

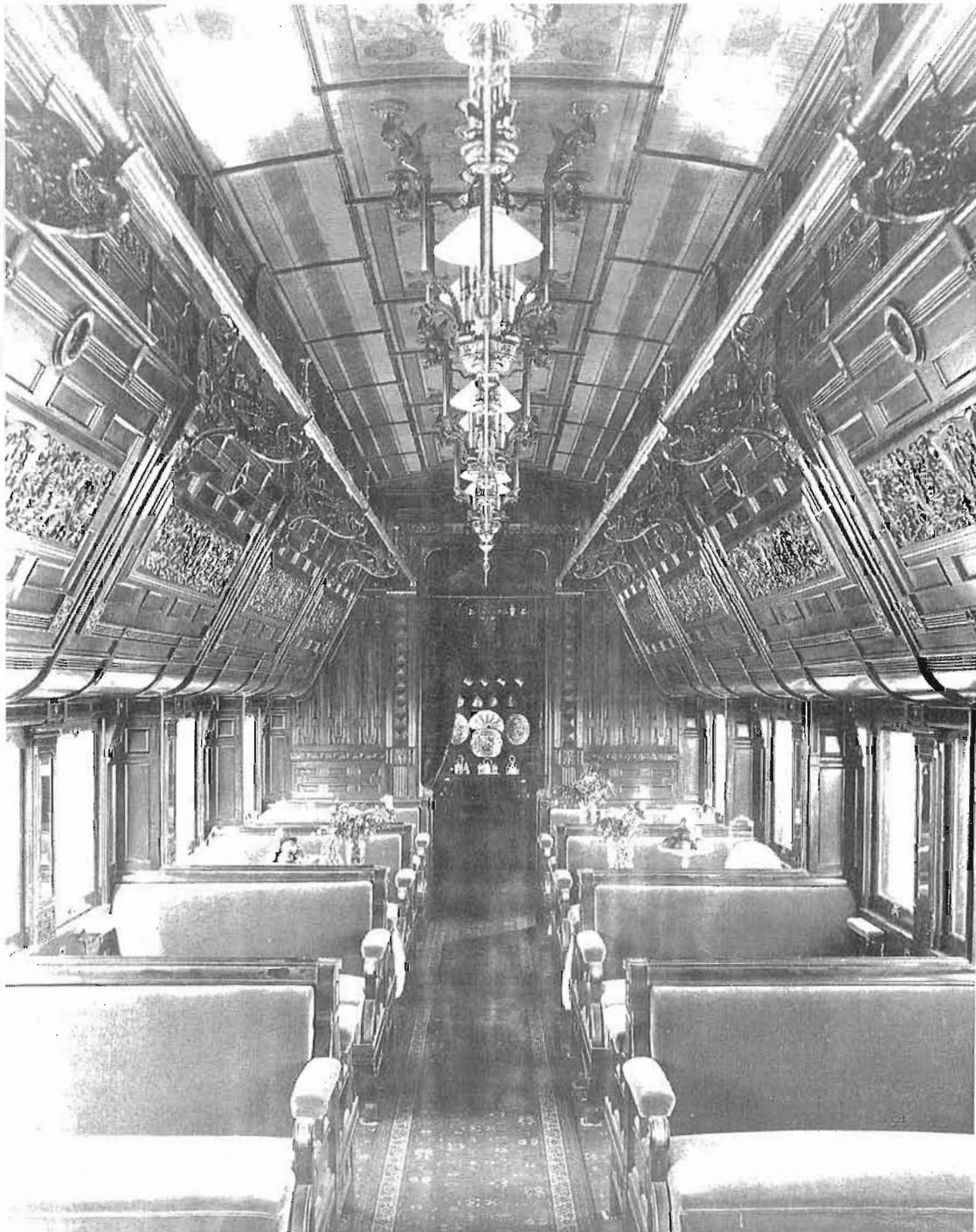
Canadian Rail

THE MAGAZINE OF CANADA'S RAILWAY HISTORY

No. 483



JULY - AUGUST 2001



1876 -- THE INTERCOLONIAL -- 2001

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FRONT COVER: When the Intercolonial Railway of Canada opened its through line from central Canada to Halifax, Nova Scotia in 1876, the passengers had a choice of several different types of accommodation. Most sumptuous and elaborate was the first class sleeping car exemplified by sleeper "Restigouche", of which this is an interior view. Notice the elaborately carved woodwork, the fancy oil lamps, the plush seats, the decorated ceiling and the beautiful carpet; all typical of the later Victorian era. At the end of the car is a small but adequate buffet, and each section has its own table on which food could be served. The "Restigouche" was like a hotel on wheels during the trip of more than 24 hours to Halifax. Additional photos of this car appear on page 123.

Photo courtesy of the New Brunswick Museum.

BELOW: An Intercolonial Railway 0-4-0 switcher of about 1876 vintage poses at an unknown location not long after the line was opened for its entire length. A photo of a similar locomotive appears at the bottom of page 122.

Photo given by John Loye to Donald F. Angus.

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Canadian Rail is continually in need of news, stories,, historical data, photos, maps and other material. Please send all contributions to the editor: Fred F. Angus, 3021 Trafalgar Avenue, Montreal, P.Q. H3Y 1H3, e-mail angus82@aei.ca . No payment can be made for contributions, but the contributor will be given credit for material submitted. Material will be returned to the contributor if requested. Remember "Knowledge is of little value unless it is shared with others".

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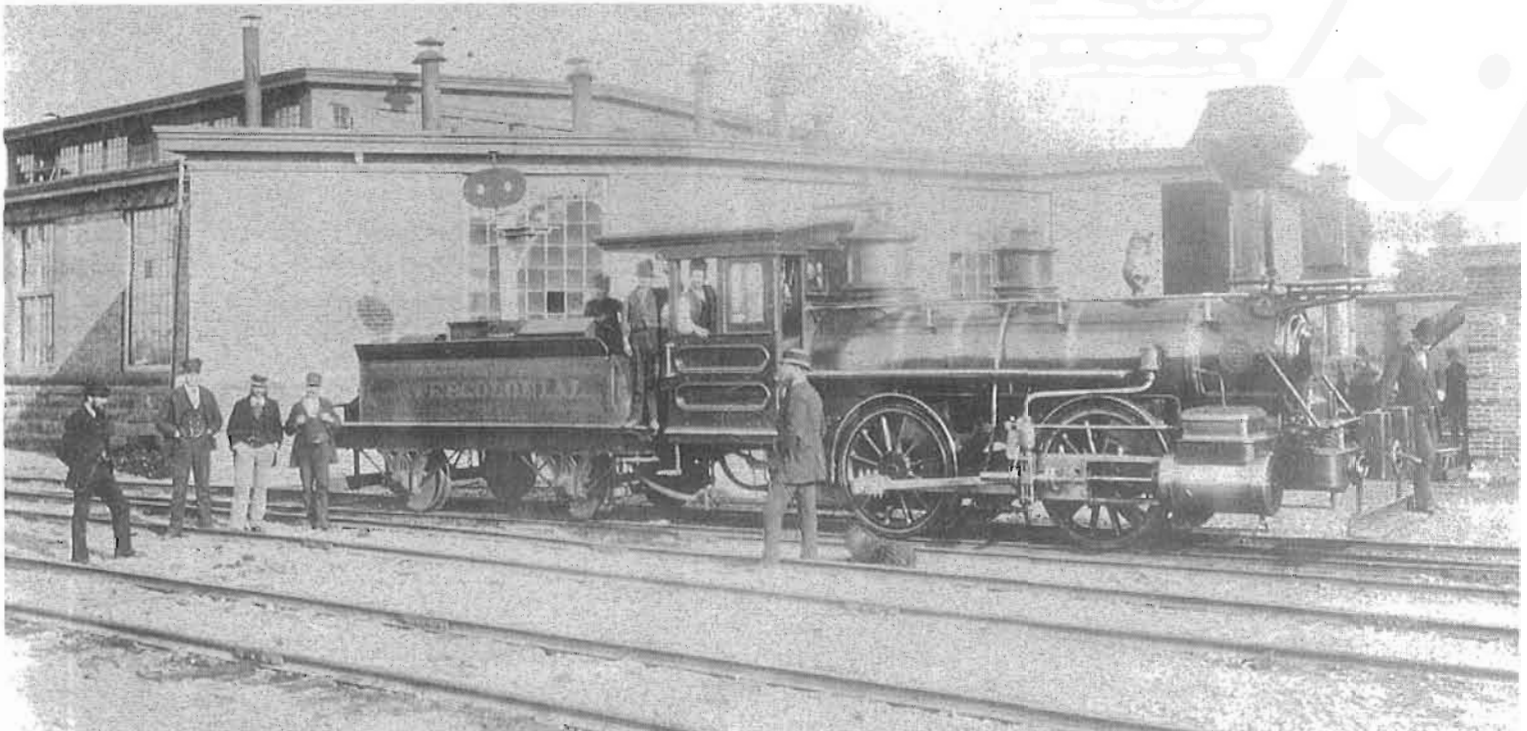
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The Intercolonial - 1876

July 1 2001 marks the 125th anniversary of the completion of the Intercolonial Railway between the Maritime provinces and the rest of Canada. This project, which had been planned as far back as 1832, and which had been promised in the British North America Act of 1867, was fulfilled at last. Curiously, this anniversary is almost forgotten today. Countless articles, and numerous books, deal with the construction of the Canadian Pacific Railway, and most railway enthusiasts in Canada can tell you that the last spike on the CPR was driven at Craigellachie B.C. on November 7, 1885. But how many know that the Intercolonial was completed on July 1, 1876, and how many can say where the last spike on the ICR was driven? Yet the completion of the ICR was of importance second only to the CPR (if indeed it was second) and its construction was mandated by no less an authority than the B.N.A. Act which created the Dominion of Canada.

The first proposal for a railway to connect the colonies in the east with Lower Canada was made in the early 1830s, before railways even existed in Canada. The plan was to build a railway from St. Andrews New Brunswick to Quebec City. Plans were drawn and surveys made, but then the Ashburton treaty of 1842 gave much of the intervening territory to the state of Maine and ended the project for the time being. By 1849 the scheme was revived, and plans were made for a longer line from Halifax via Moncton (then called The Bend), to the St. Lawrence valley and thence to Quebec City, entirely on British territory. Despite the constant shortage of money, some work was done. In Canada the Grand Trunk was built, and an extension to Riviere du Loup was completed in 1860. Also in 1860 Saint John New Brunswick was connected by rail to Moncton, and several lines were operating in Nova Scotia. In 1865 Sandford Fleming prepared a detailed report of several possible routes for the ICR. However there was no through route by the time of Confederation in 1867. The importance of this connection was not lost on the Fathers of Confederation, for section 145 of the BNA Act declared that it was the duty of the new federal government to begin construction within six months of Confederation and to continue "without Intermission, and the Completion thereof with all practicable Speed".

Work then went ahead as contracts were let and construction proceeded. However progress was slow and several contracts overran their deadlines while some were taken over by the Department of Public Works. In 1873 Saint John and Moncton were connected to Halifax, and in 1874 the entire project was transferred to the Department of Public Works. Soon thereafter the track gauge was changed from 5

feet 6 inches to standard, so the remaining portions were built as standard gauge from the start. The last two years of construction were the worst of all as engineers and workers braved the rugged terrain of northern New Brunswick and Quebec. Such structures as the bridges across the Restigouche and the Miramichi were major construction projects in themselves, but so well were they built that they are still in use today, with newer and heavier superstructures. One by one the contracts were completed and by early 1876 the only major gap was in the Mata-

pedia Valley of Quebec. Soon this gap too was closed, evidently with little or no ceremony, and on July 1 1876, exactly nine years after Confederation, the Intercolonial was opened for its entire length.

To commemorate this significant but unheralded anniversary we are devoting an entire issue of Canadian Rail to the Intercolonial of 1876, and to Sandford Fleming, its Engineer-In-Chief. We will reproduce illustrations of some of the major bridges and other structures on the ICR as well as a selection of documents, advertisements and other material of the era. Many of these illustrations are from Fleming's 1876 history of the Intercolonial. After a century and a quarter this is still the best account of the construction. Jay Underwood's article on Fleming is very well researched and casts a new light on one of the major participants in the Intercolonial saga. In addition we will also reproduce a series of very rare photos, some previously unpublished, of locomotives and passenger cars with which the ICR began service. These photos were taken in 1876, about the time of the opening of the line, and were likely ordered by the railway itself. They were kindly supplied by the New Brunswick Museum and they show in considerable detail the choices of passenger accommodation available to the traveller to the Maritimes a century and a quarter ago.

INTERCOLONIAL RAILWAY.

145. Inasmuch as the Provinces of Canada, Nova Scotia, and New Brunswick have joined in a Declaration that the Construction of the Intercolonial Railway is essential to the Consolidation of the Union of British North America, and to the Assent thereto of Nova Scotia and New Brunswick, and have consequently agreed that Provision should be made for its immediate Construction by the Government of Canada: Therefore, in order to give effect to that Agreement, it shall be the Duty of the Government and Parliament of Canada to provide for the Commencement within Six Months after the Union, of a Railway connecting the River St. Lawrence with City of Halifax in Nova Scotia, and for the Construction thereof without Intermission, and the Completion thereof with all practicable Speed.

Section 145 of the British North America Act as printed in 1867. This act was entitled "An Act for the Union of Canada, Nova Scotia, and New Brunswick, and the Government thereof". It was passed by the British Parliament on March 29 1867 and went into effect on July 1, thereby creating the Dominion of Canada. The importance of the Intercolonial Railway is emphasized by the fact that section 145 required the new Dominion to complete the line as fast as possible. Note that the word "Speed" is capitalized. How many people know about section 145 today?



ANNO TRICESIMO ET TRICESIMO-PRIMO

VICTORIÆ REGINÆ.

CAP. XVI.

An Act for authorizing a Guarantee of Interest on a Loan to be raised by *Canada* towards the Construction of a Railway connecting *Quebec* and *Halifax*.

[12th April, 1867.]

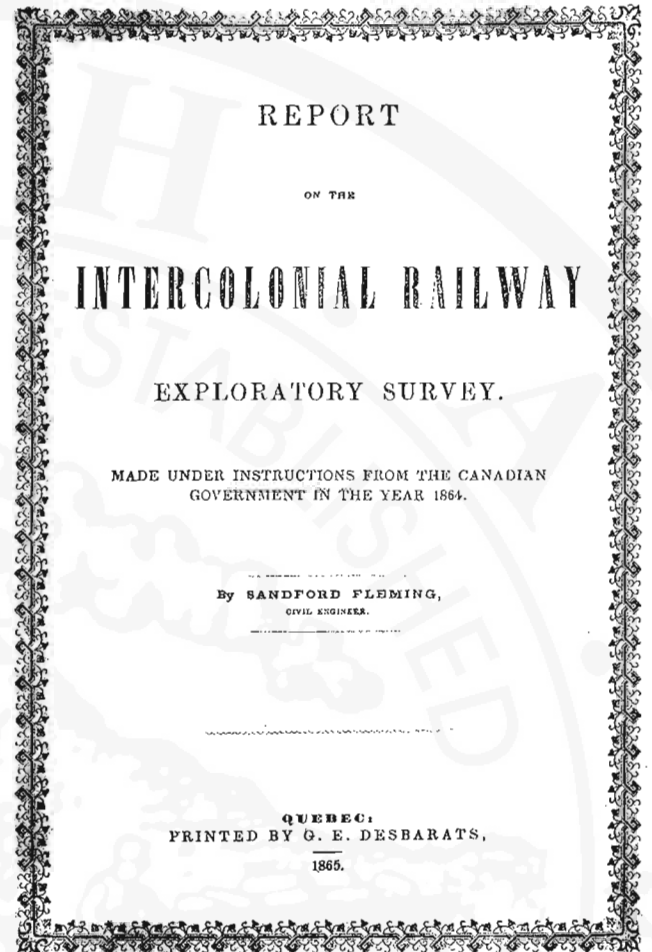
WHEREAS the construction of a Railway connecting the Port of *Rivière du Loup*, in the Province of *Quebec*, with the line of railway leading from the city of *Halifax*, in the Province of *Nova Scotia*, at or near the town of *Truro*, in a line, and on conditions approved by one of Her Majesty's Principal Secretaries of State, would conduce to the welfare of *Canada* and promote the interest of the British Empire :

And whereas it would greatly facilitate the construction of that railway (in this Act referred to as the railway) if payment of interest on part of the money required to be raised for the same were guaranteed under the authority of Parliament :

Be it therefore enacted by the Queen's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament Assembled, and by the authority of the same as follows :

1. Subject to the provisions of this Act, the Commissioners of Her Majesty's Treasury may guarantee, in such manner and form as they think fit, payment of interest at a rate not exceeding four per centum per annum on any principal money not exceeding the sum of three million pounds sterling, to be raised by way of loan by the Government of *Canada* for the purpose of the construction of the railway ; and the Commissioners of Her Majesty's Treasury may from time to time cause to be issued out of the consolidated fund of the United Kingdom, or the growing produce thereof, any money required for giving effect to such guarantee.

The first act relating to Canada passed by the British Parliament after the B.N.A. Act was this one guaranteeing interest on a loan for the construction of the Intercolonial.



Much work had been done on surveying alternative routes for the Intercolonial. These were summed up in this report published in 1865 by Sandford Fleming.

THE DOMINION GUIDE.



THE INTERCOLONIAL RAILWAY.

This important undertaking is progressing as rapidly as possible and already connects the Eastern Provinces with the leading American lines.

By 1873 work was progressing well as seen in this news item in the "Dominion Guide". Connection between the railways of New Brunswick and those of Maine had been established at Vanceboro in 1871, affording an all-rail route to central Canada via Portland. However the Intercolonial would be entirely through Canada, and would be just as short.

