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THE BROAD GAUGE AND THE GREAT WESTERN

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FRONT COVER: Locomotive No. 82, "Scotia" of the Great Western Railway was originally numbered 90 and was built in the GWR's shops in Hamilton in 1861. It was retired at the time of the change of gauge. The "NG" plate on the front indicates that the photo was taken during the transition period (1867-1873), and that the train hauled by No. 82 contained narrow (4 ft. 8 1/2 in.) gauge cars.

BELOW: This map, from the Official Guide, May 1874, shows the great importance of the GWR as a bridge line between points in the U.S.A..

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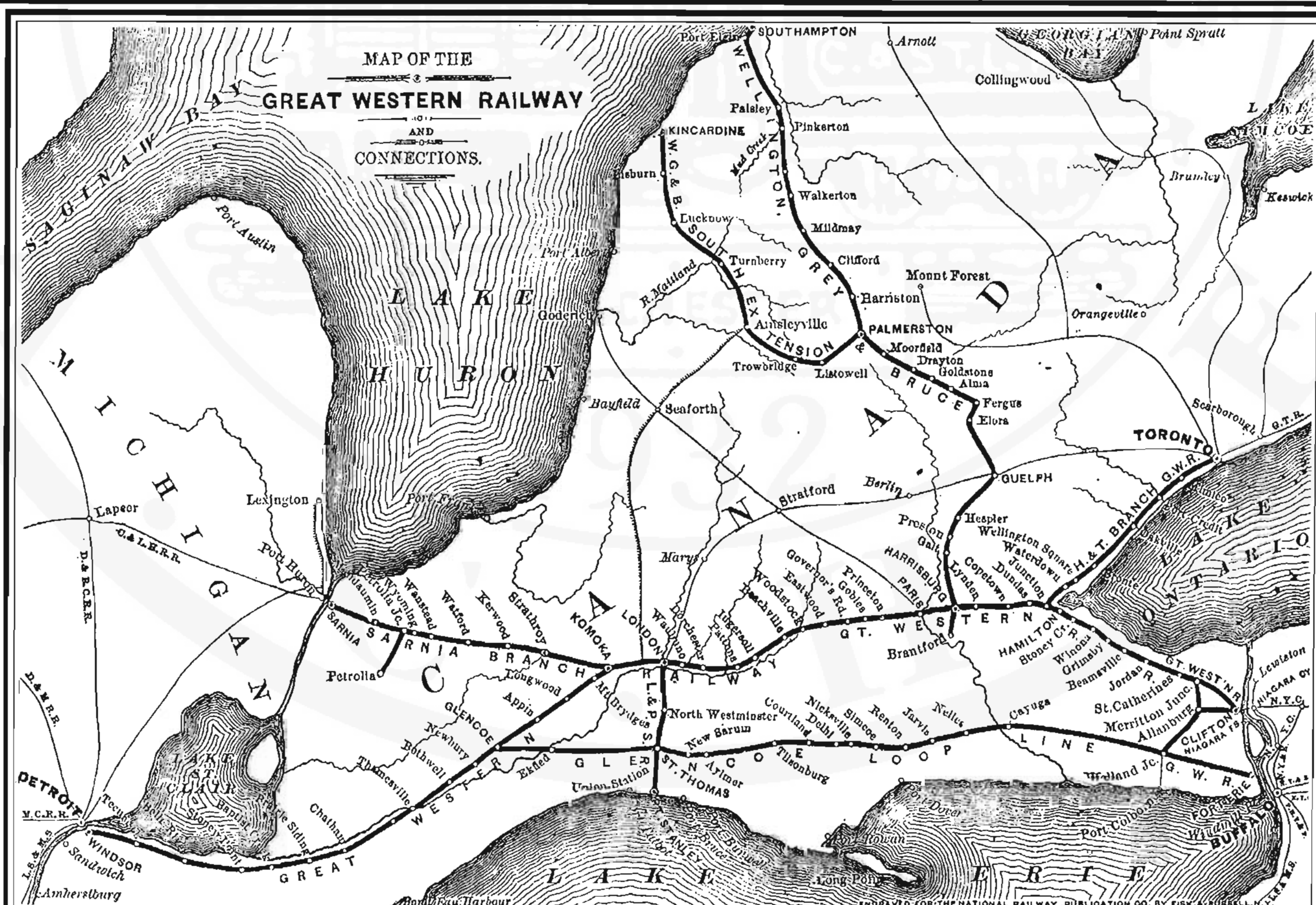


The Broad Gauge and the Great Western Railway

By W.M. Spriggs

This article, by the late W.M. Spriggs, appeared in Bulletin No. 2 of the CRHA in August, 1937. It was the very first historical article to appear in any CRHA publication, since Bulletin No. 1 dealt entirely with current events. Mr. Spriggs was one of the original nine persons who joined the CRHA the day of its founding, March 12, 1932. He had membership number 5.

As part of our commemoration of the sixtieth anniversary of the first CRHA publication, we reprint this article in full. In addition we include a number of photographs to illustrate it. These photos were collected by Mr. Spriggs and John Loye at the time but could not be included in the bulletin because it was produced on a mimeograph machine which could not reproduce photographs. After sixty years we are rectifying the omission!

In this article there are some notes contained in square brackets and signed "Ed.". These have been added by the present (1997) editor, and are not part of the original article. Some additional material has also been added, notably maps, as well as material relating to the adoption of the 5 ft. 6 in. gauge. It was felt that this is appropriate since this is the 150th anniversary of the adoption of that gauge.

To begin with it may not be amiss to refer to the possible reasons why the G.W.R., together with other leading railways of Canada, used the track gauge of five feet six inches.

Some sources state that the use of the 5 ft. 6 in. gauge was caused by an attempt on the part of the legislatures of Upper and Lower Canada to render more difficult an invasion of Canada by the United States, but on the other hand it is stated that when the two railways, namely the St. Lawrence & Atlantic (Canadian) [Not the present St. L & A. Ed.] and the Atlantic & St. Lawrence (American) were being promoted to build the line between Montreal and Portland Maine, the Portland supporters of the scheme were so anxious that their city should have a monopoly of transportation between Montreal and the Atlantic, that they urged the 5 ft. 6 in. gauge to prevent Boston from sharing in the business. Boston at that time was already served by lines of 4 ft. 8 1/2 in. gauge.

Personally I agree with the opinion expressed by Mr. Loye in his interesting articles on the Grand Trunk Railway in Bulletins Nos. 18 and 25 of the Railroad and Locomotive Historical Society [June, 1929 and May, 1931 respectively. Ed.], in which he intimates that from particulars on record the views of the British military element carried considerable weight with the government, and their idea evidently was that a break of gauge would materially hinder any attempt at the invasion of Canada by the United States. He says, "The British authorities adopted the 5 ft. 6 in. as the Canadian gauge because it was a well defined medium between the prevailing gauges in the United States at the time of the issuance of the Charter of the St. Lawrence & Atlantic Railway in 1845. The American gauges were the 4 ft. 8 1/2 in., touching eastern Canada's frontier, and also coming into Detroit, and the 6 ft. of the Erie coming into Buffalo". This idea of invasion which to us seems so unfounded was not so at that time, as the international feeling was none too good. After all, in 1845 the War of 1812 had only been over for thirty years; it was still within living memory. Ironically, however, the fact that the United States portion of the line was laid by the Americans to the same 5 ft. 6 in. gauge did away entirely with the protective possibilities of that gauge to Canada.

It seems probable that this question of a new gauge being brought into prominent notice may have been the cause of the appointment of the Committee in 1845 by a Royal Commission to enquire into what would be the most suitable gauge for Canadian railways.

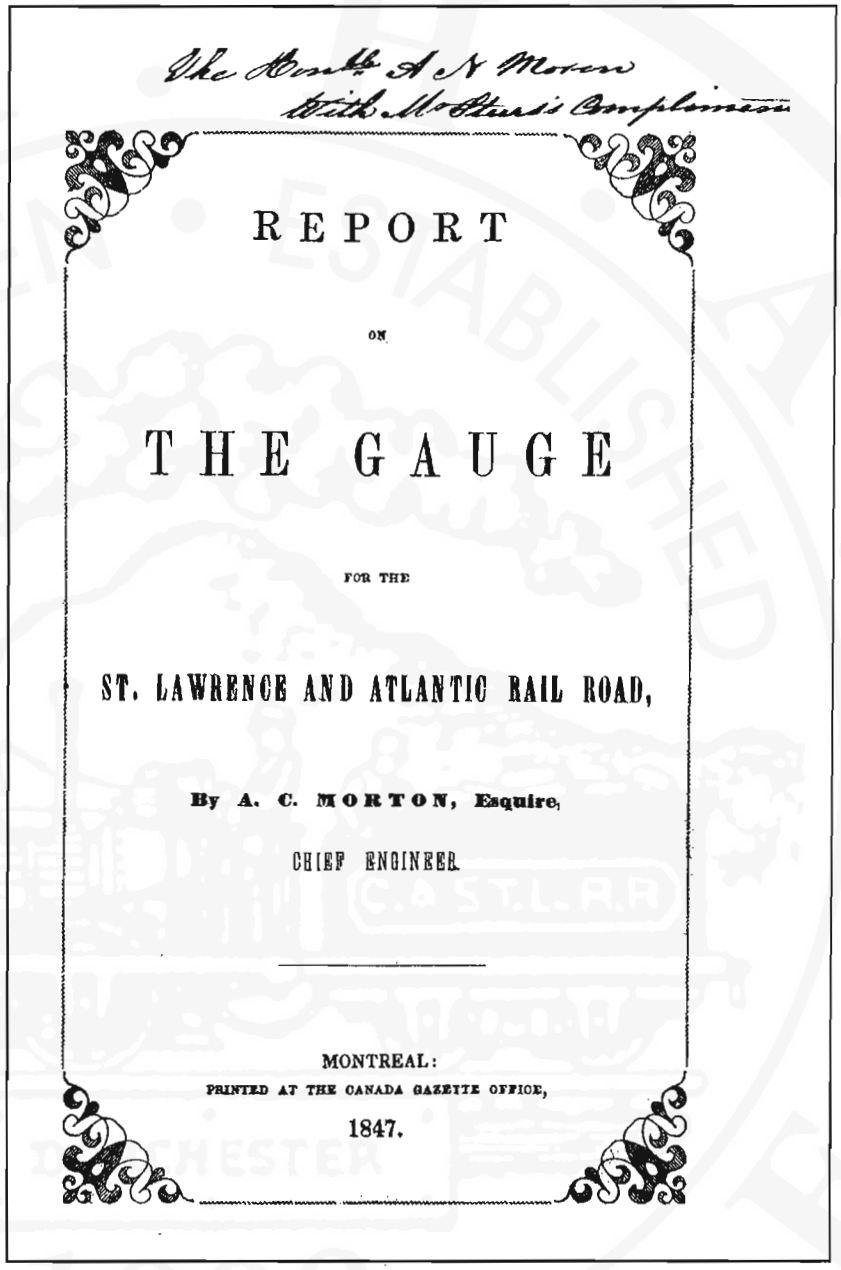
It may be noted that this year 1845 was the same year in which the Charter was granted to the St. Lawrence & Atlantic Ry., the commencement of work was in 1846, and although the junction with the American section, the Atlantic & St. Lawrence Ry., at Island Pond Vt. did not take place until 18 June 1853, the two railways were in working order for some distance inland from their terminal points about 1848, in which year the important bridge over the Richelieu River at Beloeil was completed, and a number of locomotives were delivered to both railways [The St. L & A reached St. Hyacinthe late in December, 1848. Ed.].

Apparently it took this Committee six years, from 1845 to 1851, to do anything, and in the latter year a large number of professional men, engineers and others, were called up before the Committee to state their views and opinions.

Takabury, in his "Atlas of the Dominion of Canada", 1877, quoting from the "Railways of Canada" by J.M. and E. Trout, in referring to the Committee appointed by the Royal Commission of 1845, to report on the most suitable gauge for the railways of Canada, says:- *"Many of the persons examined before the assembly committee in 1851 were not in a position to form the best opinion as to the relative values of different gauges. Mr. Harris, President of the Great Western Railway, must be presumed to have given the question some consideration and he gave his opinion in favour of the narrow gauge* [In this context, the term "narrow gauge" refers to 4 ft. 8 1/2 in. Ed.], *which the Great Western Ry. had then adopted. He said that all their calculations, plans and specifications were then based on a four feet eight and a half inch track, and he gave the following as his reasons for its adoption. First: Its established character. Second: The saving of money in the superstructure, ties and rails requiring extra strength for the broader gauge. Third: Saving of expense in running machinery for all time to come. Fourth: To form an easy and economical junction with the railroads of Michigan and New York from which the Company expects to receive very large additions to the traffic on their road, a considerable portion of which is expected to follow a Grand Trunk Line* [This was two years before the GTR Co. was incorporated. Ed.] *through the Province to Montreal. He added, "I consider the adoption of a broader gauge than 4 ft. 8 1/2 in. would prove injurious to the interests of the Great Western Ry. Co., as well as to the Main Trunk Line* [Soon to be the GTR. Ed.] *as far as Montreal because I feel that every inducement possible will require to be made to secure the principal part of the travel from Chicago etc., through Canada, in preference to the various channels now bwing opened on the south side of Lake Erie; and I feel convinced that any gauge that will not admit of the baggage cars of the roads joining the Great Western Ry. on either side being carried across it, will deprive Canada of the greater part of said travel".*

THE CHIEF ENGINEER REPORTS TO THE DIRECTORS OF THE St. L&A ABOUT THE GAUGE

This report, dated 1847, exactly a century and a half ago, sheds some light on the question of the adoption of the broad gauge. It was prepared by A.C. Morton, Chief Engineer of the St. Lawrence & Atlantic. This particular copy was presented by the author to Mr. A.N. Morin, President of the St. L&A. It was found by your editor in a second hand book store about 1962.



The Hon^ble A N Morin
With Mr Morton's Compliments

REPORT

ON

THE GAUGE

FOR THE

ST. LAWRENCE AND ATLANTIC RAIL ROAD,

By A. C. MORTON, Esquire,

CHIEF ENGINEER.

MONTREAL:
PRINTED AT THE CANADA GAZETTE OFFICE,
1847.

On the first page of the report it states that an act (10th and 11th Victoria, Cap. 65) provided : *That the Gauge upon which the said rail* [sic] *shall be constructed, and which shall be used in the said railway, shall be four feet eight and one half inches, unless, within six calendar months, the Governor of this Province in Council, shall, by Order in Council, determine upon any different Gauge, and that, upon communication to the said company of any Order in Council, establishing any different Gauge, the Gauge so established shall be the one used in the said road as if the same had been established by this Act.*

It is obvious from the report that Mr. Morton was a strong advocate of the broad gauge. After 68 pages of discussion, including much reference to the recent "Battle of the Gauges" in England, Mr. Morton makes his summary. In view of the historic importance of this, we quote it in full:

These considerations fairly carried out, with reference solely to the question of capacity as affected by the Gauge, would lead us to the adoption of a Gauge wider perhaps than 5 1/2 feet, but we have taken this limit in consideration of the question of expense, as applied to the branch lines, as well as the long main lines which are to be constructed, coupled with the opinions entertained by the respectable Engineers above quoted and my own, that 5 1/2 feet will give every desirable advantage.

