

*Cardrona Valley from the Township to Mount Barker.*—A mile below the township the river-bed and bordering flats have an average width of half a mile, perhaps a little more, but the valley itself, between Criffel Face on the south-east and the Mount Cardrona Range on the north-west, has a greatest width of from two and a half to three miles. The river and lower grounds throughout keep to the south-east side along the foot of Criffel Face. On its north-west side the valley is filled by a series of hills reaching to about 2,000ft. above sea-level. These hills are formed of sandstone gravels, and are evidently due to the filling-in of an old lake. These gravels, as has been stated, rise on to Criffel Face to a height of 700ft. to 800ft. above the level of the valley, and on this side they have suffered great disturbance. On the north-west side the beds are resting in a nearly horizontal position, and hence present the appearance of deposits in the Cardrona Valley after it had acquired or assumed its present general outlines. In these sandstone gravels one or two sluicing-claims have been worked on the north-west side of the valley. These are not now being worked. Towards the lower end of the valley there are heavy terraces of schistose shingle resting against the southern spurs of Roy's Range. These are clearly younger than the sandstone gravels on the same side, and further up the valley. It is a curious fact in connection with these sandstone gravels that not only have they been accumulated in a valley where the only rocks *in situ* of such date as could yield them are schist, but also that to the south-west and the north-east the only openings by which foreign material could enter the valley, the deposits, younger or older, as the case may be, are of schistose material.

*Lower Cardrona to its Junction with the Clutha.*—An old moraine, stretching from Mount Iron to the southern end of Roy's Range, lies between the Lower Cardrona and Lake Wanaka at Pembroke; and morainic matter also lies on the right-hand bank at the junction with the Clutha, this latter forming the inner part of the great Wanaka-Hawea moraine which stretches across the valley from the slopes of Mount Criffel to Grandview, on the opposite side of the Clutha. South of the Cardrona, and west of the road to Cromwell, the moraine has been destroyed, and its material reassembled by the action of running water, leaving still at frequent intervals the larger blocks showing through the shingle on the surface of the plain. Under these partly-destroyed moraines, at the junction of the Cardrona, and seen for some distance down the right bank of the Clutha, are beds of clay and sands that, with traces of lignite, should be the continuation of the beds running above the mid slope of Criffel Face.

*North-east Slopes of Mount Criffel.*—At 2,600ft. above the level of the sea, or 1,600ft. above the level of Lake Wanaka, there rests on the slopes of Mount Criffel, and at lower levels, a series of terrace deposits, which lie against the side of the range as far as Frenchman's and Luggate Burn. These gravels clearly indicate the height to which the waters of the old lake at one time stood; and on the track to Mount Criffel Diggings there is a considerable number of dyke-stone boulders which have been derived from Black Peak or Mount Alta. These gravels have been worked for gold at Frenchman's, and thence to Luggate Burn, and the greater part of the gravels worked on Mid Run belong to the same series. The beds here described are in no sense of glacier origin, all glacier-deposits lying at a much lower level; and from this it would appear that the lake-basins were filled with water prior to the advance of the glaciers. At all events, the evidence everywhere is that water reached to a greater elevation than did, whatever its date, the glacier-ice.

*Mount Criffel Diggings.*—On Mount Criffel proper the gold-bearing wash occurs at a height of 3,550ft. above the level of the sea. The wash consists of quartz, sands, and grits, sometimes a moderately fine quartz gravel, but as a rule the material is comparatively fine in grain. Towards the south-west part of the field, west of Luggate Burn, some tributaries of the main creek were very rich in gold. The wash in these was common slaty rubble or mountain-creek wash, and, though part of the gold obtained from this may have been derived directly from the rocks of the vicinity, the great richness, in part, seems to have been due to the destruction of the quartz drifts once present, but of which there now only remains the cement boulders scattered over the surface. These cement boulders are found over the greater part of the Criffel Range and over the flat grounds of the upper part of the Roaring Meg watershed, and indicate the former much larger area over which the quartz gravels were once spread.

The earliest official notice of the Mount Criffel goldfield is to be met with in the Mines Statement by the Minister of Mines, the Hon. W. J. M. Larnach, C.M.G., 24th July, 1885. Referring to Mount Criffel, the Statement proceeds thus: "On arrival at Wanaka or Pembroke I learned during the evening that a discovery, recently announced, of a promising alluvial goldfield had been made near the summit of Mount Pisa, overlooking the Cardrona River, Lakes Wanaka and Hawea, nearly 4,000ft. above the river, distant about nine miles from Pembroke. The diggings are known as 'Criffel.' I determined to visit the locality, and accordingly started next morning on horseback with Mr. Hamer, of the Mines Department, and Messrs. McDougall and Thompson as our guides. After three hours' climbing we reached several of the workings, and found the miners at first disinclined to part with information; however, knowing the general run of their frank and honest dispositions, I interviewed them straightforwardly, and told them the purpose of my visit. We were not long in getting upon good terms with one another, until I was taken from claim to claim, over a distance of nearly two miles, and shown good sized bags of fine gold, the results of a few weeks' work. I learned that there were about fifty miners on the field prospecting, about thirty of whom were on payable gold. One veteran miner, well and favourably known on the southern mines, who has had many ups and downs, and was again on for another 'up,' in reply to my question, 'Are you satisfied with what you are doing?' called his son and told him to 'throw a shovelful of earth into the dish and wash it before Mr. Larnach.' The son did this, showing a result of over 1dwt. of fine gold, which my friend insisted upon my carrying away as a memento of my visit to Criffel. The drawbacks to the progress of the field are want of tracks and water. Up to the time of my visit only water for half an hour's washing per day could be stored during the night previous by damming up a small spring; but an enterprising party—the discoverers, I believe, of the field, Messrs. Wilson and Hollo-