

## Eastern Snow Conference

Peter B. Clibbon

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11. *Étude de géographie humaine des Indiens de Schefferville*, par Mademoiselle Pierrette DÉSY, Québec. Thèse de maîtrise.

### III. DIVERSES DISCIPLINES

12. *Études ethno-biologiques de la Péninsule du Québec-Labrador*, par Monsieur Jacques ROUSSEAU, professeur à l'université Laval et chargé de recherches au Centre d'études nordiques.
13. *Bibliographie complète et indexée de la Péninsule du Québec-Labrador*, par MM. Alan COOKE, de Hanover, et Fabien CARON, de Québec, chargés de recherches au C. E. N.
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15. *Contribution à l'étude systématique des frontières : l'exemple Québec-Terre-Neuve*, par M<sup>e</sup> Henri DORION, Québec. Thèse de maîtrise. Publications du Centre d'études nordiques, Travaux et Documents, n° 1.
16. *Inventaires cartographique et historique de la Péninsule du Québec-Labrador*, par Monsieur Marcel TRUDEL, Québec.
17. *Situation du Caribou au Nouveau-Québec*, par Monsieur Gaston MOISAN, Québec.
18. *Caractéristiques écologiques de la Côte-Nord du Saint-Laurent*, par Monsieur Louis ROUSSEAU, Québec.
19. *Aspects de géographie de la Côte-Nord et de son arrière-pays*, par Monsieur Paul BUSSIÈRES, Québec. Thèse de diplôme d'études supérieures.
20. *La Côte-Nord à l'est de Sept-Îles*, par Monsieur Régis DE ROQUEFEUIL, Québec. Thèse de maîtrise.
21. Le C. E. N. a aussi commencé la préparation d'un *Recueil de travaux de sciences physiques et biologiques* concernant la Péninsule du Québec-Labrador.

Au cours de l'année 1963, le C. E. N. continue les travaux en cours auxquels s'ajoutent une dizaine d'autres sujets. C'est également l'année de la publication des premiers grands travaux.

Les candidats intéressés à entreprendre ou à poursuivre des recherches nordiques en 1964 peuvent s'adresser au Centre d'études nordiques, Institut de géographie, université Laval, Québec 10, Canada.

Louis-Edmond HAMELIN,  
directeur du Centre d'études nordiques.

### Eastern Snow Conference

The twentieth meeting of the Eastern Snow Conference was held at l'université Laval, Québec, over the 14-15<sup>th</sup> of February, 1963. There were 115 registered participants, almost all of whom were from eastern Canada and New England. The meetings were held in the auditorium of the Faculté des sciences appliquées de l'université Laval on the new Sainte-Foy campus. The following papers were delivered :

*Progress report on snow and ice observation from « Tiros » satellites*, R. W. POPHAM and S. FRITZ, National Weather Satellite Center, U. S. Weather Bureau, Washington, D. C.

*Time trends in spring runoff from the Ottawa River basin*, A. COULSON and G. M. MAC-NABB, Hydraulics Division, Water Resources Branch, Department of Northern Affairs and National Resources, Ottawa.

*Snow and Vermont's highway system*, Byron BLANCHARD and Sheldon MILLER, Vermont State Department of Highways, Montpelier, Vermont.

*The use of dust to advance the break-up of ice on lakes and rivers*, G. P. WILLIAMS and L. W. GOLD, Snow and Ice Section, Division of Building Research, National Research Council, Ottawa.

*The role of « lake effect storms » in the distribution of snowfall in Southern Ontario*, T. L. RICHARDS and V. S. DERCO, Lakes Investigation Sub-section, Hydro-meteorology Section, Meteorological Service of Canada, Toronto.

*Criteria for the stability of ice covers on rivers*, F. I. MORTON, Great Lakes – Saint Lawrence Study Office, Water Resources Branch, Department of Northern Affairs and National Resources, Cornwall, Ontario.

*Theory of formation and deposit of frazil ice*, Dr. B. MICHEL, Civil Engineering Department, Laval University.

*A comparison of snow melt hydrographs from the Agricultural Research Service experimental watershed, Danville, Vermont*, Martin L. JOHNSON, U.S. Department of Agriculture, Agricultural Research Service, Danville, Vermont.

*Water supply forecast verifications for the Kennebec River*, Charles D. HOPKINS, Jr., River Forecast Center, U.S. Weather Bureau, Hartford, Connecticut.

The following papers were presented by members of a Snow Survey Panel, chaired by Ralph F. Kresge :

*Collection and publication of snow cover data by the Meteorological Service of Canada*, J. G. POTTER, Meteorological Service of Canada, Toronto.

