

HARRIET GORHAM

Paul Raymond Gorham
1918-2006



Paul Gorham, one of Canada's most distinguished plant physiologists, died in Edmonton, Alberta on November 9, 2006. Dr. Gorham gained international recognition for his groundbreaking work on photosynthesis and the identification of toxic strains of cyanobacteria (commonly known as blue-green algae). An energetic and generous man, he had a gift for bringing people together and used his organizational skills to great effect both in and out of the laboratory. The first president of the Canadian Society of Plant Physiologists (CSPP), Gorham was instrumental in the creation of several Canadian and international scientific associations. He received numerous awards for his contributions to his field, his profession and his community, including the Centennial Medal (1967) and the Queen's Silver Jubilee Medal (1978). He was elected a fellow of the Royal Society in 1961.

Paul Gorham was born on April 16, 1918, in Fredericton, New Brunswick, the son of Raymond and Marie (Tanner) Gorham. As a youth, Gorham accompanied his father, an entomologist, on field trips in New Brunswick and observed his father instructing farmers on pest control techniques. Through this experience, he acquired a love of science and an appreciation of the art of teaching. Gorham earned an Honours BA in biology and chemistry from the University of New Brunswick (1938) and an MS in botany and bacteriology from the University of Maine (1940). Moving to California, Gorham completed a PhD in plant physiology and bioorganic chemistry at Caltech (1943), where he had the good fortune to study under two internationally-renowned plant physiologists: Frits Went, his supervisor, and Robert Emerson, for whom he worked as a teaching assistant.

Gorham began his scientific career at the Department of Agriculture in Ottawa (1943-1948), where, as part of Canada's war effort, he studied the physiology of rubber-bearing plants. He then moved to the National Research Council of Canada (NRC) (1948-1969) and began his research on photosynthesis. In these early years, he and his section-head, Ken Clendenning published several papers of international interest on the photochemical reaction of isolated chloroplasts. Gorham succeeded Clendenning as head of the Plant Physiology Section in 1952, and from then until 1969, his research focused on the translocation of ¹⁴C-labelled products of photosynthesis in higher plants and the isolation and identification of toxins produced by strains of several species of cyanobacteria. His work on toxic cyanobacteria attracted international attention, first with his work at NRC that showed these toxins were responsible for the periodic outbreaks of sickness and death in livestock and pets that drank from water sources containing these organisms, and later at the University of Alberta with student Wayne Carmichael on defining the toxicology and pharmacology of these toxins. These discoveries continue to have important implications internationally for water-quality management and public health, as well as for the recreational and agricultural industries.

Gorham also influenced the development of Canada's community of plant biologists. In the 1950s, with support from NRC, he played a major role in organizing a series of nine annual conferences on plant physiology, hosted by different Canadian universities. These meetings culminated in the founding of the Canadian Society of Plant Physiologists in 1958. At the same time and together with his good friend Gleb Krotkov, he helped plan the plant physiology program for the IX International Botanical Congress, held in Montreal in 1959. The International Association for Plant Physiology was founded at the Congress and Gorham was elected its first secretary-treasurer. Involved at the organizational level with the Royal Society of Canada throughout the 1960s, he invited botanists to meet at Queen's University to discuss the founding

of a botanical society. This led to the establishment of the Canadian Botanical Society in 1965. Gorham served as its president in 1977-78.

Active internationally, Gorham worked to forge close ties between the newly-formed organizations mentioned above and their international counterparts, expanding opportunities for Canadian plant biologists to develop international contacts. He served as an officer of both the Phycological Society of America (1966-1967) and the Canadian Committee for the International Biological Program (CCIBP) (1968-1969). Gorham helped secure funding for early climate change research in Canada conducted under the program and chaired the CCIBP's Plant Productivity Committee's component on agrometeorological and computer modeling of crop productivity. He was a member of the editorial boards of the *Journal of Phycology* (1967-1969) and *Plant Physiology* (1973-1983).

In 1969, Gorham moved with his family to Edmonton to take a position with the University of Alberta as a professor of botany. A warm and caring person, he greatly enjoyed the teaching and mentoring of his graduate students. His students recall his easy laughter in the lab and his cheerful response to the many potential pitfalls of field trips out on lakes in rural Alberta and Saskatchewan. During this period, Gorham chaired the botany department (1971-1979) and began his long association with the University of Alberta Devonian Botanic Garden, serving as its director for six years (1971-1976) and its associate director (1977-1983). He continued his pioneering research on the translocation of ^3H - and ^{14}C -labelled photosynthetic assimilates in higher plants and on cyanobacterial toxins. He also took part in field and controlled environment studies of waterweeds that produced nuisance growths in the heated effluents of coal-fired power plants. Gorham retired as professor emeritus in 1983, and was honoured with the Canadian Society of Plant Physiologists' Gold Medal (1987) and the Canadian Botanical Association's Mary E. Elliot Award (1979) and George Lawson Medal (1988). He also received an honorary DSc (1973) from the University of New Brunswick and was elected a Fellow of the Rawson Academy of Aquatic Sciences (1979). Over the course of his career, he contributed a long list (72) of publications to established journals.

A man with strong community values, Gorham contributed his time to a number of causes outside of his career. He was a member of the Board of Governors of the Edmonton Art Gallery (1980-1992) and of the Board of Trustees of the Friends of the University of Alberta Devonian Botanic Garden (1971-2006). The Garden became a special passion for him and he played a lead role in raising funds for the creation of the Garden's lovely Kurimoto Japanese Garden. The Japanese Ministry of Foreign Affairs honoured him with a Certificate of Commendation (1991) for his role in building this cultural bridge between Canada and Japan.

Gorham read extensively and was an exuberant conversationalist. Sociable and engaging, he and his wife, Evelyn, opened their home regularly to friends and colleagues, and supported a great many post-doctoral fellows, graduate students, younger relatives and children's friends through hard times with kindness and respect. His interests included medieval and family history, gardening, photography, music, theatre and the visual arts. He was also an avid skier. Active until his last days, at the age of 87, he co-wrote a scholarly history of photosynthesis research in Canada, which was published in *Photosynthesis Research* in 2006.

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Paul Gorham is survived by his wife, Evelyn, their three children, John, Arthur and Harriet, and five grandchildren, Katherine, Daniel, Megan, Graeme and Hannah. A wonderful friend, husband and father, he is remembered fondly and is deeply missed.

*Harriet Gorham
Daughter of Paul Raymond Gorham*