

The scheme of handling the tailings with as little moisture as possible, some 30 per cent., by discharge into railway-wagons and by haulage to Waihi Flats, or to the Waihi Beach, or to the Rotokohu Swamp, near Paeroa, was also considered, and the estimates varied from 2s. 6d. to 3s per ton according to the method adopted. The evidence given showed that, so far as it is known, there has been no case where slimes so finely ground as those which have to be dealt with in this district have been stacked; and the mining evidence all pointed to the proposition of stacking slimes on waste ground as being very difficult of practical attainment.

Settling-basin scheme.

Other schemes were suggested having for their object the formation of a series of settling-basins of large area in the valley of the river above Paeroa. These schemes do not commend themselves to your Commissioners, as, apart from expense, though the slimes might settle under normal conditions, there would be no certainty that in times of flood the accelerated velocity of the stream would not pick up the deposited slimes again, and carry them over the face of the country.

Stope-filling.

It was also suggested that the slimes might be returned to the mines and used for refilling the stopes from which the material originally came. This proposal does not commend itself to your Commissioners as being in any respect feasible.

Revoking Proclamation.

Your Commissioners therefore advise that the mining industry be permitted to still discharge the tailings into the River Ohinemuri under amended conditions, and that the Proclamation should be revoked and a fresh one issued containing the new conditions; but that such Proclamation should be issued under the authority of an Act of Parliament, so that no application for compensation can be made thereunder.

Restriction of use of watercourse to discharge of slimes.—Definition of "slimes."

It is advised that after a period of six months, which ought to be ample time in which the necessary additions to the plant can be made to the mills, it should be illegal for any gold-reduction works or other mining project to discharge into the River Ohinemuri any material that has not been ground in tube mills or other appliances approved by the Department of Mines to a fineness sufficient that 95 per cent. of the whole shall be capable of passing through an 80-mesh standard screen; that an 80-mesh standard screen should be defined as one having apertures with an inscribed diameter not greater than 0.0062 inch, or 0.0157 millimeter. The cost of any special inspection deemed necessary by the Mines Department ought to be borne by the mining companies in proportion to the tonnage milled.

Effect of slimes on rivers.

It is believed that when the rivers are freed from willow-growth and are brought by dredging, cleaning, and shortening, as recommended herein, to a condition of moderately good discharge, the fine slimes and tailings discharged from Waikino under the conditions of grinding recommended will at times of ordinary flow probably pass out to the sea in a period of about fifty hours. As under the new *régime* of the river there ought to be no slack spots where the slimes can be deposited, it follows that in flood times, even if the floods did top the stop-banks proposed, the flood-waters would contain so little slimes in proportion to their bulk that but slight harm would accrue to any flooded area. We base this proposal upon the evidence produced by the mining experts that water with a velocity of half a foot per second will carry forward slimes of this degree of fine grinding in suspension, and without deposit to any appreciable extent. This evidence is confirmed by the fact that although for the past three years the process of fine grinding has been increasing, and the greater proportion of the ore is thus milled at present, there is not existing in the bed or on the banks of the Ohinemuri and Lower Waihou Rivers any such very large masses of slimes as would have been present had the contention been false.