

It will be observed that the composition of this coal is very different from that found towards the base of the formation at the Brunner mine, which contains 64 to 68 per cent. of fixed carbon. I mention this fact as it has been supposed by some persons that the seam on the coast is a continuation of that which is worked at the mine.

Mount Rochfort Coal Field.

During the past summer my attention has been mainly directed to the discovery of coal mines within easy reach of Westport.

The coal formation of this area was, previously to my former examination of it in 1867, surveyed and reported on by the late Mr. James Burnett, whose excellent plans were placed at my disposal by his Honor the Superintendent of Nelson.

This coal field may be described, in general terms, as occupying an undulating plateau, or flat upland valley, the western termination of which overhangs the coast, having an elevation of from 1,500 to 2,500 feet near the Buller, while in the other direction it slopes to the north-east, and descends to the sea-level at the Mokihinui.

Viewed from the sea coast the coal formation is seen to commence at Mount Rochfort, which presents a cliff of conglomerate, 700 feet high, three miles inland, facing the south. From this point northward there is a dip in the level, in the centre of which is the deeply cut gorge of the Waimungaroa, but the plateau surface does not reach lower than 1,500 feet above the sea. The formation again rises, behind and to the eastward of Mount Frederic, to 2,800 feet, and dips again to the Ngakawau, when the plateau surface is only 1,000 feet above the sea. A long ridge of granite then extends to the Mokihinui, beyond which the coast is formed by the upper marine formations. The general features of this district are shown in the attached plan and sections.

Many outcrops of a seam of hard, pure coal, from 8 feet to 16 feet in thickness, have been discovered on this plateau, but all at such an elevation as to require engineering works of a costly nature to reach them. A search has therefore been made, with a view of finding a seam in a more accessible position, and with this object the lower gorge of the Buller River, where it cuts its way round the south end of the plateau, was examined, as it has very naturally been supposed that the coal seams might be there found at a lower level and in an available position.

Lower Buller Gorge.

This gorge commences nine miles from the mouth of the river, and for five miles the hills on both sides are formed of granite.

Towards the south, in the direction of Mount Rochfort, the granite spurs rise to the height of at least 1,500 feet above the river; the coal formation lying on the top of this range and five miles back from the river.

The valleys in that direction are extremely narrow and rugged, and offer no favourable line of access to the plateau.

In ascending the river, the granite is succeeded, after a narrow band of mica schist, by a massive conglomerate and breccia formation, forming hills 1,400 feet high, the spurs of which are equally inaccessible with those of the granite formation, and terminating frequently perpendicularly towards the river, so that at one place, called the Hawk Crag, it has been necessary to cut the horse track like a half section of a tunnel, along the face of the precipice. This great conglomerate, which is quite a local formation, without parallel in any other part of the district, crosses the valley from north to south, and rests unconformably on the coal-bearing strata, which commence just before reaching the Blackwater and continue to Granger Point, where the valley opens out for some distance; and the overlying marine formations, which run in a north line from the Inangahua Junction to the coast at the White Bluff, north of the Mokihinui River, commence to form lofty mural bluffs of chalk, marl, and tabular limestone.

In the lower part of the coal formation at this place, only obscure fossil plants and thin seams of coal were found; but in the higher part of the section, and overlying the conglomerates, the seam of coal occurs that was referred to by Mr. E. J. O'Connor, M.H.R., in his evidence before the Select Committee on Colonial Industries (Parliamentary Paper, H. 7, 1871, p. 17). This seam is exposed in several places in Coal Creek, a tributary of the Buller from the south. The coal, which is compact brown coal, containing masses of fossil resin, is at least 16 feet thick, and dips to the south-east at 10°, under a compact brown micaceous sandstone that contains leaf impressions. Its composition, from several analyses that have been made in the laboratory, is as follows:—

Fixed carbon	...	...	...	...	...	41.94	50.80
Gaseous matter	...	...	...	...	...	36.97	25.54
Water	...	...	...	...	...	13.93	16.46
Ash	...	...	...	...	...	7.16	7.20
						100.00	100.00

It is compact, hard, with a dull lustre, and is very different in appearance from that found in the plateau, being, in fact, a brown coal, containing an unusually high percentage of fixed carbon, but still containing too much water to be employed for sea-going steamers. This coal will not, therefore, justify any large expenditure for the purpose of taking it to Westport, and even were it equal in quality to that found on Mount Rochfort, I doubt if it would pay, at the present time, to construct a railway line through the gorge for such a purpose; while, on the other hand, the great risk of running the rapids with heavily laden boats will prevent any large quantity being conveyed by water carriage even as a return cargo by the barges that at present take the goods up country.

In the valley of the Inangahua, coal occurs at several places, the sandstone formation crossing the river seven miles from its junction with the Buller. At this point there is a seam of pitch coal the thickness of which was not ascertained, and the same seam appears again to rise towards the east from beneath the marl stones on the creek. The coal seam on Murray Creek deserves mention, although the locality is too far inland to allow of the coal being available for other than local use at the present