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FRONT COVER: On Saturday, May 29th 2004, CPR steam locomotive 2816 and its train arrived at Montreal, completing a trans Canada tour. The following day, May 30, it made five trips in the Montreal area. This photo shows it at Lucien L'Allier Metro station (located three blocks west of the CPR's Windsor Station) ready to depart for a round trip to Montreal West and Ballantyne.

BELOW: Former Intercolonial Railway combine car 495 makes a rare appearance outside on June 10, 2004 during construction work on the Exporail building at the Canadian Railway Museum. This car was built at least as early as 1890, and may originally date back to the 1860s. After many renumberings it was on CN's Museum train and NMST in Ottawa. Both photos by Fred 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 contributer will be given credit for material submitted. Material will be returned to the contributer if requested. Remember "Knowledge is of little value unless it is shared with others".

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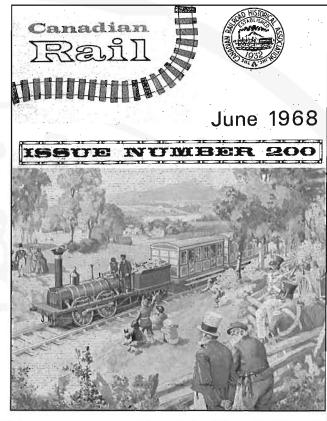
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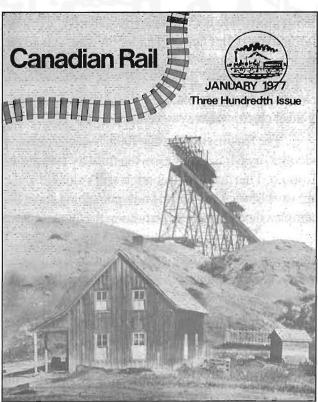
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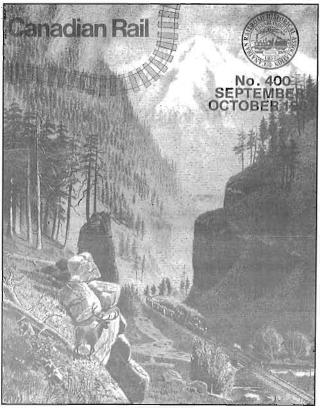


Issue No. 500









With this number, Canadian Rail, and its predecessor, the C.R.H.A. News Report, completes five hundred issues over a period of almost 55 years. Above are illustrated the covers of our previous four "even hundreds", all of them milestones in our history.

Five Hundred Issues of Canadian Rail!

Almost 55 years ago, October 1949 to be exact, the C.R.H.A. resumed its publication activities which had been interrupted during World War II and the immediate post-war years. This publication, originally the C.R.H.A. News Report, and, since 1962, Canadian Rail, has now reached the important milestone of its five hundredth issue. Except for a hiatus of five months (September 1951 through January 1952) publication has been continuous, at first monthly, later eleven times a year, then monthly again, and, since the introduction of the large-sized format, six times a year. In all that time the successive editors have never missed an issue; although some have been late, they were always made up and the schedule regained.

Since other milestones have been commemorated by general overviews of the magazine, as for example its 50th anniversary, it seems appropriate to go back and look at the four other "even hundred" issues that have been produced. These appeared in 1959, 1968, 1977 and 1987 respectively. Since it now appears bi-monthly, these "even hundreds" occur much less often, and if the present frequency is maintained, issue No. 600 will not be published until January-February 2021, by which time your present editor will long since have departed this earthly scene. So let us take the opportunity of going back and looking at numbers 100, 200, 300 and 400.

NUMBER 100, MAY 1959.

The year 1959 was a sad one for railway enthusiasts. The dieselization program on Canada's railways was nearing completion, and 1959 was the last full year that steam was in regular operation. In addition, branch line service of any kind was being cut back at an alarming rate, and every new timetable was thinner as passenger trains disappeared or were reduced in frequency. If the railway enthusiasts were depressed, it was much worse for the "juice fans" or those interested in electric railways. On March 15 the last run was made of the Chemin de Fer de la Bonne Ste. Anne, the ancient interurban running east of Quebec City. A week later passenger service ended on the Niagara St. Catharines and Toronto, the last

interurban in Canada. That was bad enough, but worse was to come. May 2 marked the end of street car service in Ottawa, and on August 30 the Montreal system suffered the same fate. By the end of 1959 only Toronto still had street cars, and it was expected that a few more years would see the end of those lines too.

With all the abandonments and cutbacks, it is no wonder that this period saw the development of the preservation movement, as artifacts were saved, sometimes just ahead of the scrapper, and steps were taken for the start of work on the Canadian Railway Museum, construction of which began only two years later.

C.R.H.A. News Report No. 100, produced under the editorship of Omer Lavallée, was dated May 1959, and featured a photo cover showing a view of Ottawa street car 826, as seen from the front of car 685 on a winter excursion about a year and a half before. The end of the Ottawa street car system was well described by Omer Lavallée in the form of a memorandum to the late Messrs. Ahearn and Soper, the builders of the Ottawa Electric Railway. This article ended with the quote "As custodians of history, we will look after the durable remains of the Ottawa Electric Railway in a manner befitting one of Canada's pioneer electric railway systems."

The feature article in this 100th issue was a major account, by Mr. Lavallée, on the railway stations of Toronto. This detailed account is still valuable to the railway historian wishing to know something about the complex development of stations in the Queen City.

Some comments made by the editor in that issue are worth repeating today, as they are still practiced by the Association, and are still the policy of the present editor:

"Though the editorial is an editor's traditional privilege, we keep our editorializing to a minimum, as we feel that our readers would rather we used the space on Canadian railway doings, rather than read opinions on controversial matters. It has always been our Association's policy to "do" rather than to "say", and if we lament the passing of the

steam locomotive or the trolley car, we take steps to preserve suitable examples for the gratification of those interested, rather than make public outcries in matters which we feel are not the province of antiquarian societies. This policy has earned for us a host of good friends throughout the transportation and allied interests in Canada; it is our sincere wish that our policies and relationships will stay this way."

In the news section, there were the expected accounts of cutbacks and, since this was the time of the spring timetable change, more than thirty branch lines (7 on CP, 24 on CN) saw passenger service eliminated entirely.

NUMBER 200, JUNE 1968

By 1968, Expo year, with its great increase in passenger traffic during the World's Fair, had come and gone. However there was anticipation of the modern Turbo train scheduled to be introduced by CN later that year. The Canadian Railway Museum was a "fixt fact", and had been open to the public for three years.

The 200th issue of Canadian Rail was commemorated, by editor Sandy Worthen, by something new, a colour cover. This was not printed as such but, thanks to the donation of more than 1000 colour prints of the first run of the Champlain and St. Lawrence Rail Road, it became a colour cover by the simple expedient of gluing one of these prints to the front of each copy! The glue used was not of the best quality, so some copies of this number are found in which the illustration has long since parted company with the rest of the magazine. The cover itself was printed on beige stock, the only time a departure has been made from the usual white paper. In keeping with the cover illustration, the feature article was a lengthy article, by Mr. Worthen, on the first years of operation of the Champlain and St. Lawrence Rail Road, the first in Canada. There was also an article commemorating 200 issues of the magazine, as well as an account of the "Snow" excursion recently held by R.D.C. on the Quebec Central. Murray Dean's "Power" column showed a number of interesting photos of First Generation diesels which were then beginning to be retired in favour of the new types.

NUMBER 300, JANUARY 1977

This issue, still under the editorship of S.S. Worthen, did not contain any specific mention of its milestone status except for the inscription "Three Hundredth Issue" appearing on the cover immediately under the date line. The feature article, which occupied the majority of the issue, was a detailed account, by George A. Moore, of the Lethbridge Viaduct in Alberta. There were many interesting photos, including a wide-angle broadside view of the bridge which occupied the center fold. There was also an account of an historic event, the first ever joint CN - CP passenger timetable, effectively the first timetable of VIA Rail. The financial recession then in progress was reflected in a report showing large numbers of locomotives in storage by Canada's railways.

NUMBER 400, SEPTEMBER-OCTOBER 1987

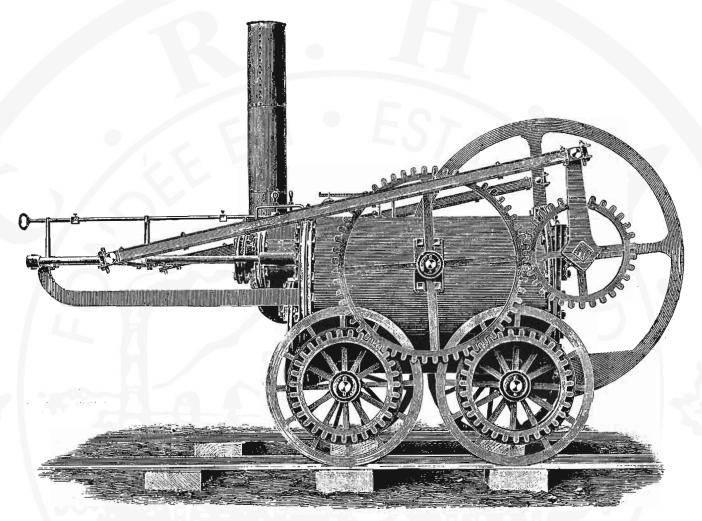
By this time Canadian Rail had gone to the large size format and was being published bi-monthly. A brief introduction and editorial, by editor Fred Angus, commemorated the fact that this was indeed the four hundredth issue. In line with printing detailed historical accounts, most of No. 400 was made up of a single article, the longest published in the magazine up to that time. This was an in-depth study, called "Laying the Foundation", by Douglas Smith. The article was a study of the period often neglected, the early operations of the CPR transcontinental line after the driving of the Last Spike in 1885. Many contemporary illustrations add to this article which is an important document for those interested in that period of time. Since then we have produced several "single subject" issues, and they seem to be popular.

A few short news items completed No. 400, and it was then on to the next hundred which have just been completed.

During the run of 500 issues, there have, of course been many technological changes. From the original mimeographed sheets, the publication has progressed to offset printing with illustrations, and later to colour covers. From 1961 through 1982 the format was reduced in size, but it was then increased again. The computer revolution has had a major effect, and who knows what innovations may await in the future.

The 200th Anniversary of the Steam Locomotive

by Fred Angus



A late nineteenth century engraving of the Trevithick locomotive of 1804.

The year 1804 was a momentous year for Great Britain, and indeed for the world. By the early nineteenth century the Industrial Revolution had been in progress for several decades, and the face of Britain was changing dramatically. In that very year the poet William Blake wrote a hymn, which, in a single work, included two immortal, but very contrasting phrases, "Those dark Satanic mills", and "This green and pleasant land". Clearly the world was becoming more and more mechanized. In far away Canada, however, mechanization was still far in the future. The most efficient means of transportation (except of course during the winter) was by boat on Canada's numerous rivers. By coincidence the most well known description of Canadian river transportation, the "Canadian Boat Song", was written by the Irish poet Thomas Moore while on a visit to Canada in that very year 1804. It includes the familiar lines "Row brothers row, the stream runs fast. The rapids are near and the daylight is past". The rapids referred to are those at Ste. Anne de Bellevue on the vital water route between Lower and Upper Canada.

However 1804 was also a year of great anxiety. The threat to Britain, and the British Empire, was from across the English Channel, little more than twenty miles away. Ever since the breakdown of the Peace of Amiens more than a year before, Britain had been at war with France, then ruled by Napoleon Bonaparte, who would declare himself Emperor before 1804 ended. The armies of Napoleon had won victory after victory as they swept across Europe; it seemed certain that they would soon turn to attack England, the "Nation of Shopkeepers", Napoleon's most implacable enemy. During the summer of 1804 there was a very real possibility that England would be invaded by a foreign army for the first time in 738 years. Britain was on high alert, as "Boney" was expected any day. Even Canada was not safe as Napoleon's warships easily had the range to reach and attack, if not invade, the North American coast. It was not until Nelson's victory at Trafalgar in October 1805 that Britain's superior sea power virtually eliminated the threat of invasion, a threat that did not appear again until 1940.

With all this momentous news, it is not surprising that little notice was taken of a strange machine that was in brief operation at a remote iron mine in Wales. Yet amid the crisis of war a new invention appeared, this machine which was the first of a new breed, a development that was to have more far-reaching effects than Napoleon and his many victories. It was no less than the world's first steam locomotive.

Certainly land transportation was slow in 1804, scarcely faster than it had been 2000 years before. There is no better example than that of the Lewis and Clark expedition in the United States, in progress at this very time, that took two years to explore the territory between the Mississippi and the Pacific. By the end of the century such a trip could have been made, behind steam locomotives, in two weeks.

For many years mining companies had used railways to haul heavy loads from the mines. Such railways usually employed wooden rails topped by iron strips, although sometimes cast-iron rails were used. However motive power was by horses, or occasionally gravity or even man power. Consideration was given to using steam power in an effort to move heavier loads at faster speeds. The most obvious way was by cables hauled by stationary steam engines located at various places along the line. However there was another possibility, a small engine that could actually run along the rails hauling the load by adhesion, with no cumbersome cables. Such an engine would be called a "Loco Motive Engine", meaning simply an engine that could move by itself. However such a plan involved many serious problems. Since the engine would have to be small, it would have to work at much higher pressure to have enough power to haul a meaningful load. No boiler existed capable of withstanding such pressures, and no high-pressure engine had ever been built. Moreover, there was no guarantee that such an engine could pull a load without the wheels slipping on the smooth rails. For at least two decades many plans for locomotives included complicated and expensive (and, as it proved, unnecessary) cogs and racks.

The first person to actually construct an engine that ran on rails was a Cornishman named Richard Trevithick (1771-1833). By the age of eighteen he had demonstrated a great mechanical ability, and during the 1790s invented several improvements to steam engines. In 1799 he built a high-pressure non-condensing steam engine which was a rival to Watt's low-pressure condensing engine. By this step a necessary requirement for a locomotive was fulfilled. On Christmas Eve 1801 he ran a steam powered carriage on a common road, and the next year applied for a patent for steam powered carriages, so anticipating the automobile by almost 100 years. In 1803 he ran another steam carriage through the streets of London, attracting considerable attention. From there it was only a short step to creating a railway locomotive, and, as a result of a 1000 guinea wager between a director of the Peny-Darran iron works and a director of another iron company, he was allowed to try the experiment on the company's iron plate railway. So it was that on February 21, 1804, the world's first railway locomotive hauled a number of cars containing ten tons of bar iron, as well as 70 passengers, from Merthyr Tydfil to Abercynon on the Monmouthshire Canal, a distance of nine miles, in 4 hours 5 minutes, at a top speed of five miles an hour.

Although the engine was a mechanical success, it was a financial failure since it cost far more to operate than the equivalent power in horses. Although it is reported that a similar engine (or perhaps the same one) was used briefly on the Wylam colliery near Newcastle the following year, the time was not yet ripe for steam locomotion and the horses returned to duty. Trevithick did build another locomotive, called the "Catch-Me-Who-Can", demonstrated in London in 1808, but then turned his talents to other projects. He lived to see the steam locomotive come into its own following the Rainhill Trials (1829) and the opening of the Liverpool and Manchester Railway (1830). However he did not profit from his inventions, and he died penniless on April 22, 1833.

The pioneer engine of 1804 weighed about five tons, ran on four wheels, of 4 ft. 6 in. diameter, and had a boiler 6 feet in length with a return flue, thus the smokestack was at the same end as the firebox. The single horizontal cylinder was 8 inches in diameter with a stroke of no less than 4 ft. 6 in. connected by gears to the driving wheels. Most prominent was a huge flywheel used to smooth out the motion of the single cylinder. Apparently there was no footplate; it is recorded that Trevithick walked alongside the engine, driving it from the ground as it were.

Trevithick's engine had two innovations that became widely used later on. Exhaust steam passed through a blast pipe at the base of the smokestack, therefore increasing the draft and improving combustion, and the wheels were smooth, yet provided adequate traction. Despite this, it was years before inventors were convinced that cog wheels were unnecessary except on very heavy grades.

The steam locomotive, however, went on to much greater things. Although Trevithick dropped out, other pioneers, most notably George Stephenson (1781-1848) continued on and created the practical machine that made the world's railway systems possible. Eleven years after the pioneer run of 1804, Napoleon suffered his final defeat at Waterloo and peace returned to Europe. In fact an early Stephenson locomotive of 1814 was named "Blucher" after the Prussian general who, with Wellington, was largely responsible for the Waterloo victory a year later. By 1840 the railway age had arrived as the new technology began its spread throughout the world.

After well over a hundred years the steam locomotive was superseded by other means of propulsion, especially electric or diesel-electric, although some steam locomotives are still in use. The fate of the 1804 locomotive is unknown, but Omer Lavallée was probably close to the truth when he stated (in Canadian Rail No. 152, February 1964) that "It was broken up as surplus works machinery by some incredibly narrowsighted boor, unknown, as he well deserved to be."

