

past six years the tailings are now ground to a slime—that is, to such a degree of fineness that the discharges from the Grand Junction, Waihi, and Waikino reduction-works are ground so that more than 90 per cent. will pass through an 80-mesh standard laboratory screen. The evidence of the mine-managers makes it clear that it pays the companies to grind finely, and that the commercial tendency is towards still finer grinding.

Slimes to be compulsory.

The Talisman Company have nearly completed the erection of tube mills, and the Commissioners are satisfied that they are justified in recommending that grinding to slimes should be compulsory, and that any restriction to the use of the river as a sludge-channel for slimes only would be commercially in the interests of the mining companies. It may therefore be assumed that there will in future be no large volume of coarse sands discharged into the river, and that the problem to be solved is the disposal of the large volumes of tailings existing on the banks and in the bed of the River Ohinemuri, and the disposal of the slimes to be made by the ore-reduction works in the future. So far as the Commissioners are aware, the Crown Mines Company, at Karangahake, are the only reduction-works at which tube mills and very fine grinding have not yet been adopted.

Waihi-Paeroa Gold-extraction Company (Limited).

Large volumes of coarse sands discharged from Waihi had accumulated in the river-bed above Waikino, and the Waihi-Paeroa Gold-extraction Company erected and worked a plant for some eighteen months for the purpose of grinding these coarse sands to slime, and for treating them for the gold contained therein; but the March flood of this year swept away the deposit in the upper reaches of the Ohinemuri to such an extent that work has been suspended, and the plant is being removed to and re-erected on the lower reaches of the Ohinemuri, near Paeroa, and upon a much larger scale, in order to grind to slimes and obtain the gold from the tailings in some nine miles of river claims lying between Mackaytown and the Junction.

Ohinemuri sand-deposits.

From Mackaytown down the river there are large deposits of sand tailings, estimated by the Waihi-Paeroa Gold-extraction Company as amounting to 2,200,000 tons, of which 60 per cent. of those in the bed of the stream are estimated to be too coarse to pass a 60-mesh screen. At and below Mackaytown large volumes of sands have been thrown upon the lands adjacent to the river-bed, as the river there debouching from the gorge lost its high velocity in flood-time, and, expanding over the low-lying flooded lands, deposited the silt and heavy material which it had previously held in suspension.

Deposits in bed of River Ohinemuri.

Below Mackaytown, through the Paeroa Township, down to a point in the river about three miles above the Junction, and some half-mile below the elbow known as Pereniki's Bend, the bed of the river has been raised to the extent of several feet by the deposition of the coarse tailings thereon; in other words, the travel of the artificial sands has for a distance of some six miles shoaled the river, leaving a depth of barely three feet of water, whilst below this shoaling there is at present a depth of eleven feet in the mid-stream of the Ohinemuri down to the Junction, with many holes of much greater depth. Though there does not appear to be any large deposit of tailings in the mid-stream bed of the Ohinemuri, from about three miles above the Junction, or in the Lower Waihou, there are large deposits on both banks of the Ohinemuri, and in places on the banks on the Lower Waihou, and in shoalings in the lower river.

Ohinemuri meanders.—Floods at Paeroa.

Owing to the tortuous course of the Lower Ohinemuri, to its reduced sectional area through the deposition of sands and from the effect of willows, the river is quite unable to carry off even moderate floods, with the result that its