

The coal from Waikawa has been analysed, and the analyses are published in the Appendix to the Jurors' Reports and Awards of the New Zealand Exhibition, 1865, p. 441; and in Dr. Hector's first General Report on the Coal Deposits of New Zealand, p. 33; and the Third Annual Report on the Colonial Museum and Laboratory, p. 20. Other information can also be obtained from these publications.

The remarks that I have already made about prospecting the Hokanui Hills for coal are equally applicable to the country about Waikawa; and I would therefore recommend that a reward be offered for the discovery of a payable seam in this district also.

2. *Mount Hamilton District.*—This district is confined to a small portion of Mount Hamilton, which forms the north-east end of the Takitimu Mountains. The coal seams are thin, and of very limited extent. The thickest seam that I could find was only 10 inches of good coal, with shales above and below it, the whole overlaid by yellow sandstone, dipping 30° W.N.W. More to the west, a few very thin seams of coal are seen interbedded with the yellow sandstones, which dip in this place 25° S.E.

The height of this coal field is 2,500 feet above the level of the flats at the base of the mountain, or about 3,300 feet above the sea. The position, therefore, as well as the thinness of the seams, and the limited area of the field, put the practicability of working it quite out of the question; the coal however is black, bituminous, and of excellent quality.

3. *Wairaki District.*—This district skirts along the southern base of the Takitimu Mountains and Wairaki Hills, from Taylor's Creek on the west as far as the alluvial plain of the Jacob's River on the east, a distance of about eighteen miles. Near the Jacob's River it has a breadth north and south of about three miles, which gradually diminishes westward; thus forming a triangle, the apex of which is at Taylor's Creek, and the base at the southern spur from Mount Beaumont, called the Nightcap. This will give an area of about twenty-one square miles.

The coal in this district is quite similar in appearance to that worked in the Waikato, and is what is generally called a "brown coal." As, however, this name has been often employed for compact varieties of lignite, it would, I think, be preferable to use the name "pitch coal" for this class of coal, which may be distinguished from the lignites by never containing any trace of wood-like structure, by its pitch-black colour, and by its waxy lustre. This is the name used by Dr. Percy (*Metallurgy*, p. 85), who considers it as the best variety of brown coal or lignite. This coal, although inferior in heating power to the true black coals, will be found very useful for all household purposes, as well as for stationary engines. It is largely used by the steamers on the Waikato River, with satisfactory results, and I have no doubt but that it would answer for locomotives also.

Analyses of this coal from Morely Creek will be found in the Appendix to the Jurors' Reports and Awards, New Zealand Exhibition, 1865, p. 441, No. 11; and also in the Third Annual Report of the Colonial Museum and Laboratory, p. 20, where the analyses from Taylor's Creek, Reinecker's Run, Howell and Steven's Run, Holt's Run, and probably from Aparima, are all from this district.

At Taylor's Creek a section is opened just on the edge of the basin, and a seam of coal 5 feet thick is seen to rest on the edges of slates and sandstones. The coal is here covered with shales and micaceous sandstone, the whole dipping 20° south-west. Following down the creek, more black shales are seen to overlie the micaceous sandstone. These probably indicate the presence of a second seam of coal, but the section stops suddenly. As the section here is evidently quite on the edge of the basin, the seam of coal may get thicker in a south-westerly direction. At Linton, two seams are distinctly seen dipping 25° S.S.W., but the thickness of neither of these has been ascertained.

In a cliff on the right bank of the Morely Creek, the following section is displayed:—

Yellow sandstone	...	...	...	...	...	...	...	20+
Blue marl	...	...	...	...	...	...	...	20
Coal	...	...	...	...	...	...	...	3
Shale	...	...	...	...	...	...	...	1
Coal	...	...	...	...	...	...	...	2
Shale	...	...	...	...	...	...	...	12
Coal	...	...	...	...	...	...	...	2
Shale	...	...	...	...	...	...	...	10+
								70+

The whole dipping 25° W. by S.

Higher up the Morely Creek, at Messrs. Reinecker's and Hunter's Station, the coal has been opened up in several places. The thickness, as ascertained close to the home station, was 10 feet, and the dip 25° S.W.

The nearest place to the railway at which the coal has been found as yet is on the west side of the Nightcap Hills; it has not, however, been opened up sufficiently to ascertain either its dip or thickness.

A tolerably approximate estimate of the quantity of coal in this field cannot be given without a great deal more data to go upon, on account of the variation in the dip and thickness of the seams; and the expense attending the obtaining of such data would be far more than it would be worth, for it can already be safely stated that the coal exists in sufficient quantity to justify a large mine being opened in it.

The nearest place to Winton at which this coal is likely to be found is on the eastern slopes of the Nightcap Hills, from which point a railway of eighteen miles in length would reach Winton over quite level ground.

The way to proceed in order to find the coal on the eastern slopes of these hills is, first to open out the known outcrop on the western side, and obtain as accurately as possible the direction of the strike of the seam; this is of course at right angles to the dip. A line should then be run with a level over the hills in the direction of the strike, until the same level is reached on the eastern side as the known outcrop on the western side; a few feet above this point a bore should be put down, and if it