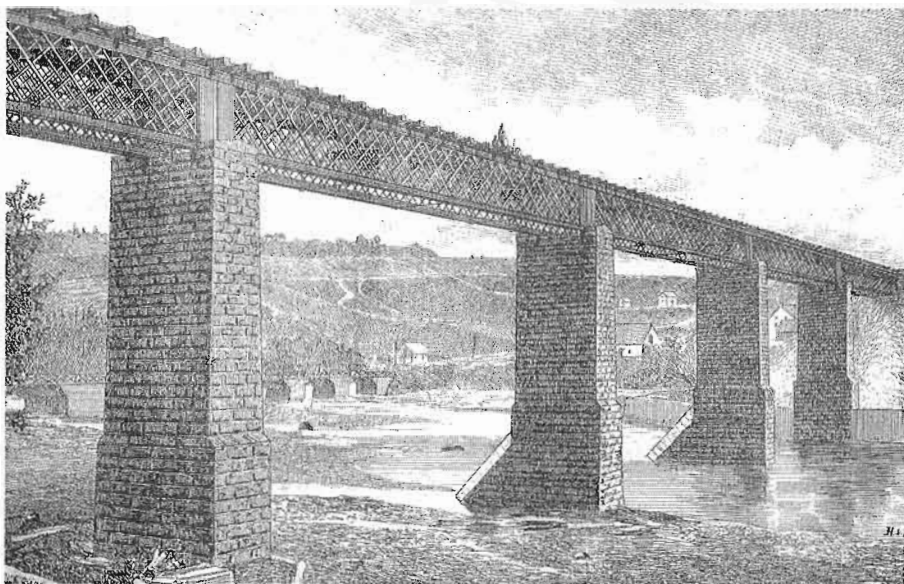
Some of the Prominent Structures on the I.C.R. Line

Illustrations from Sandford Fleming's 1876 History of the Intercolonial

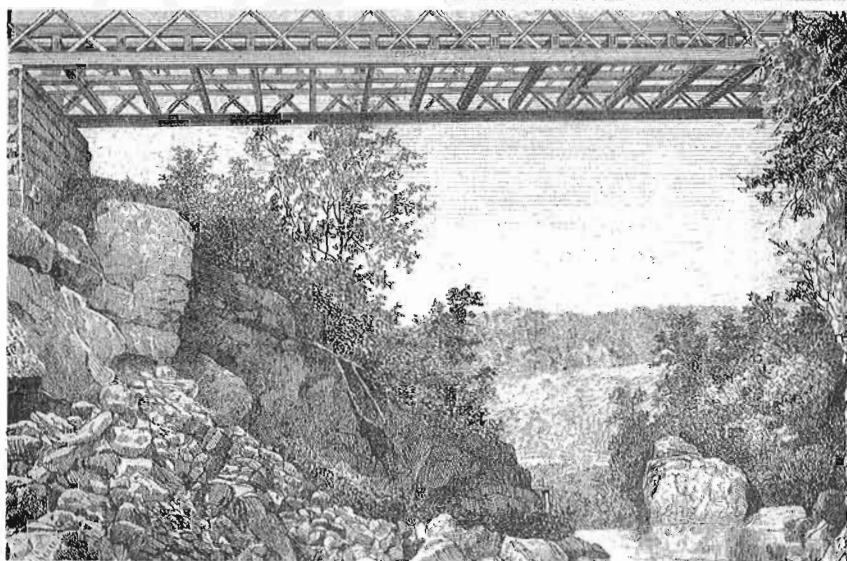
Sandford Fleming was very much concerned with the bridges on the ICR. He was adamant in his insistence that they be of iron rather than wood. This caused considerable delay to the project while the iron-vs.-wood arguments were heard. Eventually he got his way, and all but three bridges were iron.

Fleming was not as particular about other structures such as cuttings, and even stations. As late as the 1950s some of Fleming's cuttings were causing difficulty with snow plowing, as they were too narrow.

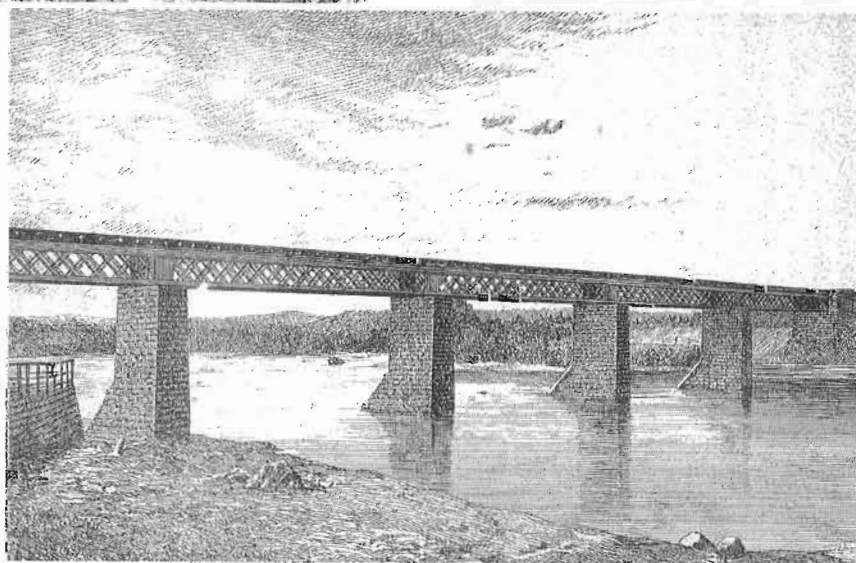
As would be expected, many of the illustrations in his book were of bridges.



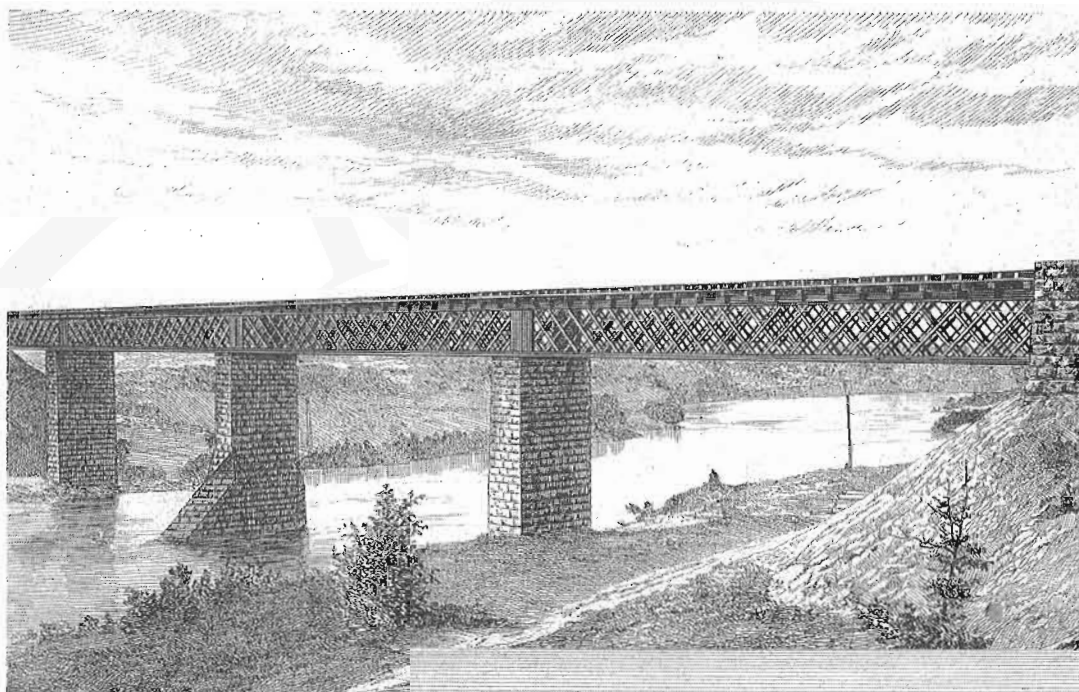
The bridge at Trois Pistoles. It was completed in 1873.



Bridge at Bic. Completed in the autumn of 1872.

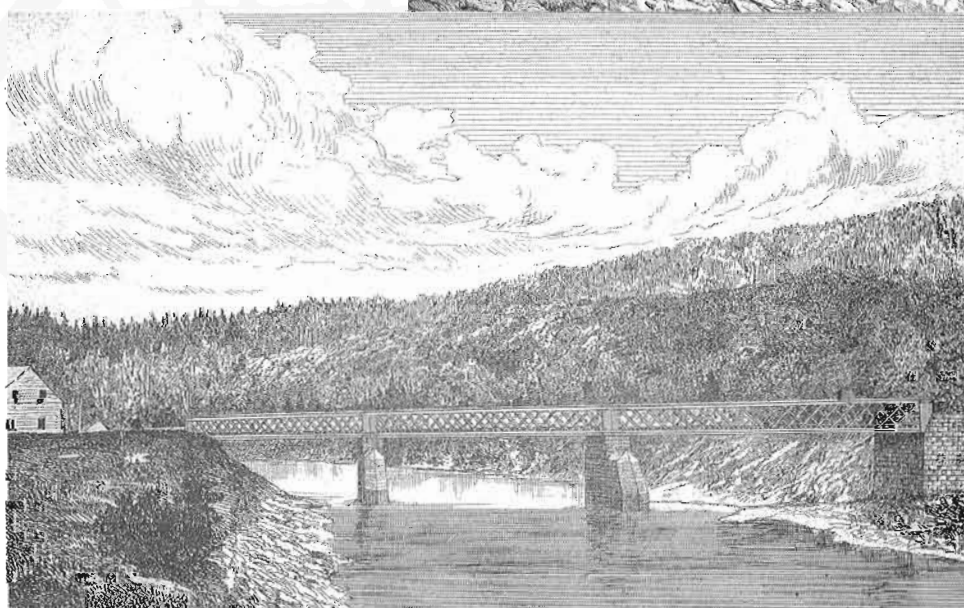
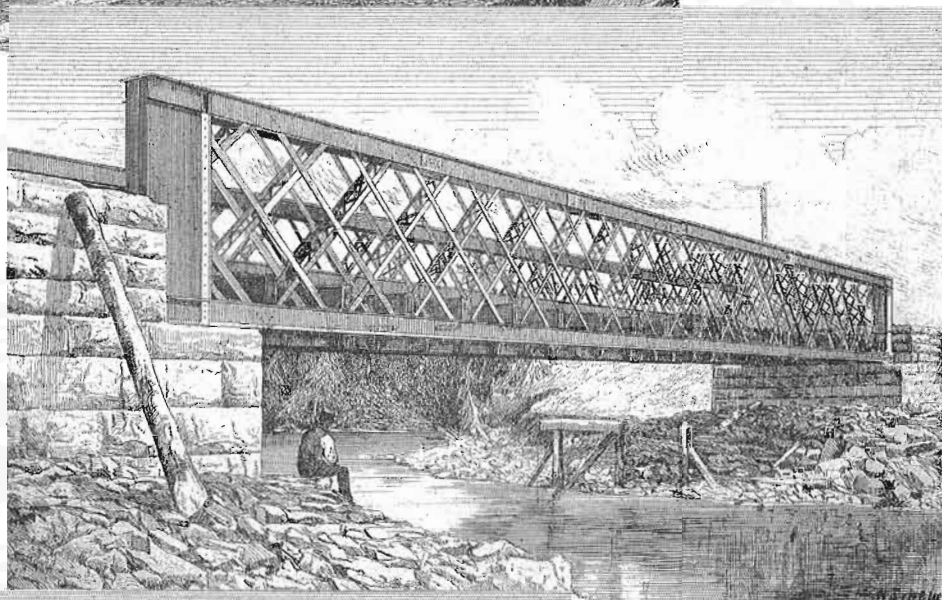


The Rimouski bridge. Completed at the end of 1872.



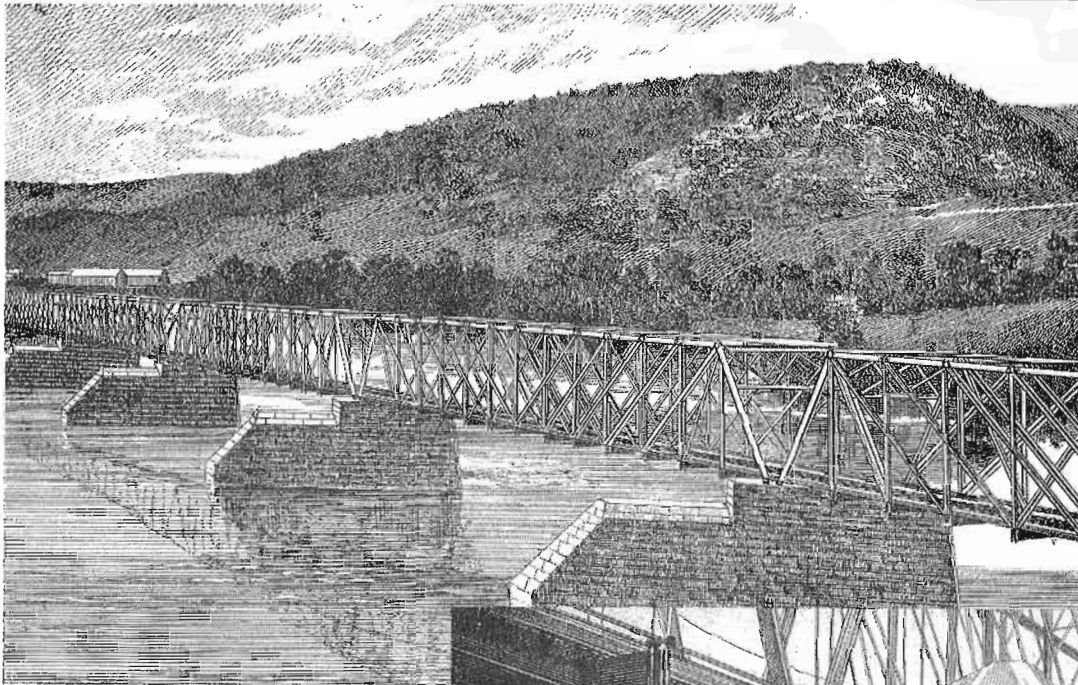
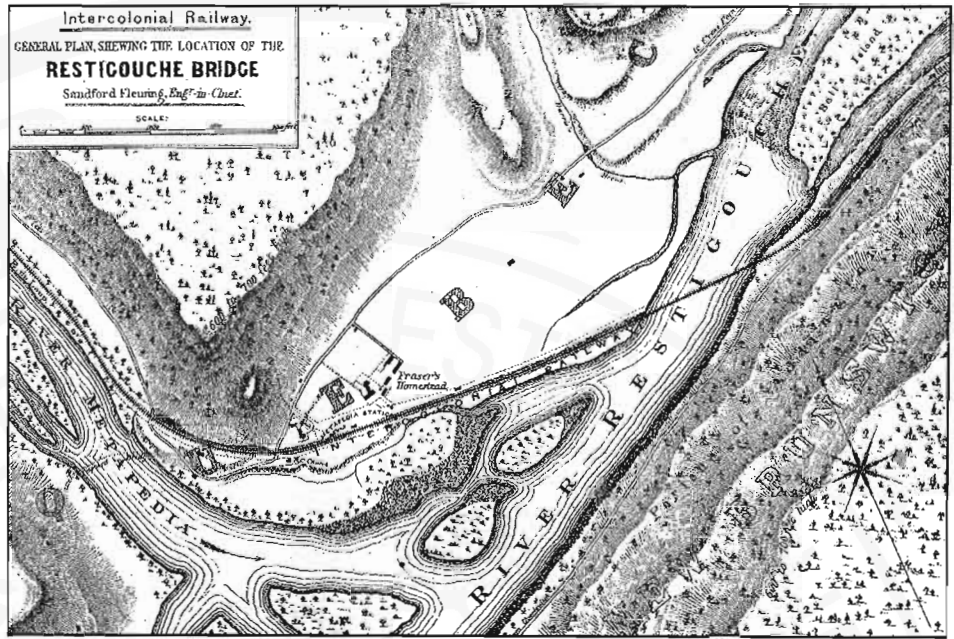
LEFT: The bridge at Grand Métis which was completed late in 1874.

RIGHT: The bridge at Amqui which was not finished until the summer of 1875.



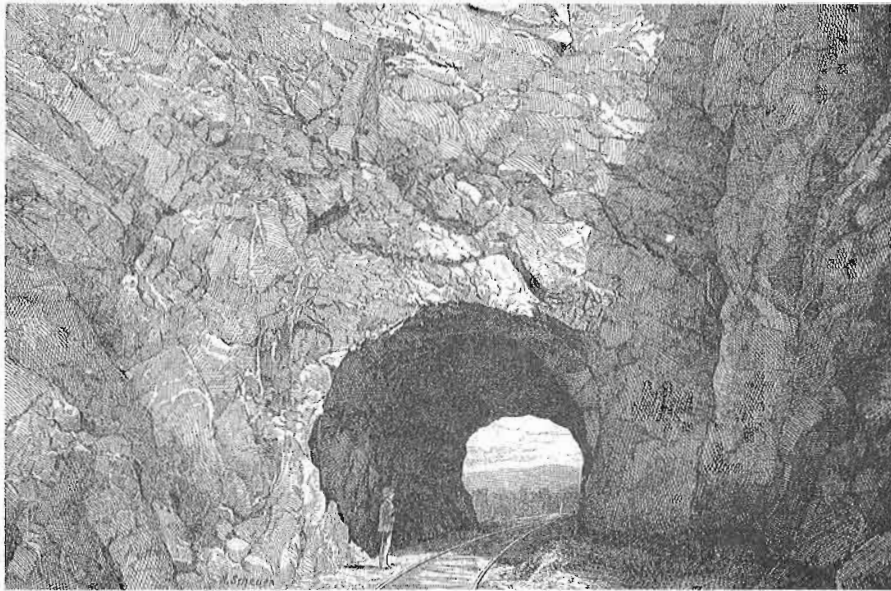
LEFT: The first crossing of the Metapedia River at Causapsca. Bridge completed in 1875.

RIGHT AND BELOW: The long bridge across the Restigouche, leading from Quebec to New Brunswick. Note the extra-wide piers (still in use today) to break up the ice. Work began on this structure in the summer of 1870 and it was completed by Christmas 1875. In later days a road bridge was built on the upstream side of the piers, but this has now gone.



