

Biological treatment requires one acre per 1,452,000 gallons of sewage per day at the rate of 150 gallons per cubic yard of filtering material at six feet deep, independent of the porosity or character of the land on which the filters are constructed.

Comparing the above, and assuming each 1,000 gallons of sewage as a unit:—

Broad irrigation—One acre will treat one unit.

Intermittent land filtration—One acre will treat twenty units

Biological treatment—One acre will treat 1,452 units.

Assuming a water supply of 60 gallons per head per day, towns of the following populations would require the following areas of land in the cases of broad irrigation and land intermittent filtration and the following areas of filtering material requiring protection from severe frost in winter in the case of biological treatment. To the figures in each case, from one to three acres of land would be required for settlement tanks, sludge removal, and general elbow room. Dry weather flows are given, but the areas are capable of treating three times this quantity.

Pop.	Gals. of sewage per day.	Broad irrigation. Acres.	Intermittent filtration. Acres.	Biological, 3 feet deep. Acres.	Filtration, 6 feet deep. Acres.
1,000	60,000	60	12 to 3	.08	.04
3,000	180,000	180	36 to 9	.24	.12
6,000	360,000	360	72 to 18	.48	.24
9,000	540,000	540	108 to 27	.72	.36
12,000	720,000	720	144 to 36	.88	.44
13,000	780,000	780	156 to 39	1.04	.52
24,000	1,440,000	1,440	288 to 76	1.76	.88

From the above it will be seen that the total area requiring protection from severe frost for a population of 24,000 people is just under one acre. Why, they listen to the chronic pessimists, who say sewage purification is impossible in Saskatchewan because of the severity of the winter! Only a short time ago there were many to be found who said it was impossible to produce wheat in this Province. Many who held such opinions are still among the living. Let them gaze from their feet to the horizon and conclude that this Province has no room for the pessimist.

In conclusion, Dr Seymour has asked me to say a few words as to my prospective duties in connection with the post of engineering adviser to the Government of Saskatchewan on health questions. I may state that I am against adopting any universal standard of degree of purity required with reference to sewage effluents. Every problem must be considered in the light of local conditions. What may be necessary in one locality may not be necessary in another. The quality of a sewage effluent depends upon the character and volume of the stream into which it enters. I do not wish by my advice to the Government to harass unnecessarily any community, or create hardships for the sake of carrying out something which may be good in principal, but may have no particular practical application to the case in point.

My endeavor will be, along with Dr. Seymour's co-operation, and, I trust, with the co-operation of all the medical men in the Province, to guide the new and youthful communities in these matters with a view to the future, so that any work done may not be wasted and errors committed which may in the future be regretted. The principle of my action will be based on the belief that this Province of Saskatchewan is in the near future to become largely inhabited, and that villages are evolving every day, villages will become towns, towns will become cities. Let us, then, make the right start to the very best of our knowledge in matters appertaining to the general health.

The progress, morality and happiness of a community depends upon its measure of health. Health is a jewel beyond price. I shall make errors; "It is human to err." Kindly point out, frankly and immediately, such errors. It may be unfortunate to err. It is a thousand times more un-

fortunate to do so and not know of the error. By mistakes in life we discover the fittest. Errors are the educational force in the whole process of evolution.

## ORDER OF THE RAILWAY COMMISSIONERS OF CANADA.

Copies of these orders may be secured from the Canadian Engineer for a small fee.

7392—June 29—Granting leave to the North American Telephone Co. to erect, place, and maintain its wires across the track of the Brockville and Westport Railway at Soper-ton, Ont.

7393—June 21—Dismissing application of the Red Mountain Railway Co. for amendment to Order No. 2115 (making applicable the general interswitching Order), prescribing the rates to be charged for interswitching between the tracks of the Red Mountain Railway and those of the Columbia Western Railway at Rossland, B.C., amending previous Order of the Board dated February 14th, 1906.

7394—June 28—Ordering and directing that the G.T.R. take and expropriate certain lands additional to those they now occupy lying between Wyndham Street on the west, Market Street on the north, and the right-of-way of the G.T.R.

7395—July 2—Authorizing the Hamilton, Grimsby & Beamsville Electric Railway Company to construct, maintain, and operate spur through the lands owned by Algernon McKay, of the Township of Saltfleet, County of Wentworth, Ont., connecting the H. G. & B. Electric Railway with those of the G.T.R.

7396—July 3—Granting leave to the M.C.R.R. to construct an interchange track with the track of the G.T.R. on Bathurst Street, London, Ont.

7397—July 3—Granting leave to the G.T.P. Railway to construct its railway across three highways at grade between Sections 22 and 27, Township 51, R. 20, West 4th Mer., between 27 and 28, and between Sections 32, Township 51, R. 20, and Section 5, Township 52, R. 20, west 4th Mer., Alberta.

7398—July 3—Granting leave to the C.P.R. to construct a new crossing over the tracks of the main line of its railway in the town of Coleridge, Alta.

7399—July 5—Authorizing the C.P.R. to reconstruct bridge No. 105.6 over the Victoria Road, Pembroke, Ont.

7400 to 7411, inclusive—June 30—Granting leave to the Government of the Province of Alberta, to erect, place, and maintain its wires across the track of the C.N.R. at eleven different points, and over the C.P.R. at one point in the Province of Alberta.

7412 to 7423, inclusive—July 2—Granting leave to the B.T. Company to erect, place, and maintain its wires across the track of the C.P.R. at five points in Ontario, and one in Quebec; across the G.T.R. and five points in Ontario; and across the Pere Marquette R.R. at one point in Ontario.

7424—June 30—Granting leave to the Government of the Province of Alberta to erect, place, and maintain its wires across the track of the C.N.R. about one mile west of Mundare, Alta.

7425—July 5—Granting leave to the Caradoc & Ekfrid Telephone Company to cross with its wires the track of the G.T.R. on the town line between Caradoc & Ekfrid Townships, Ont.

7426—July 5—Granting leave to the Perth & Christies Lake Telephone Association to cross with its wires the track of the C.P.R. at the Third Line of Bathurst, County of Lanark.

7427 and 7428—July 5—Granting leave to the rural municipality of Miniota, Man., to erect, place, and maintain its wires across the track of the G.T.P. Railway at P.C. 3 1/2 miles east of Quadra, Man., and at P.C. two miles northwest of Quadra, Man.

7429—June 30—Granting leave to J. P. Ernst, of New Hamburg, Ont., to erect, place, and maintain wires across