

During the past year a new branch race has been completed along the side of Kapitea Hill and terraces, which commands all the south side of Larrikins Flat. The construction of this branch-race has been the means of a great deal of new ground being taken up which otherwise would have lain idle for a number of years, and it has given much greater facility for working many of the older claims on the flat; indeed it may be said to have greatly enhanced the value of a large number of claims on the field. The carrying capacity of this branch is about sixty sluice-heads, its length is eighty-two chains, and the cost of construction (including the by-wash and lower end), £918 10s. 6d. The largest quantity of water used on the field is now supplied from this branch. From this race a branch was constructed to convey flushing-water to the No. 3 Channel, at a cost of £83 12s. 6d.; thus making the total cost of this branch supply £1,002 3s.

In regard to the question of a larger supply of water for the field when the same is available, an expenditure of about £250 on the upper end of the tunnel coming from the Kapitea Creek would enlarge its capacity to the extent of about twelve additional sluice-heads. The tunnel is 5ft. 6in. wide, with the exception of 2½ chains at the upper end, which is only 5ft. wide. By increasing this portion to the same width as the rest of the tunnel the additional supply mentioned could be obtained, and this would justify the expenditure.

The reservoir at the Loop-line Road for supplying this water-race requires some repairs. The outlet box which comes through the centre of the embankment shows signs of weakness. This box had to be strengthened after the reservoir was constructed: as it was found that the timber with which it was made bellied in the centre on the upper side, another set of 2in. planks was put inside the box for about 30ft. of the upper end; but still, with this strengthening, it shows signs of weakness, and it would be advisable to put additional timber in, and reduce the size of the box, which at present is 4ft. 1in. square in the clear. The greatest depth of water in this outlet-box when discharging 100 sluice-heads of water is not more than 2ft. The box could be reduced in size and still be quite sufficient to discharge a greater quantity than the tunnel would carry even when enlarged, and it could be lined with 3in. planking on each side, with 6in. planking on top, and 2in. planking on the bottom; this would reduce it to 3ft. 7in. in width by 3ft. 5in. in height, but would still give it an area of 12½ square feet, instead of 16½ as it is at present. The by-wash has been raised 22in. beyond the original height; this leaves the embankment about 5ft. above the level of the water when the reservoir is full; but in raising the level of the by-wash, which is constructed with a self-acting trip-gate, so that when the water comes up to the level of the 22in., the gate opens and allows the water to escape down the by-wash.

The by-wash is constructed 60ft. in width at the upper end and 50ft. at the lower end, and planked for 30ft. in length. It is made in the form of a shoot, from the end of which the water falls on the original washdrift, which is now cut away considerably; and, although there is no immediate danger affecting the stability of the reservoir, it would be better to construct a wooden tank across the end of the shoot for the water to fall into, thus forming a well, which would break the force of the water and prevent the ground being cut away any further. The cost of this would not exceed £60, which would make the by-wash secure and prevent any further damage. At the present time the drift-wash, which is of a fine character, is scoured away at the end of the shoot to a depth of about 9ft.

In connection with this reservoir and water-supply the drainage-area into the valley where the reservoir is constructed is very limited; but the supply could be increased to a considerable extent if a branch-race were constructed to some of the creeks running into the Kapitea Creek lower down than the reservoir. The Manager has been requested to see if this can be done at a small cost, and to report fully on the matter.

The following tabulated statement will show the results of the working of this water-race for the year ending the 31st March last:—

Month.	Value of Water given towards Construction of New Deviation of Channel.	Sales of Water.	Cash received for Sales of Water.	Expenditure.	Amount of Outstanding Moneys at end of each Month.	Number of Men employed.	Approximate Amount of Gold obtained.	Value of Gold.
	£ s. d.	£ s. d.	£ s. d.	£ s. d.	£ s. d.		Oz.	£ s. d.
April, 1890	272 11 11	300 12 6	471 11 6	100 15 8	70 12 5	153	809	3,074 4 0
May, "	247 3 6	355 11 11	282 5 0	162 9 4	81 2 7	156	836	3,176 16 0
June, "	246 17 10	368 3 2	503 15 6	149 5 11	76 14 11	156	768	2,918 8 0
July, "	115 2 11	423 9 0	580 1 10	125 10 1	66 0 4	152	700	2,660 0 0
August, "	32 2 2	622 17 11	527 12 11	107 5 4	50 6 11	152	694	2,637 4 0
September, "	..	666 7 1	639 2 6	126 10 5	65 7 4	148	827	3,142 12 0
October, "	..	720 16 1	736 17 0	117 7 8	61 16 3	150	1,042	3,959 12 0
November, "	..	701 5 10	661 5 0	147 1 6	54 3 0	155	861	3,271 16 0
December, "	..	578 1 8	668 14 0	177 9 5	50 10 0	155	660	2,508 0 0
January, 1891	..	546 17 11	394 5 0	206 18 5	63 13 8	155	794	3,017 4 0
February, "	..	691 17 11	849 1 7	170 10 3	77 19 0	164	1,010	3,888 0 0
March, "	..	689 11 8	678 11 4	175 0 3	55 10 8	159	934	3,549 4 0
Totals ..	913 18 4	6,665 12 8	6,993 3 2	1,766 4 3	..	155	9,935	37,753 0 0

It will be seen from the above statement that the value of the sales of water last year was £6,665 12s. 8d., to which must be added the value of water given towards the construction of the Sludge-channel deviation—namely, £913 18s. 4d., making the total value of the sales of water £7,579 11s., as against £5,042 7s. 6d. for the previous year, showing an increase in the sales last year of £2,537 3s. 6d. The expenditure on maintenance was £1,766 4s. 3d., as against £1,424 13s. 3d. for the previous year, showing an increase of £341 11s. The actual profit on the working of this water-race last year was £5,813 6s. 9d. The total cost of the work being £38,521 4s. 9d.; it has paid about 15 per cent. on the cost of construction. The value of free water given towards assisting parties to open out and work their claims during last year was £409