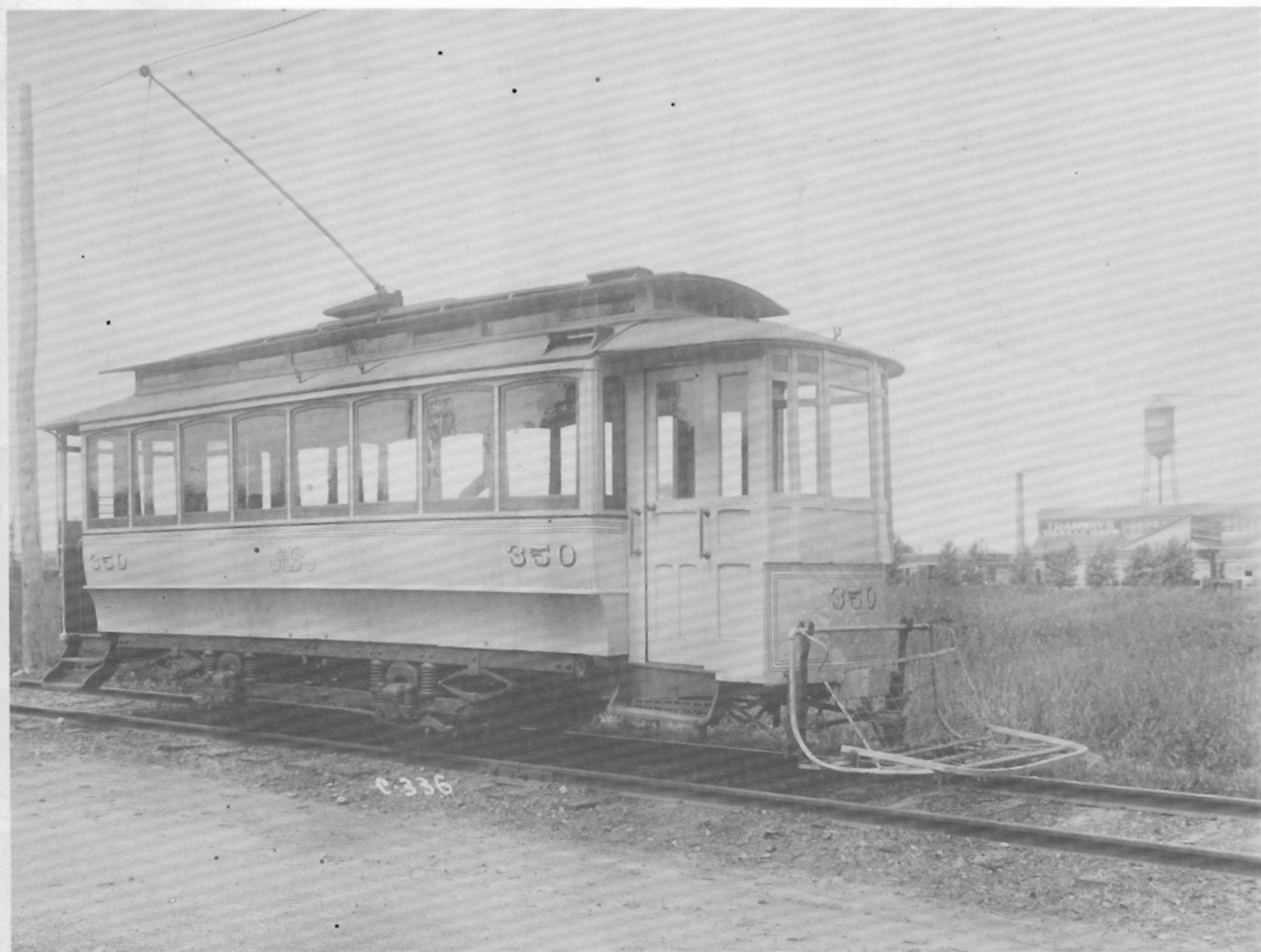


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Canadian Rail is continually in need of news, stories, historical data, photos, maps and other material. Please send all contributions to the editor: Fred F. Angus, 3021 Trafalgar Ave. Montreal, P.Q. H3Y 1H3. No payment can be made for contributions,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

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FRONT COVER: An official photo, taken at the Youville Shops of the Montreal Tramways Co. in 1914, shows Montreal's first electric car, originally named "The Rocket", as it appeared when it was retired from service that year. Built in 1892, this car saw a little more than two decades of service before it was replaced by more modern equipment.

CRHA Archives, Binns Collection.

As part of its activities, the CRHA operates the Canadian Railway Museum at Delson / St. Constant, Que. which is about 14 miles (23 Km.) from downtown Montreal. It is open from late May to early October (daily until Labour Day). Members, and their immediate families, are admitted free of charge.

The Phoenix Foundry of Saint John N.B. and George Fleming, Locomotive Builder

Part 1 (1832 - 1868)

By Fritz Lehmann

Except for Kingston's Ontario foundry, the only pioneer locomotive builder in Canada to remain in business more than a few years was the Phoenix Foundry in Saint John, New Brunswick. The major figure in this enterprise was a journeyman machinist, who was in every sense of the word a "journeyman," for George Fleming was a much-travelled man when he finally married and settled down in Saint John, rather late in life, at 34 years of age. Fleming must have sharpened his business as well as his technical skills in his wandering years, for his firm prospered and survived. Soon he was able to buy out his partners and convert the Phoenix Foundry into a Fleming family business.

Fleming was born in Kirkcaldy, Fifeshire, Scotland, in 1801 (but was called "a native of Dysart," a nearby place also on the north shore of the Firth of Forth).¹ At about age 15 he was apprenticed to a machinist in Dunfermline, where he served for eight years. Then he set out to see the world in 1824. He spent two years in Glasgow, three years in Cork, then crossed the Atlantic and made brief stops in Bay Chaleur, New Brunswick and Pictou, Nova Scotia, before reaching Saint John, New Brunswick. He was about 31 when he first arrived in Saint John in 1832, where he found employment with Harris and Allen. They were the proprietors of the first iron foundry in New Brunswick, and of an associated blacksmith and hardware establishment. Although Fleming only worked for them for one year, this seems to have marked a change in his life. For although he moved on to other jobs in the U.S.A. at Boston Massachusetts, Baltimore Maryland, and the Pembroke Iron Works near Eastport, Maine, he returned to Saint John. In the winter of 1834-35 he was again in the New Brunswick city, employed by Robert Foulis, the proprietor of the province's second iron foundry.

Two big events transformed Fleming's life in 1835, either of which might have been sufficient to induce this "rolling stone" to retrace his steps and settle down. On December 24th, 1835, George Fleming married Barbara Massie of Saint John, forming a partnership that ended only with his death almost fifty-two years later.² A fellow Scot, she was a native of Edinburgh and a newcomer to Saint John, aged 26. But earlier that year Fleming had put his skills and savings into a riskier partnership, and moved out of the ranks of "mechanics" (skilled workers in the vocabulary of the day) and into proprietorship. On June 27th, 1835, the new Phoenix Foundry announced it was ready for business. It was Saint John's third iron foundry and was operated by the new firm of "Thomas Barlow and Company."³ The partners of this firm were

Thomas Barlow, John Stewart, and George Fleming. Fleming's business partnership did not last as long as his marriage, for both original partners were out of the firm by July 1849, only fourteen years later.

Barlow was a prominent merchant and politician in Saint John at that time, and probably put up most of the capital. He and Stewart had both been partners in the firm of Harris and Allen which had opened the New Brunswick Foundry on June 19th, 1830 (in Portland, then a suburb, now a part of Saint John).⁴ That firm seems to have succeeded rapidly, for it announced improvements and expansion in June 1831, one year after its opening. On June 29th, 1833, Harris and Allen bought out Barlow and Stewart, dissolving the original firm and establishing a profitable new co-partnership that lasted until Thomas Allen's death at age 62 on June 12, 1860.⁵ Harris and Allen's New Brunswick Foundry grew and prospered despite the competition offered by Robert Foulis' Saint John Foundry, which was launched on July 19th, 1831, by a partnership of Foulis, William Ross, and David Hogg.⁶ Both foundries advertised a similar -- and widely variegated -- assortment of products, from consumer goods like stoves and plows to producers' goods for shipbuilders, building contractors, and mill owners.⁷ The small but growing colonial economy offered an expanding market for such producers, and Barlow and Stewart correctly judged that there was enough demand to support a third foundry. They obviously knew Fleming from his employment with Harris and Allen in 1832, when they were still partners in the firm. They persuaded Fleming to leave Foulis and take his chances in a new enterprise.

While the terms of the original Phoenix Foundry partnership are not recorded, we can safely say that Stewart and Fleming were the skilled tradesmen who contributed the expertise and actually ran the new foundry. Barlow's role was different. He was then nearing the peak of his career in Saint John. He was a partner with his father and brother in E. Barlow and Sons, a prominent importing, shipowning, and mercantile firm in the city; two weeks after he helped establish the Phoenix Foundry, he participated in another new firm, the commercial house of Barlows and Ketchum.⁸ He was already active in real estate, had frequently appeared as the administrator of estates, was a leader in most Saint John joint stock companies of his era, and served as one of the city's representatives in the New Brunswick House of Assembly from the late 1820's through the 1830's. He was one of the men who established the Saint John Board of Trade in 1819, and was elected to its executive

**New Brunswick
FOUNDRY.**

THE SUBSCRIBERS

TAKE this method of informing their Friends and the Public, that they keep constantly on hand, at the above Establishment, a large assortment of—

KITCHEN RANGES, FRANKLINS, REGISTER GRATES,
Cooking, Close, Coal, Parlour, and Air Tight Stoves,
of the most improved patterns.

—ALSO—

PLOUGHS, HAY & STRAW CUTTERS,
With a variety of
AGRICULTURAL IMPLEMENTS.

SAND BOILERS, BROAD AND NARROW AXES,
and **CARPENTERS' ADZES.**

With a good assortment of
HARDWARE,
—among which are—
Mill, Circular, Hand and Web **SAWS, LOCKS, HINGES,**
CHISELS, &c.

They are also prepared to furnish **STEAM ENGINES,**
and **MILL MACHINERY,** of all descriptions.
at the shortest notice.

And having their **NAIL MACHINERY**
in operation, will keep constantly on hand an as-
sortment of
CUT NAILS,
of the best quality.

☞ All of which they offer for sale at the lowest
rates.

HARRIS & ALLEN.

An advertisement, from "Avery's Almanack" for 1846, describes a wide range of products offered by Harris and Allen, James Fleming's old employer, and now a competitor of the Phoenix Foundry.

New Brunswick Museum.

annually from 1819 to 1826, and frequently thereafter. In 1825, Barlow was a co-founder of the Saint John Marine Insurance Co. and served as a director of it for most of the company's existence. In the 1830's Barlow was one of the Trustees of the Saint John Savings Bank, a Director of the Bank of New Brunswick, the President of the Lancaster Mills Company, and a Commissioner of the Bay of Fundy Light Houses. Thomas Barlow was a busy and influential man, with his fingers in many pies. Barlow purchased from the Honourable Ward Chipman three lots of land on which the original Phoenix Foundry was built, and for years the firm traded under his name.

In the same week that the Phoenix Foundry opened its doors for business, the firm of Barlows and Ketchum received a shipment of 50 tons of iron from London in the barque "Barlow". The business links among Barlow's firms that this indicates is no surprise. In the early years of the foundry, Barlow no doubt arranged for the import of all its necessities: machines, coal, and iron. More importantly, Barlow's business connections were probably crucial to the firm's success by marketing its products, directly through the Barlow wholesale houses, and indirectly through his business and political contacts.

