NATIONAL TRANSCONTINENTAL.

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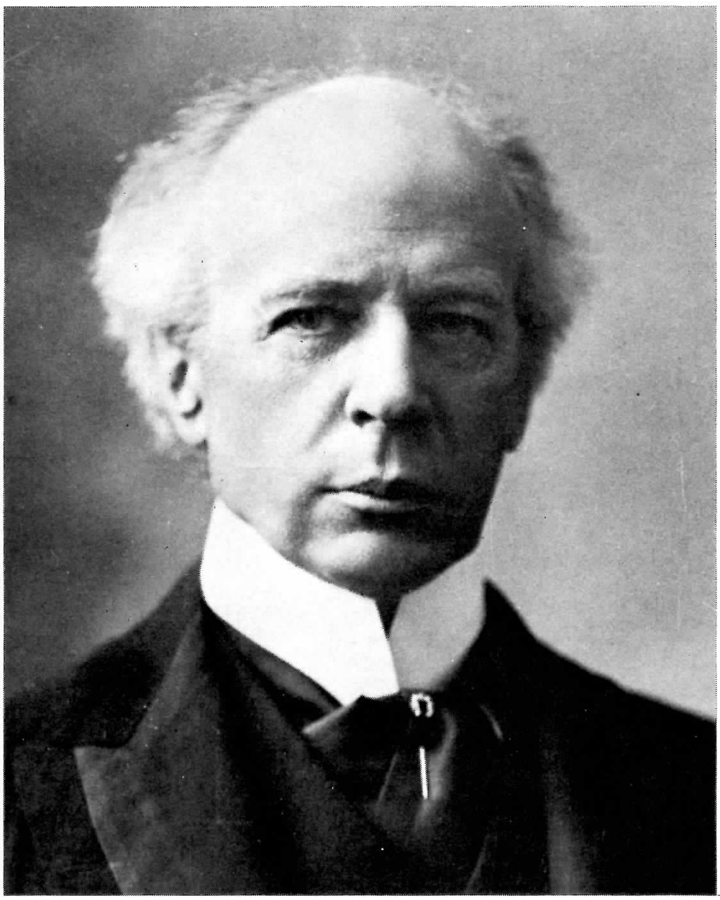
NATIONAL TRANSCONTINENTAL RAILWAY

Compiled by Ron W. Layton



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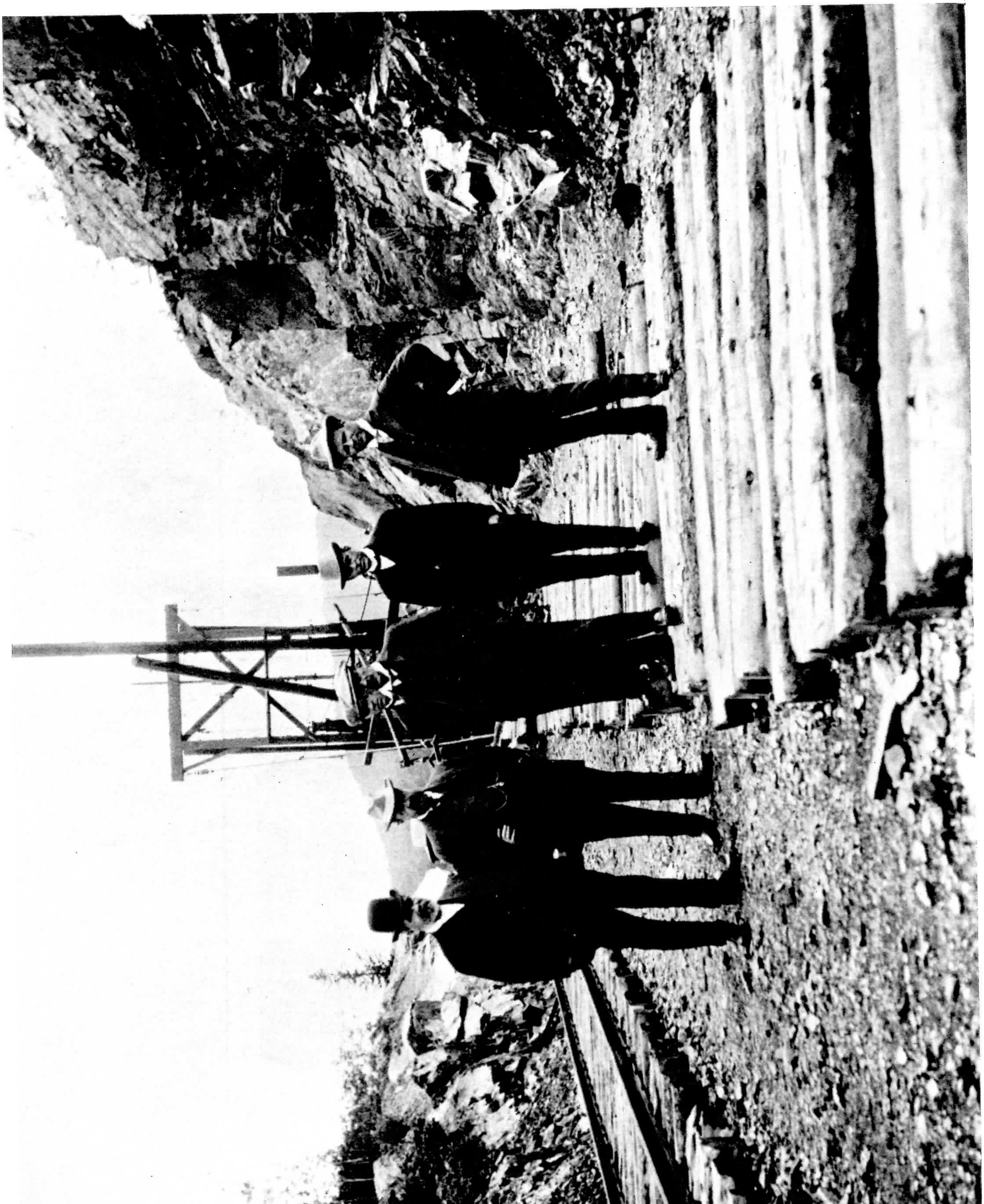


The National Transcontinental Railway was, in a way, the result of a bluff that the General Manager, later President, of the Grand Trunk Railway, Charles Melville Hays, was attempting to put across on the Canadian Pacific. Although he was strictly forbidden by the Grand Trunk board from entertaining any expansion plans, he nevertheless sent out survey parties and rights-of-way buyers to ostensibly buy up a route from Chicago to Winnipeg. His idea was to force the CPR to give the Grand Trunk running rights from North Bay to Winnipeg in exchange for rights in eastern Canada. It might have worked had the CPR not been wise to it and the board in London not heard about it and censured him. He resigned in August 1900, returning to the United States for an 18 month period.

Despite the General Manager's apparantly insubordinate action, the Chairman, Sir Charles Rivers-Wilson believed that the Grand Trunk could not ignore the west, and as a close friend of Prime Minister Laurier, he convinced the PM that a second transcontinental railway in competition with the CPR was neccessary. At that time Mackenzie and Mann's Canadian Northern was also expanding into a transcontinental line but Laurier saw the Grand Trunk as the instrument needed to build the second line. Laurier firmly believed that Mackenzie and Mann were "pushy and importunate" and that Rivers-Wilson was definately "a cut above" them.

In 1902, Hays returned to the GTR as the board had reversed its stand and was in an expansionist mood. An attempt was made by Rivers-Wilson to come to an agreement with the Canadian Northern but Hays decided that another bluff was in order. This time the ploy consisted of a plan for a complete transcontinental railway from the GTR line at Callendar (east of North Bay), heading out across the wilderness of northern Ontario about 100 miles north of the CPR, descending on Winnipeg from the north and then heading west following Sir Sandford Fleming's original survey through the mountains at Yellowhead and crossing British Columbia to a Pacific terminal at Port Simpson, on the boundary between B.C. and Alaska.

The bluff backfired because instead of forcing Mackenzie and Mann into selling out or amalgamating with the Grand Trunk, Prime Minister Laurier saw the plan as a means of escaping from some political embarrisment. In 1900 he had been forced by some Quebec nationalist groups into offering Federal Government funds in support of a stupid enterprise called the Trans-Canada Railway. This line was to run from Roberval (187 miles north of Quebec City) for some 400 miles to the west to the foot of James Bay. The scheme was nothing more than a Quebec expansionist project and may have promted the Ontario Government into building the Temiscaming and Northern Ontario Railway as a means of blocking Quebec influence in the north. This railway would have cost millions with no hope of any return.

Laurier then jumped on the idea and tried to persuade the Grand Trunk to alter its plan and build another 400 miles from North Bay to Quebec City. After the Grand Trunk negotiations with Canadian Northern broke down, Laurier realised that he had been used as a pawn in the GTR's expansion plans and the special relationship that Rivers-Wilson had had with the PM ceased. The GTR did however agree to change its eastern terminal from North Bay to Quebec City.

The plans again went awry as a group of New Brunswickers started to agitate for an extension eastward to compete with the Intercolonial Railway. When the enabling Bill for the transcontinental railway was placed before the House of Commons on March 31st 1903 there was no mention of building east of Quebec City. Based on this Bill, the government was involved in the financing of the scheme as it had replaced the Quebec scheme with the eastern extension to the St. Lawrence. This caused a split in the cabinet, half objected to the principle of government involvement in private industry and wanted the line built entirely by the government, afterall they would be paying for most of it antway! The other half remembering the bad example of the Intercolonial Railway, did not want anything to do with railway building.

The government had now taken the bait intended for the Canadian Northern and the Grand Trunk was in a difficult situation. Rivers-Wilson and Hays then saw that they had no choice but to go ahead and presented a detailed offer to the government. The offer was presented to Laurier on May 26th. It estimated that the Quebec City - Winnipeg (via North Bay) section of 1350 miles would need a subsidy of $6,400.00 a mile together with a bond guarantee of $20,000.00 a mile. The Prairie section (793 miles) would be built under the same aid terms as the Canadian Northern. From Edmonton to the Pacific (950 miles) a subsidy of $10,000.00 a mile was needed with an additional $25,000.00 a mile in guarantees.

The whole affair had now split the Liberal Party, and in order to save the situation, Laurier cracked the Whip over both his party and the Grand Trunk. He presented his own proposals on May 29th. The Grand Trunk Pacific Railway would be formed which would be a

Depot C of the NTR was located in Northern Quebec and was typical of the supply depots that were set up along the route of the railway during initial surveying. (Public Archives Canada / PA 39966)

The major characters in the National Transcontinental Railway story:-
FRONTISPIECE - Prime Minister Laurier (Public Archives Canada / C 1971)
OPPOSITE PAGE - Charles Melville Hays, seen here at a construction site on the NTR. Hays is second from the left in this group of officials. Hays was later to die on board the Titanic. (Public Archives Canada / C 15030)

Out in the bush, most of life went on outside. Two surveyers are shown here by the cookstove. (Ontario Archives)

wholly owned subsidiary of the Grand Trunk Railway. It would build the Eastern Division (Moncton - Winnipeg) of 2019 miles on behalf of the government and then would lease the line for operation. The route would be the straightest possible from Moncton to Quebec City to Winnipeg, staying in Canadian territory. The Grand Trunk Pacific would build the Western Division (Winnipeg to the Pacific) of 1743 miles following the GTR's suggested route. The two divisions would make up the National Transcontinental Railway. The government would be the major partner, the Grand Trunk must deposit $5 million as surety against breach of contract and also must buy a minimum of $25 million in GTP shares. There would be no cash subsidies and the government would only guarantee bonds of $9750.00 a mile in the prairies and $22,500.00 a mile in the mountains. When completed the GTR must not divert any eastbound traffic to its New England lines unless the shipper specifically requested this. Finally the eastern section was to be supervised by four government commissioners. In fact Laurier had created the same conditions that had frustrated Sandford Fleming on the construction of the Intercolonial Railway some forty years earlier.

Reaction from politItions was that there was no need for the Quebec and Maritime sections and that the whole thing was the Grand Trunk's fault.

Rivers-Wilson reluctantly agreed to the government's plan on July 24th. A week later the National Transcontinental Railway Company Bill was introduced in the Commons. There was considerable opposition from both the Conservatives and some Liberals. The Tories under R.L. Borden tabled an alternate proposal that involved the extension of the Intercolonial Railway into Ontario to the Great Lakes, the Canadian Pacific would then be expropriated for 1000 miles across northern Ontario and running rights would be leased to all railways concerned. In B.C. the GTP and CNoR would share mainline and divide the territory between them. After heated debate the Act became law on September 2nd. 1903 by a margin of only four votes.

Back at the Grand Trunk shareholders meeting in London on March 8th. 1904, Rivers-Wilson and Hays succeeded in swaying those present to agree to the NTR Act. One reason that Hays and Rivers-Wilson may have had for not refusing the restraining terms of Laurier's Bill was their belief that Canadian Governments rarely mean what thay say and rarely say what they mean.

An election was due and Laurier weathered the storm, returning with an enlarged majority, so the NTR got underway. Not heeding past lessons, Laurier chose for Commissioners a discredited ex-Premier of Quebec, a banker, a manufacturer and a grain dealer. None of these men had any knowledge of railways or of construction. They did however succeed in rigging the construction contracts so that only "the right people" had the chance to bid on them. The agreed contractor for the entire NTR was the Grand Trunk Pacific but this was not to be, the Commissioners awarded only part of the work to the GTP.

During the fall of 1904 and the following spring some 34 survey parties were 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 team in winter. Each party was given certain governing points to connect, and was instructed to

An early winter shot of the survey headquarters camp set up on the outskirts of Englehart, Ontario at the end of steel of the T&NO. (Ontario Archives)

A sink hole typical of many found in Muskeg country. Some holes took years to fill. (Public Archives Canada / C 53365)

exhaust thoroughly the possibilities for the most favourable line between these points. Barometric explorations and compass lines were followed by preliminary lines run with a transit, and plans were plotted on a scale of 400 feet to the inch.

With these plans and with profiles on the same scale, projected locations were plotted in the field, and reports sent to headquarters monthly. The reports were carefully examined, necessary cahanges suggested and instructions issued accordingly. Revision of location was however never considered as finished until construction was well under way, as it was oftern found, after the line was cleared, that slight changes would effect a very considerable saving.

In general parties were sent into the field in pairs, with instructions to run respectively east and west from some more or less well defined point. In the more remote localities however, it was found impossible to fix these points at all accurately, neither could the course of the indicated route be followed closely, owing to the presence of some unsuspected large body of water or other topographical obstruction. Consequently, much difficulty was encountered in joining up the surveys of two approaching parties. Working in a country so cut up with lake and river expanses as to be more than 50% water, absolutely unmapped and unknown, and some 280 miles from the nearest railway, two parties overlapped several miles, one being ten miles north of the other before communication was established and connection made. By discharging ships rockets simultaneously on a prearranged night, quick connections were several times effected across unsurveyed gaps.

Observations of latitude were of course made, but as there was at the outset no means of intercommunication between the parties in remote localities other thatn through district headquarters, months elapsed before these could be interchanged.

Much of the early organisation had to do with transport and supply problems. Through New Brunswick, Manitoba and the settled portions of Quebec, existing roads, railways and steamship lines gave easy access to all parts of the line. La Tuque (the head of navigation on the St. Maurice River), St. Gabriel, Maniwaki and Kipawa (terminals of CPR branch lines), and North Temiscaming, at the extreme end of the lake of that name, were the points of departure from which radiated canoe routes into the vast wilderness of Northern Quebec. Between Lakes Nipigon and Abitibi, the Moose and Albany Rivers spread their tributaries southward to within short distances of the CPR main line, furnishing water routes which were reached by canoe and portage. Lake Nipigon afforded comparitively easy access to a hundred mile stretch across its northern drainage area, while to the west Ignace, Dinorwic, Dryden and Kenora were used as shipping points.

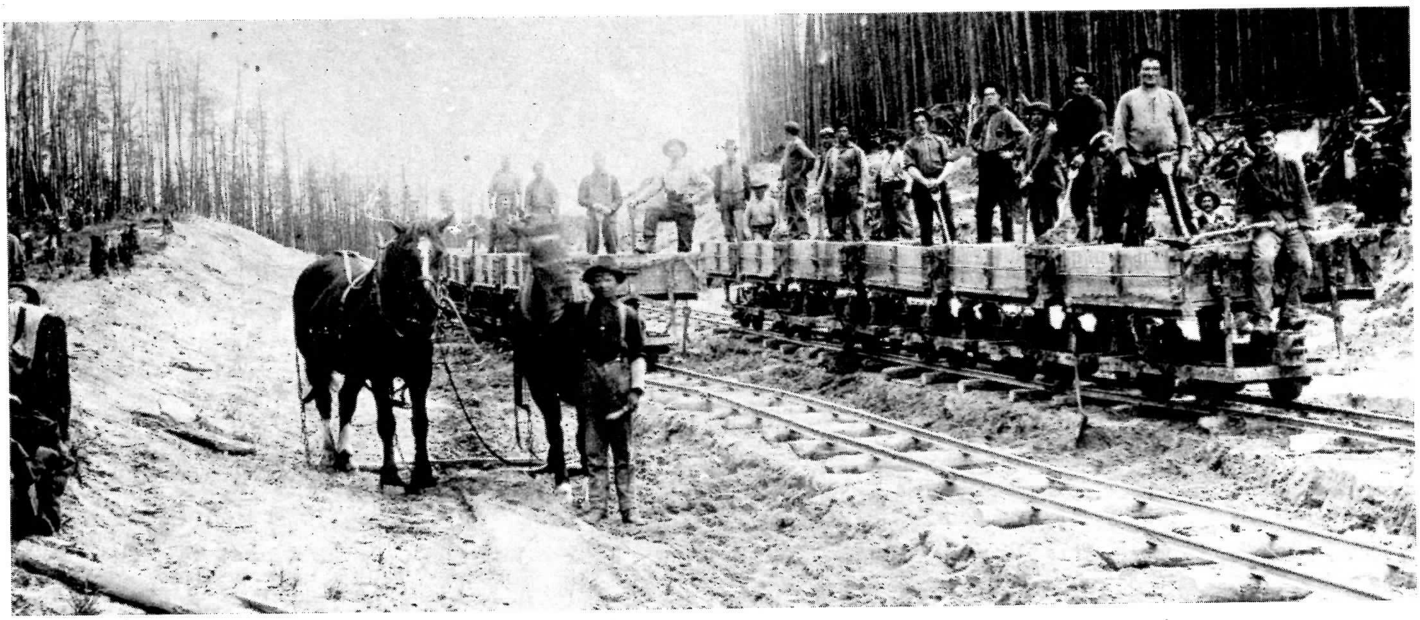
In the fall of 1904 and the winter of 1905, from 40 to 50 completely equipped parties were placed in the field between Quebec and Winnipeg. Some of these hardly reached their destination before being overtaken by the freeze-up, and were forced to return and cut trails in order to bring up sufficient supplies to carry them through the winter. Caches were established from time to time at intervals of 20 to 40 miles; log shacks were erected and a couple of men placed in charge of each. During the freeze-up, lasting from about the middle of October to the middle of March, and to a lesser extent throughout the break-up, extending over the greater part of April and May, insecurity of ice on river and lake practically put a stop to communication with the outside world. Throughout most of Quebec and Western Ontario, innumerable waterways, many of them rendered navigable for canoes by beavers, provided an easy method of moving camp, but across the interminable muskegs and swamps of the clay - belt, parties had in summer to depend on the tump line to pack their supplies and equipment. The most serious discomforts endured were black flies in the summer and a few intensely cold days in the winter when the mercury sometimes touched 60 below zero. Accidents due to upsetting canoes or breaking through ice were, unfortunately, too common. In the first three years of the survey, 27 lives were claimed by the frigid waters.

At the outset it was decided that the railway should conform to a high standard. Grades were not to exceed 0.4% opposed to eastbound traffic (the heavier) or 0.6% against westbound traffic. The curvature was limited to six degrees. This limit for curves was to be used only where topographical conditions prevented easier curves being used at reasonavle cost. Grades were compensated for curvature at the rate 0.4% per degree. Pusher grades were adopted at two points only and were quite short. The whole line (with the slight exception of short approaches to the Quebec Bridge on 1% grades) was definately located with the above mentioned easy grades. However 146 miles from Moncton it was found that with the insertion of about 12½ miles of 1.1% grade adverse to eastbound traffic, a saving could be made of 17.2 miles in distance and nearly $2 million in construction. At another point 286 miles from Moncton, a similar grade 10 miles long adverse to eastbound traffic was found to effect a saving of 18.8 miles in distance and about $500,000 in construction.

Throughout the 490 or so miles from Quebec to Moncton the geographical conditions and hence the engineering problems varied greatly. The short route across New Brunswick necessitated long stretches of maximum grade and development for distance, culminating on the slopes of divide between the Mirimichi and St. John Rivers. Even with the grade of 1.1% eventually adopted here, cost of construction was very heavy. This included a tunnel and a 3918 ft. viaduct, 193 ft.

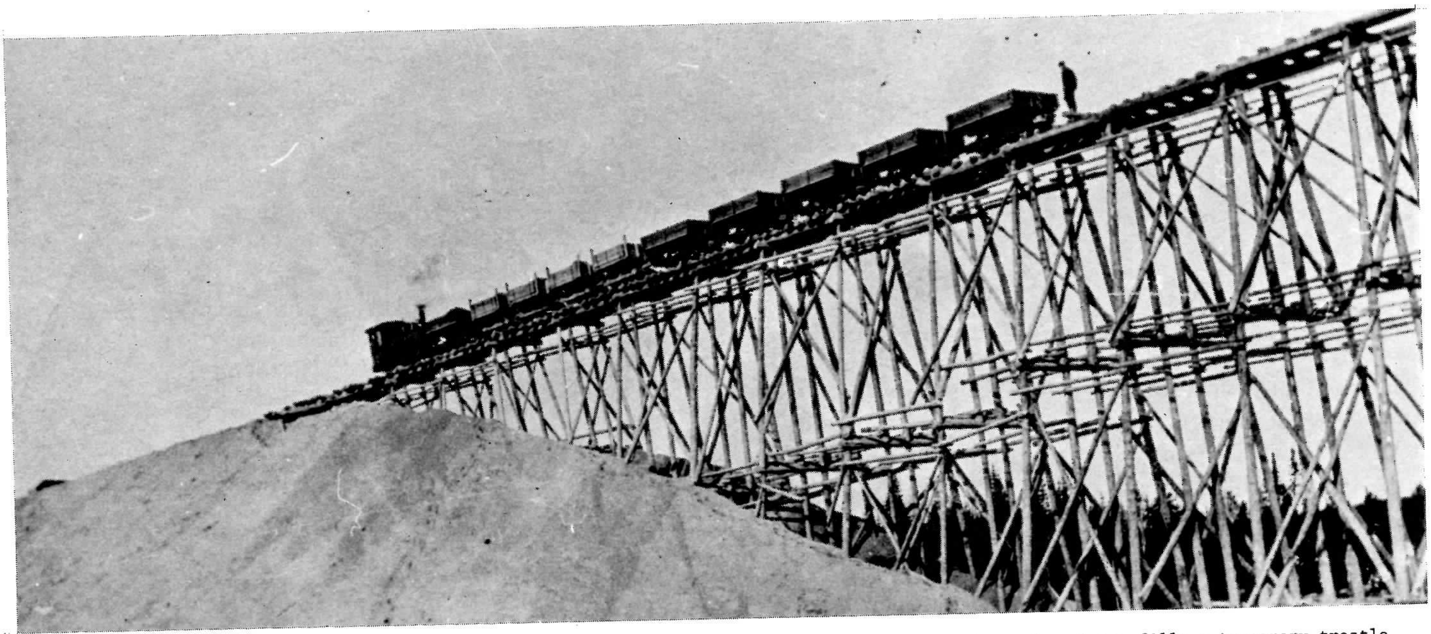
GRADING THE LINE

ABOVE
Due to the rocky soil conditions, grading was done by hand, the spoil being carried away on horse drawn skids running on rough log rails. (Public Archives Canada / C 54478)



ABOVE
When embankments had to be built or where the soil was light enough spoil was hauled away or delivered by narrow gauge horse-drawn trains of side tipping cars. These cars ran on the lightest possible track. A grading crew are posed here by their trains. (Ontario Archives)
LEFT
The moving of heavy supplies was often easier in winter than in summer. Here a dog team is moving lumber along the frozen, snow covered grade. (Ontario Archives)

TOP
A fill and temporary trestle can be seen in the background as a work crew move lumber on the light-rail construction railway. Note the crude switch in the foreground. (Ontario Archives)
ABOVE
A team of horses prepares to haul away skids of rock that have been blasted out of the Canadian Shield. (Ontario Archives)
RIGHT
In the clay belt summer construction was a messy affair. A group of graders are shown here covered in the sticky mud that their activities produced. The crew is working in the Cochrane area. (Ontario Archives)



To produce large fills a temporary trestle was first built and fill was tipped from the trestle until it was buiried in the fill. The trestle would eventually rot away leaving an embankment. In this case a small steam locomotive is pushing the narrow gauge skips. (Ontario Archives)

high, over the Little Salmon River. A pusher grade was also required to negotiate the summit between the St. Lawrence and the Bay of Fundy waters. The line paralleled the St. Lawrence River, 20 miles inland, to where the substructure of the new Quebec Bridge was rapidly nearing completion. Just beyond another great viaduct, 3000 ft. long and over 160 ft. high was required to span the gulch of Cap Rouge.

