

which has escaped by the eastern channel, and in order to reach the intake has to travel nearly two miles. It may be argued that if partially purified sewage can be thus carried such a distance, the immense volume of crude sewage, with its floating and suspended burden of undecomposed or fermenting solids, would be transported to a degree inversely proportional as to distance, and directly so as to quantity. I had long since arrived at a conclusion in regard to this matter, and the experience of years has only served to confirm it.

If it is conceded that it is impracticable to pour crude sewage into the lake it is evident that such must undergo treatment. This may roughly be classed under three heads: (a) Precipitation by chemicals, (b) irrigation, (c) septic tank treatment and filtration. Experience derived from precipitation works, in many places, is unfavorable to this mode, and may be at once dismissed. Irrigation demands a large area of land which, in the case of Toronto, could only be found at a considerable elevation, entailing a costly pumping plant and high working expenses. There remains the septic tank method, which, if properly carried out, with a sufficient area and contact beds, has been proved effective, and promises to solve the Toronto problem, though at a very considerable cost.

People speak of the bacterial method as something new, but the process, as such, is as old as civilization, and in origin coeval with nature itself. Though unrecognized, it has been used in Toronto since the first sewer poured its contents into the bay, and has done its work in a very efficient and wonderfully inexpensive manner. This natural septic tank is about two miles long, a mile wide, with a depth up to twenty-five feet, and is so protected that the lower stratum of water is practically undisturbed for the operations of the anaerobic bacteria which for many years have been busy in converting into simpler, less offensive, and less dangerous forms the organic matter in the twenty to thirty million gallons of sewage daily contributed by the city. If the effluents which, according to the prevailing winds and their resultant currents, now issue from the eastern and westerly channels, and the marsh canal, could be controlled and submitted to the action of the aerobic micro-organisms by which katabolism is carried to its termination, the system would be complete. As it is, it is probable that more than half the organic solids are so disposed of, while the danger is minimized to more than this extent by the crowding out of pathogenic bacteria by the sewage forms more especially adapted to the environment.