

Mr. FLEMING (*Okanagan-Revelstoke*): Is it apparent in that basin that the recession of the glaciers is quite marked and has been very rapid in the last couple of years? And are other glaciers receding at the same rate?

Mr. McLEOD: I would say that the Illecillewaet has receded somewhat more rapidly than the Kokanee in the southern area, or the Athabaska glacier and the Columbia ice fields.

Mr. FLEMING (*Okanagan-Revelstoke*): There has been no cycle effect on it as a whole?

Mr. McLEOD: I would say no. Of course, one of our problems in connection with recession of glaciers has been that our surveys have, of necessity, been rather limited, and recession figures from year to year are not always too significant unless you have details of the configuration of the glacier at the same time.

As an illustration of what I mean I am going to refer to the Franklin glacier out on the west coast of British Columbia near Mount Waddington. On the Franklin glacier there was a marked recession over a period of three years some time back, but it was discovered that what had happened was that probably for some time before that melting had occurred in the lower section of the glacier such as to make a series of caves, as it were, without the edge, or the end, of the glacier showing this effect. Finally the whole thing collapsed and the glacier moved back quite a long distance over what was relatively a short period. But it was shown that the melting which caused this cavitation must have taken quite a number of years to occur, and that condition had to be taken into account in looking at the individual annual or bi-annual recession figures.

Mr. FLEMING (*Okanagan-Revelstoke*): I see. It was not something that just happened?

Mr. McLEOD: That is right.

Mr. FLEMING (*Okanagan-Revelstoke*): It had been in the process of happening for a long time?

Mr. McLEOD: Yes.

Mr. FLEMING (*Okanagan-Revelstoke*): With this measurement of places, this could happen many times over, I suppose?

Mr. McLEOD: Possibly so. We have undertaken this past year a detailed survey of the Athabaska glacier in the Columbia ice fields, and we believe that if we repeat the techniques which were utilized this year, in about three years' time we should then be able to make a direct comparison of the results of 1959 and, say, 1962 or 1963 and obtain from them fairly good data on the amount of volumetric recession, or increase, of the glacier.

Mr. KORCHINSKI: Mr. McLeod, you mentioned that you had 157 gauging stations in Saskatchewan, and you also made reference to the fact that you make a study of the capacity of the river at a certain point.

These gauging stations vary from river to river, I suppose; but if a community somewhere in between two gauging stations required information for a water reservoir, would your department cooperate in giving them this information or obtaining this information for them?

Mr. McLEOD: Normally speaking, the community would first get in touch with its provincial water rights division, or branch—or equivalent. The reason I say "equivalent" there is that in the different provinces the provincial water agencies have somewhat different names. Having done so, the provincial water rights division people would approach our organization, if they considered that additional stream flow data were necessary to answer the particular question, or problem.