

gaps between sections already built. Some of the most important work was one mile of macadam construction on Yonge Street at Thornhill; 1,500 feet of brick pavement on Weston Road west of Black Creek; and three-quarters of a mile of macadam roadway in Vaughan township. Other road construction was 8,470 feet on Kingston Road, 8,500 feet on Vaughan Road, and 6,700 feet on Markham Road. On bridges and culverts the total expenditure, including construction and maintenance, for the year was \$16,342.

**Vancouver, B.C.**—The final consignment of steel pipe contracted for by the city at the beginning of the year has arrived from the Mannesmann Tube Company of Great Britain; and the city has now on hand between 80 and 90 miles of water pipe. Only about  $5\frac{1}{2}$  miles of mains have been laid from this year's pipe; and it is estimated that the city will have a supply on hand to last for several years. When contracts were let to the National Tube Company of Pittsburg for 320,000 feet and to the Mannesmann Tube Company for 110,000 feet, it was intended that the pipe should arrive at periods, considerably apart; and it was thought to thus obviate the difficulty met with in the past owing to non-arrival of the pipe in time. As the case now stands, and owing to the serious drop in the demand for mains, it is asserted that the pipe will rust long before the city can use it. Last year, the city engineer's report showed that 47.8 miles of pipe of all sizes had been laid; but this year only about 17 miles of water mains have been laid. This is due largely to the falling off in building operations this year in Vancouver.

**Victoria, B.C.**—According to Mr. D'Arcy Tate, vice-president and general manager of the P.G.E. railway, the company will complete its contracts within scheduled time in spite of unforeseen engineering difficulties encountered on the northern section of the line. The section between Point Atkinson and Newport promises to be one of the most costly pieces of construction on the entire line, and will involve an outlay of about \$100,000 a mile. This will mean practically the laying of the road on a bed of solid rock. In the Upper Fraser country there will be big rock fills; but the nature of the sub-structure is such that this part of the line will be built for less than one-half the cost of the Newport section. A short section of the line between Newport and Cheakamus, about seventeen miles in length, will be completed this week, and it is probable that Sir Richard McBride will open this small length and at the same time take the opportunity of making a personal inspection of the progress made in construction. The North Shore section will be ready for traffic by January 1 of next year, and the next section by the end of the following July, in accordance with the terms of the contract.

**Niagara Falls, Ont.**—Mr. Frederick Walker of New York, has devised a plan to build a suspended raceway at a cost of about \$2,500,000, to tap one-half of the waterfall from the Canadian Falls and one-half from the American Falls at Niagara, and to carry the water through the Niagara River to a point where a great power plant will be erected for the creation and distribution of electricity. The power plant, which is not included in the estimate of cost, would furnish unlimited power to factories in Eastern Canada, just as the Niagara Falls Power Company's plant furnishes power to factories in Western New York and Pennsylvania. The plans provide for the raceway to be suspended with one end upon the rocky ledges of the Niagara River and the other planted on the river bank, and to be arranged so that if the river rises or falls, the raceway will rise or fall automatically. The raceway will follow the Canadian shore for several hundred rods before reaching the place where the power will be

harnessed; and its carrying capacity will be about 1,200 pounds to the foot. It will be constructed of steel and concrete. Already surveys for the work are being made, under Mr. Walker's supervision; and options on land on the Canadian side are being received by other men interested.

**Montreal, Que.**—Col. Greenwood, assistant chief engineer of construction on the C.N.R. east of Port Arthur, has inspected the bridges under construction for the company at Back River, and reports that Mr. J. P. Mullarky, the contractor, is rushing the laying of track on the section from the western portal of the tunnel to the crossing of the Back River so that the steel superstructure may be brought for the series of bridges across the Riviere des Prairies and Mille Isle. There are two channels at the Back River, each being crossed by 4-pier bridges. The middle pier of the first channel bridge alone remains to be finished; and for this the coffer dam is now being sunk. On the second channel bridge all the substructure has been placed in position. Where the C.N.R. crosses the Mille Isle, there is being built a bridge of 14 piers, all of which are completed. This is one of the most imposing structures on the main line of the railway; and the superstructure for it will be placed during the coming winter. All other bridges along the road as far as Carillon have been completed, while the sub-structure of the big bridge over the Ottawa River at Portage du Fort, a structure of 12 piers, has also been finished. The C.N.R. main line runs up on the Ontario side of the Ottawa River for a distance of 30 miles as far as Shaw Falls, and then crosses into Quebec. After continuing for 30 miles in Quebec territory, the line crosses the river into Ontario again by the Portage du Fort bridge.

**Montreal, Que.**—Much is planned to be effected at the Montreal harbor before it is opened again in the spring. Before that time the slope of mud and clay at the river edge of Victoria, the dingy old dredge, and the clamshell derrick will all have disappeared; and a smooth concrete wall, of a height uniform with the other high level wharves of the upper harbor, and another of the huge freight sheds which line the wharves all the way to Windmill Point, will have appeared. Half a mile down the shore, from sections 24 to 27, where new concrete piers lying parallel with the river have been constructed during the summer, two more big freight sheds will have appeared. The piles for these have already been driven—long, concrete stilts, thrust down to the rock to take the strain off the heavy structures with the thousands of tons of freight, which they contain when in use. New berths at Victoria pier will be ready to give every opportunity for loading grain. Above the roof of the new freight shed the conveyor gallery will be extended to the very edge of the river. This will be the last link in Montreal's wonderful elevator chain. It will make one continuous system from Victoria pier to the western end of the Allan Line shed at the foot of McGill street, which in all will then have close to 16 miles of belt conveyors to carry the grain from unloading tower to elevator, or from one elevator to another; or, finally from either elevator to any ship lying anywhere between those two extremes. Four miles lower still, a like transformation will have taken place at the site of the Canadian Vickers Company's shipbuilding and repair plant. Acres of mud and construction materials will have vanished and a concrete retaining wall, which will make the whole water frontage of this tract one big wharf, and a heretofore much-needed machine shop of immense proportions, will have been completed. Further improvements that will add materially to the rejuvenation of the harbor, will be the Armstrong steel plant directly across the river; and the river bed itself, which will have a newly dredged channel for the use of light craft in general, which will wind along on the north side of the deep channel, the passageway for large vessels.