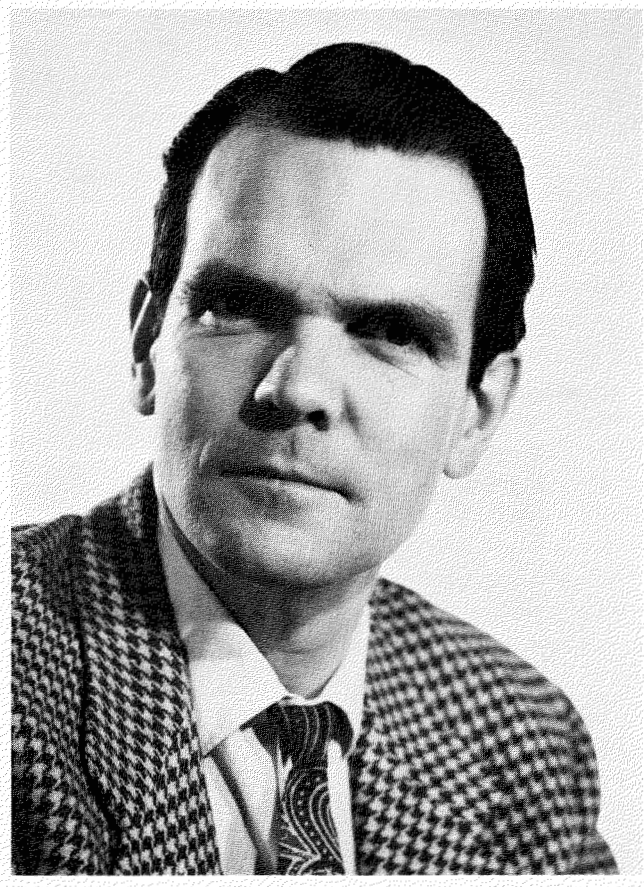

ROGER JAMES EVAN BROWN

1931-1980

Dr. Roger Brown died in hospital in Ottawa, Ontario, on November 4, 1980 after a long and valiant battle with cancer. For nearly ten years he fought with great courage and determination to carry on a full and active life. This he did almost to the end but his condition gradually deteriorated, particularly during the last twelve months, and, despite his tremendous spirit and will to live, he finally succumbed. Roger was widely known as an authority on the distribution of permafrost in Canada and through his work established close friendships over the years. He will be sorely missed by his colleagues and many friends throughout the world.

Roger Brown was born in Toronto, Ontario, on 17 January 1931 and received his B.A. and M.A. degrees in geography from the University of Toronto in 1952 and 1954, respectively. He attended Clark University in Worcester, Massachusetts, U.S.A. from September 1956 to July 1957 where he completed the course work for his Ph.D. From September 1957 to August 1958 he studied at the Scott Polar Research Institute in Cambridge, England, gathering information for his thesis "Permafrost in Canada — Its Effect on Developments in an Area of Marginal Human Activity". He received his Ph.D in geography from Clark University in June 1961.

During the summers of 1950 and 1952 he carried out field and office studies as a student assistant in the Geographical Branch, Department of Mines and Technical Surveys, Ottawa. In August 1951 he was a Canadian observer on the Arctic Weather Stations Resupply Mission (U.S. Navy Operation NANOOK 51), sailing aboard the icebreaker U.S.S. *Eastwind*.

Roger joined the Division of Building Research, National Research Council of Canada, in June 1953 and immediately began studies to determine the distribution of permafrost in Canada and to investigate the climatic and terrain factors that affect the formation and stability of permafrost. He devoted his career to permafrost research and carried out both exploratory and detailed field studies throughout the permafrost region in Canada. In 1954 he was a member of the site survey team that spent about seven months in the Mackenzie Delta area carrying out investigations which led to the selection of the present townsite for Inuvik. Following educational leave in 1956-58, he participated in permafrost studies during the development of the new town of Thompson in northern Manitoba (1959-60). Between 1962 and 1968 he conducted field work to delineate the southern boundary of permafrost in Canada and its occurrence and distribution in the discon-

tinuous zone. During this period, surveys were made on foot and by car, canoe, train, fixed-wing aircraft and helicopter across Canada from the Yukon and northern British Columbia in the west to Québec and Labrador in the east.