Perhaps the most difficult problem confronting the locating engineers on the whole eastern division was that of finding a path through the forbidding Laurentian Mountains, which form the northern watershed of the St. Lawrence River. Some 80 miles west of Quebec City this range is abruptly cleft, enabling the St. Maurice River to carry south the accumulated drainage of 15,000 square miles.

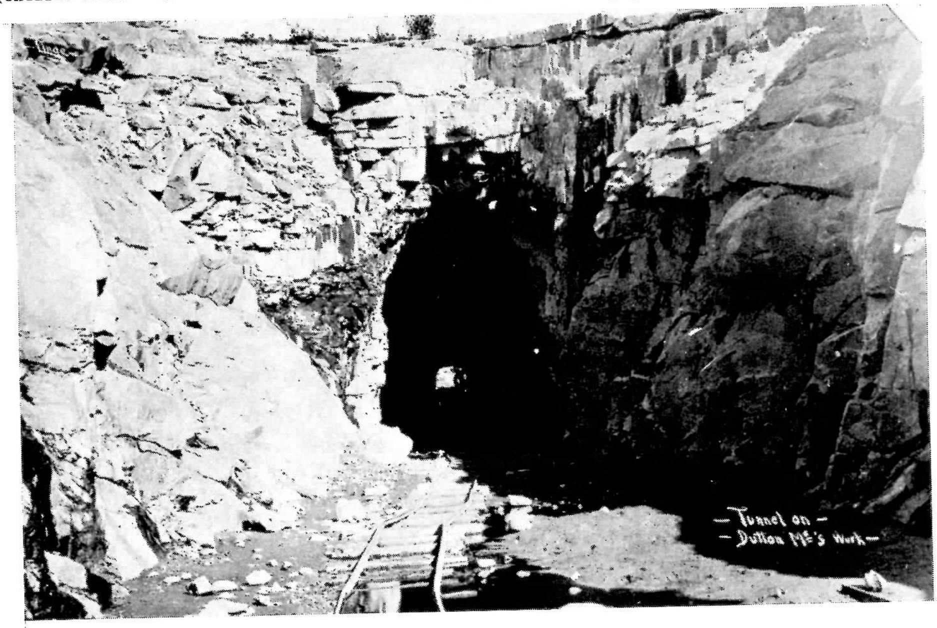
Three alternative routes were proposed, and all of these routes were explored. The approved route followed up the rivers Batiscan and Brochet until the pass was reached overlooking the hanlet of La Tuque, at the head of navigation on the St. Maurice. The descent was effected by fitting a two mile horseshoe curve into a recession of the hillside.

Beyond La Tuque, the waters of the St. Maurice come down 80 miles from the old Hudson's Bay Company post at Weymontachene, dropping 700 ft. in a series of cateracts and turbulent rapids. Four miles above La Tuque, the main river was bridged and the precipitous side hill followed to Vermillion. Here, after repeated efforts, a circuitous route through the long granite ridge was located in Coo Coo Cache, and the St. Maurice again followed to Weymontachene.

From here to the Gatineau River, the obvious route appeared to be via the Ribbon River, but a 10 mile saving in distance was effected across from its mouth to its upper basin. This involved two semi-loops and a deep summit cut and several others of slightly less magnitude. The sinuous line between the interlacing waters of the St. Maurice and Gatineau Rivers were roughly followed 50 miles beyond. Innumerable lakes separated by irregular ridges of sand and boulders covered with Jackpine constituted the outstanding feature of the topography. Similar conditions prevailed for a further distance of 25 miles to the Atik River, which was followed to its junction with the Meskigan. This region was the least known of any on the entire line.

From the Meskigan River to Lake Nipigon occured a vast spruce-covered plain, covered in many places by from one to ten feet of muskeg. The western portion is drained by swift flowing branches of the Moose and Albany Rivers, so numerous as to require a bridge on an average of every sixth mile, not counting arch culverts up to 30ft. span. The alignment throughout this section was exceptionally direct. For 250 miles west from Lake Abitibi, the preliminary location contained only six curves of 3 degrees and none over 3 degrees. The first reconnaissance, run in 1903, was a straight line 115 miles long. On tne final location some of the very long tangents were broken up, but several stretches of 16 to 18 miles were retained.

In the Laurentians and west of Lake Nipigon some tunnelling was neccessary. The first rails through were as shown here. Now this tunnel hosts CN's mainline to the west. (Ontario Archives)



North of Lake Nipigon granite ridges alternate with flat stretches of muskeg and clay. The country is barren and desolate, much of it having been denuded of even its original growth of stunted spruce. An enormous number of bodies of water lie scattered over its surface. In the vicinity of Onamakawash Lake, along Canyon Lake and on both sides of the Winnipeg River, the rock cuts were exceptionally heavy. Embankments of even larger size had also to be made. The last 50 miles into Winnipeg was through settled country. By crossing and keeping south of the CPR, the worst portion of the deep Julius muskeg, which required years to fill, was avoided.

Actual construction work began in the spring of 1906, contracts having been signed for 150 miles west from Quebec and 245 miles east from Winnipeg. The latter portion was

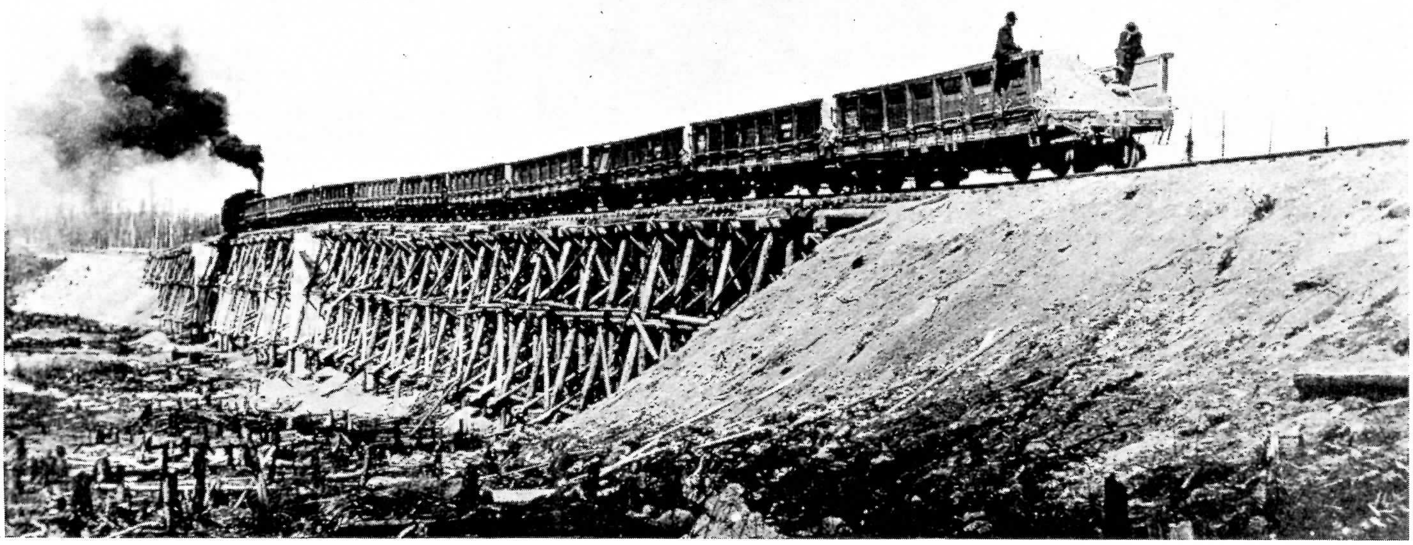
to be connected to a branch to Fort William (now Thunder Bay), then under construction by the Grand Trunk Pacific; thus giving a line from the wheat country to Lake Superior. From time to time additional sections were let until by October 1908, the whole line was under contract. Supplies for construction of the most easterly 850 miles were distributed from various points on the Intercolonial Railway, Canadian Northern, CPR and other railways. The extreme western portion was also accessible by steamer and short winter road from various points on the CPR as far east as Dinorwic. The central portion was opened up east and west from La Tuque, the Temiscaming and Northern Ontario Railway, Lake Nipigon and the Thunder Bay branch.

Steel was laid into La Tuque on the Quebec and Lake St. John Railway early in 1907. About the same time the T&NO Rly. ran its first train into McDougall's Chutes at the head of navigation on the Black River, a tributary of the Abitibi. From here, two main transport routes were established. One extended upstream into Abitibi Lake, the other followed the Black and Abitibi Rivers to where the new line crossed the latter, beyond which a monorail tramway was constructed 8 miles across country to the Frederickhouse River. The tramway was operated by a platform truck having shafts attached to a pole at right angles to the rail. The horse thus walked alongside the car and rail, the cars being guided on the rail by double-flanged wheels. A service of steamers and gasoline launches was established on each route; short streches of light-rail tramway being built around the worst rapids. Later, when the T&NO Rly. had extended its line 40 miles to a junction with the National Transcontinental Railway (where the town of Cochrane now stands), the steel was laid east and west over the new grade, and these access routes were abandoned.

As well as being involved in the construction of the mainline, the Grand Trunk Pacific also held Contract 14 for 200 miles of branch line from Fort William to Superior Jct. The GTP also held the contract for the Winnipeg-Superior Jct. section. This contract was awarded before the government realised that when it was complete the company could haul grain to the lakehead and so possibly lose interest in the rest of the project. In a high-handed action the Commissioners took away the Winnipeg contract and put out a fresh tender in such a way as to leave sections vague in order to delay the line. When the Grand Trunk could no longer tolerate the delays, the new contractors put on a show by moving ten cars of grain over the unballasted roadbed from Winnipeg to Superior Jct., saying then that the route was complete, even though the Government Engineer reported that the line still needed 300,000 cubic yards of fill and 100,000 cubic yards of ballast to bring it up to specification. In August of 1909 the section of line was accepted as complete although various impediments prevented its use until April 1911. Meanwhile the branch from Fort William to Superior Jct. had been finished.

The side tipping skips in action making up a fill. They are hauled by an interesting 0-4-0 saddle tank owned by the contractors Anderson and Johnson. (Ontario Archives)

Once the main track was laid heavier equipment could be used to transport spoil. Here a construction train is crossing Valentine Creek on a temporary trestle. (Public Archives Canada/C 36480)



In the summer of 1908, a narrow gauge railway, 18 miles long, had been built around the rapids on the Nipigon River, and before navigation closed that year a considerable quantity of supplies had been deposited along the north shore of the lake by steamers built for the purpose. In the following year an attempt was made to establish a similar transport route from Jackfish over the height of land into Long Lake and thence down the Kemogami River. This failed owing to the inability to find reasonable grades up the steep ascent from Lake Superior.

It was accordingly decided that the 350 miles between Cochrane and Lake Nipigon should be built from either end. By December 1910, 40 miles at the west ens of this was graded and the track laid for over 100 miles at the Cochrane end. A winter tote road was compgleted across the remaining distance and sufficient supplies to grade all but a few cuts were distributed.

As most of the grading work was of the lightest description, the construction plant consisted mostly of shovels and wheelbarrows, with a load or two of explosives for loosening frozen clay. This light work was practically completed by October 1911. In the heavy rock districts, work of course proceeded more slowly. The usual rock blasting methods were employed. Frequently 6000 cubic yards or more of rock were broken up by one of these blasts. Deep clay cuts in the Abitibi region were excavated with less expense in the winter, as in summer hoerses would travel in the sticky blue gumbo only after the cuts (and often the fills as well) had been corduroyed. In the winter the cut did not freeze deeply in a single night and the frozen top could be undermined or broken up with a few sticks of dynamite.

Much of the grading in New Brunswick and Quebec was performed with steam shovels. These were hauled to the work in winter along with their necessary complement of donkey engines, cars and track. Scrapers were employed on the prairie sections and elsewhere, generally for light sandy work, few being sent in across Lake Nipigon. Slides were numerous throughout the clay belt. These occurred to some extent in the sides of cuts which frequently required a slope of 1 in 2, or even flatter. At the Little Mistongo, a long concrete arch was built on pile foundations and the deep gully bridged with a light trestle, from which material excavated from an adjacent cut was dumped. Some of this simply flowed away in a river of mud. After several slides had occurred, which broke up and buried the culvert, sweeping three or four trestles in succession down the slope, the fill was completed in winter, a large square culvert of heavy timbers being used to replace the arch culvert. With the freshet the embankment again settled and a small lake formed on the upstream side. Continuous filling at length brought the embankment up to grade, the water being first pumped and siphoned over the top and later carried through a concrete pipe.

Much of the hauling on the line was done by these small 2-6-0 engines. This particular example is J.D. McArthur & Co. Ltd. #7. (Ontario Archives)

The treacherous soil of the clay belt was the cause of a great deal of trouble in securing stable bridge foundations especially when attempting to excavate in mis stream. When possible, long spans were used to avoid foundations in mid-stream where clay was encountered in the river bed. Trestles of unsquared timbers were erected at most openings where a bridge or culvert was required. These trestles were of the most temporary character but hey served to push the track ahead so that steel and cement could be brought in for the permanent structures.

There were about 240 steel bridges or viaducts of a total length of 11 miles, and aggregating 61,000 tons. The maximum single span was 300 feet. Steel viaducts were built with 40 ft. towers and 60ft. intermediate spans. All bridges were designed according to Dominion Government specifications: engine loading weight - 180 tons with 49,400 lbs. on each pair of drivers.

The track was laid with 80lb. rails 33feet long with 4-bolt angle-bar joints. Tracklaying was sometimes carried on right through the winter, the snow being shovelled or plowed off the grade, or simply tramped down sufficiently not to impede the"Tie-buckers". Finally snow packed about the ties was found to make a much firmer skeleton track than that laid in summer, but when this melted a lot of repairing and shimming was required to render the line safe for material and surfacing trains.

Throughout January 1912 tracklaying was continued west of the Nagagami River at the rate of one-third mile a day, with the thermometer often 40 degrees below zero. Under favourable conditions, two miles of track a da\ were oftern laid for short periods but temporary interruptions usually brought the average down to below one mile per day.

It was hoped that the whole railway would be completed in six years. Progress however on that portion to which access could be had only from either end was continually interrupted by delay in getting out some large cut, failure of a temporary structure, development of sink holes or other unforseen causes. Uncertainty regarding the duration of the seasons had to be allowed for also. In 1907 there was 2 feet of snow on the ground in the Kenogami District on June 1st., and the ice on Lake Nipigon did not break up until June 16th.; whereas on other occasions snow had dissapeared from long stretches of tote roads running east from Cochrane and Matheson before the end of March. During the excessively dry summers of 1909 and 1910, disastrous forest fires swept over the country. These did enormous damage along the line north of the height of land, putting a stop to the work in many localities.

The following is a passage taken directly from a magazine article of 1912 which summarizes the progress in construction that had been made up to the time of its publication:-
The undertaking has now progressed to a point where it is reasonably certain trains will be running across the whole eastern division sometime in 1914. The track is already laid 355 miles eastward from Winnipeg and 750 miles westward from Moncton, except for a short distance in southern Quebec and the as yet unbridged St. Lawrence River. Another stretch of track extends east and west from Cochrane covering 330 miles. This leaves a gap of 150 miles in northern Quebec and another 240 miles in northern Ontario. Across the former, except for the most easterly 10 miles no grading has been done. Throughout the latter, only a small amount of excavating and some temporary trestles remain to be completed, on which work is being rushed, so as not to delay the tracklaying gangs working from either end. These are expected to meet not later than the end of the present year, giving through connection by way of the T&NO Railway between the cities of eastern Canada and the wheat fields of the west. Across New Brunswick, east and west from Quebec City, for about 100 miles out of Cochrane and between Winnipeg and Superior Junction, surfacing and ballasting are finished, steel bridges are in place and the line practically ready for operation. Division yards are located on an average of 120 miles apart. Sidings are provided about seven miles apart, with a water tank at every third siding.

The originally estimated distance of 1900 miles from Moncton to Winnipeg was reduced gradually by repeated revisions of location to 1804.8 miles. This distance is 261 miles less than the shortest distance over any other combined railways between Winnipeg and Moncton then in existance. The distance between Winnipeg and Quebec City was 1351 miles, which is 223 miles shorter than the CPR and the grades were so much more favourable that it was calculated that engines of equal capacity would haul nearly twice the load on the new line.

On November 17th. 1913 stell was complete from Winnipeg to Moncton, the last spike

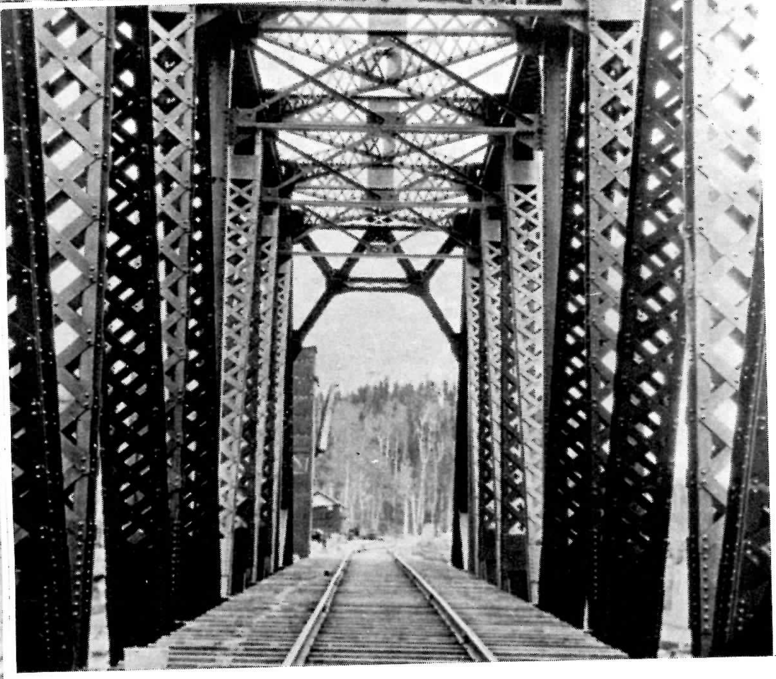
BUILDING THE BRIDGES

Dist C. Res 8. Coffee River Temporary & Permanent trestles Sep 27.1912

ABOVE
Where large rivers required the building of steel and concrete bridges, a shoofly trestle was first built so that construction could continue whilst the main structure of the bridge was built. In this picture a train is negotiating one of these shooflys whilst work is in progress in constructing concrete piers for a more substantial structure. (Ontario Archives)

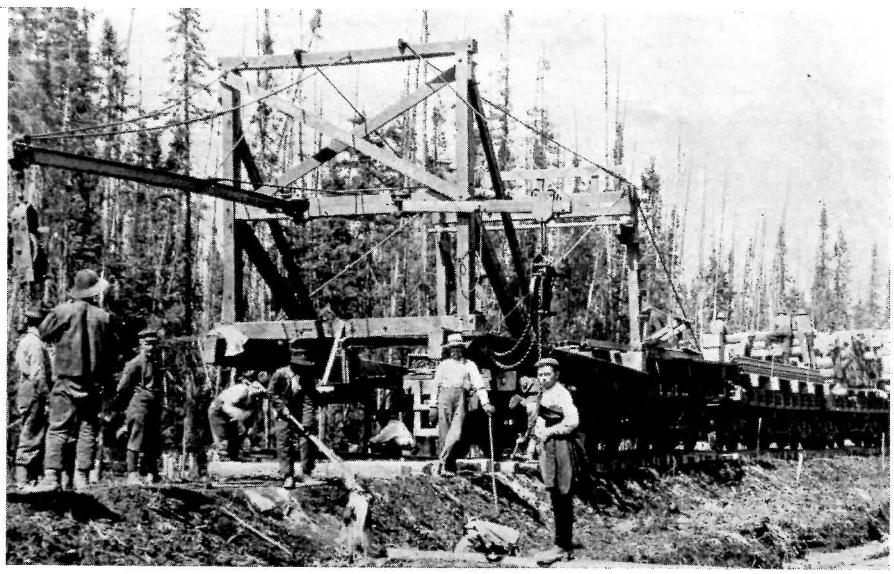
LEFT
When crossing the Coffee River a temporary trestle was built which was later replaced with a more permanent structure. Later still these "permanent" trestles were replaced with earth fills and short steel bridges or culverts. (Ontario Archives)

BELOW
The Winnipeg River bridge in the final stages of construction. The main box girder has been rolled out over the old trestle and secured. Now a steam crane is working on removing another section of the wood trestle so that a girder approach span (seen behind the trestle) can be moved sideways into position. (Ontario Archives)



LEFT
A steel box girder bridge "as built". This particular bridge is located to the east of Cochrane and is still in use. The water tower in the background however has given way to diesel traction. (Ontario Archives)
BELOW
Where the final bridge work was to be of wood, these trestles were built quickly and in advance of the tracklayers. In this shot the completed bridgework is awaiting the final grading and track laying. (Ontario Archives)

BELOW
A completed section of bridge and fill work crossing the Lowbush and Circle rivers. Lowbush River station is visible through the first bridge and has remained virtually unchanged since this photograph was taken on October 1st. 1912. The more recent photograph can be seen on page 22. (Ontario Archives)



ABOVE
When the tracklaying machine and its attendant train had passed, the spiking gang moved in to finish the job. Later still ballasting crews would finish aligning and levelling the track. (Ontario Archives)
LEFT
Introducing the Hicks Rail Layer. A crude hand powered device. Ties were manhandled forward and the rails were manouvered by the booms on the machine. Note how at first the track is only laid on the dirt grade and no attempt is made to level it. (Ontario Archives)
BELOW
A more sofisticated track-laying machine at work near Armstrong. With this device, ties are brought forward by a convayer and rails are handled by a steam powered crane. (Ontario Archives)

LAYING THE TRACK

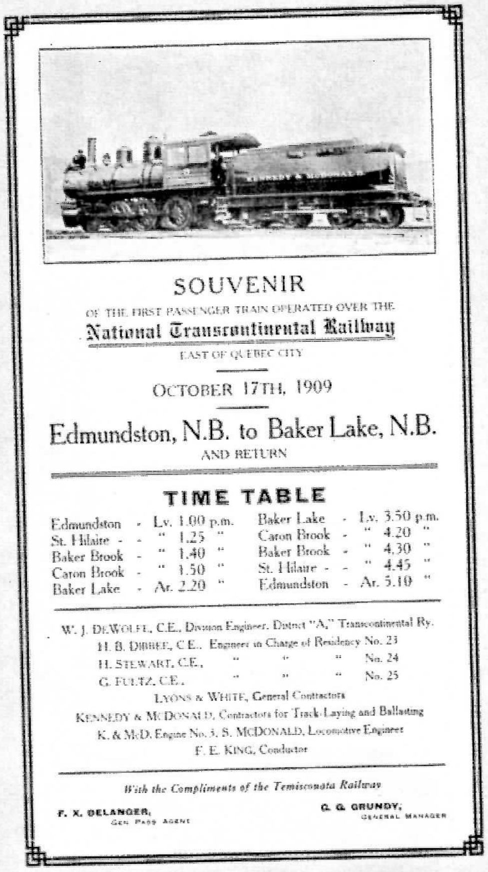
was driven at Grant, Ontario . All that remained was the bridging of the St. Lawrence at Quebec City. Some statistics of the construction are listed below:-

Rock removal	37,394,000 cu. yards.
Excavation	20,568,100 cu. yards.
Fill	32,633,500 cu. yards.
Track ballast	6,229,200 cu. yards.
Concrete masonry	691,000 cu. yards.
Rails	252,000 tons.
Bridging steel	61,000 tons.
Ties	5,400,000

In 1898 the Railway Committe of the Privy Council had authorised the construction of a cantilever bridge across the St. Lawrence River five miles upstream of Quebec City between the villages of Ste. Foy and Charny. A company was formed to build the bridge and hired an American consultant named Theodore Cooper. Cooper believed that previous examples of cantilever bridge construction, notably the Forth Bridge in Scotland, used far too much steel. He recommended a bridge that would be double tracked, one track for railway use , the other for streetcars. The centre span would be 1800 feet in length and the whole design would be 60% lighter than the Forth Bridge. An order was placed in 1904 with a Pennsylvania company that had never built a bridge like this before, this choice and the overall design led to the Chief Government Engineer asking for the plans to be re-examined. Cooper, who was offering his services free of charge, and the bridge company ignored the suggestions and construction began.

