

Mr. Clark, who received a severe shaking up in the accident which resulted in the death of Mr. Tom Foley recently, is presently catching up on an urgent assignment but will appear before you at a later date to outline to you some of the hydrologic studies concerning conservation and flood control to which our hydrometric data are essential. It may well be that Messrs. McLeod, Clark and I will appear before you at various sessions to present branch activity in studies of particular interest to you. I understand that at a later session I may be expected to cover our participation in the work of the Fraser river board. These appearances together with the questions which you undoubtedly will put to us should give you a valuable insight into the activities of the branch. May I add that we will take pleasure in fulfilling these responsibilities to your committee.

The basic function of the water resources branch is the systematic recording of surface water level and flow data across Canada. The branch operates through a head office in Ottawa, six district offices located at Halifax, Montreal, Guelph, Winnipeg, Calgary and Vancouver and a number of small sub-offices strategically located for conducting field work. Flow data are essential to proper planning and design of projects for water supply, power generation, irrigation, reclamation, flood control, recreation and for water conservation and demands for records are becoming more numerous and more insistent. The branch operates a growing number of gauging stations (over 1200) where levels are obtained daily or more often and where velocity measurements are recorded and related to the levels to provide a continuing inventory of the water available in the rivers measured.

It is of prime importance that the methods of obtaining water records across the country should be uniform and that the period of record be continuous over a substantial number of years. These requirements, coupled with federal responsibility for navigation and international problems, offer good reasons for federal participation in a continuing hydrometric survey. The provinces have been happy to enter into co-operative financial arrangements relative to the work conducted for them. Co-operation is maintained with other federal agencies and municipal and private organizations with the result that there are published in Ottawa biennial compilations of water data for the four drainages of Canada similar in content to that for the climatic years 1955-56 and 1956-57 for the Arctic and western Hudson bay drainage which is our water resource paper No. 121, just off the press. And I have a copy of that document here which is a compilation of the flows in the various streams which we measure in this particular drainage which is the Arctic and western Hudson's bay, and the western Mississippi basin in Canada.

The first recorded stream measurement forming part of a hydrometric survey was made in June, 1894, on the Bow river near Calgary. For more than a decade thereafter general hydrometric work was confined to irrigation surveys undertaken in Saskatchewan and Alberta. Then, in 1908, parliament made an appropriation of \$10,000 for the establishment of systematic stream measurements, and a "Hydrographic Surveys" section was formed in the Department of the Interior.

While the hydrometric survey was becoming established in Alberta and Saskatchewan, other circumstances were bringing about its introduction west of the rockies. Under the terms of union admitting it into Confederation, the province of British Columbia conveyed to the dominion government a strip of territory more than 500 miles long and 40 miles wide along the prospective route of the Canadian Pacific railway. By 1911 the administration of water powers and water rights in this railway belt and on other dominion lands had become so important that a water power branch was formed in the Department of the Interior. This branch was made responsible for the hydrographic survey of the railway belt and of Manitoba, and also conducted