In 1969 he initiated studies in other parts of the Canadian permafrost region. Observations on the climate, terrain and ground thermal regime were begun at various locations in northern Manitoba, the District of Keewatin, N.W.T., the Yellowknife area and at Schefferville, Québec. Much of this work was directed toward gathering information on permafrost conditions in the vicinity of the boundary between the continuous and discontinuous permafrost zones. In the early 1970's, similar work was begun on alpine permafrost in the Canadian Cordillera, the Gaspé and Labrador. He also undertook studies in the High Arctic to investigate the nature and distribution of permafrost in the northern part of the continuous zone. In 1970-73 he carried out field work on Devon Island as part of the Tundra Biome project of the International Biological Program. The measurement of permafrost temperatures at Alert on the northern tip of Ellesmere Island was begun in 1978 in collaboration with the Geological Survey of Canada and the Department of National Defence.

Roger was the author or coauthor of more than 45 scientific and technical papers. In 1967 he prepared the Permafrost Map of Canada, published jointly by the National Research Council of Canada and Geological Survey of Canada. In 1974 a modified version of this map was published in the National Atlas of Canada, Fourth Edition, and in 1978 a revised edition was included in the Hydrological Atlas of Canada. These maps together with the regional reports of his field surveys form the standard references for the distribution of permafrost in Canada. Much of the information he gathered during his early years at the Division of Building Research and for his Ph.D thesis was published in 1970 by the University of Toronto Press in a book entitled *Permafrost in Canada — Its Influence on Northern Development*. The maps, the book and his papers represent not only the remarkable achievements of one man but also a tremendous contribution to the knowledge of permafrost in Canada, which is vital in the planning and development of the natural resources and the communities of northern Canada. He also recognized the importance of permafrost research in other countries, particularly the Soviet Union, and he studied and became quite proficient in reading the Russian language. Thus he was able to translate into English a number of important Russian permafrost publications, and edited the English translations of numerous Russian papers.

In addition to his extensive permafrost research activities at the Division of Building Research, Roger was an active member of several national and international committees and organizations concerned primarily with permafrost and periglacial phenomena and the North. He was perhaps best known as the Research Advisor and Secretary to the Permafrost Subcommittee of the NRCC, Associate Committee on Geotechnical Research, a position he held from 1960 when the Subcommittee was established. In this role he was the guiding force in organizing three major Canadian permafrost conferences (and at the time of his death he was involved with the Fourth, to be held in Calgary in March 1981) and several special permafrost seminars and symposia. Roger was also active in the planning of the First and Second International Conferences on Permafrost held at Lafayette, Indiana, U.S.A. in 1963 and at Yakutsk, U.S.S.R. in 1973, respectively. Under his leadership as Chairman of the Organizing Committee, the Third International Conference on Permafrost was held in Edmonton, Alberta in 1978.

Over the years, Roger was asked to serve on the executive or on special Task Forces or Study Groups of many committees, including the NRCC Associate Committee on Quaternary Research (1966-72), the Canadian National Advisory Committee on Geographical Research (1970, 1971), the Canadian Advisory Committee on Remote Sensing (1972-75), the Committee on Permafrost, Polar Research Board, U.S. National Academy of Sciences (1972-80) and the Coordinating Committee for Periglacial Research, International Geographical Union (1974-80). He was a member of the six-man official delegation that represented Canada at the VII International Congress of the International Association for Quaternary Research (INQUA) held at Boulder, Colorado, U.S.A. in 1965. Roger also served on the NRCC Editorial Board for translation of the U.S.S.R. Academy of Sciences journal *Problems of the North* (1965-80, Chairman 1972-80) and on the Editorial Board for the U.S.A. journal *Polar Geography and Geology* (1976-80).

Roger was a member of the Canadian Association of Geographers for many years and a member of the Arctic Circle (Ottawa), serving as President of the latter organization in 1969 and 1970. He was a Fellow of the Arctic Institute of North America and was a member of the Board of Governors from 1970 to 1975.

Due in no small part to his efforts, strong links were forged with permafrost workers throughout the world, notably in the U.S.A., U.S.S.R., People's Republic of China, France, Poland, England, Denmark, Finland and Iceland. The close contacts established were maintained not only through his participation at meetings and conferences but also by personal visits to many of the permafrost areas of the northern hemisphere.

