

# THE Sanitary Review

SEWERAGE, SEWAGE DISPOSAL, WATER SUPPLY AND  
WATER PURIFICATION

## THE SASKATCHEWAN UNIVERSITY AND SEWAGE DISPOSAL.

The new Provincial University in the course of erection at Saskatoon is about to adopt an ideal system of sewerage accompanied by an up-to-date method of sewage disposal.

One reason for this is that the University will, in the future, have a Sanitary Engineering course attached to its curriculum, and the disposal works will be made a source of interesting study and experiment for the students, in addition to providing useful data relative to frost conditions in this severe climate.

The system is designed by Mr. Darlington Whitmore, C.E., in conjunction with Mr. T. Aird Murray, C.E., consulting engineer to the Bureau of Health.

Twenty-five thousand dollars have been set aside by the University Governors for purposes of sewage disposal.

The sewerage will be on the "separate" system, viz., only sewage and waste water will be dealt with, while the road and surface water will be discharged by separate pipes direct into the Saskatchewan River.

Provision will be made for 2,000 persons and 430 head of cattle, there being a farm connected with the University, the amount of sewage being calculated at .13 cubic feet per second.

The sedimentation tanks will be on the continuous flow system and septic action will be avoided. The tanks will be divided into three separate compartments, providing varying velocities of flow of .0001, .0005, .0007 feet per second. Each compartment will be further separately controlled, so that seven varying rates of flow as distinct from velocity can be obtained.

The liquid from the tanks will be distributed over biological filters protected from the frost. The filters will be on the percolating or trickling system, and will be in sections, providing varied sizes and character of filtering material. Different rates of filtration will be experimented with, the aim being to provide a non-putrescible effluent at all times of the year.

The oxidized or non-putrescible effluent will be further disinfected or sterilized, probably with calcium hypochlorite. This plant, together with its results, will prove of great value to the Province, and will, no doubt, furnish interesting and useful data to the Bureau of Public Health.

The method of distributing the sewage over the filters will be by that of the well-known "Stoddart" system, by which even distribution is obtained without any moving parts.

## SWIFT CURRENT, SASK.

The system of sewage disposal about to be adopted for Swift Current is that of biological filtration by means

of trickling filters preceded by continuous-flow sedimentation tanks. The non-putrescible effluent will be disinfected by calcium hypochlorite before being discharged into the stream, the humus from the filters being first settled out.

The water supply will be on the air-tank pressure system as at Yorkton, Sask., and recently described in these columns.

Three years ago Swift Current was represented by a few frame buildings. Swift Current is now among the list of the most prosperous towns in Saskatchewan, and in a few months' time will be provided with up-to-date sanitary and water supply requirements.

## RESERVOIR OUTLETS TO EARTHEN EMBANKMENTS.

By George N. Yourdi, M.Inst.C.E.\*

Embankment-making in Great Britain is, practically speaking, a matter of yesterday, and perhaps it would not be wide of the mark to say that the failure of the Dale Dyke Embankment in 1864 earmarks the date when the attention of engineers was turned to the study of reservoir construction, and a revolution was made in the mode of providing proper, safe, and durable outlet arrangements to regulate and control the stored waters. One failure teaches more than many successes, and that at Dale Dyke has taught a most important lesson, so that engineers should no longer be led to practise false economy by neglecting the proper principles that should govern their designs.

Practically up to the time of the failure of the Dale Dyke Embankment the general practice was either to lay a line of naked pipes surrounded with puddle, or to construct a masonry culvert through or under the embankment. The outlet arrangements of the Dale Dyke Reservoir consisted of two lines of 18 in. diameter spigot and socket cast-iron pipes laid in a trench and surrounded with puddle, each pipe line being controlled by a valve at the outer end. The trench in which the pipes were laid was under and through the embankment. The cause of the failure at Dale Dyke has never been satisfactorily explained on account of the divergence of opinion expressed by the experts who were called in, and, like a good many other similar problems, has been left unsolved.

**Naked Pipes Under Embankment.**—Nothing can very well be worse than naked pipes laid through or under the made embankment, resting on and surrounded by a mass of plastic clay puddle, subjected, as this would be, to the unequal pressure due to the weight of the embankment. The pipes can  
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\* Read before the British Association of Water Engineers at York.