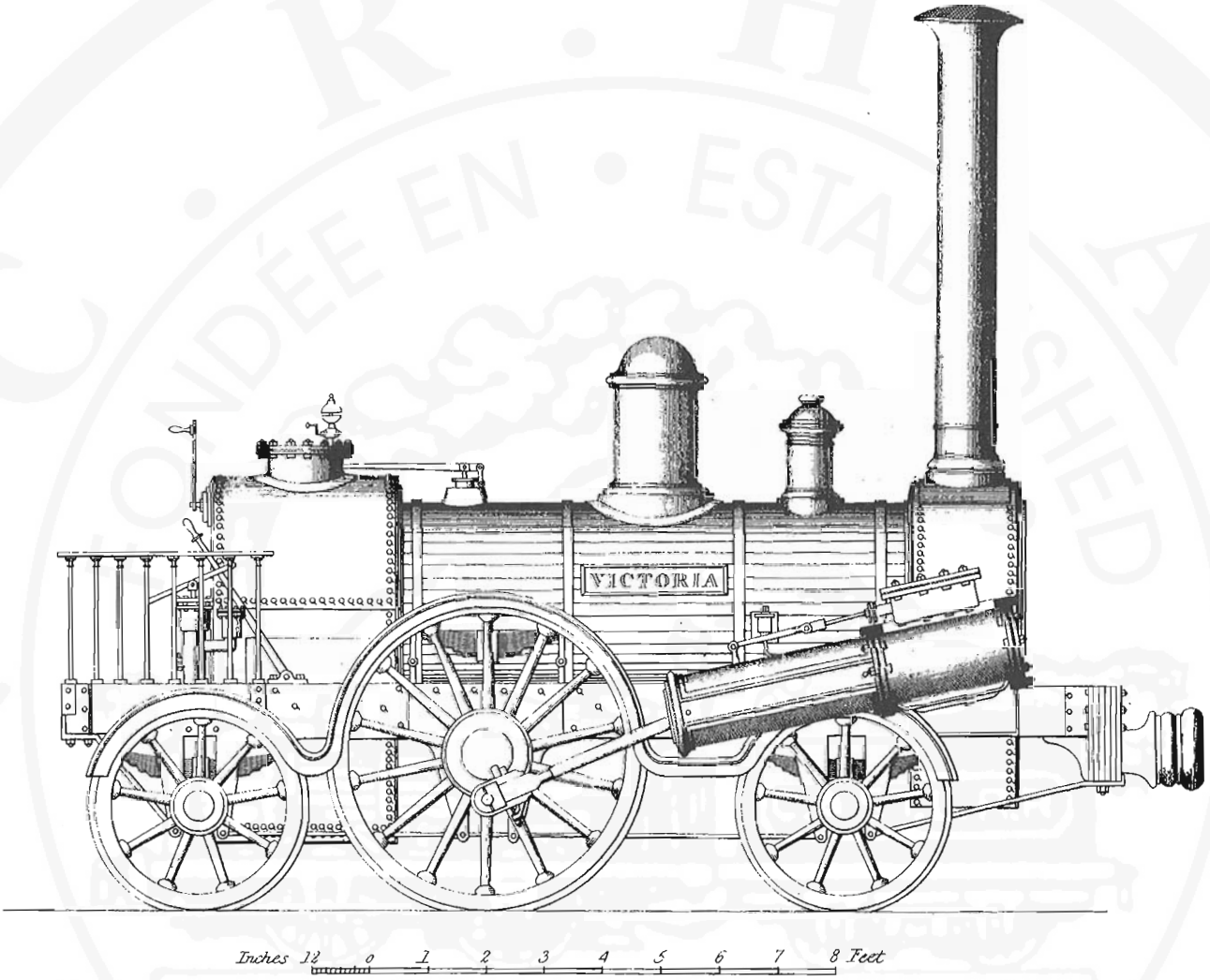
There appears to me no room to doubt this, and my sense of duty and regard to the interest of the Stockholders, constrains me to urge you to use all honorable means to secure to your road the advantages of the 5 1/2 feet Gauge.

In recommending a Wider Gauge than the prevailing one, I would not be understood as desiring to erect any barriers, or interpose any obstacles to the accomplishment of the objects sought by the promoters of rival lines. For they, in fact, open communications to good markets for the people of Canada, and they will of course be benefited not only by these avenues, but by the competition likely to arise as rival lines are increased.

But what I would recommend is simply that you give to your own lines all the superiority over your rivals which the experience of England and America has shown to exist in a broader Gauge, and leave to the enterprisze [sic] *of our neighbours to overcome these advantages as they best can.*

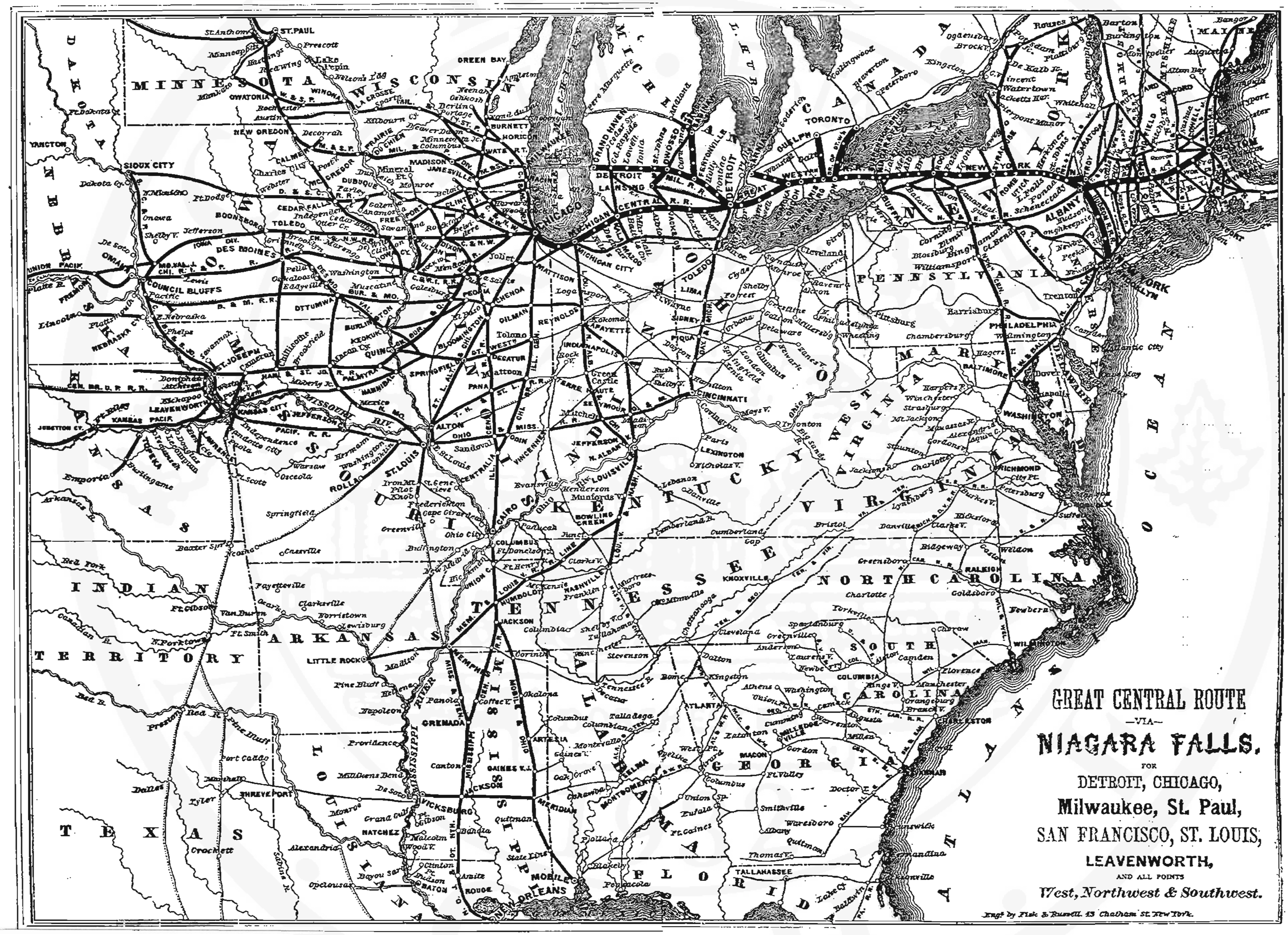
I have the honour to be,
Sir,
Your Obedient Servant,
A.C. MORTON
Chief Engineer.

WAS THIS LIKE THE LOCOMOTIVE THAT INTRODUCED THE BROAD GAUGE TO CANADA?



Various reasons have been given for the adoption of the 5 ft. 6 in. gauge in Canada. On close examination, most of these reasons explain why the 4 ft. 8 1/2 in. gauge was not adopted, but they do not say where the 5 ft. 6 in. gauge came from. It is quite possible that the answer may be found in Scotland. In 1839 a Scottish railway called the Arbroath and Forfar was opened for service. It had been built to a gauge of 5 ft. 6 in. According to the book "The Railways of Great Britain and Ireland", by Francis Whishaw, printed in London in 1840: "*Mr. Grainger* [the Engineer of the A&F] *has adopted on this line, as well as on the Dundee and Arbroath Railway, which joins it near the Arbroath harbour, a gauge of 5 feet 6 inches. He states as his reason, that he considers the English gauge too narrow, and the Great Western gauge too wide; he has, therefore, taken something like a mean, which would enable him to allow sufficient space for the proper construction of the locomotive engines, and also afford more useful space in the carriages.*" Whishaw also included a detailed scale drawing of the locomotive "Victoria" of the A&F. This drawing is reproduced above.

By 1846, with connection to other British lines a real possibility, the A&F realized that adopting the 5 ft. 6 in. gauge was a mistake, and they converted their gauge to standard. The old locomotives were thereupon sold. Just about this time, in far away Canada, the St. Lawrence & Atlantic was about to be built. The directors of the St. L&A learned of the availability of these Scottish engines, and bought two of them in 1847. These are said to have been the "Princess" and "Britannia", built by Stirling in 1838, which were renamed "St. Hyacinthe" and "Beloeil". It appears that they were of 2-2-2 wheel arrangement, like "Victoria" above, and were converted to 4-2-2 upon arrival in Canada. Since these, the first locomotives on the St. L&A, were 5 ft. 6 in. gauge, it seemed logical to build the first track to fit. The corresponding line in Maine, the Atlantic & St. Lawrence, naturally adopted the same gauge and, in due course, it became the official standard for Canada and parts of Maine. Although the old A&F locomotives were scrapped about 1854, the influence they had was felt, for better or for worse (mostly for worse), until the gauge was finally changed after 1870. One short line, the Carillon & Grenville, retained the broad gauge until it was abandoned in 1910. Ed.


GREAT CENTRAL ROUTE
-VIA-
NIAGARA FALLS.
FOR
DETROIT, CHICAGO,
Milwaukee, St. Paul,
SAN FRANCISCO, ST. LOUIS,
LEAVENWORTH,
AND ALL POINTS
West, Northwest & Southwest.
Eng'd by Fisk & Russell. 13 Chatham St. New York.

The "Spitfire" was originally numbered 41, and later became No. 32. It was built by Fairbairn of Manchester England. It went into service on the GWR in May, 1855. The Fairbairn engines were not re-gauged, and "Spitfire" was scrapped about 1871.

There is something prophetic in some of these reasons. The Great Western Ry., which was practically compelled by the legislature to adopt a 5 ft. 6 in. gauge, was obliged to reduce it by means of a third rail to enable American cars to pass over their line. The section of the Main Trunk Line east of Montreal had been commenced with a broad gauge and that circumstance may have had some influence in determining the decision of the Committee.

And so with all the evidence before them, and all the circumstances to be considered, the Railway Committee, on the 31st July 1851 decided in favour of the five and a half feet gauge."

Of course a great deal more evidence both for and against the 5 ft. 6 in. gauge was brought before the Committee than what I have quoted, but it seems to me that the balance of opinion was in favour of the 4 ft. 8 1/2 in. gauge.

In spite of the fact that two railways between Canada and the United States, the 5 ft. 6 in. gauge between Montreal and Portland, and the 4 ft. 8 1/2 in. line between Montreal and New York state were in full operation [The Champlain and St. Lawrence extention to Rouses Point was completed in 1851, while the Montreal & New York and the Plattsburgh & Montreal would meet at the border in 1852. Ed.], and that either of these routes, on which there was no break of gauge, would have been available for invasion purposes, I still believe that the fear of invasion loomed large to the military authorities, and this, together with the fact as mentioned above that not only on the railway to Portland but on the Main Trunk Line east of Montreal the 5 ft. 6 in. gauge was already established, led the Committee to decide in favour of the 5 ft. 6 in. gauge, even in the face of the obvious drawbacks of change of gauge during transportation.

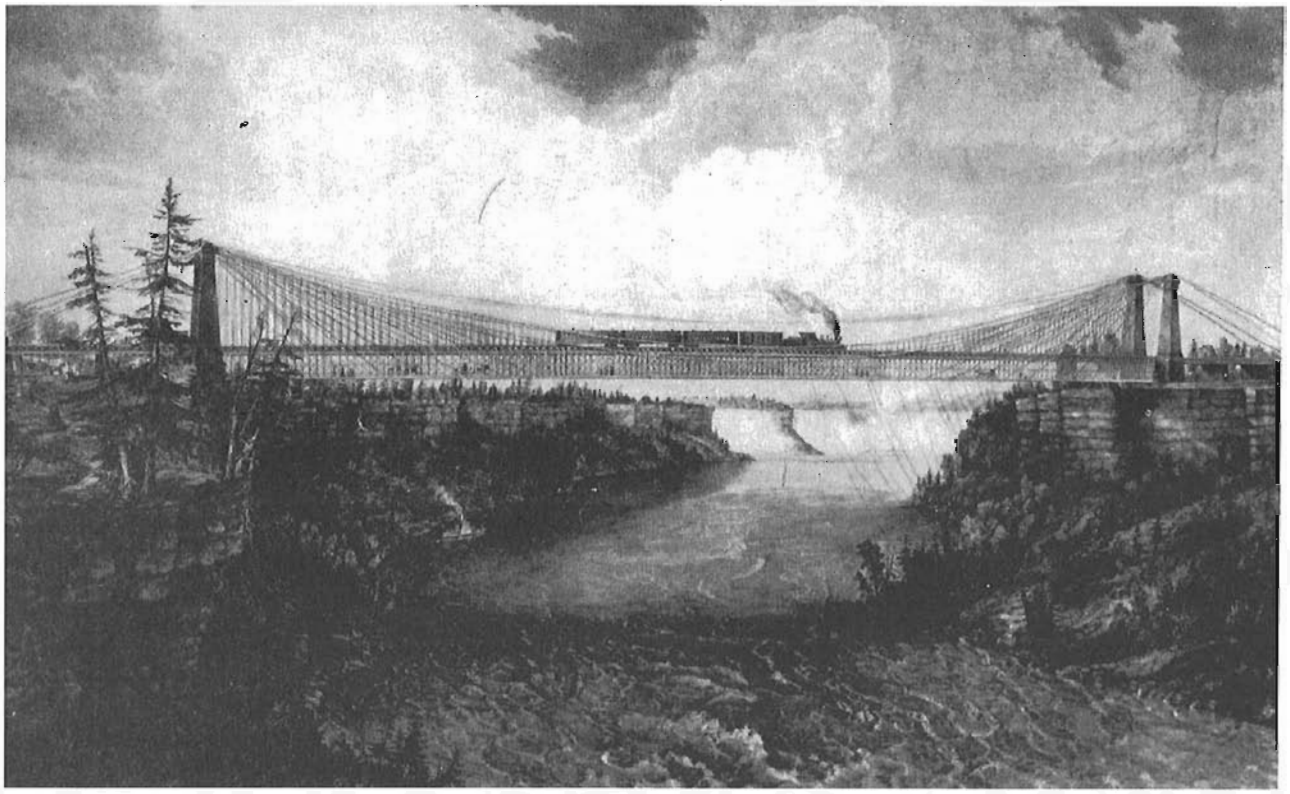
Whether the foregoing opinion is correct or not may be open to question [It still is. Ed.], but the Government made its decision in 1851 that the National railway gauge of Canada should be 5 ft. 6 in., much to the annoyance of the directors of the Great Western Ry., who had evidently made all their plans for a railway of the 4 ft. 8 1/2 in. gauge.