In a personal vein, the writer, on numerous occasions in the past 27 years, had the good fortune to spend many days and weeks on field work with Roger in northern Canada and on visits abroad — one could not wish for a more personable, interesting and entertaining travelling companion. As an example, the writer accompanied Roger, following a period in northern Finland, on an eventful

and very interesting two-month visit to the Soviet Union in 1966 including about six weeks in eastern Siberia. Another memorable trip was one we made in 1973, accompanied by our wives, through China and Mongolia by train (with a stop to make contacts in Peking) to attend the Second International Permafrost Conference in Yakutsk, U.S.S.R. On several occasions Roger was involved with arranging visit programs in Canada for permafrost workers from other countries. In 1975 he chaired a committee that arranged a three-week visit of a Chinese delegation to Canada and in 1977 he led a Canadian permafrost delegation to China for three weeks.

Permafrost underlies about one-half of Canada and Roger was keenly aware of its importance to the efficient and effective development, with due regard for environmental concerns, of our northern areas. He therefore was very active in furthering the scientific and public knowledge of permafrost in Canada. He gave courses on permafrost at the Universities of Calgary and Ottawa and innumerable lectures and seminars across Canada. Because of his reputation as an authority on permafrost distribution in Canada, he received numerous phone calls and a constant stream of visitors to his office asking for information and advice, which he willingly gave. It is safe to say that most, if not all, the permafrost workers in Canada (and many from other lands) were in contact with Roger Brown at one time or another and benefitted from or were influenced by his dedication, knowledge and enthusiasm. In 1977, Roger was awarded the Silver Jubilee Medal and in late September 1980 (five weeks before his death) he received in person, at the annual Canadian Geotechnical Conference in Calgary, the R.F. Legget Award of the Canadian Geotechnical Society. This was a fitting tribute recognizing the significant achievements and contributions he had made to Canada in the geotechnical field.

Roger Brown was a man of many facets, having a wide sphere of interests outside his professional field. He did not hesitate to express his thoughts and opinions on many subjects — with refreshing candour coupled with wit and humour. His tales of field trip experiences were always related with great gusto and appropriate descriptive expressions — as were his views on politics, the economy, sports and even individuals. Roger came from a close-knit family which was very conscious of the history of our country and which had a strong sense of public service. He was concerned about his community, he was knowledgeable about world affairs, he enjoyed the arts and he had a keen interest in several sports — particularly hockey, football and skiing. From his youth he was fascinated by the land, particularly the North, its wilderness areas, its physiography and history, and it was perhaps this that led him to geography and to his career in permafrost research. He shared his interest and enthusiasm for the North not only with his colleagues and friends, but also with his wife Janet and their four children — Geoffrey, Carolyn, Sheila and Margaret. Together they spent many holidays at the family summer home in the Lake of Bays District, north of Toronto, and together they visited many parts of Canada and the U.S.A. In 1976, for example, they made a memorable trip with his brother and his family, from Ottawa by car (complete with tents and canoes) to Northern B.C. and the Yukon, and back. Not only did they travel extensively in Canada as a family, but holidays were also taken in such countries as Cuba, Norway and Switzerland where they visited relatives or friends. Roger and Janet celebrated their 25th wedding anniversary on October 15, 1980 while he was in hospital.

Roger was dedicated to his profession and especially to his family. Many lasting friendships were established through his work and family associations — numerous are those that were made welcome and experienced the hospitality of the Browns' home. Roger Brown will long be remembered for his unique combination of scholarliness and warm personality, and his work and the many contributions he made during his short life span will endure for many years.

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BIBLIOGRAPHY

I. SCIENTIFIC AND TECHNICAL PAPERS

BROWN, R.J.E. 1956. Permafrost investigations in the Mackenzie Delta. The Canadian Geographer 7:21-26. (NRCC Paper No. 4721).

———. 1957. Observations on break-up in the Mackenzie River and its Delta in 1954. Journal of Glaciology 3(22):133-141. (NRCC Paper No. 4461).

———. 1960. The distribution of permafrost and its relation to air temperature in Canada and the U.S.S.R. Arctic 13(3):163-177. (NRCC Paper No. 5941).

———. 1962. A review of permafrost investigations in Canada. The Canadian Geographer VI(3-4):162-165. (NRCC Paper No. 7139).

———. 1963a. Relation between mean annual air and ground temperatures in the permafrost region of Canada. In: Proceedings, Permafrost International Conference, November 1963. 241-246. (NRCC Paper No. 9272).

———. 1963b. Influence of vegetation on permafrost. In: Proceedings, Permafrost International Conference, November 1963. 20-25. (NRCC Paper No. 9274).

