

sea beach. The number of readings taken altogether was very large, so as to embrace every considerable inequality of ground, and to enable approximate sections to be made in any direction from the map alone."

"4. In the north and west the ground is covered with bush, some of it very dense, interposing so many obstacles to a feature survey, that I had to be content with less minuteness, or the time occupied would have been very great. I therefore cut lines along all the main ridges and creek beds, and sketched in the minor features. I travelled over so much of the ground, however, that I do not think that this part of the map will be much out."

"5. The survey has occupied considerably more time than was anticipated, owing to the extremely cut up nature of the country, the ridges and gullies being so numerous and irregular, and the latter so deep, that at least twice the amount of traverse lines that I expected had to be run, to attain anything like exactness, and nine trig. stations had also to be put up. To have attempted to do the work in any more rapid fashion would only have had two alternative results, viz., either to sacrifice accuracy or to consume more time eventually in having to go over portions a second time, to correct errors or omissions (the latter being the besetting weakness of this sort of survey) which would inevitably appear on plotting. At the same time, the nature of the country and of the work done, I think the cost will be considered very moderate, being on the average 1s. 3d. per acre, including maps and all other expenses."

"6. The same seam of coal, from 10 feet to 20 feet in thickness, and lying at an easy angle, appears to extend throughout almost the whole of the area surveyed. It is reduced in height by successive steps of faults from near the summit of Mount Frederick (3,600 feet) to about 300 feet above the sea level, and at the Albion Company's Mine to a level with or under the sea. It all appears to be of the same quality, the only difficulty in the way of an enormous export of coal from this locality being the carriage of it to the railway. There is also a large area of coal to the south, between the present survey and the Waimangaroa; in fact, joining on to the two surveys."

"*Orikaka Saddle*.—It was my intention, as instructed, on completion of the above-mentioned part of the survey of the Buller Coal Field, to have gone across from Mount Frederick plateau to the Orikaka River, ascertaining the height of the saddle between the head of it and an adjoining tributary of the Ngakawau; and thence proceed across the flattish country at the head of the Ngakawau to the watershed of the Mokihinui, with a view of ascertaining the qualifications of this route for a road or railway. I performed the first part of the journey, but found it impracticable to reach the Mokihinui with the provisions I had with me, and during the short days of June. What I saw, however, impressed me favourably. The country about the said tributary of the Ngakawau is mostly flat, and a considerable area of it (some 2,000 acres, at a guess) is open land, with fertile soil. I have been informed by diggers that there is a good deal of similar ground down the Orikaka. With regard to the country northward to the Mokihinui, all I can at present say is, that, viewed from a distance, the ground appears nearly flat right through, and not to rise much, if any, higher than the saddle between the Orikaka and the Ngakawau, or rather between two tributaries of these rivers, which I made with the aneroid to be about feet. I found a good seam of coal in the Ngakawau side of the said saddle. About 6 feet in thickness was visible, but it might be considerably more. It looked steady, and had a slight dip to the east. My impression is that a railway made here would open up a large area of coal, which will otherwise never pay to work for export."

Grey Coal Field.

The geological relations of this coal field have been worked during the past season and will be described elsewhere. The only circumstance to be reported at present is the successful opening of the Greymouth Coal Company's mine on the south side of the river, for the purpose of working the one marked "Workable Coal," on my plan dated April 7th, 1873. (See Parliamentary Papers.) The works are being executed under the management of Mr. Simpson, and are progressing satisfactorily. I am informed that the shaft is a circular one, 10 feet in diameter. From the surface to the coal is 80 feet, 60 feet of which is in sandstone and the remainder in surface soil. The upper part of the shaft is strongly timbered, but is intended ultimately to be brick-lined. The coal is 14 feet thick, and rests upon fireclay: it is bright and of good quality. In a preliminary bore, undertaken by the Company in a position more to the dip of the coal, it was found to be 17 feet thick at a depth of 220 feet from the surface.

Miscellaneous.

A small expenditure has been incurred for opening up a coal seam at Richmond, near Nelson. It has been shown to be of good quality, though much crushed and broken when laid open. An interesting point about this coal is that a coach-builder in Nelson uses black paint made from it. Thin seams of good coal have also been discovered, by the offer of a bonus, near Bruce Bay, in Westland, but their value has not yet been ascertained.

The following schedule gives an abstract of the composition of the coals from different parts of the colony which have been analyzed during the past year.

20th July, 1874.

JAMES HECTOR.