Although this law did not affect some of the earliest railways in Canada, such as the Champlain & St. Lawrence, the Montreal & Lachine, the Lanoraie & Industrie, and the coal railways of Nova Scotia [The 1851 act exempted railways less than 100 miles long, and Nova Scotia was not yet a part of Canada. Ed.], all of which were 4 ft. 8 1/2 in. gauge, it may be noted that after the law was passed a great many lines were laid to the 5 ft. 6 in. gauge in Nova Scotia, New Brunswick, Quebec and Ontario, and some of the smaller ones had to be subsequently assisted financially by the Dominion Government when it repealed the 1851 law, which it did in 1870.

The Great Western Railway, owing to its geographical position, was from the first very dependent on through traffic from and to different points in the United States. In fact the railway practically formed a link in the east and west traffic of that country.

OPPOSITE PAGE: This map appeared in conjunction with the Great Western timetable in the Official Guide for September, 1870. This was during the gauge conversion. In this map, the GWR is depicted as a major link in rail transportation between east and west. Places as far distant as Kansas, Nebraska, and even Texas, are linked with New York and New England via the GWR. Of note is the Union Pacific line west of Omaha marked "To California". On May 10, 1869 the golden spike had been driven at Promontory, Utah Territory, so by 1870 even the riches of the Golden State would flow via the Great Western! No wonder the company considered the standardization of gauge so important.

The Great Suspension Bridge at Niagara Falls

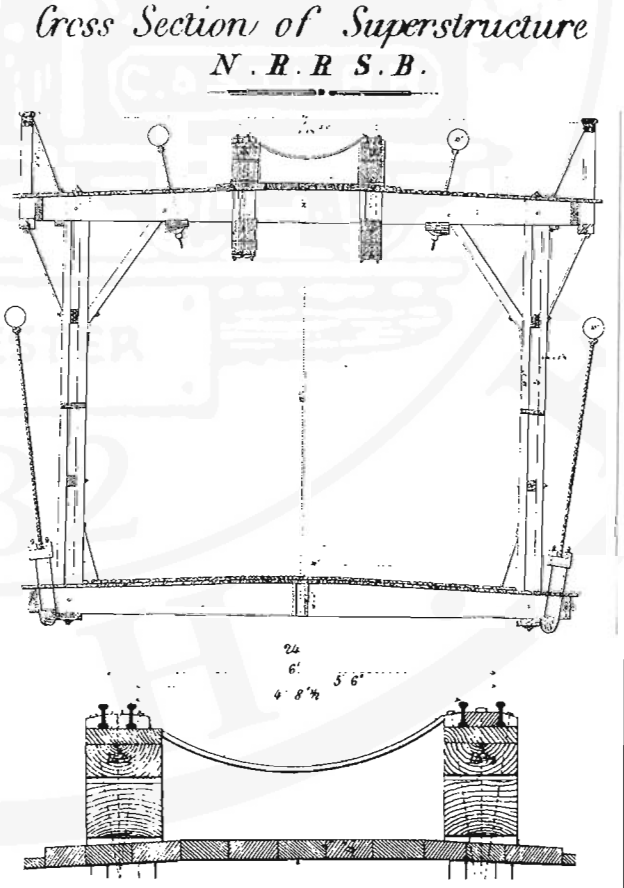


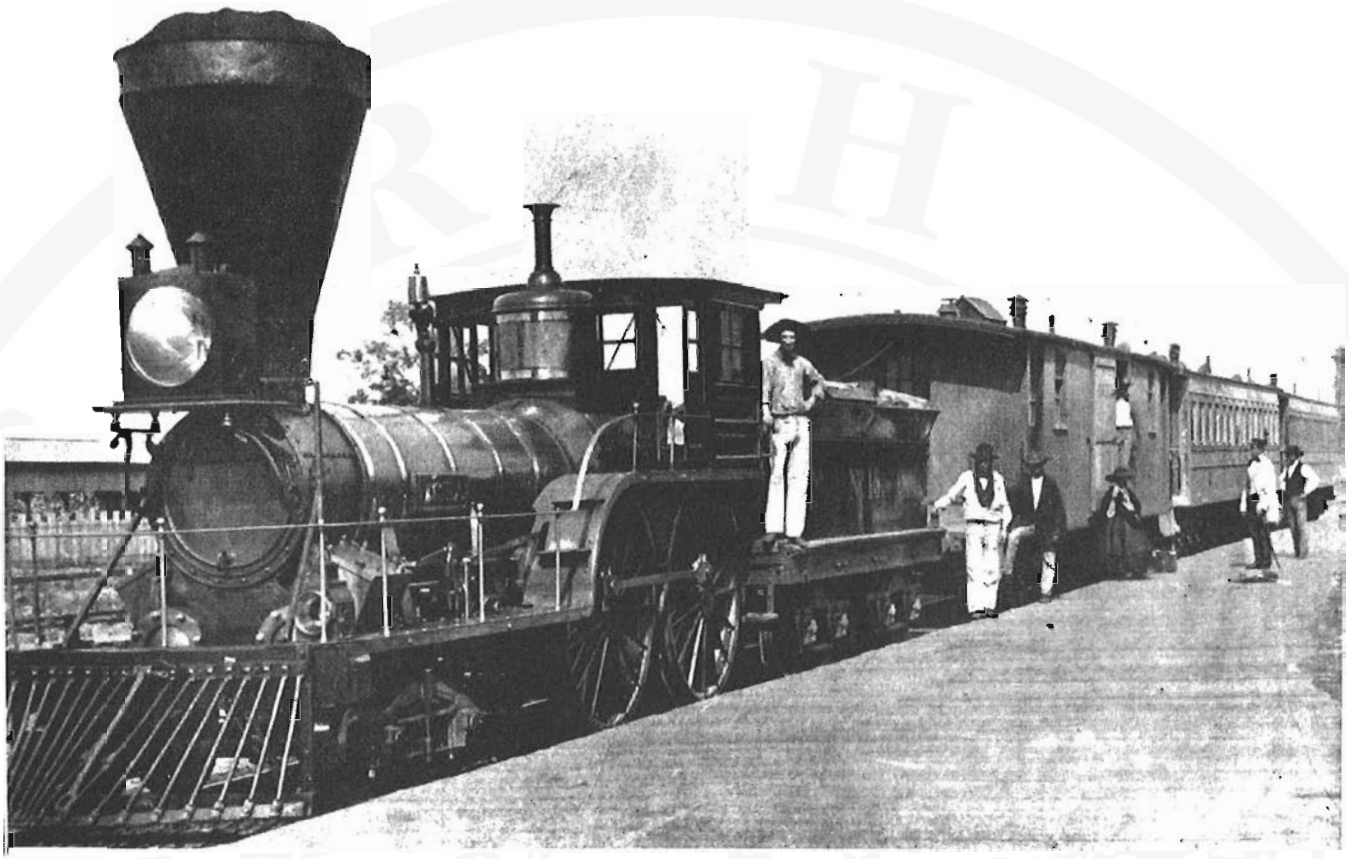
The most important link between the Great Western and the railways of the Unites States was the suspension bridge at Niagara Falls.Built to the design of John Roebling, this bridge was constructed between 1852 and 1855, and was opened for service on March 18, 1855. It cost the comparatively small sum of $400,000 which, even for 1855, was a bargain; the Victoria Bridge at Montreal cost $7,000,000. The span between towers (centre to centre) was 821 feet 4 inches, and the track was 245 feet above the middle stage of the river.As can be seen from the cross section (right) the superstructure of the bridge formed a girder, with the track on top and the road underneath. This stiffened and strengthened the whole structure. In the words of Mr, Roebling:

"*The efficiency of these girders became evident at the first trial. On 8th of March* [1855] *I made the first trial trip with an American built engine of 23 tons weight, with four drivers placed but a short distance apart. The general depression in the centre was 0.3 feet. Another American engine of 22 tons weight produced nearly the same effect.... Without girders the trusses would not long resist the action of trains*".

Most notable from the cross section is the triple gauge track on the bridge. The two inner rails were laid to a gauge of 4 ft. 8 1/2 in., while the two outer rails were spaced 6 ft., the gauge used by the Erie Railroad. Between one outer rail and the opposite inner one, the gauge was 5 ft. 6 in. to accommodate the trains of the Great Western.

The Niagara suspension bridge served until 1896 when it was replaced by an arch bridge which is still in use.





Great Western No. 15, "Essex", built by Lowell in 1853 and delivered to the GWR in January, 1854. This c.1859 view shows the train coming off the Niagara suspension bridge, that vital link in the rail network. In 1862 "Essex" was renumbered 11. Because of its inside cylinders, it was never re-gauged but was scrapped about 1868.

Now none of the United States railways directly connected with the GWR were of the 5 ft. 6 in. gauge, most of them being of the 4 ft. 8 1/2 in. gauge which was already at that time becoming the standard. An exception, however, was the Erie Ry. which was directly connected with the GWR at Niagara Bridge, but as this line and its connections was laid to a gauge of six feet, the break of gauge difficulty was equally bad, if not worse.

As can be imagined, the transfer of all goods from the American gauge trains to the 5 ft. 6 in. GWR trains at Niagara Bridge, and the retransfer from GWR to American trains again at Windsor or Detroit was an endless source of confusion, breakage, delay and dissatisfaction to everyone concerned, and the United States lines at last took up the question of an alternative route through United States territory on the 4 ft. 8 1/2 in. gauge to avoid this trouble.

The fear of losing this valuable American business drove the directors of the GWR to petition the Canadian government for permission to change the gauge, and in the meantime they gradually mixed the gauge or, in other words, laid down on most of their tracks a third rail to accommodate the 4 ft. 8 1/2 in. gauge cars of the United States railways, so that they could pass from one point to another in the United States over the GWR without change.

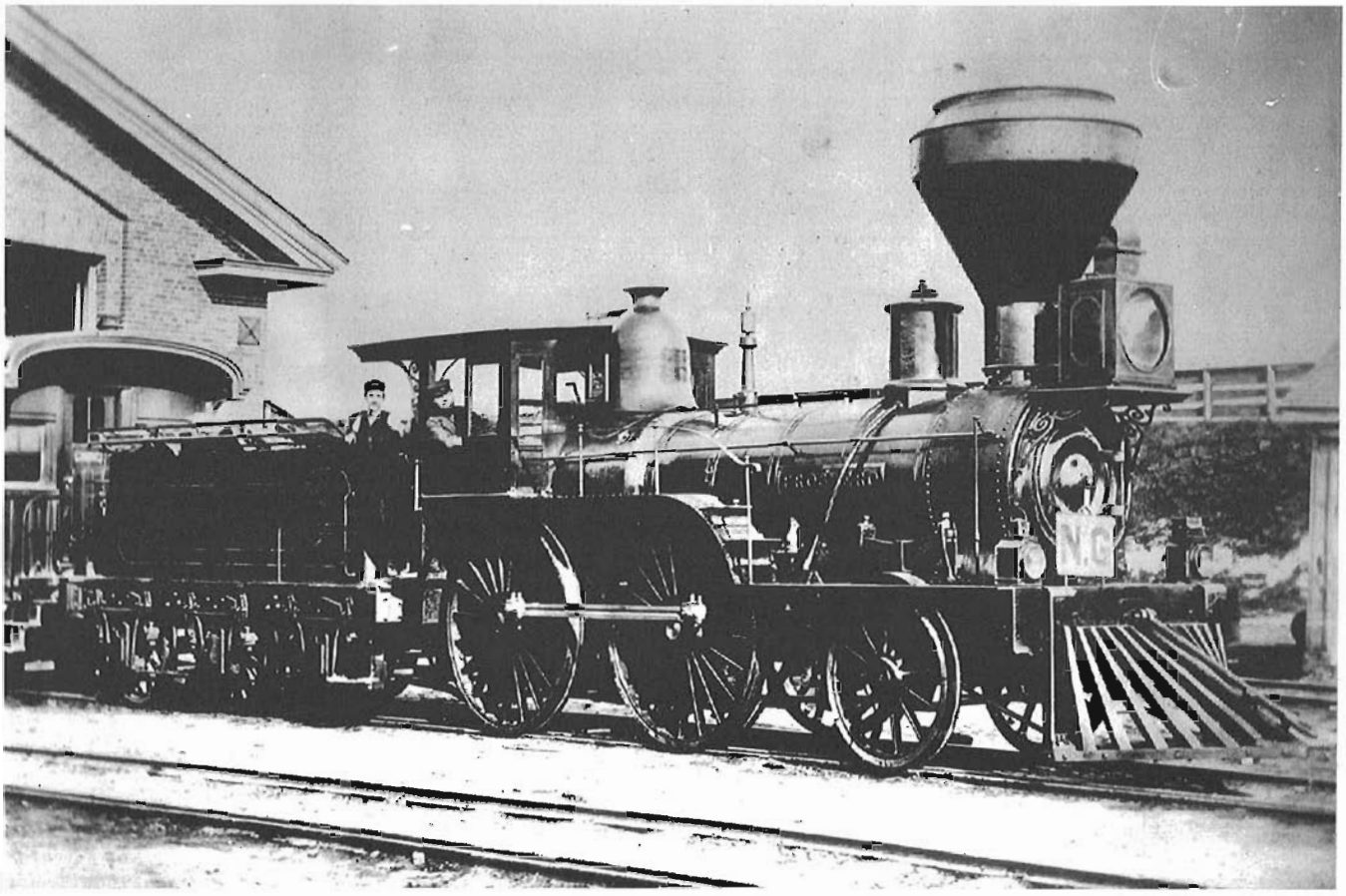
It is interesting to note the gradual way in which this change of gauge took place on the Great Western Railway, and it was rather unique [sic] in this respect compared to the numerous changes of gauge which have taken place in various parts of the world. In most instances, once the work of change was put in hand, it was carried through as quickly as possible, the operation, after considerable time spent in preparation, was only a matter of a few days, sometimes only hours, whereas on the GWR it was a matter of years. The Great Western Railway of England had a somewhat similar experience with regard to mixing the gauge on a large part of their road, but when the change of gauge came [1892] they had to close a large part of their main line, which the GWR of Canada did not have to do, the only part of the line actually closed was the branch line between Hamilton and Toronto which was closed for eight hours, as shall be mentioned later on.