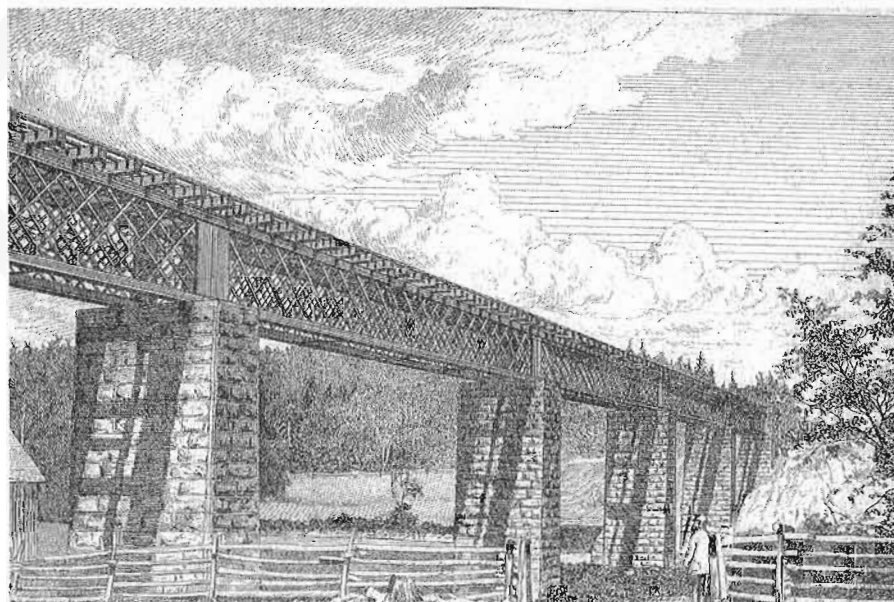
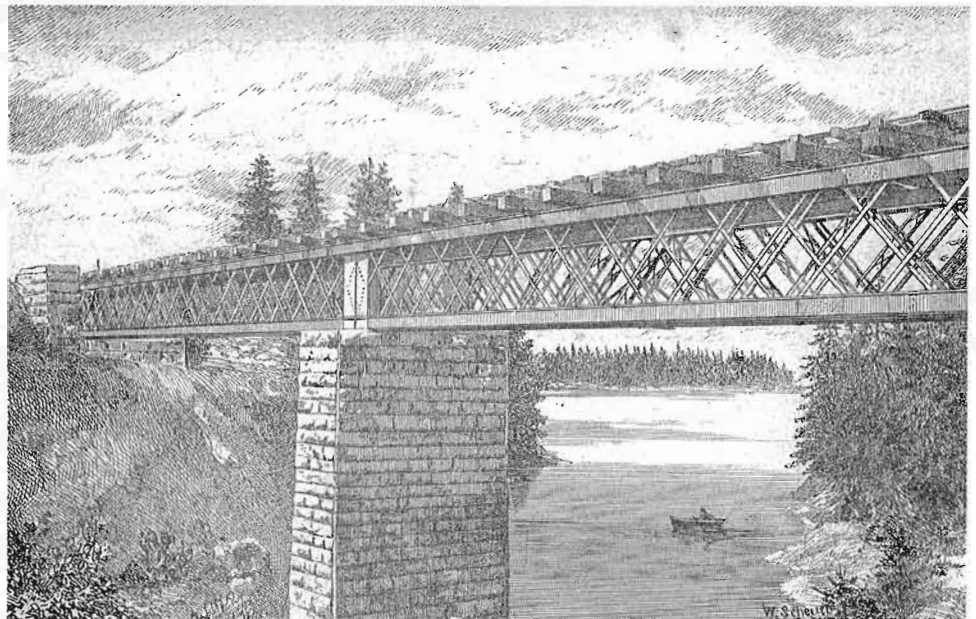
RIGHT: A winter view of one of the massive piers of the Restigouche bridge.





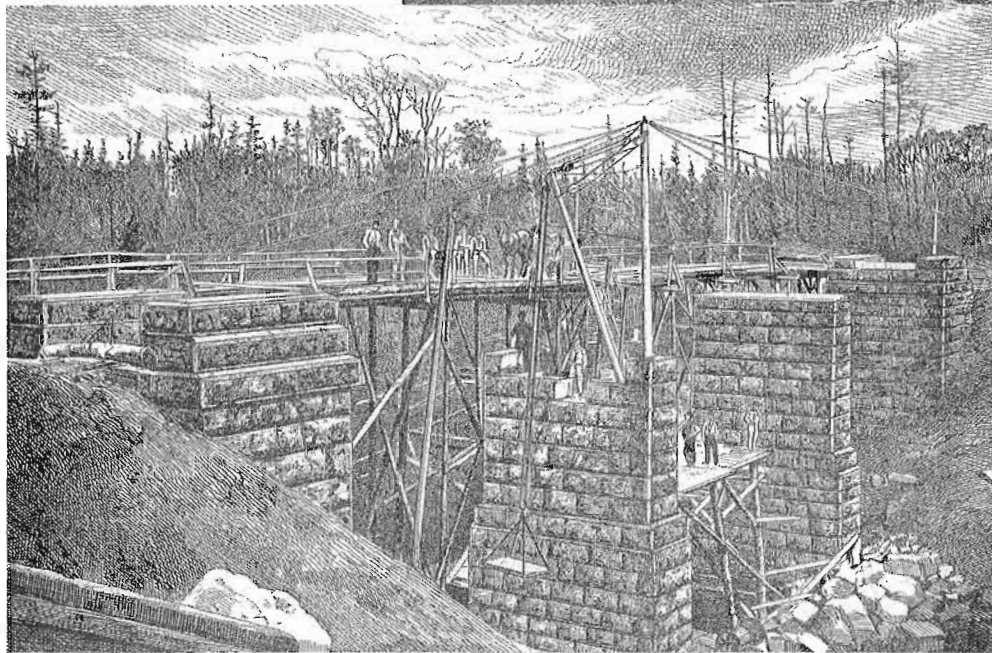
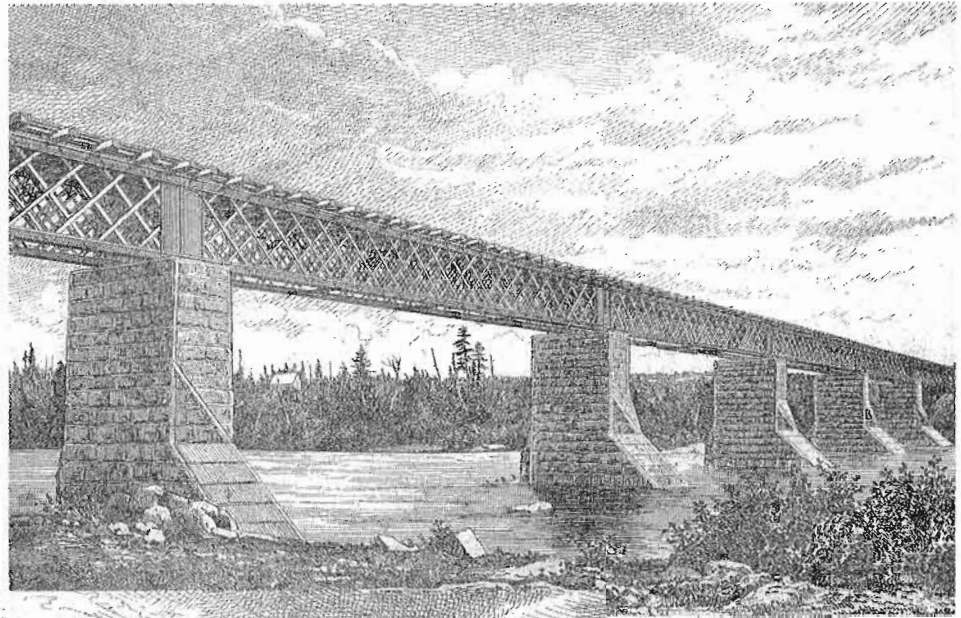
LEFT: The Morrissey tunnel, one of the few on the line. After numerous delays, it was completed in 1874.

RIGHT: The New Mills bridge, one of nine on Division "L". It was completed in 1874.



LEFT: The Bridge at Tete-A-Gauche, near Bathurst, completed in 1874.

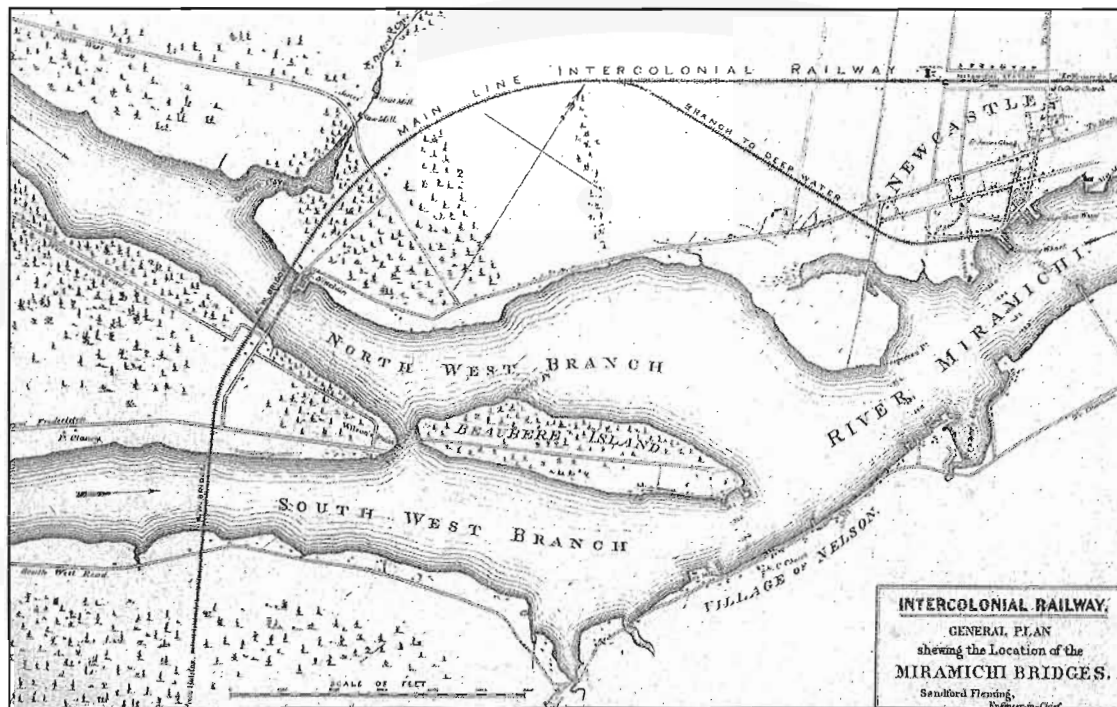
RIGHT: *The Nipissiguit bridge, built between 1870 and 1874.*



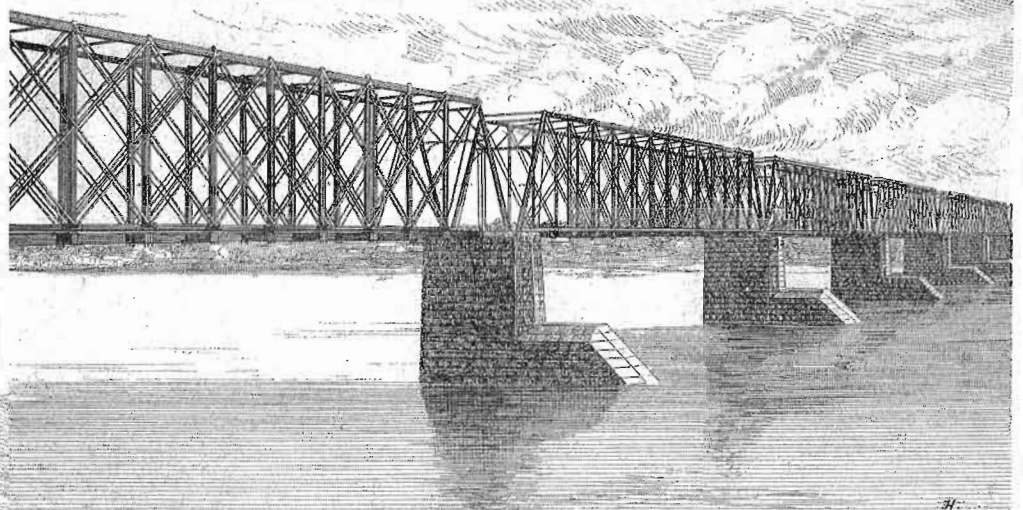
LEFT: *A view of the Red Pine Brook bridge under construction. It was finally completed on December 10, 1874.*

RIGHT: *The cut stone culvert over the Kouchibouguac river in 1874, before the railway embankment was built on top of it.*



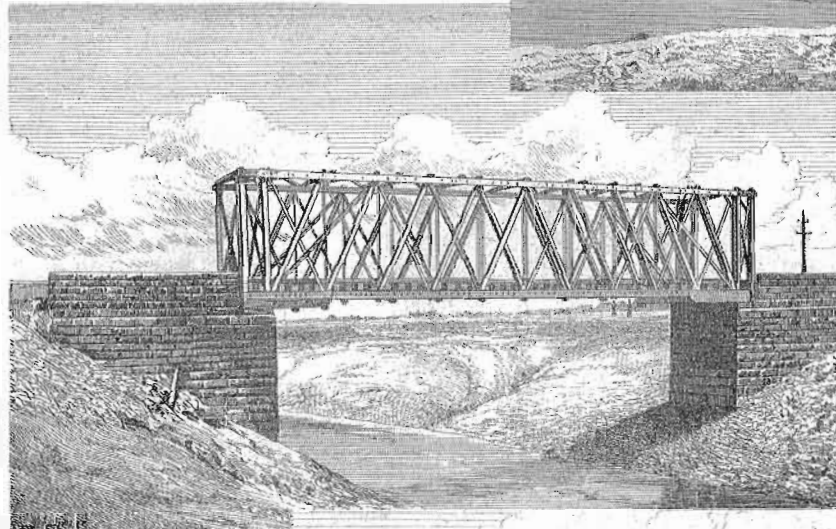
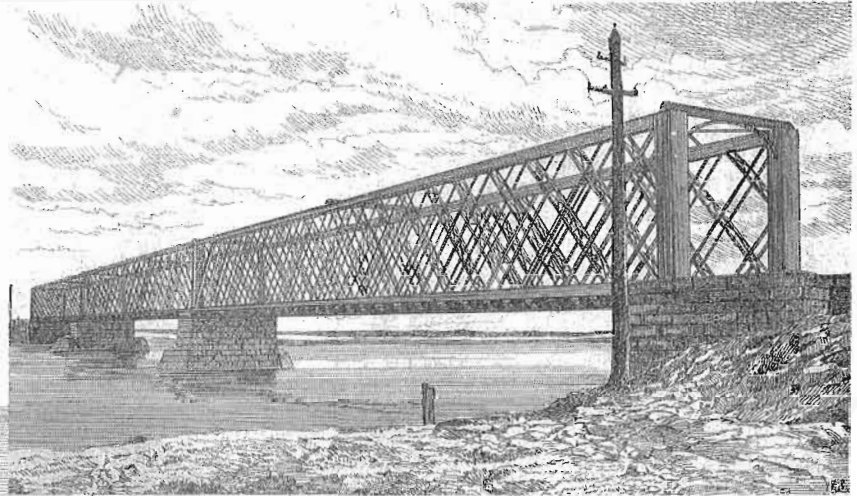


ABOVE AND RIGHT: The bridges across the two branches of the Miramichi river were the most impressive on the entire line. A lengthy article, or even a book, could be written on the vicissitudes of the construction of these two bridges which were comenced in 1870 and opened in an impressive ceremony held on August 26, 1875.



LEFT: A construction view of the North-West bridge across the Miramichi.

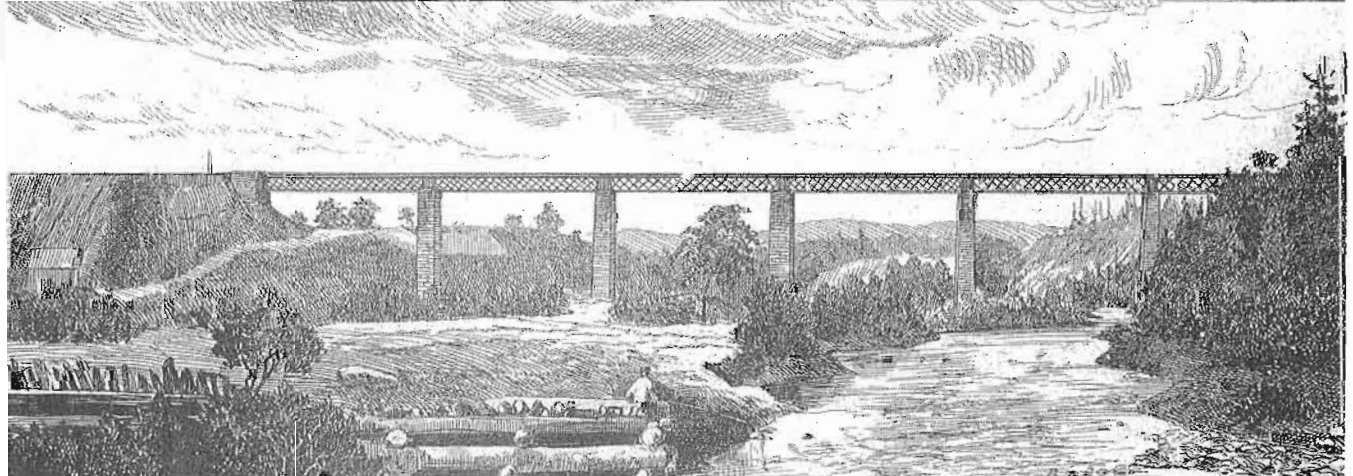
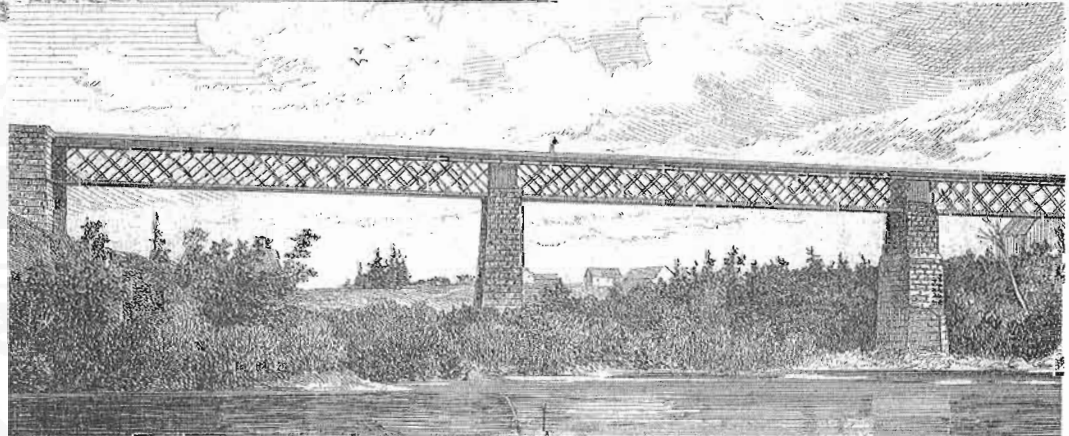
RIGHT: The bridge across the Tantramar river near Sackville. It was completed in the summer of 1871.



LEFT: One of only three wooden bridges on the line was this one, completed in 1871, which spanned the Missiquash river. This river forms the boundary between New Brunswick and Nova Scotia, so this bridge was in both provinces.

BELOW: This bridge at River Phillip, near the west end of Division "Y", was opened in 1872.