By August 1907, construction was well advanced but the on-site staff and Coughmawaga Indian construction workers were far from happy about the structure of the central span. On August 27th., Cooper refused an appeal from the site engineer to suspend operations, then on August 29th. a locomotive, a travelling crane and a load of steel were on the edge of the span when it collapsed, killing seventy-four workers.

A souvenir reprint of the first passenger train to operate over the N.T.R. east of Quebec City. (J. Norman Lowe Coll.)



SOUVENIR

OF THE FIRST PASSENGER TRAIN OPERATED OVER THE

National Transcontinental Railway

EAST OF QUEBEC CITY

OCTOBER 17TH, 1909

Edmundston, N.B. to Baker Lake, N.B.

AND RETURN

TIME TABLE

Edmundston -	Lv. 1.00 p.m.	Baker Lake -	Lv. 3.50 p.m.
St. Hilaire - -	" 1.25 "	Caton Brook -	" 4.20 "
Baker Brook -	" 1.40 "	Baker Brook -	" 4.30 "
Caton Brook -	" 1.50 "	St. Hilaire - -	" 4.45 "
Baker Lake -	Ar. 2.20 "	Edmundston -	Ar. 5.10 "

W. J. DEWOLFE, C.E., Division Engineer, District "A," Transcontinental Ry.

H. B. DIBBEE, C.E., Engineer in Charge of Residency No. 23

H. STEWART, C.E., " " " No. 24

G. FULTZ, C.E., " " " No. 25

LYONS & WHITE, General Contractors

KENNEDY & MCDONALD, Contractors for Track-Laying and Ballasting

K. & McD. Engine No. 3, S. MCDONALD, Locomotive Engineer

F. E. KING, Conductor

With the Compliments of the Temiscouata Railway

F. X. BELANGER, Gen. Pass. Agent

G. G. GRUNDY, General Manager

After this the government too kover the project and a new bridge was designed, almost twice the weight of the original structure and for the first time nickel-steel was specified. Work began early in 1910 and continued for seven months a year for the next six years. By May 1916 the approaches were complete and only the centre span needed to be installed. This span which would link the cantilever arms was 640 feet in length and weighed 4,701 tons. It had been assembled on shore and towed into position on pontoons. It would then be jacked up into position. On September 11th. the hoisting began. When the structure was 30 feet above the water a casting in one of the hoisting frames split, dropping the south-west corner and the whole span dropped into the river. The vibrations in the structure shook the construction workers from the bridge into the river, most were rescued but two men died.

Another span was ordered, which was hoisted into position on September 17th. 1917 without incident. Four weeks later the first train crossed and the National Transcontinental Railway was complete at a cost of $169,090,125.

After the election of 1911, at which time the Conservatives under R.L. Borden came into power, there was a profound alteration in attitude toward the National Transcontinental Railway. The Laurier administration which through its four man commission had nurtured the project from its beginnings, had pursued a policy of high standards of construction. The new attitude was one of suspicion of excessive expenditure of public monies in unduly heavy construction, improper awarding of contracts and other dubious procedures, so on January 29th. 1912, by order of the Privy Council, a two man investigating commission was set up to review the entire handling of the project up to that time. The chairman of this commission was George Lynch-Staunton with F.P. Gutelius as member. A further change came that year when Major R.W. Leonard was appointed Commissioner for the NTR and legislation passed reducing the commission from four members to one. The Investigating Commission stated in its report that :-

Until the appointment of Major Leonard, no member of the N.T.R. Commission had any experience or knowledge of railway building or operation.

This comment paraphrased the general spirit in which the Investigating Commission was set up and carried out its duties. The voluminous 659 page report of the Commissioners was finally presented to the government in February 1914, with the conclusion consisting only of two sentences :-

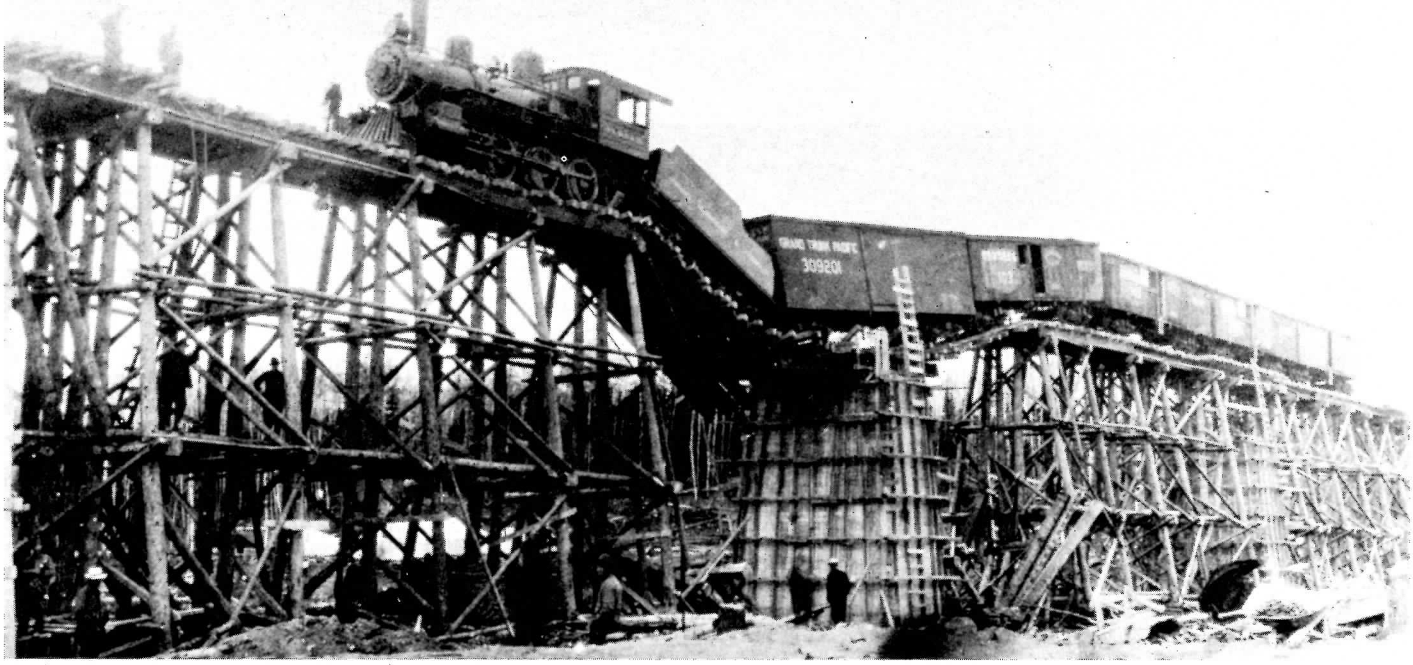
We find that the Transcontinental Railway Commission, the Grand Trunk Pacific Railway, and those having charge of the construction of the railway did not consider it desirable or necessary to practice or encourage economy in the construction of this road.

We find that without including the money that was unnecessarily expended in building the railway east of the St. Lawrence River, $40 million at least was needlessly expended in the building of this road.

With a financial outlay of nearly $170 million, which was more that twice the original estimate on which the Grand Trunk Pacific had agreed to enter the scheme, the new figure that the 3% per annum of cost rent would represent was too high. Even with the first seven years at no cost, the line could

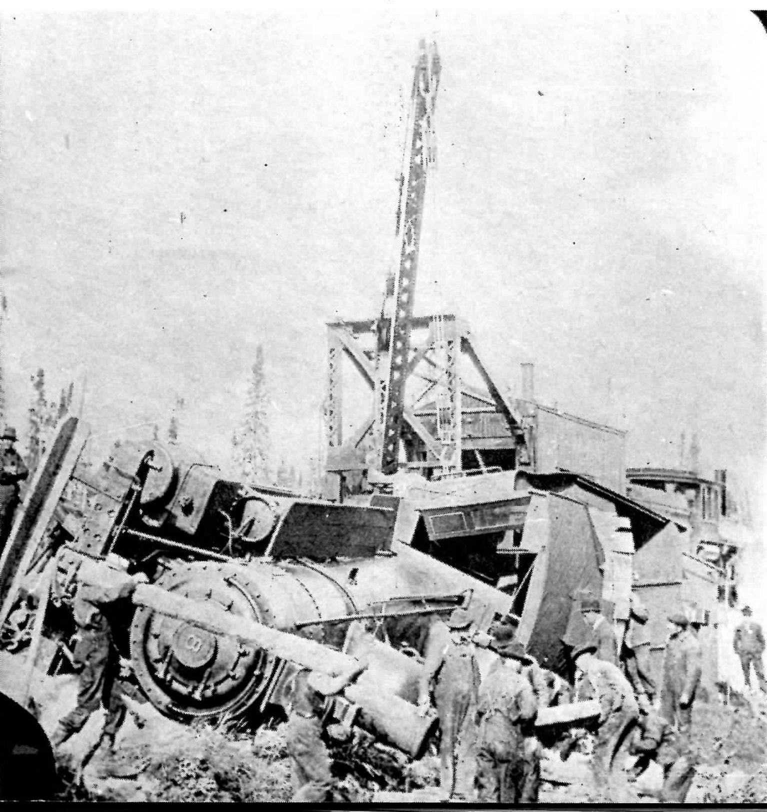
(Continued on Page 19)

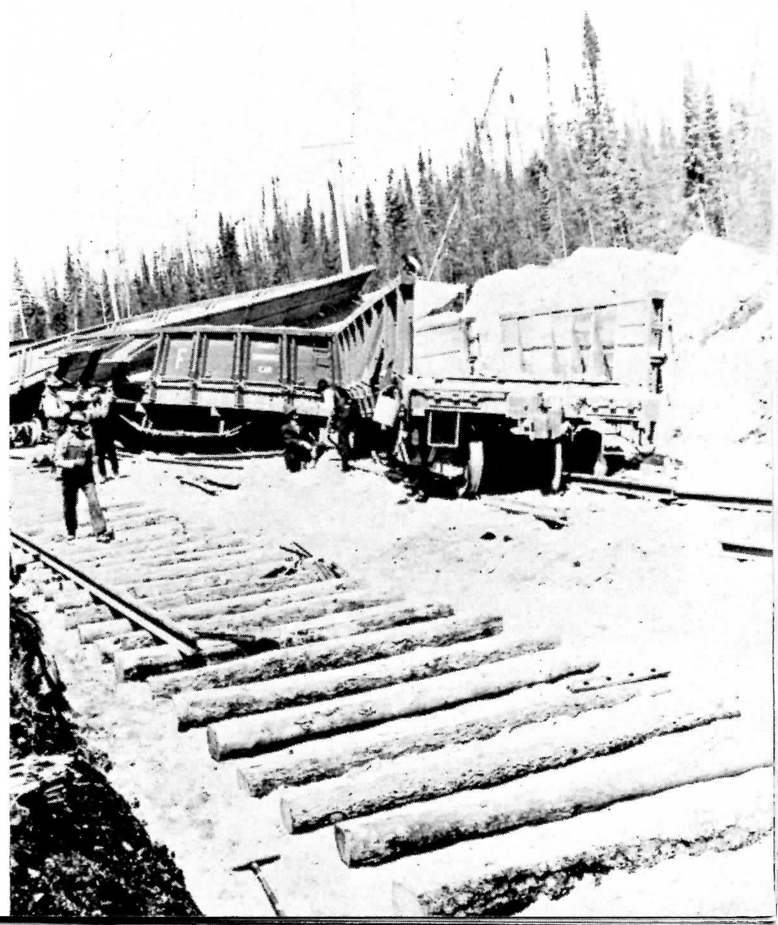
Along with other Canadian Railways the N.T.R. had to do its share of snowplow duties. Here two plows are operating to the west of Cochrane. (Ontario Archives)

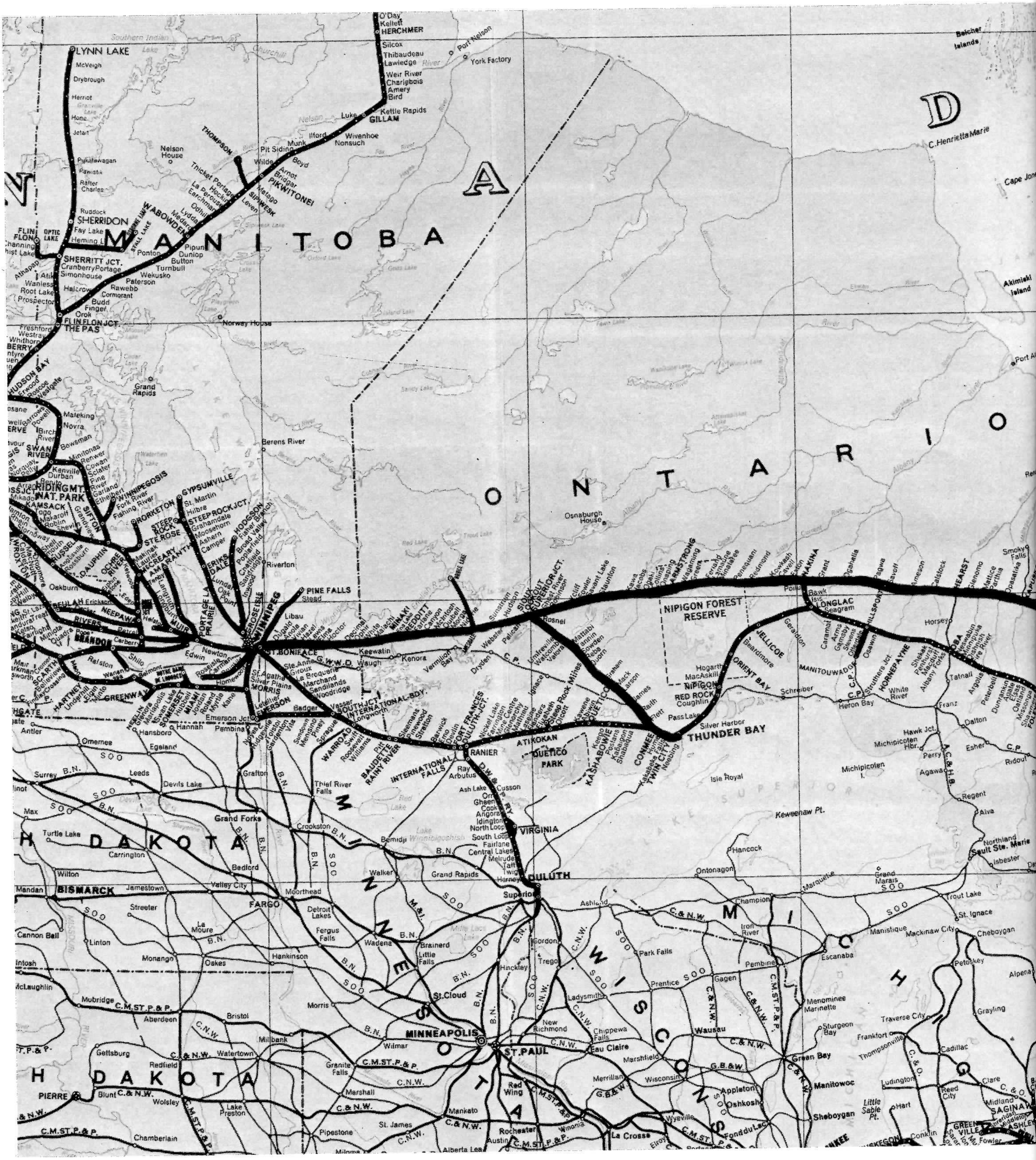


ABOVE - When trestles are being replaced with steel and concrete, parts of them have to be removed for the new piers. In this case it was a case of too much train and not enought trestle. (Public Archives Canada / C 36481)
LEFT - With new grade and no ballasting, construction locomotives sometimes came to grief. Here a tender has become derailed. (Public Archives Canada / C 36478)
BELOW LEFT - The "Hook" to the rescue of engine #8. (Ontario Archives)
BELOW - The rails have been ripped up by the jacknifing of some ballast cars. (Public Archives Canada / C 53405)

MISHAPS

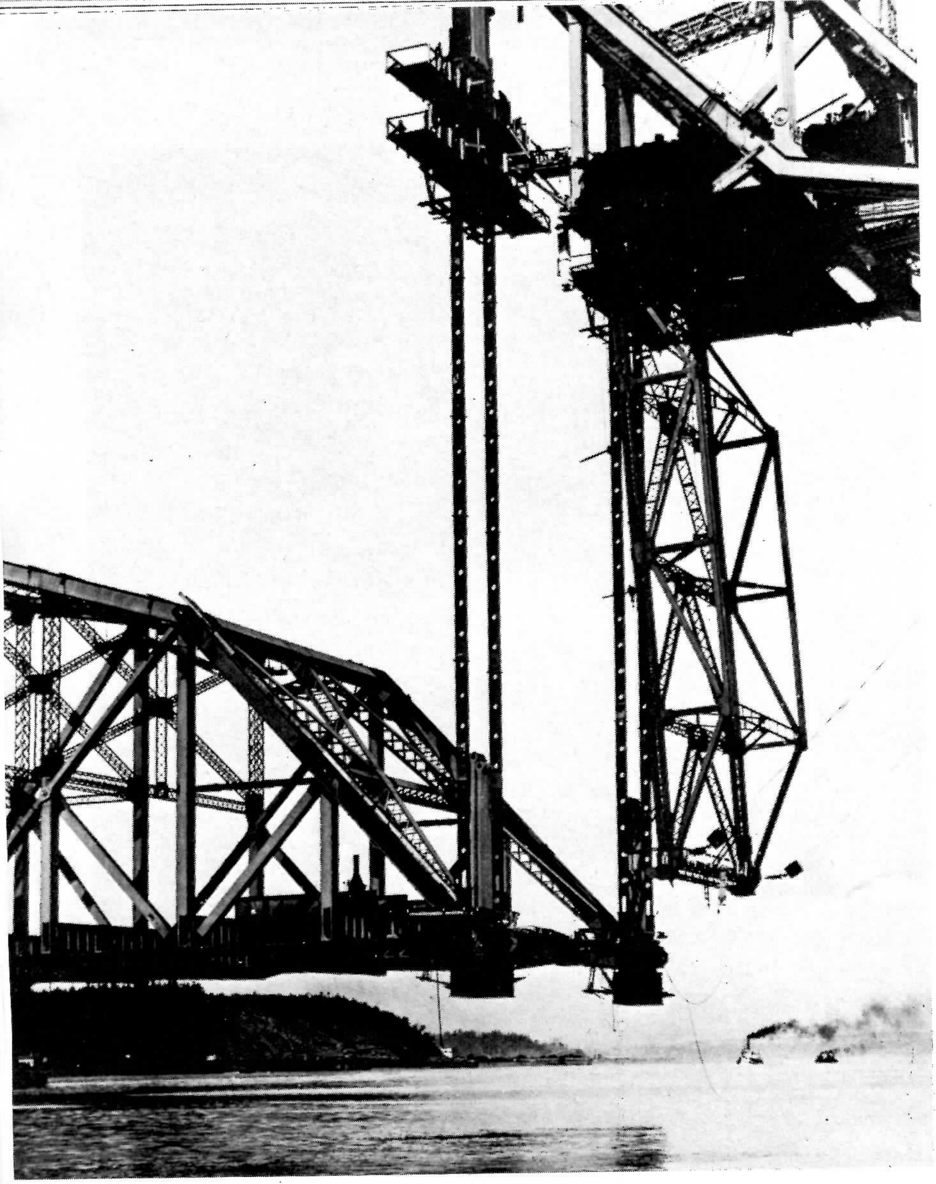






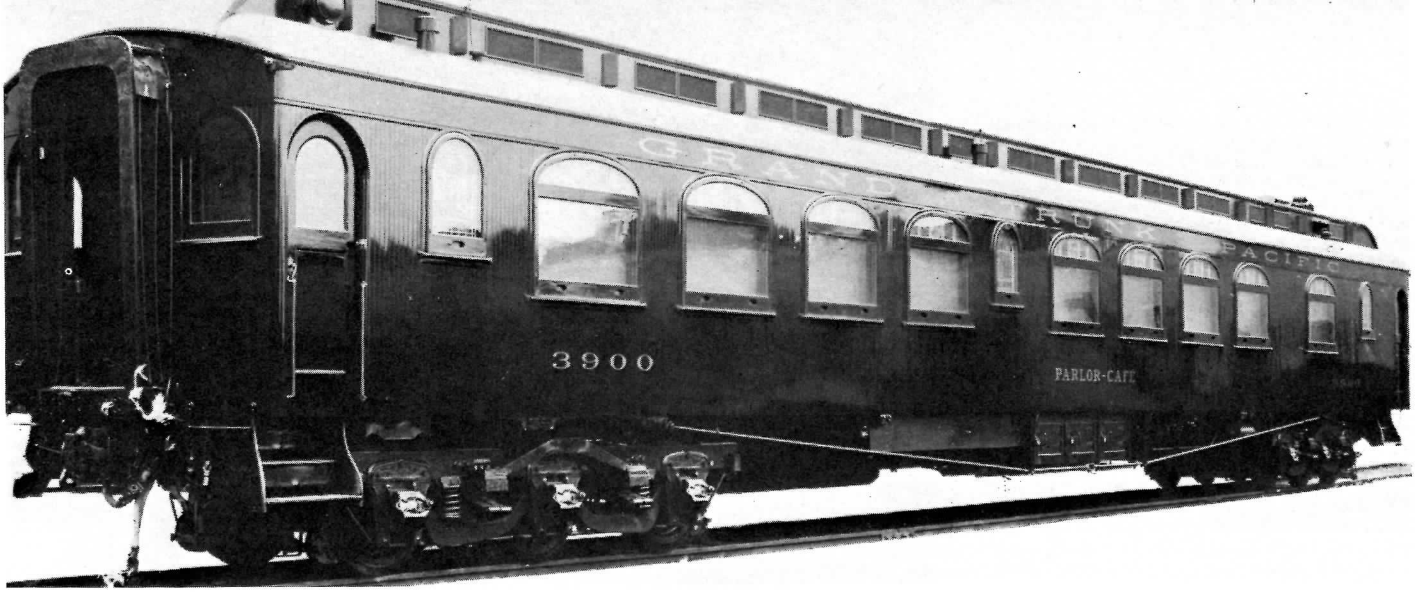
The route of the National Transcontinental
modern Canadian National System.