Stewart dropped out of the firm in 1847 or 1848, and not amicably, as he later sued Barlow and Fleming in chancery in 1850 for a fairer share of the assets.⁹ Barlow sold his share on July 24th, 1849, to the firm's bookkeeper, Thomas C. Humbert. A new firm then operated the Phoenix Foundry, known as "Fleming and Humbert."¹⁰

The Phoenix Foundry began its career by advertising that "they will cast Ship and Mill Work, Stoves, Grates, Franklins, Ploughs, &c." Potential customers were also assured of "Jack and other Screws cut, Engine Work, Turning Lathes, &c. finished in a superior manner." Orders could be left at the Foundry, then as throughout its more than a century of active existence, on Pond Street at the foot of Dorchester, "or at the store of E. Barlow & Sons."¹¹ In the following year the firm had its first big contract, a contract to provide all the castings and fittings for 24 saw mills for a new water-driven factory being built by the Saint John Mills and Canal Company. About the same time, the firm spawned its first spin-off, as one of its pattern-makers went into business for himself as a millwright in Germain Street, Saint John.¹²

In 1837, beginning its third year, the Phoenix Foundry emphasized consumer goods: "a great variety of COOKING STOVES, of the latest and most approved patterns; Canada STOVES, Franklins, Register Grates, PLOUGHS, Bark Mills, for Tanners; BUCKETS, for Spiral Wheels, &c.", but still offered to make "every description of Machinery, Ship and Mill Work" to order.¹³ George Fleming began to emerge from the shadow of his prominent partner Barlow about this time. In 1838 he was one of the founders of the Mechanics Institute of Saint John, and he was elected one of its twelve original directors.¹⁴

The decade of the 1840s was momentous for Fleming. His sons James and William, later to join him as partners in the firm, were born in the early years. His original partners left the firm, which took a new shape with Fleming as the senior partner. The firm was a success: we note local business houses advertising "T. Barlow & Co.'s Ploughs constantly on hand", which surely indicates an established reputation for quality of manufacture.¹⁵ Even more significant for his later achievements in locomotive building, Fleming's firm began to make its name in the construction of steamboat engines and of steam engines for mills and factories. The Phoenix Foundry was committed to steam power from the outset. James Harris' New Brunswick Foundry had begun with muscle power with men working in relays to operate the bellows for the blast in his cupola. Robert Foulis brought an imported 6 horsepower engine with him on the "Isabella" from the Clyde in 1831, "for the use of the foundry about to be established" by him as the St. John Foundry.¹⁶ The Phoenix Foundry alone of the three built its own steam engine, proudly claiming it to be the first ever built in New Brunswick.¹⁷

The Phoenix Foundry soon challenged the imported steamboat engines as well. In 1841, Thomas Barlow & Company manufactured a 30 horsepower low pressure engine for the new ferry, "Lady Colebrooke".¹⁸ By 1847, they turned out a 216 horsepower low pressure engine for the new river steamer "St. John"; the engine was said then to have cost about four thousand pounds. T. Barlow & Company apparently took a share in the boat's ownership in part payment.¹⁹ Although steamboat engines in those years were usually low pressure -- in fact very low by modern standards, around 20 pounds per square inch (psi) -- the firm was already manufacturing high pressure stationary engines. One was advertised "nearly new" by a St. John firm in 1848.²⁰ There was plenty of competition for the local steam engine market: in 1847-48 alone, Saint John steamboats were fitted with an engine built at Bangor, Maine (the "Carleton") and with an engine built by James Smith at Courtenay Bay, Saint John (the "Transit"), while a local millowner offered to sell a "steam cylinder" made to his order at the St. Rolox Foundry (Glasgow, Scotland) in 1848, and at Fredericton, Thomas Pickard and Benjamin Tibbits built a small river steamer powered by a compound engine (the "Reindeer").²¹

It is true that competition and opportunity were two sides of the same coin of growing demand, but it appears that the Phoenix Foundry did very well in these years. Looking back in 1867, the firm claimed to have built "over 140 steam engines", and in 1875 they claimed to have manufactured "nearly all the marine engines built in this city, and two-thirds of all built in the Province."²² Without giving up a wide range of other products, Fleming and his partners successfully staked out the steam engine as a speciality in which the firm dominated the New Brunswick domestic market during the middle decades of the nineteenth century.

PHOENIX FOUNDRY

POND STREET,

ST. JOHN, N. B.



The Proprietors of the above Establishment are now prepared to Manufacture

STEAM AND FIRE ENGINES,

FORCE PUMPS,

TURNING LATHES, SCREW PRESSES,

MILL MACHINERY, BARK MILLS,

PATENT PURCHASES,

AND OTHER SHIP CASTINGS,

HOISTING WHEEL GEAR, &c. &c.

THEY will endeavor to keep constantly on hand, an assortment of Ships' CAMBOOSES; Cooking, Close, and Franklin STOVES, Oven and Furnace Mouths, &c. SIDE HILL, DOUBLE MOULD-BOARD, SOD D, IMPROVED D, and other Pattern PLOUGHS. Fanning-Mill Wheels, Truck and Barrow Wheels, Wagon and Cart Boxes, &c. &c. &c.

FLEMING & HUMBERT.

BRASS and IRON CASTINGS made to order; BRASS and IRON TURNING. All kinds of MACHINERY Repaired.

F. & H.

Fleming and Humbert's advertisement in "Avery's Almanack" for 1852 featured the mythical Phoenix bird from which the foundry took its name.

New Brunswick Museum.

While the steamboat market was never a large one, the stationary engine market was by comparison huge. There were only 8 steamboats registered in Saint John in 1840, and 11 new ones registered in the next decade.²³ In 1841 the New Brunswick government surveyed the province's manufacturing facilities, and counted 821 saw and grist mills (58 of them in Saint John County).²⁴ Many, of course, were driven by water power, but even these required machinery as demonstrated by the Saint John Mills and Canal Company's large order with the Phoenix Foundry in 1836. The same 1841 government survey showed only four iron foundries in the province: one in Northumberland County and the three in Saint John. The real competition to supply engines and machinery came from overseas imports, and the Saint John foundries were united in their attitude to this threat. Year after year they joined hands to petition the House of Assembly for protection.²⁵ These requests were usually "referred to committee" and no further action noted, but they appear to have struck a responsive chord among the legislators. By 1859 the New Brunswick tariff provided for duties of 3.5% ad valorem on iron bolts, bars, sheets, old and railroad iron (much of which came in as raw material for the foundries), but 15% on wrought and cast iron, and 17.5% on iron castings.

When their new partnership took over the Phoenix Foundry in 1849, Fleming and Humbert immediately enlarged the works, beginning a program of investment and expansion that continued for several years. This is surely evidence of growing business volume and of profits. On October 20th, 1849, the two proprietors announced that their new Moulding Shop was complete. The firm was now "prepared to manufacture" a splendid list of products:²⁶

STEAM and FIRE ENGINES

Steam Boilers
Force Pumps
Mill Machinery
Turning Lathes
Screw Presses
Bark Mills
Patent Purchases, and other Ship Castings
Hoisting Wheel Gear, &c. &c. &c.

In addition to this wide-ranging list of articles which the Phoenix Foundry would make to order, Fleming and Humbert announced as "On Hand", (and in all the later advertisements, as "Constantly on Hand"), an equally impressive list of products already manufactured and in stock:

CAMBOOSES [cast-iron cooking range & oven for ships]
COOKING, Close and Franklin STOVES
Oven and Furnace Mouths
Side Hill, Double Mould Board, Sod D, Improved D, E, and other pattern PLOUGHS
Fanning Mill Wheels
Truck and Barrow Wheels
Waggon and Cart Boxes, &c. &c.

The firm of course advertised its readiness to make "Brass and Iron Castings" to order, to undertake "Brass and Iron Turning", and to repair "all kinds of Machinery." These lists of actual products on hand and of possible products which could be ordered from the Phoenix Foundry remained virtually unchanged in the firm's advertisements for the next decade.²⁷ The reference to fire engines is a bit tantalizing, but with the firm's own records missing it is impossible to say whether or not they ever built any. Yet why advertise fire engines from 1849 to 1859 if none were ever ordered? There is a much later reference, in 1888, to Fleming's low bid winning a \$625 contract to repair the boiler of a city fire engine for the Saint John City Council.²⁸ But the repair job would not necessarily have been on an engine that was built by Fleming.

A notable feature of this list of Phoenix Foundry products as advertised in the period 1849-1859 is the heavy emphasis on producers' goods for the lumber and shipbuilding industries. This is not remarkable, since these were then the leading industries in the New Brunswick economy. There is also a strong line in plows and stoves. All of this represents a development of the original product lines offered by the Foundry in 1835, with a greater assortment of products and more varieties, but still responding to the same market opportunities.

The decade of the 1850's meant much more to the firm than this analysis of its advertised products might indicate. Fleming and Humbert continued to invest in their facilities after adding the new Moulding Shop in 1849. A description of the Foundry published in 1875 states:²⁹ "*Between 1850 and 1854, great improvements and enlargements were made on the premises. The casting shop was greatly enlarged, and the other principal wooden buildings taken down and more ample and convenient erections of brick substituted.*" This was not all, for on February 26th, 1856, Fleming and Humbert petitioned the New Brunswick Assembly for a return of the import duties they had paid on machinery imported from the United States, imported as they claimed "*to enable them to compete successfully with the Manufactories of other countries.*" In spite of an unfavorable report by the Committee on Trade, their request was just barely turned down by the House of Assembly, on a vote of 14 to 15, on April 1856.³⁰ There was clearly a considerable, if not quite sufficient, sympathy in the legislature for the needs of a local manufacturer. Just what this machinery was is not specified, but later the same year Fleming and Humbert announced that the Phoenix Foundry had "recently been enlarged," and "Machinery and Tools of the latest improved kinds introduced."³¹ As a result, they were "prepared with superior facilities to manufacture":

High and Low Pressure STEAM ENGINES, and BOILERS
Steam Boat, Saw, and Grist MILL MACHINERY
Turning Lathes
Screw Presses
Ship Builders' Cramps
Windless Gear
Cast Iron Pumps
Hawser Pipes
Warping Chocks
Shieves, Cleats, and Rollers, &c.
... [and the usual products advertised earlier]

The greater emphasis on products for the shipbuilders' market is noticeable. Fleming and Humbert continued to cultivate that market, for an 1859 advertisement addressed to "Ship-Builders, Ship-Owners, and others" announced that the firm had acquired the sole right of manufacture for New Brunswick of Robbins' Patent Compound Rotary Lever Pump.³² An accompanying testimonial praised the pump, claiming that "three men will pump more water with less fatigue than eight men will with the ordinary wee gee." This was clearly a manual, not a steam-driven, pump. But by this date the railway age had at last reached Saint John, and Fleming had begun his interesting excursion into the wholly new (to him) field of locomotive manufacture.

The New Brunswick government had decided to build railway facilities, beginning with a trunk line called the European and North American Railway (E&NA), from Saint John to Shediac. Construction was at first, in 1851, entrusted to a British firm of railway contractors, Messrs. Peto, Betts, Jackson, and Brassey.³³ They had virtually world-wide experience and perhaps more significantly, knew how to arrange the financing through London banks. But after a brave start in 1853, the pace of construction was glacial, financing could not be arranged as promised or planned, and under heavy local criticism the British contractors withdrew from the project in 1855.

While the main consideration was always the construction of the railway line itself, a side issue was the provision of rolling stock. Peto, Betts, Jackson & Brassey had ordered rolling stock from foreign suppliers, including the first two locomotives. These, named "Hercules" and "Samson," were delivered by sea from the Boston Locomotive Works, U.S.A., in 1854 for two thousand six hundred pounds each.³⁴ These locomotives went to the construction works at the Shediac end. A small construction locomotive was purchased for the Saint John end from the Portland Company of Portland, Maine at a cost of £1575.16.0.³⁵

Under provincial management, the E&NA ordered four more locomotives from the Boston Locomotive Works in 1857-58. At the same time, it began a program of buying rolling stock at home. Ballast, freight, and passenger cars were ordered from a number of Saint John contractors, particularly Frederick James and James Harris and Co. Locomotives were ordered from Fleming and Humbert of the Phoenix Foundry. None of these men had any previous experience of building railway equipment, but most of the equipment proved satisfactory and the railway was completed at very close to the cost originally projected by Peto, Betts, Jackson & Brassey.

During this period, 1857-58, when the provincial commissioners were getting the railway under control, commissioner Robert Reed went to England to arrange for the financing, purchase, and shipping of the all-important "railway iron" (the rails, chairs, fishplates, etc. that would physically compose the railway line).

PHOENIX FOUNDRY, Pond Street, Saint John, N. B.

The above Establishment having recently been enlarged, and Machinery and Tools of the latest improved kinds introduced, the Proprietors respectfully inform their Patrons, and the Public generally, that they are prepared with superior facilities to Manufacture High and Low Pressure

STEAM ENGINES & BOILERS;
Steamboat, Saw, and Grist Mill
MACHINERY;

Turning Lathee, Screw Presses, Ship Builders' Cramps, Windlass Gear, Cast Iron Pumps, and other Ship Castings; Bark Mills, Oven and Furnace Moulds, Ploughs; Thrasher and Fanner Wheels; Truck and Barrow Wheels, &c., Iron and Brass Castings, Blacksmith Work, &c., &c.

