

*(a.) Caversham Tunnel Scheme.*

The Caversham Tunnel scheme was designed to carry away the drainage from some of the larger factories in the valley and from the freezing-works and abattoirs, and also to drain part of the Green Island Borough. This scheme was a gravitation one, and it was proposed that the sewage should be taken through the Caversham railway-tunnel and joined to the Dunedin City scheme of drainage, which empties in a different direction. Several of the factory-owners promised to give special contributions amounting to about £800 a year for a few years towards the cost of this scheme, but it came to nothing, and the representatives of the Dunedin Drainage Board testified at the inquiry that the Board was opposed to this scheme, as its works were not designed to cope with so much foreign sewage, and it appeared also that a part of Green Island Borough was too low to be drained by this scheme unless by pumping. It does not appear that any consent was ever obtained from the Railway Department to utilise the tunnel for the purpose indicated, but it was assumed that when the new tunnel (now in course of construction) is completed the old one would be handed over to the local authorities. This scheme is only a partial scheme. It does not propose to deal with the drainage from Mornington and Maori Hill, neither does it propose to deal with the drainage from many of the factories. It was not seriously supported by any of the local authorities, and, as it is opposed by the Dunedin Drainage Board, it must therefore be discarded.

*(b.) Leslie Reynolds's Scheme.*

A scheme was designed by Mr. Leslie Reynolds, C.E., to take the sewage of the whole of the Kaikorai Valley to the sea. This scheme, which was estimated to cost £14,640 without compensation to riparian owners, is a gravitation scheme. It was a much more comprehensive scheme than the Caversham Tunnel scheme, as it provided for a main sewer from the upper portion of the valley to the sea, into which sewer the sewage of the whole valley and the refuse from all the factories and drains could be discharged directly on to the sea-shore at high-water mark; but, as a great deal of the land at Green Island is very low-lying, the sewer was intended to be carried above the surface of the ground in those places, and by a tunnel through the sandhills between that place and the sea so as to get sufficient fall. This scheme would entail the pumping of a considerable amount of sewage from the portion of Green Island that would lie below the level of the sewer. It is most likely also that the discharge of the sewage directly on to the beach at high-water mark would create a great nuisance, and this proposal was condemned by the Health Department. It appears that sewage has a higher temperature, and is lighter, than sea-water. It would therefore float for some time on top of the sea (see Exhibit 22), and, as the evidence showed that the tide generally sets strongly inwards towards the shore at this locality, the effect would be the distribution of much of the sewage along the beach, which is used to some extent as a pleasure resort. This scheme did not appear to be favoured by any of the local authorities represented at the inquiry, none of whom produced Mr. Reynolds or any witnesses in support of the scheme, and it may therefore be put aside as unpopular and insufficient.

*(c.) Hay's Scheme.*

This scheme (see Exhibit II) is somewhat similar to Leslie Reynolds's scheme. It is formulated by Mr. Hay, M.I.C.E., of Dunedin. He proposes that a sewer should be constructed from Balmacewan (near the head of the valley) to a point in the lowest part of the Borough of Green Island. This scheme would serve the whole valley, as the various local authorities, factories, freezing-works, and abattoirs could connect their sewers and drains therewith, and this would effectually drain, by gravitation, the whole valley. The sewer would, however, end in a large pit or tank, and the sewage would therefore require to be all pumped out on to the sandhills near the sea, and it is proposed that the sewage should there be utilised for the purpose of a sewage-farm, in the same manner as is done in Christchurch, and that the effluent there-