Railway in perspective to the rest of the



QUEBEC BRIDGE

LEFT
The last span is hoisted into place. This third attempt to bridge the St. Lawrence at Quebec City succeeded. (Canadian National photo)
BELOW
A local train crossing the bridge in steam days. Since this photograph was taken one of the tracks has been removed and the roadway has been widened to take up the space. (CNR)



ABOVE - When the N.T.R. was finally finished the first transcontinental trains using the route would have included equipment such as this Parlor-Cafe car #3900. (CNR)

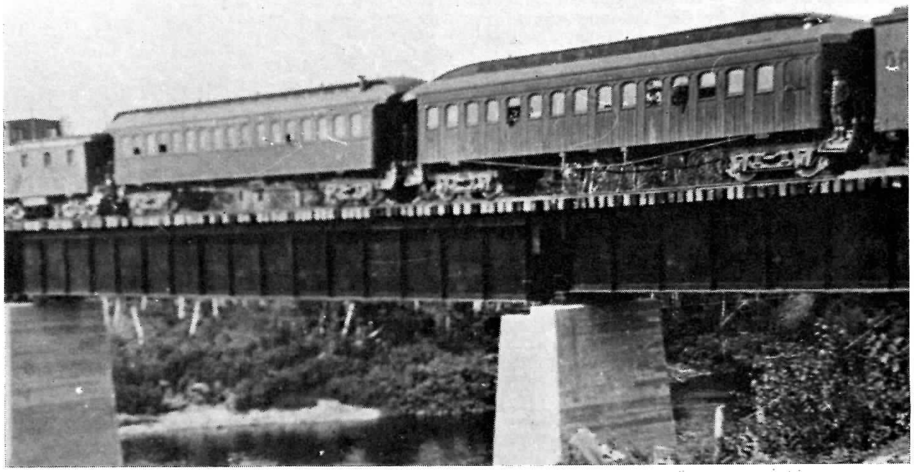
not have been expected to generate sufficient traffic to pay its rental. The Grand Trunk Pacific therefore declined to operate the line, citing that after the change of government in 1911, the new Commission had not completed the line to the prescribed standards.

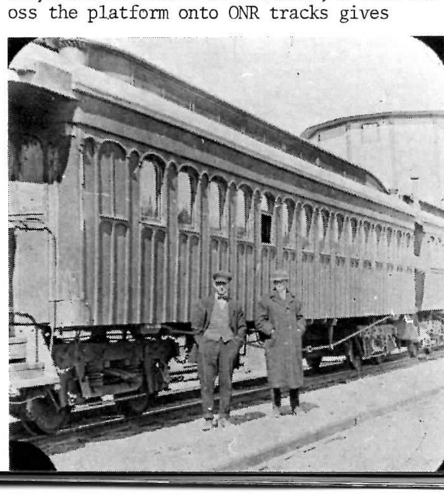
The government, upon realizing that the NTR would be on its hand permanently, designated it as part of the Canadian Government Railways, to be under the juristiction of the Minister of Railways and Canals. The Lake Superior branch of the Grand Trunk Pacific was leased for 999 years on May 1st. 1915 to give the government full control of the Winnipeg - Fort William route. The operational arrangement set up in 1914 continued until November 20th. 1918 when the Canadian Government Railways was placed under the Board of Directors of the Canadian Northern Railway, which was by this time working for the federal government, which had recently declined further loans and purchased the latter railway. This temporary arrangement led to the birth of one of Canada's premier passenger trains. The "Continental Limited" first ran in 1918 as a joint CNoR/GTP operation. Running to North Bay from Montreal on Canadian Northern tracks and from Toronto on Grand Trunk tracks, the train combined (and split eastbound) and ran north to Cochrane on the T&NO Railway before heading west on the eastern division of the NTR which by now had become known as the NTR. After Winnipeg the train followed GTP rails to Edmonton and then the (government inforced) joint CNoR/GTP tracks to Redpass Jct., B.C. before heading south to Vancouver on Canadian Northern right of way.

The essentially temporary "marriage" of the two companies under one board gave way in 1919, when the Canadian National Railway Company was constituted to manage and operate all government owned lines under the operational name of Canadian National Railways.

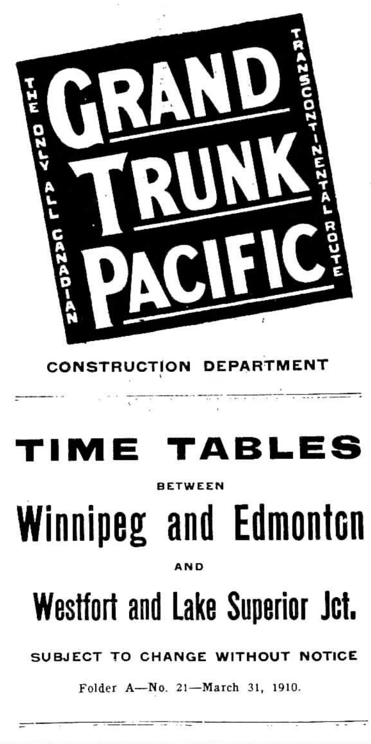
In the ensuing years, Canadian National built branches from the old NTR to such places as Noranda/Rouyn, Chibougamau and Bruce Lake in order to tap the mining and timber recourses of these areas.

The intention of the Laurier Government was for a route that would ship grain and other prairie products directly to the ports of Quebec and Halifax by the shortest and easiest route possible. This has not been the case as even in the early years, a large proportion of the GTP/NTR grain haulage travelled to the Lakehead ports and not to the Atlantic. Similarily westbound manufactured goods originated in Toronto or Montreal, and so would not be routed by the northly route. Currently freight traffic is heavy on the extreme eastern (Quebec - Moncton) and western (Nakina - Winnipeg) sections but the balance is reduced to the haulage of locally derived products. In a similar manner the passenger services are not of a "through" nature. It is still possible to travel over the NTR by passenger train, but it involves many changes and types of equipment. Typically, RDC's operate between Moncton and Edmonston and between Edmonston and Quebec City. A full sleeping car train operates between Quebec City (now Ste. Foy - VIA/CNR trains no longer use the CPR facilities) and Senneterre with through coaches to Rouyn and Cochrane. At Cochrane, a walk across the platform onto ONR tracks gives





ABOVE - In contrast to the through trains, locals were far more spartan. A mixed train is seen west of Cochrane. (Ontario Archives)
BELOW LEFT - A close up of period passenger cars. (Ontario Archives)
BELOW - The title page of a GTP timetable (CNR)



THE ONLY ALL CANADIAN
GRAND TRUNK PACIFIC
TRANSCONTINENTAL ROUTE

CONSTRUCTION DEPARTMENT

TIME TABLES
BETWEEN
Winnipeg and Edmonton
AND
Westfort and Lake Superior Jct.

SUBJECT TO CHANGE WITHOUT NOTICE

Folder A—No. 21—March 31, 1910.

overnight connection with the ONR/VIA pool train to Kapuskasing. From Kapuskasing to Hearst there is a gap in passenger service which is filled by ONR buses operating on parallel Highway #11. A Hearst a thrice - weekly mixed train operates to Nakina where one can head to Winnipeg on the "Super Continental" (VIA #3 & #4).

As with train service, the track conditions vary with traffic demands. The eastern section was one of the first in Canada to be equipped with a full CTC system. West of Quebec City the train order prevails with good track conditiond all the way to Senneterre. From Senneterre the lowering traffic levels are reflected as the weeds encroach on the track until Cochrane is reached where, after connecting with ONR, the old NTR mainline is well maintained as far as Kapuskasing. There is 0.2 miles between Cochrane and Cochrane Junction, where CN does not have full control of the main line. On this joint section the ONR timetable prevails.

Over the gap in the passenger system, the speed limits are lowered and locomotive weight is restricted. By far the most restrictive section lies to the west of here between Hearst and Nakina. The usually allowed power is 1200 HP road switchers with a slow speed restriction. During the spring and early summer, the muskeg conditions dictate the lightening of maximum car weights by 25 tons.

At Nakina the old NTR route is joined by the Longlac (originally Long Lake) cutoff which was built by the CNR in the early 1930's to connect the NTR with the Canadian Northern, providing a more direct route from Toronto and Montreal to Winnipeg. From Nakina to Winnipeg the main line is a total contrast from the section east of that junction. The line is fully CTC operated with heavy rail and sees intensive freight operation interlaced with daily passenger ("Super Continental") and twice weekly mixed (#277/#278 - Superior Junction to Sioux Lookout and #286/#287 - Sioux Lookout to Winnipeg) trains.

Between Sioux Lookout and the Manitoba border there has recently been a lot of track rebuilding activity, curves have been straightened, double track has been installed, for many miles complete with ribbon rail and in places concrete ties. All this is fully CTC operated.

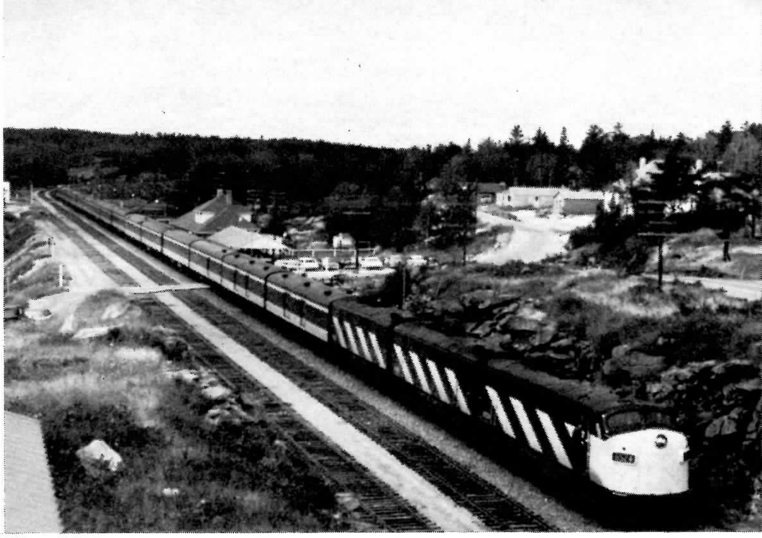
Was the NTR worth the money and effort? Overall the answer is yes. The original mainline has opened up the north of Ontario and Quebec and allowed exploitation of the immense timber and mineral resources of the area. The rout from Nakina to Winnipeg would probably have been built by the CNR sooner or later as the old Canadian Northern route is very round-about, meandering through Thunder Bay and Rainy River. The sections in northern Quebec might have been built as extensions of the ONR at a later date and in the east as extensions of the old CNoR Chicoutami branch. It is unlikely that the sections between Kapuskasing and Nakina and Senneterre and Cochrane would have been built by any other scheme. As was noted by the Borden government, there was really no need for the Quebec City to Moncton section as double tracking of the Intercolonial Railway wouls have accomodated the traffic.

As a postscript, the two main players in the early NTR and GTP days, Sir Charles Rivers-Wilson and Charles Melville Hays were immortalized in ex-Grand Trunk Pacific stations:- Rivers, Manitoba and Melville, Saskatchewan.

Information of the construction was taken from U.C.R.S. Bulliten #47 which was published by the Society in 1957. Other information was found in "History of Canadian National Railways" by G.R. Stevens, "Railways of Canada" by Nick & Helma Mika and by conversations with various railfans and personal observations. The Compiler would like to thank the staffs of the Ontario Archives, the Public Archives in Ottawa and Canadian National Railways photo section in Montreal. Special thanks to Mr. Rex Rundle for allowing us to use the grade profiles and elevation information that he has carefully preserved from period Government publications.

ABOVE - When Canadian National became established local service over the old National Transcontinental route was provided by Pacific type locomotives. In this shot a local passenger train threads the Laurentians. (CNR)

LEFT - CNR class K-3-a Pacific #5576 recieves a lube job during a station stop at La Tuque, Quebec. Built as GTR #240 by MLW in 1913 she lasted on the roster until August 1962. (CNR photo)



ABOVE - Between Cochrane and Senneterre, the local passenger train is reduced to one unit, one baggage car and one coach. #6532 (FP-9) leads the eastbound passenger train. (R.W. Layton)

The western end of the NTR still has transcontinental service. CNR #1 (now VIA #3) is seen here picking up passengers at Minaki in north-western Ontario. (CNR)
BELOW CENTRE - Power is changed at Winnipeg Union Stn. Having brought the train from Montreal #6528 backs away from the station. (R.W. Layton)

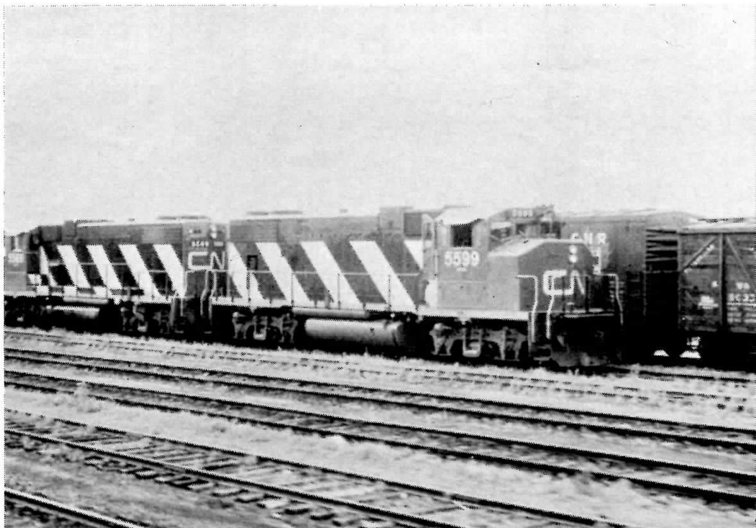
ABOVE - Road limits result in the use of geeps on freight service in north-eastern Ontario. Here #4457 heads west through Cochrane station. (R.W. Layton)
BELOW - New double track route under construction in the north-west of Ontario. (R.W.L)

N.T.R. NOW

ABOVE - Heavy freight haulage in NW Ontario is handled largely by these new GP-40-2W units. #9527 is seen here. (R.W. Layton)
BELOW - One track of a new grade has been opened whilst the second track is almost up to running standard. (R.W. Layton)

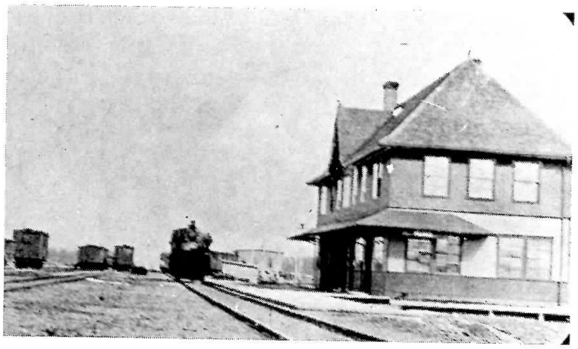
ABOVE CENTRE - The new grade has just been opened and the rails removed from the old grade as another section of double track route nears completion. (R.W. Layton)
BELOW - Geep 4458 lifts a train of pulpwood empties out of Taschereau Yard in northern Quebec. (R.W. Layton)

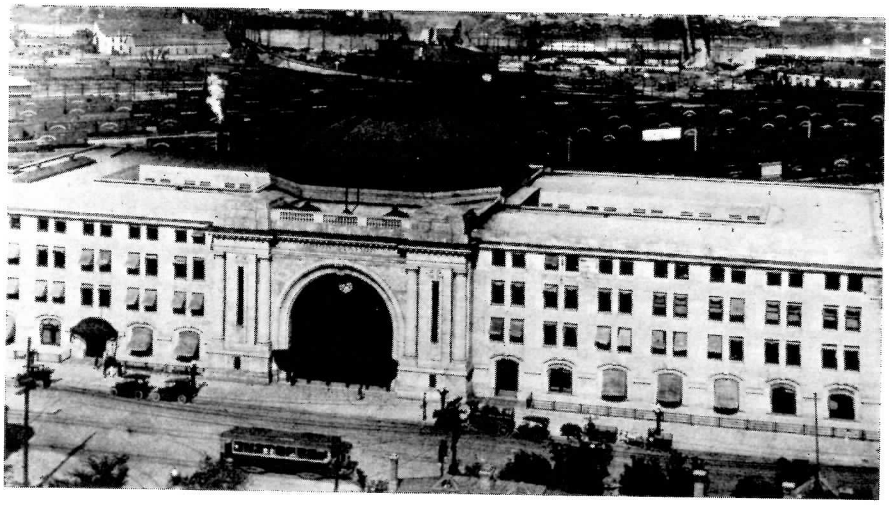
BELOW - Third largest in numbers behind the GP-40's and SD-40's in Northwestern Ontario are the GP-38-2W's. #5599 and 5569 are shown here in Transcona Yard. (R.W. Layton)



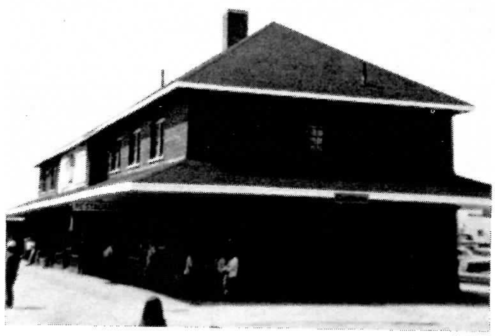
LEFT - Sioux Lookout, the first division point east of Winnipeg. It has a pseudo Tudor finish. (CNR)
BELOW LEFT - Hearst, as built. This photo was taken in the very early days when service had just started. (Ontario Archives)
BELOW - Winnipeg Union station was built to serve both the Grand Trunk Pacific (NTR) and the Canadian Northern. The photograph shows the building shortly after opening. (CNR)

STATIONS

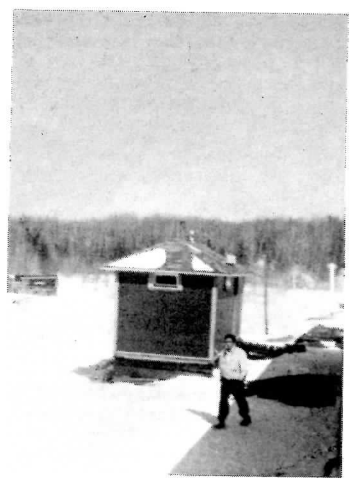




ABOVE - Macamic, Quebec is typical of the small community station in the east end of the clay-belt. It comes to life twice a day when the passenger trains arrive and then reverts to being a railway office. (M.F. Layton)



ABOVE - Cochrane Union station is one of the more substantially built on the line, being entirely of brick. Shortly after construction it served as a shelter to the townspeople as Cochrane burnt down in one of those early disasterous fires. (J. Walther)



ABOVE - Lowbush River station has changed very little since it was built over 65 years ago. It consists of a small shelter and platform and has remained adequate for the community that it serves, where rail is the only access. (M.F. Layton)
LEFT - The staff of Transcona station pose for the camera. This was the first station east of Winnipeg and is now on the site of CN's Prairie shops. Since this photo was taken the City of Winnipeg has expanded to take in this community. (CNR)

Appendix 1
PASSENGER SERVICE

HEARST – NAKINA

Km	Mi	273 Tue. Thu. Sat. Mar. Jeu. Sam.		Eastern Time Heure de l'Est		272 Sun. Wed. Fri. Dim. Mer. Ven.
0	0	12 00	Dp	Hearst, Ont. (39)	Ar	17 30
36	22	(9)12 55		Calstock		(9)16 00
69	43	(9)13 40		Ameson		(9)15 15
103	64	(9)14 25		Savoff		(9)14 30
122	76	(9)14 55		Pagwa River		(9)14 00
126	79	(9)15 05		Pagwa		(9)13 50
168	105	(9)16 00		Ogahalla		(9)12 55
202	125	(9)16 45		Grant		(9)12 10
232	144	17 30	Ar	Nakina, Ont. (47)	Dp	11 30

STE-FOY / QUÉBEC – MONTRÉAL – SENNETERRE – (COCHRANE)

Km	Mi	175 Ex. Sat. Sauf sam.		Eastern Time Heure de l'Est		174 Ex. Mon. Sauf lun.
0	0	(115)22 40	Dp	Ste-Foy, Qué.	Ar	07 40
3	2	22 54		Cap-Rouge		07 26
37	23	23 33		Les Écureuils		(9)
51	32	(9)23 45		Portneuf		(9)06 37
66	41	(9)23 59		St-Marc		(9)06 24
74	46	(9)00 08		St-Casimir		(9)06 18
87	54	(9)00 22		St-Prosper		(9)06 07
105	65	(9)00 40		St-Adelphe		(9)05 53
119	74	00 55	Ar	Hervey (17)	Dp	05 40
		21 35	*Dp*	*Montréal, Qué. (Central Stn./Gare Centrale)*	*Ar*	*09 05*
119	74	01 55	Dp	Hervey (17)	Ar	04 55
148	92	(9)02 22		Doheny		(9)04 30
200	124	03 35		La Tuque		03 45
204	127	03 58		Fitzpatrick		03 40
228	142	(9)04 20		Cressman		(9)03 01
235	146	(9)		Club Vermillion		(9)
238	148	(9)04 34		Rapide-Blanc		(9)02 51
251	156	(9)04 50		Lac-Darey		(9)02 38
261	162	(9)05 03		Duplessis		(9)02 29
274	170	(9)		McTavis Club		(9)
275	171	(9)05 19		Windigo		(9)02 15
280	174	(9)05 33		Ferguson		(9)02 07
290	180	(9)		Club Wigwam		(9)
299	186	(9)05 49		Vandry		(9)01 55
304	189	(9)		Dessane		(9)
312	194	(9)		St. Maurice Riv. Boom		(9)
315	196	(9)06 09		Weymont		(9)01 41
318	198	06 14		Sanmaur		01 37
325	202	(9)06 30		Cann		(9)01 29
330	205	(9)		Club Bélanger		(9)
343	213	(9)06 50		Hibbard		(9)01 14
357	222	07 06		Casey		01 01
373	232	(9)07 30		McCarthy		(9)00 46
376	234	(9)		Sisco Club		(9)
385	239	(9)		Wapoos		(9)
397	247	08 30		Parent		00 25
410	255	(9)08 43		Timbrell		(9)23 56
418	260	(9)		Club Rita Inc.		(9)
422	262	(9)		Strachan		(9)
426	265	(9)		Maniwawa Club		(9)
434	270	(9)09 06		Greening		(9)
441	274	(9)		Oskelaneo Lodge		(9)
452	281	09 22		Oskelaneo River		(9)
463	288	09 35		Clova		22 57
473	294	(9)09 50		Coquar		(9)22 46
488	303	(9)10 03		Monet		(9)22 31
497	309	(120)		Consolidated Bathurst		
500	311	(9)		Kapitachuan Club		(9)
500	311	(9)		Bourmont		(9)
507	315	(9)		Club Beaudin Inc.		(9)
515	320	(9)		Da-Rou-Lac Lodge		(9)
515	320	(9)10 28		Langlade		(9)22 01
526	327	(18)		Gagnon		(18)
529	329			Dix		(9)21 46
542	337	(9)		Bolger		(9)
552	343	(9)11 02		Forsythe		(9)21 21
563	350	11 13		Paradis		21 06
574	357	11 25		Press		20 52
584	363	11 35		Signai		(9)20 42
605	376			Mégiscane		(9)20 23
619	385	12 10	Ar	Senneterre, Qué. (22) (23)	Dp	20 10
		Ex. Sun. Sauf dim.				Ex. Sun. Sauf dim.

