

cutting about three miles in length. This reservoir would also command the Hard Hill and other low-level gold-workings. But, unfortunately, like many of these rock-bound gorges, in places it is narrow and deep, with broken almost perpendicular sides, then opens out behind and forms a favourable site for a good reservoir; but the bed of the stream is steep, and the dam requires height to gain any depth of water. Again, the strata of the rock is erratic and shattered, raising doubts as to its capability of retaining water after the dam is built, and, although as a reservoir for storage and distribution it has almost every advantage that could be desired, I fear it would be subject to interior leakage.

*Dam at Woolshed Creek.*

Near and above Mr. Neville's farm on this creek, a small tributary of the Poolburn, there is a good site for a small distributing reservoir for irrigation purposes. It would require an earthen dam about  $3\frac{1}{2}$  chains in length and 12 ft. high from spur to terrace, the material to be got from an interior and projecting spur and a knoll in the centre. It would impound about 10 acres, and command the low levels of the whole of the south-western end of the valley. The creek is small but permanent, running at about two heads at a minimum. It is one of the places I would recommend assistance from the Government on a pound-for-pound subsidy, the farmers giving their own labour and teams and cutting their own races, as suggested on the Maniototo Plain. I do not think the cost in this way would exceed £350 or £400. There are no prior water-rights.

*O'Keefe's.*

A permanent creek running from the Rough Ridge, with a private dam in use and other prior rights. Another small dam in the gorge higher up could be built as a catch-water for conservation during summer months, and would also be of use to miners on the low levels of German Hill. The miners do not object to a dam or weir if the same amount of water they now draw can be guaranteed, with an additional supply from the storage.

I think this is one of the localities where such an arrangement could be made with advantage both to the farmers and miners, and at comparatively small cost to the Government.

*Bread and Water Gully.*

Local miners advocate the erection of a dam which would supply part of German Hill gold-workings and irrigation on the eastern side of the plain, but a suitable site is not obtainable, the gorge being too narrow and steep.

I was shown some coarse gold here just washed out, and the miners speak hopefully of the locality (even expecting a rush) if water can be obtained. This creek runs about six heads, and is well worth conserving for the low levels, both for mining and irrigation.

*Head-waters, Poolburn.*

I heard much of this site from all quarters, as it is well known to command all the high levels of German Hill. It is 1,200 ft. above the "Carriers' Arms," on the margin of the plain, near which mining is carried on.

A rock-bound gorge requiring a dam 3 chains in length and 50 ft. high would throw the water back about a mile and three-quarters, averaging half a mile wide, and roughly 20 ft. in depth. Like the Eweburn Dam at Naseby, however, the site of the foundation is doubtful, and would require trial borings. The creek is permanent, and runs at a minimum in the driest season of about seven heads. For mining purposes it is undoubtedly a good site for a large conservation, on account of its elevation, but, as it commands only the south-eastern side of the valley embracing German Hill and contiguous workings, I do not think, under existing circumstances, a large expenditure justifiable. It is one of those places, looking to the future, however, of the gold-mining industry, that may become a valuable acquisition.

My visit to this site concluded my examination. From the south end of the plain to the Poolburn Gorge there is no indication of sites for water-storage along the Raggedy Ridge, and for irrigation purposes the water will have to be brought round the foot-hills from the eastward. That water is urgently required is beyond doubt. The country is in such a parched condition that even the settlers are obliged to import from Dunedin corn and chaff and roots for their horses and cattle and potatoes for domestic consumption. Cattle have to be driven long distances for water, and, owing to the ravages of the rabbits and the dry season experienced in the summer of 1896, there is little and in the centre of the plain no feed.

Given a nearer market for their disposal, I was seriously assured that farming rabbits would pay better than breeding sheep and cattle.

For localities of dam-sites, see map attached to separate report on the Maniototo Plain and neighbourhood.

MATAKANUI OR "TINKER'S," THOMSON CREEK DAM.

From Ophir I next went to Tinkers, with the intention of inspecting the site of a proposed dam or dams in Thomson's Gorge, and was met by Mr. Shephard, County Chairman. Unfortunately, on my arrival the hills were completely enveloped in mist, which afterwards turned to sleet and rain, and it was considered useless to wait another day on the chance of a personal inspection.

Mr. R. H. Browne, C.E., made the surveys and got out the plans for Mr. John Ewing, of St. Bathans, who kindly forwarded them to me afterwards at Clyde, together with notes on the rainfall, drainage area, holding-capacity, &c. From the notes it appears the rainfall does not exceed 20 in. annually, although Mr. Ewing says, "I have seen streams I estimated at 800 heads coming down the creeks in floods. Such a stream would not continue for more than twenty-four hours, but it would take a week to get down to 100 heads. A rainfall of 5 in. in one week sometimes occurs. I think after such the dam might, if the ground were fairly saturated with water before it came, get half full. . . . The catchment-area is 15,349 acres, mostly steep and rocky, and for six months in the year all moisture falls as snow."