 1981 he was elected chair of the AAPT section representatives; that position made him a member of the AAPT Executive Board. Beginning in 1983 Howard served sequential terms as secretary of AAPT. He was elected to the presidential chain in 1992 and was AAPT president in 1994. His influence was felt within the broader physics community as he served on numerous AAPT and American Institute of Physics advisory committees and on local organizations such as the board of trustees of the Arizona Science Center.

One of Howard's singular highlights was providing testimony in June 1999 before a joint session of the US House of Representatives Committee on Science and Committee on Education and the Workforce. He passionately discussed the need to produce high-quality preparation programs for K–12 math and science teachers. He expertly described two such successful AAPT programs: the Physics Teacher Resource Agents program, in which experienced physics teachers assist less-prepared teachers, and the Powerful Ideas in Physical Science program, which helps colleges enhance their introductory physical science courses for elementary school teachers. He emphasized that the best teachers are those "who have actually learned science by experience and inquiry."

In recognition of his many contributions to physics education, Howard received the ASU Dean's Distinguished Teaching Award in 1975, an AAPT Distinguished Service Citation in 1990, and AAPT's most distinguished honor, the Melba Newell Phillips Award, for creative leadership, dedicated service, and exceptional contributions to the teaching of physics.

Howard will be remembered by his many friends, his family, and the physics community for his thoughtful and calming demeanor; his ability to mentor students, colleagues, leaders, and aspiring leaders; and his example as an advocate for the highest standards of education at all levels.

Roderick M. Grant
Estes Park, Colorado
John W. Layman
College Park, Maryland ■

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