

Cheshire, Derbyshire, and Staffordshire, in England, during a period of about thirty years, I consider that the coal should not be very deep, even in the centres of the basin.

Bearing.—The bearing of the seam is about north-west and south-east, and the dip about north-east; this is proved by the outcrop of coal on Mr. Fooke's property, at a distance of about six miles.

Quality.—The coal is very good at the outcrop, being much better than I expected at the surface, and will no doubt improve in quality and thickness as it goes down. The seam at the point from which the present sample is taken is about 10 feet in thickness; it is more than usually strong and compact at the outcrop, and in comparison with the Kawa Kawa coal is much superior to it, as taken from the present workings, at a depth of 128 feet. The coal is similar to the Wishaw coal of Scotland, and the Glanz-kohle of Germany, and contains about 75 per cent. of combustible matter. The amount of sulphur contained in this coal being very small makes it very suitable for smelting and engine purposes, and it will also be valuable as a good household coal.

Fireclay.—There is a layer of fireclay next the foot-wall of the coal seam, but not having been penetrated cannot at present say what thickness it may be.

Ironstone.—Ironstone has been found on the surface, and from tests yields about 50 per cent. of iron; and there can scarcely be a doubt but that iron band will be found overlapping the coal measures.

Limestone.—Limestone is found on the surface of the blocks, and is apparently in large quantities; a valuable flux for the iron is thus at hand, and it will also be available for building and agricultural purposes.

Timber.—The block is well-timbered with kauri, totara, and other useful trees, extending to some hundreds of acres.

Quality of Land.—The land, except where marked on the plan as hilly, is of fair average quality, and will be available for agricultural purposes—the swampy parts, being easily drained, will form the richest portion.

Flax.—There is an extensive flax field on the ground. The flax is of the finest quality.

Water Power.—The Mangatangi, a valuable stream, runs across the Company's land, having a considerable declivity, and estimate that in the dry season there is a body of water flowing of about fifteen millions of gallons per diem.

Further Purchases.—I would recommend that the land intervening between the present southern boundary of the Company's land and the Government road, from near the Esk Redoubt to the Surrey Redoubt, be purchased, and am sure, if my suggestion is followed, the Company will acquire in it a valuable addition to their present property, being directly on the dip of the coal seam, besides giving a road boundary to the block.

Railway.—The railway will be of easy formation, and I estimate that a single line of rails, of a 3 feet 6 inch gauge, with rails 30 lbs. to the yard, can be constructed at a cost of about £2,500 sterling per mile, including rolling stock. A great part of the work will be in the trestle work required for crossing the swamp between the high ground and the mouth of the Pukorokoro Creek; at present, however, I am not prepared to give a correct estimate of the cost of the line. An extension of the mine to the Whangamarino Creek, a distance of about eight miles, over easy country, would bring the whole of the Upper Waikato District in direct communication with the Thames Gold Fields—a large market for all kinds of produce.

Wharekawa, 8th July, 1872.

JNO. LOWE, C.E.

ENGINEER'S REPORT No. 2.

Wharekawa Mineral Railway.

HAVING now completed the field work, and partly compiled the plan, &c., of railway from the proposed shaft of the mine to a point on the beach suitable for shipping the coal, my attention was drawn to three places as being likely for purposes of shipment—namely, Pukorokoro Creek, Porter's Creek, and Smith's Point.

I have surveyed the line to each of the above-mentioned points, and will in due course forward the plans, sections, and estimates, leaving the Company to choose the most serviceable route.

Subjoined are a few remarks on the different routes, which meantime may be useful to the Company.

Pukorokoro Creek Route.—This line has been surveyed and staked out at every chain, and would be 9 miles and 50 chains in length. It will be seen from the list of gradients annexed, that they are all at a fair and easily-worked inclination. There are no objectionable curves, the quickest being 6 chains radius. I may state in regard to this, that on the extension to deep water of the Kawa Kawa Coal Company's Railway, which I surveyed and staked out for the General Government, curves of 4 and 5 chains are used; and Sir Charles Fox and Sons, on the light 3 feet 6 inch gauge railways in Canada, Queensland, and Norway, used curves of 5½ chains radius.

As to Pukorokoro Creek, there are 7 feet of water on the bar at high water at ordinary tides, but this passed, the creek itself is from 1 to 2 feet deeper, as per soundings; and there can be no doubt that, from the soft muddy character of the bottom, steamer traffic would gradually deepen the channel and entrance. The creek is deep enough for, and is entered by, vessels engaged in the coasting trade. Any vessels lying where the wharf would have to be erected are completely sheltered by the outer bank from any storms.

Porter's Creek Route.—This route diverges from the other line at stake marked 7 miles 14 chains, and from thence would be 2 miles 5 chains to terminus, making in all, if adopted, 9 miles 19 chains from the mine. The first portion of this line after the divergence would be costly, as 50 chains of this length is across a swamp about 9 feet deep. The remaining portion of the line, however, is similar to the Pukorokoro Creek route. This line, though shorter, would cost considerably more than the other. The creek itself has only 5 feet of water on the bar, also inside the point of the outer bank at high water of ordinary tides. A decided objection to this creek is that the outer shingle bank is moving