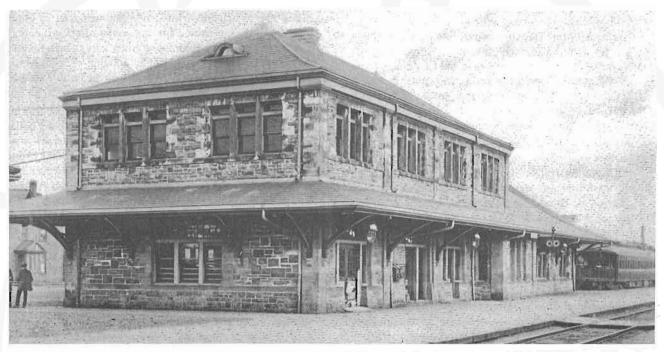
However the basic idea, embodied in the 1804 machine, a "Loco Motive Engine" running with metal wheels on metal rails and hauling loaded cars, has never been improved upon, and is used by almost every railway in the world. Richard Trevithick indeed "builded better than he knew".

Thus the true revolution of 1804 occurred not on the battlefields of Napoleonic Europe, but on a remote railway in Wales. Railway enthusiasts everywhere should pause to commemorate the 200th anniversary of the little engine that started it all.

The Haunted Railway

by Douglas N W Smith

Based upon an account written by CS Chard



The joint CPR / T&NO station at North Bay from which C.S. Chard departed about 1907.

Trains marked * run daily; † dally, except Sunday. A Telegraph stations

CONNECTIONS .- At North Bay-With Canadian Pacific Ry. and Grand Trunk Ry.

There are few written accounts of the life in the many isolated way stations along Canada's developing railway network in the late 1800s and early 1900s. The author, C S Chard, was a boomer, a railway man with wanderlust. He wrote about his life in the 1950s and the rambling text

can be found in the National Archives of Canada. This section, which was rewritten for publication, concerns the winter he spent working for the Temiksaming & Northern Ontario Railway (T&NO). As near as can be determined, the period covered by the accounts was the winter of 1907-1908.

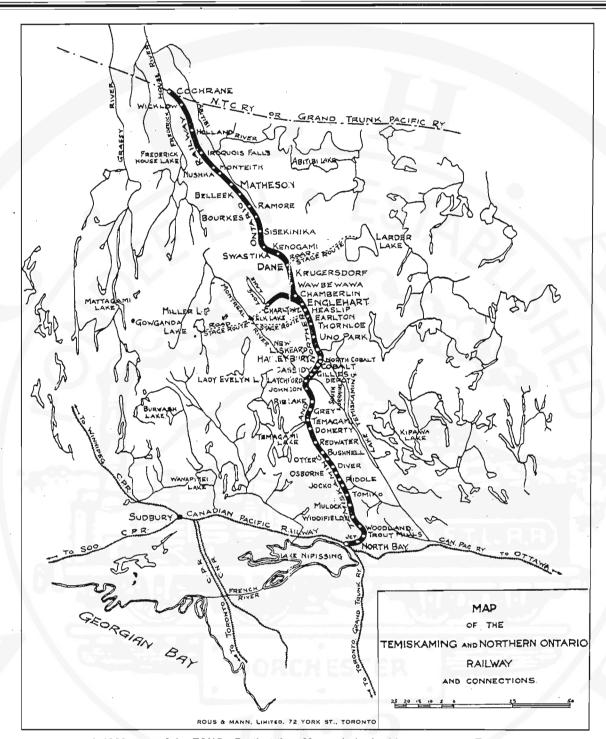
I came across the text while doing research for a book to mark one hundred years of passenger train operation over the T&NO and its successor, the Ontario Northland. The book, which is titled A Century of Travel on the Ontario Northland Railway, will be published during the summer of 2004. Regrettably, I could not find the space to include Chard's account of his time as agent in one of the lonely northern stations

miles from any town in the seemingly endless pine forests of Temagami. Those wishing information about the new book will find ordering details at the following website: www.tracksidecanada.on.ca With this said, let's turn to Chard's story.

TEMISKAMING & NORTHERN ONTARIO RAILWAY. (ONTARIO GOVERNMENT RAILWAY.) North Bay, Ont J. L. ENGLHHART, Chairman, DENIS MURPHY, Commissioner, A. J. MoGEE, Secretary-Treasurer, Toronto, Ont. A. J. McGHE, General Accountant, VIVIAN T. BARTRAM, Purchasing Agent, NORTHBOUND. SOUTHBOUND. Mia Ro. 4 2 M1s No. 47 49 8 STANDARD-Buffers time. YMH# 29, 1907. Pas'nger. Pas. Pa'soger. Pas. 8 00000 4 Pas'nger, Pas'nger, Pas, Pas Haileybury Argentite., Cobalt Cassidy Gillies Dep Latchford Johnson ... Rib Lake . Grey 5 1030 P 10 1046 N 10 1046 N 11 1056 P 14 1059 P 16 1059 P 17 105 P 18 10 Mulock Mulock Lake Moose Lake Jocko Riddell.... Tomagami.... Joeko Moose Lake Mulock ... Widdifield.

The T&NO timetable effective June 29, 1907.

UNDER CONSTRUCTION, 100 MILES.



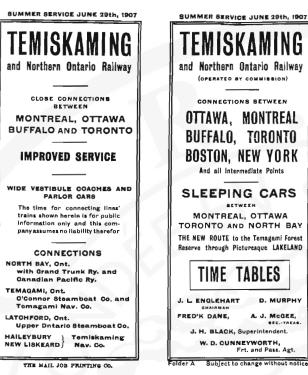
A 1909 map of the T&NO. By that time Moose Lake had been renamed Tomiko.

When I applied for a job at the office of the T&NO at North Bay, I was surprised when the Chief Dispatcher, Mr Stuart Ryan said, "Yes, we want a man at the Moose Lake station right away."

This response was unusual. Usually, the answer was generally "Drop around in a few days and there might be a vacancy" when an agent was sick or going on vacation. As Ryan said he wanted a man at Moose Lake, I noticed him wink to the Mr Chatterson, the dispatcher on duty. As work was scarce and my funds were low, I was thankful for a chance to earn my Daily Bread.

Ryan gave me a pass for Moose Lake and told me to hurry to CPR-T&NO Union Station as the train for the north would be leaving shortly. As I was to discover, Moose Lake was an isolated outpost of the railway, some 27 miles from North Bay. The station, built to the T&NO's Standard Plan No 9, was small, just 30 by 10 feet. It had been built in 1905 shortly after the rails were laid through the area. I was the night agent.

"Ghosts – seen any tonight?" was the query of all the traincrews stopping at the water tank during my first two weeks there. One night I came near to seeing a real ghost



The cover of the T&NO timetable for 1907.

with a new rifle. I had been warned to always lock myself inside the station after the last train left. One night, I forgot. I was busy copying train orders and had a Work Order out from about 10:30 pm to 03:00 to protect the nightly train loading logs on the main line to the south. Dad Thomas, a very old looking man, was its engineer.

As I was working away, I heard shots in the night. Looking up later, I got a real scare because there was the small, slight man that I had been warned about keeping out of the station. He was holding a new rifle and very much inebriated. Fearing for my safety, I asked what he was hunting. He responded, "Moose".

Occasionally, the *Cobalt Special* would stop for water. This train ran between Toronto and New Liskeard and catered to the mining speculators and owners travelling to the train's namesake town. Because of its fast schedule, the railwaymen called it the *Flyer*. Alex Cumpson, the conductor, strolled in and asked, "Seen any ghosts tonight?"

Some nights the train would really seem to be 'flying' as it was pulled by one of new ten-wheelers delivered by the Montreal Locomotive Works in 1907. Several of these engines had 62 inch wheels for passenger service and the crews really let them out. Dad Thomas broke these new engines in on the log train. Most nights, even Sundays, he would be waiting on the siding at Moose Lake for the southbound passenger to pass.

After I had been working for two weeks, L McBride, the day man, inquired if any of the crews has asked me about ghosts. I responded every crew did. McBride cryptically responded, "I may well tell you they could not hire a man to come here nights for love or money at North Bay."

I asked as casually as possible, "What was the reason?"

He responded with the following tale. Seems one Wednesday, a man stopped at the Ferguson McFadden Lumber Company office that was just down the track from the Moose Lake station. The only people at the office were the bookkeeper, a cook and McBride, who boarded there. The man, who claimed to have lost everything in a bad speculation in the Cobalt silver mines, said he had walked the 77 miles from Cobalt and asked if he could have some dinner. Though he appeared a little distracted, he seemed to be all right. He resumed his southbound trek after eating.

The following Sunday, McBride and Allan Duff, the bookkeeper, went for a walk and found the poor fellow frozen to death with his clothes piled up beside him. A message was sent to North Bay for the coroner and a coffin. The coroner refused to come, but a wooden box was sent. George Hall, the night agent, was standing in the station when the train crew were putting the dead man into the coffin. Perhaps as a bit of fun, someone shook the box. Hall quit on the spot declaring that they had put a live man in it. He would not even work that night and left on the same train.

Finally I knew the reason for the wink exchanged between the Chief Dispatcher and Chatterson back in North Bay when I was hired.

One night I was told to relieve the McBride so he could go home for Christmas near Amprior, Ontario. As I had been on the night shift and worked all the next day, other arrangements had to be made to protect Dad Thomas and the nightly log train.

The T&NO had given several lumber companies the right to cut the timber 50 feet back on either side of the railway right-of-way to reduce the danger of locomotive sparks starting a fire and to raise funds to help pay for the construction of the provincial government's railway. The 60 foot long pine logs were shipped from Diver, 46 miles from North Bay, to the Cleveland Sarnia Saw Mills Company in Sarnia. They were carried on 61 foot long flat cars. Two men had been killed switching the loaded cars in the North Bay yards as some of the logs had been hanging over the ends of the cars and struck them. After that, the cars had to be inspected before they could be moved from Diver. The agent there also had to supply the number of cars to be moved. At this time, the lumber company had laid a spur line seven miles long. This private railway was operated with very old wood burning steam locomotive.

As if there were not enough "ghosts" in the forest country, my next adventure took place at Diver. Mr Crouch, the regular agent there, was on leave to go to Montreal and be married. His bride was coming from Liverpool and he wanted to meet her. I was sent to Diver as the trainmen were afraid to take their orders from the first relief man sent there. They claimed the man was drunk most of the time. When I got to Diver, he seemed perfectly sober and a fine man. He willingly turned over the office to me, and he and a Mr Gallagher, who been painting the new station, both left on the next train for North Bay and a 'spree'.

After Gallagher had not reappeared for a week, I began asking the train crews if they had seen him. "Oh yes," they replied, "we see the two of them most days and its not likely that Gallagher will be back until they are both stone broke."



The Diver & Ottawa River Railway had a mixed roster of second hand locomotives including at least two former Grand Trunk Railway 4-4-0s. The company began building its line eastwards from Diver, named after the Cleveland Sarnia Lumber Company general manager, D L Diver, in 1905. The railway eventually reached a maximum length of 11 miles and was abandoned around 1916. This photo shows one of the small ex-GTR 4-4-0s. – National Archives of Canada

It was quite some time before Gallagher reappeared one fine winter's day. Passing me, he said "Good Day" and walked on up to the new station building where I thought he would be painting the interior. I was busy and did not see him that afternoon. After lighting the switch lamps in the bitter cold at 5:00 pm, I went to the new station to see how he was doing. I found him passed out on a rough bed without even a fire in the large camp stove. I finally managed to rouse him and brought him back to the old station, which had the smallest office I ever worked in. Almost as soon as we arrived, Gallagher said he wanted a strong drink. I asked where could I find it? He replied, "Go into the waiting room, then through the office and in the west window of the living room there is a bottle in the window."

I found two bottles in the window, both the same colour and shape. The one on the left was less than one-half full, while the other was full. As I had heard always give a person a good drink to sober them up, I started pouring from the full bottle. To my surprise, it was full of paint oil, a toxic substance if ingested.

When I got back to the office and told him my mistake, he jumped two feet high and started raving. I had seen a man getting over the "blues" previously. I started making very strong coffee for Gallagher. He would rave about "creepers forty feet long", quieten down for a while and then start raving again. This went on all night until 05:00 am

when he went to sleep on a small cot, the only bed in the building. There was nowhere for me to lie down, so I tied the telegraph instruments and laid down on top of them.

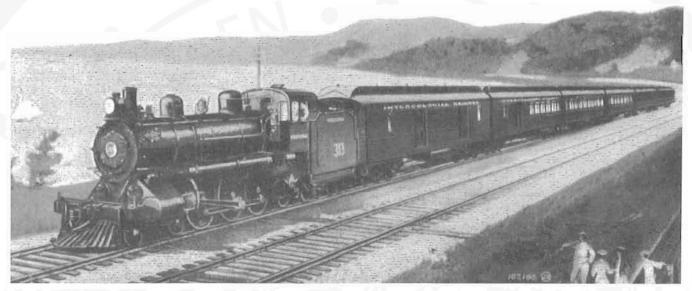
When I awoke at 07:00 am, there was no sign of Mr Gallagher. I started out to the section house, which was a mile and a half from the station, to get help. During the night, there had been a snowfall and Gallagher's footsteps showed plainly. I must have walked a mile in the cold, crisp air when I saw a man coming towards me. It was Gallagher. He was in shirt sleeves and wearing carpet slippers and perfectly sober. He had taken the station water pail and was looking for a place to fill it. A half mile towards the station, a creek flowed through a trestle. It was the only place where potable water could be found. I took the pail and clambered the ten foot rock face to the reach the water. When we reached the station, Gallagher said he could not eat anything, but made more strong coffee. He then said, even though it was a Sunday, he had to paint. I said that I understood and would not say a word about it.

Soon thereafter, the regular agent returned. He had left his bride in North Bay and would only bring her north when the new station was finished. As soon as possible, I transferred the accounts back to him. I was not sorry to return to Moose Lake and the good boarding place I had at the section house. Mrs Davis, the section foreman's wife, was a good cook and kindly soul.

The creation of a legend

by Jay Underwood

July, 2004 marks the 100th anniversary of Canada's longest-running name train, the "Ocean Limited" (now known simply as the "Ocean"). To commemorate this important centennial, we are printing, in this 500th issue, some articles concerning the "Ocean Limited", as well as the line on which it runs, the former Intercolonial Railway of Canada. This article tells how this famous train came to be.



The "Ocean Limited" as it looked in its early days. This publicity illustration by the Intercolonial was often reproduced on post cards, pictures in stations and other railway literature. This one was from a post card of about 1910.

"The Maritime of necessity did much local work which greatly slowed her average speed, and in 1904 Hon. Henry R. Emmerson, of pious and immortal memory, supplemented her with a faster through summer train which a public voting contest named the Ocean Limited, and which eventually operated the year round." - J.B. King (The pseudonym of H.B. Jefferson. The quote is excerpted from *The Maritime Express*, volume 1 number 1, June 1968, published by the Scotian Railroad Society, Halifax.)

While King (Jefferson) is acknowledged as the foremost railway historian of the Maritime provinces in modern times, it is unlikely that Henry Emmerson deserves sole credit for the creation of The Ocean Limited, since he became Minister of Railways and Canals barely six months before the service went onto the Intercolonial Railways' schedule on July 4, 1904.

It is probably more true to say that he shares the credit with his predecessor, Andrew G. Blair, another New Brunswick Liberal, who recognized the need, and initiated the planning for what has become North America's longest continuously operated named passenger train service.

In either case, it is true to say that the train truly belongs to the Maritime provinces, for the Ocean Limited made its first run, from Halifax, on July 4, 1904, witnessed with no great fanfare by the NovaScotian of July 8 of that year:

"The Ocean Limited, the magnificent new express, which Hon. H.R. Emmerson, Minister of Railways, has added to the I.C.R. service between Halifax and Montreal, started Monday, leaving Halifax at 8:45 a.m. The run to the commercial metropolis of the Dominion will be made in twenty-four hours, inaugurating a service between East and West which is bound to become extremely popular. The first "Ocean Limited" left North Street Monday."

This low-key announcement belies the bold move that led to the creation of what deserves to be considered a legendary train.

Blair, a Fredericton-born lawyer and lecturer, became Minister of Railways and Canals in Sir Wilfrid Laurier's government just months after Laurier had ousted the Tory government of Sir Charles Tupper, the former minister who had wielded his influence over the government railway system with a heavy hand.

Taking the riding of Sunbury-Queen's in the election of June 1896, Blair's was one of five of the 14 New Brunswick seats that went to the Liberals. Nevertheless, he found himself in the prestigious post at the perfect time, and used it to great political advantage. In the years between the 1896 election and the election of 1900, the Liberals were able to tell Canadians, as J. Murray Beck notes in *Pendulum of Power* (Prentice Hall, 1968):



In its one hundredth year, the westbound Ocean passes through Humphrey on March 27, 2004. Photo by Andrew Morris

"..their foreign trade had increased by \$142 million between 1896 and 1900, compared with only \$66 million in the 18 years of Tory rule. They were told that Conservative deficits had been replaced by surpluses totaling \$13 million in the ordinary accounts; that immigration had increased from 20,000 in 1896 to 32,000 in 1897 to 44,000 in 1898, and so on."