FLEMING & HUMBERT,

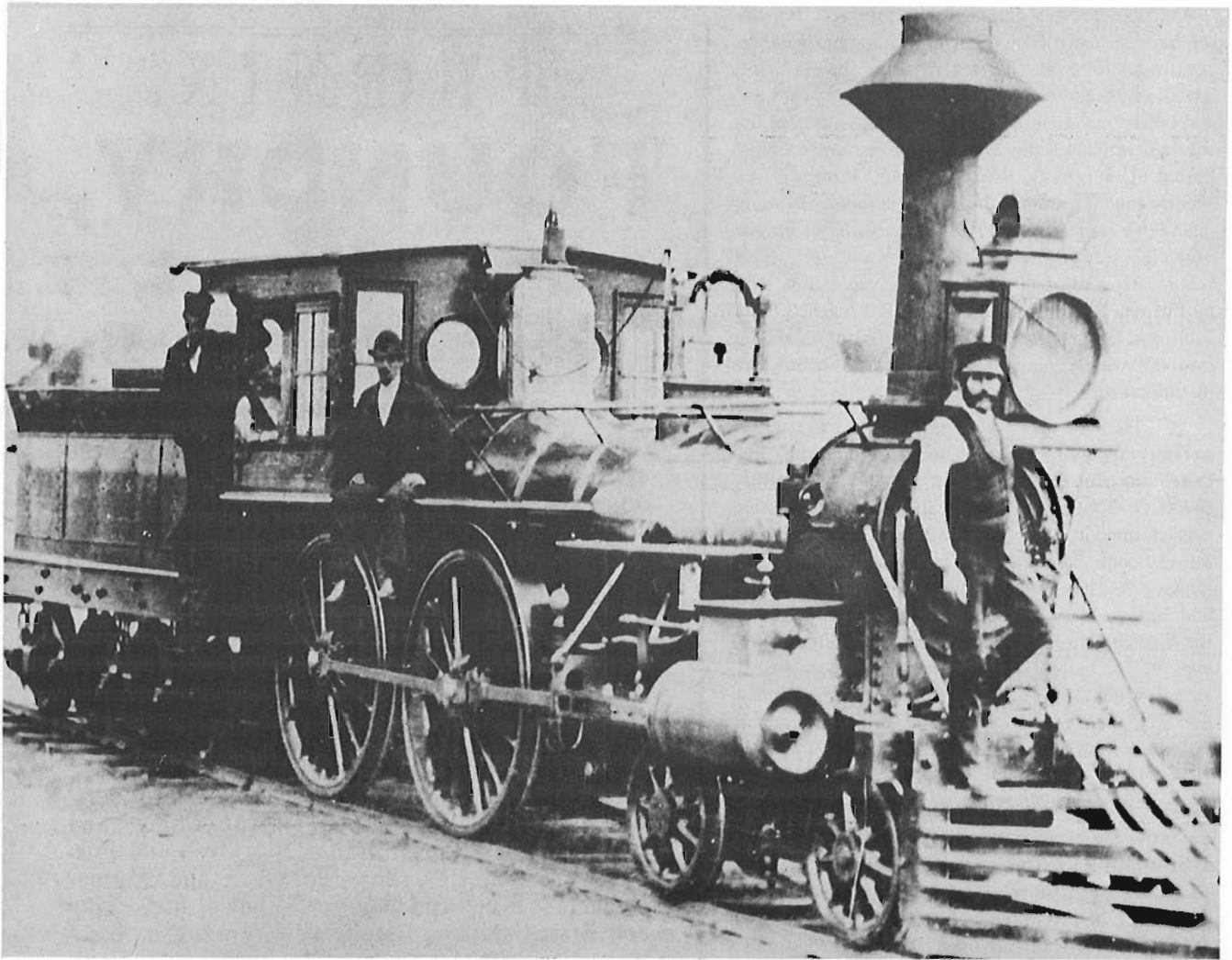
PROPRIETORS.

Iron and Brass Turning done; Gear Wheels cut, &c. Machinery repaired with despatch.

Steam Engines and Boilers; Steamboat, Saw, and Grist Mill Machinery; but still no locomotives! A Phoenix Foundry advertisement from the Saint John Business Directory for 1857, the year before the firm built its first locomotive. New Brunswick Museum.

His correspondence with the Chairman of the Railway Commissioners, Robert Jardine in Saint John, demonstrates a subsidiary interest in Fleming's locomotive adventure and tells us a lot about it indirectly.

First, we note that Fleming was reluctant to take this contract to manufacture a locomotive, and only decided to do so in early November 1857. On November 5th, Reed was in Halifax, about to embark on the steamer for Liverpool, when he dashed off a last-minute letter to Jardine. The commissioners apparently wanted a locally-built locomotive, perhaps as much for political



Fleming and Humbert's first locomotive was the "LOOSTAUK", built for the European & North American Railway in 1858. It was the E & NA's eighth locomotive, and it served that railway, and its successor the Intercolonial, for many years.

New Brunswick Museum, C. Warren Anderson Collection.

reasons as for any other, but seemed to expect the builder to take all the risks:³⁸

"... It is now 6 p.m. and no message from you about the Iron for the locomotive. Well, if Mr. Fleming is not willing to meet the additional condition to refund any amount advanced, in case the article should not prove satisfactory, it shews that he lacks confidence in his own abilities to make a first rate article, and proves that we were right in binding them to assume all risk and responsibility if the locomotive proved a failure, and the Province lost a thousand pounds by the transaction, it would be but a poor excuse for us to say that the thing was done with a view to encourage our own mechanics."
[emphasis added.]

It is hard to imagine a cautious railway management in the twentieth century approaching General Motors in this spirit! Even

though New Brunswick has been disappointed in arranging the financing of this project, a very expensive one for a small and poor colonial society, Fleming and Humbert were expected to take an appalling gamble. They were to collect an expensive lot of materials, put in months of work on them, and get stuck with all the costs if the Commissioners were not satisfied with the finished product. If one of their customers wouldn't pay for a stove or a ship's pump, the Foundry could find other buyers. The provincial railway, however, was the only customer in sight for a locomotive.

In this same letter, Reed continued in a more positive tone, revealing what was perhaps his major motive:

"I hope however, for his own sake, as well as the credit of the country, that Mr. Fleming will yet undertake the job, and turn out such an engine as must meet approval, and so stop further orders to the United States."

[emphasis added.]

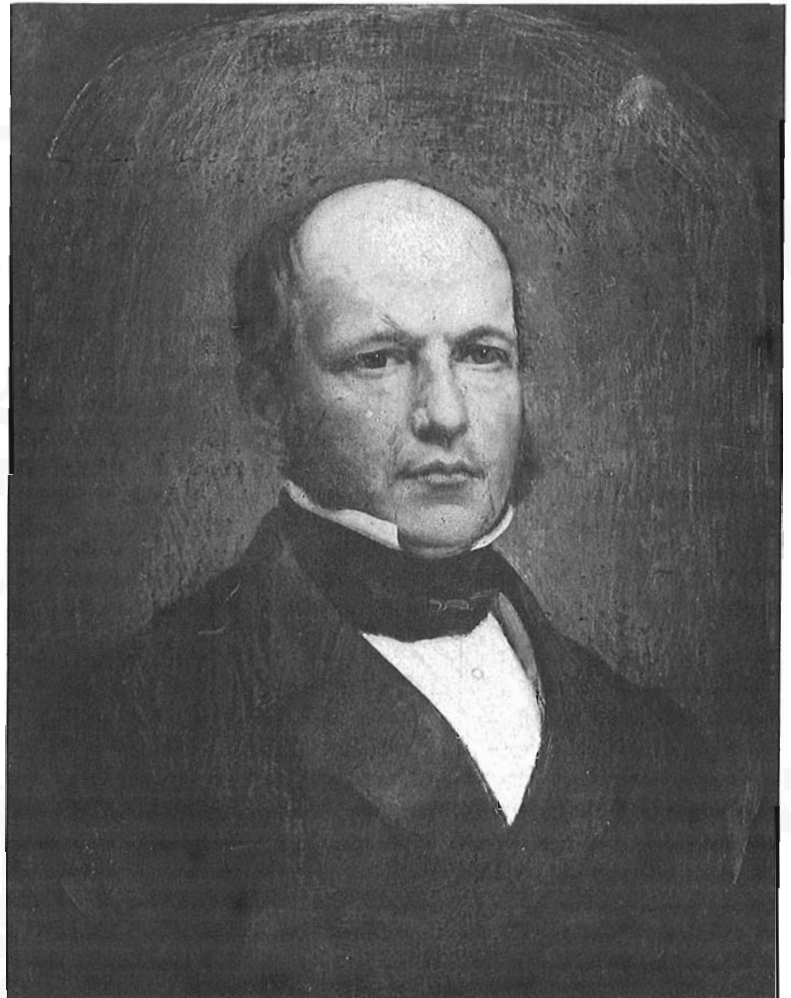
On November 16th, Jardine replied to Reed, writing that Fleming and Humbert had not had their specifications ready in time to telegraph them to Reed at Halifax before he sailed; in fact, that the firm "*only gave them a few minutes ago, barely time to catch the Mail.*"³⁷ Thus it appears that the Railway Commissioners initiated the proposal that Fleming build a locomotive, that they discussed this proposal with him in the summer or fall of 1857, and that Fleming and Humbert only committed their firm to the project definitely in early November. Two weeks later, on Dec. 1st, 1857, Jardine wrote to Reed:³⁸

"Fleming and Humbert, as I informed you by last mail, have concluded to go into the Locomotive making, and Fleming has gone on to the States to get information."

Unfortunately, we may never find out where Fleming went. But going by sea from Saint John, the direct services were to Portland and Boston -- both then active centers of locomotive manufacture. Whatever locomotive shops Fleming visited, or engineers he talked with, he returned with a sound grasp of the general American practice of the day. His first locomotive, a 25-ton 4-4-0, was an instant success when it went into service in 1858. Even with an additional payment of £225 for "extras" arising "*from altered dimensions*", his contract price, £2100, was below the cost of comparable road locomotives from the Boston Locomotive Works. Equally important, the contract was profitable to the Phoenix Foundry at that price, because the firm was willing to take another locomotive contract immediately after completing this first one.

The Commissioners' correspondence reveals a few more details of Fleming's first locomotive contract. Fleming asked the commissioners to order some raw materials in England (not specified in these letters, but later they procured for him 10 tons of cold blast South Wales pig iron) and also "*Low Moor tyres suitable for locomotive driving wheels*", 66 inches in diameter. Very curiously, he asked for twelve such tires. His contract was for one locomotive with four driving wheels, and came with an order for an extra set of driving wheels (presumably an additional four) for £300. Fleming was either being especially cautious, in case he botched his first attempt, or he was already thinking about a second locomotive. The unnamed English supplier referred this order back as "*not sufficiently explicit*". This was obviously the result of Fleming's inexperience. The supplier asked whether they were to be welded and blocked, or bent only? The manufacturer also recommended an inside diameter of 61 3/8 inches ("") (i.e., a tire thickness of 4 5/8") and dimensions at the tread of 5 3/4" x 2 7/16". Fleming had not realized that he had so many options that required specific instructions from him. Fleming's responses are not recorded, but such exchanges with suppliers of speciality parts no doubt helped to guide him into the best contemporary practice.³⁹

Fleming had originally requested that the British materials be sent to Portland by steamer, and transhipped there for Saint John. In Liverpool Robert Reed, himself the owner of a line of

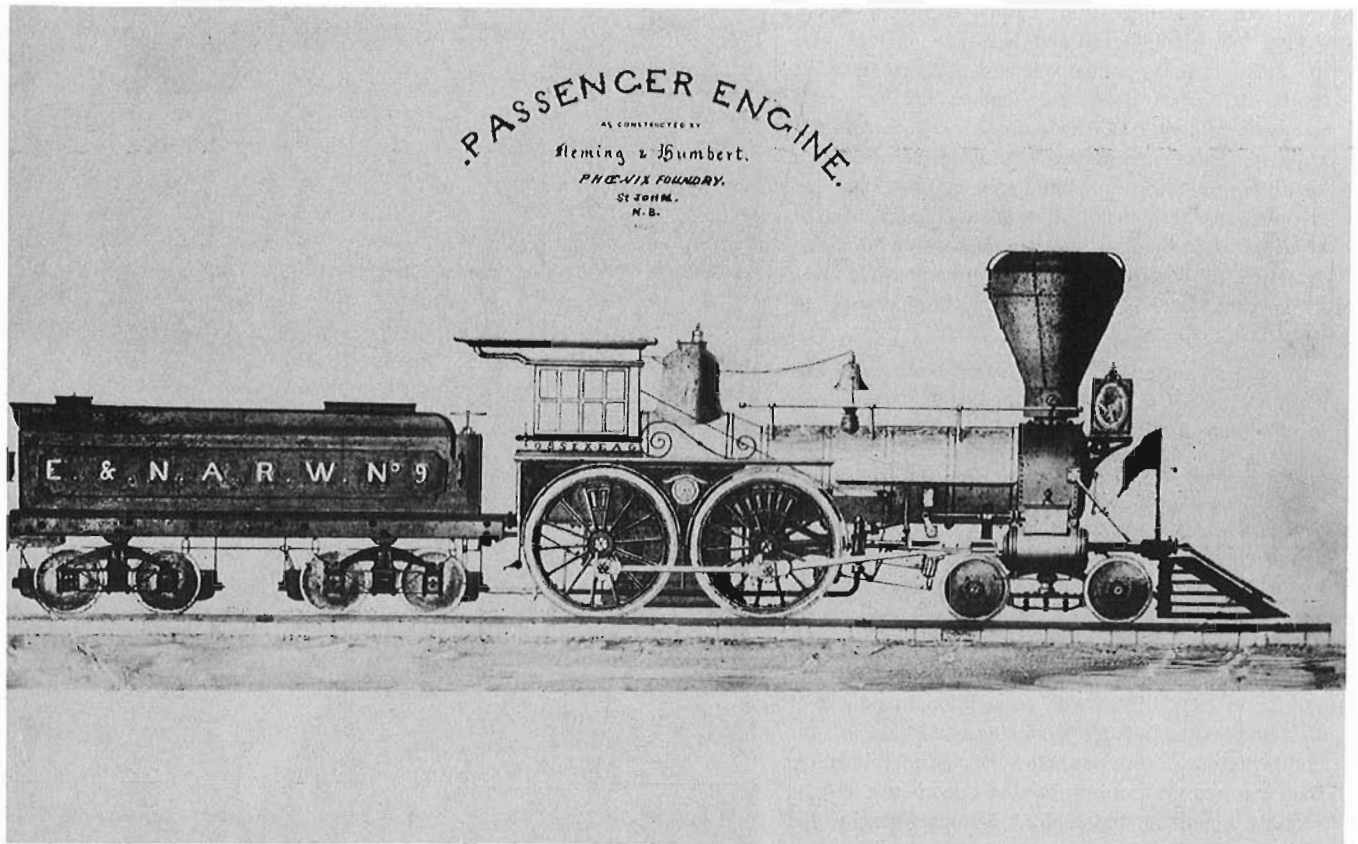


Robert Jardine, the Chairman of the Railway Commissioners of New Brunswick. In 1868 his name was given to a locomotive built by the Phoenix Foundry.

