

Lake Cowal, the Southern from the East Coast to June, and the Northern from the Denison diggings to the Queensland frontier. Each of the Gold Fields in this expanse of territory must necessarily be supplied from the particular source that will admit of the water being provided in the least expensive manner. Where the gold is obtained from deep leads or from quartz reefs, a supply sufficient to carry on "puddling," or crushing operations, can generally be obtained from storage reservoirs of a comparatively inexpensive character. It is only where the gold is obtained by means of ground sluices, and the water itself converted into labour, that a running stream is indispensably necessary to keep up the supply.

Ground sluicing.

114. The ground-sluice is by far the most economical way of working ground, and indeed the only way that will admit of poor alluvial ground being worked at all with any chance of remuneration. When the elevation of the water is sufficient to give a pressure of three or four atmospheres, the miners use hydraulic hoses for washing the ground from the rock and sweeping it away through a tail-race, leaving the gold behind. Mr. Brough Smyth, in his valuable work on the "Gold Fields of Victoria," says—"The miners in the Buckland District rent from the race-owners what is called '*ground sluice-heads*,' and use all the water they can get. The quantities average from 80 to 150 inches, and the miners pay from £2 to £3 per week. The water is gauged generally in accordance with the Beechworth By-laws, and the smallest quantity used at Buckland is equal to two of the sluice-heads allowed by the By-laws." Mr. Peter Wright, Assistant Engineer for Water Supply, and whom Mr. B. Smyth quotes, says—"A ground-sluice will require at least as much water as six box-sluices." This gentleman found that at Allan's Flat, Yackandandah, where water was sold at one-third of a penny per thousand gallons, a yield of four-fifths of a grain per cubic yard would cover expenses. This will show how absolutely necessary it becomes that the miner should be supplied with water at the lowest possible cost to enable him to work with profit to himself and the State the extensive tracts of poor auriferous alluvial now worthless, but which with capital, energy, and skill, might become centres of activity, and sources of wealth to thousands.

Difficulty of obtaining reliable information.

115. In hurriedly visiting a Gold Field for the purpose of taking evidence, your Commissioners had few opportunities afforded them of collecting any reliable data, or by personal observation and inquiry to examine into the various phases that the question of a water supply would naturally present. They could only hear what witnesses had to say on the subject; and these witnesses could give no positive evidence as to the relative heights of different streams, or the quantity of flow, no levels having ever been taken, or trial sections made, to establish the fact.

Supply only to be depended on during the rainy season,

116. Generally speaking, an abundance of water can be had during the rainy season, while in summer the creeks either wholly or partially dry up, or run a few days only after thunder-storms. The great object to be gained is therefore to find a position on the creek where a dam can be constructed at a reasonable expense that will throw the water back over a large area.

Hanging Rock Gold Field.

117. At the Hanging Rock Gold Field we found the water was brought in from the head of the Barwon River, on the other side of the Main Dividing Range. One of these races was twenty miles in length. In this locality we found the old valleys had been protected by trap rock, and doubtless were water supplied at a moderate cost a large quantity of ground would be found payable. The general conformation of the country is favourable to the construction of storage reservoirs at a sufficient height to admit of the hydraulic process being used with effect, and, from the height of some of the banks, this is not only the most economical, but the only safe way of working. This Gold Field is situated on the western slope, and in close proximity to the main Divide. It is about 3,500 feet above the sea-level. Any water supplied to this Field could, after having done its work here, be made available for sluicing purposes at Nundle, and also at Bowling Alley Point.

Alienated lands on Peel River.

118. As a great portion of payable ground at these latter places, on the Peel River, has been alienated from the Crown, we doubt if the Crown Lands alone would pay for any expensive scheme, unless some arrangement could be made for working the private lands at the same time.

Rocky River Gold Field

119. The Rocky River Diggings are also very near the Dividing Range, and consequently have a limited watershed. A considerable quantity of ground exists at this locality that would pay well for ground sluicing, but as the supply is chiefly obtained from catchwater drains along the hill-sides, intercepting the storm water, works of this character can only be carried on during the wet season. It was considered likely by some of the miners we interrogated on the field, that water could be brought on either from the Puddledock, Tilbuster Ponds, or Saumarez Creeks; and were this possible it would prove of incalculable benefit to the residents of this Gold Field.

Gold Fields the Braidwood District.

120. In the Braidwood District your Commissioners were assured that payable sluicing ground extended over thousands of acres at Major's Creek and at Little River. At the former place it was long considered practicable to bring a supply from the Shoalhaven River. From the best information we could obtain this seems very improbable. Mr. W. E. Larmer, the Government Licensed Surveyor, stationed in the Braidwood District, says in his evidence—"That in or about the year 1859, Mr. Surveyor Rowlands took levels from the township of Elrington, or of Major's Creek, to a point of the Shoalhaven River, at Oranmier, about ten miles in nearly a direct line (*i.e.*, the line taken for obtaining the flying levels); he found the level at Oranmier the same as that of a bench mark below the Catholic Chapel at Elrington; he also found that the fall in the river for several miles below Oranmier averaged nine feet in the mile." A race from this point on the river would have to follow the contour of the country, and would probably be from 15 to 20 miles in length, while the smallest allowable gradient would necessarily be 10 feet per mile. It will therefore be seen the water could only be delivered at from 150 to 200 feet below the bench mark at Major's Creek,