The following are notes extracted from the half-yearly reports of the Great Western Railway.

The Great Western Railway of Canada was opened on 18 Nov. 1853 with a rail [sic] gauge of 5 ft. 6 in., in accordance with the law passed by the Canadian parliament in 1851.

Nearly eleven years later, at a meeting of the Company held on 24 Feb. 1864, the President, Mr. Thomas Dakin, in referring to the delay and loss incurred owing to the break of gauge between the American railroads and the GWR, recommended that the GWR should at once lay an intermediate or third rail of 4 ft. 8 1/2 in. to accommodate American cars, which would then run over the GWR without change. Cost estimated to be $700,000. Two years later, on 26 March 1866, the President refers to the narrow gauge track about to be laid down on the main line, and in August of that year Mr. G.L. Reid, the Company's engineer, reports that 50 miles of N.G. rails are laid.

The President, on 28 March 1867, says that the N.G. track is completed between Suspension Bridge and Windsor, that it came into operation on January 1 last, and that the new car ferry boat, which will take 14 or 16 cars, also ran on that date. Further mixed gauge sidings were badly wanted.



GWR No. 84, "Prospero" was built by Stephenson in England and arrived on the GWR in October, 1856. By the time this photo was taken it had been renumbered 52. Both it, and the "Niagara" opposite, display the "NG" plate indicating a mixed-gauge train. After the gauge change "Prospero" was sold to the Midland Railway of Canada.

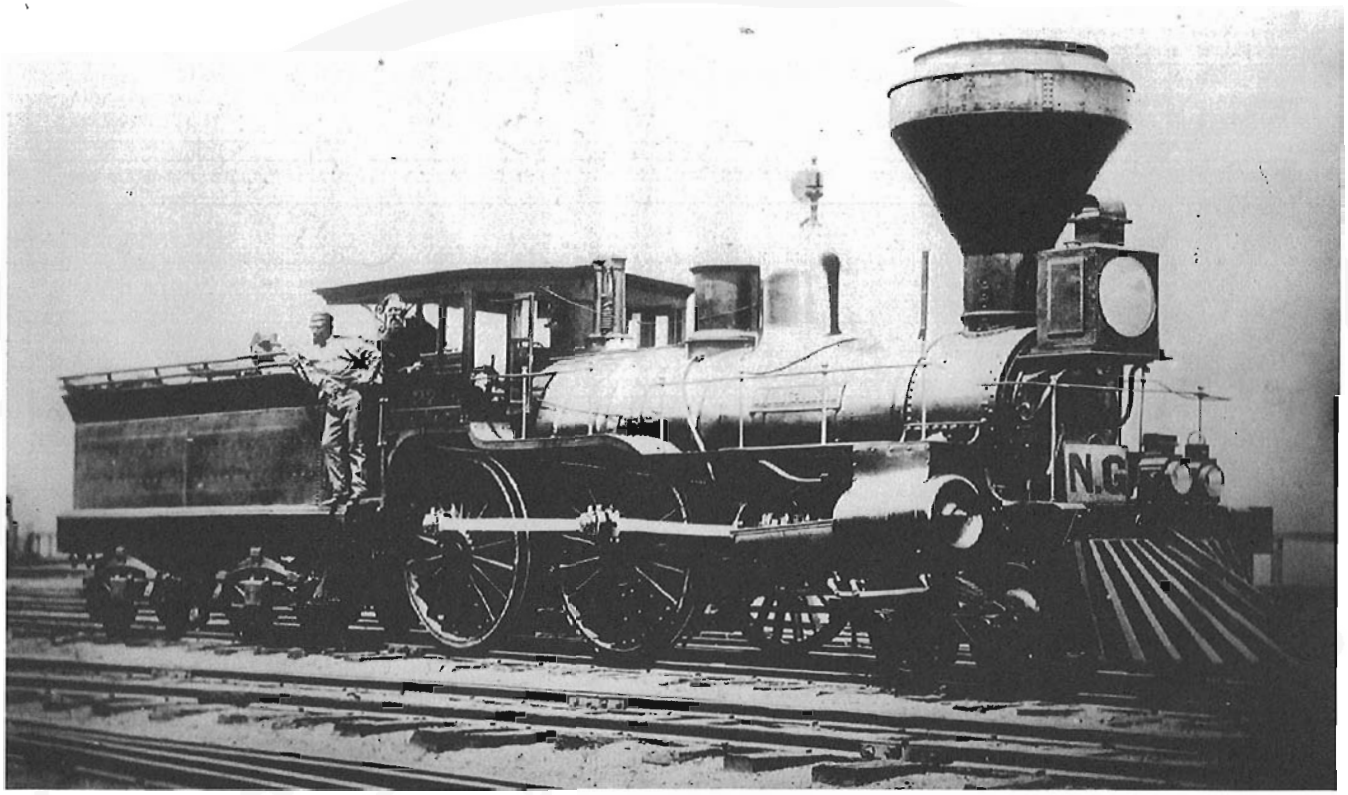
Mr. Robinson, the Company's mechanical superintendent, reports at the same time that 198 N.G. cars of all kinds are now in use out of a total of 1511, and that 2 of the new Palace Sleeping Cars, built by the Pullman Company, are at work, and others are in hand.

From now on the work of converting the cars from broad to narrow gauge went steadily, though the locomotives did not seem to be taken in hand until the spring of 1870. The President, on 28 Sept. 1870, says that the traffic has been handled by broad gauge locomotives, but the system of working on a mixed gauge system has been found to be unsatisfactory and expensive. Preparations are now, therefore, being made to take up the outside rail - Parliament having sanctioned the change of gauge - and it is proposed to purchase some narrow gauge locomotives. It is also proposed to retain the broad gauge only so long as it is necessary to obtain sufficient N.G. locomotives.

The Pacific Railroad in the United States [Completed by the joining of the Union Pacific and Central Pacific railroads at Promontory Summit, Utah on May 10, 1869. Ed.] is spoken of on 13 Oct. 1869 as an important source of through traffic for the GWR now that the narrow gauge is available, but more mixed sidings are wanted, and the use of Bessemer steel rails was just commencing in November.

Mr. Robinson says that on 23 Aug. 1870 that the first two narrow gauge freight engines are already at work and that more are in hand. Some B.G. engines are being sold, some broken up, and one small one converted into a N.G. shunting tank engine. Mr. Reid reports on 28 Feb. 1871 that the third rail had now been removed from 100 miles of the main line and from station sidings between Windsor and Komoka, and also that in December last the track of the Toronto branch, 38 miles, was successfully changed from broad to standard gauge by an organized force of trackmen under Mr. Weatherton with an interruption to traffic of only eight hours.

On the same date the Locomotive Superintendent explains that the alteration of the gauge being put in hand more rapidly than anticipated has left him with a shortage of N.G. engines. The Company is buying a large number of these locomotives, both freight and passenger, from the Rhode Island Locomotive Works and is converting GWR B.G. engines to narrow gauge at the Company's works as rapidly as the facilities will allow. But this conversion of the locomotives was attended with difficulties for Mr. Robinson remarks: "*Many of the engines which were considered worth reconstruction with new boilers on their present gauge are now found unsuitable to convert to N.G., while others, notably of the Norris class, originally considered not worth reconstruction, are the most practical to convert to N.G.*". For these reasons it is now intended to reconstruct the six Norris engines, numbers 17 to 22 inclusive, with new boilers and cylinders, make them N.G., and select good tenders for them from other engines, which, on account of age and difficulty of conversion, will be broken up. Five Slaughter engines, Nos. 65, 66, 68, 69, 72, and the Fairbairn engine, No. 32, all being too old and worn out to be worth conversion to N.G., are being broken up.



The "Niagara" was the second locomotive of that name to run on the GWR. It replaced the original Lowell engine of 1853 which had been numbered 4, renumbered 27, and wrecked about 1862. This new "Niagara" was also numbered 27, and was built in the GWR's own shops at Hamilton, going into service in January, 1863. It did not survive the gauge change and was scrapped in 1873.

Notes by W.M.S.: According to the 1862 list, the six Norris engines were, No. 17 "Venus", No. 18 "Vesta", No. 19 "Minerva", No. 20 "Jupiter", No. 21 "Mercury", No. 22 "Mars". The five Slaughter engines were, No. 65 "Python", No. 66 "Lion", No. 68 "Tiger", No. 69 "Tigress", No. 72 "Vulcan". The Fairbairn engine was No. 32 "Spitfire".

The report continues:- "*The engine stock has been increased by five new N.G. freight engines built in the Company's shops. The remaining portion of the engine stock has been somewhat altered during the half year both in point of numbers and gauge. In addition, the two shunting engines (Nos. 91 and 93) are listed as sold and one shunting engine (No. 92) as having been converted to N.G. In last half year's report the following alterations and temporary additions have been made:- One freight engine, No. 54 ("Titan" from Birkenhead) and one passenger engine, No. 5 ("Windsor" from Schenectady) have been sold. Four shunting engines, No. 86 "Ontario", No. 88 "Superior", No. 89 "Michigan", No. 90 "St. Lawrence", from the Globe Works in Boston, have been converted to N.G. One shunting engine, No. 87 "Erie", is in hand being converted. Thirteen new N.G. passenger engines and nineteen freight engines have been purchased from the Rhode Island Locomotive Works and also one shunting engine from Baldwin's. The stock of engines at present is as follows:" 77 B.G., 43 N.G., 13 being converted, total 133*".

In consequence of this temporary shortage of locomotives, the Directors were obliged to change their plans somewhat and to retain the mixed gauge between Hamilton and London so that narrow gauge trains could be operated by broad gauge locomotives. The Directors' report in April 1872 states that by 31 January the whole of the Company's car stock had been converted to the new standard gauge, but that the broad gauge is still being kept between London and Hamilton on which to run the remaining broad gauge locomotives. Mr. Robinson, on 28 Feb. 1873, reports that only 24 B.G. engines now remain out of a total of 177. The report of 26 March shows that the supply of locomotives is still insufficient and that the outer rail between Hamilton and London must be continued for the present. The new steel rails are giving great satisfaction both in use and in decreased expenditure. The Directors, in their report of 16 October, announce that at last this outer rail was removed at the end of June, that the system is now entirely of standard gauge, and that at the close of the previous year only 30 miles of iron rails remained on the main line. It is mentioned in the same report that freight trains of 27 cars are now run on the main line wheras 24 cars were formerly the maximum, and then extra engine help was often required. By 1874 the Westinghouse Atmospheric Brake was beginning to be installed.

To conclude I may again refer to the process through which the Great Western Railway went during the period of the change of gauge. - First, the laying down of the narrow gauge rail primarily to accommodate the American cars, at that time there being no narrow gauge stock on the GWR. N.G. rail, Niagara to Windsor, was in operation by January 1, 1867. Second, the gradual conversion of the GWR cars, both passenger and freight; the first GWR N.G. cars were running by the spring of 1867. Third, the conversion of the locomotives. The first N.G. engine, a shunter, was not running until the spring of 1870.

[The Great Western Railway ended its independant existence when it was sold to the Grand Trunk in 1882, and was absorbed into that system. Most of the former GWR lines are still in use as part of Canadian National Railways. Ed.].


