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THE NATIONAL TRANSCONTINENTAL RAILWAY

GENERAL DESCRIPTION OF THE NATIONAL TRANSCONTINENTAL RAILWAY CONSTRUCTION, DETAILING THE METHOD OF SURVEYS EMPLOYED IN DETERMINING THE MOST DIRECT AND FEASIBLE ROUTE—STAFF ORGANIZATION, ETC.

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AN act respecting the construction of a National Transcontinental Railway was assented to by the Dominion Parliament on the 24th October, 1903, which provided for the construction of a line to be operated as a common railway highway across the Dominion of Canada, from ocean to ocean, and wholly within Canadian territory.

This line was, by the act, divided into two distinct parts; the Eastern Division, from Moncton to Winnipeg, to be constructed under a government commission, and the Western Division (extending from Winnipeg to the Pacific Ocean) to be constructed by the Grand Trunk Pacific Railway Company.

The act provides that the Eastern Division shall be built from the eastern terminus, at Moncton, through the central parts of the Province of New Brunswick, and through the Province of Quebec, by the shortest available line, to the City of Quebec; then westerly, through the northern part of the Provinces of Quebec and Ontario, and through the Province of Manitoba to the City of Winnipeg, according to such plans and specifications as may be determined, having due regard to directness, easy gradients and favorable curves.

The commissioners and the chief engineer were appointed by order-in-council August 20th, 1904, and met within a few days for organization. One of the first questions to determine was in regard to the survey work to be undertaken during the autumn and winter on that portion of territory not covered by the Grand Trunk Pacific Railway parties who were out east of Winnipeg, in the direction of, and nearly up to, Lake Abitibi. It was decided to form the territory between Moncton and near longitude 84° into four districts—"A," "B," "C," "D":—"A" from Moncton to the boundary between the Provinces of New Brunswick and Quebec, supposed to be about 290 miles; "B" from the boundary to Clear Lake, about 420 miles; "C" to the provincial boundary between Quebec and Ontario, about 300 miles; "D" to the longitude 84°, about 240 miles.

Soon after these four districts had been formed, the commissioners arranged to take over from the Grand Trunk Pacific the survey parties east of Winnipeg, with their supplies, plans, profiles, etc., and to organize two more districts, "E" and "F," thus covering the whole distance between Moncton and Winnipeg. District "E" extends about 255 miles westerly from the west boundary

of "D" to a point about 30 miles west of Lake Nepigon. District "F" extends from this point to Winnipeg, about 385 miles.

The total distance from Moncton to Winnipeg was estimated to be about 1,900 miles, on what was assumed to be the most direct feasible route. The problem to be solved of definitely locating this most direct and feasible route was not an easy one, when it is remembered that, for more than half the distance, the line of general directness ran through an unsurveyed, unsettled and practically unknown region, cut up in all directions with a network of lakes and rivers, many of them not shown on any existing maps and, when so indicated, often found to be entirely misplaced. Our engineers had, therefore, in many cases, to make their own maps as the surveys proceeded and, in all cases, to correct and complete existing maps.

During the autumn of 1904 and the following spring, some 34 survey parties were equipped and sent out; and before the end of 1905 there were 45 parties in the field, consisting of about 18 men each, not counting a large number of men engaged in transporting supplies by canoe and packing in summer and by dog train in winter.

The early survey parties of 1904 were supplied on the time-honored "flour, pork and beans" food basis, and as a result of extreme cold and lack of variety in food, some of them suffered severely from scurvy.

The food schedule was revised on a liberal basis in 1905, with a plentiful assortment of soup, vegetables, jam, etc., with the result that not only was scurvy no longer heard of, but the men being so well supplied with wholesome food worked with much more energy and cheerfulness, showing that seemingly luxurious food proved a real economy.

Each survey party had an engineer in charge, transitman, leveller, topographer, draughtsman, rodman, picketman and 2 chainmen, cook and eight or nine axemen and packers. Each party was given certain governing points to connect and instructed to thoroughly exhaust the possibilities for the most favorable and reasonable direct line between these points. Barometric explorations and compass lines were followed by preliminary lines run with transit, and plans were plotted with 10-ft. contours on a scale of 400 ft. per inch. With these plans and profiles on same scale, projected locations were made on the most favorable lines and afterwards actually run on the ground