

mining was very active the quantity per year was several times this average. It is not claimed that all this material has actually caused silting at or in the vicinity of Balclutha. An immense amount of it has come down the river and been swept out to sea, being carried in suspension after reduction to appropriate size. Probably a still greater quantity is still lying in the gullies and sludge-channels, as well as in the bottom of the main river. The very noticeable rise in the low-water level of the river at all points where evidence as to this could be obtained shows that there is an immense amount of material lying in the bottom of the main river, more especially in the upper reaches.

Of this 300,000,000 cubic yards probably 200,000,000 cubic yards has not yet reached the main river. Of the balance of 100,000,000 cubic yards probably 60,000,000 cubic yards is lying in the bed of the river, in thickness varying from 10 ft. in the upper reaches to 3 ft. in the lower reaches, while the residue of 40,000,000 cubic yards has been swept out to sea at an average rate of 670,000 cubic yards per annum.

The whole of this material must eventually be brought down by successive floods—how soon cannot be even estimated; but what your Commissioners wish to stress is that this large amount of foreign matter cannot have been sluiced into the river without upsetting the balance of nature and causing silting where previously silting had not occurred.

By analogy with other rivers of similar magnitude, and from the silt-samples obtained by your Commissioners, they are of opinion that it is not likely that in a state of nature the river brought down more than 2,500,000 cubic yards of detritus per annum. The increasing of this amount by the mining-debris cannot do otherwise than result in the silting-up of the bed wherever the current is such as to favour deposit. It must also be recollected that the amount given as an average was not really distributed over the whole period since the outbreak of the goldfields, but that when mining was in its heyday a great deal more than this amount would be poured into the river, and its power to transport the material to the sea would be proportionately less. Although mining may be considered now to have been reduced to a fairly low ebb, the amount of mining-detritus disturbed by sluicing, &c., and now lying in gullies and on hillsides, where it can be easily swept into the streams, must continue for many years to act as a disturbing influence in the regimen of the stream. It is probable that this material distributed along the whole course of the river will have such an effect that the stopping or not of the mining now going on is scarcely worthy of consideration.

Cross-sections taken in the stream at certain points show definite decreases in the cross-sectional area, and consequent raising of the low-water level; but it would be impossible for your Commissioners without extensive detail surveys (which are not considered justifiable for the purposes of this report) to determine what is the average amount of silting-up, or even the aggregate amount of silting-up over any given length. Suffice it to say that silting-up has undoubtedly happened.

So far as a diligent search of the Treasury and mining records will give, it appears that over £19,500,000 worth of gold has been won from the mines in the valley of the Clutha River; and the revenue derived by the General Government, and paid to the various local authorities in whose districts the gold was won, since 1877, which is the earliest date covered by the Treasury records, was £158,653, as supplied by the Accountant to the Treasury. This cannot be considered as in any way representing the actual monetary benefit to the State derived from the mining industry, which has been one of the principal foundations of the prosperity of Otago.

Your Commissioners cannot help repeating the statement made in their report on the Maerewhenua River—that the amount of gold being won is not sufficient to justify their recommending any contribution towards the cost of remedial measures being demanded from this source, but the General Government, having been responsible for the Proclamations authorizing the deposit of mining-tailings into the various tributaries, cannot escape liability to contribute in a greater or less degree towards the cost of the works recommended herein.

Similarly, it is considered not justifiable to recommend that any direct contribution to the cost of remedial measures in the vicinity of Balclutha be derived from the land under settlement in the watershed of the Clutha above the portion referred to in the order of reference.