£100 Province of Canada 100£

DEBENTURE

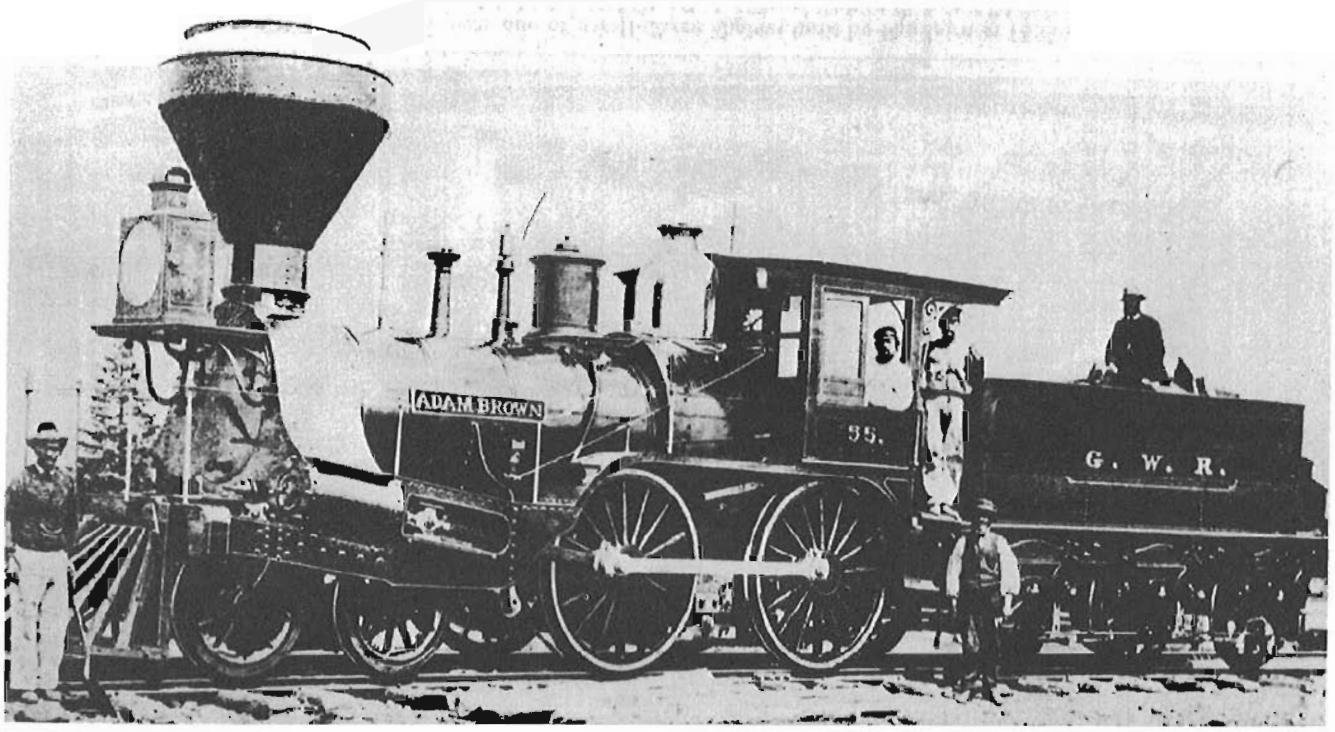
No. 180 No. 180

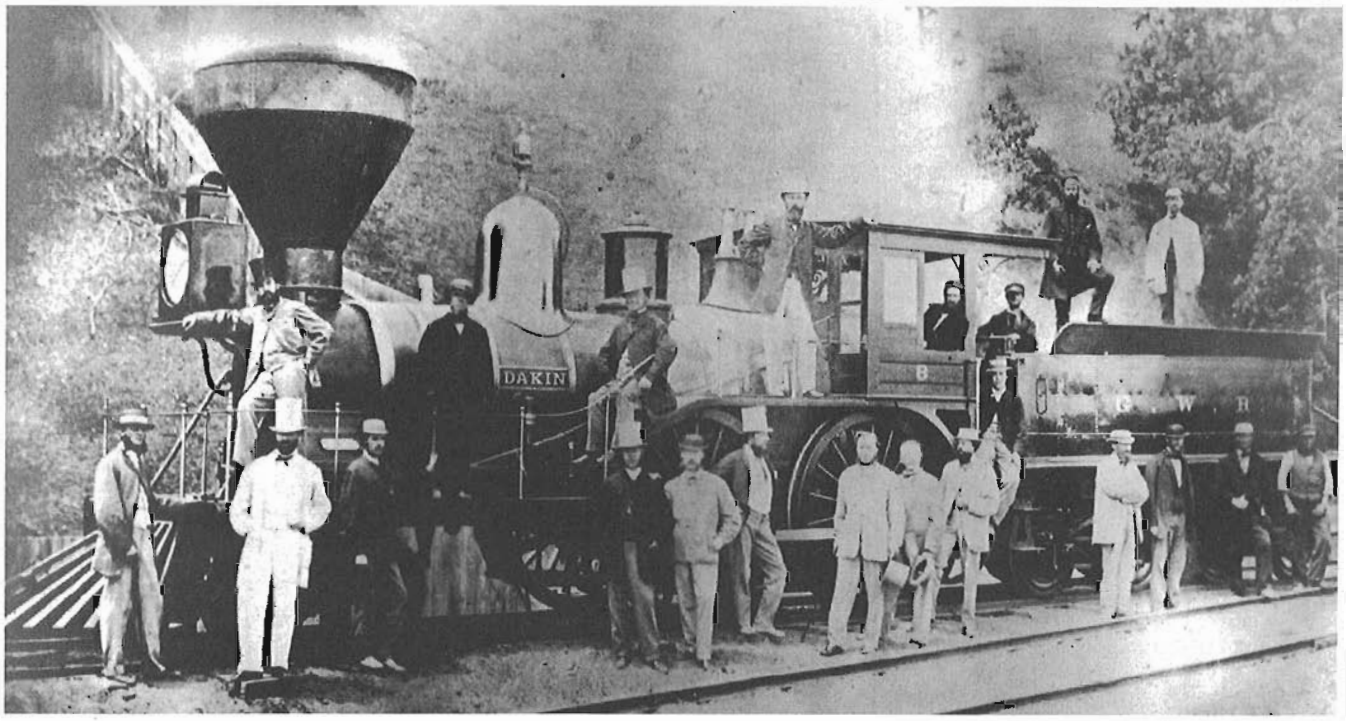
COUNTY OF OXFORD.

Under the authority of an Act of the Provincial Parliament, passed on the 23rd July 1850 13th Victoria, Chap. 129, entitled "An Act to empower Municipal Corporations to subscribe for Stock in the GREAT WESTERN RAILROAD COMPANY," and in accordance with the Provisions of By Law No. 8 under which a special rate is levied The Municipal Council of the County of Oxford promise to pay Bearer ONE HUNDRED POUNDS on the first day of January eighteen hundred and Seventy One, and will also pay the Semi Annual Coupons hereto attached, as the same shall severally become due, at

Dated at Woodstock this first day of April 1853

Treasurer Warden





OPPOSITE: This beautiful example of the engraver's art is a bond for 100 pounds Canadian currency ($400) issued by the County of Oxford in 1853 to raise money for the County to buy Great Western stock, and so ensure that the railway would serve that county.

TOP: The "Adam Brown" was originally No. 76, "Minos" built at Birkenhead in 1855. By 1870, when this photo was taken, it had been renamed, and also renumbered 55. It was later sold to the Wellington Grey & Bruce. This locomotive was featured on a Canadian stamp, one of a series depicting historic locomotives.

ABOVE: Another renamed engine, "Dakin" was originally "Woodstock", No. 14, built by Schenectady in 1853. In the 1862 renumbering it became No. 8, and was later renamed "Dakin" after the GTR president. It also did not survive the conversion to standard gauge.

NEXT TWO PAGES: In 1858 and 1859 Mr. Samuel Keefer produced two reports on Canadian railways. This was by order of the Royal Commission on railways set up in the aftermath of the Desjardins Canal disaster on the GWR in March, 1857. Among other items, the Keefer Reports contained complete locomotive rosters of all railways in Canada. On these two pages we reprint the roster for the Great Western as of December 31, 1858, showing builder, date, dimensions, miles run, etc. The Keefer reports are more complete than many later publications.

RETURNS OF LOCOMOTIVE ENGINES, AND OTHER ROLING STOCK,

OWNED BY RAILWAY COMPANIES IN CANADA, ON THE 31st DECEMBER, 1858.

Number, description and condition of Locomotive Engines owned by the GREAT WESTERN RAILWAY COMPANY, of Canada, on the 31st December, 1858, and miles run by the same up to that date.

ENGINES.			Driving Wheels.		Cylinders		Flues.			Weight of Engine.	Water capacity of Tender.	Weight of Tender with Wood and Water.	Total weight of Engine and Tender, with Wood and Water.	WHERE BUILT, OR BUILDER'S NAME.	When first put in use.	Miles run during the year 1858.	Total Miles run since first put on road.	GENERAL CONDITION AND REMARKS.
No.	NAME.	Connections.	Number.	Diameter.	Diameter.	Stroke.	Number.	Length.	Inside Diameter.									
				Feet.	Inch.	Inch		Feet	Inch	Tons.	Galls	Tons.	Tons.					
1	Hercules	Outside.	4	6	16	22	180	11½	1 1/16	----	1567	----	----	Lowell	July,'53	26244	108115	In good order.
2	Samson	do	"	"	"	"	"	"	"	----	"	----	----	do	June	26493	99167	do
3	Canada	do	"	"	"	"	"	"	"	----	"	----	----	do	Feb. '54	24606	96445	do
4	Niagara	do	"	"	"	"	"	"	"	----	"	----	----	do	June, '53	18666	102223	do
5	Hamilton	do	"	"	"	"	"	"	"	----	"	----	----	do	Oct. '53	26443	91612	In shop repairing.
6	London	do	"	"	"	"	"	"	"	----	"	----	----	do	"	21908	64929	do
7	Middlesex	Inside.	4	5½	15	22	139	11½	1 1/16	----	1571	----	----	Schenectady	"	23106	87161	In good order.
8	Lightning	do	4	5½	14	22	139	11½	1 1/16	----	"	----	----	do	"	15688	122187	do
9	Detroit	do	"	"	"	"	"	"	"	----	"	----	----	do	"	15064	101817	do
10	Lincoln	do	"	"	"	"	"	"	"	----	"	----	----	do	"	20136	137272	do
11	Windsor	do	"	"	"	"	"	"	"	----	"	----	----	do	"	21168	85301	do
12	Chatham	do	"	"	"	"	"	"	"	----	"	----	----	do	"	22817	124341	do
13	Paris	do	"	"	"	"	"	"	"	----	"	----	----	do	Dec. '53	15156	121618	Under repairs.
14	Woodstock	do	"	"	"	"	"	"	"	----	"	----	----	do	"	22605	111973	do
15	Essex	do	"	"	"	"	"	"	"	----	1521	----	----	Lowell	Jan'y '54	17398	109135	In good order.
16	Kent	do	"	"	"	"	"	"	"	----	"	----	----	do	"	27093	97347	Under repairs.
17	Elgin	do	"	"	"	"	"	"	"	----	"	----	----	do	"	19347	89214	Requiring repairs.
18	Norfolk	do	"	"	"	"	"	"	"	----	"	----	----	do	"	16521	86142	Under repairs.
19	Brant	do	"	"	"	"	"	"	"	----	"	----	----	do	"	13978	63117	In good order.
20	Wentworth	do	"	"	"	"	"	"	"	----	"	----	----	do	"	19944	105456	Requiring repairs.
21	Ontario	Outside.	4	4½	13	20	94	8:9"	1 3/16	----	807	----	----	Souther, Boston	Sept. '53	28812	105081	In good order.
22	Erie	do	"	"	"	"	"	"	"	----	"	----	----	do	"	28272	126836	Requiring repairs.
23	St. Clair	do	"	"	"	"	"	"	"	----	"	----	----	do	Oct. '53	31749	160641	In good order
24	Huron	do	"	"	"	"	"	"	"	----	"	----	----	do	"	26302	86234	Requiring repairs.
25	Superior	do	"	"	"	"	"	"	"	----	"	----	----	do	"	31976	111700	In good order.
26	St. Lawrence	do	"	"	"	"	"	"	"	----	"	----	----	do	Nov. '53	22592	124221	do
27	Reindeer	Inside.	4	6	16	21	170	10.10½	1 3/16	----	1742	----	----	Amoskeag Works	Feb. '54	27646	91144	Under repairs.
28	Elk	do	4	6	16	21	170	10.10½	1 3/16	----	1742	----	----	do	"	11946	121708	In good order.
29	Gazelle	do	"	"	"	"	"	"	"	----	"	----	----	do	March,'54	9288	78816	do
30	Stag	do	"	"	"	"	"	"	"	----	"	----	----	do	"	21489	124502	do
31	Antelope	do	"	"	"	"	"	"	"	----	"	----	----	do	May,'54	24134	118434	do
32	Greyhound	do	"	"	"	"	"	"	"	----	"	----	----	do	April, '54	27130	112932	do
33	Michigan	Outside.	4	4½	13	20	94	8' 9"	1 3/16	----	807	----	----	Souther, Boston	Feb. '54	76	69019	Sta'y eng. gra. elevat'r
34	Simcoe	do	"	"	"	"	"	"	"	----	"	----	----	do	"	28378	101759	In good order.

35	Venus	do	4	5½	15	22	150	11 2¾	1 13/16		1635			Norris, Philadelphia	June, '54	2974	60948	do	
36	Vesta	do	"	"	"	"	"	"	"		"			do	"	1619	75496	do	
37	Minerva	do	"	"	"	"	"	"	"		"			do	Sept. '54	7804	71894	do	
38	Jupiter	do	"	"	"	"	"	"	"		"			do	July, '54	3918	57931	do	
39	Mercury	do	"	"	"	"	"	"	"		"			do	Sept. '54	9010	66402	do	
40	Mars	do	"	"	"	"	"	"	"		"			do	"	4107	66355	do	
41	Spitfire	Inside.	4	6	16	21	174	11 3½	1 13/16		1684			Fairbairn, Manchester, (Eng)	May, '55	29718	96559	Requiring repairs.	
42	Firebrand	do	"	"	"	"	"	"	"		2183			do	Aug. '55	17003	70556	In good order.	
43	Fire King	do	"	"	"	"	"	"	"		"			do	Oct. '55	18698	87923	do	
44	Fire Fly	do	"	"	"	"	"	"	"		"			do	Sept. '55	10994	75471	do	
45	Hecate	do	"	"	"	"	"	"	"		1684			do	May, '55	21268	86814	do	
46	Hecla	do	"	"	"	"	"	"	"		2183			do	Nov. '55	21872	63310	do	
47	Atlas	do	6	5	16	24	170	10'3"	1 13/16		1906			Stothert & Slaughter, (Eng.)	Sept.' 54	16207	87286	do	
48	Pluto	do	"	"	"	"	"	"	"		"			do	Oct. '54	19084	80715	do	
49	Milo	do	"	"	"	"	"	"	"		"			do	Dec. '54	13348	69445	do	
50	Elephant	do	"	"	"	"	"	"	"		"			do	"	16829	77304	Requiring repairs.	
51	Rhinoceros	do	"	"	"	"	"	"	"		"			do	Nov. '54	11122	73107	In good order.	
52	Buffalo	do	"	"	"	"	"	"	"		"			do	"	24386	94258	Under repairs.	
53	Bison	do	"	"	"	"	"	"	"		"			do	Dec. '54	19170	87751	In good order.	
54	Python	do	"	"	"	"	"	"	"		"			do	"	24112	85070	do	
55	Welland	do	4	5½	14	22	139	11½	1 11/16		1571			Schenectady	July '54.	16066	106971	Under repairs.	
56	St. Catharines	do	"	"		"	"	"	"		"			do	Aug. '54.	28487	130947	In good order.	
57	Lion	do	6	5	16	24	170	10'3"	1 13/16		1981			Stothert & Slaughter (Eng.)	Dec. '55.	11724	59719	do	
58	Lioness	do	"	"	"	"	"	"	"		"			do	"	15748	68075	do	
59	Tiger	do	"	"	"	"	"	"	"		"			do	"	12624	50606	do	
60	Tigress	do	"	"	"	"	"	"	"		"			do	March '56	13523	55058	do	
61	Leopard	do	"	"	"	"	"	"	"		"			do	"	4590	53354	do	
62	Panther	do	"	"	"	"	"	"	"		"			do	Feb'y '56	20363	57850	do	
63	Vulcan	do	"	"	"	"	"	"	"		"			do	Jan'y '56.	15777	52803	do	
64	Etna	do	"	"	"	"	"	"	"		"			do	March '56	14325	50937	do	
65	Stromboli	do	"	"	"	"	"	"	"		"			do	May '56.	16558	51774	do	
66	Styx	do	"	"	"	"	"	"	"		"			do	March '56	23171	65024	do	
67	Gem	do	4	6	16	21	170	10'3"	1 13/16		1684			Fairbairn, Manchester (Eng)	Feb'y '56	29394	73878	do	
68	Ruby	do	"	"	"	"	"	"	"		"			do	Mar. '56.	26409	72525	Under repairs.	
69	Emerald	do	"	"	"	"	174	11'3½"	1 13/16		2183			do	Aug't '56.	21609	60237	In good order.	
70	Sapphire	do	"	"	"	"	"	"	"		1684			do	April '56.	15191	65604	do	
71	Mazeppa	Outside.	4	6	15	20	180	10'3"	1 13/16		1452			Jones, Liverpool, (England)	Jan'y '56.	11286	37225	do	
72	Medea	do	"	"	"	"	"	"	1 11/16		"			do	"	8550	60369	Under repairs.	
73	Medusa	do	"	"	"	"	"	"	"		"			do	"	10611	61745	In good order.	
74	Ajax	do	4	5	16	20	170	10½	1 13/16		"			Birkenhead, England	Nov. '55.	26144	71058	Requiring repairs.	
75	Titan	do	"	"	"	"	"	"	1 11/16		"			do	Dec. '55.	17049	60840	In good order.	
76	Minos	do	"	"	"	"	"	"	1 13/16		"			do	Nov. '55.	9474	55782	do	
77	Castor	Inside.	6	5	16	24	184	10'3"	1 13/16		1981			Stothert and Slaughter(Eng)	Dec. '56.	19888	34986	Under repairs.	
78	Pollux	do	"	"	"	"	"	"	"		"			do	Nov. '56.	16029	38638	In good order.	
79	Erebus	do	6	5	16	22	174	11'8"	1 13/16		1452			Stephenson, Newcastle (Eng)	Oct. '56.	21220	33636	do	
80	Cyclops	do	"	"	"	"	"	"	"		"			do	"	11186	41721	do	
81	Ixion	do	"	"	"	"	"	"	"		"			do	"	19114	49177	Under repairs.	
82	Ariel	do	4	6	16	22	164	11'3"	1 13/16		1452			Stephenson, Newcastle(Eng)	Oct. '56.	18324	39438	do	
83	Oberon	do	"	"	"	"	"	"	"		"			do	Dec'r. '56	24321	55446	In good order.	
84	Prospero	do	"	"	"	"	"	"	"		"			do	Oct. '56.	11651	48585	do	
85	Diadem	do	4	6	16	21	189	11'3½	1 13/16		2183			Fairbairn, Manchester (Eng.)	Jan'y '57.	19397	50512	Under repairs.	
86	Diamond	do	"	"	"	"	"	"	"		"			do	April '57.	26280	47304	In good order.	
87	Achilles	do	4	5	16	22	174	11½	1 13/16		1806			D. C. Gunn, Hamilton, C.W.	Aug. '57.	16434	25501	do	
88	Bacchus	do	"	"	"	"	"	"	"		"			do	Sept. '57.	15570	22098	do	

Exact Weight not known

Exact Weight not known

Exact Weight not known

(Signed) RICHARD EATON, *Loco, Super't.*

The 1879 Government Rail Contracts

Or: When is 56 Equal to 57 3/11?

