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**Canadian Society of Civil Engineers.**

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**TRANSACTIONS.**

N.B.—This Society, as a body, does not hold itself responsible for the facts and opinions stated in any of its publications.

**THE DARTMOUTH, N.S., WATER AND SEWERAGE WORKS.**

By F. A. CREIGHTON, STUD. CAN. SOC. C. E.

To be read Thursday, March 1st, 1894.

In the year 1875 Mr. T. C. Keefer, M. Can. Soc. C. E., was called to Dartmouth, N.S., to report on the cost of a system of water-works for that town. The most feasible plan seemed to be a gravity system, supplied from Lamont and Topsail Lakes, a splendid natural reservoir situated among the hills, distant about three miles to the northeast of the town. Mr. Keefer had an extensive survey made of these lakes as well as of Loon Lake, which, as will be seen by the plan, is situated to the east of Topsail Lake and is distant from it about 1500 feet. Mr. Keefer reported with plans and estimates, and the matter was dropped for the time. The question of the introduction of water was raised from time to time, until finally in the latter part of the year 1889 Mr. E. H. Keating, M. I. C. E., at that time City Engineer of Halifax, was called upon to make plans and estimates for the immediate introduction of a water and sewerage system. When the estimates and plans were ready, a public meeting of ratepayers was called, which, however, was adjourned for one year. A meeting was held in January, 1891, when the ratepayers authorized the Council to ask permission of the Legislature to borrow the sum of \$100,000 to introduce the water and sewerage systems into the town, and the works were finally begun in the fall of 1891.

**WATER SUPPLY.**

The plans of Messrs. Keefer and Keating were followed in the main, and the water brought from Lamont and Topsail Lakes. (Plate III.)

These lakes are at an elevation of 225 feet above the mean tide level of Halifax Harbour, and have a combined watershed (exclusive of the lakes themselves) of 588 acres, mostly of thickly wooded land. The combined area of the lakes is 163 acres, Lamont being 22 and Topsail 141 acres. The depth of the lakes ranges from 12 to 25 feet, and the bottom is for the most part gravelly, though the north end of Lamont Lake has a considerable area of muddy bottom.

The stream between the lakes was originally about 2 feet deep and 350 feet long, but this was enlarged to a canal 8 feet deep and 4 feet wide at the bottom, with the side slopes rip-rapped for their entire length.

Lamont and Topsail Lakes are capable of supplying to the town 750,000 gallons per diem, while for the present 250,000 is all that will be used. The storage capacity is 234,000,000 gallons.

The efficiency of these lakes may be more than doubled as soon as necessity arises, by the addition of Loon Lake, which, as has been mentioned above, is distant from Topsail about 1500 feet. This lake belongs to a different watershed from Topsail Lake. It was the reservoir of the old Shubenacadie canal, and is some 3 feet lower than Topsail. Before connecting Topsail and Loon Lakes the water level of Loon would of course have to be raised, which could be done by means of a dam about 150 feet long at the outlet at a cost of \$500. It is proposed to connect the lakes by a 24 inch crock pipe, laid so as