Chemistry "icon" dies at 97

March 19, 2013

Dr. William (Bill) George Schneider (1915 - 2013)

NRC 1946 - 1980

Former President wrote the book on nuclear magnetic resonance & led NRC through period of growth

Bill Schneider's life was the fabric that makes up the colours of Canadian history. Wooed to Saskatchewan by the Dominion Lands Act and its promise of free land for newcomers, his Austrian grandparents spent their first years struggling to survive. Schneider's father, who had never completed grade school, eventually married and secured a good-sized farm near Wolseley, Sask. where young William George "Bill" was born.

Hardship was the young family's constant companion. At the age of 4, during the Spanish flu epidemic of 1918-20, the man who would someday lead the country's national research facility found himself motherless, helping his siblings care for crops and animals. His father's eventual decision to remarry would reshape the family's fortunes. Reminiscing on his childhood, Bill Schneider credited his new stepmother – who valued education above all else – with encouraging all six children to aspire to the highest education possible, even if meant considerable sacrifice for the family. Bill Schneider pursued his education against the sombre backdrop of the Great Depression.

The young farmer eventually left a one-room schoolhouse to attend Luther College in Regina, where he spent the last of his five years obtaining university credits.

From there, Schneider was headed to the University of Saskatchewan, where he would room with two other students (including yet-to-be named Nobel Laureate Henry Taube) and take summer campus jobs to make ends meet. During his senior years, a bursary from the National Research Council (NRC) would help pay the costs associated with obtaining a B. Sc. (Honours) in 1937 and an M. Sc. in 1939.

That Fall, the young researcher began his PH.D studies at McGill University under the supervision of Chemistry Department Chair Otto Maass who, at the time, also served as an advisor to the Department of National Defense (DND) and the NRC. The looming threat of war would direct their research.
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When Canada declared war on Germany in 1939, Maass immediately sent his student a telegram advising him not to enlist. His skills were needed for critical defense-related research in a classified program underway with DND. Schneider immediately got to work synthesizing a number of compounds in order to develop strategies against the enemy's suspected imminent use of poisonous gases with highly toxic fluorine compounds.

Though his focus would eventually be directed towards non-military projects to fulfill his Doctoral degree, Schneider's early research in poisonous gasses (including radio-active mustard gas and Lewisite) continued through his post-doctoral work at NRC and at Harvard, ending only when the American military identified another defense priority – that of urgently defending the Allied Forces who were enduring submarine attacks along the Atlantic coast.

Bill Schneider now found himself working with the Woods Hole Oceanographic Institute (WHOI) — the U.S. army's primary naval research arm — in weaponry testing and the development of improved measures for underwater explosives. It was during this time (from 1943 to 1946), and during a complex exercise to recover a capsized boat, that Schneider's innate leadership abilities became evident. The impact of Schneider's overall work during the war earned him a Certificate of Appreciation for outstanding contribution from the U.S. War Department and the U.S. Navy Department.

In 1946, Bill Schneider joined NRC to set up a Physical Chemistry Section in the Chemistry Division, under the direction of Dr. E.W.R. Steacie. After seven years of conducting top secret research, Schneider is said to have taken pleasure in the challenge of developing a peace-time research program built around intermolecular forces and interactions and methods of investigation, including high resolution nuclear magnetic resonance. His book, "High Resolution Nuclear Magnetic Resonance," the first comprehensive volume on the emerging discipline of High-resolution NMR Spectroscopy was co-authored with Nobel Laureate, John Pople, and Harold Bernstein in 1959.

Schneider was named Director of the Division of Pure Chemistry (1963-65), Vice-President, Scientific (1965-67) and finally, President of NRC (1967-80). He never lost his love of hands-on research. If he could not pursue it full time, he would tell close friends, he felt his effectiveness would be greatly diminished. Many suspected that Schneider's greatest (and perhaps only) regret about his eventual appointment as President of NRC was that his new duties would end his work in the laboratory.

NRC breaks new ground with Schneider at the helm

Bill Schneider's tenure as President of NRC was marked, in part, by the oil crisis and resulting energy crunch of the 1970s. To help Canada respond to these challenges, NRC took the lead in developing technologies focused on energy conservation and renewable resources. Work on solar energy, wind energy and biomass would soon follow, though these programs became less urgent when the oil crisis was over.

Recognizing the need to help foster the development of science and engineering in Quebec universities (the former McGill student had always been concerned by the fact that science in the province had only become secularized during Quebec's "Quiet Revolution" of the 60s), Schneider led the development of a number of NRC-created programmes de rattrapage ("catch up" programs) to accelerate the emergence of a scientific-based academic community. Soon, NRC would build a laboratory (the former Industrial Materials Institute) in Boucherville, Quebec.
It was also under Schneider's presidency that NRC became the lead agency for contracting the private-sector design and construction of Canadarm, the robotic arm commissioned by NASA for use on the U.S. Space Shuttle. "Up until that time, we had an embryonic space program and one of (NRC's) policies was that we needed to get industry involvement to take on contracts for space hardware. With this one major initiative, aerospace was established at NRC," Schneider explained. It remains one of the most important NRC portfolios today.

This period also witnessed the emergence of a large science infrastructure in Canada, with NRC now responsible for operating all of the country's astronomical observatories. The Canada-France telescope was created in Hawaii and the TRIUMF project began one of the world's leading subatomic physics laboratories. After Herzberg won the Nobel Prize in 1971, NRC decided to combine all its astronomy related research activities into an institute and the Herzberg Institute of Astrophysics was born. Other regionally-based institutes (such as the Institute of Cold Ocean Engineering) would soon follow.

The need to foster closer links to industry led to the creation of NRC's Industrial Research Assistance Program (IRAP) and the merging of the Technical Information Service with the National Science Library to become the new Canada Institute for Scientific and Technical Information (CISTI). When Bill Schneider finally
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retired in 1980, he continued to foster a close relationship to industry by becoming a chemical consultant himself and establishing a biotechnology company in Ottawa.

Over the years Bill Schneider received many honours and awards, including Fellowships in the Royal Society (London), the Royal Society of Canada (RSC) and the Chemical Institute of Canada. He received a Doctor of Laws degree with Pierre Elliot Trudeau and then UN Secretary, U Thant in 1968 from the University of Alberta. The RSC presented him with the Henry Marshall Tory Medal in 1969. He was president of the International Union of Pure and Applied Chemistry from 1983 to 1985, and was named an Officer to the Order of Canada in 1976.

Bill Schneider remained close to NRC and often attended functions at Sussex Drive. On June 1, 2006, the researcher proudly celebrated his 91st birthday during the grand opening ceremony of a facility commemorating his contributions. The W.G. Schneider Building (M-40), a state-of-the- art Nuclear Magnetic Resonance (NMR) facility, is located at NRC's Montreal Road campus and still bears his name. For more, see "From farm boy to NRC chief" in the Ottawa Citizen.