(STE-FOY / QUÉBEC – MONTRÉAL) – SENNETERRE – COCHRANE

From Ste-Foy Depuis Ste-Foy Km	Mi	175 Ex. Sun. Sauf dim.		Eastern Time Heure de l'Est		174 Ex. Sun. Sauf dim.
619	385	12 45	Dp	Senneterre, Qué. (21) (23)	Ar	19 25
628	390	(9)13 05		Belcourt		(9)19 05
648	403	13 24		Barraute		18 46
676	420	(9)13 53		Landrienne		(9)18 17
689	428	14 07		Amos		18 03
698	434	(9)		Clercs-St-Viateur		(9)
710	441	(9)14 31		Villemontel		(9)17 39
722	449	(9)14 42		Launay		(9)17 28
735	457	14 59		Taschereau		17 11
748	465	(9)15 11		Authier		(9)16 59
759	472	15 23		Macamic		16 48
776	482	15 40		La Sarre		16 30
787	489	15 52		Dupuy		16 18
798	496	(9)16 06		La Reine, Qué.		(9)16 06
827	514	(9)		Eades, Ont.		(9)
832	517	(9)16 36		Mace		(9)15 36
850	528	(9)		Lowbush River		(9)
883	549	(9)		Stimson		(9)
891	554	(9)17 36		Norembega		(9)14 35
901	560	(9)		Brower		
916	569	18 05	Ar	Cochrane, Ont.	Dp	14 05

TORONTO – NORTH BAY – COCHRANE – KAPUSKASING – HEARST

Nos. 121-122 { O.N. TRAINS OPERATED ON CN LINES BETWEEN TORONTO AND NORTH BAY / LES TRAINS DE L'O.N. EMPRUNTENT LES LIGNES CN ENTRE TORONTO ET NORTH BAY

Km	Mi	NORTHLAND 99 Daily Quot.	(1) ★ (141) 123 Fri. Sun. Ven. Dim.	(1) ★ NORTHLANDER 121 Daily Quot.		Eastern Time Heure de l'Est		NORTHLAND 98 Daily Quot.	(1) ★ (142) 120 Sat. Sam.	(1) ★ 124 Sun. Dim.	(1) ★ NORTHLANDER 122 Daily Quot.
0	0	21 25	19 00	14 35	Dp	Toronto, Ont.	Ar	08 10	12 45	22 50	18 20
8	6					St. Clair Ave. (86)			12 28	22 34	
34	21	22 05	19 38			Richmond Hill (1)		(18)07 30			
55	34					Newmarket (1)			11 53	22 00	17 27
101	63					Barrie			11 21	21 30	16 55
103	64	22 55				Beaverton (1)		06 35			
139	86					Orillia			10 58	21 04	16 35
143	89	23 25	21 00	16 25		Washago		06 05	10 43	20 49	16 20
181	112	23 50	21 19	16 45		Gravenhurst		05 45	10 23	20 29	16 00
197	122	00 05	21 31			Bracebridge (1)		05 30	10 11	20 17	
218	135	(18)00 22	(9)21 48			Utterson (1)		(18)05 09	(9)09 56	(9)19 59	
235	146	00 38	22 06	17 25		Huntsville		04 56	09 44	19 45	15 25
276	171	(18)01 07	(9)22 39			Burks Falls (1)		(18)04 27	(9)09 16	(9)19 17	
295	183	(18)01 21	(9)22 53			Sundridge (1)		(18)04 14	(9)09 03	(9)19 03	
304	189	(18)01 28	(9)23 01	18 10		South River (1)		(18)04 07	(9)08 57	(9)18 56	14 35
334	208		(9)23 23			Powassan (1)				(9)18 32	
367	228	02 30	23 59	19 10	Ar	North Bay	Dp	03 10	08 00	17 55	13 35
		O.N.						O.N.			
367	*228*	*02 50*	CONSULT LOCAL AGENT FOR ONTARIO NORTHLAND CONNECTIONS	19 20	*Dp*	*North Bay (O.N.)*	*Ar*	02 50	CONSULTER L'AGENT DE VOTRE LOCALITÉ POUR LES CORRESPONDANCES ONTARIO NORTHLAND		13 20
485	*301*	*04 46*		20 58		*Temagami*		00 55			11 42
520	*323*	(9)*05 19*				*Latchford*		(9)00 20			
534	*332*	*05 34*		21 23		*Cobalt*		00 06			11 06
542	*337*	*05 42*				*Haileybury*		23 56			
550	*342*	*05 54*		21 49		*New Liskeard*		23 46			10 52
570	*354*	(9)*06 14*				*Earlton*		(9)23 22			
592	*368*	*06 45*		22 20		*Englehart*		23 10			10 20
634	*394*	*07 27*		22 54	*Ar*	*Swastika*	*Dp*	22 10			09 45
634	*394*	*07 27*		22 55	*Dp*	*Swastika (O.N.)*	*Ar*	22 00			09 43
682	*424*	(9)*08 06*				*Ramore*		(9)21 23			
699	*434*	*08 20*		23 35		*Matheson*		21 09			09 05
715	*444*	(9)*08 32*				*Val-Gagné*		(9)20 56			
730	*454*	*08 45*		23 55	*Ar*	*Porquis*	*Dp*	20 45			08 45
730	*454*			23 59	*Dp*	*Porquis (O.N.)*	*Ar*				08 40
783	*487*			00 40	*Ar*	*Timmins, Ont.*	*Dp*				08 00
730	*454*	*08 55*			*Dp*	*Porquis (O.N.)*	*Ar*	20 40			
775	*482*	*09 30*			*Ar*	*Cochrane*	*Dp*	20 05			
0	0	09 50	(85) Daily Quot.		Dp	Cochrane	Ar	19 32	(85) Daily Quot.		
10	7					Frederick (1)		(9)19 22			
49	30	10 35				Smooth Rock		18 50			
67	42	(9)10 50				Strickland (1)		(9)18 35			
80	50	11 00				Fauquier (1)		18 25			
90	56	11 10				Moonbeam (1)		18 15			
112	69	11 30			Ar	Kapuskasing	Dp	17 55			
0	*0*		*11 35*		*Dp*	*Kapuskasing (CN)*	*Ar*		*17 40*		
9	*6*		*11 46*			*Valrita (1)*			*17 29*		
20	*13*		*11 55*			*Harty (1)*			*17 20*		
35	*22*		*12 06*			*Opasatika (1)*			*17 09*		
47	*30*		*12 17*			*Lowther (1)*			*16 58*		
65	*41*		*12 37*			*Mattice (1)*			*16 42*		
84	*53*		*12 51*			*Hallebourg (1)*			*16 24*		
96	*60*		*13 00*		*Ar*	*Hearst, Ont.*	*Dp*		*16 15*		

WINNIPEG – SIOUX LOOKOUT

286 Tue. Thu. Mar. Jeu. (Until November 30 / Jusqu'au 30 novembre)	286 Tue. Thu. Mar. Jeu. (Effective December 5 / En vigueur le 5 déc.)		Central Time Heure du Centre		287 Wed. Fri. Mer. Ven.
12 30	10 30	Dp	Winnipeg, Man. (48)	Ar	12 45
14 15	12 15		Elma, Man.		11 05
15 40	13 40		Malachi, Ont.		09 50
16 20	14 20		Minaki		09 20
17 00	15 00		Redditt		08 55
18 30	16 30		Red Lake Road		07 25
20 10	18 10		Hudson		05 55
20 40	18 40	Ar	Sioux Lookout, Ont. (47)	Dp	05 30

Tables taken from the VIA Rail Canada, winter 1978/79 Timetable.

NORTH BAY – WINNIPEG – (VANCOUVER)

From Montreal Depuis Montréal Km	Mi	(36) 675 Tue. Thu. Sat. Mar. Jeu. Sam.	SUPER CONTINENTAL 3 Daily Quot.					SUPER CONTINENTAL 4 Daily Quot.	(36) (41) 676 Sun. Wed. Fri. Dim. Mer. Ven.
578	359		19 25	Dp	North Bay, Ont. (CN)	ET/HE	Ar	13 25	
629	391		20 08		Field			12 39	
711	442		21 20	Ar	Capreol		Dp	11 30	
		09 00	21 50	Dp			Ar	11 00	20 20
761	473	09 40			Laforest				18 50
816	507	10 50			Westree				17 50
851	529	11 25			Gogama				17 20
951	591	13 30	01 40		Foleyet			07 05	15 50
1007	626	14 30			Elsas				14 50
1126	700	16 25	04 30		Oba			04 15	12 50
1189	739	17 30	05 35	Ar	Hornepayne (51)		Dp	03 15	12 00
		17 50	06 05	Dp			Ar	02 50	10 50
1257	781	18 45	07 00		Hillsport			01 30	09 45
1313	816	19 35			Caramat				08 55
1352	840	20 20	08 20		Longlac			23 55	08 30
1400	870	21 15	09 10	Ar	Nakina (52)		Dp	23 00	07 50
			09 20	Dp			Ar	22 50	
1492	927		(44)		Auden			(44)	
1532	952		11 15		Ferland			21 10	
1540	957		(59)		Mud River			(59)	
1580	982		12 15	Ar	Armstrong	ET/HE	Dp	20 30	
			12 25	Dp			Ar	20 20	
1615	1004				Collins	CT/HC		18 45	
1669	1037				Allanwater Bridge			18 05	
1707	1061		13 15		Savant Lake			17 35	
1804	1121		14 40	Ar	Sioux Lookout (54)		Dp	16 10	
			15 10	Dp			Ar	15 40	
1825	1134		(45)(9)15 35		Hudson			(46)(9)15 15	
1855	1153		See Note (45) — Voir note (45)		Sunstrum			See Note (46) — Voir note (46)	
1868	1161				Millidge				
1886	1172				Amesdale				
1910	1187				Morgan				
1920	1193		16 50		Red Lake Road			13 50	
1924	1196				Quibell				
1939	1205				McIntosh				
1950	1212				Canyon				
1974	1227				Jones				
1987	1235				Farlane				
1992	1238		18 30		Redditt			12 20	
2026	1259		18 55		Minaki			11 40	
2047	1272				Ottermere				
2051	1275				Malachi			(9)11 20	
2063	1282				Rice Lake, Ont.				
2068	1285				Winnitoba, Man.				
2072	1288				Ophir				
2121	1318		(9)20 15		Elma			10 20	
2209	1373		21 30	Ar	Winnipeg, Man. (48) (50) (57)	CT/HC	Dp	08 55	

Appendix 2

THE N.T.R. NOW – MILE BY MILE

NAPADOGAN SUBDIVISION

ATLANTIC TIME

Miles from Pacific Jct.	Yard Limits	Switching Zone	STATIONS	Office Signals	Siding Capacity in Feet
			Jct. with Gort Sub.		n 4250
0.0			PACIFIC JCT. P		s 4850
			12.6		
12.6			NORTH BRANCH P		4800
			16.8		
29.4			PANGBURN P		6400
			9.6		
39.0			BRONSON P		4950
			6.8		
45.8			CHIPMAN PKY	CH	4900
			9.6		
55.4			CANTOR P		8150
			14.3		
69.7			BANTALOR P		4850
			7.8		
77.5			NORTH CAINS P		2800
			8.0		
84.9			Jct. with Miramichi Sub. P		
85.5			McGIVNEY PY	MC	6800
85.6			Jct. with Nashwaak Sub.		
			12.1		
97.6			MAPLE GROVE P		4850
			9.0		Yard
106.6			NAPADOGAN PKY	NA	7450
			8.3		
114.9			DEERSDALE P		4850
			7.7		
122.6			JUNIPER P		4700
			12.6		
135.2			SUMMIT P		6600
			6.8		
142.0			ODELL P		6950
			6.4		
148.4			LONGLEY P		5700
			6.3		
154.7			PLASTER ROCK P	FN	4600
			11.6		
166.3			BLUE BELL P		4600
			9.3		
175.6			ENNISHORE P		6500
			1.9		
177.5			DRUMMOND P		
			5.0		
182.5			GRAND FALLS P	GF	4600
			8.6		
191.1			CYR JCT. P Jct. with C. P. R.		
			3.0		
194.1			ST. LEONARD PR	DN	8450
			1.4		
195.5			I. N. R. JCT. PY Jct. with St. Quentin Sub.		
			7.6		
203.1			QUISIBIS P		3750
			6.2		
209.3			GREEN RIVER P		4850
			5.5		
214.8		215.3	ST. BASIL P		2850
			3.3		
218.1		↑	FRASER JCT. P Jct. with Temiscouata Sub.		
	218.9		1.3		
219.4	↑		EDMUNDSTON CK WZ	H	Yard 1350

C. T. C.

Line-up regulations not applicable between Edmundston and Signal 2153 St. Basil

EQUIPMENT RESTRICTIONS

Heaviest engine permitted to operate GF-30c, class.

Heaviest engine permitted in north siding track G-94 Pacific Jct. is MR-18.

Heaviest car permitted gross weight 263,000 lbs.

Heaviest auxiliary permitted — 250 tons.

Due to sharp curvature when turning locomotives in Wye at Napadogan, units must be turned individually, not coupled together to prevent draw bar or track damage.

SPEEDS

Mileage	Railiner	*Psgr.	*Freight	DU
	Miles per hour			
0.0 to 89.9 zone	75	70	55	—
18.2 to 19.8	55	50	40	—
34.4 to 34.9	65	60	50	—
43.2 to 44.0	65	65	55	—
45.3 to 46.3	40	35	25	—
46.5 to 50.3	60	55	45	—
51.0 to 51.8	70	70	55	—
54.1 to 54.9	60	60	55	—
56.4 to 58.4	60	55	45	—
75.3 to 75.7	65	60	50	—
84.5 to 85.4	70	70	55	—
89.9 to 110.4 zone	65	60	50	—
93.0 to 95.0	60	55	40	40
103.1 to 110.0	60	55	40	40
110.4 to 130.9 zone	65	60	55	—
118.7 to 119.2	55	50	40	35
127.1 to 130.9	55	50	40	40
130.9 to 147.3 zone	65	60	40	—
139.4 to 141.0	55	50	40	40
144.1 to 146.9	55	50	40	40
147.3 to 159.5 zone	65	60	50	—
153.1 to 153.5	55	50	45	40
159.1 to 159.5	50	45	35	35
159.5 to 177.0 zone	55	50	40	—
163.0 to 163.5	50	45	35	35
167.9 to 172.5	50	45	35	30
172.5 to 173.7	25	20	20	—
173.7 to 176.7	50	45	35	35
177.0 to 187.2 zone	60	55	45	—
180.6 to 181.0	55	50	40	40
186.3 to 187.2	55	55	45	—
187.2 to 212.1 zone	65	60	55	—
192.7 to 192.9	65	60	40	40
204.8 to 205.9	60	55	40	—
212.1 to 219.4 zone	65	60	50	—
213.3 to 213.6	60	55	45	—
217.5 to 217.8	55	50	35	—
219.3 Until crossing occupied	5	5	5	—
Slane Spur	—	—	10	—

EXPRESS TRAINS: Unless otherwise restricted, trains designated as express trains by timetable schedule or as express extras by clearance may run five (5) miles per hour in excess of freight train speeds They must not exceed 65 mph or passenger train speeds at any point.

ALL TRAINS having a DESIGNATED UNIT in the consist are subject to the additional speed restrictions listed in the DU column.

PELLETIER SUBDIVISION

EASTERN TIME

Miles from Edmundston	Yard Limits	STATIONS	Office Signals	Siding Capacity in Feet
0.0	1.7	EDMUNDSTON CKWZ	H	Yard 1350
		7.0		
7.0		ALBERTINE P		4650
		10.3		
17.3		MacKENZIE P		4800
		11.8		
29.1		COURCHESNE P		5850
		6.6		
35.7		GLENDYNE P		4800
		8.3		
44.0		TARTE P		4800
		1.2		
45.2		RIVIERE BLEUE P		
		9.8		
55.0		ESTCOURT P		6300
		4.6		
59.6		ST. ELEUTHERE P		4600
		8.0		
67.6		PELLETIER P		7875
		6.3		
73.9		FOURCHUE EAST		
		2.5		
76.4		FOURCHUE WEST		
		10.5		
86.9		ST. ANDRE JCT. P Jct with Montmagny Sub		

C. T. C.

Two Tracks

CTC from Edmundston to and including signal 684 at siding west switch Pelletier is under the control of Train Dispatcher Edmundston. CTC west of signal 684 is under the control of Train Dispatcher Montreal.

EQUIPMENT RESTRICTIONS

Heaviest engine permitted to operate GF-30c class. (Connors spur MR-18e. f and g class).

Heaviest car permitted gross weight 263,000 lbs. (Connors spur 220,000 lbs).
Heaviest auxiliary permitted — 250 tons.
Heaviest auxiliary permitted Connors Spur — 75 tons.

Connors Spur — Movement of loaded chip cars not permitted.

SPEEDS

Mileage	Railiner	*Psgr.	*Freight	DU
	Miles per hour			
0.0 to 2.8 zone	55	50	35	—
2.8 to 13.4 zone	60	55	50	—
10.9 to 11.4	55	50	45	—
13.4 to 57.0 zone	55	50	45	40
15.6 to 15.9	50	45	35	35
29.4 to 34.7	45	40	35	30
41.0 to 46.2	45	40	35	30
54.4 to 56.9	45	40	35	30
57.0 to 67.9 zone	55	50	40	35
57.8 to 58.7	45	45	40	35
61.6 to 63.0	25	25	25	25
62.9 Until Crossing occupied	25	25	25	—
67.9 to 86.9 zone	45	45	45	—
Connors Spur	—	—	15	—

EXPRESS TRAINS: Unless otherwise restricted, trains designated as express trains by timetable schedule or as express extras by clearance may run five (5) miles per hour in excess of freight train speeds. They must not exceed 65 mph or passenger train speeds at any point.

*ALL TRAINS having a DESIGNATED UNIT in the consist are subject to the additional speed restrictions listed in the DU column.

MONK SUBDIVISION

EASTERN TIME

Miles from Edmundston	Yard Limits	STATIONS	Office Signals	Siding Capacity in Feet
67.6	↓ 69.8	PELLETIER ZP		
		7.3		
74.9		ST. ATHANASE		4700
		20.1		
95.0		BRETAGNE		4700
		28.8		Yard
123.8	121.8 126.8	MONK ZKWY	MK	5500
		23.8		
147.6		ST. APOLLINE		4850
		22.0		
169.6		ARMAGH		6650
		27.0		
196.6		STE. CLAIRE		4600
		28.1		
	222.7	Jct. with Q.C.R.		
224.7	↑	CTC DIAMOND ZP Jct. with Diamond Sub.		

CTC at Diamond commences at Signal 18L and controlled by Operator Joffre
Rules 41 and 44 applicable

EQUIPMENT RESTRICTIONS

Heaviest engine permitted to operate GF-30c class.

Heaviest car permitted gross weight 263,000 lbs.

Heaviest auxiliary permitted — 250 tons.

Due to sharp curvature, when turning locomotives in wye at Monk, units must be turned individually, not coupled together, to prevent draw bar or track damage.

SPEEDS

Mileage	Railiner	*Psgr.	*Freight	DU
	Miles per hour			
67.6 to 85.7 zone	50	50	40	30
68.2 to 73.4	45	40	35	—
85.3 to 85.7	35	35	30	—
85.7 to 101.6 zone	50	30	30	—
101.6 to 159.7 zone	45	30	30	30
123.46 within 1500 feet of highway crossing until crossing ocpied (Eastward trains)	40	—	—	—
159.7 to 224.7 zone	50	35	35	30
165.0 to 166.8	35	30	25	—
181.1 to 187.6	45	35	35	—
224.7 Over Junction & cross-over switches at Diamond	15	15	15	—

EXPRESS TRAINS: Unless otherwise restricted, trains designated as express trains by timetable schedule or as express extras by clearance may run five (5) miles per hour in excess of freight train speeds. They must not exceed 65 mph or passenger train speeds at any point.

*ALL TRAINS having a DESIGNATED UNIT in the consist are subject to the additional speed restrictions listed in the DU column.

DIAMOND SUBDIVISION

Miles from St. Charles	Yard Limits	STATIONS	Office Signals	Siding Car Capacity
0.0	↓ 1.1	ST. CHARLES.....RYZ	C I	58
		Jct. with Montmagny Sub.		
		7.8		
7.8	12.7	CARRIER.......P		49
		5.2		
13.0	↕	ST. JEAN CHRYSOSTOME..Z		
		0.8		
		Jct. with Q. C. Ry.		
13.8	13.8	CTC { DIAMOND......PZ		
		Jct. with Monk Sub.		
		1.5		
15.3		JOFFRE........CKW	J F	YARD
	16.0	1.5		
16.1	↑	Jct. with Bridge Sub.		
16.8		WEST JCT.......PYZ		YARD
16.9		Jct. with Montmagny Sub.		

Rules 41 and 44 applicable between St. Charles and Diamond. CTC controlled by the Operator at Joffre.

EQUIPMENT RESTRICTIONS

Heaviest auxiliary permitted, 160 tons.
No engine permitted to operate on Smith Peat Moss Company side track, mileage 2.8, account located in muskeg area.
Heaviest car permitted, gross weight 263,000 lbs.

SPEEDS

Mileage	Miles per hour Psgr.	Freight
0.0 to 16.8 zone	45	40

Regional Special Instruction S3 applicable on sidings.

BRIDGE SUBDIVISION

Miles from Jct. switch with Diamond Sub.	Yard Limits	STATIONS	Office Signals	Siding Car Capacity
		CPR TO QUÉBEC		
12.5		CTC { CADORNA		
		Jct. with Can. Pac. Ry.		
		1.3		
11.2		ST. MALO SPUR...P		
		0.7		
10.5	10.5	ALLENBY......PZ		
	↕	Jct. with Lairet Sub.		
	9.7	ABS { 1.7		
8.8		LA SUETTE		63
		3.2		
5.6	5.9 ↑	CAP ROUGE.....RYZ	G U	
		Jct. with La Tuque Sub.		YARD
		2.0		
3.6	↓	STE. FOY.......BZ	B R	89
	3.1	Jct. with Champlain Sub.		
	1.1	3.3		
0.4	↕	Jct. with Montmagny Sub.		
0.3	0.3	CHARNY.......RZ	C J	
		CTC { 0.3		
0.0		Jct. with Diamond Sub.		
		JOFFRE........CKWY	J F	YARD

Movements between Cadorna and Québec are governed by C.P.R. time table and requirements.

EQUIPMENT RESTRICTIONS

Heaviest auxiliary permitted, 160 tons.

Heaviest car permitted, gross weight 263,000 lbs.

SPEEDS

Mileage	Miles per hour Psgr.	Freight
0.0 to 0.6 zone	15	15
0.6 to 5.4 zone	45	45
3.4	25	25
5.4 to 12.5 zone	45	30
5.4 to 5.9	10	10

LA TUQUE SUBDIVISION

Miles from Cap Rouge	Yard Limits	STATIONS	Office Signals	Siding Car Capacity
		Jct. with Bridge Sub.		
0.0	↓	CAP ROUGE.......RYZ	G U	
		1.4		
1.4	1.7	VIADUC.........Z		49
		5.7		
7.1		ST. AUGUSTIN......P		42
		5.4		
12.5		VALLON.........P		36
		8.3		
20.8		ÉCUREUILS		
	21.1	1.7		
22.5	↕	DONNACONA......RZ	R Y	
	24.0	2.4		
24.9		CAP SANTÉ........P		
		5.1		
30.0		PORTNEUF	N U	62
	38.6	9.5		
39.5	↕	ST. MARC........Z	A M	63
	40.9	4.4		
43.9		ST. CASIMIR	S C	63
	51.5	8.5		
52.4	↕	ST. PROSPER........YZ	D G	
	53.2			
		10.5		
62.9		ST. ADELPHE.......P		63
		5.2		
68.1		THOMAS.........P		
	70.0	3.5		
71.5	↕	Jct. with Lac St-Jean Sub.		
71.6		HERVEY.......BWYZ	C H	YARD
	73.3	5.4		
77.0		AUDY..........P		
		6.9		
83.9		GOUIN..........P		62
		6.6		
90.5		DOHENY.........P		63
		7.7		
98.2		LAC CHAT........P		136
		4.0		
102.2		BROCHET.......P		
		3.6		
105.8		RENÉ..........P		61
		5.2		
111.0		LAC À BEAUCE.....P		
	120.1	11.2		
122.2	↑	LA TUQUE........Z	A N	59
		3.2		
125.4		FITZPATRICK....CKWYZ	C A	102 YARD

Rules 41 and 44 applicable.

EQUIPMENT RESTRICTIONS

Heaviest auxiliary permitted, 160 tons.

Heaviest car permitted, gross weight 263,000 lbs.

SPEEDS

Mileage	Miles per hour *Psgr.	*Freight	DU
0.0 to 125.4 zone	50	40	
0.0 to 1.0	10	10	
17.9 to 18.9	45		
22.0 to 26.0	35	35	
23.0			25
29.7 Bridge	40	30	
39.3	35	35	
39.5			25
71.7 Approaching and within 500 feet from the crossing, including crossover track. (B.T.C. 105163)	10	10	
95.3 to 96.8	10	10	
122.1 Westward trains, when approaching and within 500 feet of St. François St. crossing, mileage 122.1, and until the leading unit or car has reached St. Joseph St. crossing, mileage 122.3. (C.T.C. R-236)	20	20	
122.3 Eastward trains, when approaching and within 700 feet of St. Joseph St. crossing, mileage 122.3 and until the leading unit or car has reached St. Zéphirin St. crossing, mileage 121.6. (C.T.C. R-236)	20	20	

*ALL TRAINS having a DESIGNATED UNIT in the consist are subject to the additional speed restrictions listed in the DU column.

TUNNEL

Location	Length
Mileage 117.6	700 ft.

