

source at Barefell's Pass. The saddle at this Pass is very high, requiring either a tunnel or steep grades on either side, until it reaches the junction of another line, as shown upon the sketch map. This alternative line is condemned owing to the reasons just mentioned.

Reverting to the junction of the Acheron with the Guide River, the more preferable line continues up the valley of the Acheron, with a branch or connecting line, through Traveller's Valley, to Tarndale (which will be again alluded to), and another alternative line over Saxton's Pass.

The route over Ward's Pass has been preferred, the saddle being somewhat lower and the route two miles shorter than the other by way of Saxton's Pass. The line, leaving Ward's Pass, now traverses the valley of the Awatere River as far as a point opposite to Dashwood's Pass, over which it passes with a tolerable grade, and sweeping round the base of a cluster of hills to the Town of Blenheim.

An alternative line was examined over Taylor's Pass, but was condemned owing to the steepness of the grades on either side of the saddle, and the rugged nature of the ground on the northern side.

Another alternative line is shown upon the sketch map. Leaving the valley of the Awatere River, and following the upward course of the Grey River to its source at the Avon Pass; thence down the valley of the Avon River to its junction with the Waipoi River; thence along the downward course of this river to Blenheim. This line has been condemned in consequence of the rough nature of the ground along the Grey River, and the extreme height of the Avon Pass, through which a tunnel would be indispensable and of considerable length, to ease the grades on either side.

Reverting again to the main line, the general course and character of which was preferred to that of No. 1, by reason of its passing through a better country in every respect, and particularly as containing a considerable acreage of land that could be brought under cultivation, more especially in the lower part of the valley of the Awatere River.

However, it is far too rough, generally speaking, and unproductive for a line of railway ever to be constructed along this route; nor was it viewed in anything like a favourable light by the late Engineer-in-Chief. But I may here mention that, in his opinion, a combination of these two lines, that is, Nos. 1 and 2, would be the more preferable, as follows, namely: commencing at the junction of the Rivers Wairau, Hanmer, and Percival; thence over Jollie's Pass into the valleys of the Clarence and Acheron Rivers to the junction of the last-named river with that of the Severn; and, instead of proceeding over Ward's Pass, he preferred the route *viâ* the Traveller's Valley to Tarndale, thence by the valley of the Wairau to Blenheim.

The choice of this route was in consequence of the easier nature of the grades, whereby the grade over Ward's Pass of 1 in 15 was avoided; but, when the line *viâ* the Waiau and Kaikoura Townships and the East Coast was examined and reported upon, a further preference to it was given over all the others.

*Line No. 3.*—As that portion of the extension of the main trunk line northwards, namely, from Amberley to Waikari, is being located, and will, I presume, soon be under construction, we must consider this line as commencing from the latter place.

From the station, therefore, at Waikari, the line proceeds in the direction of the Hurunui Township, crossing the river of that name a short distance north of the site of the present bridge. After crossing the Hurunui River it traverses the Hurunui and Waiau Plains in a straight direction and over gently-undulating ground the whole way to the crossing of the Waiau River from the Waiau Township, which is situated on the eastern side of the river; the line continues along the south side of the Mason River, which it crosses about two miles from the township; and thence proceeds over a flat but rather high terrace for about three miles, when it crosses the Lottery River, and after a short distance it enters the valley of the Wandell, a small but tortuous river. Here the Sherwood Forest commences, the line passing through it for about eight miles and over undulating ground to another crossing of the Mason River at the foot of the Whale's Back; the line then passes over the saddle at the Whale's Back into the valley of the Conway River, which it crosses, and from thence over the Quail Range and crossing the Charwell River to the Greenhills Station; from the Greenhills the line passes over the Government reserve to Greenburn, crossing the Kahautara River at this place, and thence by the route of the dray road across Crib Creek and the Kohai River to the suburban districts of the Township of Kaikoura. Here the river traverses along the base of Mount Tyffe, until it reaches the Hapuka River, which it crosses about one and a half miles from its mouth; thence in a straight direction and for about three miles, where it reaches the sea beach. The line then traverses along the beach and over ground about twenty feet above high-water mark for a distance of about forty miles, crossing in its course the Clarence, Kekerunga, and Ure Rivers. Immediately after crossing the last-named river, the line leaves the sea beach, and proceeds across the Flaxbourne Run, over gently-undulating ground, and following the general course of the dray road, to the Awatere River, which it crosses at a point a little north of the station of the Starborough Run. After crossing the river the line proceeds in a straight direction to the foot of Dashwood's Pass, where it joins Line No. 2.

This line may be said to have received far more favourable consideration from the late Engineer-in-Chief than any of the others, in which I entirely concur, and for reasons stated in my report of 1876. This line will receive further consideration under the heading of "Comparative Remarks."

*Line No. 4.*—This is another line that has been examined in connection with the extension of the main trunk line northwards, and is principally known as the "Cheviot Hills line," the route of which is as follows:—

Starting from a point on the north side of the Waipara River about seven miles from Amberley Station, and after crossing the Weka Creek to its junction with the Waipara, it traverses the Waipara Plains, passing a short distance east of the station of the Glenmark Run and over a rather low saddle into the valley of the Waikari River, down which it passes until the Hurunui River is reached.

Having crossed this river near to its junction with the Waikari, it follows its downward course for about nine miles, when it leaves the valley of the Hurunui River, and, turning sharply to the left, passes through the Cheviot Hills Run, crossing the Waiau River about a mile west of its junction with the