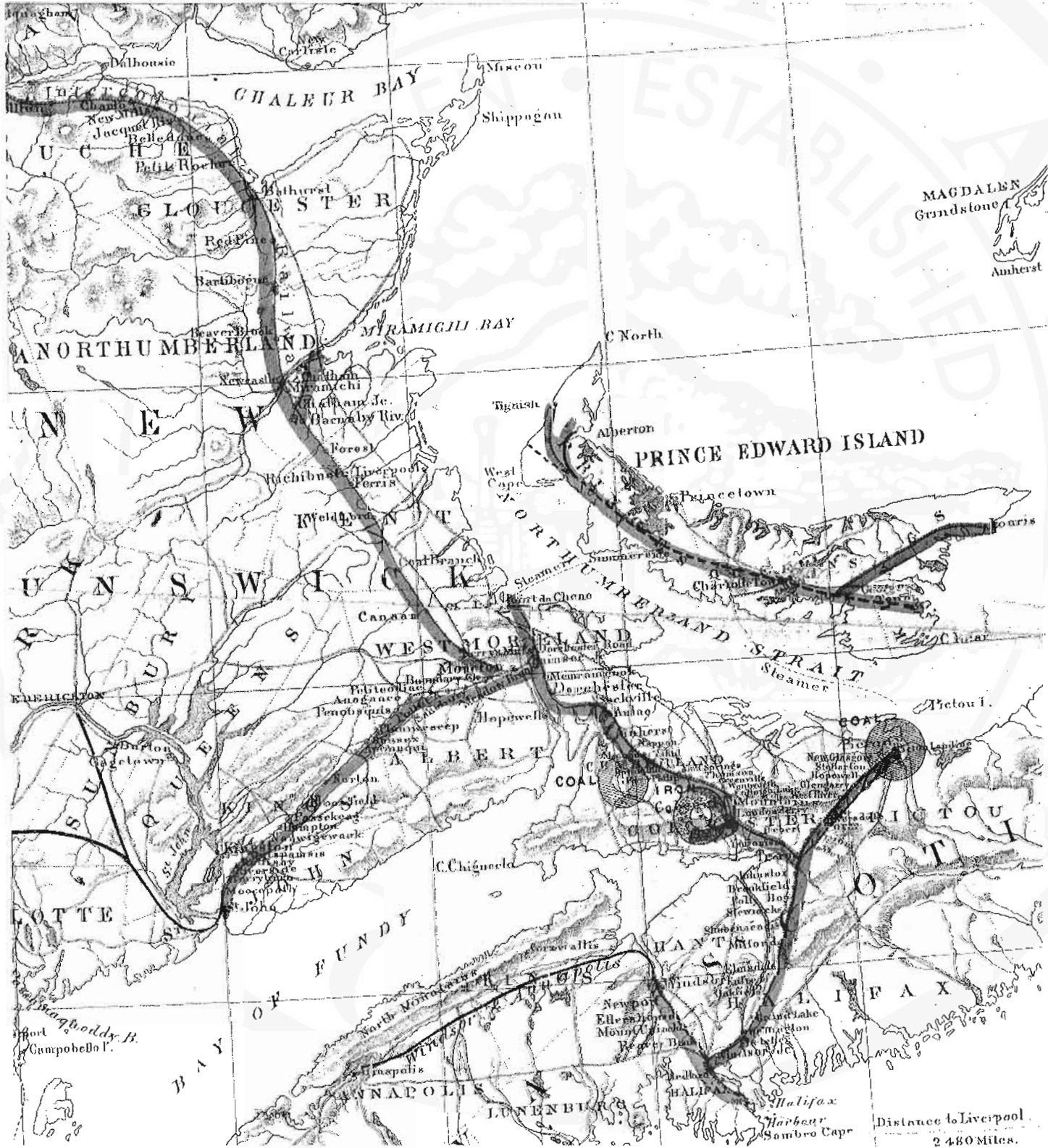
BELOW: The highest point on the ICR between Metapedia and Halifax is at Folly Lake, Nova Scotia, 607 feet above sea level. This bridge across the Folly Valley was completed in 1872. From here east the line goes on to Truro and Halifax.





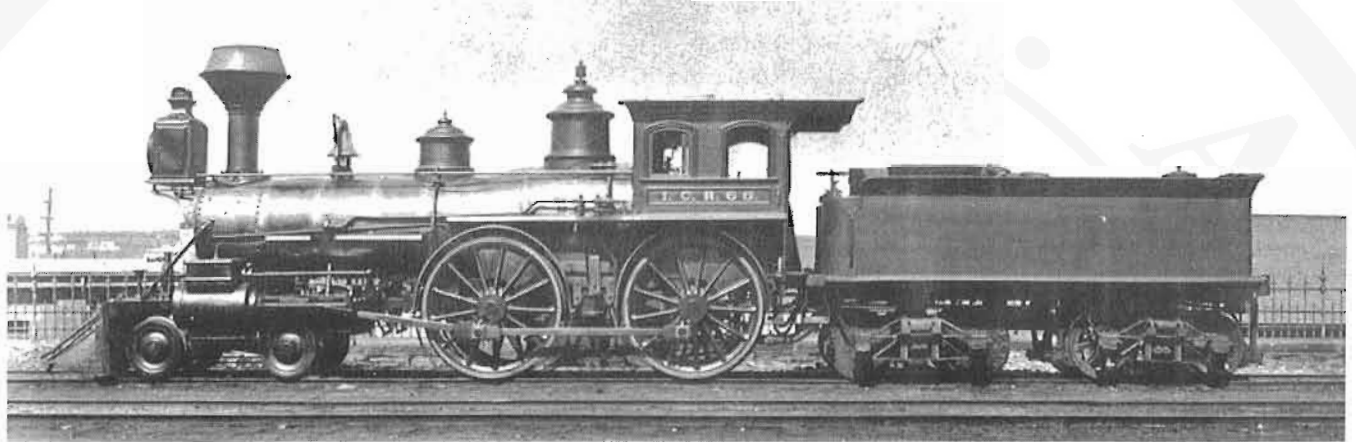
This map of the Intercolonial Railway was copied from a timetable folder dated November 20 1876, only five months after the line opened. The folder is in very poor condition, as the paper is brittle and fragile, and some pieces are missing. However we have attempted to reproduce the map, as well as the timetables on pages 128 and 129, to show the route and schedules of the Intercolonial as it was when it was new.

Map of the Intercolonial Railway in 1876



Intercolonial Locomotives and Passenger Cars of 1876

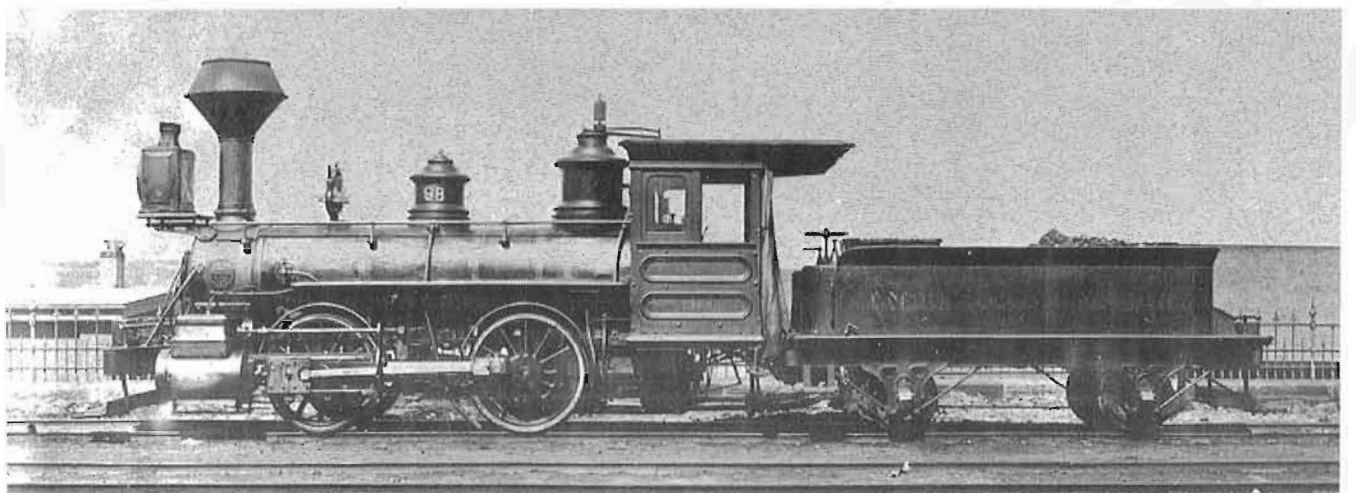
The following photographs of Intercolonial rolling stock are from an album containing original prints made in 1876 and annotated by hand. They were likely commissioned by the railway at the time of the opening of the entire route from Quebec to Halifax. They show very clearly three types of locomotives as well as five types of passenger cars, ranging from the elegant sleeper "Restigouche" and the parlour car "Acadia" to the more spartan Emigrant sleeper 504. Sadly, no freight cars were shown. All photos on pages 122 to 127 inclusive are courtesy of the New Brunswick Museum.



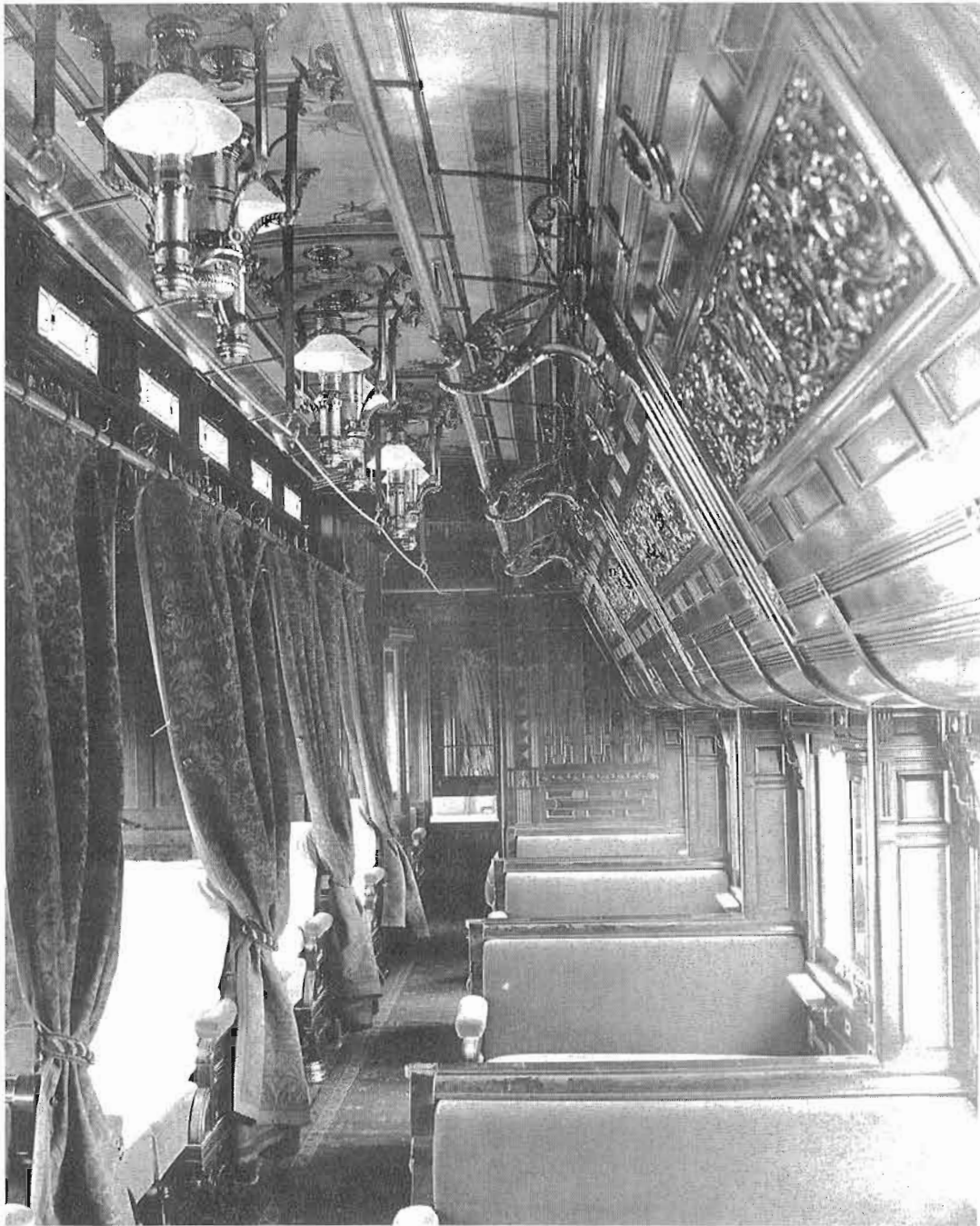
4-4-0 passenger locomotive number 66.



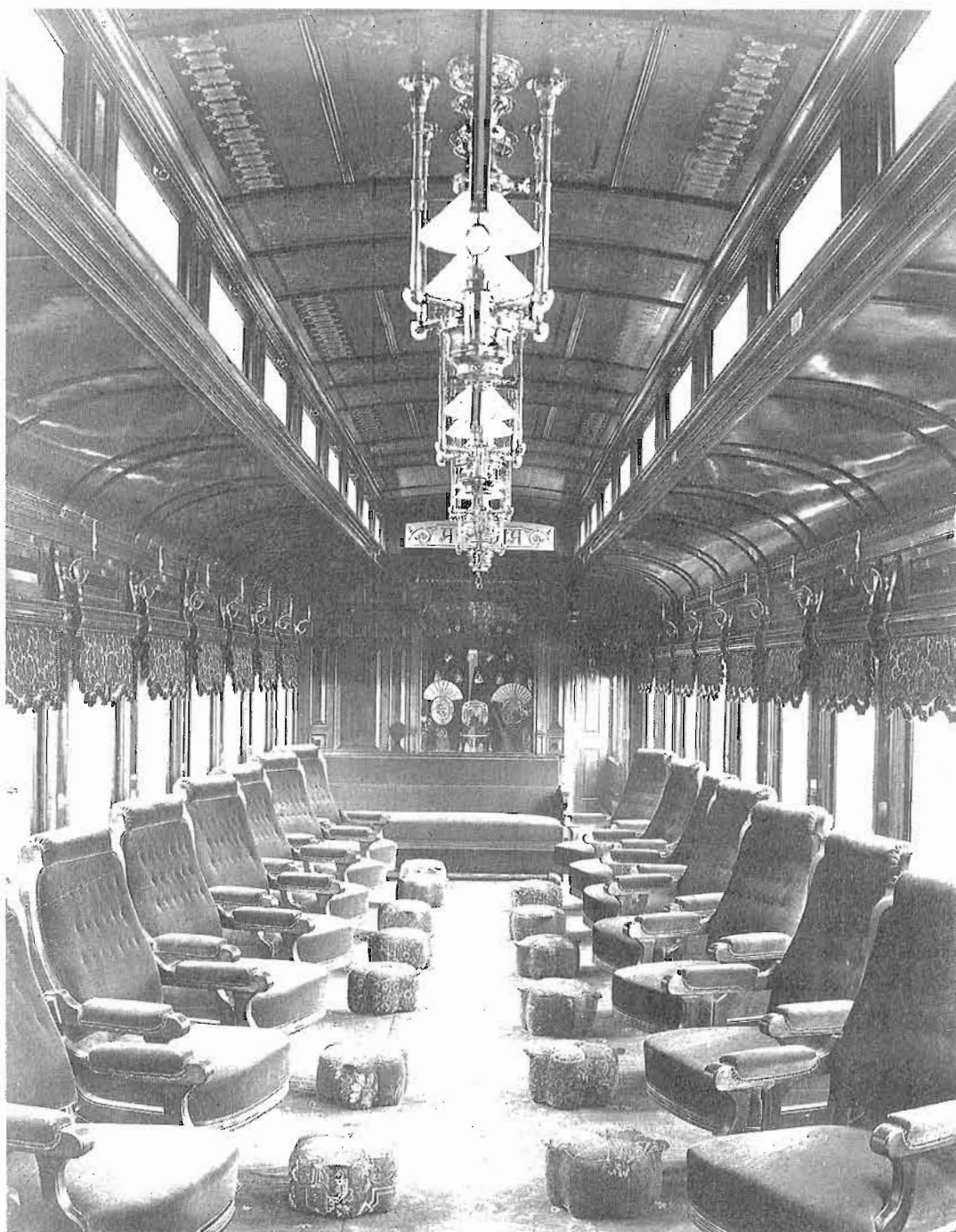
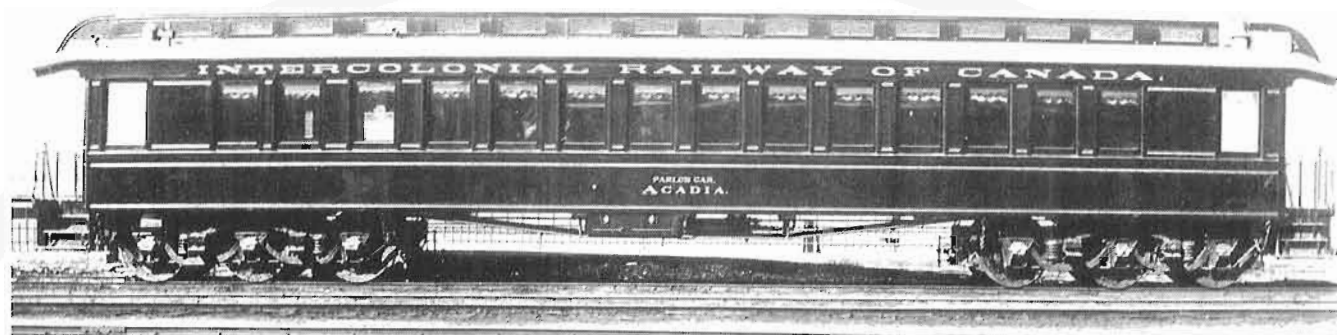
4-4-0 locomotive number 154 for both passenger and freight service.



0-4-0 switcher locomotive number 98.



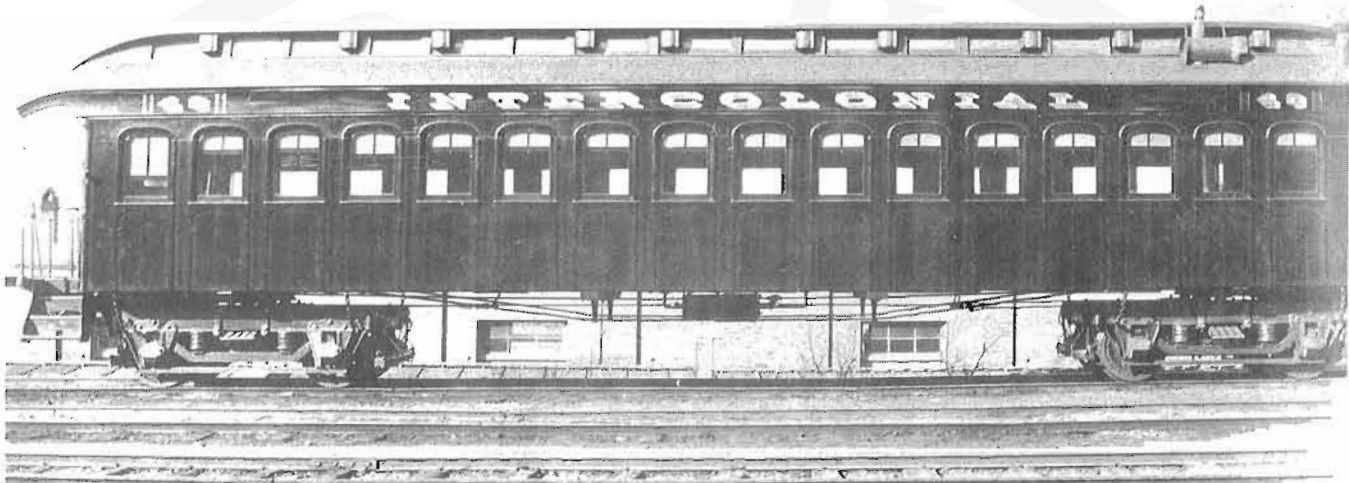
Sleeping Car "Restigouche" showing the berths on one side made up. Another interior view of this car appears on the cover.



