

object of securing water uncontaminated by sewage is also a fact. That, in some instances, after making extension of the intake it has been found necessary to provide some system of water filtration in order to give a pure supply is equally well known. What, then, is the situation? Briefly this: If the municipalities bordering on these lakes must take their water supply from some point therein, they must include in the system some means for ridding the water of the contamination which is deposited there mainly by themselves; otherwise they cannot guarantee to the public that which it has a right to demand—pure water.

In other words, the cities and towns adjacent to the Great Lakes are the chief agents in wantonly polluting the water which the inhabitants must drink. How long this condition of affairs is to continue it is incumbent upon the Governments, whose duty and right it is to prevent such unrighteous acts, and thus protect its citizens generally, to carefully consider and determine. It is clearly the duty of the Governments concerned to make adequate and proper laws, and when these are made, to systematically enforce them by providing the machinery to see that they are regularly lived up to by the municipalities affected; for failure to maintain a constant oversight means municipal neglect and indifference, particularly as regards sewage purification. If this is not done, the public will be uselessly paying for plant, etc., intended to produce a sewage effluent free from disease-producing organisms.

It is generally conceded that a large percentage of all sickness happening in cities and towns is due to impurity of the water supply, sewage-contaminated water being an important cause of diarrhoea, typhoid fever, cholera, and probably of a number of other diseases of which at present we cannot speak with certainty.

It has been so far accepted, and is now almost the general rule, to consider that a continued typhoid death rate of over 20 per 100,000 of population is an indication that the public water supply is greatly at fault. With the object of ascertaining how this rule would work out for Canadian cities, information has been obtained as to the deaths from typhoid fever reported in cities of Canada during the decade 1900-1909, and this has been set forth in Table A.

Computations are made only where the number of deaths and estimated population are given. In some few instances the health officers have been unable to state the number of deaths. It will also be noted that no reference has been made as to whether the deaths reported were those of residents or as to whether the deaths reported were those of residents or non-residents, but as it is generally the rule for a small proportion of the residents of rural districts to be sent to city hospitals for treatment, the prevalence of this custom will not materially affect the comparison of the rates.

In studying the table one cannot fail to be struck with

the fact that during the past decade the inhabitants of each of the cities have been served out "polluted water," and that, as a consequence, many valuable lives have been lost and many thousands of people have had to endure sickness and suffer loss of time and money, all on account of the indifference and criminal carelessness of individuals and of failure on the part of the Legislatures to make adequate statutory provision for requiring—yes, making—the body corporate do just what the individual citizen is required now to do, viz., to care for his own domestic waste so it will not be a nuisance either to himself or his neighbors. In other words, a city should care for its own sewage in such a manner that it will not prove a nuisance.

For purposes of comparison of typhoid statistics with some of the cities of the United States, a compilation of the mortality figures of twelve cities of the United States located on the chain of Great Lakes has been made in Table B. These figures are for the corresponding years of Table A., with the exception of 1909, for which the figures could not be obtained. The mortality rates given are gathered from the reports of the Washington Census Bureau. This table clearly shows that if the conditions of Canadian cities bordering on the Great Lakes is bad, those of the cities of the United States referred to are equally so. The possibilities of sewage pollution there are many times greater than in Canada. The people of the United States have not yet learned the lessons of municipal sanitation—the laws of common sense—and as a consequence the typhoid death rate in the United States is 46 per 100,000.

To further emphasize the fact that Canada has lessons to learn in respect to sanitation generally, from the older countries of Europe, where population is and has been congested for many years, as well as from the nation to the south of us, Table C has been prepared. A typhoid index certainly goes far to show what these countries are doing in respect to water supplies and the protection of the same as well as to general measures of sanitation which cannot be dwelt upon here. The figures are the latest obtainable.

What can we say for the efficiency of our laws for the safeguarding of the public of Canada against this one disease, typhoid fever, let alone the other diseases due to or dependent upon polluted water supplies? Is there any sanitarian or any legislator who will be bold enough to say the existing health laws are adequate or efficient in respect to this question?

Imagine, if you can, the population of the countries of Europe included in Table C, viz., Scotland, Germany, England and Wales, Belgium, Austria-Hungary and Italy, totalling over one hundred and seventy-eight millions, crowded into the Provinces of Nova Scotia, New Brunswick, Prince Edward Island, Quebec, Ontario and Manitoba, which

TABLE B—TYPHOID FEVER.

Cities of the United States, bordering Great Lakes, Mortality Rate per 100,000 of Population, 1900-1908 (inclusive).

Cities.	Rate per 100,000 of Population by Years.								
	1900	1901	1902	1903	1904	1905	1906	1907	1908
Ashtabula	7.7	44.9	36.3	49.4	137.1	60.0	38.9	19.0	86.2
Buffalo	23.5	27.1	33.7	34.6	24.2	24.4	23.6	29.2	20.7
Chicago	21.1	29.8	45.1	32.1	20.2	16.5	18.3	17.7	15.3
Cleveland	56.8	34.9	35.5	115.0	49.6	14.9	20.2	18.9	12.6
Detroit	28.4	20.1	23.5	20.0	17.6	21.2	22.3	28.3	22.3
Duluth	109.5	74.1	53.7	64.8	54.4	44.7	46.0	41.6	56.8
Milwaukee	19.3	22.1	15.1	16.8	13.6	22.7	30.5	25.7	17.4
Niagara Falls	107.9	143.9	130.4	126.9	139.8	181.6	147.3	126.8	98
Ogdensburg	55.4	20.4	95.0	54.2	60.9	40.5	87.6	40.4	33.6
Port Huron	47.0	41.3	61.2	25.2	34.9	14.8	53.8	43.5	19.1
Sault Ste. Marie.....	132.9	92.9	172.9	115.9	52.4	68.6	58.9	16.5	72.9
Toledo	41.0	32.2	34.7	29.5	37.2	45.7	45.0	36.4	40.1.