

James E. Guillet 1927-2005

James Edwin Guillet was born in Toronto on 14 January 1927, the son of Edwin Clarence Guillet, a prominent historian. He attended Huron Street School, the University of Toronto Schools, and then entered Victoria College at the University of Toronto in 1944. He excelled in his academic studies in Chemistry and Physics but also found time for many extra-curricular activities. His passion for photography drew him to the Camera Club where he won a competition judged by Yousuf Karsh; it also helped him find summer jobs with Eastman Kodak. While a student he was a member of the Canadian Officers Training Corps and the Royal Canadian Air Force and later, while at Cambridge, served with the Royal Air Force Volunteer Reserve as a pilot.

Following graduation with honours in 1948, Guillet moved to Rochester, New York and later Kingsport, Tennessee, as a research chemist for Eastman Kodak where he worked on new types of graft and block polymers which led to the commercial development of new acrylic fibres. In 1953 he married Helen Bircher and the following year they left for St. John's College, Cambridge, where he studied under R. G. W. Norrish, a future Nobel laureate. He obtained his doctorate in photochemistry in 1955, after which he returned to Kingsport where he worked first as a senior research chemist in the Eastman Laboratories. In 1963 he became research associate in charge of polyolefin research for Tennessee Eastman. Later that year he joined the Department of Chemistry at the University of Toronto with the status of associate professor. In 1969 he was appointed full professor and in 1991 professor emeritus. By the time of his death he had authored or co-authored over 300 papers, had registered more than 100 patents, and had written two books on polymers.

John Polanyi, a member of Guillet's hiring committee, noted that, although he had a string of patents to his name (30 American ones in 1963), "his bent was to do academic science and to figure out why things happened rather than how useful they were. He warned all the time against letting the application of science dominate the university agenda."

His main areas of research involved studying the ways polymers react to light. His specialty was polymer science, particularly as it relates to synthetic fibres, coatings, and plastics. At the University of Toronto he began work on the photochemistry of polymeric materials (plastics) and held basic patents on the processes for the synthesis of photo- and biodegradable plastics (which he assigned to the U of T), high density polyethylene, polyolefin waxes and coatings resins, and peroxides and other catalysts for olefin polymerization. In the 1970s and the 1980s

his lab was regarded as the “best in the world in photophysics and photochemistry and ‘supervisors were fighting’ to find places for their students ‘to work with Jim Guillet’.”

While he and the University could not interest any Canadian companies in his inventions in biodegradable plastics, there was a great deal of interest from other countries so Professor Guillet set up three high-technology companies that were based on inventions and technology originating at the University of Toronto. EcoPlastics Limited manufactured degradable plastics and polymer flocculants and also carried out contract research on tar sands recovery, light sensitive plastics, greenhouse films and related products. Medipro Sciences Limited was founded in 1976 to research medical applications of plastics materials and is noted for its development of ‘artificial skin’ for burn victims. Solarchem Corporation developed proprietary methods for making pharmaceuticals and specialty chemicals using sunlight as the primary energy source. Guillet served as president of each company at various times (EcoPlastics, 1976-1985; Solarchem, 1984-1985, and Medipro, 1985-1993). EcoPlastics and Medipro achieved modest commercial success (Medipro was purchased by Pharma Patch PLC in 1993) and Solarchem became a major manufacturer of equipment for the decontamination of water and air using high-intensity UV lamps.

Throughout his years at the University of Toronto, Professor Guillet was very active in administrative work. From 1969 to 1976 he sat on the University of Toronto Patents Committee and in 1977 was appointed chair of the University’s Task Force on Patent Policy. From 1983 to 1984 Professor Guillet was Associate Dean for Research and Planning at Scarborough College and served on numerous committees relating to policies for invention and other intellectual property. Other University bodies he served on included the Innis College Council (1969-1970), the Faculty of Arts and Science Council (1971-1973), the Department of Chemistry’s undergraduate curriculum committee (1971-1975), as a fellow of New College (1975-1979), on the Faculty Club’s board of directors, on the review panel for physical sciences for the Connaught Committee (1977), as chair of the Wiegand Committee (1982-1983), and on the Decanal Promotion Committee (1983). In 1986 he chaired the Research Board’s Computer Software Taskforce and in 1987 the Ad Hoc Committee on the PhD/MBA Program.

Professor Guillet was renowned for his ability to attract students and researchers to his laboratory and for forging links with chemists in other countries, more than 30 in all. He “‘immersed himself in the lives and problems of his students and the scientists who came from around the world to work with him...[he] would spend hours and hours tutoring them [his students] if they were having a problem’.” “‘He was just incredible...He knew what their log jam was and who they should speak to.’” During his career he supervised 28 Ph.D. theses, 26 masters degrees and 50 post-doctoral fellows and research associates. He was also active in giving lectures about science to primary and secondary students in Ontario schools.

Professor Guillet had numerous visiting academic appointments. The principal institutions he was invited to were Vanderbilt University in Tennessee (twice), the CNRS Macromolecular Institute (Strasbourg, France), Acadia University, Kyoto University; the University of California

at San Diego, IBM Research Laboratories (San Jose, California), the University of Mainz, St. Andrew's University, St. John's College, Cambridge, and the International School of Advanced Studies in Polymer Science (Ferrara, Italy).

Professor Guillet held numerous offices in scientific societies and attended many conferences where he often delivered plenary lectures. He organized seven international meetings in chemistry, including the International Union of Pure and Applied Chemistry (IUPAC). At the Chemical Institute of Canada he chaired several committees. He served on the editorial advisory boards of five important international scientific journals and was an active reviewer of publications and research proposals in Canada and the United States. In 1987 he co-founded the Polymers and Composites Program of the Ontario Centre for Materials Research, a consortium of five university research groups. In 1988 he acted as an adviser to the Foundation for Research and Development in South Africa.

Professor Guillet received numerous honours for his work, beginning in 1967 with a fellowship in the Chemical Institute of Canada. In 1977 he was awarded the Gold Medal and Canada's patent number 1,000,000 for the invention of degradable plastic. In 1981 he was elected a fellow of the Royal Society of Canada and received a Guggenheim Fellowship, which was followed by a Killam Fellowship in 1987. He received an honorary doctorate from Cambridge University in 1974 and the Chemical Institute of Canada awarded him its Montreal Medal in 1998. In 1999 the Society of Polymer Science of Japan presented him with its International Award.

Professor Guillet died in Toronto on 23 September 2005, from complications following successful bypass surgery.

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June 5, 2009*