present water-races, but the quantity of water available in dry weather will be comparatively small. The upper portion of the race is constructed for about seven miles from the head, but a considerable portion of it will have to be widened, and in all likelihood there are places where a flume will have to be substituted in place of ditching, especially where the ditch is constructed in loose ground formerly brought down by slips from the range. On the upper portion of the race there has been a great deal of rock-cutting, and where on the side of the range, or more especially in the gorge, a rough stonewall has been built up on the lower side and the bottom of the ditch tamped with clay. The outside of the ditch has a double stonewall with a bank of tamped clay between. From the appearance of these walls a considerable amount of work will require to be done before the water-race will retain its carrying capacity at the lower end of the seven miles that are constructed.

The water is lifted out of the river at the head of the race by having a stone weir built in the bed of the river to raise the level of the water about 25ft. This weir is constructed of large stones and rocks, which are easily got at this place; but there does not appear to have been a sufficient quantity of small stones and shingle put in front of the wall, as the whole of the water in the river was coming through the bottom of the wall forming the weir. The river is, however, bringing down large quantities of shingle and sand, and this is filling up the dam in the river which was formed by this weir when it was first constructed, and the day is not far distant when, once the stone embankment is again made watertight, the dam will be completely filled up with shingle, and the only danger then will be in heavy floods, should the wall not be of sufficient strength to resist the force of the water flowing over it. The outside of the wall has not sufficient slope to form an apron for the water to rush over it, and it is not sufficiently vertical to allow the water to fall over without striking on the bottom of the wall. It will take the company some trouble before the embankment is made sufficiently watertight to allow the whole of the water in dry weather to be lifted out of the bed of the river.

After the first seven miles of the race is completed, which was partially constructed at the time of my visit, there still remained six miles to construct to get the water to the point where the gold-washing operations will commence. In this distance there are three valleys to cross, requiring siphons of 13 chains, 29 chains, and 63 chains in length respectively. The last siphon will have to cross a gully where there will be pressure on the pipe at the bottom of this gully equal to 325lb. to the square inch. When the water-race is completed the proprietors estimate it will convey ten sluice-heads of water. There is, however, a doubt in my mind whether the race will have this carrying-capacity. This will, however, depend on the fall and the uniformity at which the grade has been carried. The race averages about 2ft. 6in. wide and 1ft. 6in. in depth, with very rough sides. To convey ten sluice-heads it would require a uniform fall equal to about 20ft. per mile, or a gradient of 1 in 264.

Tuapeka.

This was at one time a busy place, when men could be counted by the thousand trying their fortune at gold-digging; but now very little survives to mark sites of the large townships that sprung up within a period of a few weeks, but the remains of the old workings, and even these in many places are so overgrown that one could hardly credit that the place was capable for a length of time of supporting a large population. The original workings in Gabriel's Gully, where very rich deposits of gold were found, have now entirely disappeared. The contents of the gully have been turned over again and again, and now presents a mass of tailings; but even yet some men are making a livelihood at rewashing the tailings and taking up a foot or so of the rock forming the bottom. There is little doubt but the whole of the gold found in Gabriel's Gully came from similar material to that now forming the Blue Spur. Considerable discussion has from time to time taken place as to the source of the material forming the cemented conglomerate of the Blue Spur. Some incline to the belief that the deposit came from the direction of the Tapanui Mountains; whereas Mr. A. McKay, the Mining Geologist, who examined this country, states clearly that the material could not come from this direction, but that, judging from the vast quantity of purple jasperoid boulders there are among the conglomerate, they are more likely to belong to the deep-seated rocks of the crystalline axis running from Lake Wanaka to the Lower Waipori, as these jasperoids have a crystalline structure and abound in magnetite; but, be that as it may, this conglomerate is an extremely old deposit, and has been the result of concentration, and furnished not only Gabriel's Gully with its gold, but also Weatherstone, Waitahuna, and the valley of the Tuapeka, and contributed to the deposits of gold in the valley of the Clutha.

Blue Spur Consolidated Company.—The workings of this company are now entirely confined to the cemented conglomerate, and the returns from this claim for the year ended the 25th February last are very encouraging. The manager of this company deserves the highest praise for the manner in which the operations have been carried on, and the methodical manner in which he keeps a record of his work. It is not only of the greatest service to himself, but it affords valuable information to others who may have to work similar material. Mr. Howard Jackson, the manager, has supplied me with a plan of his workings, showing where the different elevators are placed. Not having visited this locality last year, my remarks are based on information received from the manager of the company. In his memorandum to me he states as follows:—

"For convenience I have divided the mine into three divisions—namely, 1, 2, and 2B. The two latter are worked alternately, and are both served by the highest elevator. The plan shows the position of the mining plant in dealing with the water used. I have taken the total quantities sent in from the reservoirs, which represents the quantity actually used in the works and a small quantity of unavoidable waste. The quantity of cement treated is an estimate, based on the experience of past work, when an actual measurement of the cement was possible. There is no method by which this could be measured with precision under existing conditions. The estimate has been made after careful consideration of all the circumstances connected with the workings.