

BRITISH
NORTH AMERICA.

discover a favourable route between the valley of the Abawisquash, a branch of the Trois Pistoles, and a point on the Restigouche River, favourable for union with another division of the general line, in progress of exploration by Corporal Dumble, from the valley of the Tobique River.

The line first examined I will describe as Route No. 1, so distinguished in the sketch hereto annexed.

Between the head of Lac des Iles, discharging itself into the Tolidi, and the Abawisquash River is a low depression in the summit-level, or height of land, favourable, as I believe, for our object. From this point the ground appears generally practicable, following the margin of Lac des Iles, and thence the course of its discharge towards the outlet of Eagle Lake, a distance by estimation of about nine miles. From Eagle Lake it is very probable that a communication with the Rimouski would be found by following the valley of the left-hand branch of the Toledi to its source, and thence descending the valley of the Touradi. But the more direct course by Route No. 1 was experimentally continued. Between Eagle Lake and the middle branch of the Toledi is a continuous ridge of 300 or 400 feet average elevation above the former. Like other ridges in the neighbourhood, it consists of much good land for settlement, but apparently affords no pass suitable for our object within an extent of six or seven miles. On exploring from the middle branch westerly to the head of the lake, however, the descent appeared to exceed the ascent as much as 150 or 200 feet. A very direct communication would therefore be ineligible. The course to be recommended passes by an easy curve southward of the lake and the southern extremity of the ridge in the manner indicated in the sketch; thence, north-easterly by the valley of the Middle branch. Where the line would enter this valley the general inclination is apparently about 25 or 30 feet per mile, until approaching within about three miles of the last of four successive rapids or falls. It is probable that the inclination here may be from 40 to 60 feet per mile, until we reach the dead or smooth water. The banks of the Middle branch afford only a small extent of flat ground, say from one to three chains in width, on each side alternately, seldom on both sides at once; but the slope of the rising ground is commonly moderate, and without abrupt angles or turns, with the exception of the three miles just mentioned. Here some degree of difficulty might occur in determining the best site for the line. A small extent of rock cutting at one or two points would probably be necessary. Time did not permit an instrumental examination of the ground, but nothing like impracticability is indicated.

Passing the Falls, the valley of Middle branch south is level for a distance of about seven miles in a direct line south-westerly, including, in that distance, a lake of about two miles in extent. The bed of the valley consists of an alluvial deposit of great depth, through which the stream has a very tortuous channel, with a current scarcely perceptible, frequently very deep, and always remarkably clear. The next five miles of this valley ascend somewhat rapidly, say at the rate of 40 to 50 feet per mile.

From a distant but commanding point of view, I judged that the remaining rise might not be less favourable; but upon examination of the last four miles, the rate of ascent proved to be much more objectionable. The result, however, of a series of elevations and depressions taken by your direction over this portion of the route, and which at leisure moments have been somewhat hurriedly computed, do not warrant me in saying that the rate of inclination of the four miles in question is more than objectionable. Its practicability is, I believe, proved by at least two examples of much steeper inclined planes daily ascended by locomotive power, with both passengers and freight. I refer to the Lickey inclined plane of 1 in 37, on the Birmingham and Gloucester Railway; and another, of 1 in 34, which I understand to exist on the Hartlepool and Stockton. The sketch hereto annexed (No. 1.) exhibits, with regard to these, the proportion of the more favourable acclivity, by which it appears practicable to escape from the valley of the branch of the Toledi under examination. No exploration has, however, been made in order to discover facilities, the existence of which I am not prepared to doubt, of improving or avoiding this acclivity. Much lateral exploration must at some points be expected. We could scarcely hope that we should succeed at the first attempt, without map or guide, in passing through a wide extent of primeval and almost unknown forest, over a line in no respect objectionable.

Passing the summit-level at the source of the middle branch south, the route descends by the valley of the north-west branch of Green River. For the first five miles the rate of inclination is very moderate, deviating but little from a level; two lakes and much small water being included in that distance. From thence to the confluence of the east branch of Green River, a less regular and often more rapid descent is indicated. In the judicious distribution of the irregularities over a continuous descent in actual construction, however, I am not prepared to say, that an inclination exceeding 30 or 35 feet per mile would anywhere be necessary.

Descending the last nine miles of the north-west branch, the valley becomes more contracted, the flat margin generally narrower, the banks steeper and higher, and the turns more abrupt. But these characteristics do not become so remarkable as apparently to affect the practicability of this portion of the route until we approach to within about three miles of the conflux of the two branches, or upper fork of the main Green River; nor do they continue of the same kind beyond about two miles along the eastern branch.

This part of the line having come under your personal observation in order to ascertain its practicability, by curves of admissible radius, a more particular survey of the apparent obstacles, and a rough plot of the same, were made for your satisfaction. For more ready illustration, I avail myself of a trace from the original, No. 2, hereunto annexed, to which I beg leave to refer.

From A to I, being a distance of four miles and about 30 chains, are introduced six curves,