Parlor (sic) Car "Acadia". Note the car name on the etched glass at the end of the clerestory.



Emigrant (sic) Sleeping Car 504. Its interior is quite plain compared to the "Restigouche".






On this page and opposite are two first-class coaches of the Intercolonial Railway. Opposite is car 40, complete with plush seats, carpeted floor and painted canvas ceiling. Above is car 50, similarly fitted out; unfortunately there was no exterior view of this car. The inscription on the door of car 50 reads "James Crossen manufacturer, Cobourg, Ont." There is also an Intercolonial Railway notice posted on the end wall.

Intercolonial Schedules of 1876

These 1876 schedules are from the same folder as the map on pages 120 and 121. The folder includes information about passenger and freight service offered by the ICR. Note that C.R. Brydges, formerly of the Grand Trunk, was now General Superintendent of the Government Railways. What is now Matapedia was spelled "Metapediac" (it's also sometimes spelled "Metapedia", making three different spellings!). Newcastle was then called Miramichi, a name to which it has recently reverted.

TIME TABLE



OF THE

Intercolonial

RAILWAY.

WINTER ARRANGEMENT

TO TAKE EFFECT 20th NOVEMBER,

1876.

BETWEEN

HALIFAX, PICTOU,
SHEDIAC, ST. JOHN,

AND

RIVIERE DU LOUP,

MAKING CLOSE CONNECTIONS

FOR ALL POINTS WEST.

PULMAN SLEEPING CARS

ON THROUGH EXPRESS TRAINS.

THROUGH TICKETS

— FOR —

MONTREAL,

Quebec, Ottawa,

— AND THE —

PRINCIPAL CITIES AND TOWNS

— OF —

CANADA AND THE UNITED STATES

— FOR —

CHARLOTTETOWN AND SUMMERSIDE, P. E. I.

— AND —

PORT HOOD AND HAWKESBURY, N. S.

CAN BE OBTAINED FROM

W. H. OLIVE,

INTERCOLONIAL RAILWAY TICKET AGENT,

No. 174 Prince William Street, ST. JOHN.

ALSO AT THE

EXPRESS OFFICE, 209 Hollis Street, HALIFAX,

AND AT

WINDSOR JUNCTION,

SHUBENACADIE, TRURO, NEW GLASGOW, PICTOU, LONDON-
DERRY, AMHURST, SACKVILLE, DORCHESTER, POINT DU CHENE,
SHEDIAC, MONCTON, SUSSEX, SAINT JOHN, MIRAMICHI,
BATHURST, DALHOUSIE, AND CAMPBELLTON.

PASSENGERS

Leaving HALIFAX at 1.30 P.M., and ST. JOHN at 5.00 P.M.,
Arrive at QUEBEC at 7.90 next Evening.

— MAKING —

CLOSE CONNECTIONS WITH GRAND TRUNK RAILWAY

By which they reach Montreal at 6.30 the following morning.

THE ROUTE TO

RIVIERE DU LOUP, QUEBEC & MONTREAL,

— IS BY THE —

VALLEYS OF THE

RESTIGOUCHE AND METAPEDIAC RIVERS

UNSURPASSED FOR THEIR

MAGNIFICENT SCENERY,

AND BY THE BEAUTIFUL SHORES OF THE

BAY DE CHALEUR AND GULF OF ST. LAWRENCE

BY THIS ROUTE

All Unnecessary Trouble of Customs

AND FREQUENT CHANGE OF CARS ARE AVOIDED.

FIRST CLASS

REFRESHMENT ROOMS

At Moncton, Truro, Campbellton, and Trois Pistoles
AND AMPLI TIME GIVEN FOR REFRESHMENTS.

PASSENGERS

GOING EAST

WILL LEAVE

CHICAGO at 9.00 A. M.

DETROIT at 5.45 P. M.

TORONTO at 7.00 A. M.

OTTAWA at 2.00 P. M.

MONTREAL at 9.45 P. M.

POINT LEVI, opposite Quebec, at 8.00 A. M.

ARRIVING AT

RIVIERE DU LOUP at 2.15 P. M.

CAMPBELLTON at 9.40 P. M.

MIRAMICHI at 2.10 A. M.

MONCTON at 8.00 A. M.

SHEDIAC at 12.57 P. M.

TRURO at 10.55 A. M.

PICTOU at 2.15 P. M.

HALIFAX at 1.30 P. M.

ST. JOHN at 9.30 A. M.

TICKETS FOR SALE AND ALL NECESSARY INFORMATION GIVEN BY

GEO. W. ROBINSON,

FREIGHT AND TICKET AGENT,

177 St. James Street, Montreal.

PASSENGERS

GOING WEST

WILL LEAVE

HALIFAX at 1.30 P.M.

ST. JOHN at 5.00 P.M.

MONCTON at 9.15 P.M.

MIRAMICHI, 12.26 A.M.

BATHURST, 2.13 A.M.

CAMPBELLTON, 5.00 A.M.

STE. FLAVIE, 9.15 A.M.

TROIS PISTOLES, 11.45 A.M.

RIVIERE DU LOUP, 12.45 P.M.

MAKING CLOSE CONNECTIONS

— AND —

WILL ARRIVE AT

QUEBEC at 7.00 P.M.

MONTREAL at 6.30 A.M.

OTTAWA at 4.10 P.M.

TORONTO at 11.15 P.M.

DETROIT at 10.05 A.M.

CHICAGO at 8.00 P.M.

THE INTERCOLONIAL RAILWAY

OFFERS

SUPERIOR FACILITIES

— FOR —

SHIPMENTS

— OF —

FREIGHT

TO OR FROM

THE UPPER PROVINCES

The Goods being the same as that of the Western R'ys.

TRANSFERS AND BONDING CHARGES

ARE AVOIDED.

QUICK DESPATCH GUARANTEED.

AGENTS:

Messrs. W. D. MATHEWS & CO., Toronto.

G. W. ROBINSON, Montreal.

As These parties are in a position to quote rates and give all necessary information to intending Shippers.

GOING WEST.				GOING EAST.			
Halifax and St. John to Riviere DuLoup.				Riviere DuLoup to St. John and Halifax.			
Mls.	STATIONS.	Quebec Express.	Accom.	Ml.	STATIONS.	Halifax & St. John Express.	Accom.
0	Halifax	Lv. 1.30 pm		0	Chicago	Lv. 9.00 a m	
8	Bedford	1.48 "		284	Detroit	5.45 pm	
13	Windsor Junction	2.00 "		515	Toronto	7.00 a m	
21	Wellington	2.17 "		788	Ottawa	2.00 pm	
28	Enfield	2.33 "		848	Montreal	9.45 "	
30	Elmsdale	2.38 "		1020	Pt. Levi (Op. Quebec)	Lv. 8.00 a m	
35	Milford	2.49 "		0	Riviere DuLoup	Lv. 2.00 pm	7.00 a m
39	Shubenacadie	2.58 "		6	Cacouna	2.13 "	7.27 "
44	Stewiacke	3.09 "		9	St. Arsene	2.20 "	7.40 "
53	Brookfield	3.28 "		17	Isle Verte	2.37 "	8.16 "
61	Truro	Ar. 3.45 "		27	Trois Pistoles	Lv. 3.00 "	9.00 "
73	Debert	Lv. 4.30 "		36	St. Simon	3.40 "	9.50 "
78	Londonderry	4.52 "		46	St. Fabien	4.03 "	10.50 "
90	Wentworth	5.19 "		55	Bic	4.24 "	11.30 "
96	Greenville	5.32 "		66	Rimouski	4.49 "	12.18 pm
103	Thomson	5.48 "		76	St. Luce	5.12 "	1.01 "
107	Oxford	5.57 "		84	St. Flavie	5.35 "	1.45 "
110	River Phillip	6.04 "		93	St. Octave	5.56 "	2.22 "
121	Spring Hill	6.29 "		103	Tartague	6.45 "	3.04 "
126	Athol	6.40 "		113	Sayabec	6.45 "	3.45 "
130	Maccan	6.50 "		120	Cedar Hall	7.18 "	4.14 "
138	Amherst	7.05 "		128	Amqui	7.48 "	4.47 "
144	Aulac	7.17 "		141	Causapsal	7.48 "	5.41 "
147	Sackville	7.24 "		156	Assametquaghan	8.19 "	6.43 "
159	Dorchester	7.54 "		166	Mill Stream	8.44 "	7.24 "
167	Memramcook	8.12 "		176	Metapediac	9.08 "	8.05 "
179	Painsec Junction	8.40 "		189	Campbellton	Ar. 9.40 "	9.00 "
187	Moncton	Ar. 9.00 "		198	Dalhousie	Lv. 10.00 "	3.15 a m
0	St. John	Lv. 5.00 pm		208	Charlo	10.21 "	4.20 "
89	Moncton	Ar. 8.57 "		214	New Mills	11.20 "	5.01 "
187	Moncton	Lv. 9.15 pm	12.15 pm	223	Jacquet River	11.20 "	5.26 "
195	Berry's Mills	12.32 "	6.03 "	232	Belledune	12.28 a m	6.40 "
206	Canaan	1.36 "	6.40 "	240	Petite Roche	12.28 a m	7.12 "
215	Coal Branch	2.15 "	7.12 "	252	Bathurst	12.28 a m	8.10 "
224	Weldford	10.41 "	8.10 "	265	Red Pine	1.20 "	9.13 "
235	Ferris	3.35 "	9.13 "	275	Bartibogue	2.10 "	10.29 "
244	Carleton	4.11 "	10.29 "	286	Beaver Brook	2.10 "	11.20 "
255	Barnaby River	4.55 "	11.20 "	296	Miramichi	2.23 "	11.41 "
259	Chatham Junction	12.03 a m	11.41 "	302	Chatham Junction	12.26 "	11.55 "
265	Miramichi	12.26 "	12.33 pm	306	Barnaby River	1.20 "	1.04 "
275	Beaver Brook	6.31 "	1.04 "	317	Carleton	1.20 "	1.44 "
286	Bartibogue	1.20 "	1.44 "	326	Ferris	3.40 "	2.15 "
296	Red Pine	7.57 "	2.15 "	337	Weldford	3.40 "	2.49 "
309	Bathurst	2.13 "	3.30 "	346	Coal Branch	3.40 "	3.30 "
321	Petite Roche	9.49 "	4.00 "	355	Canaan	5.00 "	4.00 "
326	Belledune	10.22 "	4.00 "	374	Moncton	Ar. 5.00 "	4.00 "
338	Jacquet River	3.21 "	4.00 "	0	St. John	Jv. 5.45 "	8.45 a m
347	New Mills	12.01 a m	3.15 pm	463	St. John	Ar. 9.30 "	3.15 pm
353	Charlo	12.25 "	5.45 "	374	Moncton	Lv. 5.45 "	6.05 "
363	Dalhousie	4.20 "	6.05 "	382	Painsec Junction	Lv. 6.05 "	6.33 "
372	Campbellton	Ar. 4.40 "	6.33 "	394	Memramcook	6.33 "	6.51 "
385	Metapediac	5.33 "	6.51 "	402	Dorchester	6.51 "	7.21 "
395	Mill Stream	5.58 "	7.21 "	414	Sackville	7.21 "	7.28 "
405	Assametquaghan	6.23 "	7.28 "	417	Aulac	7.28 "	7.51 "
420	Causapsal	6.58 "	8.09 "	423	Amherst	7.51 "	8.09 "
433	Amqui	7.28 "	8.18 "	431	Maccan	8.09 "	8.18 "
441	Cedar Hall	6.47 "	8.18 "	435	Athol	8.18 "	8.29 "
448	Sayabec	8.01 "	8.29 "	440	Spring Hill	8.29 "	8.55 "
458	Tartague	7.50 "	9.15 "	451	River Phillip	8.55 "	9.12 "
468	St. Octave	8.48 "	9.12 "	454	Oxford	9.12 "	9.29 "
477	St. Flavie	9.15 "	9.44 "	458	Thomson	9.29 "	9.44 "
485	St. Luce	9.33 "	10.14 "	465	Greenville	9.44 "	10.14 "
495	Rimouski	9.57 "	10.55 "	471	Wentworth	10.14 "	10.55 "
506	Bic	10.23 "	11.10 "	483	Londonderry	10.55 "	11.28 "
515	St. Fabien	10.45 "	11.28 "	488	Debert	11.28 "	11.48 "
525	St. Simon	11.05 "	12.00 n.	500	Truro	Ar. 10.55 "	12.00 n.
534	Trois Pistoles	Ar. 11.45 "	12.09 pm	508	Brookfield	Lv. 11.10 "	12.20 "
544	Isle Verte	12.05 pm	12.20 "	517	Stewiacke	11.28 "	12.24 "
552	St. Arsene	12.21 "	12.50 "	522	Shubenacadie	11.48 "	12.50 "
555	Cacouna	12.27 "	12.58 "	526	Milford	12.00 n.	12.58 "
561	Riviere DuLoup	Ar. 12.40 "	1.10 "	531	Elmsdale	12.09 pm	1.10 "
686	Point Levi, (Op. Quebec)	Lv. 7.30 pm	1.10 "	533	Enfield	12.20 "	1.10 "
843	Montreal	Ar. 6.30 a m	1.10 "	540	Wellington	12.24 "	1.10 "
1007	Ottawa	4.10 pm	1.10 "	548	Windsor Junction	12.50 "	1.10 "
1176	Toronto	11.15 "	1.10 "	553	Bedford	1.10 "	1.30 "
1407	Detroit	10.05 a m	1.30 "	561	Halifax	Ar. 1.30 "	
1691	Chicago	8.00 pm					

The Myth of Sandford Fleming

by Jay Underwood

Following our commemoration of the 125th anniversary of the opening of the Intercolonial Railway, we are pleased to present this very thought-provoking article by Jay Underwood. It suggests that quite a bit of the honour given to Sandford Fleming by historians may not have been fully deserved. Since Fleming was the Chief Engineer of the Intercolonial, and the author of the book from which considerable material for the article was taken, your editor feels that the two articles should appear in the same issue of Canadian Rail.

Even before his death in 1915, Sandford Fleming enjoyed a legendary reputation: creator of Standard Time, railroad surveyor, designer of Canada's first postage stamp, saviour of the Queen's portrait from a burning Canadian legislature building. Over the course of time, however, Fleming has been so lionized that this reputation has assumed mythological proportions.

Canadian popular histories are fond of heaping praise upon Fleming, especially in his role as the chief engineer of five railways: the Northern, Nova Scotia, Newfoundland, Intercolonial and Canadian Pacific, all of which added in their own way to the patina of his achievements, but which require a dispassionate, perhaps iconoclastic, examination to strip away some of the false lustre.

This homage ranges from the fanciful to the sublime, the latter being typified by Leonard Seton's article in the May 1958 edition of the *CRHA News Report*, now *Canadian Rail*:

"We must admire the part played by Sir Sandford Fleming in this achievement. Few public servants have displayed his scrupulous honesty and his conspicuous application to his duties. Nothing deterred him from advocating strongly and persistently, that which he knew to be in the best interests of the railway."

While Fleming's accomplishments may indeed be admired, deeper investigation will show that he was not altogether free of self-interest, and that he played the political game as adroitly as any of the popularly detested politicians.

The first of the myths about Fleming is that he came to Canada as a penniless immigrant. This was no Horatio



Sandford Fleming (1827-1915) as he appeared in the 1860s, about the time he began working on the Intercolonial project.

Alger story, indeed, he came from a wealthy family. He was born at Shirra Ha', on Glasswork Street in Kirkcaldy, Scotland, January 7, 1827. His father, Andrew Greig Fleming was a lumber merchant, and the younger Fleming was educated in Kennoway, then at Kirkcaldy where he articulated in surveying and engineering. A biography contained on the website of his hometown suggests he arrived in Canada at the age of 18, fully qualified, and with a patron waiting to receive him. Hugh MacLean's biography (*Man of Steel*, 1969) notes he received his surveyor's license in Montreal.

The second myth, albeit of little real significance to his reputation, was that Fleming was the champion of standard gauge track in Canada. This notion has been reinforced most recently in the CRB Foundation (now Historica) "Heritage Minutes" aired on Canadian television stations. In fact, Fleming only

surveyed one railway built on the standard (or Stephenson's) gauge, the Canadian Pacific.

The Newfoundland Railway was built on the three-foot-six-inch narrow gauge; the Northern, Nova Scotia and Intercolonial Railways were built on the broad "Provincial" gauge of five foot six inches. The Intercolonial was converted to the four-foot eight-and-a-half inch standard gauge in 1875, only after the Grand Trunk forced the change, when it converted its track to accommodate the interchange of U.S. rolling stock. The Northern Railway was converted in 1872, for much the same reason.

Strangely, for a man of such supposed forethought, Fleming was building the Intercolonial on the Nova Scotia gauge, even though English railways had changed to

Stephenson's gauge in 1846. The only major railway in Britain that did not change gauge at this time was the seven-foot gauge Great Western. That conversion was accomplished over a period of 46 years by running mixed gauges, to relieve the railway of the immediate capital expense of conversion. This same practice had been the policy of the Great Western Railway in Canada, which had been obliged by legislation to build on the "Provincial" five-foot six-inch gauge, but by necessity had to operate a mixed gauge to accommodate American traffic built on the Stephenson gauge. Fleming did not follow this course, and as a result, the Intercolonial was challenged in its infancy by the expense of converting its track, locomotives and rolling stock.

The Newfoundland Railway

It is convenient here to deal briefly with the Newfoundland Railway, which Fleming saw as vital link in his concept for an "All-Red Route" around the world, a global highway for the service of the British Empire. This concept was not Fleming's alone, but he was a vocal advocate, and forceful enough to convince British investors to back the first stage of construction in 1881. Harbour Grace was reached three years later, but by then it was apparent Fleming's interest was waning.

His participation diminished after the somewhat optimistic driving of the "last spike" in 1884 by the future King George V at Harbour Grace, and he moved on to promote his concept of standards time and a trans-Pacific telegraph cable from British Columbia to Australia.

