

Bois Falls of the Winnipeg River, 75 miles in a direct line from Winnipeg. The plans for this plant were begun in the latter part of 1906, but on account of the delay caused by the financial stringency of 1907 the plant was not completed and the initial installation operated until October, 1911.

The original installation, completed in April, 1913, consisted of five main units, each composed of a horizontal, double-runner turbine of 5,200 horse-power which, at a 45-foot head, has a discharge of 1,250 c.f.s., a speed of 164 r.p.m., and a guaranteed efficiency of 84 per cent. at full load. Each turbine unit is direct connected to a 3,000 kw., revolving field, 60-cycle, 3-phase, 6,600-volt generator. The turbines were supplied by Jens, Ortenboving & Company, London, and the generators by Vickers, Limited, of River Don works, Sheffield. This original installation is completed by two exciter units, each of 250 kw. capacity, driven by water turbines running at 500 r.p.m.

In 1914, three additional main units of different design from the original were installed. These units are also of the double-runner, horizontal shaft type, but of larger capacity than the initial units. Official tests gave an output of 7,220 brake horse-power at 80 per cent. gate opening and 46-foot head, or about 7,000 horse-power for a 45-foot head. The new units are each direct connected to a 5,000 k.v.a. revolving field, 60-cycle, 3-phase, 6,600-volt Westinghouse generator. The installation in 1916 consists of five units of 5,200 horse-power each and three units of 7,000 horse-power each, or a total of 47,000 turbine horse-power. The normal head at the plant is 45 feet. No ice troubles have been experienced thus far during the period of operation.

Assuming that the eight bays in the uncompleted portion of the power house are equipped with units of similar size to those last installed, the station will have a total capacity of 103,000 turbine horse-power. The power is transmitted to Winnipeg at 66,000 volts over a 77-mile transmission line.

Winnipeg River Power Company.—The Winnipeg River Power Company, which is controlled by the same interests as the Winnipeg Electric Railway Company, has under way at the present time (1916) the development of the Du Bonnet site of the Winnipeg River. This site is at a distance of about 80 miles from Winnipeg. As stated in Water Resources Paper No. 3:—

"The station as now designed provides for the ultimate utilization of the entire regulated river flow and will install eight 21,000 horse-power turbines, each running at a speed of 163.3 revolutions per minute, and requiring 4,100 cubic feet of water per second, when operating under a head of 56 feet. These turbines will be of the four-runner horizontal shaft type, and will be placed in pits formed in the concrete substructure."

In October, 1914, a railway 13 miles in length was completed by these interests from the Canadian Pacific line at Lac du Bonnet down to the power site. At the time of the final public hearings before the International Joint Commission at Winnipeg in February, 1916, the plans had been prepared for the beginning of construction whenever conditions for financing the enterprise should become sufficiently favorable.

The largest suction gas plant is in South Africa. It is of 575 brake horse-power capacity and with bituminous South Rand coal of 10,912 B.Th.U's per lb., and containing 60.7 per cent. fixed carbon, the consumption comes out at 1.146 lb. per brake horse-power hour with a low load factor.

CANADIAN RAILWAY ASSOCIATION FOR NATIONAL DEFENCE

An association has been formed along lines corresponding to the American Railway Association's special committee on national defence, better known as the United States Railroads War Board. The new board will be known as the Canadian Railway Association for National Defence, and will have general authority to formulate in detail a policy of operation for all or any of the railways for the co-ordinating of industrial activities toward the prosecution of the war and for rendering the most efficient possible service to the national cause.

The first meeting to consider the formation of the association was held in September last and in response to a request from Sir Henry Drayton that a closer co-operation between the various railways and the common use of rolling stock during the war was most desirable.

Following this meeting, which was attended by representative railroad men, Messrs. Beatty, Gillen, Price and Vaughan went to New York, where they saw the Railroads War Board's secretary, and obtained a large amount of information as to the board's operations. Messrs. Gillen, Price and Vaughan afterwards went on to Washington, where they saw the Commission on Car Service, which works under the Railroads War Board's directions, and obtained information as to its work.

A second meeting was held in Ottawa, October 11th, there being present Hon. J. D. Reid, who had in the meantime succeeded Mr. Cochrane as Minister of Railways, Sir Henry Drayton, Sir George Bury, E. W. Beatty, D. B. Hanna, and U. E. Gillen, the matter being further discussed and a decision arrived at to hold a more general meeting in Montreal.

Another meeting of the association was held in Montreal October 23rd, on which occasion Mr. D. B. Hanna, of the Canadian Northern Railway, presided. At this meeting the following resolution was adopted unanimously:—

That the railways of Canada, realizing the national need of co-ordinating all industrial activities toward the prosecution of the war, and desiring by further co-operation with each other to render the most efficient possible service to the national cause, do hereby agree to establish, for the period of the war, an organization which shall have authority to formulate in detail, and from time to time, a policy of operation of all or any of the railways, which policy, when it is announced by such organization, shall be accepted and made effective by the several managements of the individual railway companies. To that end the following committees shall be established: (1) A committee of four, to be chosen from the chief executive officers of the several railways, to be called "The Special Committee on War and National Defence," which shall have general direction of the said scheme. (2) A committee to be chosen from the vice-presidents and chief operating officers of the railways, composed of seven members, to be called "The Administrative Committee," whose duties shall be to carry out the policies laid down and arrangements made by the Special Committee on War and National Defence. That the Administrative Committee shall have power to appoint sub-committees, who shall have supervision over the following: (i) Passenger transportation; (ii) Freight transportation; (iii) Tariffs and statistics; (iv) Materials and supplies. That a general secretary to both committees shall be appointed, with such duties as shall be assigned to him, together with such staffs as he may require, to be selected by him from the