

Toronto, 20th. September, 1884.

TORONTO WATER & SEWAGE.

In accordance with a request made to me by the Hon. Alex. Morris, I have much pleasure in stating the opinion I have arrived at from a general inspection of the water supply and the disposal of sewage in this City. Through the courtesy of the Mayor, who accompanied me, I have had an opportunity of inspecting the pumping station for water supply and of observing the arrangements there, and have obtained information regarding the mode of discharge of sewage into the bay. I have also, accompanied by Mr. Morris, passed over to the Island, and viewed the ground there.

Water. The supply of the City is pumped direct from a well at the pumping station, and I caused the bottom of this well to be examined for any deposit which might be there. Much deposit was found and a sample examined by me proved that the matter was largely composed of organic growths and organisms characteristic of putrescent organic matter of the nature of sewage. It was apparent that impurities of a gross character passed into the well, and I am clearly of opinion that the water supply of a city or populous place should not be drawn from a well containing such putrefying deposits. On further inspection I found that the well was supplied with water flowing from an iron receiving tank situated on the wharf between the pumping station and the bay. Whilst it was apparent that the greater part of the water entering this iron tank came from the pipe leading from the Island, I am inclined to consider that a smaller part is obtained from the bay immediately alongside the wharf through leakages in the ground surrounding the iron tank, and as the latter is admittedly not tight, such leakage water from the bay would readily pass into the tank and thence into the pumping well. As the bay in the vicinity was contaminated by sewage matters discharged from the public sewers, it would follow that the leakage water would be

impregnated with such impurities, and that such passing into the well, would fully account for the noxious matters found there. The pipe leading across the bay to the Island is stated to be tight at present, but there can be no doubt that should leakages take place there, a further amount of impurities might enter the water supply in this way. I am therefore of opinion that not only is the water supply of Toronto at the present time in an unsatisfactory condition, and the quality suspiciously dangerous, but that it is liable by increased sources of leakage to become still less satisfactory in character. The full and proper remedy for such a state of matters is to place the pumping station on the Island, and force the water from the Island through the pipes laid in the bay direct to the City. I understand from Mr. Venerables, the intelligent Engineer in charge, that the present iron pipes in the bay would be capable of resisting the necessary pressure but the Island wooden pipes would require to be replaced by iron pipes. The water would be taken as at present from the lake on the south side of the Island, and should first be pumped through a properly constructed series of sand and gravel filters, such as are in extensive use in Great Britain, and thereafter be pumped into the city. Such a plan would render it impossible for any of the sewage impurities in the bay to enter the city pipes or tanks by leakages or otherwise. The filter arrangement and wells attached thereto should be in duplicate, so as to ensure that each set could be periodically cleaned out.

Sewage. The present mode of the disposal of the sewage is extremely primitive, and independently of the pollution of the water supply, must be immediately dealt with. At present the bay is becoming grossly polluted, and the putrescent debris must evolve noxious gases and organisms to the serious impregnation of the atmosphere of the city. The continuance of the discharge of the sewage of the city along the foreshores should therefore not be allowed. The remedial work should include a main intercepting sewer which would convey the sewage some distance out of town, and the sewage should then be

pumped up and distributed over land of a sandy and gravelly nature by the process of intermittent downward filtration, whereby the sewage is deprived of its noxious elements, and the land can be utilized for the growth of crops. This system is in successful operation in various parts of Great Britain.

(Sgd) Stevenson Macadam, Ph.D.,
F.R.S.E., F.C.S., F.C.

Professor of Chemistry,
Surgeons' Hall,
Edinburgh.