New Brunswick Museum.

packet ships (which carried much of the railway iron across the Atlantic for the commissioners), sent the material to Boston instead. It was too late in the season for Portland - Saint John ships, which apparently did not operate in the winter months. Shipping via Boston would add "*a heavy percentage to the cost*", Reed admitted, but he believed it was better "*for Fleming and Humbert to bear it, then have a portion of their men unemployed in the winter.*"⁴⁰ This is an interesting glimpse of management attitudes of the time, but of course we don't have Fleming and Humbert's response. The locomotive tires were not ready until spring, when they were shipped direct to Saint John. On April 19th 1858, Jardine wrote to his colleague in England that Fleming and Humbert were glad to hear that the tires were on their way. "*They are getting very well on with the Locomotive, and will make a first rate job of it.*"⁴¹

Progress on this first locomotive seems to have been a matter of general interest in Saint John. G. E. Fenety's Morning News, a firm supporter of the existing New Brunswick government



A drawing of Fleming and Humbert's second locomotive, the "OSSEKEAG" as it appeared when new. This drawing, done in 1859, hung in the home of a descendant of James Fleming until the 1960's but its present location is not known.

New Brunswick Museum.

and its railway policy, could not resist using Fleming and Humbert to make a subtle reference to the poor performance of the previous British contractors. On May 14th, 1858, an article in the paper praised the passenger cars which Frederick James was building locally ("it is a satisfaction to know that our own Bluenose men are no laggards . . .") and concluded with these words:⁴²

"As another instance of domestic punctuality we may remark that Messrs. Fleming & Humbert are also up to time with the locomotive they have in hands." [sic; emphasis theirs.]

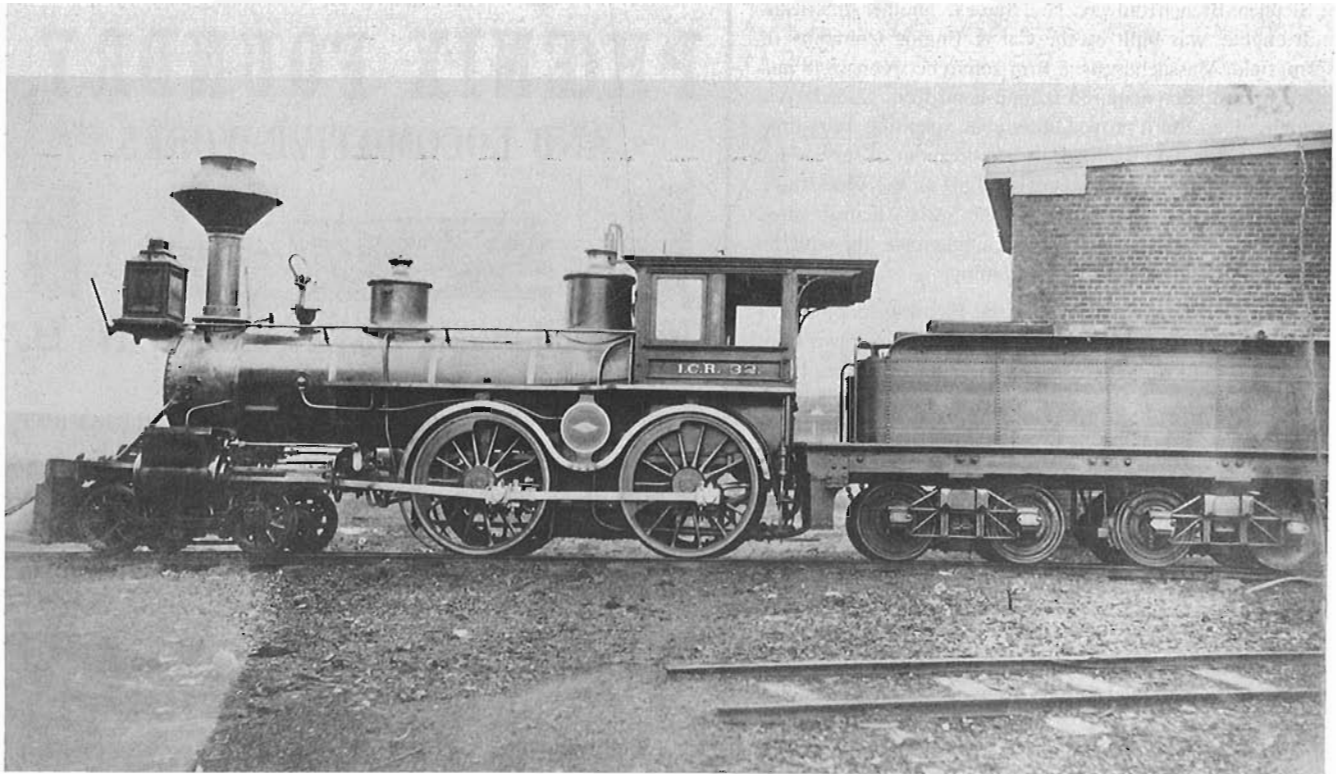
Finally, the Morning News could announce in August that the first locomotive ever built in New Brunswick had been "launched"--using the word so often seen in the Saint John papers to mark the milestones of the shipbuilding industry.⁴³

This locomotive, named "Loostauk," was the E&NA's eighth locomotive, an ordinary 4-4-0 of that era, with outside cylinders 14" diameter x 22" stroke, drive wheels 66" diameter, weighing 51,560 pounds in working order, of which 31,930 pounds were on the drive wheels (thus about 8 tons on each driving axle).⁴⁴ Of the seven locomotives already in service, all American-built, only two cost the E&NA less. These two were the switching engines, smaller and lighter than the locomotives intended for over-the-road service: the "St. John" (later #3) from the Portland

Company, and the "Kennebecasis" (later #4) from the Boston Locomotive Works. Over the following years, the "Loostauk" consistently outperformed the five comparable American-built rivals, and the later Fleming-built locomotives did even better.

Pleased with "Loostauk"'s success, the provincial commissioners ordered two more locomotives from Fleming for the next "season".⁴⁵ These, delivered in June and August 1859, were the "Ossekeag" (later #9)⁴⁶ and the "Apohaqui" (later #10).⁴⁷ Both had 15" x 22" cylinders, larger than Fleming's earlier engine, the "Loostauk", and equal to the last from the Boston Locomotive Works, the "Anagance" (later #7). Fleming's engines were heavier, too. The "Ossekeag" had 66" diameter drive wheels and weighed 56,030 pounds. The additional weight available for traction may have contributed to her performance. "Ossekeag" was the E&NA's top mileage locomotive when provincial management ended in 1872. "Apohaqui" had 60" drivers and weighed 55,400 pounds, of which 32,900 pounds was on her drive wheels. These locomotives each varied from the others in important particulars, indicating that neither the commissioners nor Fleming saw any overriding advantage in standardization.

On June 8th, 1859, the "Ossekeag" pulled the first revenue train from Saint John to Hampton (then known as Ossekeag), 23



In 1872, following the takeover of the E & NA by the Intercolonial Railway, the "OSSEKEAG" became ICR Number 32, and it continued in service at least until the change of gauge in 1877. This photo shows it in its later days and makes an interesting comparison with the drawing opposite.

National Archives of Canada, Merrilees Collection, Photo: PA-185902.

miles: "but being of great weight -- 28 tons, it is said -- spread the roadbed and derailed."⁴⁸ The "Loostauk," which had pulled forty invited dignitaries on a pre-opening special the day before, and the Boston-built locomotives had to take over until the new track was more firmly fastened. These first Fleming locomotives were large machines for a virtually hand-crafted product, although in the retrospect of Canadian railway history they seem almost ludicrously small. The little Canadian Pacific 4-4-0's that survived in service on New Brunswick branch lines into the 1950's, and were used in filming *The National Dream*, were about twice as heavy as the first Flemings: 115,000 pounds, although they were built only twenty-four years later.⁴⁹

The small size and the simplicity of design of these mid-century 4-4-0's made it possible for a small shop such as the Phoenix Foundry to build one or two successfully. Components and sub-assemblies, for example, would not be too heavy or bulky to move and lift with muscle power, levers, and block and tackle. At this date, the technology was all in the public domain and a good quality foundry and machine shop like Fleming and Humbert's would already be experienced in all the necessary operations. Saint John's *Morning News*, boasting of the employment created in New Brunswick by the then Liberal government's railway

construction, claimed that the Phoenix Foundry's second contract, for two locomotives, "will keep over twenty hands constantly employed until mid-summer."⁵⁰ Twenty men! This seems to be the most astonishing numeral fact of all the surviving data on these early locomotives.

Fleming turned out three more 4-4-0 locomotives, all with 15" x 22" cylinders and 66" drivers, virtually identical to "Ossekeag," in 1860-61. These were the "Prince of Wales" in July 1860, the "Norton" in November 1860, and the "Prince Alfred" in July 1861. Then a few years later, Fleming produced the "Robert Jardine" in June 1868 and "The Bear" in August 1869, both heavy freight engines with 16 1/2" x 24" cylinders and 60" drivers, weighing 66,000 pounds each -- 40,000 pounds on the drive wheels (40,500 pounds for "The Bear"), an axle load of ten tons. The roadbed had obviously been improved since "Ossekeag" made her maiden trip.⁵¹

When the E&NA handed over its Saint John to Shediac line to the new Intercolonial Railway (ICR) on November 9th, 1872, it included a locomotive roster of fourteen engines: six from the Boston Locomotive Works and eight produced by the Phoenix Foundry. Two other locomotives had left the E&NA service. "St. John," built by the Portland Company, was sold in June 1866 to the

St. Stephens Branch Railway. The "Sussex," another American-built engine, was built by the Car & Engine Company of Springfield, Massachusetts, a firm active between 1848 and 1856. It had been acquired second-hand from Canada at a bargain price. But it proved unreliable, spending more time in the shops than on the road. It had been out of service for more than a year when it was palmed off on the Woodstock Railway sometime after 1867. So the E&NA had operated most of its traffic over the 106-mile, single track line with the engines from Boston and from Fleming.

Throughout their careers, the Fleming locomotives consistently ran up more miles in service than those from Boston. A spectacular year for such comparisons was 1866. In that year, the six Boston Locomotive Works products made a combined total of 39,585 miles, or an average of 6,597.5 miles per engine. The six Flemings then on the roster made 110,136 miles, an average of 18,356 per locomotive.⁵³ In the final year of E&NA operation, the Bostons averaged 8,058.2 miles each, the Flemings 9,702.3. In the first (partial) year under ICR management, from November 11, 1872 to June 30, 1873, the six Bostons averaged 5,792 miles and the eight Flemings 9,846. For this same period the ICR also reported the costs of running individual locomotives. The Bostons averaged \$18.35 running expenses per 100 miles, the Flemings \$17.16.⁵⁴ Thus the "experiment" of procuring home-built locomotives which the New Brunswick commissioners began in 1857 had paid off beyond all reasonable expectations. The local boys had built an engine, in a small shop with no previous railway experience, which performed better than the imported products from what was then the largest locomotive manufacturer in New England.

The Boston Locomotive Works built approximately 1,811 locomotives over 58 years of production from 1841 to 1899.⁵⁶ The Phoenix Foundry built approximately 50 locomotives over 30 years, 1858-1888. Steam locomotives of that era were not mass produced, and the economies of scale that big producers could realize were not much found in the actual manufacturing process. They were more likely to be realized by quantity purchase and stockpiling of inputs like boiler plate or coal. The important advantage of a big plant like Boston over a small producer like the Phoenix Foundry was the larger number of machines and men it could put to work on a project at one time, a function of a larger capital investment. As long as the orders were for one locomotive at a time, or at most two, Fleming was competitive. He had a well-equipped shop, able men, and he was himself an excellent machinist and experienced supervisor. The man-hours and shop-hours to build a single thirty-ton locomotive in the Phoenix Foundry were probably very close to the time

PHOENIX FOUNDRY, AND LOCOMOTIVE WORKS.



Pond Street, Saint John, N. B.

THE PROPRIETORS OF THE ABOVE ESTABLISHMENT
MANUFACTURE

LOCOMOTIVES

HIGH AND LOW PRESSURE

STEAM ENGINES,
STEAM BOILERS,

STEAMBOAT AND MILL MACHINERY'

TURNING LATHES, SCREW PRESSES,

SHIP BUILDERS' CRAMPS,

WINDLASS GEAR, CAST IRON PUMPS,

AND OTHER SHIP CASTINGS,

Robbins' Patent compound Rotary Lever Pump Gear,

ark Mills, Oven and Furnace Mouths, Ploughs, Fanner Wheels,
Truck and Barrow Wheels for Railway purposes, &c.,

Iron and Brass Castings, Blacksmith Work,

Iron and Brass Turning and Planing; Gear Wheels cast.

