Following out these findings during the past summer, Dr. Hodgetts, Secretary of the Provincial Board of Health, chartered me a small steamer to make observations and water collections off the Island shore and the lake from Scarborough Heights to Humber Bay.

Several trips were made between August 31st and November 15th, 1906. Two hundred and ninety specimens, surface and deep, were collected.

On one occasion, optically, chemically and bacterially, pollution and infection with sewage was traced to a point three miles out into the lake directly south from the eastern gap of the harbor, and along the shore a half mile and a mile. along two lines, to within one-half a mile of the intake, and I feel sure that if I had been able to go to the intake that infection would have been found over it. On another occasion infection was traced for half a mile along the south shore of the Island towards the intake, and was picked up again a half mile farther on and directly over the intake. In this case the sewage, by a strong east wind, was driven against the shore from the eastern gap and then deflected towards the intake. On another occasion, with the wind blowing strongly from the west, infection of the water was traced from the sewers on the lake shore over to the intake, being directed towards the south by the impact against the west shore of the island. This same thing was observed again with the wind blowing from the north-west. Out of seven trips, infection was found at the intake four times.

On one occasion samples taken at a depth of 40 feet over the intake showed infection as well as the surface samples taken on the same occasion. On another of the trips the temperature of the water 40 feet down showed the same as the surface water, so that surface water can find its way to the intake mouth.

The lake water five miles out from shore can fairly be taken as normal. This did not show infection. The bacterial count showed only 8 and 10 per cubic centimeter. Whereas where the infections were found the general bacterial count showed from 125 bacteria per cubic centimeter to as high as 45,000 one time over the intake.

The deaths from typhoid fever in Toronto show the effect of these water infections. The rate for the last three years, putting the population of Toronto at a quarter of a million, for every 100,000 of the population was 21.7, practically 22.

Cities having pure water supplies like Vienna, Dresden, Frankfort, The Hague, Zurich, and our own Hamilton, Ont., show only 8 to 10 per 100,000.