

distance below the crossing this stream enters a gorge about two miles long. The river being very low we got into the gorge a short distance from its head, and travelled down for about a mile, but we found it a most difficult matter to get out after we had got well in. Geologically speaking this is a very interesting bit of country, the river having cut clean through the formation (a strong conglomerate) to the depth of 200 feet, in places forming perpendicular walls on either side, while the centre is filled in with immense masses of broken fragments lying in every conceivable position, with the river foaming and whirling between and below, making travelling rather dangerous, and causing my companions to use some rather strong colonial expressions at times. The conglomerates are cut clean through, the older slates showing in the bed of the river, and the walls showing a fine section of the stratification of the deposit. Towards evening we got out of it and camped for the night on the break of the terrace following into the main valley. On the evening of the 26th, having passed the junction of the left-hand branch with the main stream, we camped near the middle of the valley, about nine miles from the sea. From this camp we traversed the valley in various directions, sending two men across the flats below the camp on the south side. I crossed the river (which is easily fordable at this season of the year), taking two men with me, and struck across the low scrub that fringes the river bank, coming out on to what we supposed to be fine open grassy flats. I was very much disappointed to find most of the land swampy and the grass to be a sort of rushes; and only that it was frozen over at the time it would be difficult travelling over it, as we found on our return, when the sun had partially thawed it. The river, when in high flood, evidently floods this part of the valley; and the soil, where seen on the banks of the river, consists of a heavy deposit of peat with a little soil on top. On striking the big timber I pushed on for the top of the Cascade plateau, so that I might obtain a view of the valley. This we reached about noon, and from this point I had a good sight of the whole of the lower reach of the valley, which I estimate to be about fifteen miles long, and in places from eight to nine wide. The general trend of the river is about N. 10 W., and for the next twenty miles its course is N. 20 E. The upper reach, into which I did not penetrate, follows a N.W. course extending down behind Barn Bay. A strip of rushy swamp can be traced all the way along the back of the terrace that separates the Bay from the flat; but from subsequent examination I find that a large amount of fine land is available in this direction.

The upper part of the first fifteen miles is not of much value, it being too much cut up by the river beds and back channels, and the land to the north being swampy, only small patches of good land occurring here and there. The top of the plateau, besides being difficult of access, will be of little value for grazing purposes; although from a distance it looks smooth and level, yet, when on it, it presents a somewhat different aspect, being cut up with narrow rugged gullies which traverse the plateau in a lateral direction, rendering it of little value. On reaching the camp at night, I found that my men had met with better country than I had. The line they traversed was very good and dry, covered with mik-a-mik scrub, cabbage palms, ribbon-wood, and vines, making travelling tedious, but land that can be easily cleared; while farther down the valley, in various directions we turned, I found a very large extent of fine dry land. I calculate that from 25,000 to 30,000 acres of really good land is available for settlement in this block, and, as a large percentage of it is covered with this mik-a-mik scrub, it will be easily cleared. The big timber is mostly confined to the foot of the ranges, and amongst this there is a good deal of cattle-feed, the bush being very open. The whole of the land of any value in this valley is within eight or nine miles of the sea, and is nearly all on the south side of the river, forming a very compact and valuable block of land. It is well sheltered from the cold south winds by the high range out of which the River Hope takes its rise. The difference in the quality of the soil on the south side of the valley may be accounted for in this way: the ranges to the south are composed of sandstone and slate, upon which the work of disintegration is going on very rapidly, thereby supplying material for soil; while, on the other hand, the Cascade plateau is partly composed of a very hard crystalline greenstone rock, upon which the atmosphere seems to have very little effect; hence the continuance of the peat and swamp formation all along the base of the plateau, whilst the opposite side of the valley has filled up, and is now good sound soil. I did not get down to the mouth of the river, but, from what I have heard from other sources, I think the entrance is not so bad as it looks from the outside, and could be easily worked by small vessels. Barn Bay, being also a fair harbour, should settlement go on at this point, it could be much easier and more economically worked by sea than by land—that is, if we obtain the kind of vessel we require for the use of the settlement. The road up the Jackson and through to Big and Martin's Bays would no doubt open up this valley, but for some time it can be attended to by sea. After leaving the lower end of the valley, I followed the river up to opposite the saddle taking into Big Bay. The river in this reach skirts the base of a remarkable igneous formation, running nearly north and south, consisting of a series of bald red hills, erroneously reported as sandstone. From one of the peaks of this range, height 3,700 feet, I had a good view of the country, being able to trace the course of this narrow belt (which is only from one to three miles wide) a long distance into Otago. The day being very clear, I took the bearings of Mount Aspiring, and the most prominent points on the coast line. Specimens of minerals found in this formation I have forwarded to Wellington for analysis, and by first opportunity duplicate will be forwarded to your office at Hokitika. As it may be of use in connection with the development of the mineral lodes of this district, I am forwarding a short report to Wellington on the geological features of the valley, so that the relative position of the auriferous and other mineral lodes of Otago may be noted in relation to this narrow belt of igneous rock—that is, if the geologists of Otago have not already done so. Valuable information may thus be obtained, that would be of great use in searching for minerals on this side of the country. I reached about ten miles higher up than this point where we were camped, at a fine waterfall at the head of a gorge about two miles long, the river having cut through one of the spurs or terraces that cross the valley at different points. Here the weather began to show signs of a change, and not considering it prudent to be caught by wet weather in a bad gorge, and our provisions being pretty well expended, I decided to return. Big Bay can be reached very easily by this route in three days. There is no difficulty in the way of making a good track right through, should it be found necessary to do so. The rivers are easily fordable in ordinary weather, and the