

Toronto Railway.—The gross earnings are:

	1899.	1898.	Increase.
Jan.	\$95,690.12	\$86,502.36	\$9,187.76
Feb.	91,860.30	82,402.19	9,458.11
Mar.	103,234.88	92,318.42	10,916.46
April	95,212.37	86,898.83	8,313.54
May	104,806.62	92,670.35	12,136.27
June	109,063.18	94,119.32	14,943.86
	\$599,867.47	\$534,911.47	\$64,956.00

Toronto Suburban St. Ry. Co.—The Town Council of Toronto Jct. is negotiating with the Co. for the relinquishment of its franchise on Dundas St., between Keele St. & Humber-side Av., in order that the privilege to run cars over that route may be granted to the Toronto Ry. Co.

Quebec Electric Railways.

Canadian Electric Light Co.—At the annual meeting in Quebec, June 27, the directors' report stated that \$200,000 capital had been subscribed, that the Chaudiere Falls water power would be acquired immediately, that the directors were in negotiation with the council of the town of Levis for furnishing light & power, that R. Girouard, of Cumberland, Me., had been secured as Manager, & that A. R. Henry, M. E., of Quebec, would probably be appointed electrical engineer. The directors have plans under consideration for the development of the water power of the Chaudiere Falls, according to which a minimum of 5000 h.p. is obtainable. Arrangements are said to have been made with the Chaudiere Valley Ry. Co. to construct & operate electric railways in the counties of Levis, Bellechasse, Dorchester and Lotbiniere, obtaining power from the Canadian Electric Light Co. The following were elected: President, J. Breaky; Vice-President, Hon. L. P. Pelletier; other directors H. M. Price, G. Lemoyne, J. King, R. Audette, R. Wilson-Smith, H. S. Holt and H. T. Machin.

Hull Electric Co.—The following directors have been elected: A. Fraser, D. McLaren, W. J. Conroy, J. B. Fraser, R. H. Conroy and T. Viau. The Co.'s equipment in the power house at Deschenes is now said to be among the best in Canada, enabling the road to give an excellent service. The traffic this year has been satisfactory and considerably exceeds that of the corresponding periods of previous years.

Montreal Mountain.—A proposition is before the Westmount town council for the construction of an electric railway up the Montreal Mountain.

Montreal St. Ry.—The gross earnings are:

	1898-9.	1897-8.	Increase.
Oct.	\$133,419.69	\$116,093.09	\$17,326.60
Nov.	125,126.10	110,668.98	14,457.12
Dec.	127,678.00	113,029.33	14,648.67
Jan.	125,276.04	110,155.96	15,120.08
Feb.	113,838.02	102,425.99	11,412.03
Mar.	123,754.11	114,476.98	9,277.13
April	130,405.96	110,619.27	19,786.69
May	145,466.38	123,308.08	22,158.30
June	156,858.34	132,964.61	23,893.73
	\$1,181,822.64	\$1,033,772.29	\$148,050.35

It is said the Co. will build three large car barns on St. Denis St.

The City Council has refused an application from the Co. to be allowed to build a line up Beaver Hall Hill, because the Co. will not build up Cote des Neiges Hill, and will not put down tracks on Frontenac & Amherst sts.

The Co. has adopted a life-saving fender, which has been approved by the City Surveyor.

It is proposed by the City Council to have cars stop at the near side of streets, instead of at the far side as at present, to prohibit cyclists crossing streets, except at their intersections, & to make bicycle riding on the devil-strip an offence punishable by imprisonment without the option of a fine.

In the House of Commons recently the Postmaster General said the privilege of letter carriers to ride on the Montreal street cars had been taken away owing to a difficulty be-

tween the Government & the Ry. Co. as to the price paid for the privilege. Until last year \$2,400 a year was given the Co. for allowing the letter carriers to ride on the cars, but when the contract terminated last winter the Co. refused to renew it at the old figure & asked \$800 a month. The department did not deem it in the public interest to pay this amount & an arrangement had been made with the Co. for special tickets for letter carriers at a low rate. Under this system there was a slight saving on the old contract price of \$2,400 a year.

West India Electric Co.

The U.S. Consul at Kingston, Jamaica, reports as follows: "For some years there has been a mule railway in Kingston, but an electric road covering the lines of the old cars, & other thoroughfares as well, has just been completed. This line has about 25 miles of track in & around Kingston, divided into three districts, viz., the lines north of the city, those east of the city, & those in the city. It is a private enterprise, started by Canadian capital, & is called the West India Electric Co. The government license is for a period of 30 years, & renewable for further periods at the pleasure of the Governor. The Co. pays 4% of its gross earnings to the government, & assumes the maintenance of the roads & streets occupied by it to the extent of 18 ins. on each side of the tracks. The rates of fare are 4c. for each passenger from any point within a district to another point in the same district by most direct route; that is, the fare is practically 4c. for each section of the line, & from the end of the line to the east, through the city to the end of the line north, would be 3 fares, or 12c. In addition, the Co. reserves 3 front benches on each car, on which a 1st class fare—6c.—is charged. The tickets are sold as follows: Seven 4c. tickets for 24c., five 6c. tickets for 24c., & ten children's tickets, for under 12 years, for 24c. Passengers are allowed to stand. There are no restrictions as to number of passengers carried, & the same complaints of overcrowding are heard. Cars run every 15 minutes in the city. In addition to regular motors, the Co. runs market cars before 9 a.m. & after 5 p.m. for country people who carry produce. These are trailers, & the fare on them is 3c."