It was left to the colonial government to complete the second section of the line, between Whitbourne and Placentia Bay. In 1889, contractor Robert Gillespie Reid - who had built difficult sections of the Canadian Pacific Railway north of Lake Superior - stepped in to salvage the plan, but even with Reid's determination the railway, which was intended to link Ireland to Canada via St. John's, was doomed. [although the main line did survive until 1988!]

Two contradictions of Fleming's reputation are apparent in the execution of the Newfoundland Railway's construction. The first is that he used the three-foot, six-inch gauge (the first locomotives were acquired second hand from the Prince Edward Island Railway) despite the fact Stephenson's gauge had become the "standard" gauge in Canada almost six years earlier, and the cost difference was accepted as being negligible. The second is that he did not use the gradual approach he had advocated as early as 1863 to ensure the railway would earn revenue while under construction.

In the appendix to his history of 1876, Fleming acknowledged that the flaw in his scheme was the effect of seasonal ice in the Gulf of St. Lawrence. In theory the route (although hardly what might today would be called "seamless") might have worked, but it was proposed at a time when the technology to break ice by ship was not sufficient to guarantee the route would remain in operation through the winter:

"This route would not be open for traffic throughout the whole year; during certain months, the direct course of steamers would be so impeded by floating ice, that it could not with certainty or safety be traversed. It therefore remains

to be seen whether the route has sufficient advantages whilst open, to recommend its establishment and use, during probably not more than seven months of the year."

This did not stop Fleming from despatching engineers to walk the ground in Newfoundland for a preliminary survey, one he paid for from his own pocket, employing another engineer since he was chief engineer of both the Intercolonial and Canadian Pacific at the time. The result of that survey came back to line Fleming's pocket in the form of a contract for further exploration at government expense. The Newfoundland railway was a venture that never fulfilled its Imperialist destiny, and became something of a comic oddity until its eventual abandonment in the 1980s.

The Northern Railway

Fleming is also given a great deal of undeserved credit for the Northern Railway, the first operating railway in Upper Canada, the construction and operation of which was launched with great political hoop-la. Its first chief engineer was H.C. Seymour, who was dismissed for his unscrupulous financial and political activity, not to mention his slipshod engineering. Seymour was replaced by Frederick William Cumberland, who oversaw completion of the project, when the railway opened in 1855 with royal participation.

It was Cumberland who paved the way for both Fleming and Schreiber, as John Thompson's 1974 history for Parks Canada notes:

"Cumberland recruited a staff of bright young engineers which included Sandford Fleming and Collingwood Schreiber... Together they pushed the work of construction and location ahead rapidly."

The work was perhaps too hurried, as Thompson goes on to observe:

"The Ontario, Simcoe and Huron, with its wooden bridges and culverts, its scanty ballast and its numerous curves, was typical of American railroads of the time and was far from the standard of British lines."

It is at this point that the myth of Sandford Fleming is exposed, for it is apparent that even though he succeeded Cumberland as chief engineer in 1855, little was done to improve the line's condition until after Cumberland returned in 1859. By that time the railway had proven to be unprofitable, and it was Cumberland who turned to a protegee for help. Thompson notes:

"Acquiring British capital, Cumberland rebuilt the line, "which had fallen into great dilapidation," and replaced the wooden structures with stone culverts and iron girder bridges."

In their 1871 survey of the financial and physical state of Canada's railways, John and Edward Trout noted the Northern Railway needed more than \$250,000 in repairs and debt retirement when Cumberland came out of retirement, most of it apparently liability incurred during Fleming's tenure as chief engineer.

Schreiber was instrumental in the revival. His biography mirrors that of Fleming. Born at Bradwell Lodge, Colchester, England in 1832, Schreiber came to Canada at age 20, a formally trained engineer. Shortly after his arrival

he went to work on the Hamilton and Toronto Railway, until the completion of that project. He went into private practice in partnership with Sandford Fleming and another engineer named Rideout, until 1866 when, as the *Cyclopedia of Canadian Biography* (1886) noted:

"...he entered the service of the Northern Railway of Canada, where he was employed making a restoration of the works upon the line."

In the same era (1860), Fleming had cultivated friendship with the influential British politician, the Duke of Newcastle, who had ridden the Ontario, Simcoe & Huron, as chief of staff to the Prince of Wales, who was visiting as representative of Queen Victoria. This association led directly to Fleming's appointment as the chief engineer of the Intercolonial, but not before he launched his next enterprise; a proposal to build a railway link from Upper Canada across the prairies to British Columbia.

Again, Fleming was not the first to make such a proposal, but his memorial from the people of the Red River settlements (the area that would later become Manitoba) stirred a great deal of interest in Canada and London.

What is clear from Fleming's involvement with the Northern Railway, is that while his engineering achievements were less than stellar, it was an important aspect of his personal "learning curve," an experience that would teach him much about the limitations financing places upon an engineer's ability to execute the work necessary for the efficient and profitable operation of the line. Some of these tenets would find their place in his next great project.

It was while he was in London presenting the Red River memorial to the Imperial council, that Fleming was considered as the chief engineer of the Intercolonial. Originally the railway was supposed to have been engineered by committee, with Canada, Westminster and Nova Scotia-New Brunswick each selecting a representative to oversee their interest in the venture.

Whether by happy coincidence or design, Fleming's name came up as a candidate for each of the parties, and so he became the sole and unanimous choice. In his history of Canadian National, G.R. Stevens suggests this was because...

"It was manifestly impossible for the Maritimes to find a representative of the calibre of Fleming."

This is almost certainly false, and another example of how historians have lionized Fleming, and exaggerated his abilities. Indeed, quite aside from myriad British engineers who were easily the equal of Fleming, the Maritime colonies could have offered the names of Alexander Luders Light, George Wightman, or Collingwood Schreiber.

Light was another British-born engineer, who came to Canada at a young age and learned his trade formally (he was a classmate of Sir John A. Macdonald at the Royal Grammar School, Kingston.) His railway experience included time with the Great Western Railway, the St. Andrews & Quebec Railway, the Nova Scotia Railway, the European & North American Railway, the Quebec, Montreal, Ottawa & Occidental Railway, the Quebec & Lac St. Jean Railway, and the Santos & Sao Paulo Railway in Brazil.

In 1863 he was elected as a member of the prestigious Institute of Civil Engineers in London, and in 1869 he was placed in charge of the Miramichi district of the Intercolonial, probably the most difficult of all the sections of the line.

Wightman was a Nova Scotia-born, self-trained engineer who had authored a two-volume treatise on the construction of roads, in which Nova Scotia was considered a leader in North America. He participated in Robinson's survey for the Intercolonial, on the Whitehaven route between Canso, N.S. and westward to the New Brunswick border, and for the Nova Scotia government in locating the Windsor branch of what would become the Nova Scotia Railway. He also participated in the St. Andrews & Quebec Railway project with Light.

Both Light and Wightman were familiar with the geography of the Intercolonial route.

In agreeing to Fleming's appointment as representative for all four parties, the Duke of Newcastle, then colonial secretary and a patron of Fleming's from the opening of the Northern Railway, said:

"It is agreeable to me to feel that by selecting Mr. Fleming as the combined representative of Her Majesty's Government and of the North American Provinces especially interested in this important subject, much delay has been avoided, and that the wishes of your Government for the immediate commencement of the survey have, as far as this appointment is concerned, been complied with."

These words would come back to haunt the Intercolonial's development, as Fleming's determination to include a Newfoundland route, and his stubborn refusal to use anything but iron bridges where he deemed them necessary in fact caused some significant delay.

The Pictou Branch

In order to facilitate Fleming's survey of the Intercolonial from Truro, N.S. to Rimouski in Quebec, he was hired as the nominal chief engineer of the Nova Scotia Railway, which had been built by that province to link Halifax with New Brunswick's developing rail system. At the same time, the province was extending the railway from Truro to the rich coalfields of Pictou County, and Fleming forged another piece of his reputation on what became known as the Pictou branch.

This branch did not get off to an auspicious beginning. The original contractors got into financial trouble early in the project, and in his anxiety to get it restarted with a minimal amount of disruption, Nova Scotia's Joe Howe, chief political architect of the railway (and chairman of the railway commission) agreed to let Fleming take up the contract privately. In this respect, Howe got agreement from Nova Scotia Premier Charles Tupper, a name that will become significant later. As a result, Fleming resigned his position on the Nova Scotia Railway (although still chief engineer of the Intercolonial).

Finishing the project on the promised deadline of May 31 1867, and under the original budget estimate, Fleming strengthened his reputation as builder of the "finest half hundred miles of track" many engineers professed to

...Fleming paid off unsatisfactory contractors and took over their work, but where he found work being done well he left it in private hands and in some instances placed fresh contracts. He erected comfortable quarters for his workers and roofed over bridge sites, approaches to tunnels and cuts so that construction might continue throughout the winter. He strung telegraph wire along the right-of-way to keep a check on the daily tasks. He procured two steam excavators which did the work of many men and he opened quarries instead of relying upon casual rock for his masonry. He doubled his force of masons and stone-cutters during the winter, when ordinarily they were unemployed, thus obtaining them at cheaper wages. He introduced many innovations in connection with the drainage of subsoils and of the roadbed; he devised new types of bridge seats and abutments and he invented a scabbard rail joint which may have been the ancestor of the fishplate today.

By the end of 1866 twenty-one miles of line, from Truro to West River, were open for traffic. On the specific date the entire fifty-two miles of line were in operation. Before handing it over Fleming insisted that his work be inspected by independent engineers. They praised it highly. The completed cost of the Pictou branch, including payments made before Fleming came on the scene and the costs of its rolling stock, came to \$2,321,577, from which it would appear that Fleming made little if any profit on his contract."

Stevens indirectly acknowledges that Fleming's attention was really elsewhere, when he notes:

"He was a man of heroic mould, vivid imagination and great adaptability. He was interested in everything. His vigour was astonishing; in a single year he covered more than twenty thousand miles in New Brunswick."

The year of this epic trek through New Brunswick is significant, since it coincides with the time he was also, nominally, engineer of the Pictou branch:

"On receiving his instructions in February 1864 he struck off with characteristic impatience into the New Brunswick wilds, making light of the bitter winter weather."

Schreiber went on to follow, equally unheralded, in Fleming's footsteps, as the *Cyclopedia of Canadian Biography* noted in 1886:

"When the construction of an Intercolonial Railway through Nova Scotia and by the seaboard of New Brunswick was decided upon, there was no hesitation in considering that Mr. Schreiber was eminently qualified for the work of surveying a portion of the route, he was, therefore, in 1868, appointed by the Dominion government to take charge of the surveys of the Intercolonial route, via Lake Temiscouata."

By this time, Schreiber was beginning to wear as many hats as had Fleming, for in 1869 he was also appointed chief engineer of the Eastern Extension Railway, linking the European & North American line at Painsec, N.B. with the Intercolonial at Amherst.

Two years later (1871) he became the superintending engineer and commissioner's agent for the entire length of the Intercolonial Railway, Fleming having moved on to the nascent Canadian Pacific Railway project, his Intercolonial route nearly following the original course

charted in 1848 by Major William Robinson. It was during this period that Schreiber was left to deal with another aspect of Fleming's fame, the protracted battle over what has been called "The Grecian Bend," a sweeping arc of track over Nova Scotia's Folly Mountain that saw Fleming fight a pitched political battle which reveals a further flaw in his character.

Fighting the Squire

Whereas history has treated Fleming kindly, it has been less than kind to John (or James) Livesey, the self-styled "squire" with whom Fleming quarrelled over the course of the Intercolonial as it attempted to climb the Cobequid Mountains between Truro and Amherst, N.S.. Livesey was the owner of an iron mine at Londonderry, N.S. and his lobby to have the railway pass by his operation devolved into an outright war between his political allies and the chief engineer.

Indeed, Fleming explains his side of the affair in some detail in his 1876 history of the Intercolonial, but Livesey's side of the argument has never been made as clear. Judgement may have been rendered against him based solely upon Fleming's version of events, and the perception of Londonderry as it has been since the mines closed in 1906.

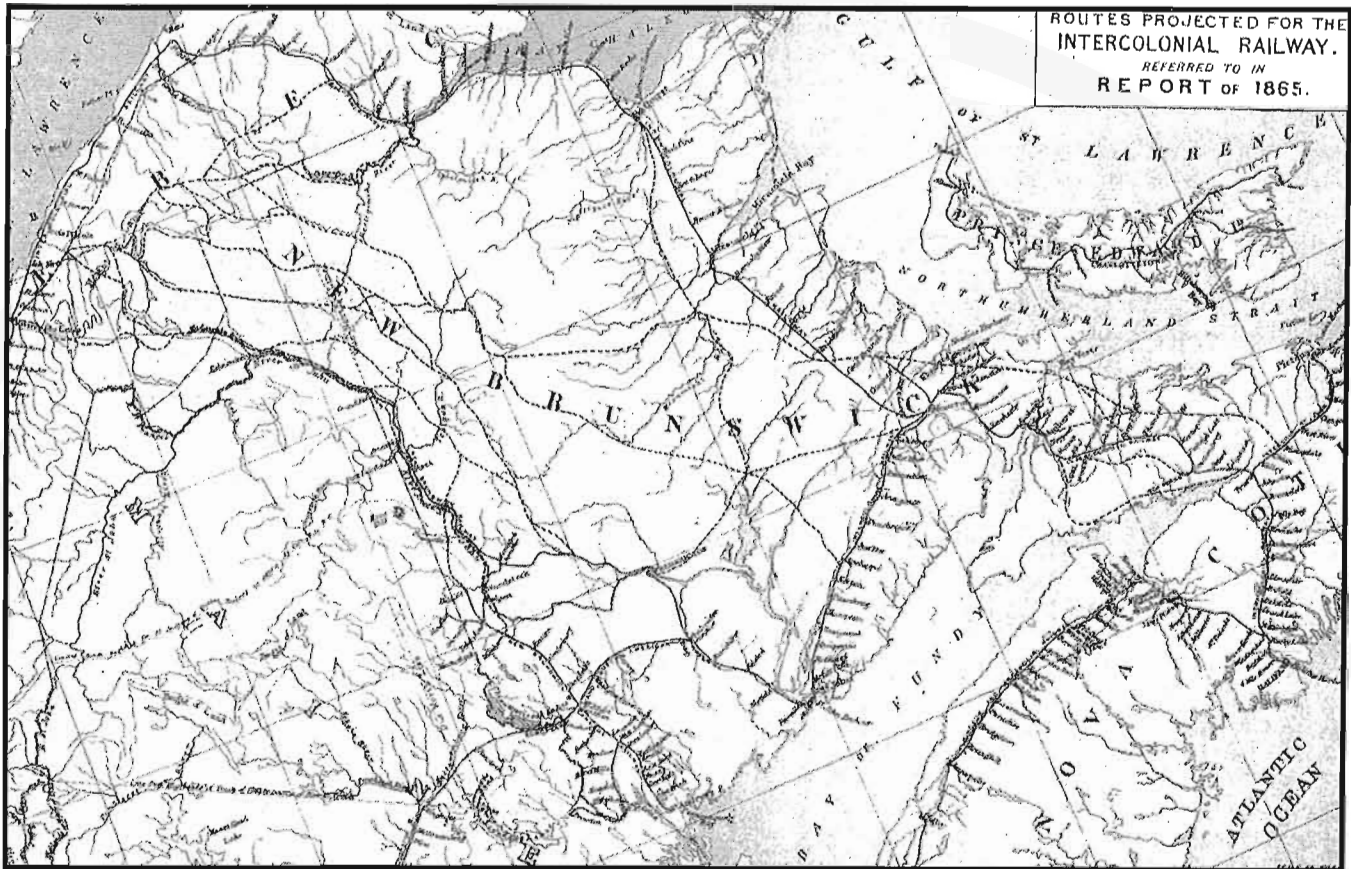
Fleming's account is included here in its entirety so that it cannot be suggested his version was unfairly stated:

"During the period that the location through New Brunswick was the matter of daily debate, the course of the line in Nova Scotia was also discussed, with equal warmth and pertinacity; more especially that portion, some thirty miles in length, in which the mineral districts adjoining the Cobequid mountains are included. The chief promoter of these discussions was Mr. John Livesey, who represented the Londonderry Iron Mines, and who for more than four years never ceased to put his views forward.

From the time of the survey made in 1864, Mr. Livesey continually urged, both privately and officially, the importance of locating the railway on a route passing close to the furnaces of the Iron Mines in which he was interested.

Four different routes between Truro and a point of junction on the railway from Saint John to Shediac were examined and reported on; one was far to the east, another was far to the west, two were central. By combining parts of these central routes, two other routes were compounded. Of the two central routes, one was essentially the same as that recommended by Major Robinson in 1847. The other was similar to that advocated by Mr. Livesey. It was by a combination of the two that the route called "Line 6" was formed, to cross the Cobequid Hills by the pass at Folly Lake and to descend by the northern slope of the Hills towards Amherst. It was held that this line would best accommodate all interests, having primary regard to general convenience.

In 1865, the Government of Nova Scotia directed Mr. Fleming to report on the best route from Truro to the boundary of the Province. In June of that year he recommended that a central route should be adopted. From commercial considerations, a central route appeared to him the most important, as it would accommodate the Iron



The rival routes as printed in Fleming's 1876 history of the Intercolonial.

District on the Cobequid Range, and open up the Springhill coalfield. He was accordingly instructed to proceed with the location of the most eligible line on a central route.

The working season of 1865 was occupied in surveys. Every pass across the Cobequid mountains, within the limits of the iron district, was examined, and every effort was made to secure a practicable line near the Iron works. Six lines were surveyed, designated by the letters A, B, C, D, E, F.

The first kept the southern slope of the Cobequid Mountains, crossing the Folly River and the two branches of the Great Village River, passing immediately on the South side of the Acadia Iron Works. Afterwards it turned northwards, and crossed to the north side of the hills by a gorge, known as Madison's Brook, and by Isaac's Lake on the summit, 686 feet above sea level.

The line B passed close to the Acadian Iron works, thence turning northwards it followed the Great Village River, on which the works are situated, to the summit at Sutherland's Lake, where the elevation is 745 feet above sea level. Lines C, D, E and F all passed by Folly Lake, where they attained the summit level of 590 feet above sea level. Of these lines, B was the shortest, but had the most objectionable grades. F was second in point of length, and had the most favourable grades. A was fourth in point of length, and second in favourable grades.

Line A, passing close to the Acadia Iron Works, was advocated by Mr. Livesey. The Chief Engineer, on the

contrary, gave it as his opinion that, in view of its engineering features, he would not recommend it for adoption.