Immigration was in large part responsible for that economic success, and the railway was the engine of immigration, albeit concentrated in the prairie provinces, as Beck notes:

"They [Canadians] had it drilled into their heads that the great trek of immigrants to the West had already given a strong impetus to business generally, and that manufacturers, merchants and workingmen in all parts of Canada would benefit still further as Western Canada became more productive."

A consummate politician, Blair used his position to ensure his home province received its fair share of the Laurier government's largesse, paving the way for an even bigger victory.

In the election of 1900, Blair took a political gamble by running in the City of St. John, where he was re-elected, easily defeating George Eulas Foster, a Conservative heavyweight, and completely reversing the election result of 1896, as nine Liberals took 14 of the seats available in that province. As Beck notes:

"It had been part of Tupper's strategy to pit his chief lieutenants against Laurier's ministers, but here as elsewhere it backfired badly."

Blair's reward was to retain the railways and canals ministry, but he soon found himself at odds with Laurier. While both men supported the expansion of the government-owned railways, Blair could not support Laurier's proposal to build the National Transcontinental Railway (NTR) as competition for the Canadian Pacific in the west. Even

though part of the NTR would be built in Blair's home province, from Edmundston to Moncton, he was opposed to constructing a line that would in effect compete with the Intercolonial's line along the north shore of New Brunswick.

The public disagreement would cost Blair his cabinet post, and on July 20, 1903, he was replaced. Another factor in his dismissal was the increasing expenditure within his department on the railways, which threatened to put the lie to Laurier's claim that his Liberals could run the government without the deficits incurred by the Conservatives.

Beck hints at a more mysterious undercurrent:

"Apparently Blair was involved in a curious conspiracy which was "turned into *opera bouffe* by Laurier's decisive and timely interference." In the end he spoke not a word during the campaign."

Beck goes on to explain the nature of the "conspiracy," which revolved around the attempts by William Mackenzie and Donald Mann, promoters of the Grand Trunk Pacific - a privately-owned competitor to Canadian Pacific in the west - to be named the lead contractors for the construction of Laurier's NTR (which Laurier had authorized without consulting Blair.)

"The railway issue also indirectly produced an extraordinary conspiracy against the government which "for sheer melodrama and sheer fatuity has never been equaled in Canada." To this day the full extent of its ramifications is unknown. It appears certain, however, that motive lay in MacKenzie and Mann's failure to be recognized as the contractor for the second transcontinental line, and their desire to engineer the triumph of a Conservative government that would be indebted to them. It is also certain that its leading figures were David Russell, well known as a promoter in Saint John and Montreal and as a participant in several Mackenzie and Mann ventures, and J.N. Greenshields, a Montreal lawyer, who was solicitor for Mackenzie and Mann.

In part, the plot involved the purchase of several Liberal newspapers and the switching of their support to Borden. There were other ingredients as well. A.G. Blair was to take the stump against the government; charges of corruption were to he made against several cabinet ministers; and Liberal candidates were to resign on nomination day because of these revelations, allowing their Conservative opponents to be elected by acclamation.

Only the first part of the conspiracy got off the ground, and not far at that. Early in the campaign, a former Liberal newspaper in Saint John came under the control of Russell, and presumably Blair. Then, on October 16, came the first real bombshell, LaPresse, it was rumoured, had been sold to a number of influential Conservatives. Two days later there was a second bombshell. Blair confirmed his resignation as Chairman of the Railway Commission and reiterated his opposition to the Grand Trunk Pacific. Immediately the mystery deepened and excitement heightened. What would happen next? Nothing did; "LaPresse was practically neutral and Mr. Blair remained a political sphinx." Rumour had it that Laurier called on Blair in Ottawa, and that Blair concluded that silence was golden. The rumour was never denied. As for La Presse, Laurier simply told its publishers that if it changed its policy he would give the public the full story about its sale to English-speaking speculators. That would have killed it, for it would have lost much of its circulation, so great was the strength of Laurier in the Quebec of 1904. The conspiracy had fizzled out. None of the other Canadian elections has produced a Hollywood-type melodrama to compare with this misadventure of 1904."

Henry Robert Emmerson (Minister of Railways and Canals from 1904 to February 4, 1907) had been defeated twice in federal elections prior to riding into Ottawa with the Blair Liberals from New Brunswick in 1900. The lawyer from Maugerville represented the riding of Westmoreland, once the bastion of another great supporter of railway patronage, Edward Barron Chandler. Clearly he was a willing acolyte of Laurier's NTR plan, and a necessary adjunct to the regional balance of power within Laurier's cabinet. He became minister of railways and canals January 15, 1904, six months before The Ocean went on its schedule.

Much of the need for the Ocean's extra capacity, as King/Jefferson has noted, was caused by the popularity of The Maritime Express, which was being obliged to call at so many stations on the route that the name "Express" began to lose all meaning.

For either Blair or Emmerson the new service was a bold move, coming amid ever-increasing costs in the ministry, and threatening to put an end to the Liberal boast that they alone could govern without the necessary evil of a Tory-like deficit. It was a message that was left to Emmerson to announce in the same week that the Ocean began its run.

The NovaScotian and Weekly Chronicle of July 8 1904, a supporter of all things ICR (if not necessarily of the politicians who occasionally found themselves in charge of the railway) chose to play the story under the positive headline, "Making I.C.R. great asset of Dominion".

Emmerson also sought to soften the blow by comparing the railway's economic performance as far back

as 1896, when the Liberals took control of the government from the Conservatives, noting quite frankly that a deficit had been incurred:

"The Minister then proceeded to give some figures comparing ten months of the present year up to April 30 last with the same period a year ago. In this connection he said that he could not give a very glowing picture on this account. The expenditure was very largely in excess of the receipts. The receipts for the first ten months of 1903 were \$5,292,639 and for 1904 \$5,287,521, a decrease of \$5,118. The expenses were in 1903 \$5,288,765 and in 1904 \$5,835,294, an increase of \$546,530. For the ten months in 1903 there was a surplus of \$3,676 and in 1904 a deficit of \$547,772.

Mr. Clarke (Toronto) - "The deficit is large."

Mr. Emmerson – "It is the growing time. The increase was due to higher wages paid, so that as we are the friends of the labouring men my hon. friend will not cry over the result."

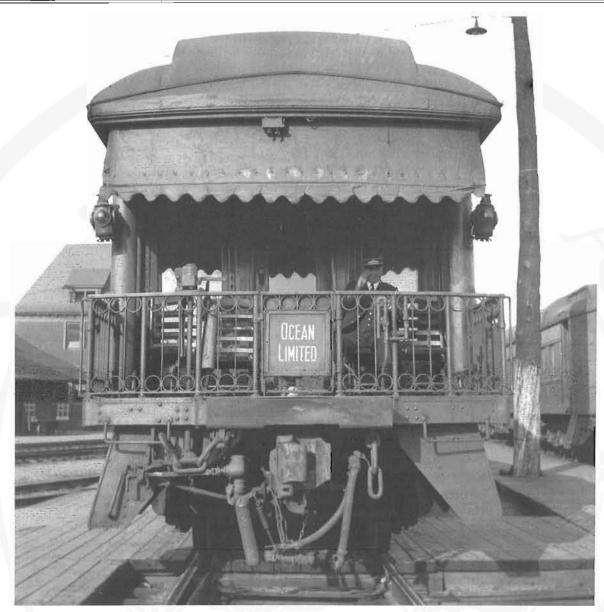
The minister went on to explain why he had taken the unusual step of bringing the accounts to Parliament before the end of the fiscal year:

Mr. Emmerson continues: "I have found by reference to *Hansard* that the statement is usually made in May or June and commences with an analysis of the preceding year and is followed by an analysis of accounts for the current year, which usually is brought up to the 30th of April. I am following the usage. I feel it my duty to lay before Parliament the details of the increased expenses so that it may be apparent how it was caused."

Emmerson clearly defined the higher wages in all trades as the cause of the deficit, but neglected to remind the House that the Intercolonial had been absorbing other lines in the intervening period, acquiring not only new employees, but more track and rolling stock that was in need of repair:

"In presenting these figures, which, as the Minister stated, were not of a glowing character Mr. Emmerson said that he had no apology to make. The Intercolonial was not built as a commercial undertaking. It was constructed as part of the work of Confederation for the purpose of cementing the Provinces together. It was not correct to say, as some did, that the road was built in the interests of the country to increase the freight rates. If any attempt was made to do so, there would be a protest heard against it. But there were other ways of making the Intercolonial a success. A good deal could be done in modernizing the road. That was something he would address himself to. The straightening out of the curves and the improvement of the grades and bridges to bear the heavy engines that would have to be secured would all go to make the road a more profitable asset. It was yet to be one of the greatest assets that the country had."

The public contest to which King/Jefferson alludes was not a Canadian initiative. The Halifax *Herald* of April 30, 1904 had already given notice of a contest by the Delaware & Hudson Railroad which had offered a \$50 prize to whoever submitted the winning name for its new train to Lake Placid.



The conductor sits on the rear platform of the observation car of the *Ocean Limited* at Moncton in the 1930s. Photo courtesy of J. Norman Lowe

By including the public in the process, however, even at a time when additional government spending on railways was proving to be a thorny political issue, Emmerson made a calculated effort to allow the voters to feel like they were involved as stakeholders in the service, rather than just a silent partner or nebulous "shareholder" in The People's Railway.

Even though the new train would stop at fewer communities than the Maritime Express, the taxpayer felt as though the Ocean was *their* train, and the faster service offering a relief from the often-tedious trip on the Maritime Express, made it doubly welcomed.

It was clear in subsequent administrations that the Ocean limited was to be a flagship for railway travel, and regardless of deficits, no expense was to be spared. The Canadian Government Railway Employees Magazine of August, 1915 proudly boasted:

"ANOTHER FINE CAR ON INTERCOLONIAL -ATTACHED to the Ocean Limited on Thursday afternoon, northward bound was Car. No. 168 and bearing the words "Canadian Government Railways." This was the car's second trip since it left Rhodes, Curry Car works at Amherst as a credit to its builders. It is the very last word in first class cars. The car is of steel framework with a hard wood finish of bright cherry stain. The ceiling is of Nile green, relieved with a tracery in yellow. The ventilating windows as well as the semi-circular half lights above the regular windows, are of amber-tinted opaque glass relieved in each half light by a narrow strip of coloured glass, principally green in miniature leaded panes. The amber tint varies in intensity making the general decorative scheme of the art glass highly pleasing - so much so that the gratification grows upon the traveller as the journey lengthens. The seats are easy and inclined at a comfortable angle. The upholstery is in a serviceable

green. The parcel racks are capacious in their width and yet unobtrusive in design. Being of brass - bright and new - the racks added much to the car's general appearance. The car is lighted at night by electricity. Ten lamps run along each side of the car - or twenty in all. Each alternate lamp is set slightly lower and nearer the side of the car than its neighbour. The electric lights are controlled by switches and may be used in part or as a whole. The globes are half-clear and half frosted - the latter being the upper half. The lights are equivalent to 30 c.p. The general effect at night is satisfactory and reading is easy. There are three electric fans; one at each end of the passenger compartment and one in the smoker. The lavatories are conveniently fitted out with a late type of flushing system. The vestibules are of steel frame work and solid steel platforms. The car rides easily and is comfortable in its seating; efficient and modern in all its equipment and a marked advance in the system of ventilation, through the adoption of electric fans. The management merits commendation for this new departure."

That such opulence would be offered to "ordinary" passengers on the train was a clear indication that railway travel in Canada had indeed become an egalitarian institution, and by 1917 it was equally clear that the Ocean service was to be considered as something more than just a necessary means of moving people ... it was being marketed as a joyride. The Canadian Government Railway Employees Magazine for September, 1917 cheerfully observed:

"- A PLEASANT JOURNEY FROM MONTREAL TO HALIFAX - By the Ocean Limited Along the St. Lawrence Valley to the Maritime Provinces - By A. H. L. - IT is a pleasant ride from Montreal by the Ocean Limited right through to Halifax. In fact I do not know where a railway journey could be taken where the same amount of mileage will contribute a greater amount of enjoyment to the traveller.

This in the summer time of course, when the grass is green, the trees in full leaf, and hills, valleys, lakes, rivers and sea, forming a panorama of loveliness.

Seven o'clock in the evening is a good time to leave the metropolis of Canada, especially if it is hot weather and you are bound eastward to "cooldom."

You are tired after the day's business. On the luxurious steel sleepers you find restfulness and comfort. On the dining car you can amply satisfy the craving of the inner man, while afterwards the mellowing twilight tends to reflection, retrospection, and repose. You are translated from the burdened atmosphere of a busy city to green fields and pure air, and if your physical state is at all natural, you will slumber in peace and relaxed restfulness.

In the morning when you hear the call of "breakfast is ready," you find yourself approaching the famed valley of the Matapedia where for twenty-two miles the train follows the river to the "meeting of the waters," where it joins the Restigouche and sweeps on to the Baie de Chaleur. Here is sunshine, light and colour, lofty hills crowned with verdure, and a rapid winding river, the abiding place of lordly salmon. Here you catch glimpses of sportsmen in canoes paddled by stoical Indian guides, whipping persistently among the pools, and sometimes

have the privilege of seeing one playing a twenty pounder with a skill that tells of experience. At Matapedia station you see the fine clubhouse of the wealthy owners of this famous stream. You see also the puffing train on a side track that connects with the Ocean Limited and goes down to the Gaspe peninsula. Then a further dash along the shore of the Restigouche takes you into the Province of New Brunswick and to the town of Campbellton.

Here is where you can get some idea of the lumber industry. Thousands of logs float in the booms, and squatty tugs tow immense rafts to the mills. You hear the weird music of giant saws converting the logs into deals, boards and shingles, and see at the wharves the ships of our own and allied and neutral nations loading cargoes for export. A branch line runs from Campbellton across the northerly part of the Province to St. Leonard, a distance of 112 miles.

At Dalhousie Junction the train stops to transfer passengers to the branch train for Dalhousie, a place that has many charms for the summer visitor. Across the Baie de Chaleur are the Gaspesian Hills, with the picturesque hamlets of the settlers at their base. As far as the eye can see the shores on both sides of the bay are dotted with clusters of white houses and tapering spires of distant villages.

Other trains sufficiently serve most of the stations along the main line. The Ocean Limited is a through train with a schedule calling for considerable speed. So you glide rapidly through this region of diversified scenery and come to Bathurst. Bathurst has gained greatly in industrial importance during the last three years. Always a lumbering centre, it has now a large pulp mill which gives employment to many workmen. It is quite a live town, charmingly situated at the mouth of the Nepisiguit River. At Bathurst Point, overlooking the broad and beautiful bay, there are summer cottages that are occupied each year by visitors who enjoy the salt air and the excellent bathing. The Nepisiguit is a fine salmon stream, and this a region renowned for sportsmen, as moose, caribou, deer and bear are plentiful in the forests to the North and East.

Farther along is Newcastle on the Miramichi, another great lumbering centre, with branch lines running to Chatham and Loggieville, and one to Fredericton, New Brunswick's fair capital.

A train leaving Newcastle after the arrival of the Limited reaches Fredericton the same evening, a connection travellers have not enjoyed before this summer. Along this line is a region renowned for sport, and the opportunities for canoe trips, summer outings and camping tours are innumerable.

Moncton is reached at 4:00 p.m. and connection is here made with a train from Saint John, and with the "Boat train" for Point du Chene, for the benefit of travellers for Prince Edward Island. From Moncton eastward the train stops at Sackville, Amherst, Maccan, Springhill Junction, Londonderry and Truro, where connection is made with evening trains for New Glasgow and Pictou and for the Sydneys. Halifax is reached at 10:50 p.m. after a journey of twenty-seven hours, covering 836 miles. Do you know of a more interesting and enjoyable train ride elsewhere?"



Two photos of the interior of the new "Renaissance" cars as used on the latest generation of the *Ocean*. Above is the dining car ready to receive hungry passengers, while to the right is the electronic indicator board showing the stations at which the train will stop.

Indeed, only the necessities of war could interrupt the Ocean's regular schedule, as it did in 1917, threatening to spoil what has become a longstanding record for service, for while the Ocean is longest continuously scheduled name train service, its schedule did not necessarily take it all the way from Halifax to Montreal, as the Moncton *Daily Times* of March 2, 1917 observed:

"OCEAN LIMITED IS COMING OFF NORTH MONCTON, MONDAY – Will Continue On The Present Schedule Between Moncton And Halifax – Maritime Express Will Now Run Through Daily – Number Of Small Branch Runs Cut Or Modified To Suit Changed Conditions – Commencing Monday, March 5th, in order to facilitate the movement of overseas freight and ameliorate the freight situation generally, it has been decided by the management of the Canadian Government Railways to withdraw from service the "Ocean Limited" between Moncton and Montreal. The last through, westbound train (No. 199) will leave Halifax Sunday, March 4th, and the last east-bound train (No. 200) will leave Montreal on Sunday, March 4th.

The foregoing information is contained in a brief circular issued to the Canadian Press last night, through *The Daily Times*, by the management of the Canadian Government Railways.

