

layers or beds of leaves, trees, and logs of wood which are now turned into lignite, clearly shows that the configuration of the country has greatly changed since the deposit was made, as every place where it is found points to its being in the course of an ancient river or stream; but the question of the locality whence the deposit was carried from cannot be identified, as none of the mountains in the locality contain drift of this character, but it may be presumed that the whole of it has been denuded from the mountains and ground up by the force of currents, causing the particles of material to roll against each other, producing a pulverising action.

CARDRONA AND CRIFFEL.

There has been no new ground discovered in either the vicinity of Cardrona or Criffel during the past year. At the former place there are about eighty miners employed, but the scarcity of water has greatly affected the yield of gold; nevertheless the miners may be said to have made fair wages, the approximate quantity of gold obtained being about 2,500oz. About 1,190 acres have been applied for as dredging claims. Some of these have been prospected with boring-tubes to a small extent, but no actual work has yet been done towards getting dredges on the ground. The Warden reports that, out of the area applied for, seven claims of an aggregate area of 678 acres have not been taken up, and 303 acres are under application for cancellation.

At Criffel the whole of the water-supply brought on to the field is now held by one party, and the number of men is therefore limited to the quantity of water available, the ground being now all worked by hydraulic sluicing. McNab Brothers, and Hawthorne and party, have been very successful this season. Indeed, it may be said that all the men working here last year have done very well. The approximate quantity of gold obtained during last season was about 1,800oz.

ARROW AND MACETOWN.

There are a few parties sluicing on the terraces facing the Arrow River, one of whom brought water on to the terrace on the west side of the Arrow River, below the junction of the Macetown Creek. The water is conveyed across the valley of the Arrow in a siphon of about 9in. in diameter, having a dip in the centre of about 250ft.; this siphon is of considerable length, and caused a large outlay for a private party of miners. The work is well done, and the ground they are now working is said to be paying them well.

Davis and Moody's Claim.—This claim belongs to the same men who have brought in a water-supply from Skipper's Creek to work Burke's and Londonderry Terrace in the Skipper's district. They have a claim embracing $1\frac{1}{2}$ miles of the bed and valley of the Arrow River, commencing from a rocky gorge at a point where a large slip from the side of the steep range has taken place, many years before it was known that gold was to be found in the colony. About three miles above Arrowtown the river-bed is completely filled with large rocks at this point to a depth of 60ft. or 70ft., and now forms a series of falls. At the bottom of these falls a tunnel has been commenced, which is now constructed for 925ft. and is within about 25ft. of being completed. This tunnel is constructed in the solid rock, in the range alongside the bed of the river on the west side; it is 10ft. wide, having vertical walls for 4ft. high and then arched to a further height of 3ft., making the height in the centre 7ft. It is constructed on a gradient of 1 in 24, and the bottom is paved with stone. At every 20ft. a beam of wood, 12in. by 12in., is laid across the tunnel and bolted down to the rock; this is done as a precaution to prevent the stone paving, which is also 12in. deep, being swept out by the force of the water when the river is turned through it. In the event of part of the paving giving way at any time, by this means only 20ft. of paving could be removed if a break took place. When the tunnel is completed to the required distance, two uprisers will be constructed in the solid rock, these will be sufficiently large to have gates placed in each of them 8ft. by 4ft., having a small auxiliary gate of about 2ft. square in the centre of each of the large gates, in order to be able to let out a sufficient quantity of water to make the large gates more easily lifted; the other uprise shaft is to take the water in the river during the time the cutting is being constructed towards the natural bed of the river. When this is done the whole of the drift in the river-bed will be sluiced through the tunnel, and in the event of a flood occurring the gates will be shut down to such an extent as to regulate the quantity of water passing through the tunnel, and the overflow will pass down over the present bed. The upper end of the main tunnel will be about 80ft. below the present bed of the river where the uprisers are made. From this point the river-bed is a great width up to the junction of Soho Creek. This part of the river-bed was tried to be worked in the early days, but the water was too much to contend with. Above and below this the wash-drift in the river contained very rich patches of gold. Mr. Miller, the manager, deserves credit for the manner in which the works have been laid out and constructed, both as regards this claim and the one at Skipper's. The expenditure on the Arrow Claim, up to the time of my visit, was about £2,800, the tunnel being constructed at £2 15s. per foot by contract, and the paving being done on wages.

SHOTOVER AND SKIPPER'S.

The Shotover has been the richest river in the colony for gold, and the whole of the terraces along its valley where there is any wash-drift pay well for working by hydraulic sluicing. During past ages this river has been a main tail-race, where immense slips from the mountain sides have from time to time been washed away, cutting down the bed or channel of the river by slow degrees. This can be clearly seen by the different levels of the terraces. Where some of these terraces are worked the old bed of the river is clearly shown, and proves that at different periods it has changed its course, and in these ancient channels rich auriferous wash-drift is always found.

Davis Brothers' Claim.—This claim is situate on Stoney Creek Terrace, on the western side of the Shotover River, above Maori Point. The depth of wash-drift is about 260ft. A good supply of water has been brought from Stoney Creek, and the head is utilised by leading it down in iron pipes of about 11in. in diameter from near the terminating point of their race. They use a 4in. nozzle, and