MACHINERY REPAIRED WITH DESPATCH.

ORDERS RESPECTFULLY SOLICITED.

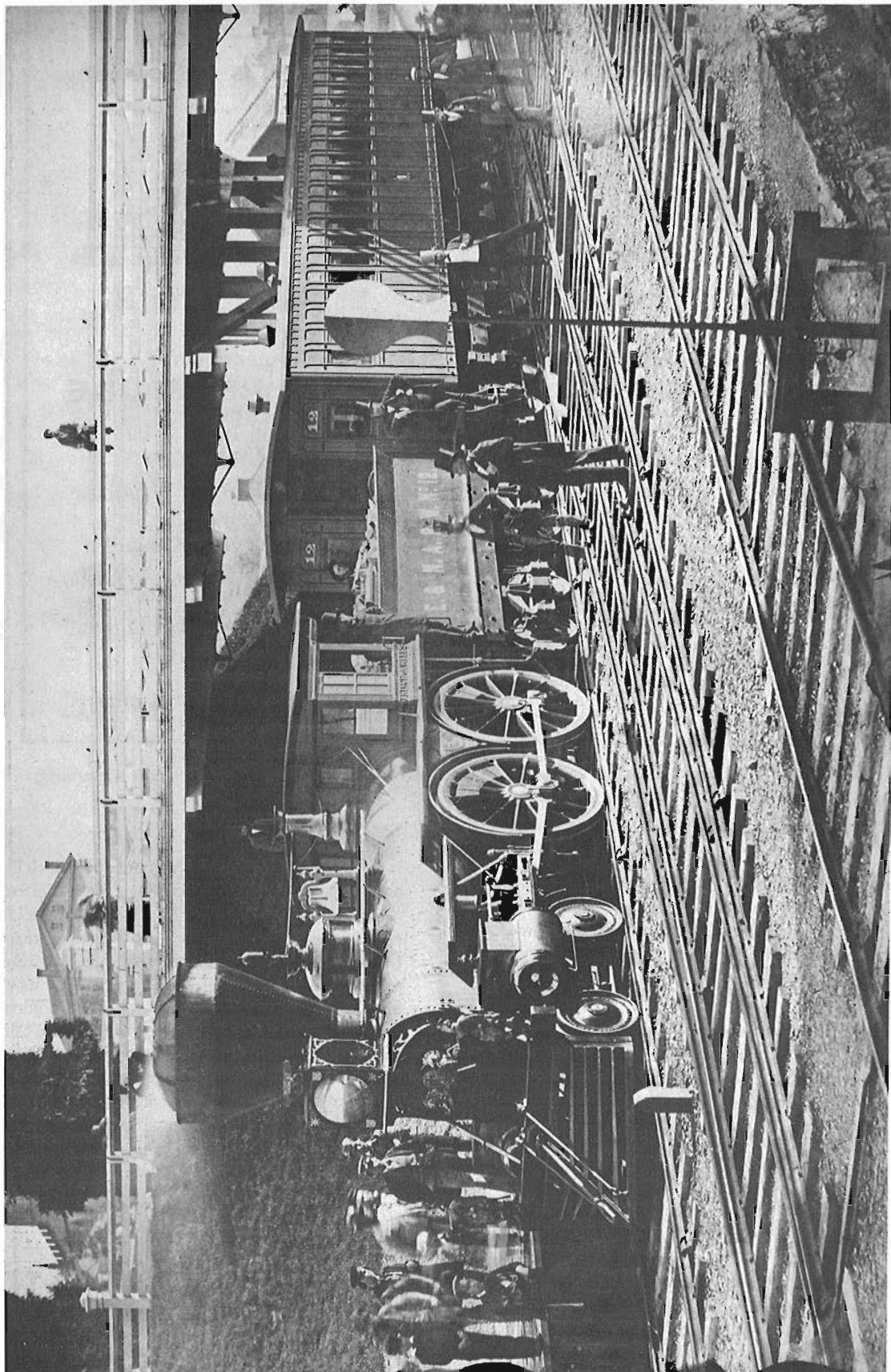
FLEMING & HUMBERT.

ABOVE: By 1863, when this advertisement appeared in "Avery's Almanack", LOCOMOTIVES were the featured product of the Phoenix Foundry, although steamboat machinery and stationary steam engines also received attention.

New Brunswick Museum.

OPPOSITE: This very detailed photograph shows European & North American Railway locomotive No. 12, "PRINCE OF WALES", built by Fleming & Humbert in 1860. The occasion for the photo was the visit of the Prince of Wales, later King Edward VII, to Saint John in 1860. The special car is also numbered 12. The location was Saint John just east of where the present VIA station is now, and only a few hundred feet from the Phoenix Foundry where the locomotive was built. One of the foundry buildings appears behind the rear of the roof of the passenger car. In the upper left corner of the photo, above the front of the locomotive, can be seen Saint John's (Stone) church, built in 1825 and still standing today.

New Brunswick Museum, Gift of the Hon. Justice R. C. Ritchie, 1969.



PHOENIX FOUNDRY & LOCOMOTIVE WORKS,



Pond Street, - - - - St. John, N. B.

The Proprietors of the above establishment manufacture
**LOCOMOTIVES, HIGH & LOW PRESSURE
 STEAM ENGINES,**

Steam Boilers, Steamboat and Mill Machinery,
 Turning Lathes, Screw Presses, Ship Builders' Cramps, Windlass
 Gear, Cast Iron Pumps, and other Ship Castings,
 "Robbins' Patent Compound Rotary Lever Pump Gear."

Bark Mills, Oven and Furnace Mouths, Ploughs, Fanner Wheels,
 Truck and Barrow Wheels for Railway purposes, &c. Iron and Brass
 Castings; BLACKSMITH WORK; Iron and Brass Turning and
 Planing; Gear Wheels cast; Machinery repaired with dispatch.

☞ Orders respectfully solicited.

FLEMING & HUMBERT.

In 1862, Hook and Greenough's Business Directory carried this advertisement depicting two charming woodcuts showing a train and a steamboat.

New Brunswick Museum.

required in the bigger shop. But a producer like Boston could work on big batch orders -- for 10, 12, 25 locomotives -- simultaneously, or could accept several different orders at once. The larger firm had the facilities to work on six, or ten, or more sets of cylinders, frames, and boilers at the same time. This was something Fleming could not do.

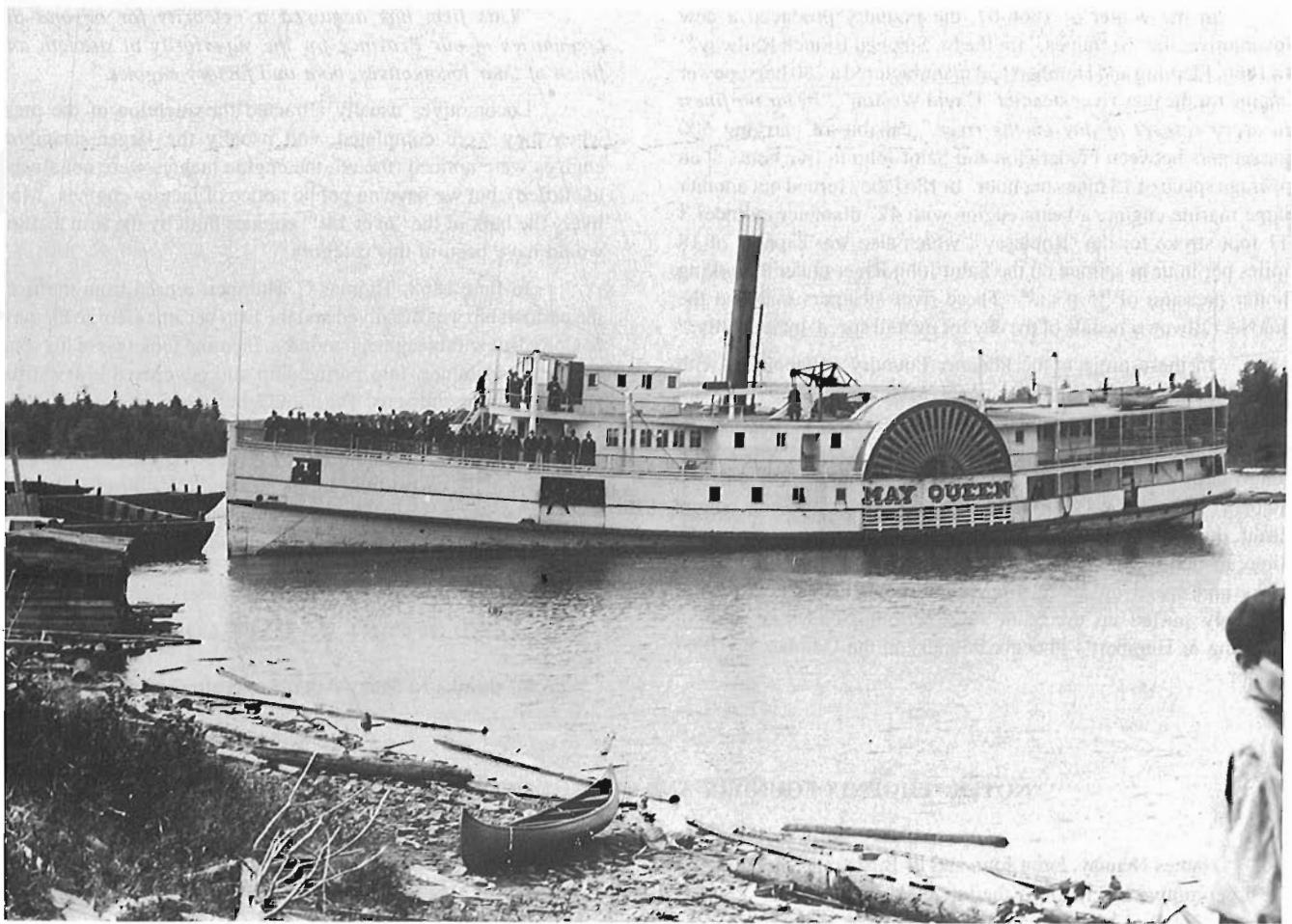
Should Fleming have expanded the Phoenix Foundry so that he could compete for orders for locomotives in large batches too? This thought must have crossed the minds of each of the Canadian locomotive builders in one form or another, but in the nineteenth century, only the works at Kingston, Ontario, tried to do it -- and at some peril. We have a hint in Fleming's case that he did consider expansion, and that he rejected the idea. Why?

When the Foundry's largest locomotive to date, the "Robert Jardine," was completed Fleming told the press that he had rejected expansion:⁵⁷

"Mr. F. could also have got orders for the building of locomotives for the Nova Scotia Railroads, but had to refuse them from not having the proper facilities at the present time for carrying on such an extensive work."

The Nova Scotia Railway order for which Fleming refused to compete (or which he turned down, if it was offered to him) was not really a large one. The origin and development of the provincial railways in Nova Scotia were almost contemporaneous with New Brunswick's E&NA, and in the 1850s the early locomotives were all acquired from foreign builders. Up to the date of Fleming's interview in the Saint John press, the only additions to the Nova Scotia fleet were five locomotives built by the Canadian Engine and Machinery Company of Kingston, Ontario, over a period of 29 months. These locomotives were built from November 1866 to April 1869, and delivered by schooner in Halifax from December 1866 to May 1869.⁵⁸ This seems to indicate that these engines were ordered one or two at a time, which would put them well within Fleming's capability.

Although we can only speculate now as to Fleming's motives, it is not hard to suggest reasons why expansion in the locomotive field might have seemed undesirable to him. He had worked his way up from apprentice machinist to journeyman to co-partner, and was about to become sole proprietor. Presumably personal control was important to him as to others in his position, for example, his former employer, contemporary, and closest competitor in Saint John, James Harris. The amount of new capital



Fleming's Phoenix Foundry built a 150-horsepower marine engine, with 36" cylinders with 7'8" stroke, for the steamboat "MAY QUEEN", launched in 1869. This vessel had a very long career, being in service on the Saint John River until well into the twentieth century.

New Brunswick Museum.

his firm would have needed to become a specialist in locomotive manufacture would have required extensive borrowing or perhaps a complete change to a joint stock system of ownership. It is easy to see why Fleming would not care for either approach. (In the 1850s, Daniel Gunn in Hamilton, an able businessman and locomotive producer, could not persuade local men to invest in a joint stock company to keep his works alive. James Good of Toronto had some 34 recorded mortgage transactions in keeping his foundry in operation for over 40 years, and was judged a poor credit risk by the financial community.)

In the circumstances of those days, specialization in one foundry-machine shop product carried other risks. The locomotive works at Kingston, Ontario, were closed for some months almost every year. We don't think of railway locomotives as a seasonal industry, but in effect they were for Kingston. Stove manufacturers, makers of agricultural implements, and many other Canadian manufacturing industries were seasonal in the nineteenth century leaving men unemployed and capital goods idle for part of every year. The Phoenix Foundry had developed a mixed product line that kept its skilled employees and expensive capital investment

working on a year-round basis. And finally, Fleming did conceive of his business as a family enterprise, eventually taking two of his sons into partnership and passing the business on to them. Even if we assume that locomotives might have been a very profitable line in which to specialize, it is clear that Fleming had other priorities ahead of profit for its own sake.