The following information relating to the Limited between Halifax and Moncton and to other local trains affected by slight changes in schedule, is also contained in the circular, which says:-

"Trains Nos. 199 and 200 will run between Halifax and Moncton daily except Sunday on present schedule. "The Maritime Express will run through between Halifax and Montreal daily, commencing Monday, March 5th. "In order to make close connection from Sydney with 'Maritime Express' (Westbound), train No. 6 will leave Sydney and intermediate stations to Truro one hour earlier than present schedule. "Trains Nos. 41 and 42 will be restored to schedule as shown in time table No. 7, commencing Monday, March 5th."

This interruption was short-lived. In its April 3, 1917 edition, the *Daily Times* noted:

"CANADIAN GOVERNMENT RAILWAYS" CRACK EXPRESS TO BE RESTORED APRIL 15th - The



Ocean Limited Will be Put Back Into Service About The Middle of The Present Month -That the Ocean Limited is to be restored to the Canadian Government Railway's time card between Moncton and Montreal, sometime about the middle of April, was the interesting news learned by The Times at railway headquarters here last evening. General Manager F. P. Gutelius, when questioned as to the correctness of rumours which have been in circulation for several days, authorized the above statement, and referred the newspaper representative to the passenger department for further particulars.

Mr. H. H. Melanson, general passenger agent of the Canadian Government Railway, stated that according to present arrangements, the restoration will take place on April 14th and 15th. No. 200 will leave Montreal at 7:15 on the evening of the 14th on her first trip east, and No. 199 will leave Halifax on the 15th, on her first trip west. The time of the Limited will be the same as before the last change of time-table. No. 199 will reach Moncton from Halifax at 2:00 p.m., leaving for Montreal at 2:25 p.m. No. 200 will arrive from Montreal at 5:35 p.m., leaving for again at 6:00 p.m. for Halifax.

It was originally the intention to keep the express on all winter, but the exigencies of the freight and military situation, as explained in parliament several months ago, made it necessary to take the train off for a while. The news of the restoration will without doubt be received with general pleasure by the travelling public. It is learned from general manager and general passenger agent that no further changes in the passenger time card are to take place at the present time.

A new time card covering the necessary changes is being issued."

Nor has the train always followed the same route over its 100 years. Accidents, derailments and weather conditions have all conspired at times to force the train to take the NTR route from Moncton to Edmundston.

Derailments and spring floods in the early 1960s even obliged the train to travel from Halifax to Truro, then to Pictou, then to Oxford Junction by way of the short line along Nova Scotia's Northumberland shore, back on to the main line for Moncton.

It may be this determination to "get through" despite many obstacles that has brought the *Ocean Limited* its revered position in Maritime Canada.

Some Milestones in the Life of the "Ocean"

Compiled by Jay Underwood

Editor's note: The official name of the train was changed from *Ocean Limited* to *Ocean* in the 1960s. In this compilation the two names are used interchangably.

July 4 1904 – First Ocean Limited leaves Halifax for Montreal. Intended as a weekly summer time train to take excess passenger traffic from the Maritime Express.

1914- Ocean for Montreal numbered 199, Ocean for Halifax numbered 200

May 2 1915 – Ocean goes into daily summer service, partly to accommodate excess troop traffic for Halifax in First World War. 25-hour trip promises "new sleeping cars, new dining cars, new day coaches, the most modern and powerful locomotives of the dreadnought class." Timetable allows for daylight runs through Wentworth and Matapedia valleys.

July 23 1915 - The body of Sir Sandford Fleming, whose death took place on July 20th, went forward in the private car "Rosemere" attached to the Ocean Limited to Ottawa.

January 1916 - Ocean Limited winter schedule in effect.

January 10 1917 - With many passenger trains being cancelled to relieve war-related congestion on the railway, the Dominion Railway Commission announces one change which will be made is in the time of the *Ocean Limited* which will take about 27 hours and 55 minutes between Halifax and Montreal, instead of 25 hours and 5 minutes as at present. The *Limited* will now leave Halifax at 7:00 o'clock and will reach Montreal at 10:00 the following day.

December 6, 1917 – The *Ocean* misses the devastation of the Explosion caused by the ships *Mont Blanc* and *Imo* in Halifax Harbour. Much of the city's north end, including the Intercolonial Station on North Street, was damaged in the morning blast. The westbound *Ocean* had departed an hour before, and the eastbound was not scheduled to arrive until 4:25 p.m. and was stopped at Truro.

December 10 1917 – *Ocean* resumes runs into Halifax, terminating at a makeshift station in the city's south end.

January 1918 – Ocean Sunday run taken off schedule. Replaced by *Maritime Express*.

November, 1919 – Four men are arrested and an undisclosed amount of cash is recovered after robbers broke into the mail car attached to the *Ocean Limited* near Quebec City.

1927 – Acadian, an all-sleeper service, is added between Montreal and Halifax to relieve traffic on the Ocean.

1928- Average speed of the Ocean 31 mph.

May 7 1937 – Eastbound *Ocean* collides with string of runaway coal cars from the Cumberland Coal & Railway Co. near Little Forks N.S. Six people are known to have died (two of them are unidentifiable), and as many as four others, all men riding "blind baggage" may have been killed. A royal commission of inquiry makes recommendations to improve safety of switching operations near the main line, and ends the practice of "riding blind," non-paying passengers riding on the open vestibules of coaches.

1941- Ocean was leaving Montreal in seven sections to accommodate increased wartime passenger traffic.

1954- The Ocean Limited is the first CN passenger train to "go diesel."

1959- Ocean Limited's best time is recorded at 20 hours 15 minutes.

1961 - Ocean colour scheme changes from CN green and gold, to black and silver.

1963 – CN introduces pilot "Red, White & Blue" fare scheme on *Ocean Limited* as passenger traffic begins to decline.

1963 – Six "Skyview" bedroom-lounge cars are introduced on the *Ocean* and *Scotian* in an attempt to attract more traffic. Average speed of the *Ocean* is 40 mph.

1967 - Ocean records "best-ever" scheduled run from Halifax to Montreal of 19 hours 50 minutes.

1969 - Ocean's best time is recorded at 19 hours 55 minutes.

1978 - Ocean colour scheme changes from CN black and silver to VIA blue and yellow, with red CN logo on locomotive nose. VIA Rail Canada Inc., a subsidiary of CNR, assumes operation of the Ocean, along with passenger train services of Canadian National and Canadian Pacific.

March 31 1978 - VIA Rail assumes ownership of *Ocean* equipment.

April 1 1978 – VIA Rail becomes a Crown Corporation, passenger-related employees at CN become VIA employees.

November 1981 - The *Ocean* survives the 30 per cent reduction in services ordered by the federal government.

1983 – A severe winter puts strain on all VIA's steam generator units, with many on trains like The Ocean Limited breaking down. Leads to move toward new electrical heat generating units.



The westbound *Ocean,* No. 15, as seen just outside of Amherst on March 27, 2004, with an all stainless-steel consist. By the end of the summer of 2004, the *Ocean* will be entirely Renaissance. We will leave it to the readers to decide which they prefer. Photo by Andrew Morris

1985 – The *Ocean* is powered by new GM F-40 locomotives. Steam generator units are removed from service.

1986 - VIA Completes takeover of all passenger stations on *Ocean* route from CN.

May 1987 – VIA program offering 50 per cent fare reduction for passengers who arrive at their destination more than 15 minutes late extended to *Ocean* passengers. Reduction is applied to cost of next ticket purchased.

1988 - F9 and F9B locomotives are withdrawn from service.

November 11 1988 – VIA opens its new maintenance facility at Halifax to service *Ocean* equipment.

December 1988 – VIA begins \$200 million modernization plan replacing the blue and yellow passenger cars with modernized stainless steel cars, including 157 previously acquired from CP. This upgrading program was completed by 1992.

April 1 1989 – 6700 series FP4A units are not permitted to lead trains, including the *Ocean*. Last FPA4 and FB4 locomotive units taken out of mainline service.

April 1989 – The *Ocean* survives the 50 per cent reduction in VIA passenger services ordered by Conservative Transportation Minister Benoit Bouchard.

October 4 1989 – The Ocean (Trains 11 and 12) is expected to be reduced to tri-weekly service in the wake of the Bouchard budget cuts.

November 1989 – Bouchard budget cuts affect The *Ocean*: The days of operation of Trains 14 and 15 between Montreal and Halifax will alternate with the days of Trains 16, 17 between Montreal and Gaspe, and with Trains 11 and 12, the *Atlantic*, going by way of Saint John. There is no service departing on Tuesday from either Halifax or Montreal.

January 1990 - Train numbers become: VIA 15 (Su We Fr) from Halifax to Montreal VIA 15 (Mo Thu Sa) from Montreal to Halifax. VIA 11 (Mo Thu Sa) From Halifax to Montreal (Tu Fr Su) from Montreal to Halifax. VIA 14 (Su We Fri) From Montreal to Halifax. VIA 12 (Mo Thu Sa) Montreal to Halifax

October 1990 – "Style and Steel" program introduces refurbished stainless steel passenger lounge cars to *Ocean*. Art deco décor aims to attract new passengers to VIA's transcontinental trains.

December 15 1994 – The *Atlantic* is cut from service. The *Ocean* now operates six days a week between Montreal and Halifax.

March 2001 - VIA tests "Nightstar" equipment on *Ocean* route. Destined to go into service in 2003.

April 12 2001- Ocean is derailed at Stewiacke NS by a 15-year-old boy tampering with a switch. The 13-car train is wrecked, but there are no fatalities. The youth is subsequently convicted and sentenced to a detention facility. Upon his release, he is charged in connection with an incident of cruelty to animals.

May 2001 – Two men are killed at Elmsdale NS, after the *Ocean* strikes their vehicle on an unmarked grade crossing.

July 30 2003 – VIA Rail introduces "Renaissance" cars, renovated European "Nightstar" carriages surplus from Channel tunnel operation. Locomotive power is 6400 series (F40PH-2). Stainless steel equipment, including scenic dome cars, are to be phased out of service over a period of about one year.

Aug 7 2003 – Halifax departure and arrival of the *Ocean* is delayed by an explosion at the nearby grain elevators.

July 3 2004 – The *Ocean* celebrates 100 years of service, Canada's longest running named train

The Ocean Limited

by Ken Cairns

The following verses are from a longer poem by Ken Cairns, a Cape Bretoner who presently lives in New Minas, Nova Scotia. He has worked for CN and Via Rail for the past 33 years. He is presently working on the *Ocean*, Nos. 15 & 14 as a Service Manager, and is hoping to make it four in a row on the Bras D'or (Halifax to Sydney, NS) this summer.

In the year of nineteen four, Eastern people began to roar. What we need is another train, To take away the summer pain.

The Maritime Express is full.
All the cars that steam can pull.
Who will we talk to, who's on our side?
Get H.R. Emmerson, Westmorland's Pride.

So Emmerson worked with all his might, Because he knew that votes were tight. Public contest was the plan, As Minister of Railways he was the Man.

So to the people of the time, By word of mouth and papers fine. What will we call it, it's our train? The "Ocean Limited" is a mighty fine name.

When the leaves began to fall, The Board of Commissioners made the call. The Ocean Limited we will keep, Through rain and snow, and wars and heat.

Sleeping ,dining and parlour cars, Coaches, big engines and baggage cars. Will the Ocean Limited comprise, We will try it on for size.

Connections from the Sydneys old, Confederation's home is in the fold, The Loyalist City joins up next, The Boston States, so don't be vexed

"The People's Railway" had a job, To handle traffic, what a mob! The people to the train did flock, All the way to Morissey Rock.

Halifax, it was the start.

Moncton also played a part.

North Shore and Wentworth Valley fine,
Miramichi Salmon and Riesling wine.

Through the Matapedia Valley bold, To St. Flavie, as the miles unfold. Time to sleep and curl up tight, In the morning, what a sight! The Empress of Ireland sank one night. As you pass through Rimouski, look off to the right. The mighty St Lawrence, with scenery so bright, Levis is left, Quebec to the right.

The Citadel across the river, An awesome sight, it makes me quiver. Into Montreal by noon, This new train has been a boon.

Down through Quebec with its churches pristine, Farmland and woodland, and villages clean. Instruments of wind, master craftsmen work on Known round the world, by voices in song.

The River St. Lawrence, soon will she cross. Millers and brewers make fortunes from hops. Ice hockey team, that is second to none, Now she's arrived at the end of her run.

Once gracing the front of the five dollar bill, Down through the valley the whistle is shrill. 'Cross bridges and rivers, by the bay that is warm. When she arrives at the station, how people do swarm!

December sixth '17, was an awful day, A mighty bang, blew the station away. The Ocean Limited continued to run, With doctors and nurses... and, I bet, some rum!

As the lamps across Europe started to go out. And men were needed the enemy to rout. Coach cleaners and operators, women stepped in; Twelve hours a day for less than a fin.

During the war in forty one, The "Scotian" was added to the run. The "Gull" from Halifax and through Maine, The Ocean Limited, a sleeping car train.

Debert was a military post during war. The Limited passed heading north from the shore. The Cooks and the Chefs, their pies they did bake, At St. Fabien, she survived an earthquake.

The bridge at East Mines was a vulnerable spot, Guarded in wartime, against an onslaught. The North Novas stood in the wind and the rain, As the Limited passed, she's holding the main. C. T. C. is needed whatever the cost, Without it, in Europe, the war might be lost. The first line in Canada, where will it be? The Bedford and Springhill, way down by the sea.

Churchill and Roosevelt in Quebec did meet, Two Royal trains, a mighty fine feat. Businessmen of might and fame, To the salmon rivers came.

The fifties would see the greatest change of all time, Dieselization of engines, no work in the mines. Ice under cars when the weather was hot, Gave way to A.C., we're improving our lot.

Airplanes also took to the skies, Delegrave looked at them, eye to eye. Red, White and Blue is how it should be. People this country, just have to see.

Sixty seven was a hundred years,
Since Sir Tupper had cried in his beers.
Thousands of Maritimers to EXPO went,
The Limited carried them, and never broke a sweat.

The Chaleur from Moncton to Montreal, The Cabot from Sydney, through Grand Falls, The Maritime, its days were done, But the Ocean Limited continued to run.

The price of gas went up and up,
People started to close up tuck.
A vacation and travel is what we need,
Jump on the Limited, and forget the speed.

The Tantramar Marshes, they made a great set, For Colville the painter, and his brushes wet. And Hank Snow the singer has written a song, The Limited continues to Chug, chug along.

The Scotian died in seventy nine, Some thought the Ocean Limited had done its time. Now the Atlantic was her partner true, Soon six days a week, under government Blue.

Cutbacks in funding are no way to work. Connections are needed, it isn't a perk. Cape Breton and Saint John, in the original plan, Now they all ride in a shuttle type van.

The Chef has his prime rib all ready on time, The Steward is getting his wine in a line. The Cook has fresh fish all ready to bake, And sauces and chowder, some pies and some cakes.

The Porters are folding their towels so clean, And Waiters and Pantrymen make silverware gleam. The Sleeping Car Conductor, sorts his tickets by car, And B. B. L. Porters serve drinks in the bar. Sleepers and parlour cars ever so clean, And spitoons in the smoker, how they do gleam. Fresh flowers on tables in each dining car, As we sit down to dinner, we've traveled so far.

Fish Chowder and Prime Rib with horseradish sauce, Creamed parsnips, baked potato, is this ever posh! White jacketed waiters, with aprons like snow. A blue vested Steward, how they do glow.

Our Chef is the pride of the C. N. R. line, The Steward informs me, as he opens my wine. Apple pie for desert, freshly baked on the car, Conversation and coffee as I light my cigar.

A drink in the "Cape" car, double scotch, make it neat, As I climb in an upper, whew what a feat! White starched linens, so crisp and so cool Next time I'll take a lower, I feel like a fool.

Although many trains from the Maritimes went, The Ocean continues, she'll never be spent. Purple her livery, then black green and gold. Numbered as three and four when she was born.

Then she was one and two, the pride of the line, Black red and white and a noodle so fine. Fifteen and fourteen soon she would be As she continued to roll to the sea.

Blue and yellow was the next trim, Somehow she continued to look quite prim. Changes were coming as HEP replaced steam, Old Timers thought it must be a dream.

Stainless and blue now does she show, Never held up, not by rain, wars or snow. Now there'll be Renaissance, the next generation Running into Halifax station.

If the Ocean could talk, it would tell quite a tale. The history it's seen as its whistle did wail. The people it's carried whether famous or not, It's part of our history that has to be taught.

So here's to the people who worked on the line To keep the Ocean Limited running on time. May we ever remember their work that was fine, As the Limited passes over the I. C. R. line.

Intercolonial to C.N. and then Via Rail Although she is old she is still mighty hale. One hundred years is a mighty fine feat, No Canadian train with a name has her beat.

So on third of July, two thousand and four, We should remember all who have gone before. The Ocean Limited is still first class, So come on folks, let's raise a glass.

