

ROBERT W. DALRYMPLE

Robert James Uffen
1923-2009



Robert James (Bob) Uffen was born in Toronto on 21 September 1923 and died 18 July 2009 in Kingston of cancer. After four years of active service in the Canadian military during the Second World War, where he reached the rank of Lieutenant in the Royal Canadian Artillery, he attended the University of Toronto, obtaining a BAsC in 1949 and an MA in 1950 in Engineering Physics. From there, he went to the University of Western Ontario where he obtained a PhD in 1952. After graduation, he joined the faculty of university of Western Ontario, rising from an Assistant Professor in 1953 to Full Professor and Head of the Geophysics Department in the unprecedented period of only five years. He then became Principal of the University College of Arts and Science at the University of Western Ontario. (1961-1965) and Dean of the College of Science (1965-1966).

Bob's early research utilized subtle variations in gravity and heat flow to investigate the interior of the Earth. His work on gravity variations in Northern Ontario was an early study of the continental root associated with the long-gone, one-billion-year-old Grenville mountain chain. He helped to develop a ground-breaking probe that allowed *in situ* measurement of thermal conductivity and the ambient temperature gradient within the earth. He published on the temperature distribution in the earth's core and mantle, and applied solid-state physics to understand the composition of the deep interior of the earth. He proposed the novel idea that reversals in the earth's magnetic field caused temporary increases in cosmic-ray flux that, in turn, influenced the progress of biological evolution. He also suggested that the release of stress in the earth's crust might be responsible for the sudden melting of rocks and the creation of magma.

Despite a promising research career, he showed an early interest in the relationship between science and society, publishing articles on resource and energy issues in the *Business Quarterly* as early as the late 1950s. In 1966, he left UWO to join the federal civil service, serving first as a member and then Chair of the National Defense Research Board (1964-1969), and then as Chief Science Advisor to the Cabinet (1969-1971) under Prime Minister Pierre Trudeau.

In 1971, he returned to academic life to take up the Deanship of the Faculty of Applied Science at Queen's, which he shepherded through a time with significant budgetary constraint and external threat. He was very concerned with the academic well-being of students and instituted a 'second-chance' program for students who did poorly in first year that is still in place and is now being copied by other universities. After his time as Dean ended in 1980, he continued teaching in the Department of Geological Sciences and Geological Engineering, ultimately retiring in 1989. In his final year, he won a major undergraduate teaching award, a 'Golden Apple'. He also initiated a unique and highly popular summer program that allowed secondary-school science teachers to come to Queen's to learn the latest ideas in a particular field of intense research activity. Articles at the time credit the program with revitalizing the teaching of science in Canada.

Throughout his time at Queen's, he was active in the public-policy field. From 1969-1982, he was one of only two Canadians who were members of the Club of Rome that was responsible for writing the highly influential book *Limits to Growth* in 1972. He was a member of the Fisheries Research Board of Canada (1968-1978), the Canadian Research Management Association (1971-1980) and Scientists for Energy and Environmental Security (1981-1985). In addition, he was a member of the Board of Directors of Ontario Hydro and its Vice-Chairman from 1975-1979, during which time he played an important role in restricting the use of plutonium as an energy

source, in order to limit the proliferation of nuclear weapons. He was an advisor to Atomic Energy of Canada on the long-term disposal of nuclear waste, chaired the Ontario Commission on Truck Safety (1981-1983), and served as a member of the Ontario Royal Commission on Asbestos (1980-1984). Throughout this period, he gave numerous lectures and interviews on various issues where science and engineering could be brought to bear on public policy.

He received many honours, including election as a Fellow of the Royal Society of Canada (1964), receipt of the Canadian Centennial Medal in 1967 for his valuable service to Canada, induction as an Officer of the Order of Canada in 1983, appointment to the Canadian Academy of Engineering (1988), and receipt of the Queen Elizabeth II Golden Jubilee Medal in 2002 for his significant contributions to his country. He received honorary degrees from Queen's, the University of Western Ontario, the Royal Military College and McMaster University.

Bob Uffen was a distinguished geophysicist who made an important impact through his integration of science with public policy. He was a wise and caring administrator and dedicated teacher. In addition, he was a gifted artist who documented his travels with many paintings and drawings. He is mourned by his son Rob, and daughter Joanne Brand and her husband Ed Brand and their children.

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(Author's title given as of the time of writing)