

total sales considerably, while the expenditure has been increased owing to the large amount of repairs and construction of by-washes. The cost of maintenance last year was £1,424 13s. 3d., as against £1,024 1s. 9d. for the former year. There are, however, other items to be taken into account—namely, the value of water given towards the cost of constructing deviations, which amounts to £465, and for constructing tail-races £238 5s. When these amounts are added to the sales of water, as they represent cash-payments, the value of the sales would amount to £5,745 12s. 6d., and the profit on the working for the year would then be £4,320 19s. 3d. The total cost of this work up to the end of March last was £37,706. The profit on the working of the race last year would be equal to about 11½ per cent.

The value of free water given to open out claims, &c., last year was £157 17s. 6d., and the average number of miners employed was 175, and the approximate value of gold obtained by them was £28,663 8s.; so that, after deducting the value of the water used, their average earnings would be equal to £130 19s. 2d. a man per annum, or £2 10s. 4d. per week, as against £3 6s. 4d. per week for the year previous.

KUMARA SLUDGE-CHANNEL.

This channel has been a continual drag on the revenue from the water-race ever since it was constructed, as well as a source of constant worry to the Government. It was shown in my report last year that, up to the 31st March, the total receipts, including the value of gold-dust got from the channel, amounted to about £12,240, while the expenditure in maintenance was £33,286, thus showing a direct loss on the working of £21,045; and since then the loss has been considerably augmented, as will be shown in the table of receipts and expenditure for the last year. The tailings-site that this channel commands is completely filled, and the working of the channel depends on floods in the river washing a portion of the tailings away. This was foreseen some years ago, and became so apparent last year that the miners using the channel could see that it would not be the means of allowing them to work out their claims, and they made application to the Government to construct 34 chains of a new channel at less fall to join on to the upper end of the present channel; but after making this application some dispute arose between those having private tail-races and those using the channel: it was said that this length of new channel at the proposed gradient—namely, 4in. to 12ft., or 2ft. 10in. in 100ft.—would bring the mouth of the new channel about 22ft. higher than the mouth of the present one, and that this would interfere with the working of the private tail-races. The Hon. the Minister of Mines deputed me to go to Kumara in July, 1889, to see the miners with reference to this subject; and satisfactory arrangements were come to with all parties to construct a new deviation of channel for 30 chains on the gradient proposed, and the miners using the channel undertook to construct the new deviation on receiving from the Government water from the Kumara Water-race to the value of £3,200, and on its completion, or, at the furthest, on the 1st April, 1890, to take over the channel and maintain it at their own expense. This was agreed to by the Hon. the Minister of Mines, and an Act was passed last session to enable this to be done.

The miners at once appointed trustees from amongst themselves to carry out this agreement, and let a contract for the construction of the new deviation, binding down the contractors to have the work completed within a certain time. The contractors sublet two sections of the work, to be carried on by connections with the present channel, and the work proceeded in a very satisfactory manner up to the 18th December last, when one of the cap-pieces in the present channel broke down at about 19 chains from the mouth, bringing down with it two sets of laths, and filling up the channel with drift-gravel and large boulders from the roof. When this accident occurred there were several parties sluicing into the channel, and from the evidence lately taken before Dr. Giles there was from 50 to 60 sluice-heads of water in the channel. A connection had been made from the channel to the upper section which was being constructed by the sub-contractors, and this connection was a short distance above the place where the cap-piece broke, and the channel was filled with *débris* coming down from the roof. This blockage dammed up the water in the channel, and caused it to rise for some distance in the upper section of the new deviation, where five of the sub-contractors were at work, when another break took place a little above the connection of the upper section of the deviation with the channel. This break had the effect of damming back the water in the channel above the outlet from the upper section of the deviation, and no doubt was the means of saving the men's lives who were in there at the time. The drainage coming through the upper break got away through the lower one, so that the water did not rise any higher in the new deviation. The men were, however, imprisoned in this unpleasant position for about twenty-two hours, when an opening was made above the upper break into the new portion and the men rescued.

On this accident being communicated to the Hon. the Minister of Mines, he despatched me to Kumara to have the channel repaired with all possible speed, and the manager was instructed to employ as many men to repair the break as could be set to work, working continuously, Sundays included, until the repairs were effected; but, as there is always a certain drainage into the channel, the repairs could only be carried on from the lower end, and they were not completed so as to allow sluicing to be carried on in the channel until the first day of February last. A certain length of the channel being blocked, it did not at that time admit of me making an examination of the whole of the timber in the channel, but in the portion of the channel downwards there were only a few caps that were what could be considered "dozed," and where these were intermediate sets had been placed. Indeed, there were intermediate sets placed in between every second main set. The manager was also instructed to have uprights placed under all the cap-pieces at each side of the flume from the Dunedin shaft to its junction with the new deviation, as soon as the breaks were repaired, so as to make sure that a similar accident would not occur.

The following is the report of Dr. Giles, who was appointed by Royal Commission to inquire into the cause of the accident:—