St. Bathan's Company's Sludge-channel.

This channel, which seems to have had a varied history, runs from the road-bridge at the township towards and is discharged into the Dunstan Creek. The upper end is in fairly good condition, but here and there the walls require repairing. The lower end is completely blocked with tailings and fine silt, the result of the channel not being confined to its proper course by sufficiently-strong guide-walls. The gaps in the walls allow the waterbourne tailings to escape and spread over the surrounding land to such an extent that new waterways are cut in all directions, leaving the "channel" in many places high and dry. There is a good fall for scour of 25 ft. to the mile. Proper material for the walls is expensive and difficult to obtain, the only scrub to be got for fascine work being what is locally called "matakauri," at best unsuitable for the purpose. The walls were built of stone (round) and sods, and have nothing to bind them in position, and they have no batter. Well-bound fascines should be laid and staked well down, and stone placed at the back and on top.

There is an insufficiency of water to properly scour the channel of *débris* and the gravel and sludge from the daily working of the claims. It appears to be a matter of vital importance to the district. The channel is being maintained by the Channel Company, which has the control of the present head-water, and I am of opinion that if ordinary care had been taken to keep the lower end clear at the junction with the Dunstan Creek no trouble would have occurred. I do not think it can be put in a proper state to do the work required of it under at least £2,000.

It is proposed that the Government shall be asked to grant a subsidy of pound for pound for four years at the rate of £250 per annum, which I recommend for favourable consideration.

Muddy Creek Sludge-channel.

This channel is about four miles in length, discharges into the Manuherikia River, and is badly in want of repairs and training. From the claims down to the Main Road Bridge, about two miles, the first portion (which is deep) is choked up in three several places by the slipping and falling in of the banks. These places require forming and piling with slabs to keep it clear for the use of the tail-races, at a cost of about £500. Timber is expensive, or open culverts would be better and more lasting.

At the Main Road Bridge the road has had to be diverted, on account of the tailings backing the water up the Clear Creek. This place is very inconvenient for crossing at the ford, and, in times of flood, after the melting of the snow, dangerous for road-traffic. Below the bridge to the discharge into the river is about two miles and a quarter. The training-banks on both sides are broken, and the water and tailings run in all directions, filling up the large area on the right bank even to the terraces.

The channel (or what was originally so constructed) in this lower mile is completely blocked, and in many places is actually higher than the surrounding level of tailings. Where the channel discharges into the river there is a heavy accumulation of fine silt, requiring strongly constructed training-walls to free the sludge from above and keep the mouth open. This portion of the channel has been formed in an inexpensive manner, by driving blue-gum posts in double rows and straining fencing-wire from post to post, weaving in and tying thereto matakauri scrub. The posts are not by any means close enough together to stand the weight of tailings and water—hence the gaps and overflows. I consider to put this channel in order £2,000 will be required below the bridge to the junction with the river, and at the junction another £1,000 to free and keep it open into the Manuherikia River—£3,500 in all. A pound-for-pound subsidy is asked for to the extent of £2,000, to extend over four years. I am of opinion, however, that the work has been underestimated. I advised the manager, Mr. Nicholson, who is doing his best with the limited funds and poor material at hand, as to the best method of carrying on the work.

There being nothing in the way of water-conservation in the neighbourhood I went on to Ophir.

Ophir (Black's).

White Horse or Blackstone Hill Water-race.—A private company own a race about ten miles in length, catching the water from the Manuherikia River above the falls, and require to extend it three miles to reach payable ground. The company will hand over the constructed portion and all prior rights to the Government at a price to be settled by arbitration. Claim, fifty-five heads of water. It is reported that the race will command payable ground at Poolburn, about ten miles further on.

On my arrival I met Messrs. Purvis, Neville, and other farmers and miners, who made arrangements to meet and accompany me in an examination of the Poolburn and other gorges and streams in Ida Valley.

Ida Valley.

A long narrow flat valley between the Raggedy Range and the Rough Ridge, draining towards the centre from both ends, from the Idaburn by the north and the Poolburn from the south, the two streams uniting and cutting through a deep gorge in Raggedy Ridge, and running into the Manuherika River. The soil is fertile, and the contour of the country of a similar character to that of the Maniototo Plain, but, in proportion, with a larger extent of flat in the centre.

As before mentioned, the reservoir in the gorge of the Idaburn commands the country over the Poolburn Gorge to the end of the valley for irrigation purposes, and I now purpose to deal with the south end.

Moa Creek.

Here the first place visited was the Moa Creek Gorge, and a site was selected about two miles and a half from and 100 ft. above the opening of the gorge. The reservoir would cover about 25 acres, and command all the highest spurs and terraces on the plain. A rock-dam or weir 45 ft. in height and about 2 chains in length would be wanted, and a head-race in unavoidable rock