———. 1964. Permafrost Investigations on the Mackenzie Highway in Alberta and Mackenzie District. National Research Council of Canada, Division of Building Research Technical Paper No. 175. 36 p. (NRCC Paper No. 7885).

———. 1965a. Some observations on the influence of climatic and terrain features on permafrost at Norman Wells, N.W.T., Canada. Canadian Journal of Earth Sciences II (February). (NRCC Paper No. 8213).

———. 1965b. Permafrost Investigations in Saskatchewan and Manitoba. National Research Council of Canada, Division of Building Research Technical Paper No. 193. 47 p. (NRCC Paper 8375).

———. 1967a. Permafrost Map of Canada. (A joint production of the Geological Survey of Canada and DBR/NRC.) (NRCC No. 9769).

———. 1967b. Comparison of permafrost conditions in Canada and the U.S.S.R. The Polar Record 13(87):741-751. (NRCC Paper No. 9741).

———. 1968a. Permafrost Investigations in British Columbia and Yukon Territory. National Research Council of Canada, Division of Building Research Technical Paper No. 253. 43 p. (NRCC Paper No. 9762).

———. 1968b. Permafrost Map of Canada. Canadian Geographical Journal (February):56-63. (NRCC Paper No. 10326).

———. 1968c. Permafrost Investigations in Northern Ontario and Northeastern Manitoba. National Research Council of Canada, Division of Building Research Technical Paper No. 291. 46 p. (NRCC Paper No. 10465).

———, 1968d. Occurrence of permafrost in Canadian peatlands. In: Proceedings, Third International Peat Congress, Québec, Canada. August 18-23, 1968. 174-181. (NRCC Paper No. 11339).

———. 1969. Factors influencing discontinuous permafrost in Canada. In: Péwé, T.L. (ed.). The Periglacial Environment — Past and Present. Montréal: Arctic Institute of North America and McGill-Queen's University Press. 11-53.

———. 1970a. Permafrost in Canada: Its Influence on Northern Development. Toronto: University of Toronto Press. 240 p.

———. 1970b. Permafrost as an ecological factor in the Subarctic. In: Proceedings, Symposium on Ecology of Subarctic Regions, Helsinki, Finland, 1966. Paris: UNESCO. 129-140. (NRCC Paper No. 11373).

———. 1972. Permafrost in the Canadian Arctic Archipelago. Zeitschrift Für Geomorphologie (July):102-130. (NRCC Paper No. 12805).

———. 1973a. Permafrost Map of Canada. National Atlas of Canada. Ottawa: Department of Energy, Mines and Resources. 11-12. Scale 1:15,000,000.

———. 1973b. Permafrost distribution and relation to environmental factors in the Hudson Bay Lowland. In: Symposium on the Physical Environment of the Hudson Bay Lowland, University of Guelph, March 30-31, 1973. 35-68. (NRCC Paper No. 13574).

———. 1973c. Influence of climatic and terrain factors on ground temperatures at three locations in the permafrost region of Canada. In: Permafrost, North American Contribution to the Second International Conference on Permafrost, Yakutsk, Siberia, July 1973. 27-34. (NRCC Paper No. 13844).

———. 1973d. Ground ice as an initiator of landforms in permafrost regions. Research in Polar and Alpine Geomorphology. Proceedings, 3rd Guelph Symposium on Geomorphology. 25-42. (NRCC Paper No. 14554).

———. 1974. Some Aspects of Airphoto Interpretation of Permafrost in Canada. National Research Council of Canada, Division of Building Research Technical Paper No. 409. 20 p. (NRCC Paper No. 13804).

———. 1975. Permafrost Investigations in Québec and Newfoundland (Labrador). National Research Council of Canada, Division of Building Research Technical Paper No. 449. 51 p. (NRCC Paper No. 14966).

———. 1976. Muskeg and permafrost. In: Radforth, N.W. and Brawner, C.O. (eds.). Muskeg and the Northern Environment. National Research Council of Canada, Associate Committee on Geotechnical Research (contains papers presented at 15th Muskeg Research Conference, 1973). Toronto: University of Toronto Press. 148-163.

———. 1978a. Influence of climate and terrain on ground temperatures in the continuous permafrost zone of northern Manitoba and Keewatin District, Canada: In: Proceedings, Third International Conference on Permafrost, Edmonton, Alberta, July 1978. Vol. 1:15-21. (NRCC Paper No. 17085).

———. 1978b. Permafrost Map of Canada. In: Hydrological Atlas of Canada. Ottawa: Department of Fisheries and Environment. Plate No. 32.

