

## BEVERLEY (BERT) GIRLING HOARE (1924–2007)

By Dennis E. Netherton and M.A.J. (Fred) Matich, 2015



Dr. Bert Hoare, a leading Canadian expert in management of mine tailings facilities, died in Pembroke ON in December 2007 after a period of deteriorating health. With his death, the mining industry and the geotechnical engineering profession in Canada lost a notable pioneer.

Bert Hoare served as a pilot in the Royal Canadian Air Force between 1943 and 1945. After returning from war service he attended Queens University, Kingston and gained a Bachelors Degree in Engineering in 1949. Between 1949 and 1965 he obtained broadly-based experience in the mining industry, working with Falconbridge, Denison, Iron Ore of Canada, Alcan and the Cleveland Cliffs Iron Company. During this time, he held senior positions in engineering, operations and management. His experience led him to conclude that management of mine tailings facilities needed to be based on sound engineering principles. In his characteristically thorough manner, he enrolled at the University of Waterloo, where he graduated in 1968 with an MASc in Civil Engineering (water resources), followed in 1972 with a PhD degree in Civil Engineering. (His Ph.D. thesis is available in electronic form at <https://uwspace.uwaterloo.ca/> with URL <http://hdl.handle.net/10012/8389>.)

Dr. Hoare's doctoral thesis, *The Disposal of Mine Tailings Material* is one of the first to discuss the overall management of tailings storage facilities in the mining industry. It effectively combines his practical experience with theoretical principles which have become recognized as essential to the planning, design, operation and closure of tailings facilities in ways that are safe, environmentally acceptable, and efficient. Significantly, he recognized at an early stage, the importance of management of both natural and process-affected water associated with such facilities, as well as the engineering and chemical characteristics of tailings solids that are deposited hydraulically. His research included field and laboratory investigations of existing tailings deposits to determine properties such as gradation, permeability, strength and consolidation. It also advanced the application of geotechnology to the design of tailings storage facilities.

For designers, he identified the various options that were available at the time for storage of tailings, and also means for their initial comparative evaluation based on the *returns ratio* (the number of tons of tailings stored per cubic yard of retention dam volume). He also contributed directly to the mining industry on ways of ensuring dam safety and regulatory compliance;

deposition by subaerial methods; new or improved techniques such as the use of hydro-cyclones for construction of retention dams; and monitoring performance to verify design expectations.

Following his second period of university studies, Dr. Hoare joined the Federal Energy Resources and Mines Department in Ottawa and worked on preparing manuals that proved specially valuable to the mining industry. His expertise became widely sought after as a consultant and in 1976 he formed the company Mine Tailings International Ltd. whose clients included mining companies across Canada, the United States, and in countries such as Chile, Brazil and Guyana. Dr. Hoare stressed the importance of inspecting tailings operations first-hand and meeting with mine representatives and designers. Because of his varied earlier career, he had an easy rapport with both groups. He made presentations on tailings-related topics to regulatory and mining organizations in Canada and the U.S.A., and was known for his integrity, experience, engineering judgement, and particularly for his ability as a mentor.

Bert Hoare was survived by his wife Eveline and siblings William Hoare, Sheila Thomson and Alicia Brown.