

Quantity Available.

The second consideration—viz., extent of beds above water line of drainage channels—judging only from our present experience, is not so favourable near the Hawkins as in some other localities.

The hill sides, rising about 200 feet above the Hawkins, consist mostly of post-pliocene alluvium, so as to leave only a small portion of the coal beds level free. Of course, I only speak of the indications the former and present workings have afforded me; and it may be possible that if the drives are continued further into the hill the coal beds may rise so as nearly to reach the surface, and thus give us an altitude of nearly 200 feet, throughout which, of course, a larger quantity of coal for extraction would be available than we can expect at present, reasoning from the data before us.

The last locality under consideration is the Selwyn, where, in the Surveyor's Gully, one of its small tributaries, and close to the Canterbury Plains, seams of very good brown coal, about three yards in thickness, can be easily worked, and appear to be of quality superior to any other of the same beds, both north and south. Moreover, the quantity that can be obtained level free, according to my calculations, is about 3,000,000 tons in that neighbourhood. Thus, if no other considerations were to be taken into account, the Selwyn brown-coal beds would, taken by themselves, offer the greatest advantage, both to the coal miner and to the public; but the existence of the second series (altered coal in isolated outliers, owing their preservation to the action of igneous rocks near them) must not be overlooked, as they will also afford coal of a superior quality, in more or less quantity, according to the size of the outliers.

The alteration of the brown coal, as shown in my report, has been of various degrees of intensity, according to the thickness, number, and size of the dolerite dykes and streams which are associated with it.

The coal beds in the Big Ben outlier are the least affected, still possessing the character of a true but excellent brown coal, whilst the seams in the Acheron assume quite an anthracitic nature.

The beds in the Kowai and the Upper Selwyn assume an intermediate structure resembling European and Australian coal of carboniferous age. Of the isolated patches, the easiest of access, that of the Selwyn above Mount Misery, first claims our attention. It is the largest in size, has in its north-east corner been worked by Mr. M. B. Hart for the last few years, and now towards the centre Mr. H. P. Hill is just sinking a shaft for mining purposes on a large scale. From a calculation of the approximate area over which mining could be carried on with advantage in that locality, it appears that at least 1,500,000 tons of altered coal for household and steam purposes would be available, always assuming that the disturbance in the beds is not greater than the result of previous examinations would suggest to have taken place.

Line of Communication.

Considering, therefore, that the most valuable portion of the unaltered and altered brown-coal beds occur on and near the banks of the Selwyn, a railway constructed from the Rolleston Station on the Southern Railway line to the junction of the Surveyor's Gully with the Selwyn, would bring us to a central spot, whence the brown-coal seams of the Surveyor's Gully, and on the banks of the Selwyn, as well as the altered beds on which Mr. Hart's and Mr. Hill's mines are situated, could be reached by a tramway. This line would have many advantages, as it would pass over the waste lands of the Crown all the way, and thus could be cheaply constructed, whilst, at the same time, excellent land would become opened for selection all along the line and its neighbourhood. Moreover, a still larger amount of land could be made available by means of improving it by irrigation, for which the levels of the country and the existence of the debouchures of such rivers as the Hawkins, Wai-ani-ani-wha, and Selwyn into the plains, would offer peculiar facilities.

I wish also to draw attention to the central position of the terminus of such a line being easily accessible to the inhabitants of the Hororata and Upper Rakaia, as well as to those of the Hawkins and the Upper Waimakariri; and, if necessary, branch lines could be constructed in both directions in years to come from such a central locality.

There would be also another way by which Russell's Flat and the Kowhai (West Coast Road) could be reached—viz., by continuing the line up the Selwyn as far as Hart's Flat, then across the low saddle to Russell's Flat, and so on to the Kowhai, by which all the level country in that direction would have direct communication with Lyttelton and the other centres of population along the line, and by which also the timbered country of the Kowhai could be brought within reach. Another way for continuing the line would be to skirt the Malvern Hills from the central station, near the Selwyn, below the junction of the Surveyor's Gully, so as to reach Mr. Jebson's Coal Mines, and so on to the Kowhai. By these proposed lines, an easy market might be gained for the coal deposits and other natural products of the Malvern Hills for the benefit of the country.

JULIUS HAAST.

No. 10.

Dr. HECTOR to the UNDER SECRETARY, Public Works.

(No. 61-71.)

SIR,—

Geological Survey Office, Wellington, 17th June, 1872.

I have the honor to forward a preliminary report by Dr. Haast on the Survey of the Coal Deposits in the Ashburton District and Clent Hills of the Province of Canterbury, which has been made in accordance with a suggestion in my Memorandum of the 12th December last.

I have, &c.

The Under Secretary for Public Works.

JAMES HECTOR.