

hydraulic sources, and that (exclusive of 21 millions used by railways and 24 millions by shipping), the total of all the horse-power (steam, gas and water-power) used in the world's industries is 75 millions. If these Conjoint figures be correct, the power developed in Canada from water resources is about 15 per cent. of all the power so developed, or about 3.1 per cent. of the world's total industrial power from all sources, or approximately 2 per cent. of the world's total developed power of every kind.

Being Published by Government

The data regarding central stations is being published by the Dominion government in two volumes. Part I. is a statistical survey, with accompanying explanatory matter, while Part II. forms a comprehensive directory of all commercial and publicly-owned power stations in operation throughout Canada, whether water-driven or steam-driven, showing the principal features of each, the locations where blocks of electrical energy are for sale, the prices at which power is obtainable, transportation facilities available in the vicinity, etc.

The statistics dealt with in these two volumes include only central electrical stations; that is, stations developing electrical power for sale. All other electrical establishments, such as electric railways, etc., are excluded. Outstanding features of the report regarding central stations are as follows:—

Capital and Labor

The capital invested in central power stations totals \$356,004,168, of which 79.5 per cent. is invested in commercial stations and 20.5 per cent. in municipal or publicly-owned stations. Total employees number 8,847, receiving wages and salaries totalling \$7,777,715 per annum.

The total revenue received from the sale of electrical energy is \$44,536,848, of which \$29,135,399 is secured by commercial and \$15,401,449 by municipal plants.

Power Installation

The primary power installation in central stations totals 1,844,571 h.p., of which 78.3 per cent., or 1,444,314 h.p., is installed in commercial stations and 21.7 per cent., or 400,257 h.p., in municipal stations. Of the total primary horse-power installed, 1,652,661 h.p. is derived from water, 180,800 from steam, and 11,710 from gas and oil.

Cost of Construction

Of interest is the actual cost of construction of hydro-electric power stations per installed horse-power. Omitting all real estate, transmission and distribution equipment, seventy representative hydro-electric stations throughout the Dominion, with an aggregate turbine installation of 745,797 h.p. and a total construction cost of \$50,740,458, show an average cost of \$69.11 per installed turbine horse-power. The figure represents the average capital cost of construction at the power site.

Directory of Central Stations

The directory, which forms Part II. of the report, constitutes the first governmental attempt to compile systematically a ready reference of this sort. Garcke's Annual, issued in England, and McGraw's Directory, published in the United States, have attempted to deal with this field in Canada, but the material which has now been compiled is much more comprehensive than either of those publications.

For Part I. (statistical), application should be made to the Dominion Bureau of Statistics; and for Part II. (directory), to the Dominion Water-Power Branch, Ottawa.

The Engineers' Club of Toronto, in the annual statement for the year 1918, reports a net loss of about \$700 on the operation of the club. There are now 410 resident members and 136 non-resident, besides 20 members of other classifications, such as absent, associate, honorary, etc.

ADDRESS BY SIR ADAM BECK

"Ontario Hydro's" Chairman Discusses Radial Railways, Government Railway Operation, St. Lawrence River Power Development and Prices of Power

SIR ADAM BECK spoke for ninety minutes in the council chamber at Hamilton, Ont., last Tuesday evening, outlining the policy of the Hydro-Electric Power Commission of Ontario in regard to "Hydro Radials," and discussing various national questions in a general manner.

Mayor Booker, of Hamilton, presided, and on the platform were F. A. Gaby, chief engineer of the Hydro; Gordon Wilson, M.P.; Allan Studholme, M.P.P.; and a number of officials of Hamilton and surrounding municipalities.

The council chamber was densely crowded with citizens, yet only two questions were asked when Sir Adam finished speaking. One was in regard to the rates on hydro radials as compared with privately-owned radials. Sir Adam replied that he did not know what the rates would be, but operation would be at cost, and the proposed line from Hamilton to Burlington would be only seven miles, compared with eleven miles for the existing privately-owned line.

The other question was as to whether the motor traffic along the Toronto-Hamilton highway would be a serious competitor of the proposed hydro radials. Sir Adam did not think that it would be, provided that a quick and efficient radial service were operated at cost.

Criticizes Government's Railway Policy

Sir Adam proposed that the Hydro Radials should enter Hamilton over the G.T.R. right-of-way, with a terminal at the foot of James and Stuart streets. He declared that they will move D., L. & W. coal cars to Toronto. "It remains for the city of Hamilton to pass the necessary by-laws," said Sir Adam. Turning to the Mayor, he said:—

"You will have a great deal more to say in the operation of your own radials under the Ontario Hydro Commission, than you will have even with Federal-government-owned roads."

Sir Adam severely criticized the Dominion government for not taking over the G.T.R. "Public men can bedevil anything," he said. "They have bedeviled the railway situation in Canada by taking over the non-paying concerns." He ridiculed the idea of the government talking about taking over the Toronto Suburban and the Toronto Eastern as feeders to the national railways. "We will build all the feeders they want for their lines," he declared amid applause.

"The Toronto Suburban to Guelph," he said, laughingly, "wiggles and waggles all over the place. If they came to a rock, the engineers went around it; if a valley, they went down and up the other side. If they couldn't buy a lot, they went all around it. The Toronto Eastern parallels the C.N.R. all the way. And they talk about these being feeders. The G.T.R. should be taken over, and a combination of the C.N.R. and G.T.R. with our feeders would save, according to experts, over \$300,000,000 to this country. Do you know the deficit the country will have to find for the present railways operated by the old management of the Mackenzie interests? Over \$50,000,000 for this year."

Probing Montreal Prices

Sir Adam stated that experts for the Hydro-Electric Power Commission of Ontario have been placed in Quebec province to find out the facts in answer to Sir Herbert Holt's statement that Montreal has the cheapest power in America. "We have thousands of their bills and will publish a report in the near future. We have found to date that in domestic lighting, Hamilton has rates 100 per cent. cheaper than Montreal; in commercial rates, 200 per cent. cheaper; and the power rates are 65 per cent. higher in Montreal than Hamilton."

Sir Adam severely criticized Hon. N. W. Rowell for stating the Dominion Government intended to develop the water-powers of the St. Lawrence River for the whole of the people of Canada. "What right have they?" he asked. "The water-powers of Ontario belong to the people of Ontario and the people will maintain their rights."