

sizes up to masses 2 to 3 tons in weight, and thickly covers the surface over an area of 10 or 12 chains in length, with an average breadth of 4 to 5 chains. The quartz is chiefly, if not wholly, confined to the surface, although masses of the wrecked hill-slope do here and there show portions of reefs held within walls of sandstone and slate rocks identical with the general formation of Kirwan's Hill and the country eastward to Capleston. Towards the lower end of the quartz-covered area, and where the stone was richest in gold, a tunnel has been driven west into the hill, in the hope that by this means solid ground might be entered, and the lode from which the richer quartz has been derived thus discovered. At a distance of 150 ft. from where started the tunnel driven west into the hill failed to reach solid rock, and no reef was discovered; yet, more remarkable, scarcely a fragment of quartz was found more than 3 ft. below the surface in the tunnel workings. At the present time, at the opposite northern end of the field of quartz, a shaft is being sunk to prove the depth to the solid rock, and this shows the same remarkable absence of quartz from all but the very surface of the *débris*-covered mountain-slope. This shaft, when visited, had reached a depth of 35 ft., and had not passed through the broken angular material met with in the tunnel lower down the spur. On the north-eastern part of Kirwan's Hill, and in the ridge thence going east and north-east to connect with Trig Hill there are numerous reefs that strike south-south-east and dip east-north-east at high angles, and thus should pass but a little to the eastward of the field of loose quartz on the northern slope of Kirwan's Hill. It must, however, be noted that on the north and north-north-west higher part of the hill no notable discovery of quartz has been made (none were reported to me), and westward, along the road leading to the upper part of Boatman's Creek and Capleston, in the side-cuttings of the road rarely is a piece of quartz to be seen. All the lodes of quartz found are poor in gold compared with the richer of the loose blocks of the quartz-covered surface on Kirwan's Hill, and some would seek to refer the latter to a distant source, and consider that the lodes and the field of loose quartz on the surface are only in accidental juxtaposition. After due consideration of this matter, I have come to the conclusion that the loose quartz is derived from lodes in the immediate vicinity; and the evidence in support of this conclusion fully bears out the decision arrived at. Wherever matrix adheres to the quartz, this, as forming part of the foot- or hanging-wall of the original lode, is of the same character as the foot- and hanging-walls of the lodes that have been discovered. The quartz also closely agrees with that of the lodes found, and the correspondence is complete in all except the amount of gold which is contained in the loose and solid stone.

"All the rocks of Kirwan's Hill and the adjacent ranges to the north and north-east are slates and sandstones belonging to the Maitai series of the New Zealand Geological Survey classification. Outside there are the Victoria Mountains to the east. The rocks are granites and crystalline schists, and, from the absence of a trace of these on Kirwan's Hill, it is not possible that the loose quartz of the northern slope of Kirwan's Hill could have come from these mountains, nor from an eastward direction; nor could the material of the quartz-field have come from the west without at the same time being accompanied by granite from the lower beds of the coal-measures and dark hornblende diorite from a heavy band of that rock that outcrops on the slope from the higher part of Kirwan's Hill to the source of Boatman's Creek. The rich quartz that is found on the surface of the Lord Brassey Claim has, therefore, in all probability, been derived from a lode not now seen at the surface, and which probably will be found running along the western part of the claim mentioned. More to the westward for a considerable distance there is little indication of the presence of quartz reefs. The whole belongs to the eastern system of quartz lodes found in connection with the Maitai slates that stretch along the east side of the Inangahua and Little Grey Valleys, from the source of the Blackwater in the south to the gorge of Larry's Creek in the north. The slate between the Waitahu and Larry's Creek extends considerably east of the boundary hitherto assigned it, and towards the upper part of Larry's Creek there is a large area over which prospecting might be carried on with a fair show of success."

The following report was made to the Under-Secretary, Mines Department, by the Government Geologist (Mr. A. McKay) on the auriferous character of Boatman's Creek, below Capleston, Inangahua:—

"In accordance with your instructions, dated the 17th December last, in which I was directed to report on the geological features of the valley of Boatman's Creek, between Cronadon and Capleston, I have made the examinations required, and have the honour to submit the following report relating to the district above referred to:—

"Boatman's Creek has been worked for gold from Capleston upwards to the junction of the two main branches of the principal stream, and Little Boatman's Creek has been worked to its source in Specimen Hill. The amount of alluvial gold thus obtained was considerable. The gorge of the creek has been cut many hundred feet into rocks traversed by auriferous quartz lodes, from which much gold has been liberated and carried to various distances down stream. At Capleston the slates and sandstones carrying quartz lodes are overlain by the coal-bearing series, at the base of which are grit and conglomerate beds that are to some extent gold-bearing. At the lower end of the township the coal series is followed by heavy deposits of conglomerate and coarse gravel, locally known as 'Old-man bottom.' These gravels form hills on both sides of the valley to within a short distance of Cronadon, and over a width of from a quarter to half a mile for a depth of 300 ft. to 400 ft. they have been removed in the formation of the valley of the creek. Gold occurs in the lower beds of the 'Old-man bottom,' and again at a horizon some 60 ft. higher in the formation; and farther down the valley, on Boardman's property, a third horizon of gold-bearing wash is found. The recent alluvial deposits along the valley below Capleston should therefore contain gold derived—first, from reefs in the slates and sandstones of the Maitai series; second, from the base of the coal-bearing formation; and third, from two or three horizons in the 'Old-man bottom'; and it is only on account of the wet character of the ground that gold workings have not been essayed in that part of the valley west of where the coal-rocks in the low grounds disappear under the gravels of the 'Old-man bottom.' The question of the auriferous character of the gravels constituting the 'Old-man bottom' has been