The legend of the Grecian Bend

by Jay Underwood

In the years since George R. Stevens wrote his history of the formation of Canadian National Railways (MacMillan & Co.) much calumny has been heaped upon John Livesey, the principal partner of the International Contract Company, and owner of the iron mines and foundry at Londonderry, Nova Scotia.

Stevens' version of the events that led to the creation of what is known derogatorily as "the Grecian Bend" blames Livesey's intransigence and political machinations for the decision to have the Truro-Amherst section of the Intercolonial Railway's main line swing miles off a more direct course, to pass through Londonderry and Livesey's Acadian Iron Mining Association mine and foundry, then over the Cobequid hills on a grade that made it uneconomical and difficult to operate passenger trains safely.

Given his reputation for having a bawdy sense of humour, it is hard to believe that Sandford Fleming - the chief engineer of the Intercolonial, and the man with whom Livesey would clash - did not see the humour in the soubriquet. It was no doubt to him a serious business. In his 1876 history Fleming referred to it wryly:

"..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 the term "The Grecian Bend", which, possibly, may be retained so long as the railway endures."

In that final observation, Fleming proved prescient. Another stretch of the line, making a similar wayward sweeping curve near Amherst, was referred to as "Tupper's Bustle," a reference to the political intervention of Charles Tupper – who had interests in the local coal mines - but that term has long since passed out of use.

It is widely believed the term "Grecian Bend" was a reference of the day to the often-extreme proportions of a lady's dress bustle, greatly exaggerating her figure from the rear. In fact, it refers to the manner in which women who chose to wear the bustles carried themselves, as an anonymous historian notes on the web site http://www.hollywoodjesus.com/beauty06.htm:

"Fashionable ladies of the day wore corsets that caused them to assume a bent over posture which was referred to as the 'Grecian bend'.

The Grecian Bend was the most erotic style of the century. To effect the look of the Bend, women had to be corseted. The corset had to be laced as tightly as possible.



A mid 19th century illustration of the "Grecian Bend," by Currier and Ives, as seen in an American magazine of the time. (Courtesy Library of Congress)

Shoes had to have the highest possible heels in order to achieve the stride that attended the posture. Sauntering down the street required complicated mechanics. The body was thrust both backward and forward so that bosoms and buttocks would protrude as much as possible. The style was often so exaggerated, and the corseting so restrictive, that women could not sit upright in carriages. They were compelled to lean forward and rest their hands on cushions on the floor to support themselves. Extrication from the carriage took the helping hand of a friend."

It is perhaps unfortunate for Fleming that this style became fashionable at the same time he was haggling with politicians over the route his railway would take in Nova Scotia's Cumberland County, a fashion lampooned in a popular 1868 ditty (see side bar opposite).

The Grecian Bend

Eastburn New York: 1868

The Ladies wanting something new, As women are so prone to do,
Wear lofty heels upon the shoe to give them a Grecian Bend.
With foot so short and heel so high they can't stand plumb if they would try,
And so they think to catch the eye by means of the Grecian Bend.

CHORUS:

Oh, see them promenade Broadway, from early morn to end of day: To hear what dashing gents will say about the Grecian Bend.

T'is fun to see a lass so tall, lean forward 'till you'd think she'd fall:
Or pitch against a tree or wall, Because of her Grecian Bend.
E'en bashful girls are forward now, So forward that the people vow;
They've been all day behind a plow, To give them their Grecian Bend.

CHORUS

Fat women now will not be seen, For all are bent upon the lean;
A novel way to walk the Queen, This beautiful Grecian Bend.
When girls go out upon the street, Their heads arrive before their feet;
The figure cut is sure a treat, But this is the Grecian Bend.

CHORUS

The doctors think the walk is fine, For all the ladies who incline; Must have a curvature of spine, To give them a Grecian Bend. Old maids declare it just the plan, They try this semicircle sham, Pitch into horse and dray, and man. And spoil their Grecian Bend.

CHORUS

What next we'll have we do not know, For novelty is all the go;
And when designs begin to flow, Where will the follies end?

Perhaps you'll see them by the scores, Down on their knees upon your floors;
To try to go it on all fours, And cut the Grecian Bend.

CHORUS

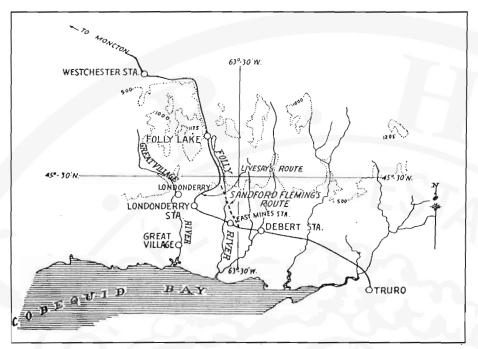
The Grecian Bend for Westend Belles, is thought by love the thing The Roman Fall for 'bout town Swells, Is what my boys I sing; Heads up, chests out la militaire, How graceful the effect, How stylish yet how debonnaire, It is the walk correct.

CHORUS

In *The Myths of Sandford Fleming*, (Canadian Rail, No. 483, July-August 2001) it was shown that Livesey's request, subsequently upheld by Nova Scotia politicians and Fleming's overseers on the railway commission - indeed made a great deal of sense. The railway would come to support an industry that was vital to the economic development of the fledgling country, and would take the line through what was then a major population centre at a time when portions of Fleming's route through northern New Brunswick were being criticized for doing just the opposite.

Fleming made great fare out of Livesey's antagonism in his 1876 history of the completion of the Intercolonial. He fought it more vehemently than he did "Tupper's Bustle," or the equally famous "Dorchester Diversion" inspired by the demands of railway commissioner Edward Barron Chandler of New Brunswick.

There may, however, have been another motive for Fleming's choice of a more direct route, and it could be shown that Livesey saved the Canadian taxpayer (who would ultimately be repaying the British imperial government for



Stevens' map of the Grecian Bend: The location he gives for Fleming's preferred route through the Cobequid Mountains seems impossible on practical inspection.

the loan which financed construction of the railway) millions of dollars by insisting upon his route, or at least the compromise that favoured his commercial interests.

The Intercolonial earned Fleming much acclaim for the substantial nature of the construction, and it perhaps fitting that the Londonderry controversy should take place in Nova Scotia, where the engineer honed his craft building the Pictou branch of the Nova Scotia Railway in the years immediately preceding Confederation.

Prior to the Pictou branch, Fleming's only significant railway experience was gained upon the Northern Railway in Canada, a project that required the steadying hand of Frederick Cumberland to resurrect it from its inadequate state and near-bankruptcy.

Upon the completion of the line from Truro to Pictou, Fleming was congratulated by several reputable engineers for the quality of his work; men no doubt cultivated for their opinion, which was made public by Fleming in an unabashedly self-congratulatory pamphlet intended to deflect some of the political criticism he had faced in Nova Scotia.

One of the compliments, of which he may have been particularly proud, came from George Lowe Reid, the engineer of the Detroit & Milwaukee, Great Western of Canada, Galt & Guelph, London & Sarnia, Petrolia, and Toronto & Hamilton railways. Commenting upon Fleming's use of culverts and embankments Reid wrote:

"In the formation of the numerous embankments across the bends of the principle river valleys, and across

the ravines and gorges of the tributary streams, your work merits special notice. It is well known to those who have had experience in the maintenance of railway works, that a solid embankment is greatly to be preferred to any bridge or viaduct, however well built, or however durable its component parts may be. In the latter case, the joints of masonry require frequent pointing, and the iron work requires to be painted every few years, and the timber floor is subject to inevitable decay. But in the case of a well consolidated embankment, no future expenditure is needed; and the exposed faces of the culvert which passes under it bear no comparison with the superficial areas of a lofty bridge, with its abutments and wing-walls and piers, and its iron or wood superstructure.

I observed several instances

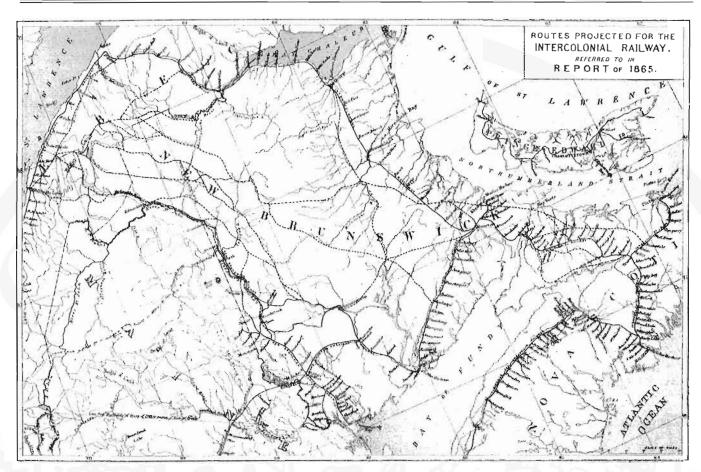
in which you have, at a largely increased cost, built a solid embankment and culvert, where, by a slight change of location and grade, you might have greatly reduced the amount of excavation, and have crossed the ravine by a series of spans which would have produced a very pleasing structure which an unprofessional man might suppose to be more costly and more durable than a solid embankment with its accompanying culvert. Few persons besides the Engineer and the contractor know how much costly masonry is buried out of sight underneath one of those heavy embankments to which I refer, and fewer still know how much care and skill are required in their construction, and how much is saved by them in future years, in the general maintenance and repairs of the road."

In his history of the Intercolonial's construction, Fleming emphasizes Reid's assertions about the economics of culvert versus trestle construction:

"It has already been stated that a viaduct is not, under ordinary circumstances, an economical or desirable structure, and that it should only be introduced where a river of considerable width has to be crossed. Accordingly, Bridges have been avoided in all cases, where a solid earthen embankment could be formed. The one exception, at the River Folly in Nova Scotia, has already been mentioned."

It would appear from these two statements that Fleming was very much an "embankment man," eschewing bridgework for reasons that he could justify as he did in his 1876 book:

"In laying down general principles by which the construction of the whole of the structures on the line was

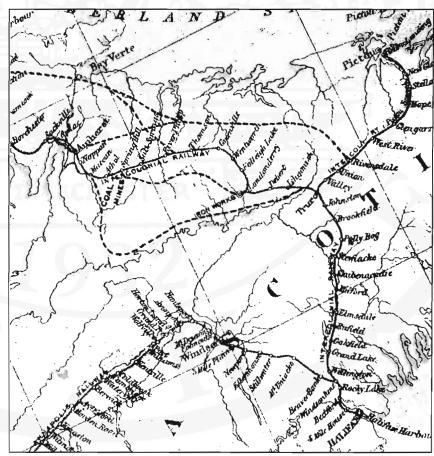


ABOVE: Map showing the various alternatives proposed for the route of the Intercolonial in Fleming's report of 1865.

RIGHT: An enlarged detail from the above map showing the routes in the vicinity of the "Grecian Bend". Note the spelling "Folleigh Lake".

From: *The Intercolonial, a History*, by Sandford Fleming C.E., published in 1876.

to be governed, engineering requirements were primarily regarded; but economy in expenditure was by no means lost sight of. It was felt that while the abutments and piers should be designed to efficiently resist the peculiar climatic forces to which they would be exposed, it was equally important to accomplish the desired object at a minimum cost. A saving of expenditure at one point, or on a single structure, might be a matter of no great consequence, but when multiplied by the number of cases which occur on such a length of line, the importance of a well-considered system becomes apparent."



MONTREAL, February 9th 1865.

To the Honorable William McDougall

Provincial Secretary, Canada

Sir,

I have the honor to submit the following report on the exploratory Survey of the Territory through which the contemplated Railway between the Provinces of Canada, New Brunswick and Nova Scotia is intended to run.

In conducting this Survey, I have considered the routes for the projected Railway which have on previous occasions been contemplated, as well as some others which seemed worthy of attention.

I have especially directed my attention to the best means of overcoming or avoiding obstacles which were previously considered serious or insuperable.

I have endeavoured to carry on the Survey with a strict regard to economy, at the same time efficiency — and I have completed the whole service at as early a period as it was possible, with the means at my command.

I shall in the following pages describe the quality of the land in the country examined, and its fitness for cultivation and settlement so far as I have been able to acquire information. I shall also make some allusion to the climatic influences which may operate on the several routes.

I shall likewise report, although I fear imperfectly, on the comparitive advantages of the various routes, in a commercial point of view.

The relative position of the several projected routes with the Frontier of the United States, will be described.

The estimates of probable cost will be based on calculations made with a view to efficiency, stability and permanency; at the same time having due regard to economy in the expenditure.

A schedule of the plans and profiles of the several lines surveyed, and explorations made, which have been laid down to convenient scales; together with other papers relating to the survey, will be found subjoined.

I trust that the information which I have now the honor to submit will enable the Government to judge of the practicability, probable cost, and respective merits, of the several projected routes of this proposed Intercolonial communication.

The Governments of the Sister Provinces have afforded me every facility in the prosecution of the Survey, and I am under no ordinary obligations to many of the leading gentlemen in New Brunswick and Nova Scotia for their ready assistance and the valuable information which they have furnished me.

I have the honor to be,

Sir.

Your Obedient Servant,

SANDFORD FLEMING.

The introductory letter to Sandford Fleming's 1865 report to the Canadian government, covering the survey made in 1864. This report described no less than fifteen alternative routes for the proposed Intercolonial Railway. It should be noted that, in 1865, the line would truly be intercolonial, as Confederation did not occur for another two years.

While this was true to some extent, it does not explain why Fleming chose to use so many embankments, rather than viaducts. In the very next paragraphs he notes:

"The question is governed by several considerations, the most important of which is the difference between skilled and unskilled labour. The Engineer determined that iron should be used instead of wood in the spans of bridges, on account of its durability, but he also considered that there should be as few bridges as possible, for reasons already submitted; and from the consideration that the iron work had to be imported; and, being the product of skilled labour, more costly than ordinary earth or stone work executed in the locality. Again, as masonry, is likewise the product of skilled labour and costs for a given quantity, fifty times as much as earthwork, it should in consequence be used sparingly, in fact never introduced where the latter can be substituted: moreover, it was held that none but the best masonry should be admitted and that a limited quantity of

good masonry could in most cases be employed more advantageously than a larger quantity of inferior masonry; that the difference in cost between equal quantities of both kinds was limited, and no way in comparison to the greater degree of stability and permanency attained by the use of masonry of the first quality."

Obviously, as the man ultimately responsible for bringing the project in under budget to please his masters in both the Canadian and Imperial governments (and by Canada it is here meant the upper provinces that would soon become Quebec and Ontario,) Fleming felt it important to cut down on the use of viaducts in order to reduce the reliance upon expensive skilled labour to build the bridge piers. But in the preceding quote, he overlooks the necessity of equally expensive, massive masonry structures hidden in embankments - as Reid had noted, - and, devotes almost the entire seventh chapter of his work to the character of the culverts he had built.

In this respect, some of Fleming's true genius has been overlooked. He was a master of stone culvert design, and meticulous in his specifications. The 1864 contract for construction of the Pictou Branch of the Nova Scotia Railway was unlike any the province's contractors had seen before, particularly those who had worked on the earlier sections of the line between 1854 and 1858. Fleming's instructions were both precise and exacting, especially when it came to the masonry and embankments:

"That first class masonry shall be built in regular courses of large well shaped stone laid in mortar on their natural beds, the beds and vertical joints shall be hammer dressed, so as to form quarter inch joints. The vertical joints shall be dressed back square nine inches, the beds shall be dressed perfectly parallel throughout. The work shall be left with the quarry faces, except the outside arises, strings and coping, which shall be chisel dressed."

He was likewise specific about the embankments surrounding the masonry:

"That after the masonry of a structure has been completed for a period of four of five weeks, the formation of the embankments around it may be proceeded with. The earth shall be carefully punned in thin layers around the walls and in this manner the filling shall be carried up simultaneously on both sides. The contractor shall be extremely careful in forming the embankments around culverts and bridges, as he shall be held liable for any damages to the structures that may arise through his negligence. The punning shall be carefully attended to, and the whole, filling shall be done in uniform courses, from the bottom to the top of the embankment without heading one side of the masonry more than another. The cost of punning shall be covered by the price of other work.

That the bottom of culverts and slopes of embankments, where required along the river, shall be paved

with stones set on edge to a moderately even face. The paving shall not be less than ten inches nor more than two feet in depth, and it shall be measured and paid for by the cubic yard at the price herein before declared."

Under such strict conditions were the culvert and embankment at Lansdowne constructed. That culvert has been enshrined in the legend of Sandford Fleming as the site of the celebration for the completion of the Pictou Branch in May of 1867. In *Railways of Canada: A pictorial history* (McGraw-Hill Ryerson, 1978) Nick and Helma Mika note:

"The line was completed in 1867, one month before Confederation. Contemporary railway engineers described it as "the finest half hundred miles of railway in British North America." To celebrate completion of the job, Fleming staged a picnic for everyone concerned with the project. A heavy downpour did not dampen his spirits. He ordered the picnic tables moved into a large railway culvert between Lorne and Glengarry, and a good time was had by everyone."