———. 1979a. Permafrost distribution in the southern part of the discontinuous zone in Québec and Labrador. Géographie physique et Quaternaire XXXIII(3-4):279-289. (NRCC Paper No. 18001).

———. 1979b. Effects of fire on the permafrost ground thermal regime in northern circumpolar ecosystems. Presented at Conference on Fire in Northern Circumpolar Ecosystems, Fredericton, N.B., October 22-24, 1979. (Proceedings to be published).

——— and JOHNSTON, G. H. 1964. Permafrost and related engineering problems. Endeavour XXIII(89):66-72. (NRCC Paper No. 7860).

BROWN, R.J.E. and WILLIAMS, G. P. 1972. The Freezing of Peatland. National Research Council of Canada, Division of Building Research Technical Paper no. 381. 39 p. (NRCC Paper No. 12881).

BROWN, R.J.E. and PÉWÉ, T. L. 1973. Distribution of permafrost in North America and its relationship to the environment: A review, 1963-73. In: Permafrost, North American Contribution to the Second International Conference on Permafrost, Yakutsk, Siberia, July 1973. 71-100. (NRCC Paper No. 13847).

BROWN, R.J.E. and KUPSCH, W. O. 1974. Permafrost Terminology. National Research Council of Canada, Associate Committee on Geotechnical Research, Technical Memorandum 111. 62 p. (NRCC Paper No. 14274).

BROWN, R.J.E. and JUDGE, A.S. 1977. Permafrost investigations on Truelove Lowland. In: Bliss, L. C. (ed.). Truelove Lowland, Devon Island, Canada: A High Arctic Ecosystem. Edmonton: University of Alberta Press. 15-30. (NRCC Paper No. 16812).

BROWN, W.G., JOHNSTON, G.H. and BROWN, R.J.E.. 1964. Comparison of observed and calculated ground temperatures with permafrost distribution under a northern lake. Canadian Geotechnical Journal 1(3):147-154.

GRAY, J. T. and BROWN, R.J.E. 1979. Permafrost existence and distribution in the Chic-Chocs Mountains, Gaspésie, Québec. Géographie physique et Quaternaire XXXIII(3-4):299-316. (NRCC Paper No. 18355).

HARRIS, S. A. and BROWN, R.J.E. 1978. Plateau Mountain: A case study of alpine permafrost in the Canadian Rocky Mountains. In: Proceedings, Third International Conference on Permafrost, Edmonton, Alberta, July 1978. Vol. 1:385-391. (NRCC Paper No. 17087).

JOHNSTON, G. H. and BROWN, R.J.E. 1961. Effect of a lake on distribution of permafrost in the Mackenzie River Delta. Nature 192(4799):251-252.

———. 1964. Some observations on permafrost distribution at a lake in the Mackenzie Delta, N.W.T., Canada. Arctic 17(3):162-175. (NRCC Paper No. 8252).

———. 1965. Stratigraphy of the Mackenzie River Delta, N.W.T., Canada. The Geological Society of America Bulletin 76(1):103-112. (NRCC Paper No. 8280).

———. 1966. Occurrence of permafrost at an arctic lake. Nature 211(5052):952-953.

——— and PICKERSGILL, D. N. 1963. Permafrost Investigations at Thompson, Manitoba — Terrain Studies. National Research Council of Canada, Division of Building Research Technical Paper No. 158. 55 p. (NRCC Paper No. 7568).

LEGGET, R.F., DICKENS, H.B. and BROWN, R.J.E. 1961. Permafrost investigations in Canada. Geology of the Arctic II (October): 956-969. (NRCC Paper No. 6262).

LEGGET, R.F., BROWN, R.J.E. and JOHNSTON, G.H. 1966. Alluvial fan formation near Aklavik, N.W.T., Canada. The Geological Society of America Bulletin 77(1):15-29. (NRCC Paper No. 8978).

PIHLAINEN, J.A., BROWN, R.J.E. and LEGGET, R.F. 1956. Pingo in the Mackenzie Delta, N.W.T. Bulletin of the Geological Society of America 67(8):1119-1122. (NRCC Paper No. 4009).

PIHLAINEN, J.A., BROWN, R.J.E. and JOHNSTON, G.H. 1956. Soils in Some Areas of the Mackenzie River Delta Region. National Research Council of Canada, Division of Building Research Technical Paper No. 43. 51 p. (NRCC Paper No. 4096).