At this same time, the Phoenix Foundry seems to have enjoyed a busy period. Employment was up to 60 to 80 men in 1867, and had recently been higher: "as many as 120 . . . under an extraordinary pressure of work."⁵⁹ The buildings then included four shops (moulding & casting; blacksmithing; turning & finishing; boilermaking) as well as "spacious brick ware-rooms and large lofts for storing patterns," but the Foundry claimed that all of this comprised "facilities for manufacturing to a much larger extent than has yet been required"⁶⁰ [emphasis mine.] Fleming & Humbert may have been cautious of more complex organizational forms or major indebtedness, but they had considerably increased their plant and its capacity. Most likely much of this would have been done by re-investing profits instead of taking out more personal income for the proprietors.

In the winter of 1866-67, the Foundry produced a new locomotive, the "St. James," for the St. Stephen Branch Railway.⁶¹ In 1866, Fleming and Humbert had manufactured a 250 horsepower engine for the new river steamer "David Weston", "*by far the finest in every respect of any on the river,*" capable of carrying 500 passengers between Fredericton and Saint John in five hours at an average speed of 18 miles per hour. In 1867 they turned out another large marine engine, a beam engine with 42" diameter cylinder x 11 foot stroke for the "Rothesay", which also was capable of 18 miles per hour in service on the Saint John River under a working boiler pressure of 35 p.s.i.⁶² These river steamers matched the E&NA railway schedule of the day for overall speed, incidentally.⁶³

In these projects the Phoenix Foundry collaborated with other local firms and shipbuilders. D. McLauchlan & Sons, York Point Slip, Saint John, built the boilers for the "David Weston", while Henry Graham of Southwark Street (off Pond Street, Saint John) built the boiler for the locomotive "St. James."⁶⁴ Since the Phoenix Foundry was perfectly capable of making such boilers itself, this can indicate that the firm was working to capacity at the time, or that it sub-contracted parts of big contracts to spread the risks and speed up completion of the work. Local patriotism probably puffed up the Saint John Morning News account of Fleming & Humbert's Phoenix Foundry in the October 14, 1867 issue:

"This firm has acquired a celebrity far beyond the boundaries of our Province for the superiority in strength and finish of their locomotives, boat and factory engines."

Locomotives usually attracted the attention of the press when they were completed, and usually the larger steamboat engines were noticed (though the engine makers were not always identified), but we have no public notice of factory engines. Most likely the bulk of the "over 140" engines built by the firm to 1867 would have been in this category.⁶⁵

In June 1868, Thomas C. Humbert retired from the firm, the partnership was dissolved and the firm became George Fleming & Co.⁶⁶ But within eighteen months, Fleming took two of his sons, William and James, into partnership and advertised a new firm, George Fleming and Sons. The popular but unofficial name, Phoenix Foundry, had been expanded by 1862 to "Phoenix Foundry and Locomotive Works," a name that was still being used by Fleming's grandsons in the early 20th century.⁶⁷ The firm's bread-and-butter products were the more numerous but anonymous factory engines, castings and smaller items generally, but the prestigious locomotives were a source of pride.

END OF PART 1. TO BE CONTINUED

Special thanks to Mary Allen for typing this manuscript

NOTES - PHOENIX FOUNDRY AND GEORGE FLEMING. PART 1

- 1 James Hannay, Saint John and its Business (Saint John, 1875), p. 126; New Brunswick Museum: Ward's Historical Scrapbook No. 4, "Locomotive and Engine: the Interesting Story of the Phoenix Foundry," dated Aug. 16, 1889; Saint John Daily Sun, "Death of George Fleming," July 27, 1887.
- 2 New Brunswick Museum: Marriage Register "B", 1828-1839, p. 330, Shelf 103; St. John Daily Sun, "Death of Mrs. Fleming," April 5, 1889.
- 3 Saint John New Brunswick Courier (hereafter cited N.B. Courier), June 27, 1835.
- 4 Saint John N.B. Courier, June 19, 1830; June 4, 1831; August 13, 1833; and D. Rik Whittaker, "James Stanley Harris," Dictionary of Canadian Biography, XI, pp. 385-386.
- 5 Saint John Morning Freeman, "Death of a Good Citizen," June 14, 1860.
- 6 Saint John N.B. Courier, July 23, 1831; Charles S. MacKinnon, "Robert Foulis," Dictionary of Canadian Biography, IX, p. 277 (must be used with caution due to a number of inaccuracies).
- 7 Saint John N.B. Courier, June 4, 1831; July 23, 1831; Jan. 5, 1833; Jan. 4, 1834; Oct. 11, 1834; Dec. 27, 1834.
- 8 For Barlow see: New Brunswick, Journal of the House of Assembly, 1833, 1834, 1837-8, 1839; St. John N.B. Courier, April 9, Nov. 12, 1825; June 2, 9, & 23, 1827; Sept. 20, Dec. 27, 1828; Oct. 10, 1829; Aug. 13, 1833; Nov. 22 & 29, 1834; Jan. 17, May 30, June 27, July 4 & 11, Sept. 12, Dec. 6, all 1835; May 21, 1836; Sept. 9 & 30, 1837; Apr. 14, May 12 & 19, 1838; Oct. 2, 1841; and July 28, 1849; Saint John Daily Sun, Apr. 3, 1889.
- 9 Saint John N.B. Courier, Aug. 13, 1833 & June 27, 1835; Public Archives of New Brunswick, In Chancery, John Stewart vs. Daniel W. Goldrick, William Oram, George Oram, Thomas Barlow, George Fleming, James Barleu, dated 29 June 1850; New Brunswick, Journal of the House of Assembly, 1854:2, p. 118, where John Stewart appears as an independent Iron Founder in Saint John (17 Feb. 1855).
- 10 Saint John N.B. Courier, July 28, 1849.
- 11 Saint John N.B. Courier, June 27, 1835.
- 12 Saint John N.B. Courier, "Internal Improvements in New Brunswick," Aug. 13, 1836; advertisement: "JOHN BELL, MILLWRIGHT," Oct. 1, 1836: "Having been employed for the past three years as Pattern maker in the New Brunswick and Phoenix Foundries . . ."
- 13 Saint John N.B. Courier, Nov. 11, 1837.

- 14 Saint John N.B. Courier, Dec. 8, 1838 (one of the other Directors was Thomas Allen).
- 15 e.g., Armstrong & Christy's advertisement, Saint John N.B. Courier, Oct. 23, 1841.
- 16 Saint John N.B. Courier, May 7, 1831; Foulis also brought two other engines, 50 H.P. and 60 H.P., for installation in steam boats.
- 17 James Hannay (1875), loc.cit. [see footnote 1].
- 18 Saint John Morning News, Oct. 4, 1841.
- 19 Saint John N.B. Courier, Apr. 24, 1847; the "St. John" was almost immediately lengthened, i.e., the engines were powerful enough for a bigger boat, *ibid.*, July 31, 1847; and it was valued at £6500 two years later, when a group attempted to interest others in taking, or sending, her to California, *ibid.*, Dec. 15, 1849.
- 20 Saint John N.B. Courier, Aug. 12 through Dec. 30, 1848; earlier, Robert Rankin offered the Portland Rope-Walk for sale, with all machinery including an 8 to 10 H.P. engine made by T. Barlow & Co., *ibid.*, advert. dated Oct. 1846 and still running in July 1847.
- 21 Saint John N.B. Courier, Sept. 25, 1847 (the "Carleton"); Sept. 16, 1848 (the "Transit"); Apr. 13, 1849 (St. Rollox Foundry); Oct. 4 & 25, 1845 (the "Reindeer", sold at a low price of £500, was £3000 new, Oct. 21, 1848). Tibbets, like Foulis, was able to fob off on a naive and incredulous New Brunswick public preposterous claims for originality, in this case the compound engine, with a small diameter high pressure cylinder exhausting into a large diam. low pressure cylinder. This had been patented by Jonathan Carter Hornblower in 1781, used in Cornwall mines early in the nineteenth century and in small marine engines (like the one Tibbets built) on the Clyde from the 1820s. See J. A. Ewing, "Steam Engines," *Encyclopedia Britannica*, 11th ed. XXV, p. 822, and M. S. Moss and J. R. Hume, *Workshop of the British Empire: Engineering and Shipbuilding in the West of Scotland* (London, 1977), p. 37. Tibbets' claims were taken seriously in New Brunswick, repeated and enlarged upon in William T. Baird, *Seventy Years of New Brunswick Life* (Saint John, 1890), pp. 49-52, and Rev. Wm. O. Raymond, *The River St. John* (Saint John, 1910), p. 23.
- 22 Saint John Morning Telegraph, "The Workshops of Saint John," Jan. 26, 1867; and James Hannay (1875) op.cit. [see footnote 1].
- 23 For new registrations: New Brunswick, Journal of the House of Assembly, 1841, appendix pp. cclxxx-ccxc; 1842, appendix p. cclxviii; 1843, appendix pp. cxxiv-cxxviii; 1846, appendix p. cc1x; 1847, appendix p. ccxli; 1848, appendix p. ccxxxviii.
- 24 *Ibid.*, 1842, appendix p. ccxlii.
- 25 *Ibid.*, 1844, p. 88; 1848, p. 116; 1850, pp. 90, 133; 1851, p. 111; 1854:2, p. 118.
- 26 Saint John N.B. Courier, Oct. 20 through Nov. 29, 1849.
- 27 e.g. William L. Avery, Avery's Almanack for 1855; Avery's Almanack for 1858 (Saint John), full page Phoenix Foundry advertisements following paginated text. The 1862 and 1863 editions have a different advertisement for the "Phoenix Foundry and Locomotive Works," listing "LOCOMOTIVES" ahead of the usual products.
- 28 Saint John Daily Sun, July 12, 1888.
- 29 James Hannay (1875), op.cit., pp. 126-127 [see footnote 1].
- 30 New Brunswick, Journal of the House of Assembly, 1856 vol., pp. 43 (petition received Feb. 1856), 168 (reported by committee 26 Mar. 1856), 304 (rejected on recorded vote 25 Apr. 1856). Only three of the six Saint John city and county members voted, all of them in favor; conspicuous among those not voting was Samuel L. Tilley, later an architect of the "National Policy" intended to encourage domestic manufactures. Two steamboat proprietors, who later bought engines from Fleming, voted. Enoch Lunt (Sunbury County) was in favor and George L. Hatheway (York County) against the petition. On the same day the House rejected a similar request from another Saint John manufacturer without a recorded vote.
- 31 Saint John N.B. Courier, Oct. 15, 1856.
- 32 Saint John Morning News, May 2, 1859 and through the year.
- 33 "Grand News! The European and North American Railway to be Built" was the headline in the Saint John Morning Freeman, Sept. 23, 1851. The Halifax, N.S., British Colonist and North American Railway Journal, (quoting the Saint John Courier), notices "Peto's British navvies" beginning work at the Shediac end and obviously expected great things of them, "Railway Operations at the Bend," Oct. 8, 1853. The single-track, 106-mile line from Saint John to Shediac was not completed and opened until the summer of 1860, with the Prince of Wales present for the opening. Saint John celebrated the royal visit elaborately, including a parade of workers representing 35 trades (Thomas Humbert, representing the Founders, was a member of the organizing committee). Saint John Morning News, July 18 & Aug. 6, 1860.
- 34 New Brunswick, Journal of the House of Assembly, 1859, appendix p. ccc1xxxi, for prices, specifications, and delivery dates of the E. & N.A.'s first eight locomotives, including these two.
- 35 Richard F. Dole, "The Portland Company," *Railroad History*, No. 139, Autumn 1978, pp. 5-38, esp. p. 12. Canadian sales accounted for 41% of the company's total output.
- 36 New Brunswick, Journal of the House of Assembly, 1858, appendix p. ccxxxvii.

