FRANK BROWNRIDGE (1897-1984)

By M.A.J. (Fred) Matich and Alec Rutka

Francis (Frank) Clair Brownridge, former Special Assignments Engineer with the Department of Highways of Ontario (DHO; now, Ministry of Transportation) passed away on March 6, 1984 at age 87. He played an important role in the development and application of geotechnical engineering in highway transportation in Ontario.

Frank was a native of Ontario. He obtained a Bachelor of Science degree from the University of Saskatchewan in 1920, followed by a Bachelor of Engineering degree in 1923. After graduation, he worked initially in the municipal field of civil engineering in the US. This was followed by an assignment in the oil industry in Canada.

He joined the DHO in 1934, serving first as Project Engineer in charge of bridge and pavement construction in the London District and, after 1944, as Assistant District Engineer and District Maintenance Engineer in the Chatham District. In 1946, Frank was appointed Supervising Soils Engineer in the Soils Section which was formed at the end of World War II. In this capacity, he was primarily responsible for soils and pavement performance surveys for pavement designs, for new construction and maintenance purposes. They also advised on materials and quality control during construction.

In 1949, the DHO's soils, asphalt and concrete activities were centralized into a Soils and Materials Section. The steady post-war growth of the highway system, much of it over difficult terrain, required detailed geotechnical information on subsurface conditions as well as research. This resulted in the expansion of the section in 1952 and its renaming to the Materials and Research Division. Frank was appointed Materials and Research Engineer in 1953. He held this position until his appointment as Special Assignments Engineer in 1958, reporting to the Chief Engineer, W.A. Clarke. Frank retired in 1967.

As Materials and Research Engineer, Frank coordinated the work of all the DHO's technical sections (Soils, Asphalt, Concrete, Aggregate, Chemical and Laboratory). This responsibility coincided with the significant expansion of the highway system in the early 1950s and the associated demand by new projects for services such as geotechnical design for major bridge foundations, deep cuts, and high embankments.

Frank initiated the formation of an Equipment Section in 1952 with capabilities to carry out subsurface investigations. The DHO also retained private firms for this purpose. Frank also

established a Foundations Investigation Group in 1953 (which later became the Foundations Section) composed of a team of younger engineers with high academic qualifications in geotechnical engineering. This occurred during the important transition period in Ontario, and the rest of Canada, when geotechnical engineering (as it is now known) changed from essentially an experience-based empirical approach to a recognized specialty field in civil engineering. Frank was a pioneer, typical of a number of others in Canada, who without special academic qualifications in soil mechanics carried the profession successfully through this transition phase.

Among the many projects with which Frank was involved, and which required application of specialized geotechnical engineering input, were three major bridges: (i) the Little Pic River Bridge on the Trans-Canada Highway near Marathon (application of electro-osmosis for slope stabilization); (ii) the Rainy Lake Causeway near Fort Frances (application of the displacement technique assisted by blasting for embankment construction) and (iii) the Burlington Skyway, near Hamilton (founded on a bay-mouth bar). Frank participated as co-author of a number of published technical papers, including those identified below.

As Special Assignments Engineer, Frank kept abreast of the developments of new materials, methods and processes. He arranged for their evaluations and recommended innovations into the DHO's construction and maintenance programs.

Frank was involved in a number of organizations. He served as first President of the Ontario Chapter of the American Concrete Institute and President of the Canadian Technical Asphalt Association. He was a member of the Canadian Good Roads Association's Pavement and Evaluation Committee; the Observer Committee of the AASTHO Test Road near Ottawa (Illinois) and the Association of Asphalt Paving Technologists. He served as Chairman of the (US) Transportation Research Board's Committee on Effect on Ice Control, and Chairman of its ad hoc Committee on Studded Tires. On July 1, 1967, the 100th anniversary of the Confederation of Canada, Frank was received Canada's Centennial Medal in recognition of his valuable service to the nation.

The following are some of Frank's publications:

R.L. Bayne and F.C. Brownridge. 1955. Spectrographic Analysis for Determining Quality of Coarse Aggregates. Canadian Good Roads Association Convention. Banff, AB.

F.C. Brownridge. 1957. A Review of Swamp or Muskeg Literature with Methods for Treatment and Recommendations. Materials and Research Section. DHO internal report.

M.A.J. Matich and F.C. Brownridge. 1964. Soils Investigation for the Rainy Lake Causeway. Highway Research Record 57. Highway Research Board. Washington, D.C.