The Kingston, Ja., Gleaner recently published a long description of this line from which the following is extracted: The license for a system of electrical trolley tramways in Kingston was granted to the W.I.E. Co. on Mar. 10, 1898. The Co. started construction on May 2, beginning with the erection of poles to carry the trolley wires. On June 23 track-laying was commenced on the Constant Spring line. It was the original intention to work the line by electrical power generated by steam. But it was suggested that possibly water power could be used as the prime motor, & Mr. Holgate was sent to Jamaica in Jan., 1898, to inquire into the feasibility of this. Shortly after his arrival he was joined by N. L. Cooper, hydraulic expert, & together they investigated the question & recommended the use of the waters of the Rio Cobre for the development of the necessary power. Property rights were at once secured, & the work upon the plans commenced. It is conceded that whenever water power can be obtained at a reasonable capital outlay, it is superior to steam power, inasmuch as its greater reliability and consistency give it a decided advantage, while from a financial point of view its advantages over steam are very great, especially in a country situated like Jamaica, where the cost of importing coal is a most serious consideration.

The question of the hydraulic development was by no means a simple one. In ordinary

cases of this kind the dam is built with probably a short head race & a power house situated close to the dam. This description would apply to 99 out of every 100 applications of water-power. But in the valley of the Rio Cobre, though there is a succession of rapids, there is no place where a dam of this character could be built to be of commercial utility, without raising the water to such a height as would flood enormous districts of cultivated land & render the highways at times impassable. To overcome this difficulty a scheme was evolved by which the available fall of the river was utilized without in any way interfering with private or public property. The dam has been built across the river immediately opposite the mouth of the long tunnel on the railway near Bog Walk station. For such an immense development of power this dam seems very insignificant. It is only 9 ft. high, but it can, if necessary, be raised 3 ft. higher by the placing of flash boards between steel posts built in the concrete dam for the purpose. On the left bank of the river, at the dam, a skimming basin has been formed, into which the waters of the river pour, entering thence into the steel conduit on their way to the power house. This steel conduit, or pipe, forms the head race for the power house. It is 10 ft. in diameter at the dam & its entrance is protected by a double screen which effectually prevents the entrance of weeds & debris with the water. The distance from the dam to the power house is 6,200 ft. & along the whole of the distance extends this huge pipe 8 ft. in diameter. It is entirely built of steel & for the greater part of its length is embedded in rock or compact earth, well protected from the river even in its highest stage during the May and Oct. floods. At places the pipe is supported on concrete piers, & every possible precaution has been taken to make it of the most substantial construction. It is said to be the largest pipe in the world. It weighs 1,742,894 lbs. of solid steel, held together by 259,102 rivets. The pipe arrived in Jamaica in the shape of curved plates, was transported to Bog Walk by railway, & taken to the site by teams. The plates were assembled, placed in position, erected, & riveted entirely by native workmen, under the supervision of M. Peppard. The capacity of the pipe is 2,205 galls. of water per second. This flows into the power house by passing through 2 pairs of twin horizontal turbine wheels, each pair being enclosed in steel casings. The water, after passing through the wheels, flows back to the river into the tail race through draught tubes. The turbine wheels work on horizontal shafts at a speed of 400 revolutions a minute. These shafts are coupled direct to the shafts of the electric generators, which therefore revolve at the same speed. At present there are two generators, each of which is capable of developing 500 h.p. There are also 2 smaller water wheels, each developing 25 h.p., which are used to drive the direct current generators, whose purpose is to excite the larger generators connected with the turbine wheels. The generators are of the latest type, known as the three-phase alternators, & develop current at the comparatively low pressure of about 500 volts. If these generators were near the point where the current is consumed it would not be necessary to raise the voltage or pressure, but, owing to the distance—the 22 miles between Bog Walk to Kingston—it is a commercial necessity & raise the pressure so that as little loss as possible may be sustained in the transmission of the current. The means used at the power house for effecting this object are what are technically known as step-up transformers. The current goes into them at a pressure of about 500 volts, & comes out to enter the transmission wire at a pressure of about 14,000. The poles carrying these wires are all made of steel, & are set 2 chains apart along the highway. The wires are of almost pure