

shell buckets operated from the derricks. The material excavated was cast over the retaining wall into the river.

The engineers in charge of the work were T. Pringle & Sons, Ltd., Montreal, and the contractors for the diamond-drill borings and the construction were the Foundation Co., Ltd., Montreal. The water wheel and stop-log winches were supplied by the William Hamilton Co., Ltd., Peterborough, Ont., and the Canadian General Electric Co., Ltd., supplied the electrical equipment.

TO SPEND \$4,500,000 ON WATER WORKS IMPROVEMENTS IN MONTREAL

RECOMMENDATIONS have been made to the city council of Montreal by the Administrative Commission of that city, that \$4,500,000 be borrowed and devoted to water works improvements. The commissioners desire to complete the aqueduct, for water supply purposes, at an estimated cost of \$1,683,000; to build a new low-level pumping plant, costing \$850,000; and to increase the capacity of the filtration plant to 120,000,000 gals. a day, this extension to cost approximately \$2,000,000.

The new low-level pumps are to be electrically driven, operating on power purchased from the Montreal Light, Heat & Power Co. It is proposed eventually to sell the equipment of the present steam pumping plant.

The estimate of \$1,683,000 for the completion of the aqueduct includes the sub-structures of four bridges over the canal. The estimate of \$850,000 for the new pumping plant provides for the installation of five pumping units, each having 30,000,000 gals. daily capacity.

The consulting engineers have calculated the cost of a new elevated reservoir, the construction of which they recommended, at \$15,000 per 1,000,000-gals. capacity, and advise that the bigger the reservoir, the better. The commission do not intend to proceed at present with the construction of this reservoir.

The legislature of Quebec some time ago authorized the expenditure of \$11,000,000 for aqueduct improvements, and there is a balance of \$4,800,000 of this authorization which has not been used.

The commissioners submitted their proposed expenditures to the city council at a special meeting held last Thursday, and it is understood that the aldermen expressed their approval. Mayor Martin has written to the commission stating that the proposed expenditure is justified in order to obtain an adequate supply of water.

R. S. Lea, consulting engineer, attended the meeting and stated that with the completion of the aqueduct, Montreal would have readily available a water supply large enough for a city three times the size of New York. Questioned regarding the possibility of getting water from the Laurentian mountains, Mr. Lea replied that the scheme would be too expensive.

Mortimer Lamb, secretary of the Canadian Mining Institute, appeared before the private bills committee of the British Columbia legislature, February 26th, and opposed the legislation being sought by members of the Engineering Institute of Canada. Mr. Lamb said that the bill as drafted would not be in the best interests of the mining industry, and he claimed that several of its clauses should be amended before the bill is adopted. Mr. Lamb requested that the bill be laid over for one year.

The city council of Toronto have refused to build this year the new 20,000,000-gal. reservoir at Toronto Island. Works Commissioner Harris has requested reconsideration, pointing out that the rated daily capacity of the filters is 100,000,000 gals., but that their actual capacity is only 75,000,000 gals., and that Toronto's daily consumption is over 70,000,000 gals., and at times during the summer the consumption for a short period reaches a rate of 104,000,000 gals. a day. Unless storage for filtered water is provided, states the commissioner, it is certain that some unfiltered water will have to be pumped during the coming summer.

MANITOBA'S ROAD AND BRIDGE PROGRAM

TENDERS for grading about 800 miles of roads will be called for in Manitoba within the next two months, according to information supplied by the Good Roads Department of that province. This work will be let in contracts of from 2 to 75 miles. The work will be done under "The Good Roads Act," which has been in successful operation in Manitoba for the past six years. Up to the present, about 1,200 miles of work have been graded and about 400 miles gravelled under the Act.

In addition to the road work, it is expected that over 100 concrete bridges will be constructed. The bridge work will include a steel bridge 650 ft. long over the Red river; a concrete arch, 100 ft. clear span, over the La Salle river; several bridges of concrete over the Assiniboine river, and a number of bridges of from 30 to 50 ft. clear span. To date, 384 bridges have been built under "The Good Roads Act," of which 271 are concrete.

It is expected that over 4,000 miles of grading will be done in Manitoba within the next four years, and a large percentage of this mileage is to be gravelled. Under "The Good Roads Act," all work is let by contract.

The Canadian Pacific railway has accepted the offer of the Quebec government to subsidize extension of its Kipawa branch northward along Lake Temiskaming. The proposed extension is to be 76 miles long and will serve valuable agricultural, pulpwood and mineral areas. It is understood that the branch may be extended to Iroquois Falls.

One hundred draughtsmen in the employ of Toronto architects and engineers met last week in the Sons of England Hall, Toronto, to discuss the proposed formation of a trade union. After a lengthy debate, following addresses by organizers connected with the District Trades and Labor Council, the draughtsmen voted in favor of forming a union.

A typographical error has been noted in the advertisement which appears on page 54 of this issue, calling for tenders for power plant equipment and construction for the Nova Scotia Power Commission. It was intended that this advertisement should be jointly signed by the Nova Scotia Power Commission, of which Mr. Armstrong is chairman and Mr. Smith secretary, and by their consulting engineers, C. H. & P. H. Mitchell, of Toronto. Messrs. Armstrong and Smith have no connection with the firm of C. H. & P. H. Mitchell, as might be inferred from the incorrect typographical arrangement of the signature of the advertisement.

The following official statement has been issued by F. C. Biggs, minister of highways for Ontario, and W. A. McLean, deputy minister: "The development of roads under the provincial highway department is broad in scope and based on efficient co-operation with municipal councils. Aid is proposed to all township roads, supplementing ordinary township expenditure, which aid it is expected will become effective this year. Increased encouragement is to be given to the employment of permanent, working, township road superintendents, who, by experience as continuous as that of a township clerk or treasurer, can do much to systematize township road improvement. County roads, 9,500 miles in extent, comprising the leading roads radiating from market towns and shipping points, are given substantial encouragement through grants to county councils, 40% or 60%, according to the importance and traffic on the road. Provincial highways, comprising 1,800 miles, will be extended into every county, to which continuous maintenance will be given, and construction will be provided in accordance with the needs of traffic. The cost of building and maintaining roads is in proportion to the traffic over them. Provincial highways relieve county councils of the roads of heaviest expenditure. County roads relieve township councils of their roads of greatest cost. Township councils will receive supplementary aid for the remaining township roads. The system is one which extends needed aid to the improvement of all roads."