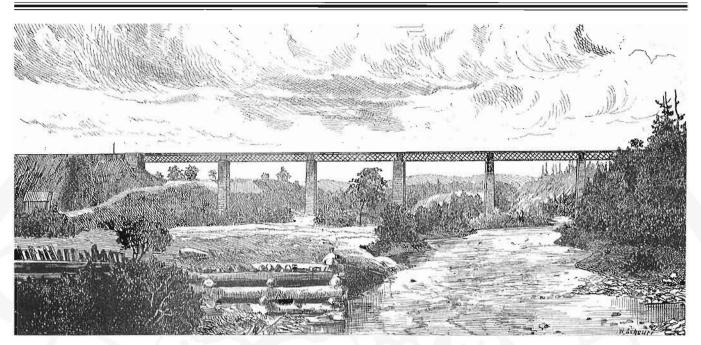
This story has dubious merit, since the culvert at Lansdowne - although sizeable - is not big enough to hold picnic tables and party-goers, and in a heavy downpour, the last place anyone would want to be is in a culvert through which a rain-swollen brook flows!

It cannot be said that Fleming was completely oblivious to the expense of culverts. Wherever possible he avoided them by cutting directly through the native rock. The most obvious example of this can be easily seen from Highway 4 over Folly Mountain, at the base of the existing railway viaduct. He describes it thus:

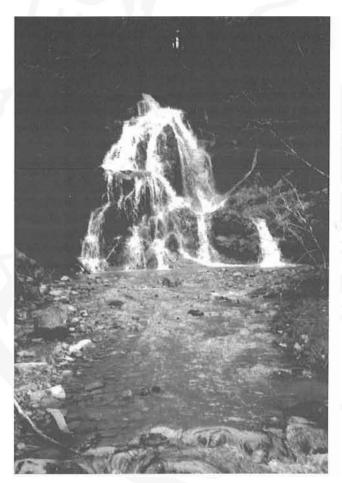
"The most important of the several iron bridges, is that over the River Folly, with six spans of 100 feet, 82 feet in height from the bed of the river, a striking structure built of durable sandstone of various colours. The foundations are on rock. It spans the eastern portion of the valley at this place. A long narrow ridge, about 50 feet high, divides the valley of the Folly from that of a smaller stream. This second valley, 80 feet deep, is crossed by a solid embankment; the stream being diverted through a tunnel into the Folly."

The stream is fittingly known as Tunnel Brook. Similarly Fleming, or rather his resident engineer Thomas S. Rubidge, used this method on several occasions on Contract 7 of the Nova Scotia division through the Wentworth valley:

"On this division seven tunnels are introduced, in place of long heavy culverts, in the ravines passed over; three of 9 feet diameter, four of 7 feet. The three former are respectively 300, 355, and 370 feet long. These seven tunnels are cut through solid rock; and require no lining, except in the case of one, which, for a length of 211 feet in the middle, required the protection of stone masonry 18 inches thick, with a water-way of 6 feet. There are, moreover, several tunnels 4 feet wide by 5 feet high, to take the place



The bridge at East Mines, at the eastern approach to Folly Mountain, is spectacular for its length and height, and for the "Hole in the Wall" through which Tunnel Brook was diverted. From: *The Intercolonial, a History*, by Sandford Fleming C.E., published in 1876.



THE HIDDEN FALLS:

The falls of Higgins Brook in the Wentworth Valley. The water was diverted through the rock beneath the right of way. (Photo by Andrew Underwood.)

of bog culverts for ordinary surface drainage. These tunnels are constructed on a steep side-hill and answer the purpose well. The small tunnels, at the upper end, have a wide perpendicular well, cut into the rock, from the bottom of which the incline commences, parallel to side-hill. Choking by floods and injury to the road-bed are thus avoided. A depth of at least 6 feet of solid rock has been maintained over the smaller, and of 12 feet over the larger passages so the conduits themselves are imperishable".

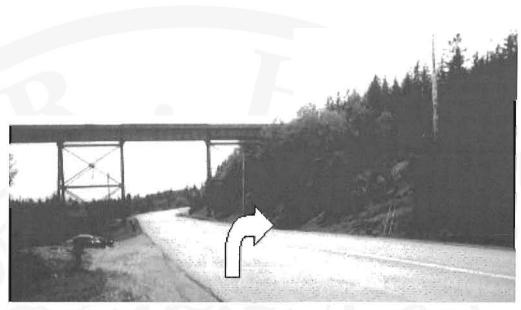
The most striking example of this practice can be seen in the Wentworth Valley, at the "Hidden Falls" off Highway 4 near the local motel. Accessible by a short walk along a dirt track, and only occasionally visible from the highway when the winter has removed the foliage from the surrounding trees, it is a delightful waterfall that many may mistake for a natural wonder. Only after a strenuous climb up the high side of the valley does one realize the true nature of the work.

This tunnel was made necessary by the extensive embankments across Henry, Harry and Smith brooks. Fleming noted that Contract 7 required some "heavy" excavation work, almost all of it in the last six miles leading to Contract 12 – the stretch from Folly Mountain to Truro:

"..having upwards of a million cubic yards of earth excavation, and forty thousand cubic yards of rock. Nearly all the heavy work is on the last six miles. There are several deep rocky ravines, the embankments over three of which have respectively a height on the centre line of 70 feet, 96 feet, and 105 feet. One cutting, chiefly rock, has a depth of 52 feet in the centre line; as these works are on the steep sides of hills, so the extreme heights and depths are greater."

But the rock tunnel was not always an option, certainly not along the course of the Folly River valley (in Contract 12). If he had been permitted to follow his original proposed line over the Cobequid Mountains, Fleming would have had to make a decision on whether an embankment or a viaduct would be used to cross the valley.

(It should be noted here that a great many people suppose the name Folly, for both river and mountain, arose from the squabble surrounding the location of the railway. This is not so. The area was apparently



The Folly bridge as it is today. The arrow points to the "Hole in the Wall". (Photo by Andrew Underwood.)

named for the Ulster Scots family of Folleigh, which arrived shortly after Col. Alexander McNutt and his Philadelphia Settlement Company colonized the area in 1765. The name was quickly misspelled, even by the provincial government's own cartographers, but the railway remained true to its original etymology until late in the 1930s. In his popular book *Scenic Rail Guide to Central and Atlantic Canada* (Grey dePencier Books 1983) Bill Coo claims the community was the result of a "bad choice of settler Flemming, called "Flemming's Folly." While the Flemming's were early settlers in the area, Coo's account cannot be accurate, since period photos of the era clearly show the original spelling.)

Fleming described the more modern history of the route in this manner:

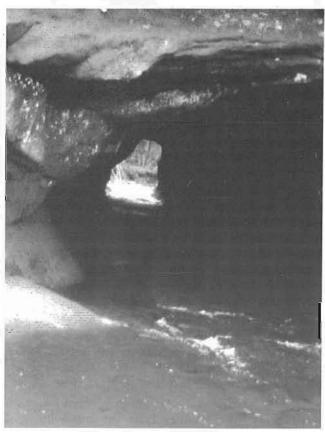
"The working season of 1865 was occupied in surveys. Every pass across the Cobequid mountains, within the limits of the iron district, was examined, and every effort was made to secure a practicable line near the Iron works. Six lines were surveyed, designated by the letters A, B, C, D, E, F."

Livesey supported Line A. Fleming- while acknowledging Line A would serve the iron mines - preferred Line F

"Lines C, D, E and F all passed by Folly Lake, where they attained the summit level of 590 feet above sea level."

An argument ensued between Fleming and Livesey over the position of the track along Line F, relative to the extent of the Londonderry iron deposits, which would have required Livesey to build a seven-mile branch from the main line to his mines. Nothing was resolved, even after Livesay's company was awarded the contract to build that portion of the line:

"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



The visitor to the "Hole in the Wall" at the foot of Folly Mountain can see through to the other side of the rock ridge that stood in Fleming's way. (Photo by Andrew Underwood.)

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"

Despite pressure from Livesey's political allies in Nova Scotia, Fleming stuck to his objection to Line A:

"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 to 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."

The combination of Lines A and F has become what is known as the Grecian bend, but it is the location of Line F and Fleming's claim that it would have been cheaper to build that is of interest here.

Certainly Fleming was correct in asserting that his line was shorter, with lesser grades and more economical to operate than Line A, but it may not have had an easier grade than the combination line unless some extensive cuttings and embankments were involved. If that was the case, the claim that his Line F was cheaper to build is also suspect. It may be, however, that he confused the distinction between capital cost and operating cost for that section – either deliberately to confuse Livesey's allies and sway them in his favour, or by unbridled enthusiasm for his subject.

Equally curious, is his omission from the 1876 history of a map showing the lines over the Cobequid Hills, so that readers might judge the best route for themselves.

One person who did come to an informed judgement was Captain Henry Whatley Tyler, the British Board of Trade's inspector of railways, who was drawn into the dispute by Livesey. Fleming described Tyler's involvement:

On the other hand Captain Tyler, Government Inspector of Railways, England was applied to Mr. Livesey, and reported in July 1868, that in his opinion, taking into account cost of construction, working over the superelevations, 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 him, 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."

It was useless for Fleming to cast any aspersions on Tyler's judgement. The former captain of the Corps of Royal Engineers was one of the board's chief inspectors of railways between 1853 and 1870, and chief inspector from 1870 to 1877. In that time he became a recognized expert in railway construction, finance and accident prevention. In 1877 Tyler was knighted, and became president of the Grand Trunk Railway Company of Canada. He held this position until 1895; and for the period 1880-1892 he was also member of the British parliament for Harwick and Great Yarmouth.

Instead, Fleming chose to insinuate that Tyler had been misled:

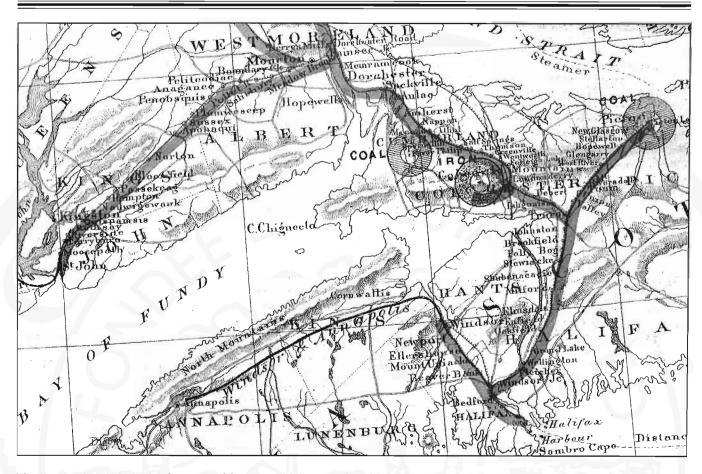
"In replying to this letter of Captain Tyler, the Chief Engineer stated that he was satisfied that Captain Tyler, and Mr. Atkinson who had worked out the calculations for Captain Tyler, were not in possession of all the information which the survey afforded, and therefore that their conclusions, based 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."

But could it have been that Fleming's data were incorrect? Practical examination of the topography suggests as much.

The Folly River is neither wide nor deep, but the ravine it has cut from its source at the northeast of the glacial lake to the broader valley at the foot of the mountain is both

Fleming's Line F would have carried the track over the ravines of Weatherby Brook and the East Branch Folly River. The terrain is difficult, as the builders of the Colchester Coal & Railway Company found in 1903, as they built a line from East Mines (where it joined the Intercolonial main line at milepost 13.9) to its short-lived mine at East Folly Mountain, some 600 feet above sea level (almost at the same level as the station at Folly Lake; milepost 24.0, elevation 611.6 feet. *Altitudes in Canada* by James White, Ottawa, 1915). The Folly mountain mine closed in 1910.

This shorter, more direct distance gives an increased grade of almost 1.5 to 1.68 per cent. The existing grade on the west slope of the mountain is 1.0-1.2 per cent through



The line, as finally built, is shown on this map, which was printed in 1876 as part of the Intercolonial timetable of that year. This was one of the first timetables to show the complete through service. The location of the Folly Mountain iron mine is highlighted. Note the use of the old spelling, Folleigh. Collection of Donald F. Angus.

Londonderry by way of the Grecian Bend. The only way to avoid a heavier grade on Line F would have been to employ more cuttings through the greater elevations, and use the earth as fill for embankments across the two ravines, resulting in the same kind of "heavy" work Fleming described in the last six miles of Contract 7.

Given his stated preference for embankments over bridges, it is certain Fleming would have chosen the former. A bridge (or series of bridges) across the ravines would have been almost three times as long as the 464-foot (141.5 metre) viaduct across the Folly River.

The embankments across the ravines would have rivalled those across Smith and Henry brooks in the Wentworth valley, and the masonry needed to carry the water through them would have been massively expensive. The structures would have been enormously impressive, and Fleming's record shows he was fond of such monuments. In addition, these embankments would have been far more visible to the railway passenger as the train crossed them. The culvert under such a structure would have been far larger than the Lansdowne culvert for which Fleming had received such praise in 1867, and which - until the completion of the Intercolonial - stood as the only truly notable monument to his skill.

If Fleming was seeking to create another, more visible monument, he was thwarted by Livesey's determination to profit from his iron mine, but if so, the engineer appears to have borne no lasting scars. In his presidential address before the Royal Society of Canada in 1890, more than twenty years after the completion of the Grecian Bend, he noted:

"In a remarkable lecture delivered last year by Sir William Groves at the Royal Institution, London, he submitted the proposition that antagonism is not the baneful thing which many consider it; that it is often the procurer of good; that it is a necessity of existence and of the organism of the universe as far as we understand it; that motion and life cannot go on without it; that it is not a mere casual adjunct of nature but that without it there would be no nature at all even as we conceive it; and that it is inevitably associated with matter and sentient beings. The lecturer showed that, although itself an evil, antagonism is a necessary evil."

The author is grateful to the following persons for their assistance in the preparation of this article: Bill Linley, Halifax Nova Scotia; Mark Rushton, Truro Nova Scotia, and Carol Hyslop, Wentworth Nova Scotia.

The great Railway Shops of Montreal

The third in our series of reprints of articles on railway shops in Montreal concerns the Youville Shops of the Montreal Tramways Company. These shops, in the north end of the city, were built in 1912 and replaced the old shops at Hochelaga. They were of the latest modern design and they remained in use, in essentially the same configuration, until the end of the street car era in 1959. Youville Shops were so complete that they could build street cars from scratch, as was done on several occasions, especially for work cars. Following the end of street car service in Montreal Youville Shops lay idle for four years until they were demolished in 1963 to make way for the new Metro shops, which also bear the name Youville.

The following article appeared in the Canadian Railway and Marine World for March 1913, at which time the shops were virtually complete. The article is reprinted exactly as it appeared 91 years ago, although some captions have been rewritten.

The Montreal Tramways Company's New Shops



Montreal Tramways Company's new plant, viewed from the South.

These shops have recently been opened for repair work, although the rolling stock department has been housed in its new offices in the shops for the last 18 months. The shops are situated near the village of Youville, a suburb of Montreal, near the Montreal Park and Island Ry's Sault au Recollet line, about half a mile beyond the terminus of the St. Denis Street line of the city service.

The plant is said to have been designed on the same general lines as the Plank Road shops of the Public Service Co., of New Jersey.

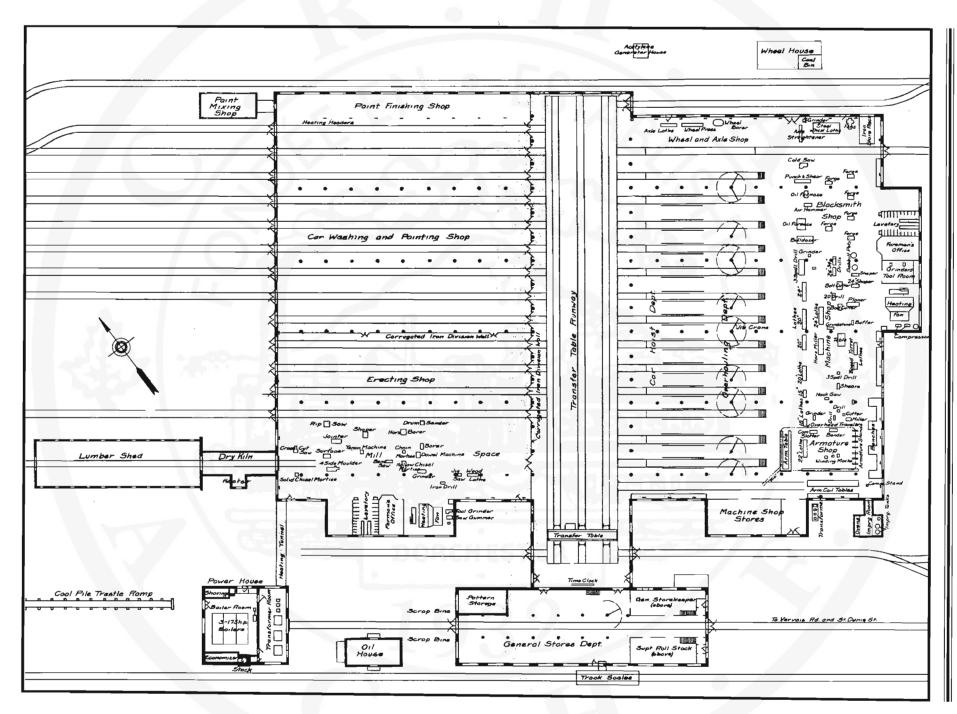
The general design and construction were carried out under the direction of D.E. Blair, Superintendent of Rolling Stock, who is in charge of their operation. The designs of the buildings were developed by Marchand and Haskell, architects, Montreal, the engineering work being done in the Montreal Tramways Co's. engineering department, under J.D. Evans, Chief Engineer, and R.M. Hannaford, Assistant Chief Engineer.

