

the head of the valley, and also by the fact that many of the manufactories on its banks use some of the water for steam purposes, which water is of course not returned to the stream. The Kaikorai Valley is within very easy reach of Dunedin. The main railway system passes across the bottom of the valley, and probably coal is cheaper here than at any other place in the Dominion; and, as the stream supplies a considerable quantity of water suitable for manufacturing purposes, the valley is looked upon as a favourable place where certain industries can be conveniently located. There are now many important industries in this valley, and as time goes on there will probably be very many more. It is probably the largest manufacturing centre in the Dominion; the stream is essential to its prosperity, and anything that can reasonably be done to improve the purity of the water in the stream will assist that prosperity.

These industries consist of the Roslyn Mills, several wool-washing establishments, some tanneries, a gut-factory, iron-rolling mills, large chemical works, a big fat-rendering establishment, slaughtering and freezing works, flour-mills, Dunedin City Abattoirs, and cement-works (just starting), and other works, most of which use for some purposes the water of the stream.

The causes of the fouling of the stream are as follow :—

1. There is at present no drainage system, other than street-surface drainage, in the portions of Maori Hill, Mornington, Green Island, and Roslyn Boroughs that are within the watershed of the Kaikorai Valley, and there is also a considerable population in these districts, especially on the hills and at the upper end of the valley.

2. The surface and rain water from these places that is not evaporated by the atmosphere or absorbed by the ground finds its way by the street drains into the stream; and, as this surface water contains house-slops, droppings of animals on the roads, drainage of all descriptions, and all sorts of impurities, the condition of the water when it reaches the first wool-washing factory in the Borough of Roslyn (above Ross and Glendining's mill) is of a very filthy character.

3. A large quantity of this polluted water is used in the first wool-scouring factory on the stream, and after such use the water is returned to the stream; consequently when it leaves this factory it is still further polluted. It then reaches Ross and Glendining's mill, after it has joined the main stream, which main stream of course dilutes it. Ross and Glendining's mill has a separate water-supply of its own, but, as this is not sufficient for all its purposes, it also uses large quantities of the water of the Kaikorai Stream for wool-washing, dyeing, and other purposes; but a large proportion of the water from their own supply, as well as a great deal of what is taken from the stream, is placed in it or is returned to it after it has been used. The woollen-mill owners make some endeavour to purify the water before returning it to the stream. This is done by means of settling-tanks and filter-beds; but it was admitted by the mill people themselves that they cannot get all the dye out of the water, and they also admitted that the urinals and water-closets of their six hundred workpeople empty into a cesspit, the effluent from which discharges into the stream.

4. As one gets further down the valley there are other wool-washing factories and tanneries and a gut-factory, in all of which the water is used and most of it is returned to the stream. I visited one of these tanneries and found a primitive sort of settling-pit, intended to arrest the more solid particles of matter that might be held in solution, after which the water was allowed to enter the stream; but the water was of a dark-brown colour, with an ill-looking scum on top.

5. Further down the stream the water is used in connection a tallow-factory. Some of the water which is used there is placed in a "digester," and the filthy liquid coming therefrom (technically known as "soup") is pumped on to some hills adjacent and allowed to flow over the land; and it is apparent that even if none of it finds its way back again into the creek, the rain must wash a good deal of the filth into the creek. It was admitted that the decaying matter on