ST. MAURICE SUBDIVISION

Miles from Fitzpatrick	Yard Limits	STATIONS	Office Signals	Siding Car Capacity
0.0	↓ 2.1	FITZPATRICK....CKWYZ	C A	YARD 102
		7.0		
7.0		BEAUMONT......P		62
		6.3		
13.3		CRESSMAN.......P		125
		7.1		
20.4		RAPIDE BLANC	D I	
		8.0		
28.4		LAC DAREY......P		57
		6.2		
34.6		DUPLESSIS.......P		125
		9.0		
43.6		WINDIGO........P		69
		5.4		
49.0		FERGUSON.......P		63
		8.9		
57.9		VANDRY........P		147
		10.0		
67.9		WEYMONT.......P		62
		2.2		
70.1		SANMAUR	N Y	
		4.4		
74.5		CANN..........P		61
		10.5		
85.0		HIBBARD........P		125
		8.9		
93.9		CASEY	S A	62
		10.6		
104.5		McCARTHY.......P		61
		9.3		
113.8		WYKES.........P		62
	116.9	5.1		
118.9	↕	PARENT......CKWYZ	P R	YARD 130
	121.5	8.0		
126.9		TIMBRELL.......P		50
		7.7		
134.6		STRACHAN.......P		63
		7.8		
142.4		GREENING		62
		9.3		
151.7		FROISSART		64
		1.2		
152.9		OSKELANEO RIVER...P		
		7.7		
160.6		CLOVA	V A	62
		6.0		
166.6		COQUAR		65
		8.6		
175.2		MONET	N A	136
		9.5		
184.7		BOURMONT......P		62
		7.8		
192.5		LANGLADE.......P		62
		8.6		
201.1		DIX...........P		62
		13.7		
214.8		FORSYTHE.......P		61
	220.5	7.3		
222.1	↕	PARADIS	D	81
	222.5	7.3		
229.4		PRESS.........P		141
		6.1		
235.5		SIGNAI.........P		62
		13.0		
248.5		MÉGISCANE......P		197
	252.0	8.6		
257.1	↑	SENNETERRE....CKWYZ	N O	YARD

Rules 41 and 44 applicable

EQUIPMENT RESTRICTIONS

Heaviest auxiliary permitted, 160 tons.

Account curvature, units in series 5000, 5100 and 5200, when coupled to other units, are prohibited on wye tracks at Parent, also on tracks A-46 and A-47 at Senneterre.

Heaviest car permitted, gross weight 263,000 lbs.

SPEEDS

Mileage	Miles per hour Psgr.	Mixed & Freight
0.0 to 256.8 zone	50	40
0.0 to 19.7	40	30
19.7 to 20.3	20	20
20.3 to 40.0	40	30
119.3	10	10
164.4 to 165.2	40	
186.2 to 187.1	45	
*256.8	15	15

Regional Special Instruction S3 applicable on sidings.

*Not marked with advance speed restriction signs.

TUNNELS

Location	Length
Mileage 6.2	769 ft.

TASCHEREAU SUBDIVISION

Miles from Senneterre	Yard Limits	STATIONS	Office Signals	Siding Car Capacity
0.0	↓	SENNETERRE....CKWYZ	N O	YARD
	3.0	5.2		
5.2		BELCOURT		
		7.6		
12.8		UNIACKE		61
	16.3	5.1		
17.9	↕	BARRAUTE.......RYZ	R U	45
	19.0	9.4		
27.3		FISHER		64
		8.3		
35.6		LANDRIENNE.....P		61
	41.0	7.7		
43.3	↕	AMOS.........Z	A X	26
	44.8	4.1		
47.4		LA FERME.......P		62
		8.5		
55.9		VILLEMONTEL.....P		62
		8.1		
64.0		LAUNAY		65
	70.2	7.4		
71.4	↕	TASCHEREAU...KWYZ	B N	YARD 108
	73.1	8.9		
80.3		AUTHIER.......P		62
		6.9		
87.2		MACAMIC		54
		6.2		
93.4		COLOMBOURG		
	95.7	3.9		
97.3	↕	LA SARRE.......Z	Z	35
	99.5	7.3		
	103.8			
104.6	↕	DUPUY..........Z		59
	105.6	7.0		
111.6		LA REINE		62
		9.0		
120.6		GOODWIN.......P		63
		9.0		
129.6		EADES		
		2.8		
132.4		MACE.........P		63
		9.7		
142.1		LOWBUSH.......P		63
		12.5		
154.6		BINGLE.........P		62
		14.5		
169.1		NOREMBEGA......P		61
		5.7		
174.8		BROWER		
		2.6		
177.4		ABITIBI		61
181.4		6.6		
184.0	181.5 ↑	COCHRANE.....CKWYZ	F	YARD

Rules 41 and 44 applicable.

EQUIPMENT RESTRICTIONS

Heaviest auxiliary permitted, 160 tons.

Heaviest car permitted between mileage 165.4 and Cochrane, 220,000 lbs.

Units in series 4000 and 5500 prohibited between mileage 165.4 and Cochrane.

SPEEDS

Mileage		Miles per hour Psgr.	Freight
0.0 to 165.4	zone	50	40
155.8		20	15
165.4 to 181.4	zone	45	35
181.4 to 183.8	zone	30	25

Regional special instruction S3 applicable on sidings, also on main track between mileage 165.4 and Cochrane.

Units in series 1500-1519, 1900-1917, 3200-3240, 3615-3745, 3900,4400-6899,9104-9142. Speed 30 miles per hour between mileage 165.4 and Cochrane.

ONR
ISLAND FALLS SUBDIVISION

Station Numbers	Kilometres from Cochrane	Miles from Cochrane	Yard Limits	STATIONS	Train Order or Telephone Offices	Car Capacity: Sidings	Car Capacity: Other Tracks
234	0.0	0.0	↓	COCHRANE.... CKPWYZ	C	YARD	
				0.4			
....	0.6	0.4	1.1	COCHRANE JCT... Z			
				Junction with C.N. Rly			
				9.4			
237	15.8	9.8		CLUTE...... P		28	
				16.1			
243	41.8	25.9		WURTELE		44	
				16.4			
247	68.1	42.3		McINNIS		22	
				13.3			
251	89.5	55.6		BROWNRIGG		32	
				6.4			
252	99.8	62.0		KILLORAN			
				7.2			
253	111.3	69.2	68.5 / 70.4	FRASERDALE... PYZ		YARD	
				16.8			
255	139.2	86.0		FOXVILLE		16	
				7.5			
256	150.5	93.5		OTTER RAPIDS... P		10	25
				2.8			
259	155.0	96.3		CORAL...... Y		22	
				15.8			
261	180.4	112.1		RANOKE		32	
				14.0			
263	202.9	126.1		ONAKAWANA		32	N3
				15.9			
265	228.5	142.0		MOOSE RIVER... P		29	
				14.0			
267	251.0	156.0		RENISON		17	
				15.2			
269	275.5	171.2		GALETON		15	
			185.6	15.0			
271	299.6	186.2	↑	MOOSONEE.... CKPWYZ	MH	YARD	

Rule 41 and Rule 44 applicable.

PAGWA SUBDIVISION

Miles from Hearst	Yard Limits	STATIONS	Office Signals	Siding Capacity In Feet
0.0	↓	HEARST.........KPWZ	W H	
		1.1		
1.1	2.3	HEARST JCT........YZ		
		Jct. with A.C.R.		
	20.0	21.3		
22.4	↕	CALSTOCK.......Z		2870
		20.6		
43.0	23.9	AMESON.........P		2910
		21.0		
64.0		SAVOFF.........P		2810
		12.0		
76.0		PAGWA RIVER		
		2.5		
78.5		PAGWA.........P		2870
		26.1		
104.6		OGAHALLA.......P		2840
		20.7		
125.3		GRANT.........P		3290
	142.0	18.8		
143.0	143.0	CTC Jct. with Caramat Sub.		
144.1		CTC NAKINA.........CKPWYZ	N C	

Rules 41 and 44 applicable.

CTC between mileage 143.0 and Nakina controlled by Train Dispatcher HC Hornepayne.

EQUIPMENT RESTRICTIONS

Heaviest auxiliary crane permitted–160 tons.

Heaviest diesel units permitted are GR12.

Entire Subdivision: Cars exceeding 177,000 lbs. gross are prohibited.

From May 1st to June 15th inclusive, cars exceeding 142,000 lbs. gross are prohibited between mileage 22.4 and mileage 143.0.

SPEEDS

Mileage		MILES PER HOUR Passenger	Freight & Mixed
0.0 to 144.1	zone	35	30
0.0 to 144.1	160 ton auxiliary crane		20

KAPUSKASING SUBDIVISION

Miles from Cochrane	Yard Limits	STATIONS	Office Signals	Siding Capacity in Feet
		Jct. with O.N.Rly.		
0.3	↓	COCHRANE JCT.........PZ		
	1.1	6.0		
6.3		FREDERICK		820
		2.1		
8.4		BUSKEGAU		3600
		3.4		
11.8		HUNTA...........P		780
		5.5		
17.3		DRIFTWOOD.........P		2760
	28.4	13.0		
30.3		SMOOTH ROCK.........PZ		3440
	30.9	11.4		
41.7		STRICKLAND.........P		2620
		8.0		
49.7		FAUQUIER.........P		
		6.2		
55.9		MOONBEAM.........P		2490
	67.6	13.5		
69.4		KAPUSKASING.........P*RYZ	M C	4260
	71.1	21.7		
91.1		OPASATIKA.........P		2870
		15.0		
106.1		PARTHIA		2900
		4.0		
110.1		MATTICE.........P		
		9.7		
119.8		GLENOMO		2840
	126.5	9.3		
129.1	↑	HEARST.........KPWZ	W H	

Rules 41 and 44 applicable between mileage 94.5 and Hearst.
Main track commences at mileage 0.3.

SPEEDS

Mileage		MILES PER HOUR Passenger	Freight
0.3 to 94.5	zone	50	45
31.4	Mattagami River Bridge–220,000 lbs. gross ore cars series 344,000-866		10
50.2	Ground Hog River Bridge–220,000 lbs. gross ore cars series 344,000-866		20
69.1 to 69.5	Westward	30	30
94.5 to 129.1	zone	35	25

EQUIPMENT RESTRICTIONS

Heaviest auxiliary crane permitted.............160 tons.

Between mileage 94.5 and Hearst, 2000, 2300, 5000, 5100 and 5200, series diesel units are prohibited, 2500, 3200, 4000, 5500, 5600, 9400, 9500 and 9600 series diesel units may be operated only in emergency, and at 10 miles per hour below zone speed over this portion. These restrictions apply to foreign units of the same weight.

Mileage 0.3 to 94.5–Cars exceeding 251,000 lbs. gross must be covered by handling instructions.

Mileage 94.5 to 129.1–Cars exceeding 220,000 lbs. gross must be covered by handling instructions.

CARAMAT SUBDIVISION

Eastern Time

Miles from Hornepayne		STATIONS	Office Signals	Siding Capacity In Feet
0.0	2 Tracks	HORNEPAYNE...........CKPW	H N	
		3.1		
3.1	2 Tracks	JACKFISH...........P		
		2.7		
5.8	CTC	LENNON...........P		4590
		7.0		
12.8	CTC	TONDERN...........P		6045
		12.5		
25.3	CTC	LEIGH...........P		6070
		10.1		
35.4	CTC	OSAWIN...........P		4580
		6.9		
42.3	CTC	HILLSPORT...........P		5250
		9.1		
51.4	CTC	OTTERDALE...........P		4480
		11.3		
62.7	CTC	GAMSBY...........P		4580
		7.1		
69.8	CTC	ARMS...........P		6340
		7.8		
77.6	CTC	CARAMAT...........P		4570
		14.2		
91.8	CTC	SEAGRAM...........P		7369
		8.2		
100.0	CTC	LONGLAC...........P*W*B	G U	6580
		1.1		
		Jct. with Kinghorn Sub.		
101.1	CTC	LONGLAC JCT...........PY		
		7.2		
108.3	CTC	ISIS...........P		4640
		7.1		
115.4	CTC	BAWK...........P		4480
		6.8		
122.2	CTC	POILU...........P		4580
		8.3		
130.5	CTC	Jct. with Pagwa Sub. ....P		
		1.1		
131.6	CTC	NAKINA...........*C*KPWY	N C	5680
		4.3		
135.9	CTC	EXTON...........P		5340
		10.8		
146.7	CTC	CAVELL...........P		4500
		8.7		
155.4	CTC	KOWKASH...........P		4610
		14.9		
170.3	CTC	REDMOND...........P		4550
		12.0		
182.3	CTC	PENEQUANI...........P		4590
		13.3		
195.6	CTC	MINATAREE...........P		4530
		9.4		
205.0	CTC	LAMAUNE...........P		6370
		8.7		
213.7	CTC	FERLAND...........P		4500
		12.3		
226.0	CTC	GREEN...........P		4630
		7.5		
233.5	CTC	WAGAMING...........P		4720
		10.3		
243.8	CTC	ARMSTRONG...........CKPWY	R A	6920

Main track commences at mileage 1.9.
Rule 105 applies between Hornepayne and mileage 1.9.
CTC between mileage 1.9 and Armstrong controlled by Train Dispatcher HC, Hornepayne.

EQUIPMENT RESTRICTIONS

Heaviest auxiliary crane permitted. . . . . .250 tons.

ARMSTRONG—All equipment having six wheel trucks prohibited on wye track.

Cars exceeding 263,000 lbs. gross must be covered by handling instructions.

SPEEDS

Mileage		*Psgr.	*Frt. & Mixed	Designated Units (DU)
1.9 to 16.1	**zone**	60	55	
12.0 to 16.1		55	50	40
16.1 to 46.8	**zone**	70	60	
21.9 to 25.6		60	55	
29.9 to 33.0		50	40	40
37.7 to 38.6		60	50	
46.0 to 46.8		45	40	30
46.8 to 67.1	**zone**	55	45	40
58.4 to 58.8		50	45	40
66.2 to 67.1		45	40	35
67.1 to 80.7	**zone**	60	50	
69.5 to 70.9		50	45	35
74.5 to 74.8		55	45	40
76.7 to 77.5		50	45	40
80.4 to 80.7		50	45	40
80.7 to 129.7	**zone**	70	60	
85.7 to 86.9		50	45	40
90.9 to 91.1		60	50	
99.1	(Private Crossing)—Eastward movements from siding—until crossing occupied	10	10	
100.3	Picnic Point Road—All movements in siding until crossing occupied	10	10	
100.6 to 101.7		20	20	
112.2 to 112.5		55	50	40
116.0 to 116.4		60	55	
116.6	Eastward trains	50	50	
121.1	Westward trains	50	50	
124.4 to 126.8		55	50	40
129.7 to 140.2	**zone**	55	50	
130.5 to 132.0		45	40	40
133.5 to 134.4				40
140.2 to 187.4	**zone**	70	60	
160.8 to 161.0		60	55	
166.4 to 166.6		60	55	
172.2 to 173.2		55	50	40
179.4 to 180.2		60	55	
185.3 to 185.5		60	55	
187.4 to 198.6	**zone**	55	50	40
189.5 to 191.7		50	45	35
198.6 to 238.8	**zone**	70	60	
201.5 to 201.7		50	45	40
203.0 to 203.2		60	50	
207.6 to 208.5		60	55	
210.7 to 211.0		60	55	
214.3 to 215.2		45	40	35
216.3 to 217.0		60	55	
238.8 to 243.8	**zone**	55	45	40
239.9 to 241.1		45	40	30
**243.1 to 243.8		20	20	

EXPRESS TRAINS: Unless otherwise restricted, trains designated as express trains by time table schedule or as express extra by clearance may run five (5) miles per hour in excess of freight train speeds. They must not exceed 65 miles per hour or passenger train speeds.

*All TRAINS having a DESIGNATED UNIT in the consist are subject to the additional speed restrictions listed in the DU column.

**Eastward speed restriction sign not erected.

ALLANWATER SUBDIVISION

CENTRAL TIME

Miles from Armstrong	Switching Zones	Stations	Office Signals	Siding Capacity in Feet
0.0	1.0	ARMSTRONG ... CKPWY	RA	YARD
		7.4		
7.4		ONAPING ... P		4620
		7.3		
14.7		PASCOPEE ... P		3050
		6.4		
21.1		COLLINS ... P		4610
		7.2		
28.3		OGAKI ... P		4610
		10.6		
38.9		JACOBS ... P		4610
		7.5		
46.4		KAWA ... P		4630
		9.3		
55.7		ALLANWATER ... P		4610
		9.8		
65.5		HARVEY ... P		4610
		4.1		
69.6		STAUNTON ... P		2850
		9.0		
78.6		SAVANT LAKE ... PW		4460
		12.1		
90.7		FOWLER ... P		4640
		9.8		
100.5		YCLIFF ... P		4610
		8.3		
108.8		ROBINSON ... P		2510
		7.1		
115.9		GHOST RIVER ... P		4650
		7.3		
123.2		ROSNEL ... P		3120
		9.3		
		JCT. WITH GRAHAM SUB.		
132.5	137.0	SUPERIOR JCT. ... P		4700
		6.4		
138.9		SIOUX LOOKOUT ... CKPWY	GR	YARD 5530

CTC

C.T.C. BETWEEN SIDING WEST SWITCH ARMSTRONG AND SIOUX LOOKOUT CONTROLLED BY TRAIN DISPATCHER WINNIPEG

EQUIPMENT RESTRICTIONS

Unless authorization received from office of General Supt. Transportation, the following will apply:

Heaviest car permitted (including contents) 263,000 lbs.

SPEEDS

Mileage		#Passenger	#Mixed & Freight	DU
0.0 to 0.7	**Zone**	20	20	....
0.7 to 25.1	**Zone**	55	45	....
6.9 to 15.1		55	45	40
24.3 to 25.1		55	45	40
25.1 to 73.3	**Zone**	60	50	....
48.0 (Eastward Freight and Express Trains handling 6,000 or more equated tons		....	45	45
73.3 to 138.9	**Zone**	55	45	....
73.3 to 76.5		55	45	40
82.2 to 86.7		55	45	40
91.7 to 134.5		55	45	40
134.5 to 135.2		45	35	35
135.2 to 138.9		55	45	40

#EXPRESS TRAINS: Unless otherwise restricted, trains designated as express trains by time table schedule or as express extras by clearance may run five (5) miles per hour in excess of Mixed and Freight train speeds.

#ALL TRAINS having a **DESIGNATED UNIT** in the consist are subject to the additional speed restriction listed in the **DU** column.

REDDITT SUBDIVISION

Miles from Sioux Lookout	Switching Zones	Stations	Office Signals	Siding Capacity in Feet
0.0	1.0	SIOUX LOOKOUT ... CKPWY	GR	YARD 5530
		6.2		
6.2		PELICAN ... P		3310
		6.4		
12.6		HUDSON ... P		5630
		8.1		
20.7		WEBSTER ... P		4540
		11.1		
31.8		SUNSTRUM ... P		4540
		7.6		
39.4		MILLIDGE ... P		3820
		6.1		
45.5		RICHAN ... P		4350
		5.0		
		JCT. WITH BRUCE LAKE SUB.		
50.5		CARROLL JCT. ... P		
		0.4		
50.9		AMESDALE		
		6.9		
57.8		NIDDRIE ... PW		4560
		7.7		
65.5		MORGAN ... P		4500
		5.8		
71.3		RED LAKE ROAD ... P		
		3.6		
74.9		QUIBELL ... P		6000
		8.6		
83.5		MCINTOSH ... P		
		6.7		
90.2		CANYON ... P		4750
		9.1		
99.3		FAVEL ... P		2860
		6.7		
106.0		JONES ... P		4530
		7.4		
113.4		FARLANE ... P		3550
		9.7		
123.1		REDDITT ... PW		5840
		6.6		
129.7		ENA LAKE ... P		4540
		7.8		
137.5		MINAKI ... P		3180
		2.9		
140.4		MCNULTY		
		3.3		
143.7		WADE ... P		4530
		6.2		
149.9		HARDY		
		3.3		
153.2		MALACHI ... P		4540
		6.0		
159.2		WHITE ... P		
		7.8		
167.0		OPHIR ... P		4520
		8.0		
175.0		DECIMAL ... P		4520
		6.8		
181.8		INDIGO ... P		3360
		5.3		
187.1		HOCTOR ... P		4520
		9.7		
196.8		ELMA ... PW		6160
		7.5		
204.3		LEWIS ... P		4520
		7.4		
211.7		HAZEL ... P		4520
		5.6		
217.3		NOURSE ... P		4540
		4.3		
221.6		VIVIAN ... P		
		8.2		
229.8		ANOLA ... P		5990
		8.5		
238.3 242.7 243.9	242.0	DUGALD ... *V...P		4700
		5.6 Y		
		*V TRANSCONA ... *V...P		
		2.8		
246.7		*V. PLESSIS RD. ... PX		
		1.8		
		JCT. WITH PINE FALLS SUB.		
248.4 248.5		BEACH JCT. ... *V...PX		
		2.8		
		TERMINALS		
251.3		*V ... CUT-OFF ... PX		
		0.8		
252.1		WINNIPEG ... KPX	WI	

CTC — TWO TRACKS

C.T.C. BETWEEN SIOUX LOOKOUT AND DUGALD CONTROLLED BY TRAIN DISPATCHER WINNIPEG
C.T.C. BETWEEN DUGALD AND WINNIPEG CONTROLLED BY TRAIN MOVEMENT DIRECTOR WINNIPEG

LINE UP REGULATIONS NOT APPLICABLE BETWEEN TRANSCONA AND WINNIPEG

EQUIPMENT RESTRICTIONS

Unless authorization received from Office of General Supt. Transportation, the following will apply:

Heaviest car permitted (including contents) 263,000 lbs.

SPEEDS

Mileage		#Passenger	#Mixed & Freight	DU
0.0 to 2.0	**Zone**	30	30	....
2.0 to 3.9	**Zone**	50	40	40
3.9 to 82.2	**Zone**	55	45	....
4.5 (over bridge)		25	25	25
14.4 to 15.3		50	40	40
26.5 to 28.5		40	30	30
39.7 to 40.9		50	40	40
44.6 to 45.3		50	40	40
52.7 to 53.1		55	45	40
56.8 to 61.9		55	45	40
66.0 to 69.1		55	45	40
77.0 to 77.3		55	45	40
82.2 to 92.6	**Zone**	45	35	35
92.6 to 110.8	**Zone**	50	40	40
106.7 to 107.2		30	30	....
110.8 to 126.1	**Zone**	45	35	35
113.0 to 113.1		25	25	....
126.1 to 138.0	**Zone**	50	40	40
136.9 (Bridge)		35	35	....
138.0 to 171.8	**Zone**	55	45	....
140.4 to 150.0		35	35	35
150.0 to 150.8		55	45	40
155.8 to 165.1		55	45	40
170.1 to 170.6		50	40	40
171.8 to 238.3	**Zone**	70	60	....
180.9 to 183.5		60	50	40
238.3 to 243.9	**Zone**	70	60	
243.9 to 251.4	**Zone**	50	40	
251.4 to 252.1	**Zone**	20	20	

#EXPRESS TRAINS: Unless otherwise restricted, trains designated as express trains by time table schedule or as express extras by clearance, may run five (5) miles per hour in excess of Mixed and Freight train speeds. They must not exceed sixty-five (65) miles per hour or Passenger train speeds at any point.

ALL TRAINS having a **DESIGNATED UNIT** in the consist are subject to the additional speed restrictions listed in the **DU** column.