The site, on Vervais Road, is about 30 acres in extent, with a frontage of 576 ft., and an average depth of about 2000 ft. The shops are situated about half way back in this tract. The site being off the railway line, a special spur had to be built along Vervais Road from the St. Denis Street line.

The plant consists of a main building and several minor buildings at points around it, the majority having a direct connection, making an admirable arrangement for intercommunication in cold weather.

The dimensions of the main building are approximately 425 ft. long by 269 ft. wide. Essentially, the main building consists of two units under one roof, the two sections being separated by a transfer table down the center between the two parts. In this particular, the

OPPOSITE: Plan of the Montreal Tramways Company's new plant, showing layout of all shops.







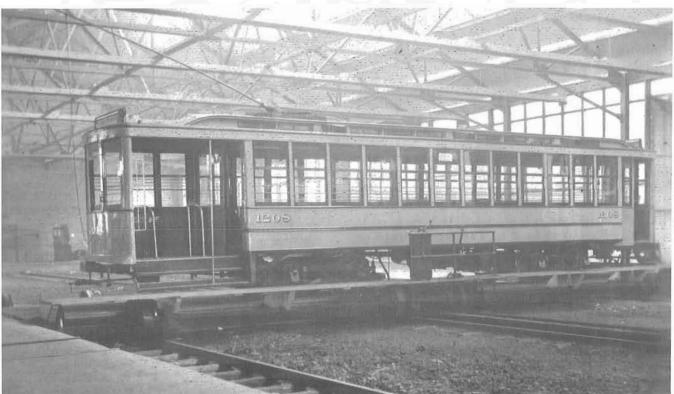


Three exterior photos of Youville Shops as photographed new in 1912. Note the old cars, of 1890s vintage, some of Montreal's earliest electric cars, outside the shops in the two top views. These cars were retired from passenger service about this time; most were scrapped but some were converted to work cars. On the left side of the bottom view can be seen the bodies of about a dozen open cars, built between 1893 and 1895. These were undoubtedly awaiting scrapping.

shops are unique, the practice of covering the transfer table not being usual. In the peculiar climatic conditions with which the rolling stock department is called upon to cope, an outside transfer table would be the source of a great deal of trouble from blocking up with snow in winter. The transfer table, fig. 4, 70 ft. 8 in. wide, operates in a runway 346 ft. long, which contains three standard gauge tracks, laid with 80 lb. rails, on which the table operates. The motive power is a small, discarded electric railway motor, mounted on a projecting platform of the transfer table, and operated by a controller on a projecting platform adjoining. The runway has a cinder floor.



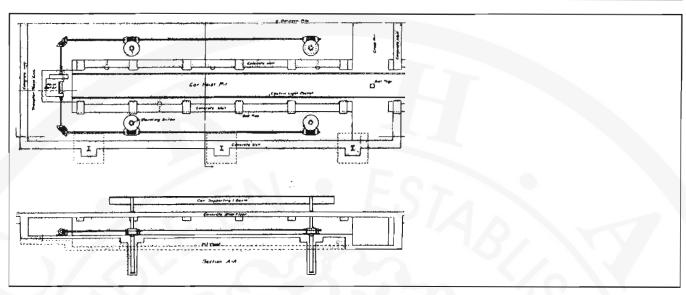
Covered-in transfer table which centrally divides the shops.



1208 on the transfer table. This car was new, having been delivered from Can Car late in 1911.

The building is built of brick throughout, on concrete foundations, with large window spaces on all sides. In consequence, the light penetrates into the center of the shop at the transfer table. In addition, the skylights in the roof assist materially in making the interior light at all times during the day. The transfer table runway is spanned by a 70 ft. truss, the highest part of the building shown being the monitor that runs the full length of the runway. The sides of the monitor have swing sashes, operated from one end by a shaft.

The front section of the shop is what may be termed the motive power section, as all the repairs to the running gear and traction motors are attended to in it. This part of the shop is further subdivided into six sub sections, consisting of: car hoists, overhauling section, wheel and axle shop, blacksmith shop, machine shop, and armature shop, all these several departments centering on the overhauling department, which is located down the center of this half of the building.



Details of one of the twelve car hoists.

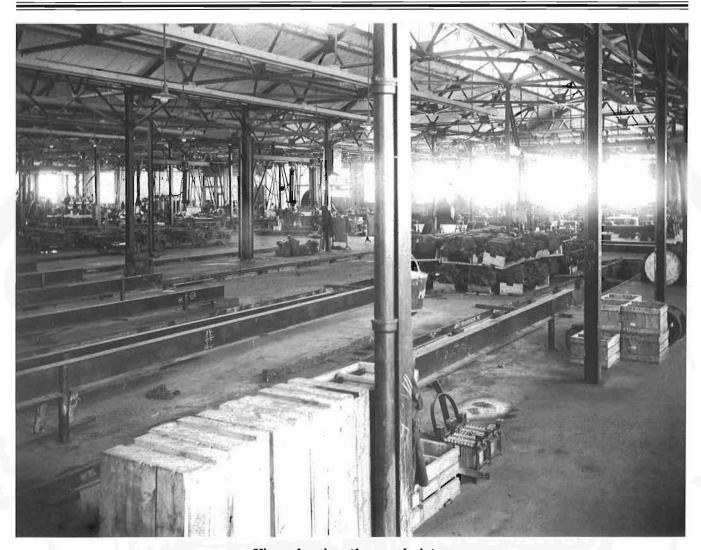
Cars to be overhauled enter the building by the doors at either end, the principal entry being from the door to the south. Running on the transfer table, a car is quickly spotted on the required repair track, of which there are 14, laid with 80 lb. rails. Twelve of these repair tracks are equipped with car hoists, a construction that is rather novel in Canadian car shop practice. The construction and operating mechanism of the hoist is shown in the attached diagram. The hoists are arranged in a row, just far enough back from the edge of the transfer table runway to give a clear passage way along that side.

On each side of the pit, at 10 ft. centers, is a 30 ft. length of 12 by 5 in. I beam, mounted on the upper ends of two 4 in., 3/4 in. pitch, square threaded screws. This section of the shop, the length of the car hoist, is chambered out beneath at the same level as, parallel to, the pit. The hoist screw passes through into this lower chamber, and is supported on a vertical thrust block nut in this chamber floor. On each of the screws, just above the chamber floor, is a worm gear, engaging with a worm on a shaft near the floor, parallel with the pit. The ends of the parallel shaft on each side of the pit mesh with bevel gears on the end of a cross shaft in the pit at the transfer table end. Driving this shaft is an old 12A (30h.p.) motor. Between each hoist, on the column next to the transfer table, there is an old K10 controller, above which is mounted a double throw switch, by which means either of these hoists can be operated at will.

In the use of the car hoists, it is the practice to place a section of I beam across the pit at the ends of the side I beams, under the ends of the cars, and by raising the screws by the motor the car body can be raised from its trucks and the latter run out, when the car body can again be

lowered to a more convenient height for working, or if desired, lowered on shop trucks for removal to the paint or erecting shop, for further repairs, if the nature of the repairs is such that it would not be desirable to await the repair of the trucks before proceeding for final finishing. These car hoists have been found to be of great vealue in assembling new cars as received from the factory. The bodies, as received on the flat cars, can be raised, the flat car run out and the trucks run into position and the body lowered thereon.

The pits, both under the car hoists and further back in the shop, are of concrete construction throughout. Under the car hoists, there is a supporting wall under the rail, but the balance is chambered along the hoist shaft as mentioned, with a concrete floor, and a reinforced concrete main floor over top. The extension of the pit in the overhauling department is similar in construction, with the absence of the side shaft tunnel chambers. At that end of the pit, there are also steps to the level of the shop floor. The total length of the pits, hoist and overhauling, is 87 ft. 10 in., with a depth of 4 1/2 ft. Between the hoist and overhauling sections of the pits, there is an uninterrupted passage under the tracks, where the track supporting wall is cut away, permitting access between pits. On the floor of the pit, and running the full length of each, is a 4 ft. gauge track for a small car, on which the motor and under gear of the car can be lowered, and run along to the center of the overhauling pit, where the parts can be raised from the pit by the jib cranes on the adjoining posts, there being a jib for each pit. It will be noticed that the trucks as run out from under the cars at the hoists, are spotted over the pits in the overhauling section, and there dismembered when required. On low benches adjoining, the motors and equipment as

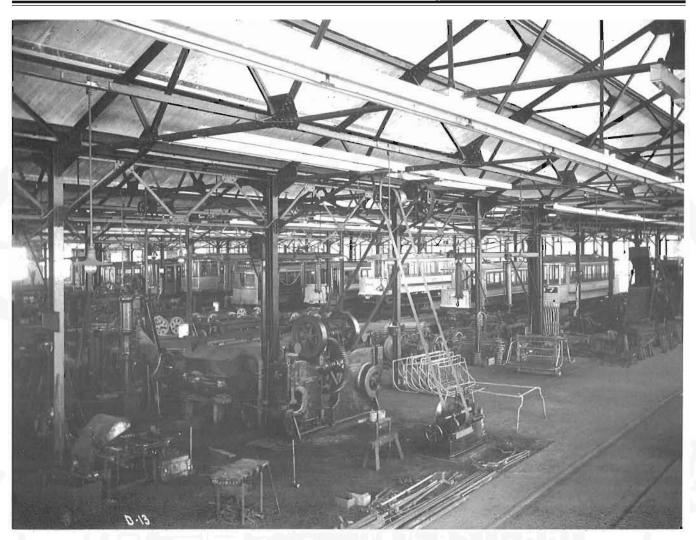


View showing the car hoists.

removed may be mounted and kept conveinintly together while undergoing repair. The parts that require machine or forge work can be brought across into those sections in front of the overhauling department.

Along the north wall of the shop is located the wheel and axle department. Ranged along the wall in this department are all the machines, which include a steel wheel lathe, wet tool grinder, axle straightener, wheel boring machine, wheel press and an axle lathe. These machines are all on a group drive, with overhead shafting along the wall. In front of the boring machine and axle lathe are air hoists, suspended on an I beam parallel to the line of the machines, with local air hoists on cross I beams for the mounting of the work in the machines. Running over the first pit, there is also an air hoist for the carrying across of the axles and wheels, which are removed under the air hoist, run out on the transfer table and brought down the shop to this track, adjoining the wheel and axle department. Between the axle straightener and the wheel boring mill, there is a space used for the interior storage of wheels before and after machining, stacked in piles out from the wall. A stock of wheels for this department is maintained in a small frame building across the outside track from the side entrance.

The blacksmith shop occupies that portion of the shop in an area of 71 by 66 ft. The floor of this department is of the usual cinder form, in which it differs from that in the balance of the shop, which has a more solid construction. The original intention was to have a solid concrete floor, but the plan had been modified in the constructed building, the floor consisting of a layer of concrete on a cinder bed, the concrete being superimposed with a 2 in. layer of bitulithic pavement. This covering has the advantage of a longer life, and at the same time its plastic nature leaves it freer from breakage from parts falling on it, with consequent dire results to the falling parts. In the event of anything falling on the bitulithic floor, the resulting hole in the floor can be removed by the rolling over of the plastic



Interior view of main building, showing Blacksmith Shop, and overhauling space in the background. The 651 class open cars, built in 1901, are in the shops being converted to closed cars.

material. A springy floor of this kind is also much easier on the operators who must stand on it all day, concrete floors being a fruitful cause of ailments, while the bitulithic, having less heat conductivity, never becomes as chilled.

The blacksmith shop is equipped with a liberal supply of machines for the efficient handling of all classes of repair work. This equipment consists of the following: cold saw, punch and shear, 4 by 2 ft. oil furnace, bulldozer, dry grinder, and 6 down draft forges. The forced draft and exhaust fans for these six forges are located along the north wall, driven from the line shafting of the wheel and axle department. The exhaust from the forges is discharged through a pipe that rises to the roof directly over the exhaust fan. The blast and exhaust of the forges passes through pipes bedded in the concrete floor so that the whole blacksmith shop is remarkably free from obstructions. The air hammer used in the department is an upright steam hammer using compressed air as the operating medium instead

of steam, the exhaust discharging into the shop over top of the machine.

Something new in the manner of handling the bar iron stock in the blacksmith shop has been introduced here. In the corner of the shop adjoining the blacksmith department, there has been constructed a bar iron rack of sufficient size to handle all the stock required to be carried for the blacksmith department. The ends of the rack are provided with expanded metal doors, of which there are three, these doors being kept normally locked. When the blacksmith requires some stock, the stores department is advised, and the stores attendant comes over to the rack and delivers to the blacksmith the required stock, charging it in the usual manner. The object of this arrangement is to obviate the necessity of a couple of men making several trips back and forth between the blacksmith shop and the stores department to bring over a few bars of stock, the stock being now kept in the place where it is required. It is unloaded directly from the supply



View showing the armature shop.

car into the rack just as conveniently as in the stores building.

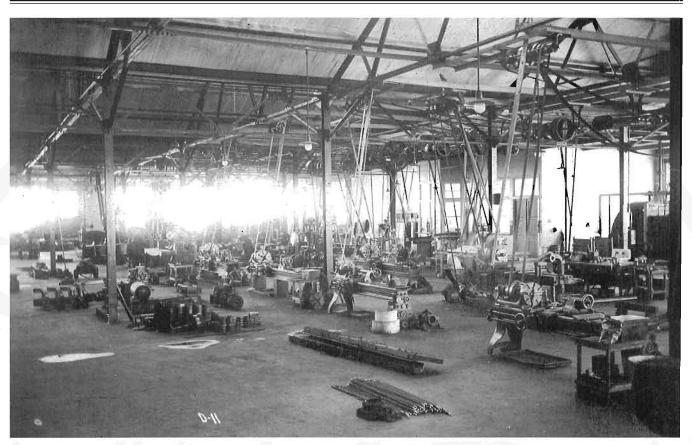
The machine shop adjoins the blacksmith department to the south, occupying the whole central portion of the east side of the shop, in an area 71 by 100 ft. The machine equipment consists of the following tools: 3 spindle drill, 24 in. lathes, three 20 in. lathes, 15 in. lathe, wet tool grinder, 24 in. lathe, horizontal boring and milling machine, grindstone, power hack saw, 34 in. drill, 26 in drill, double head bolt cutter, 20 in. drill, single head bolt cutter, 3 spindle drill, shears, 2 babbit melting pots, two 24 in. shapers, planer, buffer, turret lathe, and speed lathe. The drive for these several machines is from overhead shafting, the machines arranged in groups for group drive.

The armature department occupies the south easterly section of the shop. The tool layout in this shop includes the following machines: 18 in. lathe, 22 in. lathe, wet tool grinder, commutator slotter, 2 spindle drill, 20 in. drill armature bander, printers' cutter, and universal miller. In addition there are seven of the usual armature stands, and three armature tables, one

of which is in the immediate foreground, and the others in the left background. Along the west wall are fitters' benches, and along the south wall, on two benches, are mounted the taping machines, and other equipment for finishing the armature and field coils.

Circling the armature department is an overhead I beam trolley, which travels around over the armature tables and stands in the path shown in the plan of the shop building. The armature to be repaired is brought in from the left in the direction indicated, from the track leading from the transfer table, and placed on the first armature table. The armatures from there are picked up as required, and placed on the stands, and when repaired, removed to the second armature stand, ready for removal to the point of entry, and thence to the awaiting trucks by way of the transfer table. The armatures thus make a complete belt line, with a constant forward movement.

Built out from the south east corner of the shop, there is a small room containing two impregnating tanks and an oven for the treating of the armature and field coils.



View of some of the lathes in the machine shop.

About midway along the east wall, is a projecting wing, which is divided off into rooms. The southerly room contains the heating equipment for the part of the shop east of the transfer table. This is made a local power room, for along the south wall of this room are located two compressors, one of which is 19 h.p. and direct connected, and the other is 20 h.p. and geared. The air storage tank, 37 in. diameter and 12 ft. high, is located in the corner. The compressed air from the compressors in the original installation was forced directly into the tank, but as trouble was experienced with condensed water in the air, a cooler has been introduced, consisting of two cast iron headers between which the air flows in small piping, the heat radiating, and the water distilling and collecting at the bottom, where it can be drawn off. This cooler is located in the connection between the compressors and the tank on the outer wall of the room. These compressors deliver at a pressure of 80 lbs. For riveting, 100 lbs. is required, so the shop is provided with a car set for boosting the air from the line pressure of 80 lbs. to 100 lbs.