By: Fred Angus

One of the attractions about the study of railway history is the way one item can prove to be the end of a thread which leads to a previously-unknown story, often containing surprising facts of considerable interest. Such a case occurred during the study of an inscription on an old piece of rail.

Recently I acquired a piece of what appeared to be 56 lb. rail, approximately three feet long, bearing the following inscription: "BARROW STEEL 8Mo. 1880 C.P.R. 132". At first glance this seemed quite simple; here was a rail used during the construction of the CPR in the 1880s. There are quite a few of these rails surviving, in sidings, branch lines, even used as posts and traffic stops. But – wait a minute. We all know that the CPR was founded in February, 1881, yet this rail is dated 1880. What's going on? The logical assumption is that this rail was made for the government construction, which was called the Canadian Pacific Railway, under which considerable track mileage was built. When the Canadian Pacific Railway Company was founded in 1881 the agreement was that the government-built sections would be handed over to the company; in some cases, notably in British Columbia, this was not done for several years.

Assuming that this rail was made for the government construction (an assumption that proved to be correct) the next step was to consult that mine of information: "Report and Documents in Reference to the Canadian Pacific Railway" by Sandford Fleming C.M.G., Engineer in Chief, published in Ottawa in 1880. There are other years of this report, the first of which was printed in 1877, but it is the 1880 report that concerns us here. Here the answer was found, and the results were surprising. During 1879 the Dominion government awarded no less than six contracts covering a total of 50,000 tons of rail, enough to build 555 miles of track. This is considerably more than the amount of track actually constructed at that time. The six contracts were as in the table below:

CONTRACTS AWARDED IN 1879 FOR RAILS FOR GOVERNMENT CONSTRUCTION OF C.P.R.

CONTRACT	DATE	CONTRACTOR	DELIVERY DATE	TONS OF RAIL
44	Jun 24 1879	West Cumberland Iron and Steel Company	Aug 15 1879	2,000
45	Jun 25 1879	Barrow Hematite Steel Co.	Aug 15 1879	1,500
46	Jun 26 1879	Ebbw Vale Steel, Iron and Coal Company	Aug 15 1879	1,500
53	Aug 30 1879	Barrow Hematite Steel Co.	Oct 1 1879	5,000
			Jun 1 1880	5,000
			Sep 1 1880	5,000
			Sep 1 1880	5,000
			Oct 1 1880	10,000
54	Sep 11 1879	Guest and Company	Oct 1 1879	5,000
			Jun 1 1880	5,000
55	Aug 29 1879	West Cumberland Iron and Steel Company	Oct 1 1879	3,000
			Nov 1 1879	2,000
			TOTAL	**50,000**

In addition, contracts 47, 50 and 51 covered such items as spikes, fish plates, etc., while contract 52 was for the transportation of 4,000 tons of rail from Montreal to Fort William.

All contracts specified that the rails were to be manufactured to the Canadian Pacific Railway standard, and were to have a weight of approximately 57.25 pounds per yard. Here was another surprise. It had always been assumed that the original CPR rails weighed 56 lbs. per yard. This would work out evenly in the old English standard of exactly half a hundredweight (112 lbs.) or a fortieth of a long ton (2240 lbs.). However, there is logic in the 57.25 pound weight as well. Fleming's report states that, using this weight of rail, it would require exactly 90 long tons of rail to build one mile of track. Calculating back from this, we arrive at a weight of 57.27 (or to be exact, 57 3/11) pounds per yard, but 57.25 is close enough for all practical purposes.

The piece of rail in question is dated 8Mo. 1880, obviously standing for the 8th month, or August. It was made by the Barrow Hematite Steel Co. Ltd. of Barrow-in-Furness, England, which firm had contract 53, by far the largest, a total of 30,000 tons. The number "132" probably refers to the design of the cross section. The rail probably was from one of the two lots, of 5,000 tons each, due for delivery on September 1, 1880. The reason that two such lots were shown, rather than a single one of 10,000 tons, was that the prices per lot were slightly different.

Another surprise was found in the notes. Of the total of 45,000 tons (enough for 500 miles of track) covered by contracts 53, 54, 55, there were 11,000 tons intended for use on the Riviere du Loup section of the Intercolonial Railway. This line had been bought by the ICR from the Grand Trunk on July 17, 1879, and ICR operation on that line had begun on August 12, only 18 days before contract 53 was let. The track involved extended from West Junction, near Levis, to Riviere du Loup (118.1 miles) and from Charny to Hadlow (5.8 miles), a total of 123.9 miles. This line had been completed in 1860, but not seen very much traffic from that time until it became a through line when the Intercolonial went through in 1876. For sixteen years it had been a real money loser for the GTR, and it was logical that it should become part of the ICR. It is very likely that it still had its original rails, possibly iron "U" rails, which were now due for immediate renewal. The 11,000 tons would be enough for 122 miles of track, sufficient to re-lay almost the entire newly acquired line. On wonders if these rails were lettered "C.P.R.".

Where on the CPR this rail was used is difficult to determine. There were three major parts of the line under construction at that time. Work was continuing on the very difficult section between Thunder Bay and Winnipeg; construction on this section had started in 1875, and it would not be completely handed over to the company until May, 1883. West of Winnipeg, the government construction was heading westward. When the company was formed, much of this construction was abandoned and re-laid on a different routing. Finally, in the mountains of British Columbia, construction on the "Onderdonk section" up the Fraser had started on May 14, 1880; this would not be completed until 1885, and handed over to the company even later. So our 1880 rail could have been used in any one of three widely-separated locations. Based on mileage built that year, the most likely place is the Thunder Bay section.

The actual piece of rail is in surprisingly good condition; in fact much worse appearing newer rails are still in use. It is 36.85 inches long and weighs 57.32 lbs. This works out to exactly 56 lbs. per yard, thus in 117 years of wear and rust, it has lost only about 1.3 lbs., or 2.3 percent of its weight, and so now really is 56 lb. rail.

It is very likely that many more pieces of rail from these 50,000 tons are still around. Old rails have a habit of turning up in unlikely places (your author recently discovered a piece of 1882 British rail on the top of the Pyramid of the Moon in Mexico!), and who knows where these relics of the 1879 contracts may be found. But that is what makes it all so interesting.

CONTRACT No. 53.*

RAILS.—For the supply of 30,000 tons of steel rails, with the proportionate quantity of steel fish-plates and bolts and nuts, delivered at Montreal. The specification required the rails to be of the section known as the Canadian Pacific Railway Standard; weight of rail to be 57½ lbs. per yard, general length of rails to be 30, 28, 26 and 24 feet, but 10 per cent. will be received in shorter lengths (22, 20, 19 and 18 feet, in about equal proportion); bolt holes to be drilled (not punched). Rails to be inspected during the whole course of manufacture, and subject to the tests provided in specification.

The fish-plates to be of a section to fit the Canadian Pacific Standard rail, of a similar quality of tough mild steel, subject to such tests as may be required. Each fish-plate to be 20 inches long, punched hot, with four holes, and otherwise made true to template.

The bolts ¾ in. diameter, 3¾ in. long, to be made with cup-heads and square necks; iron to be of a tough, fibrous quality; workmanship and finish of the best description; threads of screws to be Whitworth's standard, ten to the inch. Bolts and nuts to be heated and dipped to prevent rusting, and packed in strong iron-bound cases, to contain not over 2 cwt.

Manufacturers..... .....Barrow Hœmatite Steel Co. (Limited).
Date of contract..... 30th August, 1879.

The quantities, dates of delivery and prices are as follows:

Date of Delivery.	Rails.	Rate per Ton of 2,240 lbs,		
		Rails.	Fish-plates.	Bolts and Nuts.
	Tons.	£ s. d.	£ s. d.	£ s. d.
October 1, 1879	5,000	4 17 6	5 17 6	10 5 0
June 1, 1880	5,000	5 0 0	6 0 0	10 5 0
September 1, 1880	5,000	4 17 6	5 17 6	10 5 0
do	5,000	5 0 0	6 0 0	10 5 0
October 1, 1880	10,000	5 2 6	6 2 6	10 7 6

Estimated cost..... £160,500 0 0 or say $781,000 00
Of the above there has been delivered 5,101 tons. Value. $123,156 38

* Contracts Nos. 53, 54 and 55 embrace 45,000 tons of steel rails and fastenings, 11,000 tons of which will be used on the Rivière du Loup Section of the Intercolonial Railway.

The summary of Contract No. 53, between the Dominion government and the Barrow Hematite Steel Company for the supply of 30,000 tons of rail. The estimated cost was 160,500 pounds sterling, or $781,000.

Report of Canadian Pacific Railway, by Sandford Fleming, Ottawa 1880.

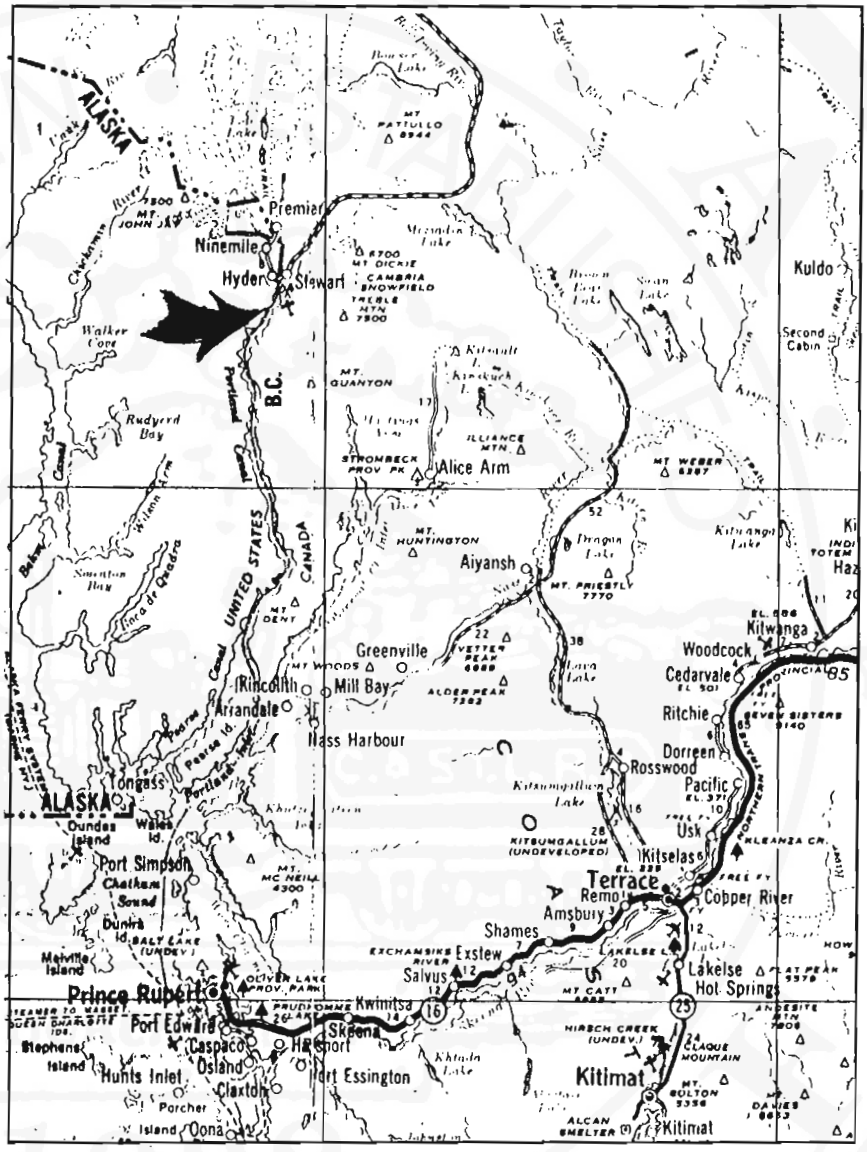
Stewart B.C. and the C.N.E.R.

By Mervyn T. 'Mike' Green of Richmond B.C.

and Robert.D. Turner of Victoria B.C.

1. INTRODUCTION: In the early years of this century, Stewart B.C. was often referred to as the "Gateway City" (to the so-called Groundhog Area, to the east,which had already been located as a mineral-rich zone). Stewart's location at the head of a long narrow glacial inlet, now called the Portland Canal, gave deep-sea ships access to minerals found on and along the Bear River, which flowed down into the Canal from glaciers melting into the valley floor of the fiord. Its location at latitude 56 degrees north was en route to the existing ports between Vancouver B.C. at 49 degrees north, Prince Rupert B.C. at 54 degrees north, Skagway AK at 59 degrees north and Anchorage AK at 62 degrees north. Today, all these other ports have both railway and rail-barge connections. Although Stewart provided an ice-free port at the far northwest corner of the Canadian coast of the Pacific Ocean, it was connected only by a 23-mile single-track railway with mines in the Bear Valley, which at one time was surveyed (but never built) for another 177 miles. The rail line was first called the Portland Canal Short Line Railway (PCSLR), and then, later, the Canadian North Eastern Railway (CNER).

2. STEWART IN PRINT: The small area of the delta of the Bear River was platted and a townsite was laid out in 1911 by the Stewart Land Co. Ltd. Very little was ever written or published about Stewart, or its railway line to the east.. When this writer was collecting materials for the article published in Issue No. 442 of Canadian Rail (September - October 1994), 1 could find less than one dozen written sources. Since then, thanks to the research of Robert S. Turner, 1 have been given access to a number of archival materials in the Archives of British Columbia in Victoria B.C. These have enabled me to fill in some of the gaps left in that Issue No. 442 article and I have penned this data as a result, to expand and update the previous story.



