

is it going to put its foot down at once, adopt principles and rules of government which will make such a state of things impossible? Is it going to preserve its rivers and lakes, things of joy and beauty for ever? Is it going to adopt a policy for which its children will praise it and be thankful? A new country! Why the benefit of being a new country is that there is all the experience of the sad mistakes of the old to figure from. The extent of Canada, its scattered populations are no excuses for delay. Everyone with faith in Canada, faith in its future, and with the knowledge of its wonderful development in the near past and present, expects it to go on increasing, expects populations to arise and rivers and lakes become, even more so, highways of commerce and prosperity.

Now is the Opportunity.

Surely now is the fit and proper time when the country must recognize it as a duty to cease to pollute the beautiful lakes and water courses, to retain them as fit and proper sources of water supply.

If legislation is necessary, then legislation must be put in force. Boards of health must insist upon a standard of purification. Communities and peoples must be educated to the subject, and our children taught in school that it is a crime to pollute God's water supply, sent for the benefit of His people for not only this but other ages.

Typhoid and Water Supply.

Epidemics of typhoid fever are generally the result of drinking sewage contaminated water. Wherever such water is provided, typhoid is generally found to be endemic. The typhoid infection is carried by a specific germ or bacillus which is given off from the patient. The disease may be of a mild character in the first instance, the person having it being unaware of its presence. Such a patient may even undertake and continue his daily avocations and yet sow the germs of disease broadcast with every direction.

The bacilli of typhoid, which are given off with the excreta find ready access by means of sewers to water supply sources. They continue to multiply in the water or in the organic matter of the sewage, from which they ultimately find their way into pure water. Although such water may appear pure enough, as soon as it is taken into a slightly disordered stomach or intestinal canal, the bacillus gains a foothold, and another patient is attacked or a general epidemic may occur. This may happen simply through the rinsing out of a milk pail by water from a stream which has received sewage contamination.

Milk and Typhoid.

The germs propagate at a great rate in milk, and many causes of epidemic may be traced to a milk supply, but in the first instance the infection is almost always obtained by the milk utensils coming in contact with sewage polluted water.

Other Diseases Common.

Typhoid fever is perhaps the most important of water-borne diseases, but diarrhoea, dysentery and cholera are often carried by water, and all frequently result from sewage contaminated sources.

Details of enquiries into epidemics of the above diseases are numerous, and many of an interesting character might be given, conclusively proving how hundreds of lives have been sacrificed, and are still being so, by providing water for drinking purposes known to be polluted by sewage.

In a comprehensive volume entitled "Sewage Disposal in the United States,"* a large amount of evidence is collected of a most instructive nature, showing conclusively that zymotic diseases and epidemics are peculiar only to those towns in America which are supplied with sewage contaminated drinking water. And, that on the institution of water filtration and by cutting off the sources of contamination the proportion of such diseases at once fell to a low rate, and that epidemics practically ceased to occur. An interesting quotation from the above is as follows: "In 1880 a number of large hotels were constructed on the lake beach not far from the mouth of the Genesee River. Numerous cottages

were erected, and these soon gathered about and near the river's mouth a considerable summer population, consisting almost entirely of citizens of Rochester. On Sundays and holidays it is no uncommon thing for from 25,000 to 30,000 people to visit the lake beach. Drinking water is supplied through pipes which lead a short distance into the lake, and through which at times the sewage polluted water of the Genesee River, mixed with lake water, is drawn.

The growth of the summer resorts at Lake Ontario and the consequent drinking by a large number of citizens of a seriously polluted water, has directly contributed to nearly double the typhoid rate in the City of Rochester. As the matter stands a warm May is followed by an increase in the typhoid death rate, either in the latter part of the month or in the following month of June." The authors conclude: "From the consideration of a large number of cases similar to the foregoing we derive the conclusion that crude sewage should never be discharged into any body of water used as a water supply at any point within the influence of the sewage. This statement may be considered the fundamental proposition of modern sewage disposal."

"Scepticism to be Overcome."

An adequate treatment of the systematic work and discussion on the subject of stream pollution is however impossible in the limits of a single chapter. Enough, however, may have been said to convince those who have not given the matter much consideration that the subject is one worthy of deep consideration. There are no doubt many who maintain a sceptical attitude with regard to the importance of the matter. But such scepticism is generally the result of ignorance or lassitude of interest. But whatever the result of, it is the one prick which the sewage engineer finds it hard to kick against. The spirit of ignorance is to domineer. Many an honest engineer who in his heart knows exactly what the advice is he should give, finds it diplomacy to play the role of the silent guest, and quietly takes his orders and pocket his fees, rather than suffer the strain of attempting to persuade a corporation that they should be paying for advice and not paying in order to give it.

An engineer of repute in Canada only lately informed the author in accents sad and pathetic: "Once I had hope in bringing the subject of sewage disposal to the fore, but now I have almost given up. I visited the Old Country to see what they were doing there, and came back with tons of information. But, if you want to make dollars you must give the advice the people want, not the advice they should have."

A fitting close to this chapter is the well-known quotation from Sir Spencer Wells: "Typhoid fever, scarlatina, diphtheria, smallpox, whooping cough, can no longer be looked upon as natural, providential, or unavoidable. The existence of such 'preventable diseases' is a proof of ignorance or negligence, and a disgrace to the country, to the town, to the family."

(To be Continued.)

RAILROAD EARNINGS.

The following are the latest figures:

Canadian Pacific.	1908.	1907.	1906.
Mileage	9,230	9,154	8,776
4th week June . . . \$	1,177,000	\$ 2,025,000	\$ 1,696,000
Month of June . . .	5,458,000	6,740,000	5,420,000
July 1st-June 30th	71,231,768	72,091,677	61,578,404
Grand Trunk System.			
Mileage	4,528	4,528	4,528
4th week June . . . \$	1,199,453	\$ 1,182,720	\$ 1,157,865
Month	3,462,514	3,828,780	3,559,500
July 1st-June 30th	41,801,612	43,688,488	39,659,838
Canadian Northern.			
Mileage	2,874	2,554	2,100
4th week June . . . \$	218,700	\$ 328,400	\$ 104,200
Month	674,400	963,100	612,100
July 1st-June 30th	9,012,400	7,493,100	5,563,100
Toronto, Hamilton & Buffalo.			
Gross, May	62,560	81,834
July 1st-May 31st	792,454	778,663

* Authors: Messrs. Rafter & Baker. Published 1894.