

large area of ground that could not have been otherwise so worked, and from a general knowledge of the ground and the returns from claims now opened, it is anticipated that the yield of gold, although extending over many years, will be in the aggregate very large. The tunnel and channel are now completed, less 15 chains of boxing at lower end, which will be extended to the Teremakau River, as the flat is filled up with the tailings, as far as it is generally believed the ground will pay for sluicing, and is about 78 chains in length, fully 60 chains of which pass lengthwise through the centre of the field deep enough to command the ground on each side for a distance of from 10 to 15 chains. In order to command as much ground as possible and to reach the head of the lead, the gradient was made 240 per chain. This met with much opposition from the miners, many of them (old sluicers) believing it would not work. Quite lately, however, the channel had a trial which has, I think, removed all doubts about it not working, since which time many applications for use of channel have been made—in all 24 to date, and I know of several others to come in. These are more than enough to test the channel's carrying capacity to the fullest extent, even if they are divided into two lots of four hours each for the day (it being customary to take the water for four hours only each day by the claims now opened). This will equal 84 to 90 Government heads of water carrying *débris* eight hours each day. From this it will be seen there will be considerable wear and tear in the channel requiring a large expenditure to renew blocks and lining boards, also the extension of boxing at the lower end till it reaches the river—15 chains. The revenue should also be large, as each party will average fully five men and from six to seven heads of water four hours each day when the claims are well opened out. Most of these claims should be in full working order within twelve months, and half of them will probably be ready within four months, in which case the present water supply will be totally inadequate. From 20 to 25 heads are now required daily for sluicing claims outside the sludge channel, and there are every month of late additional claims getting ready to open out for sluicing. Unless the loop-line dam is constructed quickly the water supply will not equal half the demand within the next four months. This will be a serious loss to many of the miners now opening out their claims to sluice, as their present work will render their claim sunfit to open out again to work in the old style; therefore the want of water, for even a few days from time to time, means want of employment for probably many men who cannot afford to be idle after so much labour and no immediate returns. Provision for storing more water is therefore urgently required.

*Kapetea Dam.*—The dam was filled and flowing over early in February, and has continued nearly full ever since. A large body of water has on several occasions passed over the weir, which has proved the stability of the work.

With reference to the probable increased demand for water at an early date, I should mention that for the past two months there has been an inordinate desire to secure large claims with a view to sluicing same, and having secured the ground the next step is to apply for water, as it is generally understood the water, when available, will be delivered according to priority of application. The same rule applies to the sludge channel.

Herewith please find tables showing the revenue and expenditure on account of the Waimea-Kumara Races maintained by the Government, from 1st April to 30th September, and from 1st October, 1881, to 31st March, 1882.

I have, &c.,

J. Gow,

Manager.

The Under-Secretary for Gold Fields, Wellington.

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### No. 22.

Mr. DENIS DOYLE, Manager of the Argyle Water-Race, to the UNDER-SECRETARY for GOLD FIELDS  
SIR,—

Charleston, 3rd April, 1882.

I have the honor to report for the past twelve months on the management and progress of the Argyle Water-Race, and new works going on in connection with the same.

On 1st April, 1881, I started with a very fair prospect of good returns for the year, having an income from sales of water of £61 11s. 9d., and expenditure for same month, including manager's salary, £25 19s. 6d. At this time I had the race in good working order, and calculated on having very little outlay for repairs, when unfortunately the dam broke away on the 11th of May, carrying all prospects of returns with it. This has proved a great loss to the people of Charleston, more particularly as the season has been so dry—there has not been any season like it for over eight years, when the dam ran dry, through long drought, and it took eighteen months to get it up again. On the 19th of May I received instructions to build a temporary dam and repair flumes which were carried away, finishing same on the 8th of June.

As the supply races were in very bad repair, I had the parts put in order which were not actually broken down; but, having no material on hand, I could only do some patching with pieces of old slabs, as the boxes were so rotten there could be nothing of any permanency done but get as much water in as possible; by this means I was able to keep a small supply of water in reservoir. On the 23rd of July I received instructions to clear out the foundation of dam wall, which I carried out by putting in a coffer-dam to keep back the water, and four pumps had to be kept working for eight days. On the 27th of August I received instructions to rebuild dam wall up to its original height and extend its base 20 feet wider, making it also 8 feet wider on top, so as to be 12 feet wide; this work I continued until finished, on the 20th of October, making a very strong piece of work, which will last for a long time to come. I had to keep the water down while getting in the foundation, which is 6 feet below sluice. In the course of construction I did not waste any water, but let it run to men using it along the course of race until it ran dry. When I began pumping out the coffer-dam to get at foundation, this was a most difficult piece of work and required a good deal of care until I had the foundation secured, which I had not finished an hour too soon, as it commenced raining while securing lifting gear.

I had several breaks in flumes for August and September months, which I had repaired with as little delay as possible. Since that time I have had several small breaks, but always got them repaired with the labour of myself and a boy, keeping cost down as much as possible, with the exception of a little timber and nails.