

OTTAWA WATER SUPPLY PROJECT.

FOR years the supply of water for domestic use in Ottawa has been unsuitable. The summer of 1912 was marked by the visitation of a serious outbreak of typhoid, which brought the problem into prominence, and called for a rapid and permanent solution. The result has been that in the past year the civic authorities have kept the matter constantly under probe, until the present time finds them furnished with numerous reports covering all feasible sources of supply.

There are five possible sources, viz., Ottawa River, Madawaska River, Lake Deschenes, McGregor Lake, and Pemichangaw Lake.

The Ottawa River, the present source, has been reported upon as being unfit for use without mechanical filtration and chemical treatment. In February, 1913, Sir Alex. Binnie and Dr. A. C. Houston advised the city to abandon the Ottawa River as a source of supply. Then, in April the Ontario Provincial Board of Health advised the city that the use of the Ottawa River without mechanical filtration would not be permitted. The decision was backed by the fact that Ottawa had had 3,000 cases of typhoid within 18 months from using this water. The filtration scheme has not met with favor at the hands of the ratepayers, generally, when advanced for their consideration. The proposal submitted last year did not provide for future growth, sentiment was against chemical treatment, and the risk of contamination from the unsanitary waters of Nepean Bay, under which the supply had to be conveyed, was important and against the adoption of the scheme.

Lake Deschenes.—On October 3rd, 1913, City Engineer Currie submitted a report in answer to the following Council inquiry:—

"If the city of Ottawa continues to use the Ottawa River water in its natural condition as a permanent source of supply, what would be the best point from which the water should be taken, and what works would be required to be constructed, with an estimate of the expense of such works?"

His report stated that in his opinion the most suitable point from which to take the water was a little west of Ennis Point, in Lake Deschenes, and opposite Aylmer Island. This is over 14 miles from the pumping station. Mr. Currie found that the gradients were such that the water could not be carried by gravity to the pumping plant, and that, therefore, another pumping plant would need to be installed and operated at Lake Deschenes. As no hydraulic power could be secured there, this plant would require to be operated by electric power.

The city engineer proposed that a small low-level service reservoir to hold ten million gallons be constructed just inside the city limits to provide a reservoir of water in case of fire, and to enable the water to flow by gravity from the reservoir to the present pumping station. He also proposed to have two 48-inch pipes from the intake at Lake Deschenes to the service reservoir, and two 42-inch pipes from the reservoir to the pumping station. The estimated cost of this project was estimated at \$2,900,000.

A later issue will contain a more detailed report of Mr. Currie's investigation.

McGregor Lake Supply.—This includes a large number of lakes at distances varying from 15 to 30 miles to the north of Ottawa. The engineering features connected with this source of supply for the city will appear in a later issue. It is generally conceded that filtration would be necessary. An estimate of the cost of the necessary works is placed at \$7,054,000.

Madawaska River.—Owing to the necessary length of pipe-line from this source to the city, the variations of level along it, and the low total elevation above Ottawa, this project has not met with favor. It is also objected to because of its questionable quality, and the uncertainty of continued safety of river water generally, which feature applies forcibly to the proposition.

With this brief summary of the situation, attention is directed to a report, submitted last week. It has already been mentioned that in February Sir Alex. Binnie and Dr. A. C. Houston visited Ottawa, studied its water supply, advised the abandonment of the Ottawa River as the source, and recommended an uncontaminated source, such as is afforded by the lakes lying between the Gatineau and Lievre Rivers. The city was also advised to undertake a careful survey of the district. Consequently, arrangements were made with the Dominion Government, whereby contour maps and other necessary information have been obtained.

On May 5th, the City Council requested Sir Alex. Binnie to make a detailed report, and the result has been a thorough investigation by his staff of all the sources of water supply, including a detailed examination of the proposed routes for the aqueducts, service reservoir, etc.

In the report the city is recommended to use every effort to bring down the rate of water consumption, which at the present time averages 170 gallons per capita per day. Contrasting this consumption with that of other Canadian cities, according to the report of the Commission of Conservation, 1912, the report deems it feasible to reduce the water supply per capita to 100 gallons per day. It is on this assumption that the capability of the various sources of supply to provide for 250,000 persons with a possible future population of 750,000, has been considered.

The report divides itself into a consideration of two schemes: (1) Supply from Thirty-One Mile and Pemichangaw Lakes. (2) Supply from McGregor series of lakes. These sources are shown in Fig. 1. The following is extracted from the portion of the report dealing with the former:—

Thirty-One Mile and Pemichangaw Lake Scheme.

—These two lakes are situated on the east bank of the Gatineau River at a distance of about 40 miles to the northward, measured in a straight line from Parliament Hill to the south end of Pemichangaw. The surrounding area of land which drains to these lakes is dotted with numerous other smaller lakes, but the above are the only lakes of any importance and extent.

As to the quantity of water that may be obtained from this source, the three important factors upon which the service from any drainage area depends, respond to investigation in the following way:—

- (1) The extent of the drainage area is approximately 150 sq. miles.
- (2) The quantity of rain or snow annually precipitated on this area averages 37 inches.
- (3) The run-off is conservatively placed at 13.6 inches.

Taking 13.6 inches of run-off from a catchment area of 150 sq. miles, the average yield approximates 81,000,000 gallons per day, ample to meet the requirements of a population of 750,000.

The drainage area has been found free from peat or other surface deposits liable to discolor the supply. The water is bright and clear and of exceptionable purity, and if steps are taken by the city to prevent future contamination, the report forecasts not the slightest neces-