The Engineer considered that lines A and F would equally well accommodate the Springhill coalfield; that though F would not accommodate the then existing iron works so well as A, it would equally well accommodate any extension of the works, and give much better accommodation to the traffic of the villages of the Gulf coast. He showed also, that, although Mr. Livesey had in some of his letters endeavoured to convey the idea that line F "just skirts the eastern edge" of the ore district, a former manager of the works had conveyed the impression that the ore deposits were equally on each side of F, and that they extended over a large area in both direction.

Other evidence of the same import was furnished by a map and pamphlet, issued some years previously in the interest of the iron mines, which contained reports of several mineralogists and mining engineers. One of these writers expressed his opinion that east of the Folly River there were deposits of ore sufficient to produce from 20,000 to 24,000 tons of metal annually, while the works at that time situated to the west of Folly River were only capable of producing about 2,000 tons per annum. It was, however, possible to extend them so as to produce from 10,000 to 12,000 tons per annum. The map accompanying the pamphlet showed the "proposed site of new works," one on the Folly River, and another on Pine Brook, two miles east of Folly River.

It could not therefore be maintained that the route F, by Folly Lake, would not extend ample accommodation to the mineral region.

In August, 1865, a contract was entered into between the government of Nova Scotia and New Brunswick, on the one side, and the Intercolonial Contract Company of London, on the other, for the construction of the railway between Truro and Moncton. The Government of Nova Scotia, having in May, 1866, received the report of the Chief Engineer, endorsed his views in reference to the Folly Lake route, Line F, and refused to sanction the construction of this portion of railway under the contract which they had made with the Intercolonial Contract Company, unless the Company adhered to line F.

The members of the Nova Scotia Government were personally on friendly relations with Mr. Livesey. And, as that gentleman took every opportunity of enforcing his views, the members of the government were fully informed of the importance of the iron works, and of the expediency of selecting a route as favourable to them as the general interests of the country would permit.

After Confederation the Chief Engineer received instructions from the Dominion Government to locate the line from Truro to Moncton. At this time the Dominion Ministry had Mr. Fleming's report of May 1866, approved of by the Nova Scotia Government. The marked feature of these instructions was that he should adopt the most eligible line, giving due weight to the cost of construction, cost of future working and management, and also to general interests.

From the above facts it is evident that no course was open to the Chief Engineer other than to follow the line designated F.

But Mr. Livesey was not satisfied with this course, and in September, 1867, he addressed a letter, enclosing a copy of the correspondence, to the then Minister of Public Works, and in consequence the Chief Engineer was instructed again to consider the case between the two routes with regard to:-

1st. "The local traffic likely to be obtained by these lines respectively."

2nd. "The development of natural sources of wealth in the vicinity of those lines respectively, by reason of their construction."

In September, 1868, the Chief Engineer accordingly reported on the rival lines A and F, and showed that the line F was preferable to A under the considerations of length, cost of construction, grades and curves, and consequently in cost of future working and management. Although the line, as located, crossed and passed near to valuable deposits of iron ore, it did not run sufficiently near to the iron works to be of full service without the construction of a Branch, some 7 miles long.

The cost of construction of line F and a branch would be considerably less than that of line A, without adding to A for the extra cost of working it. It was of importance that the iron works should have the benefit of railway service, and it was desirable that the earliest possible connection,

consistent with general interests, should be made with them and the Springhill coal mines. It was considered that line F and a branch to the iron mines would also extend a connection with the coal mines, so much more favourable for cheap transport than line A that it would prove to be the most economical route for mineral traffic.

The decision arrived at was based on a comparison of the lines. Line F passed over a summit 100 feet lower than that crossed by Line A; it was the best, the shortest, and, even including the branch to the iron mines, the cheapest, and was therefore entitled to the preference. A combination line was mentioned as having been traced on new ground between lines F and A. It was four miles longer than line F but reduced the branch from seven miles to three. In the comparison, the Engineer considered the combination line second in point of merit, to line F, and in his opinion line A was the least favourable of the three.

On the other hand Captain Tyler, Government Inspector of Railways, England was applied to by Mr. Livesey, and reported in July 1868, that in his opinion, taking into account cost of construction, working over the super-elevations, counter gradients and the curves on steep gradients, line A would be considered cheaper than line F; that the construction of line F instead of A, from every point of view, to be great mistake; and that the manufacture of iron in a cheap form by the use of Springhill coal was of so great importance that "such an obstruction to the development of such resources, as the construction of line F when line A is available and less costly, would be nothing less than a general misfortune to the industrial interests of the Dominion."

In replying to this letter of Captain Tyler, the Chief Engineer stated that he was satisfied that Captain Tyler, and Mr. Atkinson who had worked out the calculations for Captain Tyler, were not in possession of all the information which the survey afforded, and therefore that their conclusions, based on imperfect data, could scarcely be correct; and he repeated that without capitalizing the extra cost of working line A, this line would cost, in construction alone, about. \$100,000 more than line F with a branch to the iron mines; that line F was the cheapest to operate, the shortest, and as far as he could judge, the best in every respect.

During the months of September and October, 1868, Mr. Livesey had test pits sunk in nineteen cuttings on line A, which had been assumed in the Chief Engineer's estimates as either wholly or almost wholly rock, and he reported that a very large deduction should consequently be made from the estimated cost of line A. This deduction was at once made by the Chief Engineer; but nevertheless he saw no reason to make any material change in views he had expressed, and he maintained that although line A had been surveyed, tested, revised and improved by repeated trial surveys, it remained substantially as it had been described by him, and that it was his deliberate opinion that, taking the two lines as they were then represented by plans and profiles, line F was capable of doing, at the same cost of working expenses, at least ten per cent more business than line A, and that no improvements could be made in line A

that would materially lower the cost of working, without at the same time greatly increasing the cost of construction.

Other parties took part in the discussion, amongst whom were the Honourable R. B. Dickey, the Honourable A. W. McLelan, afterwards one of the Railway Commissioners, Mr. Morrison, M.P.P. for Colchester, and Mr. Purdy, M.P.P. for Cumberland.

Notwithstanding that the Government of Nova Scotia had, in 1866, endorsed the views of the Chief Engineer with regard to line F, the Executive Council of Nova Scotia, on 3rd. August 1868, passed a Minute, which was approved by His Excellency, the Lieutenant Governor, to the effect that in the interests of the Province, the location of line A should be adopted in preference to that of line F.

It was stated by one of the gentlemen referred to, in a letter dated 21st. September 1868, that this Minute of Council, though passed on 3rd. August, was not communicated to the House of Assembly until 15th. September, and that the House of Assembly was indignant at the action of the Government. Three days afterwards the House of Assembly passed a resolution in favour of the Folly Lake route, line F.

A few days after the passing of this resolution, the Chief Engineer, by request of the Government of Nova Scotia, met the Members of Council at Halifax. There were, however, only three members present. After hearing full explanations, they concurred in the views of the Engineer with respect to the adoption of line F, and freely told him to state to the Dominion Government the result of the interview. They further intimated that they would make a Minute of Council, expressing their concurrence, but that they felt themselves precluded from doing so by the minute which they had previously been induced to pass, without sufficient knowledge of the facts.

The controversy was carried to Ottawa. One Nova Scotia gentleman, in pressing his views on the notice of the Secretary of State for the Dominion, drew attention to the claim advanced on behalf of the iron mines with respect to the large capital invested by the company, and met this claim by saying that the people in the villages on the Gulf coast had invested infinitely more capital in building wharves, clearing lands, building roads, bridging streams, opening stone quarries, building ships, working copper mills, and that they were at that time employing more men, developing interests of more read and lasting benefit, and contributing more to the Dominion revenues, than the mining company. He contended that all this population, which he estimated at 10,000, should not be forced to pass over 12 miles more of mountain roads to get to the railway, because the Mining Company had located their works on the least eligible route.....

By a letter of 6th November, 1868, the Government notified the Chief Engineer that "the combination line" had been finally adopted, and directed him to proceed with the location measurements in accordance with that decision.

Thus the controversy was ended; and hence arose that gigantic and conspicuous sweep which the railway traveller will observe on the southern flank of the Cobequid Mountains, where the line describes nearly half a complete

circle. So marked is this feature in the location that the popular voice has applied to it the term "The Grecian Bend", which, possibly, may be retained so long as the railway endures."

This account, however, involves some rather disingenuous arguments by Fleming, not the least of which was his determination to focus upon the location of the iron ore reserves, rather than the foundries from which the finished product would be shipped by rail. In fact, as Fleming notes later in his history of the railway line, the Squire built a three-mile branch from Londonderry Station to the mines and foundry, at his own expense. Livesey later incorporated the Acadia works as the Intercolonial Foundry, a major supplier of railway related items such as wheels and axles, etc. The Intercolonial Railway was a major customer before the line was even finished. In 1871, Livesay's foundry was awarded a contract to supply the railway with 60 platform cars (flat cars) at a cost of \$580 each.

The foundry operated five of its own locomotives, including a 36-inch gauge 0-4-0 Baldwin, and a 4-4-0 Schenectady engine that ran until at least 1903.

Fleming's claim that political forces were unfairly arrayed against him was also flawed. It is clear that he had his own network of allies within both the Nova Scotia Assembly and the Imperial government. What he may have found most galling about this confrontation, however, was that the squire's allies triumphed over his own, and that Livesey was able to do an "end run" by contacting Captain Tyler. The British Board of Trade's railway engineer, Tyler was an acknowledged expert in his field, so much so that he was invited to inspect the Erie Railway (in 1874), and later the Turkish and Russian railways. A.W. McLelan, coincidentally, was the legislative representative for, and a resident of Londonderry. The others singled out by Fleming were the elected members of the neighbouring ridings. R.B. Dickey was a Father of Confederation. Dickey's son, J.A. Dickey was an assistant on Fleming's staff.

Also missing from Fleming's version are some basic facts in favour of the squire. His iron mine and foundry was no penny ante affair. Nova Scotia government documents note that the Londonderry deposits were the most extensive in Canada from their inception in 1847 to the foundry's closing in 1906. Iron was also a strategic mineral, seen as vital to the economic and military well being of both the Dominion and the Empire. (Thomas Chandler Haliburton, who was admittedly given to exaggeration on occasion, sang the praises of the local iron as an excellent material for the casting of cannons). The squire's operation would become one of the first sites in Canada to experiment with the use of the Siemens process for smelting steel, and in this venture he was defeated only by the foundry at Trenton, N.S. in 1883.

At the same time, Londonderry was not the sleepy hamlet that passengers on VIA Rail's *Ocean Limited* train see today. As a result of the squire's mines, the community would have a thriving population of more than 1,500 people. It was a sizeable township even before the days of the Intercolonial survey, as Joseph Bouchette's 1831 survey *The British Dominions in North America* would note:

"There are seven small villages in this township, in which are six grist-mills, five saw-mills, two carding and two oat mills..."

Given such an economic base it would have made sense to connect Londonderry to a railway that was already being built amid criticism it would never be a commercial success.

Fleming's concern in the affair, aside from being able to have his way with the route, appears to be the necessity of having the railway go directly to the coal fields at Springhill, which were then in operation with much promise. This seems to be a sensible commercial consideration for the railway, but what historians who laud his honesty neglect to note is that Fleming was a shareholder in the Springhill mines and his concern appears to be one of self-interest.

William Morrow's history of Springhill, published after the disaster of 1891, records that Fleming was "among the largest shareholders in this company," being the Springhill Mining Company, Ltd., incorporated at Saint John, N.B. in 1870. R.B. Dickey's name also appeared on the list, as did that of another important political ally, Alexander MacFarlane, the conservative senator from Wallace, N.S., who was president of the company:

"These gentlemen owned from one hundred to nearly one thousand shares each."

This incorporation took place two years before the Springhill and Parrsboro Coal and Railway Company, Ltd. had completed its line from the mines to the Intercolonial at Springhill Junction. By happy coincidence, the company was formed at a time when wood was being phased out as the fuel of the railways, as Leonard Seton noted in his May, 1958 essay in the *CRHA News Report*:

"In 1869, it was reported that six locomotives in New Brunswick had been using coal as fuel for some time, and that it had proved a success. It was intended to equip gradually all of the motive power to burn coal."

This move alone improved the profitability of Nova Scotia mines, which were then facing markets in the U.S. hampered by high duties imposed by the Americans to protect their coal mines in Pennsylvania.

The Intercolonial, by the squire's line, would also pass by the coal mines of Debert which would have afforded the foundry a more accessible source of coal, in competition with the mines in which Fleming had a vested personal interest.

The Nova Scotia government's interest in seeing Livesey's mine serviced by the railroad also points to the importance of the operation, as evidenced by the provincial mine inspector's reports of 1872 and 1873, which note:

"(1872) I am indebted to the courtesy of Mr. Livesey the resident director, for facilities afforded me of examining the property and works of the Intercolonial Iron and Steel Company. Numerous excavations made along the outcropping of the vein, which has been traced for 12 miles in a direct line, have proved the existence of a series of valuable deposits of ore, but the principal mining is on a portion of the vein about two miles from the works, where an adit lately driven 240 feet below the back of the vein

intersects a body of ore as extensive as any cut nearer the surface. Hence the supposition hitherto generally held that this vein was similar in character to the "gash veins" of Missouri would seem to be incorrect, and the probabilities are that the vein carries productive ore to depths which will not be reached for many years to come.

The difficulties connected with the transportation of supplies which have hitherto greatly retarded the growth of the iron business at Londonderry having been in a measure removed by the opening of the Intercolonial railroad, the development of this important industry may now be expected to progress with rapid strides."

"(1873) Neither of the established iron works were kept fully employed. The Intercolonial Iron and Steel Co. reduced their production pending the transfer of their property to a new company who, it is expected, will erect furnaces on a part of the estate adjacent to the Intercolonial Railway where coal and coke can be readily obtained from the collieries of Spring Hill and Pictou."

The other mine mentioned in the 1873 report was in the Annapolis Valley, but the Squire's mine, still referred to as the Acadia mine, was the largest in the province, and at that point employing only 26 men (this figure does not include foundry employees), producing 2,947 tons of ore, of which 2,091 tons were smelted into 1,046 tons of pig iron. The company to which Livesey transferred his interest was the Canada Steel Co, again acknowledged by Fleming, almost unnoticed, at a later point in his history of the line.

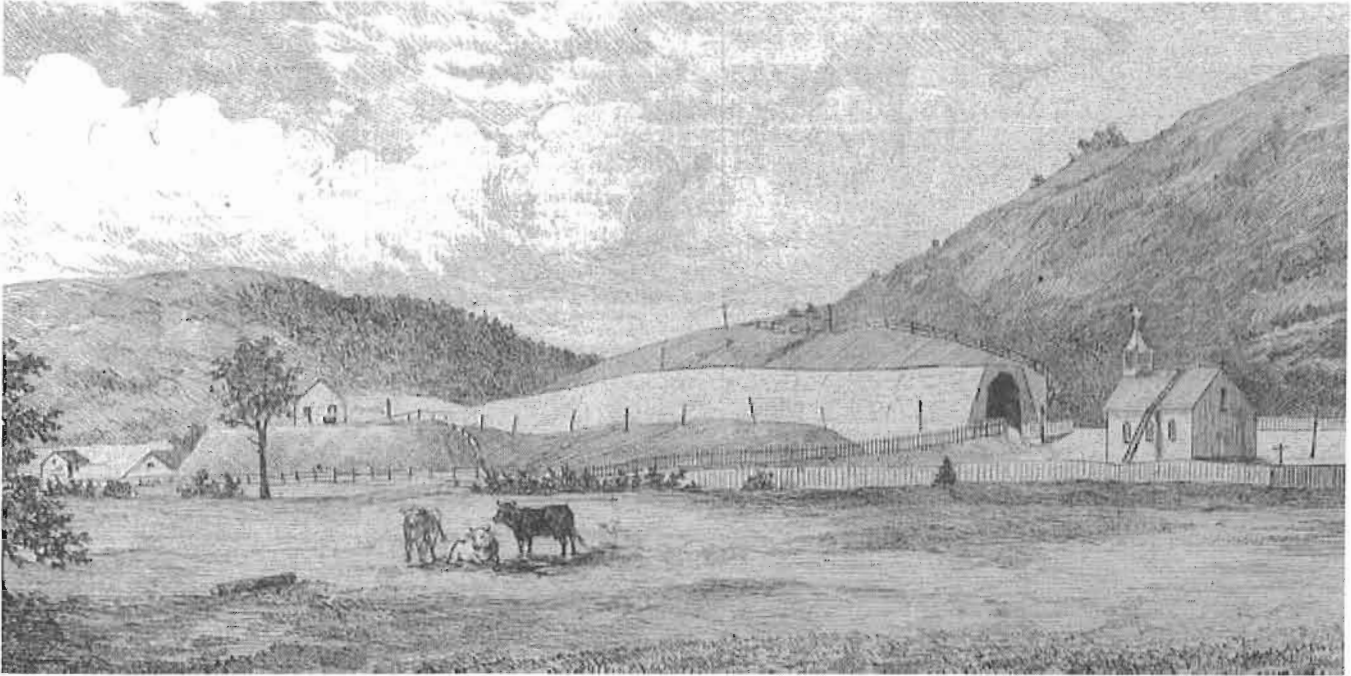
Interestingly, by the time of the Trout report in 1871, Livesey was advertising the Intercolonial Iron and Steel Company as the source of the "best charcoal cold blast iron," for "Railway, Colliery & Street Car Wheels of superior quality," and noted that it would shortly be ready to supply cast and spring steel "of the very finest description."

This is not to suggest, however, that Livesey's machinations did not have an adverse affect upon the Intercolonial's bottom line. Construction of that part of the railway which passed by the squire's mines was begun by the firm of Sumner & Somers, but the contractors, International Contract Co., ran into some significant financial trouble, forcing the Dominion government to take over the work in 1872, using day labour, and incurring a budget overrun of more than \$105,000. The resident engineer was William Hazen, until Schreiber took charge as division engineer in 1871.

Stevens' version of the events does nothing to vindicate Livesey:

"The International Contract Company turned out to be the creature of James Livesey, proprietor of an iron works on the southern slopes of the Cobequid Mountains. He was a man of substance and influence, backed by strong British interests, a stubborn fighter and fertile in expedients."

The animosity between Fleming and Livesey appears to have become deeply embedded in the culture of the Intercolonial at an early age, as evidenced by this reference in the *Halifax Morning Chronicle* of October 11 1872, describing the first train excursion over that section of the line:



One associates snowsheds with railways through the western mountains. However Fleming was very familiar with snowsheds long before the CPR, for the Intercolonial had them too. This one was near Metapedia. Below is the interior of the structure. Based on sketches by Rev. T. Fenwick. Courtesy of the New Brunswick Museum.

"The curve in the road known as the "Grecian Bend" was pointed out to us as we passed along. This is deviation ordered by the Dominion Government at the insistence of a little man in Wallace who managed to make them believe that he was an important personage, and by which the road is taken from the Acadian Iron Mines, by which it should have run, and carried in an almost circular bend into the mountains, through a tract which naturally offers great obstacles to a railroad. And increases the length by several miles. This deviation, together with those in the interest of Spring Hill and Roche's Landing, make the railroad 14 miles longer than the old post road."

