## SEWAGE DISPOSAL AT PROVINCIAL GAOL, VICTORIA, B.C. By E. MOHUN, M. CAN. SOC. C.E.

10

In October, 1901, the author received instructions to design and construct a sewage disposal system for the Provincial Gaol at Victoria. It was found that to connect with the city sewerage system would involve a large expenditure, and it was finally determined to dispose of the sewage on the gaol property of about twelve acres.

An examination of the existing work showed it to be in a most offensive and dangerous condition. The discharge was into an untrapped brick cesspool, the overflow from which ran into a field. Near the cesspool the ground was excrement sodden ! and the odor three or four hundred feet away was something phenomenal when wafted on a favouring breeze.

The pipes, six-inch diameter, from the gaol had been laid regardless of grade and direction, and a very considerable per centage of them were broken. Under the circumstances the prevalence of disease was not surprising.

The daily flow of sewage varied from 1,200 to 1,800 gallons a day, which it was proposed to dispose of by surface irrigation. The soil was not an ideal one for such purpose, as it consisted of a stiff clay fit for brickmaking, with practically no loam on the surface, and it was with fear and trembling that surface irrigation was resorted to. Had that failed, double contact beds would have been the next method adopted.

In the first place, the cesspool and old pipes were entirely abandoned. New eightinch pipes, properly jointed, and laid true to grade and alignment, connected the buildings with a catch pit, about 250 feet distant. From the catch pit the sewage flowed into a septic tank o 1.550 gallons capacity, the effluent from which passed into a 636 gallon flush tank, discharging about twice a day. The contents of the tank, after passing through an aerating trough, charged a concrete conductor, from which the distribution channels on the surface of the ground were fed.

CATCH PIT-The catch pit is of brick in cement, three feet square, and is fed by an 8 inch sewer from the gaol. Its effluent discharges into the septic tank, at 2 feet 3 inches below water level, through a sixinch trapped pipe set in concrete in one corner. The catch pit might perhaps have been dispensed with, but, bearing in mind the mischievous proclivities of prisoners and the strong probability that all sorts of foreign substances would be wantonly thrown down the closets, it was considered advisable to construct one, and its adoption has been amply justified by results. The pit is cleaned out at short intervals. and its miscellaneous contents buried.

SEPTIC TANK-The tank is built of five parts of sea shingle and sand to one part of White's Portland cement. It is 6' by 8' inside, with nine-inch walls, and is smoothly cemented. The floor has a fall of 1 in 18 towards the inlet. There are two half brick baffle walls to prevent any direct current between the inlet and outlet, and also to increase the length of channel, and afford better opportunity for the deposition

\*Paper read before the Canadian Society of Civil Engineers, Montreal.

This plan of the matters in suspension. appears to the author to combine the advantages of the usual long narrow tank with economy.

The outlet is of two-inch wrought iron pipe, H shaped, with an entering limb 2 feet the end of which in the flush tank is tapped and, as the ends are open, no syphonage can occur, and any obstruction is easily removed.

square, and discharges when a depth of 2 feet 10 inches is attained. The syphon is a six-inch Miller, discharging through a six-inch sewer pipe into the aerating trough.



## February 24, 1904

Di

Spec

Flar

Br

Hy

M

SI

W