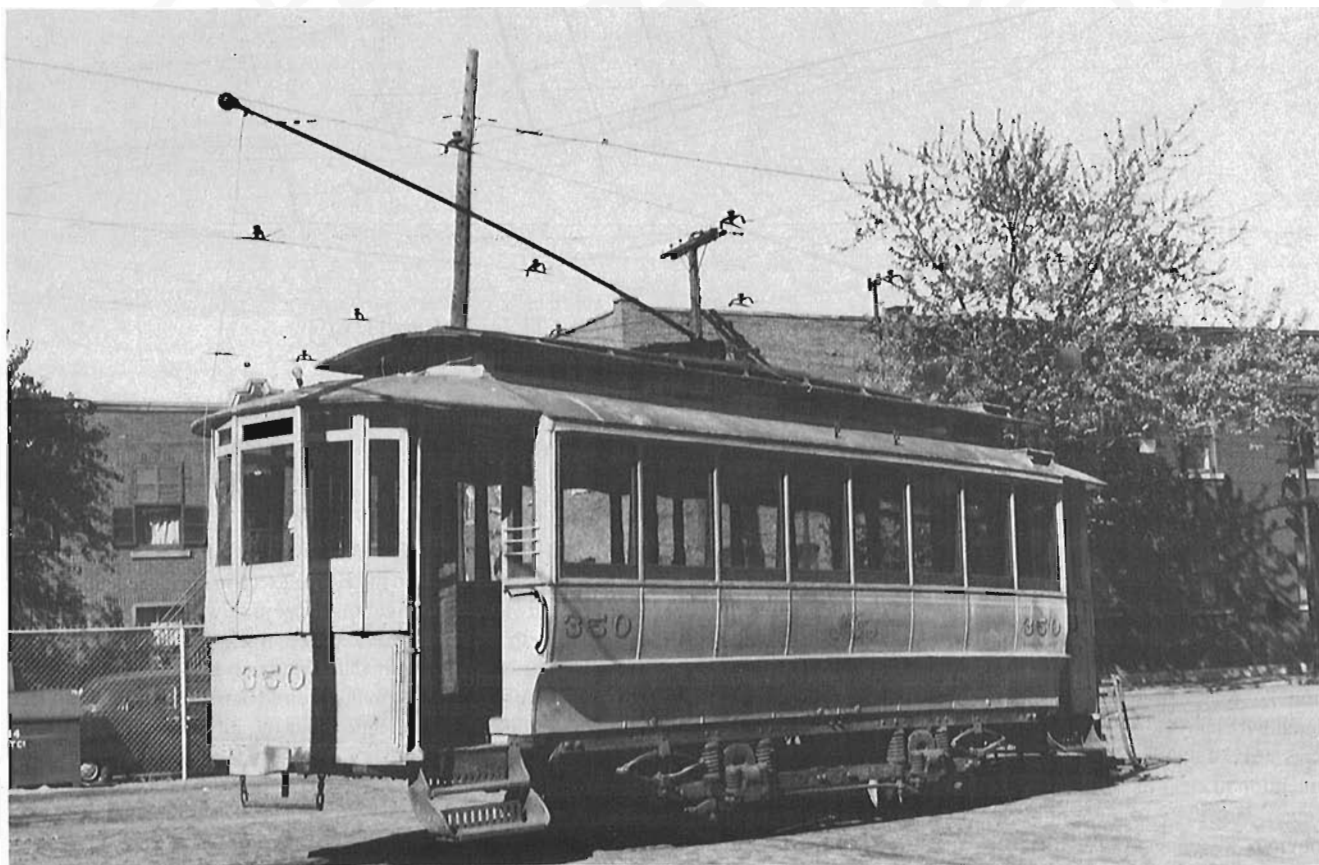
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- 37 Ibid., p. ccxxi.
- 38 Ibid.
- 39 Ibid., pp. ccxxxiv, ccxxxix.
- 40 Ibid., p. ccxxxix.
- 41 Ibid.k p. ccxxxiv.
- 42 Saint John Morning News, "Railway Cars," May 14, 1858.
- 43 Saint John Morning News, "New Locomotive," Aug. 27, 1858.
- 44 New Brunswick, Journal of the House of Assembly, 1862, Appendix No. 6, p. 26. This gives detailed weights of rolling stock for the first time, because the E. & N.A. installed a track scale during 1861.
- 45 Ibid., 1859, appendix p. cccxxxvi. In the nineteenth century, Canadian railways frequently ordered new locomotives and cars for the seasonal traffic peak following the grain harvest.
- 46 Saint John Morning News, June 3, 1859.
- 47 Saint John Morning News, Aug. 17, 1859.
- 48 Saint John Morning Freeman, June 9, 1859.
- 49 Walter A. Lucas, Pocket Guide to American Locomotives (N.Y., 1953), p. 76; Omer S. A. Lavallée & Robert R. Brown, "Locomotives of the Canadian Pacific Ry. Co.," Bulletin No. 83, Railway and Locomotive Historical Society (July, 1951), pp. 23, 31-2, 46-7, 63-5 for CPR locomotives #29, 136, & 144 in 1950.
- 50 Saint John Morning News, Dec. 10, 1858.
- 51 Saint John Morning News, Nov. 23, 1860 & June 29, 1868; Saint John Morning Telegraph, Aug. 13, & Nov. 19, 1868 (casting doubt on the ICR's recorded delivery date for "The Bear"); New Brunswick, Journal of the House of Assembly, 1861, Appendix No. 6, p. 27; 1862, Appendix No. 6, p. 26; Parliament of Canada, Sessional Papers, 1874, no. 2 - Public Works, appendix, p. 86.
- 52 New Brunswick, Journal of the House of Assembly, 1867, appendix, pp. 8, 13, 27.
- 53 Ibid., p. 27.
- 54 Parliament of Canada, Sessional Papers, 1874, no. 2 - Public Works, appendix pp. 86, 114-116.
- 55 Alexander L. Light, Chief Engineer of the E. & N.A., reported on 2 Feb. 1859: "The experiment of building the locomotives in this city [Saint John], has been entirely successful." He had no doubts that Fleming & Humbert "can make Engines equal to those imported from Boston." New Brunswick, Journal of the House of Assembly, 1859, appendix, p. ccc1i.
- 56 John H. White, "Holmes Hinkley and the Boston Locomotive Works," Railroad History, No. 142, Spring 1980, pp. 27-52. This article is the source for my further remarks about the Boston firm later in this chapter.
- 57 Saint John Morning News, "The New Iron Horse," June 29, 1868.
- 58 Kingston, Ont., Daily News, Nov. 14, 1866; Apr. 11, 1867; & Aug. 11, 1868; Halifax Evening Express & Commercial Record, May 28, 1868; Parliament of Canada, Sessional Papers, 1874, no. 2 - Public Works, appendix, p. 57 (several typographical errors).
- 59 Saint John Morning Telegraph, "The Workshops of St. John," Jan. 26, 1867.
- 60 Ibid.
- 61 Saint John Morning News, Jan. 14, 1867; Morning Telegraph, Jan. 12, 1867.
- 62 Saint John Morning News, Aug. , 1866; June 14, 1867; Morning Telegraph, Jan. 15, 1867.
- 63 The June, 1868, edition of Travellers Official Railway Guide of the United States and Canada shows the E. & N.A. "Accommodation" train scheduled to make the Saint John - Shediac run at an average speed of 14.6 M.P.H., while the "Express" was booked at 19.98 M.P.H. The steamboats were probably more comfortable in that era, but of course could not run in winter when the rivers were frozen, nor above Fredericton for more than about four months each year because of lower water over the bars.
- 64 Saint John Morning News, Aug. 3, 1866; Morning Telegraph, Jan. 26, 1867.
- 65 Morning Telegraph, Jan. 26, 1867.
- 66 Humbert, as partner for 17 years, was thereafter listed in the city directories as "accountant;" McAlpine's Saint John City Directory for 1883/4 may be the last to list him. Already a director of the Mechanics' Institute in 1867, he was elected Recording Secretary briefly and then Curator of its collections after retiring. Saint John Morning News, Apr. 10, 1867; Apr. 13 & 27, 1869.
- 67 see footnote 27; and The Book of St. John (n.d., The Telegraph Publishing Co., c.1903), p. 95.

From the Collection

Montreal Street Railway Cars 274 and 350

and the Introduction of Electric Street Car Service in Montreal, September 1892

By Fred F. Angus

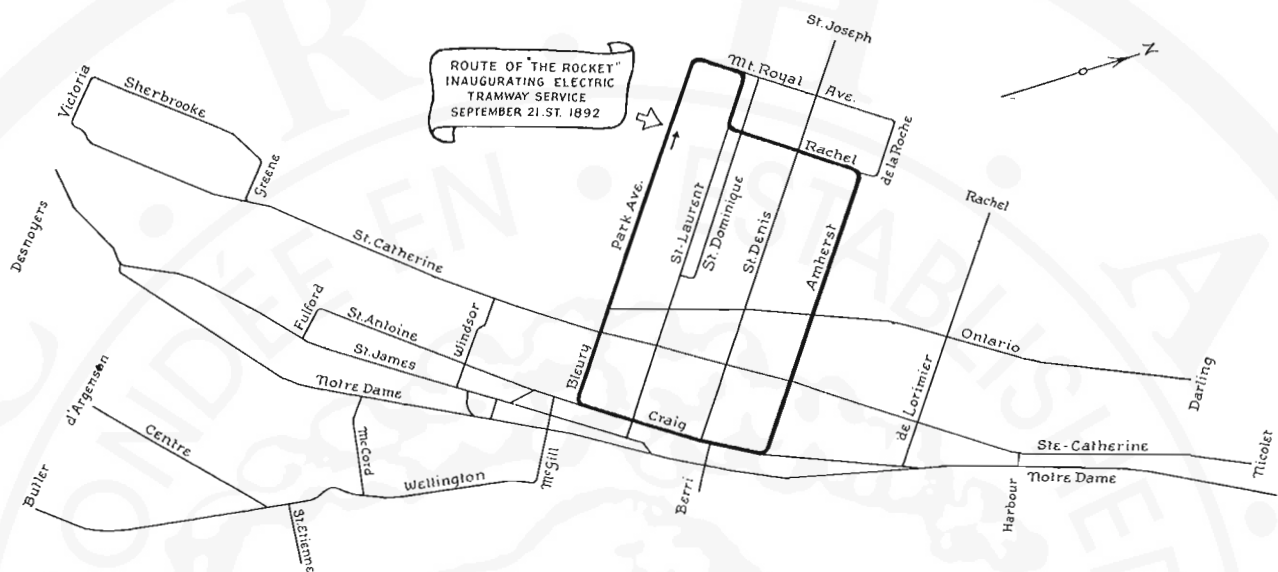


Montreal Street Railway car 350 as it appeared on May 14, 1949. The occasion was a visit to the Mount Royal car barn during a CRHA excursion. In this view 350, the first electric car to run in Montreal, appears as it did when retired in 1914.

CRHA Archives, Toohey Collection 49-241-B.

Montreal Street Railway cars 350 and 274, both of which celebrate their centennial this year, are among the most historic in the collection, both from the point of view of the development of urban transit, as well as in the history of the CRHA. Car 350, also known as the "Rocket" was the first electric car to operate in Montreal, while 274 was the first piece of full-size rolling stock preserved by the Association, and hence the start of the Canadian Railway Museum collection. In addition, both cars show important features in the story of the development of street railways; one is typical of the early 1890's while the other has features which point to the developments which came about in the twentieth century.

By 1890 the technology of electric traction had been proved feasible, and street car lines worldwide, but especially in North America, were contemplating converting from horse to electric power. The pioneer Sprague installation in Richmond Virginia in 1888 had proved that electrification was practical and the rush to electrify was on. Many systems had already converted and many more were poised to do so. Within ten years few horse car lines were left in North America, and even cable cars, only recently seen as the best means of mechanical city transit, were disappearing in favour of the all-conquering trolley car. At first there was doubt about the reliability of electric cars in cities, such



MONTREAL STREET RAILWAY ~1895

This map, drawn by the late Richard M. Binns, shows the lines of the Montreal Street Railway as they appeared in 1895, the year after the completion of the electrification. The original "Belt Line", on which electric service began in 1892, is clearly shown.

CRHA Archives, Binns Collection.

as Montreal, which had heavy winter snowfall, but the success of Ahearn and Soper's Ottawa Electric Railway, inaugurated in 1891, convinced all but the real die-hard skeptics. There was, to be sure, some opposition. Even the President of the MSR was convinced that the proposed electrification would be the ruin of the company, and he resigned when it became apparent that the directors intended to press on regardless. There was opposition also from the operators of sleighs who were apprehensive about the company's intention to clear the streets of snow and operate electric cars year-round. However all these objections were small compared to the obvious advantages of electrification and so the decision was made to go ahead.

In 1891, the largest by far of the street railway systems in Canada were those of Montreal and Toronto and, during that year, both made the momentous decision to electrify their entire systems. In both cases the plans called for the work of conversion to be started in 1892 and completed in 1894. While Toronto had an exact deadline (the end of August 31, 1894), Montreal did not; however it completed the conversion in October 1894. Thus both systems were fully electrified in a little more than two years after the first electric car ran.

The date September 21, 1892 is famous among Montreal transit enthusiasts as the day electric street car service began. What is not so well known is that this date achieved fame by chance, and was more than a week later than the date originally planned. Even on the morning of the 21st no one was really sure that all would be ready; the story of the electrification had its frustrations as well as its successes. This is a summary of that story.

The Montreal Street Railway (MSR) awarded the contract for the electrification to the Royal Electric company, which had its plant and yard on Wellington street in downtown Montreal. Work began in the spring of 1892 as new tracks were laid using heavier rails in order to accommodate the much heavier electric cars. On more lightly travelled routes the old horse car rails were left in place and electrically bonded, but the running of electric cars on horse car rails was not very satisfactory and these rails also were replaced within a few years. Car barns had to be altered and extended to house the new rolling stock and, in addition, a power house and substations had to be built and feeder wires and electrical grounds needed to be installed. Then, of course, the trolley wires had to be put up over the tracks and, as this began, the first cry of protest from the public were heard.

