

## HALIFAX RAILWAY, AND PUBLIC WORKS IN CANADA. 39

BRITISH  
NORTH AMERICA.

of one mile radius each, arranged in a manner the effect of which would be as follows : from A to C the cutting would be insignificant. At B, about 5 or 6 chains in extent, partly of clay, slate may occur. At the point D, perhaps for an extent of 10 chains in each direction, deep cuttings may be necessary, but no sufficient examination has been made to determine this fact ; or whether, to some extent, a gap or depression may not exist, as at the point G. From E to I, the cutting would apparently be light, these points being nearly on the same common level with the intervening point G, or say 30 or 40 feet above the surface of the water at the confluence of the two branches. In order that in this part of the valley the roadway may be clear of water, snow, ice, and driftwood, at all times, perhaps a less elevation than about 10 feet above the lowest level of the stream could not be recommended.

Assuming that the maximum depth of cutting to be admitted should not exceed 25 feet, then the highest ground which could be intersected would be 35 feet above the lowest level of the water. With the exception of the point D, the elevation of which is uncertain, it does not appear from the facts ascertained that the intersection of any point so high as 35 feet would be necessary in order to obtain curves of one mile radius ; on that cutting approaching to 25 feet in depth, would occur to an aggregate extent exceeding 50 or 60 chains along the portion of the line shown on the sketch. Were it a desideratum to pass this, apparently the most confined and crooked portion of the route, without cutting, it would appear that curves of from 20 to 80 chains radius would accomplish our object.

Pursuing the route along the east branch by an ascent apparently not exceeding 30 feet per mile, another branch occurs on the left, distinguished on the sketch as "Otter Branch." On opening here to the eastward was noted for further exploration. In the meantime, following the main stream about due south for three miles, another opening claims attention. It was at first deemed probable that this would lead to the source of the main Restigouche. It may, indeed, lead to a favourable communication with this stream ; but it was subsequently discovered, as it will be again necessary to notice, that the opening in question was really at the head of the valley of a principal branch of Green River, distinguished on the sketch as Green River East. Resuming the exploration at the end of the southerly range just noticed, of the East Branch, this stream again turns suddenly to the eastward, flowing somewhat tortuously through a narrow valley, bounded by very high hills, and having a fall varying from 60 to 90 feet per mile. Having traced the stream to its source in a pass between high hills, and continuing an easterly course, we shortly meet with a spring, no doubt a tributary of the Restigouche, flowing south-easterly down a narrow and deep ravine. Crossing the head of this ravine, and passing over a high ridge, we descend suddenly 700 or 800 feet into the valley of the object of our search, the Gounamitz, a principal branch of the Restigouche. It was deemed probable that the source of the east branch of Green River and that of the Gounamitz might prove to be continuous and nearly on the same level ; but it was now manifest that the source of the former was in a high group of hills, bounding not the source but the main valley of the Gounamitz, where this stream is still comparatively large, say 40 feet wide, with a brisk and copious current. Satisfied of the unfavourable prospect of a communication at this point with the valley of the Restigouche, I returned to the opening by way of the valley of the Otter Branch. Circumstances prevented my personal examination of the ground in this direction ; but Mr. Ramsay, to whom I confided that service, reports that the source of the Otter Branch is surrounded by high ground without an opening ; but that about two miles from the mouth of the stream, on its right or northern bank, is a low depression, affording a favourable communication with the valley of a stream flowing northwardly and eastwardly, and no doubt a tributary of the Restigouche. It is most probably the main branch of the south branch of the Quatawamkedgwick. He followed this newly-discovered stream downwards to where it receives a branch from the south, and then traced this branch upwards nearly to its source. By climbing, he had a good view southerly beyond the source, and down the valley of the Gounamitz, but was prevented by unfavourable weather, and other hindrances, from completing all I had directed him to perform. He does not doubt, however, the existence of a practicable communication between the east branch of Green River and the valley of the Gounamitz by the route he examined ; but there will be about two to three miles of rough ground and steep banks. Whether these may occasion any real difficulties an instrumental examination here, as well as at other points which have been noticed, will be necessary to determine. The general fact of practicability or otherwise, was, under the circumstances, all that we could hope to ascertain.

A route has now been traced from the valley of Abawisquash to the valley of the Gounamitz, which, with such corrections as might be expected would be necessary on a first examination, I believe to be practicable. I have also no reason to doubt, but many to induce me to confide in the practicability of the valley of the Gounamitz down to the Restigouche, with a general inclination, varying from 30 to 50 feet per mile. From its mouth is a favourable communication down the left bank of the Restigouche, to a point opposite the entrance of Beaver or Bostin Brook, the termination of Corporal Dumble's route from the Tobique before-mentioned. A bridge of 100 or 120 feet span at this part of the Restigouche would be necessary, and would probably be the only one of so large a span from hence to the St. Lawrence. In that distance numerous bridges will be required ; but they will be generally small, and neither their number or their several sites could be determined without an instrumental demarcation of the line.

In order to explain the further cause of the exploration it is necessary to say, that after tracing the east branch of Green River to its source, and being yet uncertain of any favourable descent into the valley of the Restigouche, whilst that into the valley of the Toledi also remains unimproved, it seemed probable that the abandonment of the valley of Green