

THE Sanitary Review

SEWERAGE, SEWAGE DISPOSAL, WATER SUPPLY AND
WATER PURIFICATION

SELECTING A SCHEME FOR SEWAGE TREATMENT.

Local conditions will always be taken into consideration when selecting and designing sewage disposal works. This introductory remark is so self-evident that we were almost afraid to use it, yet we know of engineers reporting on systems and designing schemes who know little or nothing of the local conditions.

It is useless to presuppose ideal conditions in ideal surroundings. They never exist, and schemes based upon such suppositions will not fit in with the physical, mechanical and financial difficulties with which one comes in contact.

To properly design a scheme one must know the number of people, their habits and occupations. Sewage from the homes of the working classes will require different treatment from that of a high-class residential district. The scheme must not only be designed for to-day, but also for the probable growth during the period over which the debentures will be spread.

The quality and quantity of water supply and water consumption should be known; the likely number of baths and lavatories; the amount of laundry work done, and its distributions as to time and place.

It is important to know the minimum, maximum and average dry weather flow, and the hour of the extremes, and, with this, the temperature of the sewage.

The method by which the flow is brought to the tanks should be considered; whether by gravity, through inverted siphons or pumped. Each of these methods affects the physical conditions of the sewage.

The conditions of the sewers and the quantity of subsoil water entering the sewers will form the basis of a calculation as to the desirability of relaying the sewers in preference to designing works large enough to treat the sewage plus the infiltration water.

The manufacturers' waste admitted to the sewers usually complicates the problem. When the manufacturer first treats the discharge he simplifies the problem, for when chemical treatment is necessary the question of tanks, etc., must be considered.

In considering the land treatment of sewage the factors are: the available area, the nature of the soil and subsoil, and the fall. Broad irrigation requires suitable subsoil, and the fall. The intermittent downward filtration requires fall sufficient to drain the suitable soil and subsoil.

When artificial filters or contact beds are adopted good fall is very necessary. With contact beds the fall need be only a little greater than the total depth of the beds, but when dosing tanks are used it must be greater.

The disposal of the sludge should be carefully considered. If the works are in a farming district, the

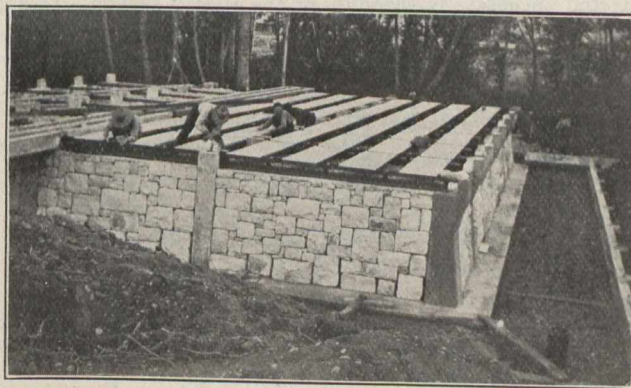
farmer may be induced to take the sludge for his fields. When it cannot be disposed of in this way it may be pressed and shipped out or mixed with refuse and burnt; sometimes though the sludge is of such a jelly nature that these methods fail, then frequently other treatment is required.

SEWAGE PURIFICATION WORKS, CITY OF VERNON, B.C.

The accompanying illustrations show in part the sewage purification works installed and put in operation last season, by the Corporation of the City of Vernon, B.C.

These works are the first complete modern sewage disposal plant as yet built in Canada west of the Great Lakes, and they, therefore, mark a step in advance in Western Canada in that most important question of sewage purification and disposal.

The works which were designed and constructed for the Corporation by Messrs. Galt & Smith, Consulting Sanitary



One-half Distributors Placed.—Sand Filter Completed.

Engineers of Toronto, Ont., consists of a sewage tank with screen and grit chambers, continuous coarse percolating filter, and secondary sand filter.

The plant is estimated to serve from 1,500 to 2,000 of a population, and provision was made in all the details for a future enlargement and duplication of the system when required by the future growth and expansion of the city.

The tank which is built of reinforced concrete is 60 feet long, 20 feet wide, with a sewage depth of 7 feet.

The primary filter 50' x 47' x 6' deep is composed of broken stone graded to various sizes and supported about the outside by a dry stone wall laid up in irregular courses.

A concrete carrier brings the tank effluent to the filters upon which is distributed by an equipment of Stoddart Sewage Distributors. The sewage after passing through the primary filter, flows to a sand bed which surrounds the first