

charged;—it exhibited a very slight odour at the time, but proved sufficiently nitrified to afterwards completely purify itself, and it is still in his possession—a clear and odourless liquid remarkably free from sediment.

Under extreme cold it may, perhaps, be necessary, with contact beds of large surface, to resort to the expedient of forming an undulating or ridged surface, so that dissipation of an ice film may be assisted by its fracture under its own weight on settlement.

In temperate climates, the sewage is generally distributed over the surface of contact beds by means of open channels, but the American Septic Tank Company has found it better in northern latitudes to use porous ducts, or pipes with open joints, laid just beneath the surface of the bed.

This paper should not be closed without some general remarks upon the cost of the process, which must necessarily vary with locality and population, nature of sewage to be dealt with, etc., etc. As to capital expenditure, limits in Canada may perhaps be safely stated of \$3.50 per capita for populations of 40,000 to 50,000; to \$12.00 per capita, under somewhat extreme conditions and for small communities.

In cases of almost any chemical or mechanical purification methods, working expenses, disposal of sludge, etc., etc., lead to a very considerable annual expenditure, easily rising to 10% upon capital outlay, even with large installations; and a highly-important feature of the Septic Tank Process is its practical solution of the sewage sludge problem and the consequently low annual expense involved.

Apart from this, however, it is clearly a process for which nature has made direct provision, and in which the observance and co-operation of natural laws are the only requirements; it has been abundantly verified that careful design, in which due regard is paid to character of sewage, regularity or irregularity of flow, influences of climate, etc., etc., together with very slight but intelligent oversight, are sufficient to produce and maintain conditions necessary to the operations of these wonderful laws and activities provided for so beneficent a purpose.

It must be observed that a tank, and its associated contact beds, do not immediately develop their full biological efficiency; the development of organic life, to an extent necessary to deal with the volume of sewage flowing, requires time in both tank and filters. In the former, a scum of varying thickness is found to accumulate upon the surface, and it is essential that this be not disturbed (a reason, amongst others, for submerged inlet and outlet); this scum abounds with bacteria and is, perhaps, their principal home

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