becomes befouled, while upon the surface a scum appears, and conditions which may be styled offensive and dangerous are established. In short, a nuisance is created, and if allowed to continue it becomes impossible for the water to be used either for man or animal. And further, the streams discharging into larger bodies of water are often a menace to municipalities taking their supplies from the larger bodies of water to which they are tributary. These smaller bodies of water more frequently lie within provincial boundaries, and, as a rule, can be dealt with by the provincial laws administered by Provincial Boards of Health. It happens now and again that they are interprovincial, and in such cases the problem is more difficult to deal with.

Navigable Waters.—Second, the Navigable Waters.—This important class of waters constitutes one of the great natural resources of our country. They depend upon the smaller streams for their existence, and, as they form the receptacles for the water pouring into them, so they derive in part their polluting matter from these tributaries, as referred to under the first heading. But undoubtedly the chief sources of contamination come from the cities and towns lying along their banks, whose peopling millions ruthlessly deposit sewage into their waters. Likewise, in a lesser degree, but none the less menacing to public water supplies, is the careless pollution due to the many ships which ply thereon during the season of navigation.

Navigable waters are to be found in nearly every Province in Canada, but one example will at this time alone be dealt with, viz.: The chain of the St. Lawrence and the Great Lakes which extends from the point where it ceases to be influenced by salt water to the head of Lake Superior, a distance of some 1,500 miles. For the greater part of this distance it forms the international boundary between this country and the United States, upon the waters of which ply, for some seven months of each year, many hundreds of vessels, each depositing therein its domestic sewage. Pollution arises chiefly from the large volumes of untreated sewage which the large cities and smaller municipalities unheedingly discharge directly therein, or deposit in the smaller rivers and streams tributary thereto, and which, commingling with these naturally pure waters, renders what was by Nature intended for the use of mankind, an ever-present and increasing menace to the health of all who use them. Indeed, it is not within the possibility of anyone to say with certainty that water which is free from contamination can be taken at all times from any point in this great tract of fresh water. That this fact has already been brought to the attention of municipal authorities is indicated by the following resolution, adopted by the Lake Michigan Water Commission, September 10th, 1908:—

> "Whereas, Occasionally currents of considerable velocity, say, several miles per hour, may be expected to arrive from almost any direction at any point reasonably near either shore of the lake;
>
> "Resolved, That while, in the opinion of the Commission, the direction of predominating currents should be considered in determining the relative position of sewer outlets and waterworks intakes, nevertheless it is the sense of this Commission that if the waters of the lake are polluted by the discharge into it of large quantities of sewage, then localities in the lake, even 20 or 30 miles distant from the point of entrance of the sewage, and in any direction therefrom, are not safe places from which to derive water for domestic use."

That the amount of untreated sewage effluent and factory waste has been yearly increasing is a fact. That municipal authorities, in many instances, have sought to overcome the problem of typhoid outbreaks by a mere extension of the water intake out into deeper water with the

TABLE A—TYPHOID FEVER.

Mortality Statistics of Cities of Canada, by Provinces, 1900-1909 (inclusive).

Rate per 100,000 of Population by Years.

City.	1900	1901	1902	1903	1904	1905	1906	1907	1908	1909
Edmonton, Alta.	....	75.4	20.0	32.3	37.5	40.0	254.3	180.0	110.0	76.0
Nanaimo, B.C.	80.0	....	....	40.0	....	....	....	18.1	....	....
New Westminster, B.C.	....	46.1	....	....	....	25.0	62.6	42.1	76.1	58.3
Rossland, B.C.	....	....	....	....	....	....	18.1	....	25.0	25.0
Vancouver, B.C.	....	....	....	....	....	....	15.3	26.9	10.5	8.8
Victoria, B.C.	39.1	21.7	....	18.5	3.4	16.1	18.1	17.1	5.4	10.0
Winnipeg, Man.	122.3	118.3	95.0	82.8	248.3	175.0	108.8	49.2	40.5	38.4
Moncton, N.B.	87.5	58.8	88.8	42.1	10.0	47.6	36.3	34.7	58.3	8.0
St. John, N.B.	26.1	....	....	....	....	....	....	....	....	31.2
Halifax, N.S.	....	....	....	....	....	....	....	....	....	4.0
Sydney, N.S.	....	90.9	8.3	16.6	30.7	15.3	42.8	13.3	31.2	11.7
Fort William, Ont.	....	....	....	88.6	200.2	132.6	946.9	....	98.5	94.0
Hamilton, Ont.	23.2	18.9	13.0	11.1	12.7	13.8	33.5	17.9	14.0	....
Kingston, Ont.	16.5	32.8	10.8	87.6	21.6	38.4	37.9	32.2	41.7	31.2
London, Ont.	....	....	....	....	67.3	23.9	44.0	6.7	10.4	4.0
Niagara Falls, Ont.	....	44.0	....	....	14.1	....	37.7	37.0	74.0	24.3
Ottawa, Ont.	31.6	19.7	35.9	9.7	11.0	20.0	20.7	51.6	26.1	31.2
Peterborough, Ont.	73.5	36.5	18.0	34.6	49.3	41.7	26.7	25.0	18.1	5.9
St. Catharines, Ont.	38.6	57.0	47.1	18.7	36.6	44.7	25.5	....	....	24.3
Stratford, Ont.	28.7	46.4	....	37.2	26.1	24.5	23.3	7.5	....	20.7
Toronto, Ont.	10.5	11.1	11.8	15.9	18.1	16.7	24.8	19.4	19.8	25.7
Woodstock, Ont.	137.6	52.9	10.5	21.1	31.7	21.1	43.2	10.8	43.2	....
Charlottetown, P.E.I.	....	....	....	....	....	....	16.6	16.6	....	8.3
Montreal, Que.	42.6	41.4	30.9	31.4	31.8	18.1	37.0	33.2	33.1	53.8
Quebec, Que.	7.3	13.0	....	....	....	....	....	....	23.1	5.3
Sherbrooke, Que.	476.6	227.0	60.8	60.8	30.7	52.3	21.6	108.0	131.4	78.4
Saskatoon, Sask.	....	....	....	....	....	....	....	....	133.3	66.6