The room adjoining is the tool room, and in addition to carrying the usual assortment of small tools, etc., contains a tool room grinder and a drill grinder. The entrance is from the shop, and in that wall, there is a delivery window for handing out the tools.

The foreman's office is housed in the room adjoining, which it will be noticed is bayed out into the shop, giving a more comprehensive view of the shop interior. Adjoining the foreman's room to the north, is the lavatory, which is a splendid example of shop accommodation. Down the center, next to the windows, is a double row of washbasins, provided with hot and cold water, and along each wall is a row of urinals, with the balance of the wall length taken up by closed in water closets. The end room contains lockers.

The shop is equipped for oxy-acetylene welding, handled at present at the northerly end of the transfer table. A small out building is under construction for this plant, where all repair work for the plant will be handled. The range of work at present handled is quite extensive, all manner of repairs being made to motor casings and truck frames.

The projecting wing on the south side of the building is for the local stores, and the accommodation of the required material. It is a room 69 by 26 1/2 ft., and is known locally as the machine shop store.

The shops are more or less symmetrically arranged around the central transfer table, and in construction the halves are similar in nearly all details. At right angles to the transfer table, there run five bays of equal width, each spanned



Some 651 class cars awaiting conversion to closed cars in 1912. Also two large 703 class Pay As You Enter cars awaiting repairs. Note the blackboard with the car numbers written thereon.

by a roof truss, the top members of the trusses being extended on the south side so as to form a saw tooth construction with the skylight opening to the north light. All these skylight windows have controllable sashes that can be opened in unison from below.

The section of the shop to the west of the transfer table is used entirely for car body work, and on account of the inflammable nature of the material contained, it is divided off from the rest of the shop at the transfer table edge by a corrugated iron wall. Thirteen tracks are contained in this half of the shop, located directly opposite the corresponding tracks in the machine shop section. In the car section are housed three departments - car washing and painting, erecting shop and mill, the latter two in one section, and the first in a separate section, the two parts being separated by a corrugated iron wall for similar reasons to that stated for the other wall.

The mill space contains the following machines: Jig saw, saw gummer, tool grinder, iron drill, single and triple drum sanders, dowel machine, horizontal boring machine, band saw, tenon machine, shaper, jointer, four side moulder, surfacer, rip saw, solid chisel mortise, cross cut saw, pattern makers' lathe, hollow mortise, chain mortise and exhaust blower. The requirements of a mill are such to necessitate a very clear overhead space if rapid production is

much desired. In consequence, this plant has introduced the underground drive, which is becoming so popular in woodworking plants. In this underground scheme, practically the whole shop where the machines are located, is chambered out to form a shallow basement, in which are located the motors, shafting and belting, the latter coming up through the floor to the machine. It will be noted that there is no belting visible, the driving equipment being all located under the floor in the shallow basement, approached by steps from the right.

All auxiliary equipment for the shop is also housed in this shallow basement, including an exhaust blower. This underground scheme is particularly advantageous for this, as the shaving and saw dust exhaust pipes at the machines pass down through the floor into this basement, connecting with a central pipe through the basement to the exhaust fan, which delivers the shavings through an inclined pipe to a hopper in the power house.

In the mill space, there are no tracks, but the erecting shop in the same room contains four, each of which has a pit of the same proportions and 66 ft. long, at the transfer table end. One of these is used as a local store for the rod stock used in the erection work.

The car washing and painting shop to the north of these last departments, contains 9 tracks,



An assortment of no less than six cars, all different, in Youville Shop in 1912. From left to right we see: A single-truck open car built in 1899, A suburban car of the 1031 class, formerly open but converted to closed, A former open car rebuilt as a convertible in 1905, Former Montreal Terminal Railway closed car 14, An early closed electric car looking rather the worse for wear, A 1032 class former Park and Island suburban car.

the southerly three of which contain similar pits to those in the erecting shop, making 7 pits in all in the car department. This department, with an area 176 1/4 by 150 ft., is the larger portion of the car department, and it is in this department that the major portion of the car overhauling, consisting for the most part of repainting and general brightening up, is performed. The north wall of this section is the sash and door finishing section, in which all the removable parts of the car body are finished; this includes painting, glazing and varnishing. Shop trucks will be noted in the foreground. These are taken to the car to be dismantled, loaded with removable parts and taken on the dismantling track to this department for finishing.

A paint mixing shop, 18 by 38 ft., is located to the west of the north west corner of the shop, and is separated from the main building by a covered-in passage way for fire purposes.

The dry kiln and lumber shed are located to the rear of the mill space, in narrow buildings. These two buildings communicate with each other and with the mill space by a track through the buildings into the end of the mill space, which is used for the bringing in of lumber stock to the mill. The dry kiln is 52 by 16 ft., and has a projecting side wing on the south side. Communication at both ends is through tight sliding doors. In this projecting wing, on the south side, there is a heating unit consisting of a bank

of pipe coils, with a 4 ft. fan directly connected to a small engine, the steam being received from the power house near by. The lumber shed to the rear is 113 by 30 ft., provided with piling racks on each side for the select woods.

Along the south side of the car department section, there is a projecting wing containing lavatories, office and heating unit, all exactly the same as the arrangement in the machine shop section.

The general stores department is the long building at the southerly end of the transfer table, communicating with the main shop at that point. The east end of the stores building is two stories high at the sides, with the upper stories for offices. On the south side is the office of the Superintendent of Rolling Stock, and on the north, that of the General Storekeeper. To the rear of this point is the stores section. That side consists of a series of 11 cross tiers of store bins, and on the north side, there are lower bins for heavier stores. The north side also has an upper gallery, along which is a tier of store drawers for light parts such as screws and other stores that are required in large quantities. This gallery communicates with directly with the General Storekeeper's offices and also has a stair to the floor level. At the west end of the south side, there is a vault structure, 35 by 18 ft., which is used for storage of patterns. The rooms under the offices are for springs, gears and pinions.

Through the center of the stores building runs a track, by which the stores can be brought directly into the building, and loaded again directly on the stores car for distribution over the system. This track to the rear leads out through scrap bins that are now under construction. These bins are arranged along both sides of the track and are covered. The bins on the south side have a narrow gauge track along the front for the passage of the scrap into the desired bin and for sorting, and midway in this track is a track scale for weighing the material.

The power house is located to the west of the oil house, and is a brick structure, 52 by 58 ft., divided into boiler and transformer room by a brick partition. The boiler room contains three 175 h.p. boilers, carrying 100 lbs. of steam. To the rear of the boilers is a fuel economizer, the scraper for which is operated by a 3 by 2 1/2 in. vertical engine. The boiler feed is provided for by a 10 by 6 by 10 in. feed pump, but under normal conditions, it is not required in service, as the city water pressure is 125 lbs.

The transformer room of the power house contains three 50 k.w., and one 30 k.w., transformers. The former receive power from the high tension lines to the shops at 13,200 volts, dropping it to 2,200 volts for transmission to the shops. At the shops there are transformers mounted on a bracket on the machine shop stores room wall, receiving power from the power house at 2,200 volts, and dropping it to 220 volts for shop use. The fourth transformer in the power house is for dropping the 2,200 volt power to 110 volts, for the shop lighting system.

To the west of the power house is the coaling plant, consisting of a trestle ramp, open below upon which the coal cars are run and dumped. Between the trestle piles below, it is the intention to lay a narrow gauge track for a short industrial line to carry the coal into the boiler room to replace the present wheelbarrow method. An ash handling plant is under construction at the upper end of the ramp. In front of the boilers, there will be a long worm in a channel, which will carry the ashes out to an elevator at the end of the ramp, raising them to a chute projecting over the car.

The lighting of the shops has been carefully attended to, with due consideration to the points where the maximum amount of light is required. For this purpose, the tungsten light is peculiarly adapted, having a wide range of sizes of illuminating units. In the section of the shop to the north of the transfer table, the lights are arranged in rows of 10 between the tracks. In the paint and erection shop portion of this end, the lights are all 250 watt, excepting the 9 at the transfer table end, which are all 150 watt. In the mill section the lights are nearly all 150 watt,



A view inside the Stores Department, showing the track from which it is supplied.

with here and there over certain of the machines, these are increased to 250 watt. Over the transfer table is a row of five 100 watt lamps. Between each of the lifting hoists are six 100 watt lights, while down the machine shop section are four rows of 150 watt lamps, interspersed in which are a few 250 watt lights. In the general stores building there are seven 150 watt lights down the centre, with a similar row down the side of 100 watt lights. All lights are suspended from the roof girders.

The fire protection of the main building and general stores building is arranged for by a system of thermopiles located under the roof. Normally, the galvanometer indicator shows a safe sign, but in the event of any abnormal heat, which would strike the roof first, the thermopiles would cause the galvanometer to deflect, the greater the heat the greater the deflection as the thermopiles are in series. Deflection beyond a certain point leaves the needle in the operating field of a strong magnet, which draws the needle still further out of its normal position, closing an electric circuit, and ringing an alarm bell.

The fire service main, 8 in. pipe, divides near the corner, a 6 in. main running south along the second row of columns, and another 6 in. main west along the first row of columns. There is also a 4 in. main that runs back from the meter about 100 ft. from the entry corner of the building. The machine shop has six hydrant connections, three at the outer and central columns in the line of the main, and three in the line of the columns centrally with the car hoists. Five of these are from the southerly main, this main also branching out to a hydrant about 100 ft. diagonally from the south east corner of the building, with another branch from a central point to a hydrant outside the center of that side. This main terminates in two hydrants in the general stores building.

CPR 2816 Visits the East





In late May and early June 2004, steam enthusiasts in eastern Canada got a rare treat as Canadian Pacific Railway's 4-6-4 steam locomotive 2816, known as the "Empress" made a tour from Vancouver to Montreal, and ran several short trips in the east. These photos are a few of those taken during this eventful visit.

TOP: 2816 and its train coming in to White River Ontario on its way east. Photo by Andre Kennedy.

ABOVE: The banner, bearing the insignia of the CPR and of G.W. Travel, operators of the trip, which was displayed at Montreal when the trip arrived at its destination after its cross Canada run. Photo by Fred Angus.

RIGHT: 2816 has its number plate polished before departing Montreal for a special return trip to the Canadian Railway Museum on June 10. Photo by Peter Murphy

OPPOSITE TOP: "By the shore of Gitche Gumee, By the shining Big-Sea-Water", 2816 and train heading east along the north shore of Lake Superior. Photo by Andre Kennedy

OPPOSITE BOTTOM: At Montreal, ready to make a trip to Montreal West and return. Photo by Fred Angus







The Business Car



REBUILDING THE BELOEIL BRIDGE

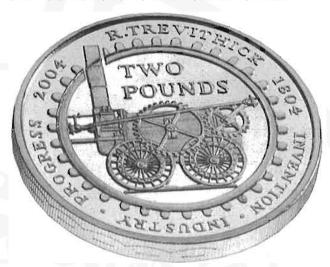




After 156 years the CN bridge across the Richelieu river at Beloeil Que. is no longer a swing span. Traffic of large vessels on the Chambly canal has declined to the point where the swing span was seldom, if ever, opened, and the railway has received permission to remove this span and make the entire bridge a fixed link. During the conversion, rail traffic was interrupted for a few days, as was traffic on the road under the bridge. At this time the Montreal-Quebec trains were replaced with busses, while passengers for the "Ocean" were bussed to Charny. These photos were taken on April 24 2004, as work progressed.

Railway historians will remember that the predecessor of this bridge, built originally in 1848, was the scene of Canada's worst train wreck. Early in the morning of June 29, 1864 the swing span was open to let some vessels pass through, and a Grand Trunk immigrant train crashed into the opening, killing 99 persons.

TREVITHICK LOCOMOTIVE COMMEMORATED



In commemoration of the 200th anniversary of the world's first steam locomotive (see article on page 86) the British Royal Mint has produced a coin with a face value of 2 pounds sterling for circulation in the United Kingdom. This coin is bi-metallic, like the Canadian \$2 piece, and comes in several versions, all with the same design. The regular coin, intended for actual circulation, has a nickel-brass outer portion and a cupro-nickel centre. There is also a proof coin, struck with a high quality finish, and intended for collectors. Additionally, there are 25,000 proofs struck in sterling silver, with gold plated outer ring, sold at a higher price. This also comes in a double-thickness (piefort) format. For the wellheeled collector, the coin is available in gold, in which the outer ring is 22 karat red gold (alloyed with copper) and the centre is 22 karat yellow gold (alloyed with silver). Only 4000 of these have been produced, and all have been sold.

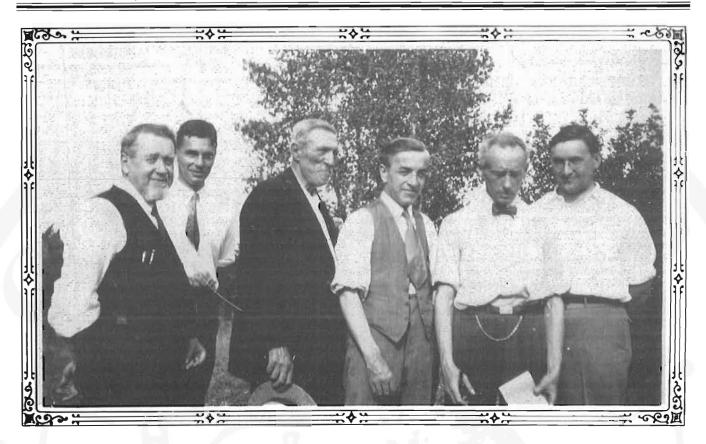
Continuing the railway theme, the British one pound coin this year bears a picture of the Forth Bridge in Scotland.

The Canadian office of the British Royal Mint is in Hamilton Ontario, and may be reached at Dundurn Postal Outlet, P.O. Box 33518, Hamilton, Ontario, L8P 4X4.

HELP WANTED

Our member Harold Davies, of 205 Brook Lane, Newport, NC, 28570, U.S.A., writes:

"Can you give me a name (e mail address or whatever) who could look over a page or two on CLCo., Montreal Locomotive Works and Canada Foundry? I have a book in progress on the North American locomotive builders and their insignia. I am including also the small Canadian concerns that had such a brief existence. In each case the text is a summary --- two or three pages on CLC and on Montreal, less than a page on Canada Foundry. I have one photograph of a XCF engine. I have good photos of Fleming, Montgomery and early CLC but am still looking for Good and Gunn. I need only one or two in each case".



IS THIS THE FIRST CRHA TRIP?

Our member Douglas Brown sends this interesting photo with the following comments:

"A few days ago I was examining the contents of an envelope marked "Misc." and the enclosed photograph was inside. It was taken at Lanoraie Que. on Wednesday, August 17, 1932. Obviously it was taken during C.R.H.A. trip No. 1. I can put names to some of the faces as follows, from left to right: Unknown, Donald Angus, Unknown, L.A. Renaud, John Loye, Robert R. Brown. The back of the photo is signed P.O. Tremblay, so one asks is M. Tremblay the photographer or one of the unknowns?"

Mr Brown also points out some corrections and clarifications in the article on his donation which appeared in Canadian Rail No. 498, January-February 2004:

Page 30, CPR 29. In this picture the tender is receiving a fresh supply of coal, not water.

Page 30, MTC 1054. The person standing beside the tram is ME.

Page 31, MSR 274. I question the word "only" because the tram was out in the street several times such as the two farewell parades.

Page 31. Boat train at Port McNicoll. For the purist, the ship at the dock is CPSS Assiniboia."

Editor's note: In 1932, P.O. Tremblay was the curator of the Chateau de Ramezay museum of the Antiquarian and Numismatic Society. L.A. Renaud was the Assistant Curator, and Donald Angus was a member of the council.

The Canadian Antiquarian and Numismatic Journal for 1932 reported as follows:

"The Canadian Railroad Historical Association, formed under the auspices of the Antiquarian and Numismatic Society at the Chateau de Ramezay on the the occasion of the centennial of Canadian railroads in February 1932, had organized an excursion of its members to visit the site of the railway built between Lanoraie and the village of L'Industrie (now the city of Joliette) in 1847-50."

The account goes on to relate how the members heard a report of ancient Indian artifacts being discovered in the area. After a local "archaeological frenzy" had subsided, some members returned and conducted a dig. A&NS president Victor Morin reported:

"Mr. Beaugrand-Champagne took the level of the grounds while Messrs. Renaud and Angus worked *unlike* corporation labourers in digging the sand carefully for the discovery of pottery, tools, bones, fire-pits and other evidence of Indian handicraft, which were carefully annotated and preserved."

BACK COVER TOP: A spectacular view of CPR 2816 on the Lachine bridge acrossing the St. Lawrence river. 2816 was hauling a special train en route to Delson on June 10, 2004 for a visit to the Canadian Railway Museum. Photo by F.L. Smith BACK COVER BOTTOM: A contrast to 2816 is former Grand Trunk Mogul No. 713 which was built in 1900. It is seen here, making a rare appearance outside, at the Canadian Railway Museum on June 10, 2004. Photo by Fred Angus

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