KEITH F.PRESTON

Ratimir J. Cvetanovic
1913-2002

Ratimir J. (Bob) Cvetanovic, eminent chemical kineticist, was laid to rest on July 14, 2002 on a hilltop in Nova Scotia overlooking the ocean where he and his beloved wife Jean (née McDonald) loved to sit and enjoy the spectacular sunsets of Antigonish. His loving wife has since also passed on; they are survived by their three children, Michael, Angela and Nadine and their seven grandchildren.

Bob was born on May 19 1913 to Josif and Natalija (Urosevic) Cvetanovic in Belgrade, Yugoslavia, where he received his primary and secondary education. He took his first degree in 1936, a B.Sc. in Forestry from the University of Edinburgh, Scotland, where his studies were supported by a scholarship from the Serbian Minister's Fund. By the time he had graduated he had received three bronze medals and the Harry Younger Silver Medal for Practical Forestry. Bob then returned to Yugoslavia to work in the Ministry of Agriculture, and in 1942 obtained his second degree, a B.Sc. in Chemical Engineering, from the University of Belgrade. During World War II Bob was a lieutenant in the Royal Yugoslavian Army Cavalry. He was captured by the Germans, and as a prisoner of war he was given leave to fill the civilian post of superintendent of an oil factory from 1942 to 1945. During this period he wrote an English-Serbian/Serbian-English dictionary with English Grammar.

After the war Bob became an Assistant Lecturer at the University of Belgrade and undertook graduate studies. In 1948 he immigrated to Canada, and commenced graduate studies in chemistry at the University of Toronto under the supervision of Professor Donald Leroy. He was awarded his MA in Chemistry in 1950, and his PhD and the Nadine Phillips Scholarship in 1951. Thereafter he joined the National Research Council of Canada, first as a post-doctoral fellow (1951-1952) and then as an Assistant Research Officer in the Division of Applied Chemistry (1952).

Throughout his career at the NRC Bob maintained strong connections with academia, holding distinguished visiting positions at Cornell University, the University of California at Davis, the University of California at Irvine, and at Churchill College, Cambridge (Overseas Fellowship). Numerous students worked with him during his career and grew to admire his tenacity, honesty and doggedness the hallmarks of a great researcher. His enthusiasm for research, his friendliness and his supportive generous nature endeared him to undergraduates, post-doctoral fellows and colleagues alike.

Dr. Cvetanovic was an internationally recognized leader in catalysis and chemical kinetics. Using the tools of gas chromatography and spectroscopy, he elucidated the mechanisms of chemical reactions, both heterogeneous and homogeneous, and investigated the elementary reactions of molecules, radicals and ions throughout his career at the National Research Council of Canada and afterwards. He made significant contributions to the fields of photochemistry, kinetics and catalysis. An early seminal contribution was his development of a mercury photosensitization method for generating oxygen atoms in their ground state. This technique permitted the measurement of the relative rates of reaction of oxygen atoms with hydrocarbons and the study of radical rearrangement processes. In later work he developed reliable photochemical sources of electronically excited oxygen atoms (O^1D) and established their reaction rates and modes of reaction. These fundamental gas phase studies led to a greatly

improved understanding of the role of oxygen atoms, hydroxyl radicals and other small free radicals in atmospheric chemistry, especially in the stratosphere and troposphere.

One of Dr. Cvetanovic's first tasks as a staff member of NRC's Applied Chemistry Division was to develop improved catalysts for the production of ethylene oxide from the heterogeneous oxidation of ethylene. Through his knowledge of the chemistry and reaction kinetics of atoms, ions, radicals and molecules he provided valuable insight into that process and many other catalytic reactions. Together with his colleague, Dr. Y. Amenomiya, he invented and developed the technique of temperature programmed desorption (TPD) for the study of surface adsorption and desorption, critical processes in catalysis. For this work Dr. Cvetanovic became one of the first recipients of The Catalysis Award (jointly shared with Dr. Y Amenomiya) in 1977. Bob was an active member of the Canadian Committee on Catalysis, an informal body that provided a focus for the Canadian catalysis community, and he was instrumental in the creation of the Catalysis Division of the CIC. Dr. Cvetanovic was also one of the organizers of the first of the continuing series, Canadian Symposia on Catalysis.

In 1978 at the mandatory age of retirement Bob was obliged to retire from NRC and in the same year received the CIC Medal in recognition of his major contributions to the chemical sciences. From 1980-1989 he was a Visiting Scientist at the National Bureau of Standards (renamed National Institute of Standards and Technology in 1988), Washington, D.C. There he developed a chemical kinetics database and software for the NIST computer to facilitate computer searches. In addition to many publications, the principal outcome was the NIST Standard Reference Database 17, NIST Chemical Kinetic Database, a reference of immense value that continues to impact the field. For this work Bob received a Certificate of Appreciation from the U.S. Department of Commerce.

In 1989 Bob retired from active scientific endeavors, but he retained his interest in chemical kinetics research. Regrettably, in 1993 he developed Parkinson's disease and after a lengthy illness succumbed to this debilitating disease quietly and with great dignity.

During his career Bob travelled and lectured in many countries of the world but the Province of Nova Scotia was always close to his heart. It was there that he genuinely relaxed and enjoyed his holidays with his children, their spouses, his grandchildren, and his wife's kinfolk.

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