

Apart, however, from the report itself, the comprehensive scheme of development of the whole river, realizing the best possible use of the natural advantages of the river for power purposes, is so feasible, and of such importance to the West, that a liberal review of the power studies will undoubtedly be of general interest.

Winnipeg River Basin.—The basin of the Winnipeg River forms a portion of the Nelson River drainage system. The watershed is 53,500 square miles in area, of which 37,900 square miles lie in the province of Ontario, 4,600 square miles in the province of Manitoba and 11,000 square miles in the State of Minnesota. The basin is, therefore, international as well as interprovincial, and conflicting problems arise in connection with storage regulation in the upper reaches.

The upper waters are divided between two drainage systems, the English River draining the northerly 21,600 square miles, and the upper reaches of the Winnipeg draining the southerly 27,000 square miles. The entire watershed is very sparsely settled, and a large proportion offers little opportunity for agricultural settlement. The larger part of the basin consists of a forest-covered Laurentian formation with much granite outcropping, and is interspersed with lakes and muskegs and occasional stretches of agricultural land. Practically the entire basin is seamed and dotted with lakes of every size, from mere ponds to the 1,500 square mile spread of the Lake of the Woods.

Situation at Beginning of Survey.—At the time when the power and storage investigations along the Winnipeg River were instituted by J. B. Challies, superintendent of the Dominion Water Power Branch, the hydro-electric plant of the Winnipeg Electric Railway Co. was in operation on the river, and the initial installation of the Winnipeg municipal plant was approaching completion.

The Winnipeg Electric Railway Co.'s plant is located on the Pinawa channel of the Winnipeg River, about 58 miles from Winnipeg, and has installed a total turbine capacity of 34,000 h.p. This, in conjunction with the 22,000-h.p. steam turbine plant in the city, supplies power for distribution in Winnipeg.

The city of Winnipeg in 1908 began the construction of a municipally owned power plant at Point du Bois, on the Winnipeg River, distant 75 miles from the city, and at the time of the commencement of the survey, was completing the first turbine installation. Eight units with a total turbine capacity of 47,000 h.p. are installed to date, and additional bays are partially constructed to accommodate eight further units when the market demands. The power is transmitted to Winnipeg for general lighting, industrial and domestic use.

With the power from these two sites either developed or in course of development, the department was in receipt of numerous applications covering other sites along the river. It was, no doubt, realized that further hydro-electric development on the river was a matter of the im-

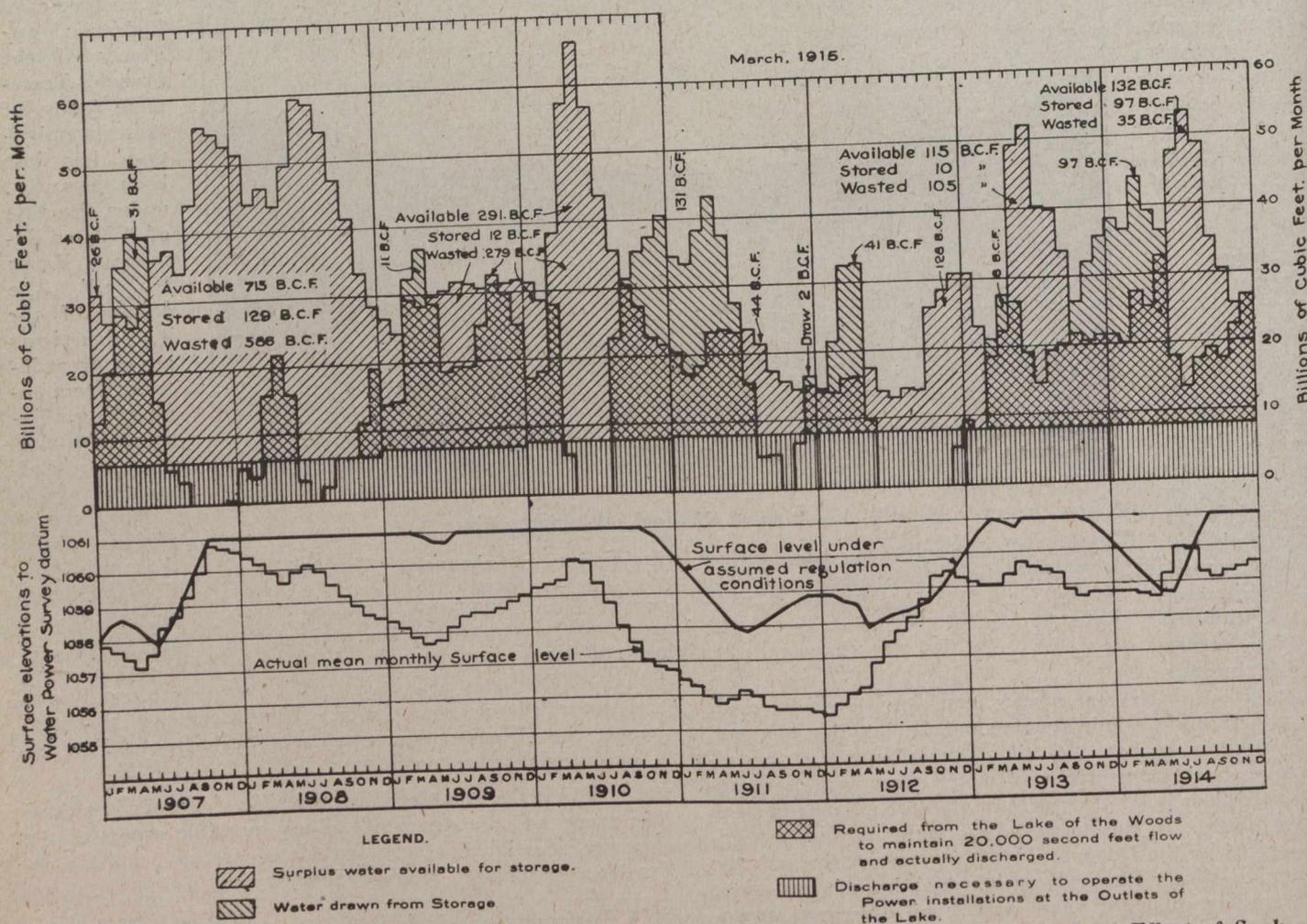


Fig. 2.—Mass Curve Study—Use of Lake of the Woods as a Regulating Reservoir, and the Effect of Such Regulation on the Surface Levels.

[NOTE:—In this analysis it has been assumed that a minimum flow of 20,000 second feet is maintained throughout the power reach of the Winnipeg River in Manitoba, by means of regulations in the Lake of the Woods reservoir alone. At the same time sufficient water has been discharged at all times to operate properly the power installations at the lake outlets.]