Map of Stewart area

In 1909 the Portland Canal Short Line Railway Co. was duly incorporated by Special Act of the B.C. Legislature to build a standard gauge single track railway line from the head of Portland Canal and up the Bear River Valley for 30 miles and then up American Creek with its branches to the various mines. The name of the railway was changed to the Canadian Northeastern Railway Co. in 1911, with authority to build to the eastern boundary of the province at Peace River on Pine Point Pass, with a branch down the Naas River to the Pacific Coast, plus a line to the Grand Trunk Pacific Railway line, and a line to the northern boundary of the province. To allow for completion of these lines and the construction of wharves, a time extension was granted, with an increase in the Capital Stock.The earliest mention of Stewart and its railway potential appeared in a the 'Portland Canal Miner' issue of May 7, 1910, when it reported that H. F. Knobel, engineer-in-chief for R.B. Mann & associates, arrived in camp, accompanied by W.H. Grant, of Toronto, who was to become general manager of construction for the Portland Canal Short Line Railway Co. Other members of the party were: E.O. Lewis, C. E. (formerly a member of the C. P. R. engineering staff; Ross Welt, who was to bevome chief accountant there; and a large engineering staff. Material for construction of the railway was arriving on each steamer, while camps were being located along the proposed route. A section of the engineering corps was starting the work of surveying for the dock, while the balance was making a final location of the proposed 20-mile railway up Bear River and the camps tributary thereto. {1}

Canadian North-Eastern Railway

TIME TABLE

	Miles	Stations—	
Leave 9:00 A. M.	2	Stewart	12:00 noon arrive
9:15 A. M.	8	Glacier Creek	11:45
9:30 A. M.	12	Bitter Creek	11:30
Arrive 10:00 A. M.	16	Red Cliff Mine	11:00 Leave

UNION STEAMSHIP CO. OF B. C., Limited

Direct Regular Service from

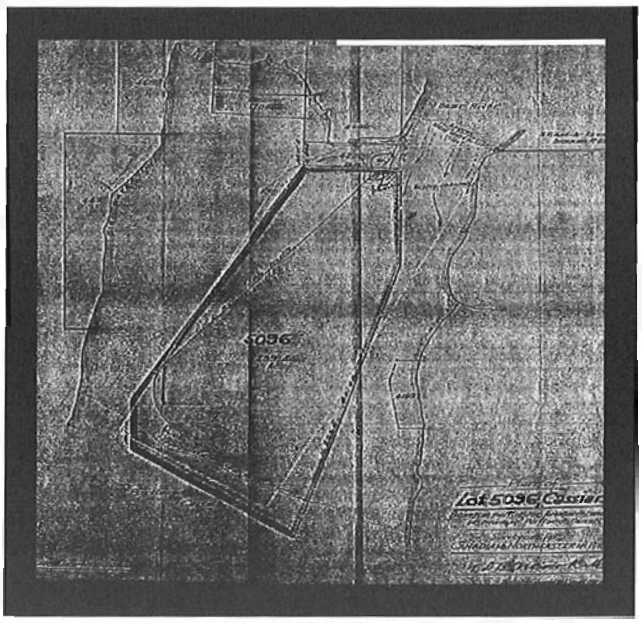
Vancouver to Stewart

S. S. CAMOSUN

Sailing from Vancouver every Tuesday at 9 p.m. for Albert Bay, Hardy Bay, Swanson Bay, Warke Island, Claxton, Prince Rupert, Port Simpson and Stewart.

Returning Leaves Stewart every Friday at 7 p. m., arriving at Vancouver Monday morning.

Railway & Steamship timetables (1912)



Plan of Lot 5096, Cassiar (1928)

The 'Railway & Marine World' for May 1910, p.369, also reported that the steel for the PCSLR had been delivered at Stewart and that construction was imminent, from Stewart to some mining properties which were being developed by D.D. Mann, about 15 miles up the Bear Valley.

Shortly after, the 'Portland Canal Miner' also reported that the contract for the Wharf & Railway had been let. James McDonald secured the wharf building work and Sol Cameron the railroad work.

Another report in the 'R&MW' for June 1910 said that, for construction purposes, two steam locomotives had been bought in the USA, while the Canadian Car & Foundry Co. was building a combination passenger car and caboose, with 23 flat cars. The company was also expected to be in the market for some ore cars towards the end of the summer.

No. 7483 - PCSL First Rails Laid (1911). Note: All photos are from the Public Archives of British Columbia. The number at the beginning of the caption is the P.A.B.C. number.

A further 'R&MW' report in Sept. 1910 gave details of the construction work. The wharf approach at Stewart was 5,960 ft. long, being a pile construction for heavy loading. The wharf had a deck elevation of 4 ft. above extreme high tide and was located so as to provide 22 ft. pf water at extreme low tide. It was made of Douglas fir, upon hemlock pilings. It measured 160 ft. by 60 ft. There was also about 1300 ft of pile trestling along the track. Both a freight shed and a station were completed, with a locomotive shed, turntable, water tank and coaling plant planned. Other stations planned for Glacier at m. 5.5, Bitter Creek at m. 9.5, and Red Cliff at m. 13.45, never appeared. One locomotive, the combo passenger car, 2 box cars and 4 flat cars arrived in Stewart on Oct. 11, being the first rail vehicles to appear there (R&MW, Nov. 1910). {2}

In letters dated 30th. July 1911 from engineer J. Mason (of the Cassiar Construction Co. Ltd.) from Stewart, while surveying a route east through Red Cliff. The Portland Canal Mining Co. Ltd. was formed the same year, and in another letter (dated 17th. October 1911 from W.E. Elundorf to Neill McL. Curran at Stewart), he gives descriptions of the property & operations of the PCMC which had been given inthe report of the Provincial Mineralogist of B.C., W. Fleet Robertson. This had been published in the Bureau of Mines Bulletin #2 of 1910 & was also included in the Annual Report of the Canadian Geological Survey for 1910. {3}

In the year from October 1910, 1965 feet of development work was done, at a cost of about $15.00 per foot. This included both hand and machine work, both in the mine and at various points on the surface. The concentrating mill was enlarged by the addition of 6 tables, giving a capacity of about 1 00 tons of ore per day. The average metallic contents of the ore were paid by the smelter to realise 0.1 23 ounces of gold, 7.40 ounces of silver, & 3.5 ounces of lead. This was felt be a fair average of the ore that was mined from October 1910 to September 1911, which could be materially bettered by improved facilities for mining and handling.

No. 65150 - Stewart, Corner of 5th. & Columbia Streets

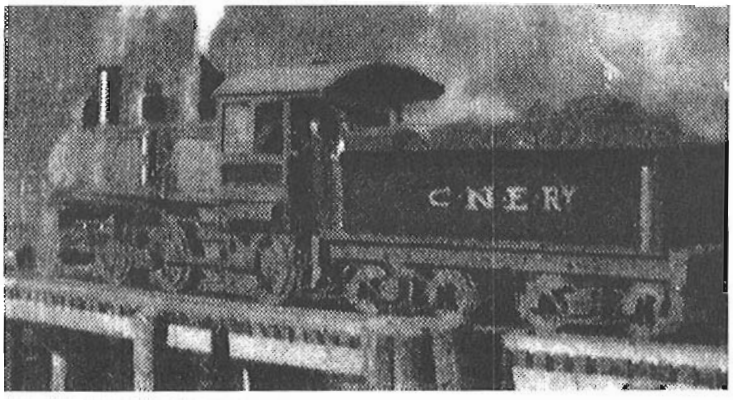
About 7000 tons of ore was milled, producing about 2000 tons of concentrates. Some 1700 tons were shipped to the smelter at Tacoma WA. Costs were expected to fall with larger operations. The current operation was from three stopes in two levels. The Company had spent $300,000.00 in development and improvements. Aside from the mine, the most valuable asset was the water power from Glacier Creek, giving an average of 300 hp per month, with a minumum of 75 hp, which could have been doubled. A 5-drill, water-driven air-compressor (belted at the mill) furnished power at the mine. {4}

3. CONSTRUCTION AND EARLY OPERATION: Rail construction began in 1911. A subsequent Inspection Report by D.C. Lewis, dated 1915 at Victoria B.C. and headed 'Canadian North Eastern Railway', described the entire construction as being 12.43 miles in all, from Stewart Waterfront to Red Cliff Mine, plus 1.13 miles of trestle built across the tidal flats to give access to deep water in the Canal, totalling 13.55 miles of main line. There were also 3 short sidings & some spurs, to permit loading of ore onto flat cars.Not much ballast had been used, but the material for most of the distance was gravel from the river bottoms.

At the same time, a timetable issued by the Canadian North Eastern Railway & the Union Steamship Co. of B.C. Ltd. showed a daily train at 9 a.m, from Stewart to Red Cliff Mine, returning at 11 a.m. to arrive back at Stewart one hour later. The timetable shows the distance as 15 miles, so the average speed was 15 mph. The boat connection between Vancouver & Stewart was on board the S.S. "Camosun", sailing from Vancouver every Tuesday evening at 9 p.m., then returning south every Friday at 7 p. m. {All ore carried on board was transferred at Vancouver onto another vessel to the Tacoma smelter.

A good alignment, with some long tangents, was in use. There were 26 curves, amounting to about 17% of the length, with a few 10 degree curves, one of 11 degrees, but nothing sharper. All gradients were less than 1%, save for a short stretch of 2% into the Red Cliff Mine. However, the heavy rainfall had already taken its toll of ties (originally 6 x 8 inches and 8 feet long), for all were rotten. Although the roadbed was in very good condition, with a few exceptions (where some embankments and timber trestles were washed out), the entire right of way was covered by a dense growth of bush (!). {B}

No Number - PCSL 2-6-0 loco (no number) about to back onto the combination coach & depart east for Redcliff



No. 68910 - CNER 2-6-0, (no number) moves east off the Stewart Wharf toward the Town Station

The line operated daily until the mines at Red Cliff were shut down in 1912. The original charter had provided for the completion eastward to the Alberta boundary, but failure to complete this line resulted in the lapse of the charter. Then, in the fall of 1927, Vancouver Holdings Ltd., organized by H.H. Stevens & W.A. Lewthwaite, purchased Sir Donald Mann's title to the railway & announced their intention to rehabilitate the line. The B.C. Legislature granted authority to build from Stewart to the Finlay River, along with a spur line to the northerly boundary of the province. During 1928-29, negotiations were opened up with the Consolidated Mining & Smelting Company regarding shipment of ore from its property in Bear River Valley and from the George Copper property. Finally, on July 2, 1928, COMINCO purchased the CNER from Vancouver Holdings Ltd.

No. 72764 - CNER, about April 10, when the pile-driver had reached across the first main channel of the Bear River, but no ladder could reach across to the first gravel bar. The contractor, Ernie Workman studied the current below the bridge on the down-river side of the bridge

Meanwhile, in April 1915, the two 2-6-0 steam locomotives, 3 boxcars (200102 & 343), 22 flat cars (with odd numbers between 301 & 345), one combination baggage & passenger coach (all still lettered'PCSLR'), a lathe, an upright drill, a shaper boiler and an engine had been placed on board a scow at Stewart docks and hauled by a tugboat to the CN Port Mann yards in southeast Vancouver, where they were dismantled & sold for scrap. However, the two locos lasted until 1923, when PCSLR #1 was scrapped by CNR in May and PCSLR #2 was sold to Huff Gravel Co. of Edmonton AB in September.

At the same time, most of the buildings had been demolished, including the frame water tank, roundhouse & turntable at Stewart. The telegraph line poles and wire were largely gone, together with the dock & its trestle work & the section house. Repairs were also needed to the station building (and its offices above). Three other buildings used as residences & one used for stabling horses were also in good shape

No. 72787 - CNER, the old sections of the original bridge over the Bear River were sawn up & pulled down to allow reconstruction of a new bridge to replace it. Note the men climbing on the twisted rails over the rushing river

4. LATER CONSTRUCTION COSTS: By July 1928, the total cost of renewing the track & structures was estimated at $99,611, plus with replacing trestles & Bear River bridges, another $151,000 or so. This expense forced the CNER in 1929 to seek another name change, plus authority to build to the Finlay River, an increase in both Capital Stock & in the company's bonding power, plus a 5-year time extension. However, the Great Depression was already eating at all mineral operations, with the need to collect all the motive power and stock for transmission to the CN Port Mann Yard in southeast Vancouver by tugboat & scow. In 1935, a provision for extension of time by Order in Council was not applied for.Even so, although the overgrown track, collapsing trestles and lack of equipment made any rebuilding very unlikely, the ever-hopeful CNER had been planning for further construction eastwards. It had estimated in 1911, before completion of the first line, that the cost for building from:

Meziadin Lake (mile 40) to the Naas-Skeena Valley (mile 70): 30 miles at $1,350.00. per mile

Mile 70 to mile 150: 80 miles at $3,999,60 per mile.

Mile 150 to mile 177 (Naas-Skeena Divide & the Groundhog coal field): 27 miles at $xx per mile.

On July 2, 1929, the Consolidated Mining & Smelting Corporation of Vancouver bought the CNER, hoping to build further to the east. {3}

No. 72752 - CNER hand car, cleared of snow (April 1927)

By the mid-1930s, however,such numbers were far too rich for even the biggest mining firm in B.C. to consider investing any more money in a decrepit rail line with no further direct online rail connections. Any loads of ore were carried aboard the one or two 4-wheel gasoline-engine speeders of track patrolmen and were off-loaded at the Stewart Docks. {1} Scrap metal needs for World War II required the use of the remaining track and rails, which were torn up in 1940-41 and shipped south by scow to the smelter at Tacoma WA. Soon after the end of the war, the trackbed in Stewart was covered with blacktop and named 'Railway Avenue'.

5. ASSOCIATED ROAD DEVELOPMENTS: During the 1960s, the road to Mediazin Junction became Highway 37A. At the Junction, a major highway (37) was built north, to Upper Liard (with a connection there with the Alaska Highway) and south, to connect with New Hazeiton on the CNR line. From there, the track ran west (paralleling Hwy 10), through Terrace to the port of Prince Rupert and east through Smithers, Houston, Burns Lake, Fraser Lake and Vanderhoof (paralleling Hwy 16) to Prince George, and a further rail connection with the PGER (today's BCR). {J}

By the 1980s and 1990s, the need for a rail link in far northern BC were long gone. Mineral prospecting by helicopter and transport of ore by trucks along the continually expanding road network were now the norm. There was no need for the projected CNER route to be actualized, so there was no further interest in the line. Today, nearly all signs of its location have disappeared, having been washed away by the Bear River or grown over by trees and bush. A couple of houses are still in use in Stewart, and some of the wooden pilings where the Stewart Docks were located could still be seen in June 1990. Otherwise, the initials PCSLR & CNER are lost in history.

Today, in 1997, Stewart has only about 800 permanent residents. Nearby Hyder Alaska (90 residents) is the source of considerable smuggling into Canada and the Canadian Customs authorities have recently been attempting to decrease the flow by extending the opening hours of the entry post at the Hyder-Stewart border. The great mineral hopes of 1910 have been replaced by an illegal trade in booze! {5} But, no talk of reopening the railway line most of which has disappeared under blacktop.

