

MUNICIPAL ENTERPRISES IN CANADA.

In the return of reproductive undertakings operated by municipalities in Ontario, it is stated, in an official report, that out of 14 cities, 106 towns, and 134 villages, to which forms of inquiry were sent, returns had been received by the 18th of November, 1903, from 12 cities, 91 towns, and 118 villages. Of these, 11 cities, 57 towns, and 21 villages had been carrying on reproductive undertakings, and a number of the others reported that they were about to acquire waterworks or electric-lighting plants. There are 79 municipalities in Ontario which own their waterworks, 35 which have their own electric-lighting plant, 4 which supply electricity, 2 supply gas, 2 have municipal cemeteries, 1 possesses a dock, and one operates its own street railway. There was an average annual loss on the municipal street railway and electric-lighting system combined at Port Arthur of \$1,370.95, for the period of four years ended December 31, 1902. Profits are shown in 44 cases, and losses in 48. In one case there was no profit or loss, and in 23 no reports were made. The municipal gas plant at Brockville, which was established in 1901, realized an annual profit of \$4,000 on an invested capital of \$85,000, but the natural gas sold by the corporation at Kingsville showed a loss of \$243.38 on an invested capital of \$27,000. The business of supplying electricity to consumers by municipalities has been begun too recently in most cases to admit of statistics of profit and loss. In Bracebridge there was an average annual profit of \$620.28 on electric lighting and electric supply combined, which were first provided by the town in 1895; but at Hespeler, where the system was established in 1900, there was a loss of \$3,084.60 on an invested capital of \$15,483.48.

SEWAGE PURIFIED BY GROWING ORGANISMS.

The biological treatment of sewage has been studied for a number of years at Hamburg by Dunbar. The various processes of this kind depend upon the removal from solution of the putrefactive matters through absorption by porous material, and upon subsequent oxidation by micro-organisms. Without the activity of the organisms, absorption soon ceases. The absorption, which increases with the fineness of the material and usually attains the maximum effect in four to six hours, proves to be a purely surface action independent of chemical attraction, and so powerful is it that sterile clinkers in contact beds withdraw from the liquid not only coloring matters but also the complex nitrogenous substances found in sewage. An interesting example of absorption is furnished by Dr. Dunbar's percolating filter, in which one-half of the purification takes place in the six-inch layer of fine material on the surface.

For laying dust on roads the Paris Anti-Dust League is reported to have used successfully a 5 to 10 per cent. aqueous solution of Westrumite, which is saponified by ammonia so as to be soluble in water.

Cement sidewalks have been injured in many places by the roots of trees, which upheave the slabs. In Norwood, Ohio, where there has been considerable trouble of this kind, especially with soft maples and Carolina poplars, an ordinance has been passed forbidding the planting of trees between the sidewalk and the curb line. This will make it necessary to plant all trees inside the property line.

A commission appointed to consider an addition to the water supply of New York has reported in favor of filtering the whole of the present supply at the earliest date possible. Any further supply should, they recommend, be a high-service one, to be distributed from a reservoir situated to the north of the city, where there is a site available at 295 ft. above tide level. They estimate that in another 25 years the

population to be served by the New York supplies will number seven millions, and that the amount needed will be 120 imperial gallons per head per day. The present supply to New York amounts to 96 imperial gallons per head per day. To supply the quantity estimated in their forecast, the present sources of supply should be augmented by 400 million imperial gallons daily. In support of their high estimate of the quantity required per head, the commission state that their observations on water waste in New York show that apparently not more than 15 per cent. of the present supply is now actually wasted.

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