What is interesting about this account is the ignominy heaped upon Livesey, the "little man," while Fleming's interest in the Springhill mines, and Tupper's interest in the Roche's Landing property (acknowledged earlier in the account), pass without similar comment. It is probable this biased observation was given to the journalists by H.A Gray, the engineer in charge of the section of the line from Truro to Folly River, as the *Chronicle* notes:

"The last named gentleman was a valuable addition to the party, especially to the journalists, who had occasion to call on him frequently for information regarding the road, which he cheerfully gave."

Ironically, railway commissioner A.W. McLelan, one of Livesey's most important political allies - and one of Fleming's political masters - departed from the train at the Folly bridge and went on his way home, spared the caustic comments reserved exclusively for Livesey. It may be the Chief Engineer's greatest accolade that he inspired such loyalty in his subordinates.



Another flaw in Fleming's nature, demonstrated by the events surrounding the Grecian Bend, was his unwillingness to take orders from his political masters, something he had never had to do before, even as chief engineer of the Nova Scotia Railway, and as contractor on the Pictou Branch. Indeed, his stipulation upon taking the Pictou railway contract was that Tupper give him a free hand to operate as he saw fit.

Fleming's legendary frugality and his obsession with the perfect construction of his railway appear to be contradictory, given the principle he espoused in his 1863 memorial from the people of the Red River settlements to the Imperial government just months before he became chief engineer of the Intercolonial. In the memorial he noted:

“Rather than indefinitely postpone the advantages of a steam communication Canada and the Atlantic Provinces by attempting to secure as heretofore the precipitate construction of nothing less than a fully appointed Railway, would it not be more prudent to satisfy ourselves with a scheme which promises at first a road of less perfect character, and leaves the Railway and its sources of traffic to be built, up by a gradual process? This policy not only appears to be that most likely to secure the desired objective within a reasonably short period, but it seems most in harmony with the gradual development of a country from a wild and unoccupied condition, and equally in keeping with the state of the Public Finances.”

At some later point he appears to have significantly altered his philosophy on the ability of the public purse to finance his projects, as indicated in his 1876 history of the Intercolonial. Speaking to the need for a high standard of construction, he observed:

“When a line is carried out by private effort, a circumscribed capital may compel the adoption of cheap structures. In such cases it is not the character of the structure, or its economy which commends itself; but it is the necessity of the case, which limits its cost. A railway constructed to meet a national requirement, and situated like the Intercolonial, is controlled by no such limitation.”

This epiphany may have been brought about by his substantial personal financial interest in the Springhill mines, but he was not alone in what - by today's standards - would be judged to be a serious conflict of interest. Sir Charles Tupper, who by this time had advanced in political status from premier to the Dominion's first minister of railways and canals, had his own financial interests in Cumberland County coal mines, and that interest led to a second loop of track near the New Brunswick - Nova Scotia border.

The Red River Memorial also established another keystone in the legend of Fleming's frugality, when he espoused the concept of the gradual construction of a railway on cautious economic principles:

“Railways are not only the most perfect of roads, but they are also the most costly, and although they have unfortunately in too many instances proved too costly, this cannot detract from the inherent merits of a means of communication, the most perfect yet successfully attempted. In order to diffuse the benefits of railway service as widely as possible, by extending these works to new fields, it will be necessary to consider every means which may possibly effect a diminution in their cost. In this connexion the economy of first laying down a Territorial Road and converting it not too speedily into a Railway may be noted, as there are some features connected with this system of gradual construction which have an important bearing, not only on the establishment generally of lines of steam communication through new districts, but particularly on the project of connecting Canada with the Atlantic Provinces by an Intercolonial railway. Suppose, by way of illustrating in a few words the point now referred to, that a line of railway 1,000 miles in length is to be constructed through an unsettled or only partially settled country; it is not viewed

as an investment for capital, but purely as a National undertaking, and its cost has to be paid out of the Public Treasury. Two plans, Nos 1 and 2 are presented. By plan No. 1, a capital of \$50,000,000 has to be raised by a loan say at 6 per cent, and the work carried out by an expeditious manner in the usual way. Plan No. 2 is the one herein recommended, and to simplify the comparison, it is pre-determined to expend annually a sum exactly equal to the interest on \$50,000,000, or say, \$3,000,000. In either case it is evident that the amount last mentioned has annually to be raised, and let us say by direct taxation. In carrying into execution the plan No. 1, the rapid outlay of so much capital would, without doubt, have a wonderful effect in stimulating industry, enterprise and speculation; there would undoubtedly for a time be an appearance of great and unusual prosperity; prices of labour and material would in consequence be inflated beyond their average value, and in a corresponding proportion the cost of the undertaking would be enhanced.

The effect of plan No. 2 would be somewhat different; the work in this case would be proceeded with systematically and gradually, year by year. It would, give steady and desirable employment to those who might be induced to take up their abode permanently along the route, affording them an opportunity to earn the means of subsistence until they could sustain themselves by farming operations. The tendency to raise prices above a fair average would not be nearly so great as in the case of plan No. 1, while the growing commerce of the country could not fail to be benefited by a circulation of capital, expended gradually year by year. Moreover, a suspension of the outlay on the completion of the works would be less felt, as the reaction would be comparatively small, and consequently the financial condition of the country could not be disturbed to such an injurious degree. It would be rather difficult to estimate the difference between pieces of work in the two cases, but without doubt it would be very material. To allow from 25 to 33 per cent in favour of plan No. 2 could not, it is thought, be very far astray; and with this difference it is clear that the whole cost of the undertaking would be about \$36,000,000 against \$50,000,000 if executed under plan No. 1; and hence with an expenditure of \$3,000,000 a year, the work would be completed in 12 years. It is only necessary now to draw a comparison of results after the lapse of that period. In either case the sum of \$3,000,000 would have been raised by taxation and paid away by the country, and assuming that the traffic receipts of the undertaking would be sufficient to meet operating expenses, whichever plan had been adopted, No. 2 would leave it free from debt and the country relieved from further taxation, while under plan No. 1 the borrowed capital of \$50,000,000 would still remain unpaid. Were the receipts insufficient to pay working expenses, the comparison would be even more unfavourable as against No. 1 plan, inasmuch as arrears of operating losses would have accumulated since the first opening of the line, thus greatly increasing the burdens on the country, - while with the other plan the charge for operating losses would only begin when taxation for construction ceased, and even this might be postponed, if thought expedient, by delaying the final completion of the undertaking until it

was clear that the traffic of the country had become sufficient to render the work perfectly self-sustaining.

The hypothetical case above presented illustrates very plainly some of the advantages claimed for a gradual system of road development; and it will readily be observed that had it been possible to have adopted some such system in the establishment of our Railways in Canada, they might almost by this time have been entirely completed on the simple interest of their actual cost, and thus have left them free from debt and in a position to perform their functions in a more satisfactory manner than they can now be expected to do. Of course a change of system is not now possible, but if the principle advocated be correct, there appears no good reason why they should not be considered as applicable prospectively. As a general rule, it has hitherto been held impossible to construct great public works advantageously in any but an expeditious manner; hence important and most desirable undertakings have been again and again postponed for the reason that a known paucity of traffic would not justify that enormous outlay of capital which appears to be inseparable from a rapid system of construction."

This is an admirable principle, to be sure, but what gets overlooked is the fact that it was developed by Joe Howe and the Nova Scotia Railway commission some ten years earlier, despite Fleming's claim that all other railways had been built according to the "general rule," rather than his plans No. 2.

The Political Animal

Sir Charles Tupper was only one of a bevy of influential Conservative politicians with whom Fleming curried favour. Be that as it may, it was left to Schreiber to oversee the construction of the railway in this section, and testimony to his contribution is borne in the name of the community of Collingwood, the site where his base camp was located. It would not be the last time his name would grace a community. The village of Isbester's Landing on the CPR's Superior division in Ontario later changed its name to Schreiber as the railway's tracks passed by.

It was not unusual for surveyors to name locations on a whim, often after themselves or a loved one (naming lakes after wives and daughters was a popular occurrence), and christening a community after Schreiber may be seen less as an act of personal vanity, than it was of convenience or humour.

However this does not appear to be the case with the town of Collingwood, at the Lake Huron terminus of the Ontario, Simcoe & Huron Railway. The area had been known locally as Hen and Chicks Harbour (for the islands nearby) when it was reached by a railway surveying party in the late 1840s. Local history suggests the surveyors came up with



Another snowshed on the Intercolonial was this one near Campbellton.
Courtesy of New Brunswick Museum

the name, (MacLean says it was a man named Buist, and that Fleming was present at the "ceremony") which according to municipal museum representatives honours Admiral Cuthbert, Lord Collingwood (1750-1810) who took command of the victorious British fleet at the Battle of Trafalgar (1805) on the death of Admiral Lord Nelson. It is possible that Schreiber himself was named after the British hero, but why a party of engineers should choose the name almost 40 years after his death is uncertain.

Fleming's legendary frugality appears to have extended only as far as the cost of station buildings along the line. In his 1876 history, he noted:

"With the exception of a few localities where towns called for extended accommodation, it was held that there was no necessity for much expenditure on station buildings: and it was held to be wholly unnecessary to spend money through the wilderness portions of the line on costly buildings."

One can only wonder where Fleming expected his railway's passengers to wait for their trains, but then again, Fleming was never particularly interested in designing buildings. Bridges were another matter.

The Bridge Battle

The battle over the Intercolonial bridges was another of the legendary confrontations that has contributed to the myth of Sandford Fleming. Simply put, Fleming refused to consider the railway commission's order that all but six of the largest bridges on the line be made of timber, to keep costs down.

Fleming returned to the comparison he made between private and public investment in such structures:

"These principles clearly establish what bridges on the Intercolonial line should be, structures marked by no unnecessary expense, substantial, massive and permanent."

The commissioners; Charles J. Brydges, a railway expert in his own right, A.W. MacLelan, Aquila Walsh and Edward B. Chandler were convinced iron bridges would not stand up to the cold winters, and would crack under the strain of heavy traffic. Fleming warned that timber bridges could easily burn, and quickly used two recent, albeit rare incidents on the Grand Trunk to illustrate his point. Stevens summarized the events:

"Among other decisions the commissioners had declared for wooden instead of iron bridges. Fleming had given more thought to railway bridging problems than any engineer in Canada; he had prepared a number of original designs with a view to arriving at structures peculiarly suited to the Canadian terrain and climate. Among his many innovations was a simple method of estimating strength of substrata upon which the bridge seats or other structures might rest. He drove an iron tube into the ground to accommodate a number of rods on which varying weights could be placed. The resultant degree of penetration provided the evidence from which he computed the loads that could be safely imposed.

As in the case of the basis of payment he carried the bridging dispute to the Prime Minister; whereupon, the railway commissioners offered to compromise and to allow him to build iron or steel bridges over the five largest rivers. This concession irritated Fleming more than it placated him, for he was battling for a principle. He continued to fight and eventually proved that, in addition to all other factors, iron bridges were cheaper than wooden bridges. The commissioners withdrew, covering their retreat with permission for all bridges over sixty feet in length to be of iron. Again the Engineer-in-Chief refused to compromise. In the end he had his way, except in the case of three wooden bridges which had been built during the protracted dispute."

In this instance, however, Stevens understates the case, for Fleming's obstinacy in accepting orders from his political masters led to a protracted dispute that took three years to resolve. In the meantime, sections of the railway's track had been laid and the abutments prepared, but no traffic could run while contractors waited to learn if they were installing iron or wooden bridges. Unlike the dispute over the "Grecian Bend," which took place before steel was being laid on the line, the delay posed by the battle over the bridges caused material damage to the railway's ability to raise revenue since it lay useless where it was all but complete in some areas.



One of Fleming's greatest moments was when he stood just behind William Van Horne and Donald Smith at the driving of the Last Spike on the CPR at Craigellachie B.C. on November 7, 1885.

For this Fleming has to bear the blame, for wooden bridges, especially over shorter spans, would have opened the railway earlier, and could have been replaced at a later date as maintenance required, without adversely affecting the quality of the construction. It is interesting to note that historians have traditionally focused upon the marginal difference in cost between wooden and iron bridges, but overlook the real loss in revenue.

It is also interesting to note that Stevens refers to Fleming's entreaties to Prime Minister Sir John A. Macdonald as a matter of "loyalty," whereas one might suspect Macdonald was simply just another influential Conservative carefully cultivated as an ally.

Stevens also indicates the chief engineer's insistence on iron bridges may have had less to do with the practical benefits of their construction than it did with the "principle" of proving Fleming's own designs, at government risk, and expense.

Popular histories also overlook the full extent of Fleming's reliance on the expertise of his subordinates like Schreiber, Light, H.J. Cambie and Marcus Smith (who, like Cambie, would follow him to the Canadian Pacific, and who engaged Fleming in an Homeric battle fully detailed in Pierre Berton's first volume of CPR history, *The National Dream*) despite the fact that Fleming's 1876 history lists all those involved.

It was Smith who, during his battle with Fleming over the route the C.P.R. should take through the Rockies, accused his superior of harbouring "pet projects," and Fleming's obsession with the Intercolonial bridges appears to have been another example of this flaw in his character (although Smith certainly appears to have had his share of pet projects, as Berton's account of the battle of the C.P.R. routes indicates.)

Fleming, however, needed such a phalanx of able assistants since, between April of 1871 until the Intercolonial's completion in 1876, he was dividing his time between both the Intercolonial, the Canadian Pacific survey, and the political hierarchy in Ottawa. In the last two years of the Intercolonial's construction, it is Schreiber's name that appears as superintendent of the work, and not Fleming's. This was while Fleming was recuperating from injuries received in a western mishap.

He must also have placed great reliance upon men like his secretary, George Grant, who wrote the 1873 book

Ocean to Ocean, recounting Fleming's expedition westward in 1872. Indeed, the grammatical style of *Ocean to Ocean* and Fleming's 1876 history of the Intercolonial are so similar, it may be concluded he did not in fact write the later history, but dictated it to the faithful Grant, who filled in some of the detail. Fleming's style, as evidenced in his 1867 pamphlet, *The Intercolonial Railway: A National Military Work*, was far less succinct.

Schreiber did eventually get his due, again following in the shadow of Fleming. In 1880 he succeeded Fleming as chief engineer of the CPR; in 1892 he became deputy minister of railways and canals; in 1905 he was named general consulting engineer to the federal government, and in 1916, a year after Fleming's death, he received the knighthood he so richly deserved. By that time, however, Fleming had received his accolades for the development of standard time and his participation in the Pacific telegraph cable scheme, leaving behind a legacy that would be frequently examined, but rarely questioned, much less challenged.

None of the foregoing is intended to suggest that Sandford Fleming was a fraud, or charlatan, for although he possessed a keen knack for self-promotion, the distortion of his record is more the fabrication of later historians serving a nation seeking heroes from any quarter.

Among those historians, only Pierre Berton in his two-volume history of the Canadian Pacific has offered a balanced appreciation of Fleming's character and ability, but even Berton occasionally falls victim to hero worship, and so indelible is the image created by his predecessors, that this more reasoned criticism falls by the wayside.

There is however, a discernible pattern to Fleming's success: wherever there was Fleming, there was Schreiber, or Light, or another subordinate worthy of acclaim. Indeed, in the examples of railway construction that did not include Schreiber, the Newfoundland Railway for instance, Fleming's achievement was less than spectacular. As a feat of engineering, the Newfoundland Railway was downright ordinary, as a business enterprise it was only adequate to the needs of a small population. Fleming can hardly be blamed for the latter.

In the case of the Northern Railway, Fleming's stewardship as chief engineer appears to have been a failure, redeemed only by the return of Cumberland and Schreiber.

Where his battles with James Livesey, the commissioners of the Intercolonial Railway, and his financial interest in the Springhill mines are concerned, Fleming was very much a man of his time. Engineers of the Nineteenth Century were the technological titans of society; the equivalent of today's rocket scientists and computer geeks. Society looked to them for the answers to a broad spectrum of problems; from railways to buildings, roads and bridges to municipal sewage disposal systems.

Such praise was heaped upon these men, that it must at times have been an embarrassment to the more modest

of engineers. This description of a chief engineer, from *Harper's* monthly magazine of 1874, was typical:

"To succeed in his work he must have qualities which are rare, qualities which no mere school of engineering can impart. In his profession, as in every other, there is a certain something indefinable in native genius, something which may perish unused for want of development and training, but which no mere development or training can supply. The engineer must be a man of ready parts. He must have himself always well in hand. He must understand human nature, and know how to deal with it. He must be equally at home in the log-hut among the mountains and in the velvet carpeted and mahogany furnished office in the great city. He must be an man of quick eye and abundant resources, able to meet an exigency, or to vary in detail and on the moment a carefully matures plan for the purpose of avoiding an unexpected obstacle, and reaching the general result with the least expenditure of time and money. The engineer has tunneled the Alps, and an expert assures us that with money enough it would be possible to construct a permanent floating bridge across the Atlantic. But there are a great many things which it does not pay to accomplish, and the successful engineer must be able to subordinate professional pride to practical results; to avoid obstacles that can be avoided, and to overcome only those that he cannot escape; to make the fewest possible rock cuttings, tunnels, culverts, and bridges; and to be known and honored less for what he has done than for what he has avoided doing."

Fleming certainly was worthy of this definition except, perhaps, where his pride and notoriety were concerned. Nineteenth Century politicians were obsessed with the concept of "progress", and engineers were the agents of that progress, delivering on the promises made on the hustings.

They were therefore inextricably involved in the political games that were played about any great undertaking of public work, and Fleming's record is clearly one of a man who learned to play those games shrewdly.

There is a final irony to the story of Sandford Fleming and his railways, at least as far as Nova Scotia is concerned. The September 1 1899 edition of the *Morning Herald* carried the following news item:

"The first automobile ever seen in Nova Scotia, arrived on the Allan liner Siberian from Liverpool this morning. It is a gasoline horseless carriage, owned by William Exshaw, son-in-law of Sir Sanford Fleming. It was built in France and has been run by Mr. Exshaw since the first of the year. The propelling motor is operated by gasoline. The automobile is boxed up, but Mr. Exshaw expects to be driving it around the streets in a few days."

While he did much to develop the railways, it appears Fleming was also responsible for sowing the seeds that would ultimately lead to the decline of the railways, the automobile.

BACK COVER: The Intercolonial Railway's big grain elevator in Saint John N.B. is the subject of this photo taken in the summer of 1899. To the right appears the back of ICR locomotive 490, while open car 48 of the Saint John Railway (built in Montreal in 1898) rumbles over the crossing. To the left is the track by which the ICR's rival, the CPR, reached the city in 1889. Courtesy of New Brunswick Museum.

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