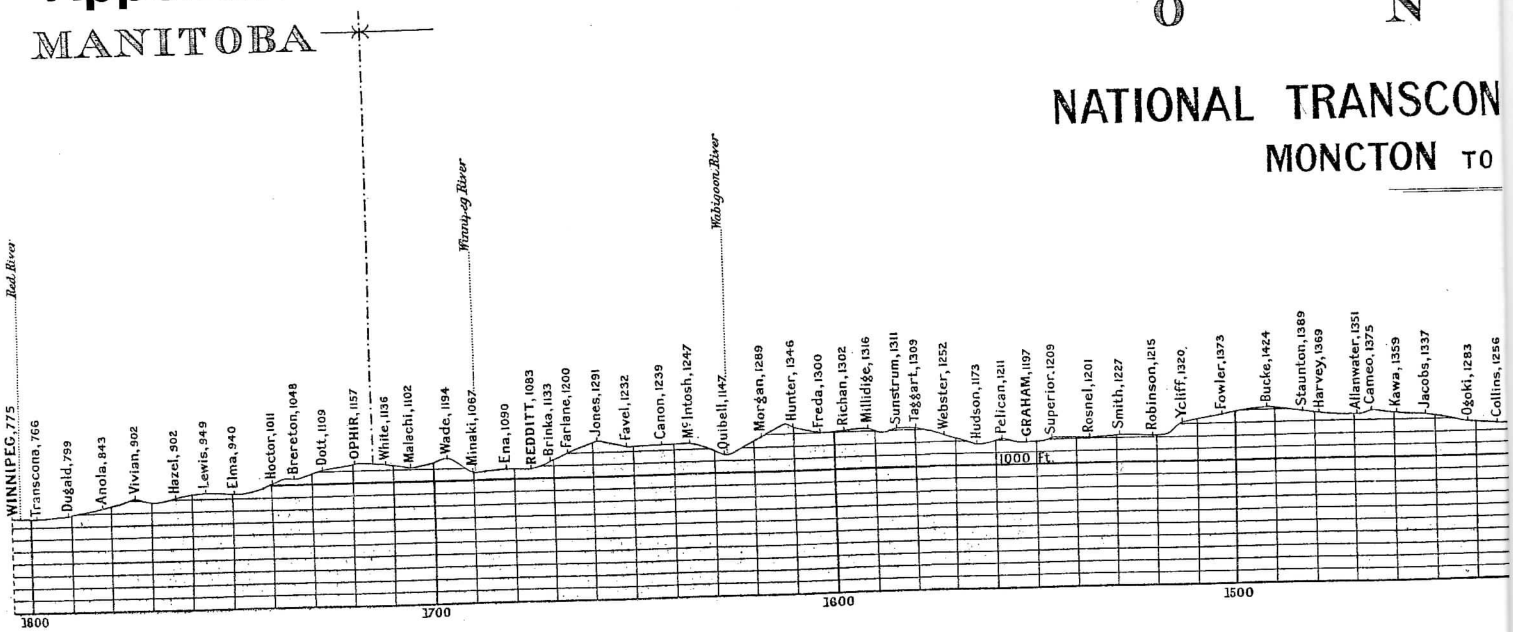
TUNNELS

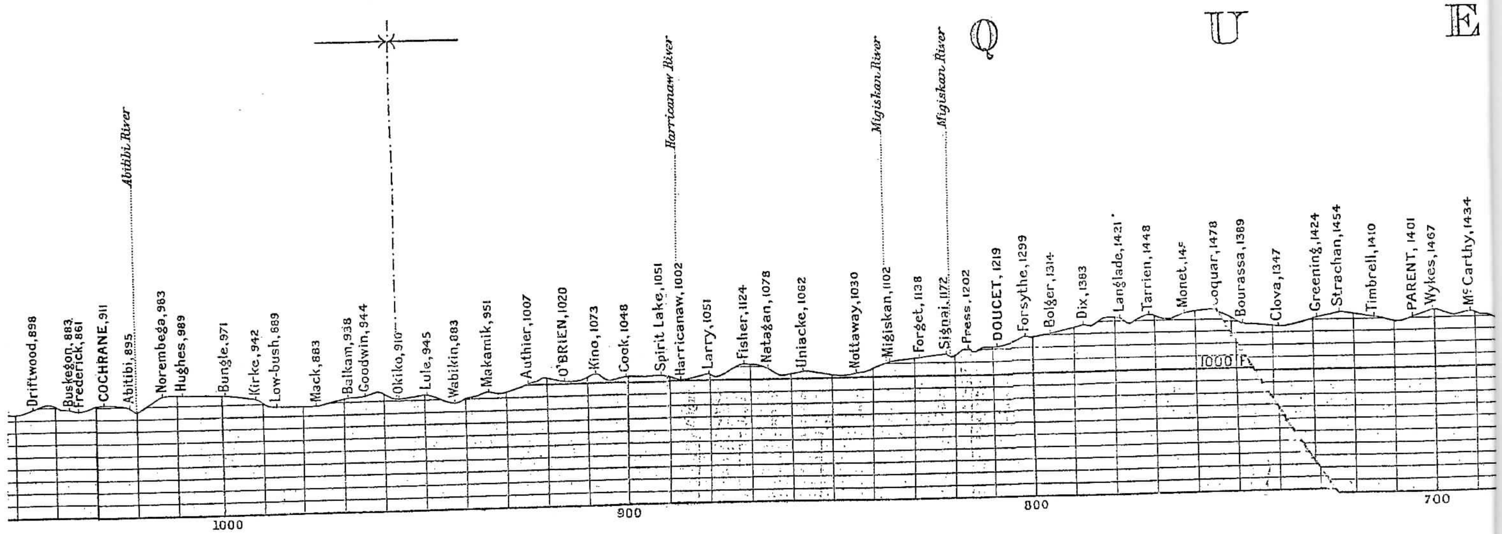
Location	Length
Mileage 41.3	325 feet
Mileage 88.2	525 feet
Mileage 89.7	525 feet
Mileage 130.4	556 feet
Mileage 135.3	613 feet

Appendix 3 GRADE PROFILE

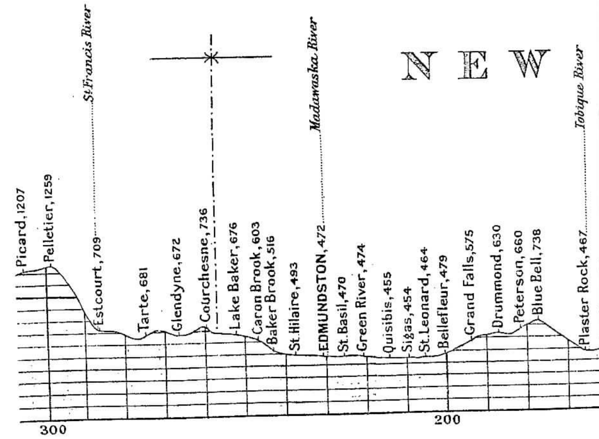
NATIONAL TRANSCON

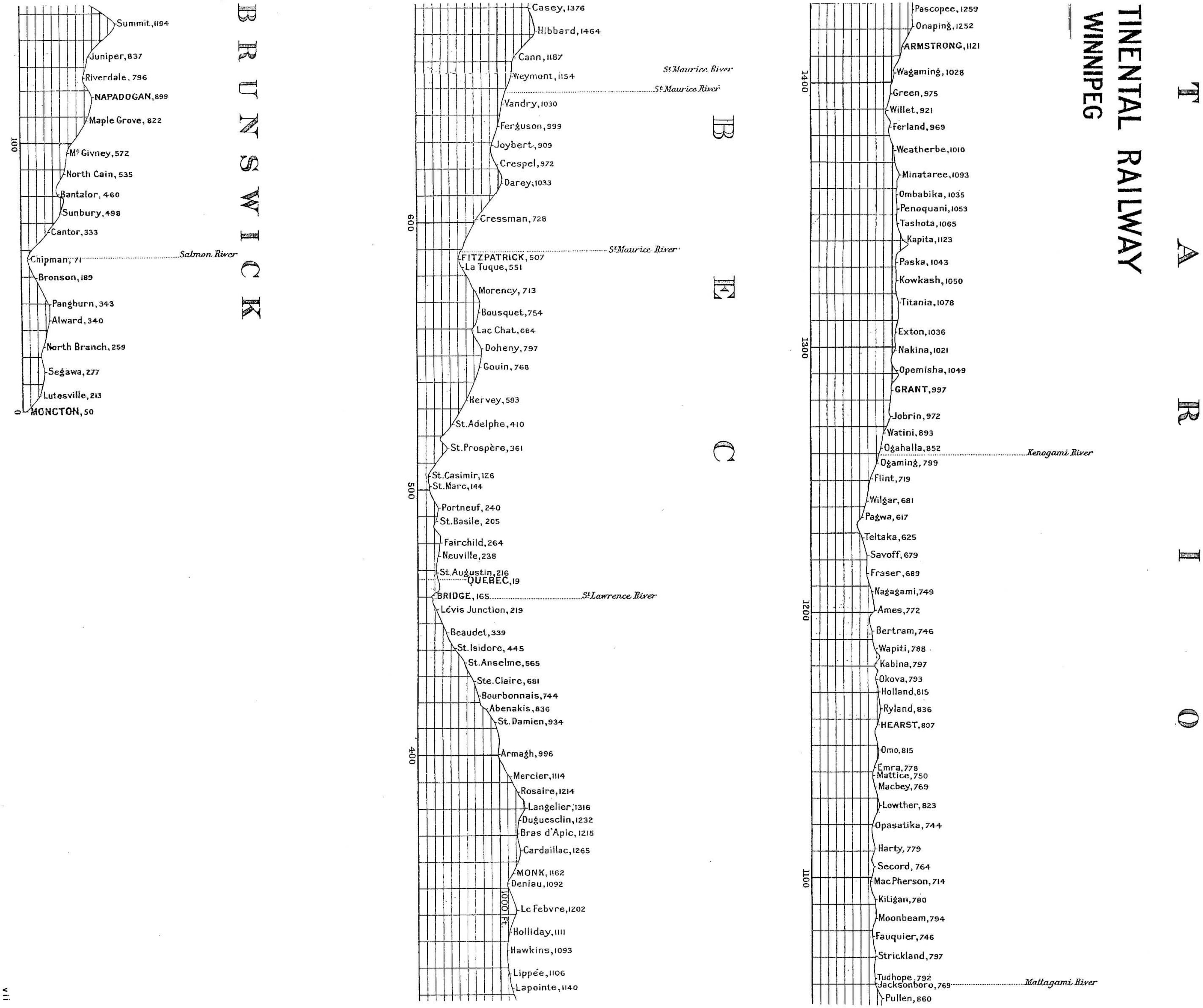
MONCTON TO





SCALES :- Horizontal, 47.5 miles = 1 inch (30 km = 1 cm)
Vertical, 1590 feet = 1 inch (19m = 1 cm.)




TINENTAL RAILWAY
WINNIPEG
T A R I O
B R U N S W I C K
B E C
Summit, 1194
Juniper, 837
Riverdale, 796
NAPADOGAN, 899
Maple Grove, 822
100
Mc Givney, 572
North Cain, 535
Bantalor, 460
Sunbury, 498
Cantor, 333
Chipman, 71
Salmon River
Bronson, 189
Pangburn, 343
Alward, 340
North Branch, 259
Segawa, 277
Lutesville, 213
0
MONCTON, 50
Casey, 1376
Hibbard, 1464
Cann, 1187
St. Maurice River
Weymont, 1154
St. Maurice River
Vandry, 1030
Ferguson, 999
Joybert, 909
Crespel, 972
Darey, 1033
600
Cressman, 728
FITZPATRICK, 507
St. Maurice River
La Tuque, 551
Morency, 713
Bousquet, 754
Lac Chat, 684
Doheny, 797
Gouin, 768
Hervey, 583
St. Adelphe, 410
St. Prospère, 361
St. Casimir, 126
St. Marc, 144
500
Portneuf, 240
St. Basile, 205
Fairchild, 264
Neuville, 238
St. Augustin, 216
QUEBEC, 19
BRIDGE, 165
St. Lawrence River
Lévis Junction, 219
Beaudet, 339
St. Isidore, 445
St. Anselme, 565
Ste. Claire, 681
Bourbonnais, 744
Abenakis, 836
St. Damien, 934
400
Armagh, 996
Mercier, 1114
Rosaire, 1214
Langelier, 1316
Duguesclin, 1232
Bras d'Apic, 1215
Cardaillac, 1265
MONK, 1162
Deniau, 1092
1000 Ft.
Le Febvre, 1202
Holliday, 1111
Hawkins, 1093
Lippée, 1106
Lapointe, 1140
Pascopee, 1259
Onaping, 1252
ARMSTRONG, 1121
1400
Wagaming, 1028
Green, 975
Willet, 921
Ferland, 969
Weatherbe, 1010
Minataree, 1093
Ombabika, 1035
Penoquani, 1053
Tashota, 1065
Kapita, 1123
Paska, 1043
Kowkash, 1050
Titania, 1078
Exton, 1036
1300
Nakina, 1021
Opemisha, 1049
GRANT, 997
Jobrin, 972
Watini, 893
Ogahalla, 852
Kenogami River
Ogaming, 799
Flint, 719
Wilgar, 681
Pagwa, 617
Teltaka, 625
Savoff, 679
Fraser, 689
Nagagami, 749
1200
Ames, 772
Bertram, 746
Wapiti, 788
Kabina, 797
Okova, 793
Holland, 815
Ryland, 836
HEARST, 807
Omo, 815
Emra, 778
Mattice, 750
Macbey, 769
Lowther, 823
Opasatika, 744
Harty, 779
Secord, 764
1100
MacPherson, 714
Kitigan, 780
Moonbeam, 794
Fauquier, 746
Strickland, 797
Tudhope, 792
Jacksonboro, 769
Mattagami River
Pullen, 860

Appendix 4
ELEVATIONS – MONCTON to WINNIPEG

Miles from Moncton	NATIONAL TRANSCONTINENTAL RAILWAY	Elevation above mean sea level
0·0	Moncton, junction with Intercolonial railway	50·0
5·9	Lutesville station	213·0
14·4	Segawa station	277
21·5	Canaan river, high water, 162; low water, 156; bed, 154; rail	240
23·3	North Branch station	259·1
33·5	Alward station	340·4
39·0	Summit between Canaan and Salmon rivers	351
39·9	Pangburn station	342·8
49·8	Bronson station	188·9
56·6	Chipman station	71·0
56·7	Salmon river, high water, 18; low water, 1; rail	68
66·5	Cantor station	333·2
67·1	Newcastle viaduct, rail	334
73·4	Sunbury station	497·7
79·1	Summit between Salmon and Miramichi rivers	540
80·5	Bantalor station	459·9
81·6	Cain river, high water, 413; low water, 407; rail	441
88·3	North Cain station	534·9
96·3	McGivney, junction with Intercolonial Ry., Fredericton branch	571·7
108·4	Maple Grove station	821·7
117·0	Summit between Miramichi and Nashwaak rivers	899
117·4	Napadogan lake, high water, 895; low water	890
117·4	Napadogan station	899·2
124·5	South branch Miramichi river, high water, 785; low water, 778; bed, 776; rail	797
125·4	Riverdale station	796·5
132·8	North branch Miramichi river, high water, 822; low water, 817; bed, 812; rail	832
133·3	Juniper station	837·2
133·9	Juniper brook, rail	843
145·9	Summit station (summit between Miramichi and Tobique rivers)	1,194
149·2	Odell stream, high water, 1,053; low water, 1,048; rail	1,057
153·0	Baker lake, high water, 659; low water	657
159·2	Longley station	528·8
162·4	Canadian Pacific railway, Tobique branch, crossing, C.P.Ry., rail, 384; N.T. Ry., rail	460
163·4	Wapske station	453
164·8	Tobique river, high water, 376; low water, 364; bed, 358; rail	461
165·4	Plaster Rock station	466·6
177·0	Blue Bell station (summit between Tobique and St. John rivers)	738
177·1	Dead Brook lake, high water, 732; low water	730
180·3	Graham Brook viaduct, rail	690
181·4	Caton brook, rail	669
181·5	Peterson station	660
183·9	Little Salmon river, rail	627
186·8	Drummond station	630
191·5	Little river, rail	614
193·7	Grand Falls station	574·9
197·1	Four-mile brook, high water, 449; low water, 448; rail	523
200·3	Bellefleur station	479
202·4	Canadian Pacific railway, Edmundston branch, crossing	460
205·3	St. Leonard station	464
207·1	Grand river, high water, 437; low water, 425; bed, 421; rail	444
209·6	Sigas river, high water, 437; low water, 422; rail	454
209·7	Sigas station	454
213·5	Quisibis river, high water, 443; low water, 420; bed, 416; rail	450
214·3	Quisibis station	455
219·6	Green river, high water, 455; low water, 431; bed, 428; rail	460
221·0	Green River station	474
225·5	St. Basil station	470
226·4	Iroquois river, high water, 458; low water, 437; bed, 433; rail	464
229·9	Madawaska river, high water, 465; low water, 440; bed, 435; rail	473
230·6	Edmundston station	472
237·6	St. Hilaire station	493·2
242·5	Temiscouata Ry. crossing	524
242·9	Baker Brook station	516·4
243·3	Baker brook, rail	515
246·5	Caron Brook station	603
252·0	Lake Baker station	676
258·1	Kitchen brook, high water, 672; low water, 668; bed, 666; rail	681·5
259·4	Courchesne station	736
260·4	Summit	736
264·8	Long lake, high water, 654; low water, 649; bed, 644; rail	670
266·4	Glendyne station	672
271·9	Summit	712
274·9	Tarte station	681
276·9	Blue river, high water, 600; low water, 592; bed, 587; rail	650
282·8	Nigger brook, high water, 696; low water, 692; bed, 690; rail	709
286·1	Estcourt station	709
286·3	Lake Pohenegamook, high water, 685; low water, 677; rail	710
286·5	St. Francis river, high water, 685; low water, 677; bed, 672; rail	713
293·1	Rivière Boucanée, high water, 952; low water, 947; rail	1,074
297·2	Summit	1,284
298·9	Pelletier station	1,259·0
300·5	Rivière Rocheuse, high water, 1,223; low water, 1,220; bed, 1,218; rail	1,236
305·4	Rivière Fourchue, high water, 1,183; low water, 1,180; bed, 1,178; rail	1,202
305·9	Picard station	1,207
312·4	Lapointe station	1,140
317·9	Lippée station	1,106
322·4	Lac aux Loutres, high water, 1,133; low water	1,126
326·4	Hawkins station	1,093
333·4	Holliday station	1,111
341·9	Le Febvre station	1,202
351·9	Deniau station	1,092
355·4	Monk station	1,162
362·7	Terrien river, high water, 1,241; low water, 1,236; rail	1,252
364·0	Lake Terrien, high water, 1,259; low water, 1,254; rail	1,263
364·4	Cardaillac station	1,265
369·7	Bras d'Apic river (east), high water, 1,182; low water, 1,179; bed, 1,177; rail	1,208
370·4	Bras-d'Apic station	1,215
370·8	Bras d'Apic river (west), high water, 1,204; low water, 1,199; bed, 1,198; rail	1,223
375·4	Duguesclin station	1,232
375·7	Méchant-pouce river, high water, 1,189; low water, 1,185; bed, 1,183; rail	1,226
376·2	Fortin creek, high water, 1,206; low water, 1,203; bed, 1,202; rail	1,230
380·4	Langelier station	1,316
381·8	St. Nicholas river, water, 1,296; rail	1,305
382·9	Summit	1,310
386·4	Rosaire station	1,214
392·4	Mercier station	1,114

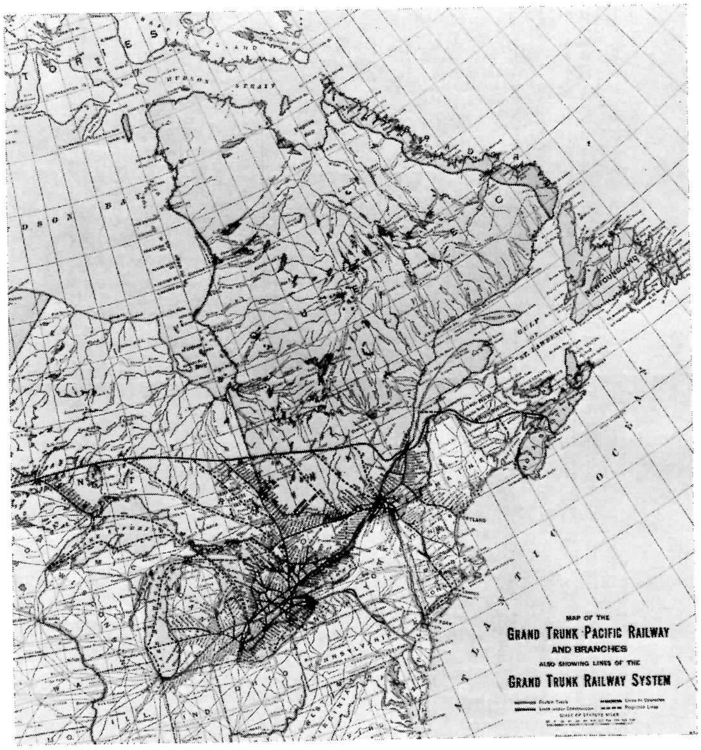
Miles from Moncton	NATIONAL TRANSCONTINENTAL RAILWAY	Elevation above mean sea level
396·4	Rivière Fourche-du-Pin, high water, 989; low water, 984; rail	1,046
399·7	Bras Nord-ouest Rivière du Sud, high water, 917; low water, 906; bed, 903; rail	995
400·4	Armagh station	996
405·5	Summit	1,002
412·4	St. Damien station	934
415·8	Abenakis river, high water, 830; low water, 824; bed, 820; rail	870
417·4	Abenakis station	836
419·0	Etchemin river, high water, 722; low water, 708; bed, 704; rail	766
420·6	St. Malachie station	768
422·6	Bourbonnais station	744
428·2	Ste. Claire station	681
434·9	St. Anselme station	565
435·5	Quebec Central Ry. crossing, Q. C. Ry., rail, 551; N. T. Ry., rail	577
440·7	St. Isidore station	445
446·6	Rivière le Bras, high water, 327; low water, 314; bed, 310; rail	339
446·9	Beaudet station	339
447·2	Rivière Petit Bras, high water, 319; low water, 316; bed, 313; rail	338
455·4	Lévis junction	219
456·2	Intercolonial railway, Chaudière branch, crossing	207
458·3	Intercolonial railway, main line, crossing, I. C. Ry., rail, 193; N. T. Ry., rail	165
459·7	St. Lawrence river, Quebec bridge, extreme high tide, 18·0; extreme low tide, –4·9; rail, over north abutment, 169·4; south abutment, 170·7; centre	181·7
460·9	Bridge, junction with Quebec branch	165
467·4	Quebec station	19·2
462·9	Cap Rouge river, high water, 102; low water, 83; rail	257
469·4	St. Augustin station	216
475·4	Neuville station	238
478·2	Rivière aux Pommes, high water, 229; low water, 226; bed, 224; rail	261
480·1	Fairchild station	264
482·4	Jacques Cartier river, high water, 131; low water, 123; rail	277
486·8	Canadian Pacific Ry., Quebec branch, crossing	194
488·4	St. Basile station	205
493·4	Portneuf station	240
499·3	Rivière Grand Bras, high water, 122; low water, 111; bed, 110; rail	147
500·3	Lachevrotière river, high water, 131; low water, 128; bed, 127; rail	143
501·4	St. Marc station	144
503·9	Ste. Anne river, high water, 103; low water, 92; bed, 87; rail	125
505·4	Rivière Noire, high water, 106; low water, 101; bed, 86; rail	128
505·4	St. Casimir station	126
506·4	Nigarette river, high water, 124; low water, 116; bed, 115; rail	133
515·4	St. Prospère station	361
519·2	Charest river, high water, 206; low water, 202; bed, 200; rail	263
524·4	St. Adelphe station	410
533·4	Hervey, junction with Canadian Northern Ry., Laurentian branch	583
545·4	Gouin station	768
552·4	Doheny station	797
555·6	Riv. Eaux Mortes, high water, 692; low water, 684; rail	748
557·1	Rivière Milieu, high water, 552; low water, 542; rail	713
559·0	Rivière Brochet, high water, 667; low water, 663; bed, 661; rail	686
559·4	Lac Chat station	684
561·9	Rivière Brochet, bed, 707; rail	713
566·4	Bousquet station	754
568·9	Rivière Brochet, bed, 764; rail	776
569·4	Rivière Brochet, bed, 775; rail	786
574·4	Morency station	713
575·1	Lac Beauce river, bed, 671; rail	697
578·6	Canadian Northern (Quebec and Lake St. John Ry., La Tuque branch) crossing, C.N.Ry., rail, 613; N.T.Ry., rail	640
579·9	Bostonnais river, high water, 574; low water, 570; bed, 567; rail	617
583·1	La Tuque station	551
585·1	Bostonnais river, high water, 503; low water, 484; bed, 480; rail	522
586·4	Fitzpatrick station	507
588·5	Rivière Croche, high water, 504; low water, 485; bed, 479; rail	516
589·2	St. Maurice river, high water, 505; low water, 486; bed, 474; rail	530
589·3	Rivière au Lait, high water, 506; low water, 487; bed, 485; rail	529
601·4	Cressman station	728
604·7	Vermilion river, high water, 747; low water, 743; rail	819
614·9	Darey station	1,033
616·4	Shea lake, high water, 1,023; low water	1,021
616·9	Summit	1,052
621·4	Crespel station	972
626·4	Rivière Flamand, high water, 880; low water, 866; bed, 862; rail	901
628·9	Joybert station	909
635·6	Rivière Petit Flamand, high water, 975; low water, 963; bed, 961; rail	999
635·8	Ferguson station	999
644·4	Vandry station	1,030
648·4	St. Maurice river, high water, 1,049; low water, 1,038; bed, 1,025; rail	1,073
654·6	Weymont station	1,154
655·8	St. Maurice river, high water, 1,144; low water, 1,133; bed, 1,126; rail	1,168
657·7	Manuan river, high water, 1,148; low water, 1,138; bed, 1,130; rail	1,171
658·3	Ribbon river, high water, 1,148; low water, 1,138; bed, 1,133; rail	1,171
661·3	Cann station	1,187
662·3	Atikamik viaduct, high water, 1,155; low water, 1,150; bed, 1,148; rail	1,213
664·1	Clear lake, high water, 1,224; low water	1,223
671·3	Hibbard station (summit)	1,464
671·3	Wolf lake, high water, 1,452; low water	1,451
672·6	Miskwa lake, high water, 1,415; low water	1,414
679·2	Minachin creek, high water, 1,368; low water, 1,362; bed, 1,359; rail	1,378
679·4	Beaver lake, high water, 1,365; low water	1,363
679·8	Casey station	1,376
680·8	Ribbon river, high water, 1,368; low water, 1,363; rail	1,385
683·4	Picqui creek, high water, 1,370; low water, 1,366; bed, 1,361; rail	1,384
686·7	Lac Travers, narrows, high water, 1,398; low water, 1,395; rail	1,407
688·7	Upper Ribbon river, high water, 1,400; low water, 1,395; bed, 1,394; rail	1,415
689·8	Lake Kamitsgamak, high water (1910), 1,417; low water	1,412
691·3	McCarthy station	1,434
695·2	Boucher lake, water (May, 1910), 1,401; water (Sept., 1910)	1,400
695·5	Boucher creek, high water, 1,404; low water (Sept., 1910), 1,399; rail	1,413
699·9	Summit	1,468
700·2	Lac la Mouche, high water	1,462
700·5	Wykes station	1,467
705·8	Parent station	1,401
710·8	Marten river, high water, 1,319; rail	1,372
713·8	Main lake, high water (May, 1911)	1,385
714·8	Timbrell station	1,410
723·8	Strachan station	1,454
725·0	Sargent lake, high water (Aug., 1911)	1,439
726·8	Dogs-home lake, high water, 1,444; low water	1,440
729·3	Greening station	1,424
732·8	Packer creek, high water, 1,376; low water	1,372
733·8	Ogee lake, high water, 1,386; low water	1,384
735·1	Barnett lake, high water, 1,368; low water	1,366
735·8	Packer lake, high water, 1,369; low water	1,364