6. HOPE FOR THE FUTURE OF STEWART?: In mid-February, 1997, the 200 loggers employed in Stewart by Repap Industries Ltd. were told of a plan to put half of those unemployed back to work, after low pulp prices has forced Repap to slow down its operations last year. The pulpwood forests that dominate the region cost $75 a cubic metre to harvest, but because of depressed pulp prices, are worth only $35. Repap closed its logging operations in early December 1996, citing logging costs that were twice as high as revenues. The shutdown put 200 loggers out of work, throwing Stewart into an economic tailspin, according to Mayor Andy Burton. Repap is now ready to bring back 100 of the loggers. In return, the province has agreed to rewview the stumpage appraisal system, in which pulp wood was appraised the same as higher-value sawlogs, and to allow Repap's overdue stumpage bill to continue to accrue while a takeover bid by Avenor Inc. is developed. Repap is currently $5 to $6 million in arrears.

Forest Renewal B.C. has established an $800,000 emergency loan programme to area contractors and other businesses hit by the logging shutdown. FRBC will partially gauarantee loans to contractors, reducing the risk that the local credit union would otherwise face. A similar programme was established in Golden, when that community's major licensee shut down operations in October, 1996. Now, about 100 of Stewart's loggers have got five weeks work. {6}

NOTES

1. P.A.B.C. M85-15, letters.
2. P.A.B.C. 6-15 letters.
3. P.A.B.C. 56-28, Daily Province, Vancouver BC, "Consolidated Mining & Smelting buys up H.H. Stevens Road from Stewart Eastward". July 2. 1929. page 1.
4. Canadian Rail, Montreal P.Q. No. 442, p.167.
5. Vancouver Sun, Vancouver BC, September 13, 1996.
6. op cit, Vancouver BC, Gordon Hamilton. Page D14, Feb ruary 11, 1997.

A Turkish Delight

A Personal Report of Three Months in Europe & Asia, in the Spring of 1997

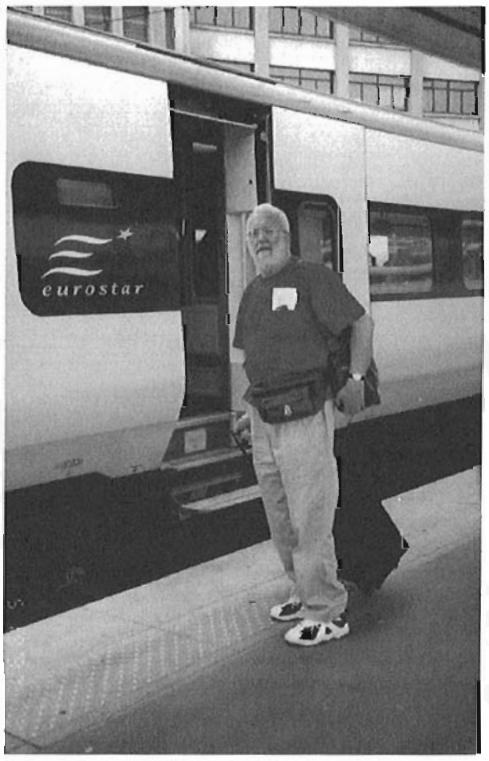
By Mervyn T. (Mike) Green

Early in April, my wife Rita & I flew to Heathrow Airport in London for an extended vacation. We flew Air Canada Boeing 747 nonstop service from Vancouver to London, where we stayed in a comfortable West End hotel, arranged by our BCAA travel agent. After three days there, we joined a Trafalgar Group bus tour for a trip to Gatwick Airport en route to the Channel Islands. An Airbus 323 took us to Jersey, where we stayed in the capital city of St. Helier. There is no longer any rail activity on the island, but right across from our hotel was a 300 metre coloured lifesize representation of the Jersey Central Railway terminus, complete with steam loco, before the war.

All the Channel Islands were occupied by the Germans 1940-5, but there are no relics remaining of their extensive rail building. Today, only a short passenger line exists on the Isle of Alderney, which we did not visit. After a week on Jersey, with visits by coach to many local 'sights' we moved across by catamaran to the Isle of Guernsey. Our hotel was located just south of the capital, St Peter Port. Again we used local bus services & managed a visit to a 5.5" garden passenger-carrying railway at the north end of the island.

Two days after, we went by local ferry to the Isle of Sark, which is a privately-owned island and permits no cars. All public transport there is by tractor or horse-drawn buggy. Just outside the main church is the extensive HO gauge multitrack Model Railway of Sark, which is the only rail activity the island has even had! A subsequent extensive tour of Guernsey then lead to a return flight, again on a Channel Island European Airways Airbus 323, back to Gatwick Airport, followed by a coach ride back into Central London. There, we met our second daughter & her husband who were spending time on a honeymoon trip in England & Wales with the donors (an Air Canada employee & his wife). One day, we rode with them on a Stagecoach 4-car E.M.U. from Waterloo to Windsor (where the Royal Windsor display in one of the rail stations is not yet completed) but they also visited the Royal Castle; on another, we took a canal barge to the public market at Chelsea Locks, while overhead, London Transport 'Underground' 8-car trains passed us frequently. We also rode several of the characteristic London double-deck red diesel buses.

Then came the 'piece de resistance'. We rode the morning'Eurostar'20car service (powered by units #3022 and 3144) from London's Waterloo International station, {1} leaving at 0905 for Paris Nord terminus. We were preceded by another 'Eurostar' going directly to Disney Paris at Marne-la-Chassey, with its distinctive bright yellow fronts & shiny white sides. As usual, traffic between London & the coast was busy, with innumerable D.M.U.s & E.M.U.s in several different liveries Our train was well filled (mostly with tourists such as ourselves, so that our baggage had to be moved between coaches), while our speed was relatively slow within England, for the direct rail line has yet to be built. However, the ride was smooth, quiet and swift, with 'on time' operation in both countries. For a snack lunch, we visited the train buffet en route, after we left the Chunnel. The p.a. system told us when we were halfway through the Chunnel & when we reached our maximum speed (300 kph in France!). The speed in Britain had been restrained, including passing Ashford International. When we



The author, about to board his 'Eurostar' unit #3223 at the departure platform in London's Waterloo International station, May 19. All photos by Rita Green.

passed Dollands Moor (at the Chunnel mouth), there were at least three freight trains hauled by class 92 locos, while at the French terminal there were another three others.

Elsewhere in France, there was little of loco interest, except when passing through Amiens. We also passed at least five northbound 'Eurostars' en route. Approaching Paris, there were numerous double-deck emus in use, mostly painted in orange & brown. After a quick check on our motive power (units #3022 and 3144) {2}, we left Paris Nord terminus on a rapid taxi trip to our central hotel, located near the Folies Bergere (which we did not visit!). We walked along the Seine & through the Louvre Museum. We also visited the Galeries Lafayette, while dodging the frequent heavy rain showers, but avoided riding the Paris Metro.

After two days, we took another taxi to the Gare de L'Est terminal for the next leg of our route, to Germany. We had dinner at the station, while watching large numbers of SNCF's 8-car emu double-deck train sets (painted red & blue) which were servicing the evening commuter rush, plus an occasional large diesel unit in the 15xxx or 16xxx series on non-electrnied services. After an interesting couple of hours, we boarded the overnight 10-car sleeping car train via Metz & Krehi to the Frankfurt-am-Main Hauptbahnhof. We changed our power from a French electric unit to DB 181.218 during a ten minute stop at Metz in the early hours of the morning (0210).

Two 'Eurostars' after arrival at Paris Nord terminus, May 19: units #3017 & 3224.

In Germany, later in the morning, we passed several of DB's ICE trains. Our couchette (one of the SNCF Grand Confort series),was fully booked, but we had passed a pleasant night, before arriving at 0710 for breakfast at Frankfurt's Macdonalds, in the main terminal. At 0940 we took the local commuter service (painted bright orange), hauled by a DB 141 unit, to the airport. En route we passed the Frankfurt engine depot, which was packed with a variety of passenger & freight locos of the DB 103, 140, 150, 160, 180 & 181 series & at least 5 switchers in the 350 series. A quick check-in with our bags at Rhein-Main Airport took us to a Lufthansa Boeing 737 flight to Istanbul, Turkey.

Arrival at the Kemal Atatuk Airport in Istanbul was on time, & then there followed a frantic bustle to buy a visa (with new US currency) & gain entry, then to claim our bags & get a taxi to our hotel (the 5-star Hitton Parksa). This was our introduction to the density & speed of local traffic! Turkey has few car owners, even though there are at least 9 car builders in the country, including Ford & Renault. Most citizens either walk, or use a taxi, or take a bus, which range in size from frequent running 17-passenger 'jitneys' (built in North Korea) to 4-wheel 32-passenger vehicles, many of them in the Mercedes Benz 0302 series. There is also a frequent use of four-wheel diesel trucks (Hanimag et al) for carriage of all kinds of freight, including bricks, pipes, & logs for house construction & foodstuffs for local markets. At many towns, there were groups of 5-7 condominiums under construction, while frequent food markets were open at gas stations & small villages.

Fortunately, we avoided most of the traffic crush by joining another Trafalgar coach tour, in which most of our fellow-travellers were from the Antipodes, plus a few Americans, while we were the lone Canadians. It was a very congenial group, however, with no annoying latecomers at each stop & visit. We all travelled in a 3 year-old 44-seat air-conditioned Mitsubishi bus {3}, equipped with a local Englishspeaking guide (Omer), driver (Jakob) & his assistant (Ali-Babar). The latter washed our impeccable bus DAILY, & provided us with lemon-water fresheners & twice daily brews of Turkish apple-tea (very refreshing).

We had arrived a day early, so we first took a local bus tour to the Beylerbei Summer Palace (on the Asian side of the Bosporus), the Topkapi Palace & the Spice Market. Near the latter is the terminus of the two-car electric trolley system that services the southern area of the city {4}. The nearby original TCDD terminus, once used by the 'Orient Express' trains, appeared rather decrepit, with a preserved steam 0-2-2T unit outside. The local switcher was a red class DH 7000 (0-6-0 diesel hydraulic unit with a Cummins engine), busy with the many Turkish & foreign boxcars in the extensive yard.

As we moved across the country, we noticed much new road construction (funded by European Common Market loans), especially along the major highways. Railway construction was not quite so apparent, although we noticed a large section of rail quadrupling near to the capital, Ankara. Rural rail services were handled by 2-car Fiat-built diesel-electric multiple units of class MT5500, for instance, at Sultanibar. Both Istanbul & Ankara have large sections of underground 'metro' lines under construction. At other larger centres, like Izmir, there were local passenger services of 5-6 corridor coaches (& freight trains) hauled by bright red Alsthom DE 24000 units. Unfortunately, we saw no signs of the two recently-restored steam locos, reportedly now in daily use there. At Konya, there were two separate two-car trolley lines servicing the centre of town, but most towns offered only road bus services.

Our colourful Mitsubishi bus, our transportation throughout Turkey. Photo taken at Istanbul, May 24.

Our experiences of food in Turkey were that it was very varied & very good, although we usually carried bottled water (& brushed our teeth in same) & avoided salads when warned by our guide to do so. The variety of fruits & vegetables was large. Both Rita & I stayed clear of any internal problems throughout the tour. Boxes of the sticky-sweet locally-made Turkish delight were on sale at all the restaurants & coffee shops we frequented, but we rarely saw any local inhabitants buying a box: it was the foreigners buying the confection, & so were helping the positive export balance of the local economy!

Our first day took us west along the Bosporus, with a stop at the famous ANZAC cemetary at Galipoli, celebrating the World War I disaster, before we spent our first night near Troy. Subsequent nights included stays at places equipped with outdoor & indoor spas. Most places had ruins or tumuli associated with the great empires of the past. We obtained a very wide-ranging introduction to the many great cities & empires that once populated the previously-forested uplands of Turkey. At Troy & at Ephesus we toured extensive ruins which were being slowly extracted by teams of Turkish & foreign archeologists from below the local villages. At Panakkule we walked around the unique habitations still in use in the distinctive stone highland villages. In Ankara, we visited the impressive huge mausoleum to Kemal Ataturk (which included his favourite cars: all Lincoins!), located on one of the 5 hills upon which the capital city is located, & close to the TCDD main station, where a Japanese-built class E43000 electric loco was about to leave with a long corridor-passenger train for Istanbul.

One of the less delightful aspects of Turkish life was the ongoing and continual 80% annual inflation rate. One result of this is the use of high (& to Canadian eyes, ridiculous) denominations of Turkish currency, where prices are given in millions of lire & banknotes are in use in denominations including 1,000,000 & 5,000,000 each. This was the first (& also probably the last time) that I would be able to lend a fellow traveller a one million lira note to buy a shawl - worth about US$7.00!

During our tour, we visited both a rug factory & a ceramic plant & spent a short time in an elementary school of about 200 boys & girls, who all wanted to try out their English upon us.

We also discovered that much of the country is not desert (as we had previously thought), but because of the Black Sea to the east & north & the Mediterranean Sea to the south, there is enough rainfall to allow the growth of cotton, & a variety of mid-latitude fruits, which form a large proportion of this country's exports. We were blessed with blue skies & cool nights every full day we were there. However, on our first & last days we were affected by widespread thunder & lightning storms, with lengthy heavy rains.

Soon after our return home, Turkey held a national election, but while there, we saw no signs of unrest in either the major cities or the regional capitals. We covered over 3,000 km. without incident.

Our final day came too soon, with an afternoon boat ride on the Black Sea, followed by an evening group visit to a belly-dancing display. We rose at 0245 the next morning, to catch our bus to the Airport, where we boarded our early morning Lufthansa Airbus flight to Frankfurt - & we were able to book all our luggage right through to YVR!. An on-time flight to Germany & a 2-hour layover there was followed by a Lufthansa Boeing DC737 flight to London Heathrow, from Frankfurt.

Two-car tram sets reversing ends outside the Spice Market, Istanbul, June 3.

There were signs at Heathrow Airport there of widespread construction of both of the direct rail services connecting it to London: both will open later this year. Our stopover there gave Rita time for a quick shop at the Harrod's store, with a few final purchases, followed by a quick'cram' of our carry-on baggage & a short lunch. We boarded an Air Canada Boeing 747 non-stop flight for the final leg of our vacation, home to Vancouver.The take-off at London was delayed, because of a computer foulup with a fuel gauge, leading to excessive fuel, which had to be removed, resulting in a one-hour delay. The flight to Vancouver therefore arrived home one hour late. All our luggage (from Istanbul) appeared on the correct carousel, and our oldest daughtter was awaiting with our car, so it was then only a short drive home & a speedy jump into bed. Jet-lag bothered us for a couple of days, but we have overcome that now & are therefore able to pen this report upon our most enjoyable 'Turkish Delight' of 1997.

BACK COVER: This scenic view shows VIA train No. 16, the eastbound "Chaleur", running along the picturesque shore of its namesake bay on July 12, 1997. This is on the section, east of Chandler, which has no freight traffic. This trackage has recently been sold by CN and has become a short line. The new owners have agreed to continue to run the VIA train on their line, to the delight of tourists and residents alike. Photo by David Morris.

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