POPPE, V. and BROWN, R.J.E. 1976. Russian-English Glossary of Permafrost Terms. National Research Council of Canada, Associate Committee on Geotechnical Research, Technical Memorandum No. 117. 25 p.

II. MISCELLANEOUS ARTICLES, REPORTS, NOTES, ETC.

BROWN, R.J.E. 1965. Distribution of permafrost in the discontinuous zone of western Canada. In: Proceedings, Canadian Regional Permafrost Conference, Edmonton, Alberta, December 1964. National Research Council of Canada, Associate Committee on Soil and Snow Mechanics, Technical Memorandum No. 86:1-14.

———. 1969. Distribution of permafrost in Canada. In: Proceedings, Third Canadian Conference on Permafrost, Calgary, Alberta, January 1969. National Research Council of Canada, Associate Committee on Geotechnical Research, Technical Memorandum No. 96:1-8.

———. 1971a. Permafrost Map of Canada. Canada's Changing North. Carleton Library No. 55. McClelland & Stewart.

———. 1971b. Characteristics of the active layer in the permafrost region of Canada. In: Proceedings, Seminar on the Permafrost Active Layer, Vancouver, B.C., May 1971. National Research Council of Canada, Associate Committee on Geotechnical Research, Technical Memorandum No. 103:1-7.

———. 1972. Permafrost investigations on Devon Island, N.W.T. — Canadian Tundra Biome Site (IBP). In: Bliss, L.C. (ed.). Progress Report 1970-71, Devon Island IBP Project High Arctic Ecosystem. 30-45.

———. 1973. Influence of climatic and terrain factors on ground temperatures at three locations in the permafrost region of Canada. In: Proceedings, Seminar on the Thermal Regime and Measurements in Permafrost, Saskatoon, Saskatchewan, May 1972. National Research Council of Canada, Associate Committee on Geotechnical Research, Technical Memorandum No. 108:60-66.

———. 1974a. Permafrost in Canada — distribution, climatic and terrain relationships. In: Report on a Conference: Workshop on Building in Northern Communities, 1973, University of Montréal, Québec. Arctic Institute of North America, Man in the North Technical Paper: 16-21.

———. 1974b. Inventory and mapping of permafrost and related environmental factors. In: Priorities for Basic Research on Permafrost. Ad Hoc Study Group on Permafrost, Committee on Polar Research, National Academy of Sciences, Washington, D.C. 39-43.

———. 1974c. Influence of vegetation on permafrost. In: Falconer, A., Fahey, B. D. and Thompson, R. D. (eds.). Physical Geography: The Canadian Content. McGraw-Hill Ryerson Limited. 142-151. (Reprint of paper by R.J.E.B. in Permafrost: Proceedings of an International Conference, U.S. National Academy of Sciences 1966.) (NRCC Paper No. 9274).

———. 1974d. Distribution and environmental relationships of permafrost. In: Permafrost Hydrology. Proceedings of Workshop Seminar, 1974. Ottawa: Canadian National Committee, International Hydrological Decade, Environment Canada. 1-5.

———. 1977. Permafrost science and engineering in Canada. In: The Geosciences in Canada, 1977 Annual Report and Review of Soil Science. Energy, Mines and Resources, Geological Survey Paper 78-6:48-49.

———. 1979a. Permafrost ground temperature investigations at Alert, N.W.T. In: A Permafrost Monitoring Program at Alert, N.W.T. — Project Description and Preliminary Results. Geothermal Service of Canada, Energy, Mines and Resources Canada, Earth Physics Branch, Open File No. 79-5.

———. 1979b. Third International Conference on Permafrost. Geoscience Canada 6(3):142-145.

——— and SHILTS, W. W. 1978. Third International Conference on Permafrost, Edmonton, Alberta, July 1978: Guidebook, Field Trip no. 4, Northern Manitoba and District of Keewatin, N.W.T. 76 p.

HARWOOD, T. A., and BROWN, R.J.E. 1970. Permafrost. In: Background Papers on the Earth Sciences in Canada. National Advisory Committee on Research in the Geological Sciences. GSC Paper 69-56:124-133.

JOHNSTON, G. H. and BROWN, R.J.E. 1963. Effect of a lake on distribution of permafrost in the Mackenzie River Delta. In: Proceedings, First Canadian Conference on Permafrost, Ottawa, Ontario, April 1962. National Research Council of Canada, Associate Committee on Soil and Snow Mechanics, Technical Memorandum No. 76:218-225.