

owned systems of hydro-radial railways, the trunk line of which will run from Toronto to London. Such railway systems will require much additional power.

These facts just cited are offered by way of further emphasizing the great economic importance to Canada of power like that obtained from Niagara. The larger portion of southwestern Ontario is now dependent for power and lighting on the hydro-electric developments at Niagara.

Problems corresponding to those associated with these Niagara developments, involving as they do the question of the exportation of electrical energy, are of vital importance to the whole Dominion, and are worthy of the best statesmanship which Canada can bring to bear upon them.

**Investigation by International Joint Commission at Lake of the Woods.**—What is known as the Lake of the Woods investigation is being conducted by the International Joint Commission, under the Boundary Waters Treaty, of 1909, between Great Britain and the United States. The chief purpose of the investigation is to secure the most advantageous use of the waters of the Lake of the Woods and of the waters flowing into and from that lake on each side of the boundary for domestic and sanitary purposes; for navigation and transportation purposes; for fishing purposes, and for power and irrigation purposes; and also to secure the most advantageous use of the shores and harbors of the lakes and the waters flowing into and from the lake. This object is sought to be attained by means of regulating the lake between certain desired and yet-to-be-determined levels.

Through the courtesy of the Commission of Conservation, and upon request by the Canadian Commissioners of the International Joint Commission, arrangements were made for the writer to have whatever time would be necessary to fully attend to the duties of this important investigation.

The total area of the territory which drains its waters into the Lake of the Woods is 26,750 square miles, of which 15,565 square miles, or 58.2 per cent. are in Canada, and 11,185 square miles, or 41.8 per cent., are in the United States. Of this 26,750 square miles, 3,960 square miles, or 14.8 per cent., is water area, of which 70 per cent. is in Canada, and 30 per cent. in the United States.

Comparatively few persons have any adequate appreciation of the extent and value of the great inland water resources of portions of Canada. In this connection a few brief statements, having the Lake of the Woods watershed in mind, will doubtless be of interest.

The extent of the area of the Lake of the Woods watershed, 26,750 square miles, may be appreciated when it is understood that it is only about 5 per cent. less than the area of the Province of New Brunswick. It is greater than the combined areas of the States of New Hampshire, Massachusetts, Rhode Island, Connecticut and Delaware. Its water surface, at 3,960 square miles, is, if we except the Great Lakes system, larger than the water area of any individual State in the United States; the State of Minnesota being probably the nearest approach, with 3,824 square miles of water out of a total area for the State of 84,682 square miles.

The area of the Lake of the Woods, including Shoal Lake, with 107 square miles, is 1,485 square miles. The area of Rainy Lake is 345 square miles.

The waters of the Lake of the Woods eventually discharge into Hudson Bay. Important water power development has already taken place at the outlet of the Lake of the Woods, and also on the Winnipeg River. At the outlet there are located the plants of the Lake of the

Woods Milling Company, having an installation of about 6,000 horse-power, and flour mills with a capacity of 9,000 barrels per day. The municipality of Kenora has a power plant at the outlet of the Lake of the Woods, which has an installed capacity of about 3,600 horse-power.

On the Winnipeg River at the present time, below the outlet of the Lake of the Woods, there is an installation of about 75,000 horse-power. It has been stated that there is about 290 feet of utilizable fall between the Lake of the Woods and the Winnipeg River with a potentiality under controlled outflow, exceeding 400,000 horse-power.

In order to convey some idea of the volume of water corresponding even to one foot of depth on some of these lakes, it may be stated that on the Lake of the Woods a depth of one foot is equivalent to 41.4 billion cubic feet, while the corresponding volume for one foot of depth on Rainy Lake is 9.6 billion cubic feet. Speaking in other terms, a depth of one foot on the Lake of the Woods would supply 1,313 cubic feet per second for one year, while one foot depth on Rainy Lake would supply 305 cubic feet per second for the same period.

It will be perceived, therefore, how the storing of the run-off from the Lake of the Woods watershed in Rainy Lake, Lake of the Woods and elsewhere, may be made to exert a marked beneficial influence upon water powers receiving supply from this watershed. The International Joint Commission, in making its recommendations respecting a proposed regulation of the Lake of the Woods, will consider the advantage which would result to power interests, and also take into account any disadvantages that may result to riparian owners living in the State of Minnesota or elsewhere, whose lands, bordering on the lake, may, under certain regulation of levels, be subjected to damage by flooding.

Lake Winnipeg is one of the lakes lying upon the water course which connects Lake of the Woods with Hudson Bay. As stated, comparatively few people appreciate the extent of some of these waters, and are surprised when, for example, they are informed that Lake Winnipeg has an area of some 9,400 square miles, which is about 2,000 square miles larger than the area of Lake Ontario.

**Water Powers in British Columbia.**—Although we have not been able to complete the report relating to the water powers of British Columbia, upon which we have been engaged, nevertheless all possible effort has been, and is being bestowed upon this work. It may not be amiss to remark that the other work, which has necessarily taken so large a part of our time, involves matters of great national importance, and which affect all the provinces of Canada.

With the continued kind co-operation of various government organizations which have hitherto greatly assisted by contributing data, it is planned that the hydrographic data shall, wherever possible, be brought up to the end of 1915. It will be appreciated, therefore, that while the British Columbia report has necessarily been delayed, it will be up to date when published, and it is believed that when the report is issued it will be of considerably more permanent reference value than could otherwise have been the case.

The Alaska Engineering Commission has completed the new water system at Anchorage, ending a water shortage which began with the freeze-up last November. During the shortage merchants and householders paid a dollar a barrel for water taken from holes chopped in the ice on Ship Creek and water peddlers sold the precious fluid at 15 cents a bucket.