Miles from Moncton	NATIONAL TRANSCONTINENTAL RAILWAY	Elevation above mean sea level
736·8	East Cache creek, high water, 1,337; low water, 1,332; rail	1,359
738·3	Clova station	1,347
739·5	Oscalawa lake, high water, 1,335; low water, 1,330; bed, 1,320; rail	1,357
742·1	Haycock lake, water	1,349
744·5	Haycock creek, high water, 1,352; low water, 1,340; rail	1,376
747·3	Bourassa station	1,389
747·3	Duchamp lake, high water, 1,376; low water	1,374
748·8	Lake, high water, 1,391; low water	1,388
749·8	Lake, high water, 1,391; low water	1,390
750·8	Lake, high water, 1,418; low water	1,415
751·0	Lake, high water, 1,407; low water	1,405
751·4	Spruce creek, high water, 1,410; low water	1,408
753·6	Coquar station	1,478
755·1	Summit	1,486
755·4	Lake, high water, 1,479; low water	1,478
756·1	Hecla lake, high water, 1,445; low water	1,442
759·1	Summit, height-of-land between St. Lawrence and Hudson bay	1,493
759·2	Lake, high water, 1,482; low water	1,480
760·3	Windfall lake, high water	1,469
761·9	Octavie creek, high water, 1,410; low water, 1,407; rail	1,457
762·3	Monet station	1,454
763·6	Kidney lake, high water	1,447
763·9	Lake, high water, 1,420; low water	1,418
764·3	Susie river, high water, 1,402; low water, 1,398; bed, 1,395; rail	1,431
766·8	Hudson Bay creek, high water, 1,376; low water, 1,372; bed, 1,369; rail	1,401
768·2	Lake, high water, 1,402; low water	1,401
769·5	Beaver lake, high water, 1,439; low water	1,436
770·8	Lumbago lake, high water, 1,441; low water	1,439
771·3	Tarrien station	1,448
771·9	Moose lake, high water, 1,434; low water	1,433
772·7	Hamilton lake, high water, 1,418; low water	1,416
774·6	Dead Fox creek, high water, 1,394; low water, 1,392; rail	1,402
774·7	Dead Fox lake, high water, 1,394; low water	1,392
775·1	Mud-hole lake, high water, 1,382; low water	1,381
776·2	Kekek river, high water, 1,367; low water, 1,361; bed, 1,355; rail	1,377
778·8	Langlade station	1,421
782·1	Grennon lake, high water, 1,422; low water	1,421
782·3	Summit	1,437
783·7	Mamaguish river, high water, 1,353; low water, 1,351; rail	1,410
786·3	Deadman creek, high water, 1,353; low water, 1,350; rail	1,364
787·8	Dix station	1,383
791·2	Durant lake, high water, 1,327; low water	1,324
795·2	Atik creek, high water, 1,296; low water, 1,293; bed, 1,290; rail	1,315
795·8	Bolger station	1,314
798·8	Buckle lake, high water, 1,278; low water	1,275
800·5	Mark lake, high water, 1,277; low water	1,272
800·5	Atik creek, high water, 1,277; low water, 1,272; bed, 1,267; rail	1,293
801·8	Forsythe station	1,299
802·3	Lake, water	1,232
803·4	Atik creek, high water, 1,250; low water, 1,243; bed, 1,238; rail	1,274
808·3	Evere lake, high water, 1,205; low water	1,202
808·8	Doucet station	1,219
812·6	Cañon creek, high water, 1,136; low water, 1,124; bed, 1,120; rail	1,208
815·0	Jocko creek, high water, 1,133; low water, 1,126; bed, 1,123; rail	1,180
815·8	Summit	1,205
816·3	Press station	1,202
820·8	Migiskan river, high water, 1,101; low water, 1,089; bed, 1,075; rail	1,140
821·8	Signai station	1,172
828·8	Forget station	1,138
835·8	Migiskan station	1,102
836·7	Migiskan river, high water, 1,069; bed, 1,060; rail	1,102
841·6	Adelphus creek, high water, 1,001; low water, 995; bed, 994; rail	1,046
843·8	Bell river, high water, 1,000; low water, 990; bed, 979; rail	1,026
843·8	Shabogama lake, high water, 1,000; low water	990
844·3	Nottaway station	1,030
848·1	Poplar river, high water, 1,001; low water, 995; bed, 990; rail	1,007
849·8	Coffee river, high water, 1,008; low water, 1,003; bed, 1,001; rail	1,025
849·9	Tooker lake, high water, 1,008; low water,	1,003
849·9	Armstrong lake, high water, 1,008; low water	1,003
855·9	Cedar creek, high water, 1,035; low water, 1,029; bed, 1,025; rail	1,057
857·1	Uniacke station	1,062
862·7	Natagan river, high water, 1,000; low water, 991; bed, 895; rail	1,029
865·7	Natagan station	1,078
871·6	Fisher station	1,124
872·7	Summit	1,128
878·9	Peter Brown creek, high water, 1,005; low water, 996; bed, 991; rail	1,024
880·3	Larry station	1,051
887·1	Harricanaw station	1,002
887·7	Harricanaw river, high water, 972; low water, 966; bed, 942; rail	1,000
891·8	Spirit Lake station	1,051
893·3	Spirit lake, high water, 1,042; water, 1,036; rail	1,044
894·3	Summit	1,072
896·8	Molesworth lake, high water, 1,005; low water	1,002
900·3	Cook station	1,048
904·8	Nawapitichen river, high water, 975; low water, 968; bed, 967; rail	1,012
907·3	Summit	1,076
907·8	Kino station	1,073
912·9	Deer river, high water, 1,006; low water, 1,002; rail	1,016
914·9	Robertson lake, high water, 1,005; water, 1,001; rail	1,014
915·8	O'Brien station	1,020
918·4	Midway creek, high water, 1,019; low water, 1,016; rail	1,036
919·9	Suderland creek, high water, 1,047; low water, 1,045; rail	1,060
920·5	Summit	1,062
922·5	Kakameonan river, high water, 994; low water, 990; bed, 980; rail.	1,021
924·5	Authier station	1,007
931·3	Molesworth river, high water, 920; low water, 917; rail	936
931·3	Makamik lake, high water, 920; low water	917
934·3	Makamik station	951
935·5	Bickerdike creek, high water, 927; low water, 923; rail	944
936·7	South river, high water, 906; low water, 901; rail	924
939·9	South river, high water, 880; low water, 876; rail	914
940·8	South river, high water, 875; low water, 870; rail	899
942·3	Wabikin station	883
942·9	Whitefish river, high water, 872; low water, 867; rail	885
944·2	Moberly creek, high water, 884; low water, 883; rail	891
949·1	Lule station	945
956·3	Okiko station	910
956·7	Interprovincial boundary, between Quebec and Ontario	910
957·2	Okikadasik river, high water, 873; low water, 871; rail	905
961·1	Summit	989
964·7	Goodwin station	944
968·6	Balkam station	938
976·6	Mack station	883
986·4	Low-bush station	889
988·1	Circle river, high water, 874; low water, 868; rail	886
991·6	Kirke station	942
999·0	Bungle station	971
1,008·6	Hughes station (summit)	989
1,013·4	Norembega station	983
1,020·1	Abitibi river, high water, 776; low water, 764; rail	857
1,021·8	Abitibi station	895

Miles from Moncton	NATIONAL TRANSCONTINENTAL RAILWAY	Elevation above mean sea level
1,028·1	Cochrane, junction with Timiskaming and Northern Ontario Ry.	911
1,034·4	Frederick House river, high water, 790; low water, 786; rail	864
1,034·6	Frederick station	861
1,036·6	Buskegon station	883
1,038.6	Buskegon river, high water, 839; low water, 830; rail	881
1,041·1	Summit	926
1,045·5	Driftwood station	898
1,048·4	Driftwood river, high water, 819; low water, 813; rail	849
1,054·6	Pullen station	860
1,059·8	Mattagami river, high water, 741; low water, 730; rail	771
1,060·1	Jacksonboro station	769
1,061·7	Tudhope station	792
1,066·6	Poplar Rapids river, high water, 741; low water, 731; rail	767
1,070·1	Strickland station	797
1,074·5	Wellington creek, high water, 745; low water, 739; rail	758
1,077·8	Fauquier station	746
1,078·5	Ground-hog river, high water, 714; low water, 699; rail	742
1,080·7	Brûlé creek, high water, 733; low water, 728; rail	748
1,083·0	Marten creek, high water, 762; low water, 757; rail	780
1,084·3	Moonbeam station	794
1,091·8	Kitigan station	780
1,093·7	Bass river, high water, 738; low water, 734; rail	752
1,098·2	Kapuskasing river, high water, 695; low water, 687; rail	714
1,098·5	MacPherson station	714
1,104·0	Secord station	764
1,106·6	Lost river, high water, 716; rail	735
1,110·9	Harty station	779
1,112·9	Solomon creek, high water, 749; rail	764
1,118·5	Opasatika river, high water, 727; water, 719; rail	739
1,119·3	Opasatika station	744
1,123·4	Montcalm creek, rail	781
1,126·7	Summit	836
1,126·9	Lowther station	823
1,134·0	Crow creek, high water, 790; low water, 784; rail	798
1,134·4	Hamilton creek, high water, 763; low water, 760; rail	771
1,134·4	Macbey station	769
1,134·5	Rainbow creek, high water, 760; low water, 755; rail	769
1,136·5	Two-mile creek, high water, 754; low water, 753; rail	764
1,137·5	Five-mile creek, high water, 720; low water, 716; rail	752
1,138·5	Mattice station	750
1,138·8	Missinaibi river, high water, 717; low water, 703; rail	751
1,140·2	Armstrong creek, high water, 736; low water, 734; rail	762
1,141·4	Emra station	778
1,143·1	Evelyn creek, high water, 777; low water, 774; rail	786
1,144·8	Rye creek, high water, 796; low water, 792; rail	812
1,148·2	Omo station	815
1,154·5	McIlwarth creek, high water, 770; low water, 766; rail	784
1,155·0	Nelles creek, high water, 770; low water, 768; rail	786
1,156·3	Mattawishkwia river, high water, 767; low water, 763; rail	786
1,157·8	Hearst, junction with Algoma Central and Hudson Bay railway	807
1,163·5	Summit	844
1,163·6	Ryland station	836
1,170·1	Holland station	815
1,172.0	Valentine creek, high water, 776; low water, 772; rail	805
1,175·0	Okova station	793
1,178·2	Kabinakagami river, high water, 784; low water, 774; rail	818
1,179·7	Pike creek, high water, 783; low water, 782; rail	795
1,180·0	Kabina station	797
1,180·7	Patterson creek, bed, 785; rail	795
1,180·9	St. Joseph river, high water, 786; low water, 784; rail	794
1,182·6	Leonard lake, water, 808; rail	828
1,183·2	Summit	846
1,186·2	Wapiti station	788
1,188·7	Grady creek, high water, 752; rail	757
1,190·4	Quinn creek, high water, 741; rail	754
1,192·7	Bertram station	746
1,193·4	Diamond lake, high water, 744; low water	740
1,196·2	White river, high water, 683; low water, 679; rail	718
1,196·8	Skunk river, high water, 637; low water, 634; rail	715
1,197·9	Nagagami river, high water, 658; low water, 653; rail	723
1,198·4	Lake, high water	704
1,200·4	Ames station	772
1,201·1	Summit	773
1,206·8	Pitopiko river, high water, 708; low water, 703; rail	748
1,207·7	Nagagami station	749
1,214·1	Otasawian river, high water, 658; low water, 651; rail	689
1,214·9	Fraser station	689
1,220·9	Martin creek, high water, 670; low water, 667; rail	677
1,221·4	Savoff station	679
1,228·1	Teltaka station	625
1,228·6	Clarke creek, high water, 608; low water, 606; rail	622
1,233·6	Pagwachuan river, high water, 506; low water, 498; rail	566
1,235·9	Pagwa station	617
1,242·0	Wilgar station	681
1,242·6	Dog river, high water, 665; low water, 664; rail	682
1,249·1	Moose river, high water, 693; low water, 689; rail	711
1,250·5	Flint station	719
1,251·3	Flint river, high water, 704; low water, 701; rail	719
1,256·2	Ogaming station	799
1,258·8	Summit	820
1,259·4	Kenogami river, high water, 756; low water, 754; rail	814
1,261·8	Ogahalla station	852
1,267·6	Watini station	893
1,273·6	Jobrin station	972
1,274·8	Rabbit river, high water, 931; low water, 930; rail	953
1,280·2	Mungall river, high water, 971; low water, 970; rail	979
1,282·2	Mud lake, mean water	987
1,283·2	Grant station	997
1,285·8	Beaver creek, high water, 976; low water, 974; rail	992
1,289·2	Summit	1,077
1,290·9	Braggan creek, high water, 1,017; low water, 1,016; rail	1,046
1,291·0	Opemisha station	1,049
1,295·1	Twin river, high water, 978; low water, 977; rail	994
1,295·3	Twin lakes, mean water	977
1,298·1	East McDonald creek, high water, 1,005; low water, 1,004; rail	1,013
1,298·5	Nakina station	1,021
1,299·5	West McDonald creek, high water, 1,017; low water, 1,016; rail.	1,037
1,304·3	Balkam lake, mean water	1,007
1,305·4	Exton station	1,036
1,307·8	McKay lake, mean water	1,040
1,311·7	Summit	1,085
1,313·7	Kawaskagama lake, mean water	1,060
1,316·4	Titania station	1,078
1,317·7	Kawaskagama river, high water, 1,052; low water, 1,049; rail	1,066
1,318·7	Trout creek, high water, 1,053; low water, 1,051; rail	1,062
1,323·7	Johnson creek, high water, 1,032; low water, 1,028; rail	1,041
1,324·9	Kowkash station	1,050
1,331·4	Paska station	1,043
1,332·4	Red Paint lake, water, 1,041; high water, 1,043; rail	1,045
1,334·8	Wilgar creek east, high water, 1,038; low water, 1,036; rail	1,053
1,338·9	Wilgar creek west, high water, 1,093; low water, 1,092; rail	1,201
1,340·2	Kapita station	1,123
1,340·9	Summit, height-of-land between St. Lawrence and Hudson bay	1,123
1,341·5	Gzowski lake, water	1,080

Miles from Moncton	NATIONAL TRANSCONTINENTAL RAILWAY	Elevation above mean sea level
1,342·1	Gzowski creek, high water, 1,079; rail	1,103
1,346·1	Emilie creek, high water, 1,051; low water, 1,047; rail	1,064
1,346·4	Tashota station	1,065
1,348·3	Robinson creek, high water, 1,033; low water, 1,031; rail	1,040
1,349·6	Spruce creek, high water, 1,038; low water, 1,033; rail	1,051
1,350·1	Robinson lake, mean water	1,031
1,351·1	Spruce lake, mean water	1,034
1,352·0	Penoquani station	1,053
1,353·8	Doc lake, mean water	1,028
1,357·3	Ombabika river, high water, 1,019; low water, 1,017; rail	1,033
1,357·7	Ombabika station	1,035
1,359·0	Sapasoose lake, mean water	1,035
1,360·8	Mink lake, mean water, 1,046; rail	1,065
1,363·1	Grass lake, mean water	1,013
1,363·1	Grass creek, high water, 1,011; low water, 1,010; rail	1,055
1,365·0	Minataree station (summit)	1,093
1,367·1	Mountain lake, mean water	1,059
1,367·9	Mountain creek, high water, 1,024; low water, 1,023; rail	1,052
1,371·5	Camp creek, high water, 956; low water, 951; rail	1,014
1,374·3	Weatherbe station	1,010
1,374·4	Marten creek, high water, 977; low water, 975; rail	1,009
1,375·5	Roaring creek, high water, 972; low water, 969; rail	1,009
1,380·2	Jackfish river, high water, 867; low water, 860; rail	953
1,383·2	Seymour creek, high water, 910; low water, 906;?rail	953
1,383·2	Ferland station	969
1,384·7	Summit	975
1,388·9	Pikitigushi river, high water, 863; low water, 854; rail	905
1,389·6	Willet station	921
1,393·6	Lake Nipigon, high water, 852; low water	850
1,395·6	Green station	975
1,398·3	Rapid creek, high water, 963; low water, 960; rail	971
1,403·2	Wagaming station	1,028
1,405·0	Jojo lake, high water, 1,001; low water	998
1,405·3	White-sand river, high water, 1,001; low water, 998; rail	1,021
1,409·2	Lake of the Flats, water	1,098
1,410·8	Red Granite creek, high water, 1,094; low water, 1,093; rail	1,102
1,411·2	Red Granite lake, high water, 1,097; low water	1,092
1,413·2	Armstrong station	1,121
1,413.3	Armstrong creek, high water, 1,102; low water, 1,101; rail	1,129
1,420·9	Onaping station	1,252
1,424·8	Bear lake, water	1,201
1,425·3	Burnt creek, high water, 1,191; low water, 1,189; rail	1,244
1,425·6	Tunnel lake	1,200
1,427·2	Pascopee station	1,259
1,427·8	Summit, height-of-land between St. Lawrence and Hudson bay	1,262
1,431·0	Cañon lake, water	1,193
1,434·4	Collins station	1,256
1,441·7	Ogoki station	1,283
1,443·6	Lookout river, high water, 1,283; low water, 1,282; rail	1,289
1,452·2	Jacobs station	1,337
1,459·4	Kawa station	1,359
1,465·5	Cameo station	1,375
1,468·0	Allan river, high water, 1,343; low water, 1,340; rail	1,353
1,469·1	Allanwater station	1,351
1,478·8	Harvey station	1,369
1,482·9	Staunton station	1,389
1,491·8	Bucke station	1,424
1,503·8	Fowler station	1,373
1,513·5	Ycliff station	1,320
1,517·6	Sturgeon river, high water, 1,196; low water, 1,194; rail	1,220
1,521·0	Robinson station	1,215
1,529·2	Smith station	1,227
1,536·4	Rosnel station	1,201

Miles from Moncton	NATIONAL TRANSCONTINENTAL RAILWAY	Elevation above mean sea level
1,545·8	Superior, junction with Thunder Bay branch	1,209
1,546·5	Sturgeon river, high water, 1,177; low water, 1,171; rail	1,202
1,548·0	Abram lake, high water, 1,177; low water	1,171
1,552·1	Graham station	1,197
1,553·4	English river, high water, 1,177; low water, 1,171; rail	1,187
1,555·0	Pelican lake, high water	1,178
1,558·4	Pelican station	1,211
1,564·8	Hudson station	1,173
1,565·0	Lost lake, water	1,157
1,572·8	Webster station	1,252
1,579·9	Taggart station	1,309
1,584·3	Sunstrum station	1,311
1,587·7	Edith creek, high water, 1,287; low water, 1,285; rail	1,296
1,591·6	Millidge station	1,316
1,597·9	Richan station	1,302
1,603·5	Freda station	1,300
1,610·3	Hunter station	1,346
1,612·0	Summit, rail	1,387
1,618·2	Morgan station	1,289
1,626·2	Wabigoon river, high water, 1,109; low water, 1,105; rail	1,155
1,627·4	Quibell station	1,147
1,636·0	McIntosh station	1,247
1,643·0	Cañon station	1,239
1,651·3	Cañon lake, high water, 1,232; low water	1,220
1,651·9	Favel station	1,232
1,658·9	Jones station	1,291
1,666·2	Farlane station	1,200
1,671·0	Brinka station	1,133
1,674·8	Basket lake, water	1,059
1,675·8	Redditt station	1,083
1,681·7	Macfarlane river, water, 1,062; rail	1,074
1,681·9	Ena lake, water	1,062
1,682·2	Ena station	1,090
1,689·6	Winnipeg river, high water, 1,040; low water, 1,033; rail	1,069
1,690·0	Gun lake, low water, 1,033; high water	1,040
1,690·2	Minaki station	1,067
1,696·3	Wade station	1,194
1,702·6	Cygnet lake, water	1,078
1,702·9	Otter lake, water	1,078
1,705·9	Malachi station	1,102
1,705·9	Malachi lake, water	1,081
1,711·8	White station	1,136
1,715·9	Summit	1,161
1,719·8	Ophir station	1,157
1,721·4	Cross lake, water	1,042
1,727·6	Dott station	1,109
1,734·5	Brereton station	1,048
1,736·8	Canadian Pacific Ry., main line, crossing, C. P. Ry., rail 1,035·5; N.T.Ry., rail	1,062·7
1,739·8	Hoctor station	1,011
1,748·8	Whitemouth river, high water, 922; low water, 919; rail	938
1,749·7	Elma station	940
1,756·8	Lewis station	949
1,763·9	East Brokenhead river, high water, 905; low water, 901; rail	912
1,764·3	Hazel station	902
1,770·5	West Brokenhead river, high water, 872; low water, 868; rail	878
1,774·2	Vivian station	902
1,782·2	Anola station	843
1,790·7	Dugald station	799
1,798·7	Transcona station	766
1,801·7	Seine river, high water, 753; low water, 732; rail	784
1,802·7	Red river, high water, 753; low water, 730; rail	773
1,804·7	Winnipeg, Fort Garry station	775



The 1912 Grand Trunk Pacific system map showing lines under construction and proposed routes. It is suprising to note that under CNR, NAR and BCR auspices, most of these proposals, with the exception of central Quebec and the Yukon, have or are being constructed following very similar routes. (CNR)