

scattered localities of the auriferous deposits, which, so far as ascertained, seem in most cases to lie in narrow strips in more or less isolated positions. The engineering difficulties with regard to the reservoirs must consequently be serious, and the multiplication of the number of channels or races necessary for the collection and utilisation of the water would make the expense of their survey, construction, and maintenance enormously heavy. While not prepared to advocate any extensive or costly system of water supply, I may state that there are many localities where works of more or less magnitude might be constructed, with a prospect of opening fresh ground and adding to the field of labor open to the miner. Government assistance in this way would best be made available by the advance of money upon the security of the works to companies or associated bodies of miners.

The evidence, it will be seen, to a great extent bears out the views I have expressed, whilst entering into many details not necessarily included in a Report. I may say generally with regard to this district that there undoubtedly exists large areas of auriferous lands which would become remunerative under a larger supply of water, and that there are sources available from which such supply could be obtained; but, owing to the natural features of the country, and the character of the auriferous deposits, the supply of water must of necessity be so divided that the cost of the construction of any complete system would be out of proportion to the result obtained. The works, to be effective of public benefit, would require to be numerous and very costly; and, I believe, would be of less efficacy in encouraging enterprise than the opening up of tracks to the outlying mining localities, many of which have been merely prospected, from the impossibility of communication during a great part of the year, and which would undoubtedly attract and support a large population, were it possible to reach them with horses, and so secure the necessities of life. A modification of the provisions of the Act, such as I have already hinted at, in the direction of extending the application of the subsidy to the particular requirements of each district, would specially suit the circumstances of the Wakatipu.

The Dunstan.

In this district there exist vast areas of known payable auriferous ground, whose only limitation is resultant from the quantity of water that can be brought to bear upon them. The Dunstan Ranges, dividing the Manuherikia basin from that of the Lindis, from the furthestmost spurs of Mount St. Bathans to the Dunstan Gorge—the Carrick Ranges, similar in formation to the Dunstan, and the large area from thence to the Bannockburn River, are all notably auriferous. The banks of the Clutha, so far as they have been tested with the available meagre supply of water, have been found everywhere payable, and present a field for successful enterprise perhaps unequalled in the Province. These, I may say, include the principal ground at present hardly available to the miner for want of water, and capable, with water, of supporting a population of many thousands.

The district, rich as it may be considered in its area of auriferous land, is equally favoured in the number of practicable sources from which water can be obtained. Mr. Pyke, in his evidence, remarks:—“Emerging from the Dunstan Ranges in this direction (towards the Manuherikia) are three considerable streams, the Lauderburn, the Spottsburn, and the Chatto Creek. In neither of these has the full water power been expended; and there yet remains a varying supply of from 20 to 40 sluice heads capable of being diverted to mining purposes. But a larger and more comprehensive scheme than the application of these streams would extend to is necessary, if any solid and permanent benefit is to be conferred upon the gold producing interests of the Province. Through the centre of the Dunstan District sweeps the swift current of the Manuherikia River, having always a considerable fall, and hurrying a large body of water to be mingled with, and lost in, the greater Clutha. I beg to suggest, therefore, that a race to carry as large a body of water as can fairly be diverted, having regard to the interests of the miners and settlers below, might be constructed from a point below the junction of Dunstan Creek with this river. Its course should be toward and along the slope of the ranges at as high a level as engineers may deem attainable, and in its course the surplus waters of the smaller streams named in paragraph 3 could be absorbed as the race passed on.” Upon the Carrick Ranges on the Bannockburn side, as high as the snow line, the water from Coal Creek to the extent of some sixteen sluice heads is available. This for mining purposes represents a very much larger quantity, because the water after passing the claims at the highest level, would be available for parties lower down the range. Mr. Baird, upon this point, remarks (*see evidence*):—“I am quite certain if ten or twelve Government sluice heads of water could be brought in to command this ground, it would afford profitable employment for 400 or 500 miners, in addition to those already employed in the district.”

With regard to the banks of the Clutha, Mr. Pyke's suggestion as to the desirability of trying one of Mr. J. T. Thomson's water-lifting machines is worthy of attention. The only practicable method of working this ground is by means of the water of the river itself; and if so economical a machine as that invented by Mr. Thompson proves capable of doing the calculated work, “mining will be absolutely revolutionised” in the Dunstan, Wakatipu, and Teviot Districts. Appended will be found the paper read by Mr. Thompson at the Otago Institute, which gives a full description of this “simple contrivance for economising the current of large rivers for gold-slucing, town supplies, and mill power.”

I would, therefore, indicate three works which might, with advantage to the public, receive the assistance of the Government in the Dunstan District.

1. A large head race from the Manuherikia River, below the junction of the Dunstan Creek, proceeding along the slope of the range to the Dunstan Gorge. This would be a work of great magnitude, and would take time to complete. It would, however, be utilised all along its course, and would be available for mining almost from its head.
2. A head race from Coal Creek on to the Bannockburn Range. The length of this race would be, at the utmost, 24 miles; and the cost of construction has been variously estimated at from £5,000 to £12,000.
3. The trial upon the banks of the Clutha of one of Thomson's water-lifting machines. This, upon a small scale—say to lift one head of water, might, according to the inventor, be effected for £400.