

HALIFAX RAILWAY, AND PUBLIC WORKS IN CANADA. 33

BRITISH
NORTH AMERICA.

hills to the foot of the ascent at the 66th mile. In this distance it will have to cross the Chiganois and De Buit Rivers, and the swell of land lying between them, the highest elevation being between those rivers about 170 feet above high water; but none of the gradients, it is calculated, will exceed 40 feet per mile.

The summit-level which the line has to attain is by actual section determined to be 600 feet above high water, being at the lake from which the Folly River flows.

The section, which has been accurately , shows a gradient of 1 in 85 feet, or about 62 feet per mile, for $5\frac{3}{4}$ miles; but by keeping a higher level, the ascent to the lake may be overcome by a grade of 57 feet per mile for $6\frac{1}{2}$ miles.

In this distance there are eight ravines to be crossed, four of which will require heavy bridges.

The valley of the Pinebrook will require a heavy embankment, material for which will be supplied by a deep cutting necessary at the crossing of the road beyond.

The upper portion of the ascent, for four miles below the lake, is composed of hard, igneous rocks, with a covering of earth in most places, but the rock will probably be met with if cuttings to any depth become necessary.

At about four miles on the south side of the lake, 71 miles from Dartmouth, there is a breadth of about half a mile of conglomerates, shale, and sandstone, in which a valuable deposit of speculative iron ore has been discovered; it is of very rich quality, and operations have been commenced by a company to work it.

The heavy grade ceases at the saw-mill half a mile below the lake, in which distance there are three small ridges to cut through, which will furnish material for crossing the shallow arm of the lake; thence the western shore is nearly straight, with shallow water, admitting of a level line, with easy curvatures, along its margin.

At the 75th mile a small ridge at the north end of the lake separates its waters from those of the Wallace River.

The descent from the lake is very rapid into the valley watered by that river. By actual measurement it has been ascertained that the ground falls 356 feet in the first three miles northwardly from the lake; thence the valley is broad and flat. The hills on the eastern side rise very abruptly, those on the western side having a gentler slope towards the valley afford the most favourable ground for the location of the railway.

The actual section line, which has been run at a gradient of 70 feet per mile, may be improved upon by keeping a higher level, and the descent may be overcome by a gradient of about 66 feet per mile for $4\frac{1}{4}$ miles along the western side of the valley.

Here the hills turn abruptly to the westward, and on reaching the foot of this descent, at the 79th mile, some cutting will be necessary to carry the line with a radius of half a mile for one mile, round the shoulder of the hills.

A lesser range of hills lies north of the Cobequid range, which, at this point, is separated from them by the valley of one branch of the Wallace River, which the line ascends for $2\frac{1}{2}$ miles, at a grade of 35 feet per mile, and thence passes through this lesser range by the valley of the west branch of the Wallace River. Then crossing the valley of the Little Wallace River it falls at a grade of 35 feet per mile to the valley watered by Tulloap's Creek, by which it descends at easy grades for about seven miles to the 95th mile, where it turns the shoulder of the ridge of land lying east of the River Philip by a curve of three-quarters of a mile radius, involving some cutting, but to no great depth.

From thence it descends at a grade of 20 feet per mile for four miles along the fertile valley of the river Philip, which it will cross at a short distance below the confluence of the Black River, and ascend for five miles by the valley of the Little River by a very easy grade.

From this to Bay Verte the country presents a very level appearance, and the line will probably deviate but little from a direct line.

The gradients will be most favourable, and none, it is expected, will exceed 15 feet per mile.

At the 120th mile the line crosses the Tidnish River about a mile above its mouth, and thence follows the level shores of the Bay Verte, at a distance of from one to half a mile.

It leaves the province of Nova Scotia 124 miles from Halifax Harbour.

The section of country traversed by the line, from the Cobequid Hills to Bay Verte, is generally speaking through light soil of good quality. There is little or no rock. Should any be met with it will be sandstone, furnishing excellent building material.

Much of this portion of Nova Scotia is well cultivated and populous.

The line from Bay Verte enters the province of New Brunswick, and as far as the crossing of the Miramichi River at the 223rd mile, although running nearly at right angles to the course of the rivers flowing into the Gulf of St. Lawrence, will deviate but little from a general straight course and from the level nature of the country; although it will have to cross the swells of land lying between the different rivers, it may be expected confidently that the heaviest gradients will not exceed 40 feet per mile, the generality being very favourable.

As far as the Cocagne River the country traversed by the line is very level. The section line, which was run along the head waters of the rivers flowing into the Gulf of St. Lawrence, shows that the highest point is little more than 200 feet.

By following the general direction laid down on the plan, dependent, of course, upon the bridge sites which shall be selected on the different rivers, no difficulties of a serious nature will be encountered. Should any cuttings be necessary, they will not be expensive as no rock is likely to be met with.

The section of country which will be opened up between Bay Verte and the Richibucto River offers much excellent land for settlement. From thence towards the head waters of the