

would bring the cost of the plant to \$20,000; and that the Crummer plant could be made ready for operation within four months. Before the question of location or purchase is decided, tenders are to be called and considered for necessary equipment.

**Winnipeg, Man.**—A preliminary report was made at the annual meeting of the Winnipeg Electric Railway Company, held recently, upon the possibilities of power development at Big Bonnet Falls. It was shown that these falls were capable of producing 150,000 h.p. of electrical energy at a very low cost per horsepower. In view of the fact that the Winnipeg Electric Railway Company's water power plant at Lac du Bonnet with a capacity of 30,000 h.p. and its auxiliary steam plants in the city of Winnipeg, with a capacity of 18,000 h.p., are being utilized to their full extent, the necessity of immediate development of the new falls was apparent and it was decided to commence exploration and preliminary work immediately. It is expected that if energetic measures are taken and the matter pushed, power can be obtained from the new site within two years.

**St. John, N.B.**—Mr. A. D. Swan, M.Inst.C.E., has reported to the Board of Trade upon the progress and general conditions of the harbor works being undertaken at St. John. Alterations of importance suggested by the harbor engineer are a change in the direction of the extension of the Negrotown Point breakwater to Partridge Island; a spur extension from the other side of the island as an experiment to note the effect upon currents, and as a protection to both the new wharves on the west side of the harbor, and to the entrance channel leading to Courtenay Bay; and a change in the direction of the channel to Courtenay Bay. In closing his report, Mr. Swan comments upon the detached nature of the wharf accommodation; and he suggests that some scheme be devised, such as a bridge at the head of the harbor, so that all the various railway companies have some direct access to the new wharves.

**Nanaimo, B.C.**—Without any cessation in operations, the entire plant of the Nanaimo Electric Light and Power Company has been replaced. During the past year, the company has installed a directly connected unit of 450 h.p., manufactured by James Howden and Company, of Glasgow. The new engine is connected to a Bruce Peebles generator of 300 k.w. capacity, in addition to which the company has put in a new 6-panel switchboard which now gives it three separate circuits throughout the city, whereas prior to this installation but one circuit was in operation. The company has also installed a Stillwell heater and a Worthington feed pump; has laid five miles of new line and erected over 100 new poles in the city. It is the intention of the company this summer to install a line throughout West and South Nanaimo. This work will be supplemented by an addition to the plant.

**Halifax, N.S.**—The contract which has been recently awarded to Foley Brothers, Welch, Stewart and Fauquier, for the construction of the first unit of the new harbor terminals at Halifax, calls for the erection of a pier and a landing stage, which will be unique in their solidity and massiveness. The landing stage will be of concrete and 2,000 feet in length; the pier will be 1,200 feet in length; and there will be a basin 300 feet wide built inside of an extensive filling in from the land. This will give a lineal distance for shipping purposes of 6,200 feet. The work is to be solid throughout, not a structure resting on piles. The pier foundations will consist of 2,500 cellular blocks, 20 feet by 30 feet, and each weighing 60 tons. These will be laid one on top of the other. Then the cellular apertures will be filled with cement and rubble, allowing for expansion and uniting one block on top of another, and steel rails also serving to reinforce the structure. The floor will be laid in concrete; and

the front of the entire 6,200 feet will be faced with granite blocks from low water to the floor of the pier and landing stage.

**Toronto, Ont.**—The official statement issued upon road construction under the Colonization Road Department during 1913, shows a distance covered of 1,300 miles, and an expenditure entailed of \$406,351. Of the three road districts of the province, the northern district received 292 miles of colonization roads and 205 miles of by-law roads. In the western district, 110 miles of colonization roads and 80 by-law roads were built; while in the rest of the province (excepting Timiskaming, which constitutes a separate district), 292 miles of colonization roads and 344 miles of by-law roads were constructed. In the Timiskaming district, the work of the Colonization Road Branch was confined to the region south of Englehart, the northern part being under the supervision of the special roads commissioner, Mr. J. F. Whitson. In the part of Timiskaming covered, 85 miles of colonization roads and 113 miles of by-law roads were constructed. Finally, extensive work was carried out upon trunk roads, the Sudbury-Sault Ste. Marie road being almost completed. It is expected that this road will be ready for traffic this summer.

**Victoria, B.C.**—The plans for a retaining wall along the harbor front of the old Soughees Reserve, as prepared by Engineer Valiquette of the Department of Public Works for the Dominion Government, have been approved. It is estimated that the work will cost \$147,773. A considerable quantity of rock and earth will have to be excavated outside of what will be the face of the wall. An immediate start on the erection of a creosoted pile wharf and the gradings of the actual site on the Soughees Reserve to the north of the proposed Johnson Street bridge will be made as soon as the contract is awarded for which tenders are being called by the Dominion Government. The plans show a wharf fronting on the channel 420 feet in length and running shorewards 224 feet, giving an approximate total of 650 feet of piling; and which, when completed, will be 5 feet above high water level. The total area to be excavated and levelled off is about 4 acres. It is understood that by the time the preliminary contract is completed, tenders will be called for the erection of the new Marine and Fisheries depot which is to be located at the Soughees Reserve facing south on the proposed bridge.

**Winnipeg, Man.**—Some interesting data has recently been published, showing the excellent result of an experiment started in Winnipeg nearly 15 years ago—e.g., its civic owned paving plant. When that city decided to purchase the first asphalt paving plant from the contractors and proceed with its own work, it at first experienced much difficulty in securing a full supply of material, owing to what was known as the "asphalt trust." However, in 1910, the city secured its first portable plant with which "No. 2" pavement is laid; and to-day, about 3,000 square yards of paving can be done each day. As the system is operated, the plant is in the position of a contracting firm financed by the city. The pavement is inspected as it would be were a contracting concern laying it. While the initial cost is somewhat higher, the results have proven excellent, especially when the question of repairs is concerned, this work being done more rapidly and the disputes relative to guarantee being eliminated. The average cost to the city per yard, on business streets, has been about \$2.65; but on the business streets a pavement consists first of 3 inches of gravel ballast, then 6 inches of concrete base, 1½ inches of binder course and 3 inches of asphalt wearing surface. Broken stone drains every 50 feet are also included in the cost. The city advertises every job as open to competition, the engineer putting in a bid; but the strictness of the specifications are such that contractors claim they cannot compete with the city.