*Snow sampling results with different snow samplers*, R. T. BEAUMONT and R. A. WORK, Water Supply Forecasting Unit, U.S. Department of Agriculture, Soil Conservation Service, Portland, Oregon.

*The use and value of snow survey data in the operation of hydroelectric facilities*, D. R. CAMPBELL, New England Power Service Company, Boston.

*Snow survey record — the need of long term records for flood regulation*, Nicholas LALLY, Flood Plain Information Section, Corps of Engineers Division, New England, Waltham, Massachusetts.

Several of the papers considered to be of interest to geographers will be commented upon briefly.

R. W. Popham compared *Tiros IV* satellite pictures showing ice in eastern Canadian coastal waters with surface and aircraft observations of weather and ice taken simultaneously with the *Tiros* pictures in an attempt to determine the extent to which satellites may be used for ice reconnaissance and surveillance. The communicant also described the projected *Nimbus* weather satellite program. The *Nimbus* tracking stations will be located on Cape Breton Island and in Fairbanks, Alaska. Sea ice information will be available within 45 minutes of a satellite flight. Discussant T. L. Richards commented upon the potential applications of satellite snow cover observations to hydrology. As the percentage of a watershed which is covered with snow can now be determined a forecast can be made of the spring snowmelt runoff.

A. Coulson showed that during the decade 1950 to 1959 the proportion of the spring runoff occurring in April on the Ottawa River at Grenville was considerably higher than that during previous decades even though more storage space has been available in recent years to capture the high flows during this month. This may be due to an increase in the average April temperature but it could also be a consequence of the intensive logging which has been carried out in recent years over much of the basin. It is unfortunate that, because of lake storage, no records exist of the natural flow of the Ottawa River. Discussant James Woodside reported that the Gatineau River, a major tributary of the

Ottawa, does not exhibit the high April runoff manifested by the Ottawa River at Grenville.

The use of dust to accelerate the melting of natural ice covers was discussed by G. P. Williams. Experiments performed by Mr. Williams and other researchers indicate that dusting of ice in sheltered lake bays can advance break-up by approximately ten days in southern Canada and by twenty to thirty days in northern Canada. Discussant C.-E. Deslauriers reported that the Quebec Department of Natural Resources was experimenting with the use of dust along a section of the rivière Chaudière south of Québec City in an attempt to prevent the formation of spring ice jams. Dynamite has been used along the river in the past for this purpose.

T. L. Richards assessed the role of « lake effect storms » in the distribution of snowfall in southern Ontario. The term « lake effect storm » is used to describe the heavy snowfalls resulting from cold outbreaks of polar continental air sweeping across the Great Lakes into the so-called « snow belt » areas to the lee of the individual lakes. Lake effect storms result from a combination of effects including orographic lift (approximately 8 inches of snowfall per 100 feet in this area) and the « thermal effect » of the heat source created by the lakes during the winter. It is concluded that the lake effect storms account for roughly 50 per cent of the snowfall in southern Ontario's snow belt area.

The Snow Survey Panel reported on the collection and use of snow survey data in Canada and the United States. J. G. Potter described the snow survey program which has recently been undertaken by the Meteorological Branch of the Canada Department of Transport. Between 1954 and 1961 the Branch confined itself to the summarising of snow cover data gathered from various governmental and other sources but in the winter of 1961-62 the Branch began active participation in snow surveys. Observations are now being taken at twelve of the principal Canadian weather stations. As additional snow courses are laid out this program will be extended to include nearly 100 stations in all parts of Canada. R. T. Beaumont discussed the relative merits of three snow sampler tubes. He concluded that the Standard Federal Snow Sampler and the Rosen tube (developed by Carl Rosen of Seattle) are both well-suited for snow survey programs. Because the Federal tube has been widely adopted throughout the western United States comparative regional snow cover studies can be undertaken. D. R. Campbell described the use of snow survey data in the operation of the New England Electric System. Snow measurements are taken twice a month at twenty-two stations located throughout the Deerfield and Connecticut River watersheds and the New England Power Service Company utilises the collected data to forecast runoff. The most economical power for New England is obtainable from an interconnected power system including both tidewater steam plants and inland hydroelectric stations. Hydro power realises its greatest worth when it serves the « peak loads » of such a power system (the late afternoon hours in winter when lights, stoves and television sets go on). The ability to predetermine the quantity of water which will become available both from rainfall and from melting snow permits the maximum use of reservoir contents with a reasonable assurance of replenishment. The final panel speaker, Nicholas Lally, discussed the Corps of Engineers snow survey program for the regulation of flood control dams in New England.

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