

under canvas, without intermission, from April 1868 to May 1869; another portion has been similarly situated nearly the whole of the present winter. In justice to the staff, and in appreciation of the endurance and perseverance displayed by those members of it who have been so much exposed, it is right that I should allude to this, because an impression seems to prevail in some minds that the Engineering Staff of the Intercolonial Railway, has been and is now engaged in mere holiday work. Even in summer time railway surveying has its inconveniences and troubles: the intolerable insects, which in some sections abound, are occasionally found to be beyond all endurance.

I have already said that the length of line actually located for construction, although practically the net result of the labors of the staff, scarcely gives any idea of the work which has been done to produce this result. The engineer in a wooded country, is very much like a mariner in unexplored waters, and without a chart. If it be a flat country, his work is not so difficult, but if the inequalities of surface be great, as in much of the country through which the line is to be constructed, it is only after repeated trials, involving a great deal of laborious work, that he can tell when he approaches the best position for the railway. To show how much time and labor and expenditure has been incurred in thus feeling the way to the one end in view, I have had compiled, from various returns, the total length of lines which have been instrumentally surveyed.

From this, it would appear that in the aggregate, over 3,100 miles of trial lines have been surveyed, nearly 1,200 miles of line have actually been located, and more than 1,200 miles of cross-sections have been made, giving a gross total of more than 5,500 miles, which have been surveyed instrumentally, and of this from 5,100 to 5,200 miles have been both chained and levelled over. It may also be added that a very large proportion of this distance has been cut with the axe through the woods. This does not of course embrace an endless distance which has been explored on foot and not measured.

It needs no argument to prove that all this work has been sound economy. I am satisfied that the time and money spent in these surveys has been well spent, and that the cost of construction will be very materially reduced thereby.

A great deal of necessary work has been done other than surveys;—test-pits have been sunk wherever deemed necessary, over nearly the whole length of the line, so that contractors should have every opportunity of gaining information respecting the work to be done, and, in addition to the ordinary duties of the staff in the field, a great deal of time has been occupied in making calculations of quantities of each kind of work to be done on the sections already under contract, as well as those to be placed under contract.

The staff as now organized by the Commissioners, on my recommendation, is arranged as follows:—

The whole line is divided into 25 engineering divisions, which correspond with the same number of contracts now or hereafter to be made. These divisions are lettered from A to Z. The whole line is also formed into four districts, each of which embraces a certain number of divisions. Four district engineers are appointed, each of whom have general charge, under the Chief Engineer, of the whole work in each respective district. Division engineers have immediate charge of, and are resident on, each section under contract. They have generally two assistants, with rodmen and chainmen.

The four districts are named, The St. Lawrence, The Restigouche, The Miramichi, and The Nova Scotia Districts respectively.

The *St. Lawrence District* extends from Rivière du Loup, 129½ miles easterly, to a point beyond Lake Metapedia; it comprises divisions A to F inclusive, and is placed in charge of Samuel Hazlewood, Esq.

The *Restigouche District* extends from the easterly end of the St. Lawrence District, 127½ miles, to a point beyond Bathurst; it comprises divisions G to H inclusive, and is placed in charge of Marcus Smith, Esq.

The *Miramichi District* extends from the easterly end of the Restigouche District, to Painssee Junction on the St. John and Shediac Railway, a distance of nearly 115 miles; it comprises divisions O to U inclusive, and is under the charge of Alexander Luders Light, Esq.