"WILL MONTREAL BE CURSED WITH THE TROLLEY SYSTEM?" screamed a headline in the Montreal Daily Star on August 29, 1892. Then followed a lengthy discussion, by Professor Trowbridge of Harvard University, about the superior benefits of the storage battery system. Other accounts related all the potential dangers inherent in "That Trolley System" and cited the unwillingness of New York to allow it. A description was given of the "safer", but very expensive, conduit system then being installed in New York and the question was asked (Star, August 20, 1892) "If the [trolley] system is so distasteful to New York, why is it to be introduced into Montreal?" A Star editorial of August 24, 1892 was even more blunt, saying in part "In many quarters there is a disposition to force the street railway to change the horse car method, irrespective of consequences. This indecent haste is not in the interest of the city

nor of the street railway. If carried to extreme, it will result in such disfigurement of the streets and multiplication of dangerous wires as will make even the most impatient citizen sorry that the Company was not given a little breathing time..... It may take a quarter of a century to undo a mischievous error. If the company gets all its cars supplied with trolley motors, if it gets its poles planted in the middle of all the double tracked streets, it will cost more to make the change than to buy up the city council, a process no company will yearn to do oftener than once in a quarter of a century..... A foolish statement is made that 500 volts only is required for the "Trolley" propulsion; this may be true for a car or train of cars, but the lines being joined the entire voltage on the whole system may be concentrated upon one victim. Give the Street Railway a chance." All this argument, coming when the first run of an electric car was less than a month away, was somewhat bizarre but, needless to say, work continued and, despite hopes of an improved efficient storage battery, the trolley was here to stay for the next 67 years.

The annual Provincial exhibition was scheduled to open, on Fletcher's Field in Montreal, on September 15, and it was hoped that electric cars would be in use in time to carry people to the opening. As September advanced, however, it became obvious that this deadline would not be met. Two days before the exhibition opened Mr. Cunningham, the Managing Director of the MSR, in an interview for the Montreal Herald, stated bluntly "The cars will not run by the 15th. You see we have done our best, but we could not go against impossibilities." However, in an attempt to cope with the expected crowds, the company "beefed up" the horse car service and inaugurated a one minute car headway on St. Lawrence Main. Then, in the evening of Monday, September 19, 1892, the first electric car ran in Montreal. Royal Electric's demonstrator car "The Rocket" emerged from the company's yard and made eight round trips back and forth along 500 yards of Wellington street. Many enthusiastic spectators were on hand, and representatives of the local press wrote glowing accounts of the great improvements soon to be seen. Disappointment followed, however. It had been promised that September 20 would see service on the "Belt Line" with four electric cars, however last-minute problems cropped up and the promised service failed to materialize. Quickly the news reports grew more cynical. The Herald, in an article titled "WRETCHED SERVICE", stated "Many Montrealers woke up yesterday morning [September 20] with the idea that for the first time they would see electric cars gliding through the streets of Montreal and materially relieving

BROWNELL'S ACCELERATOR

PATENTED NOVEMBER 3, 1891.



Twenty (20) men on Platform only six inches longer than usual, with exit for child through doorway and off platform not obstructed.

Put ten (10) men on platform with central door car and see how difficult it is for a man or woman to enter and leave car.

Do you want to carry all the passengers practicable on your cars?

OUR IMPROVED NON-OSCILLATING MOTOR TRUCK.

See how nearly level the car body is notwithstanding the large platform heavily loaded at one end; the front one being empty.

G. W. Hommell, of Milwaukee, in a recent letter says:

"On the Fourth of July
"The Accelerator
"carried on one half trip, i. e., from
"Soldiers' Home to Third Street car house,
"178 passengers (so registered by the conductor).
"She carried the load with ease.
"It is the finest car I have."

FOR PARTICULARS, ILLUSTRATIONS AND PRICES, ADDRESS

BROWNELL CAR CO.,
ST. LOUIS, MO.

This advertisement for Brownell's "Accelerator" car appeared in the Street Railway Journal for August, 1892. It features an actual photo of Montreal's first electric car. The lettering on the side of the car reads "THE ROYAL ELECTRIC COMPANY OF MONTREAL THE ROCKET".

CRHA Archives, Binns Collection.

the already overstrained resources of the Street Railway company. Alas! they were doomed to disappointment." The account deplored the cruelty of allowing horses to haul the grossly overloaded cars en route to the exhibition, and the doubt was expressed whether the electric cars would be running that week at all.

It is said that the night is often darkest just before the dawn, and on the morning of the very day the Herald article appeared, Wednesday, September 21, 1892, the electric cars "often promised, oft delayed" finally began service. The "Rocket", which had been

hauled by horses to the track the night before, made its inaugural run around the "Belt Line". The route started at the MSR's Cote Street yard, went west on Craig to Bleury, north on Bleury and Park Avenue to Mount Royal Avenue, east on Mount Royal to St. Lawrence Main, south on St. Lawrence Main to Rachel, east on Rachel to Amherst, south on Amherst to Craig and west on Craig back to Cote Street yard. Even then, some newsmen were still doubtful if this was really the start of service. The Herald (once bitten, twice shy) called it "A TRIAL TRIP", while the Gazette, in a somewhat similar vein, said "Montreal's electric cars ran yesterday. They didn't run very far or very fast, but they established the fact that Montreal is in the procession and on the move." By far the most detailed, and the most optimistic, report was that of La Presse which described many of the incidents of the trip as well as some of the features of the cars. Despite the lingering doubts, September 21, 1892 turned out to be indeed THE day for the start of electric service in Montreal. Apart from some derailments caused in part by the "Rocket's" long wheelbase, as well as dirt on the tracks, the trip had been a success and the promised four cars began service to the public on the following day. The Provincial exhibition was still running, so the visitors in the last few days did indeed arrive by electric car, much to the relief of the company, the city - and the horses.

By the time the service began, a number of cars were on hand, and more were arriving every few days. Soon after the work of electrification had begun, the Royal Electric had ordered one car from the Brownell Car Co. of St. Louis Missouri, while the MSR had ordered a large number of cars from several builders in both Canada and the United States.

Royal Electric's car was something special; of the latest design, it was a very interesting type and the only one like it that ever ran in Montreal. It was longer than the average early-1890's single-truck car, having eight windows per side instead of the usual six. Most importantly, however, it featured Brownell's patented "Accelerator" design. The significant element of this design was that it had double doors in each of the end bulkheads. Most street cars of the 1890's had single sliding doors in the centre of the bulkheads; often these doors were quite narrow because of the curved sides, and the cars were slow to load and unload. In the "Accelerator", the door nearest the platform step would be used for entrance and exit, speeding up, or accelerating, loading and unloading and hence minimizing time spent at stops. With small cars the narrow central door was not a major problem, but the double-truck cars of the twentieth century more and more employed the two door feature. While the idea of two doors sounds simple,



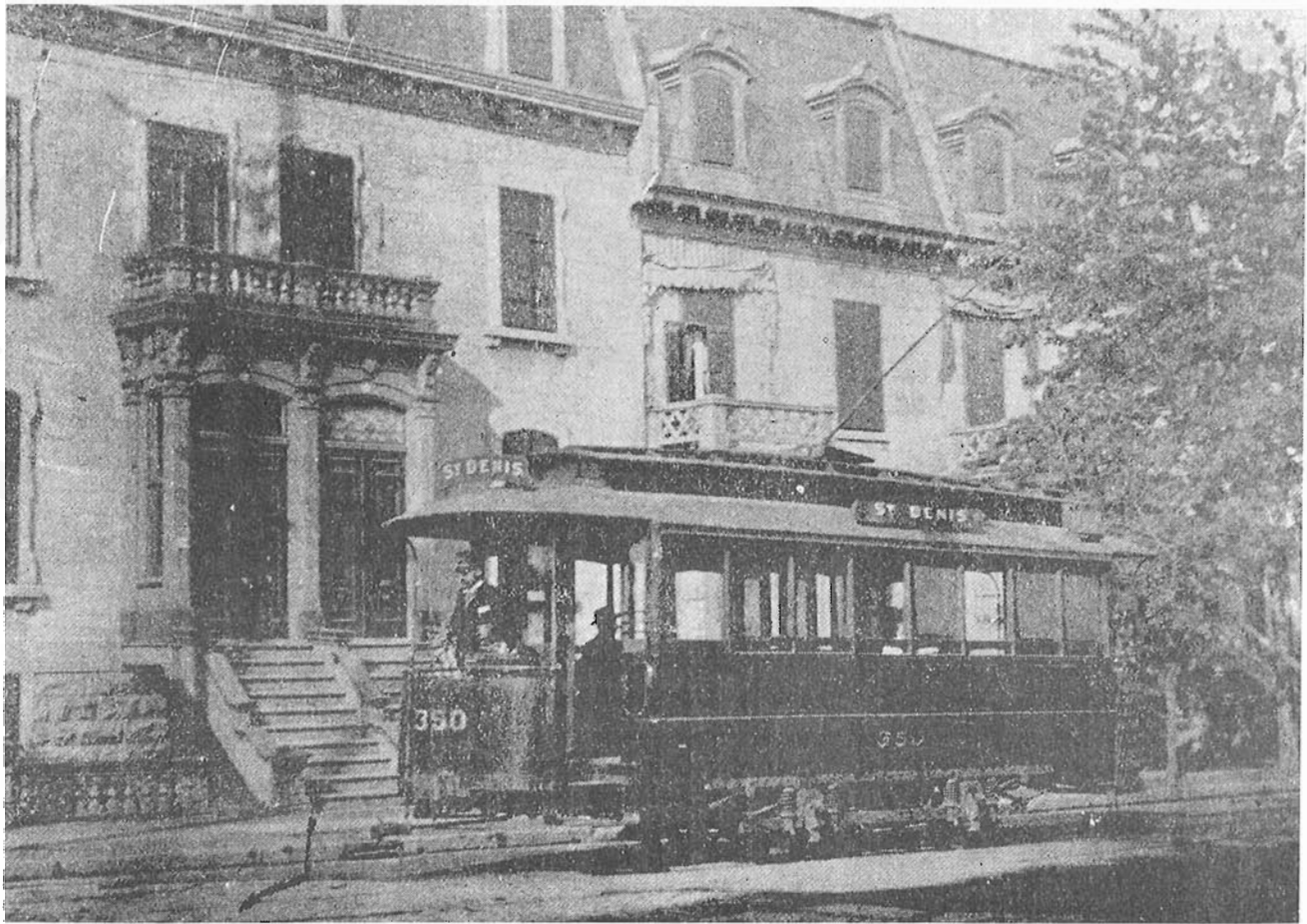
The interior of MSR 350 as seen on May 14, 1949. The interior of the car still has its original hundred year old paint finish and is little changed from the day in 1892 when it inaugurated Montreal's electric service. The double doors, which are the main feature of the "Accelerator" design, are clearly seen. Although the door (on the right in the photo) away from the platform steps was seldom used in Montreal service, loading and unloading was still faster because the entrance door was closer to the steps. Above the doors is an oval in which is inscribed the date, Nov. 3, 1891, of Brownell's patent. Note the coal stove used to provide heat in winter.

CRHA Archives, Toohey Collection. Photo 49-236-B.

it is a fact that it had not been thought of before and was of such novelty that the Brownell company was granted a patent on the design on November 3, 1891. Although Brownell's "Accelerator" patent did not expire until 1908, many of the two-door cars built after 1900 were sufficiently different to avoid patent infringement. Montreal's 1905 Pay As You Enter cars carried the concept to its next logical step in that the two doors could be used simultaneously, so overcoming the one major defect of the "Accelerator" design. Nevertheless, the idea of the double door appears to have originated with Brownell in 1891, and the car in our collection is one of the earliest, if not the earliest, surviving example of this feature.

Royal Electric's "Accelerator" car was delivered some time in the summer of 1892 and was named "The Rocket". This name had been determined at the time of ordering, for the car was so lettered at the factory as can be seen from a builder's photo published in the Street Railway Journal for August, 1892. It does not appear to have had a number at that time, and it is likely that the number 350 was assigned by the MSR at a later date, probably in 1893 but possibly as late as 1894 after the contract with Royal Electric was terminated.

With the work of electrification well under way, the MSR awaited the arrival of the rolling stock which would be required once the electric operation began. In order to understand the progress of MSR rolling stock acquisitions at that time it is helpful to know something about the car numbers assigned between 1892 and 1894. While official records of the period do not appear to have survived, and contemporary accounts vary in the numbers stated,



This very rare photo appeared in the illustrated magazine "Le Monde Illustré" on November 3, 1894. By what appears to have been mere chance, the photographer, taking a picture of a street car on St. Denis Street, happened to photograph No. 350! By this time the long-wheelbase truck had been replaced, the name "The Rocket" had vanished, and the car was painted in MSR's standard livery of the period. The car was destined to remain in passenger service twenty more years after this photo was taken.

National Library of Canada, Photo NL-18034.

we do know that the early closed electric cars received even numbers starting from 184, thus continuing from the highest horse car number 182. Electric cars 2 to 22 even numbers also date from this period; undoubtedly these used the numbers vacated by the earliest horse cars which were retired by 1892. (As a point of interest, almost all the remaining horse car numbers 24 to 182, were re-used by 1900, but this took place after the pioneer period we are considering.) From contemporary newspaper accounts we know that more than 30 electric cars were in service (and a considerable additional number delivered but not yet in service) by late 1892, and we also know that car numbers as high as 418 were in use in the spring of 1894, which indicates 129 closed electric cars in service within a year and a half of the start of electrification. In addition there were at least 46 open cars as well as an undetermined number of former horse cars used as trailers.

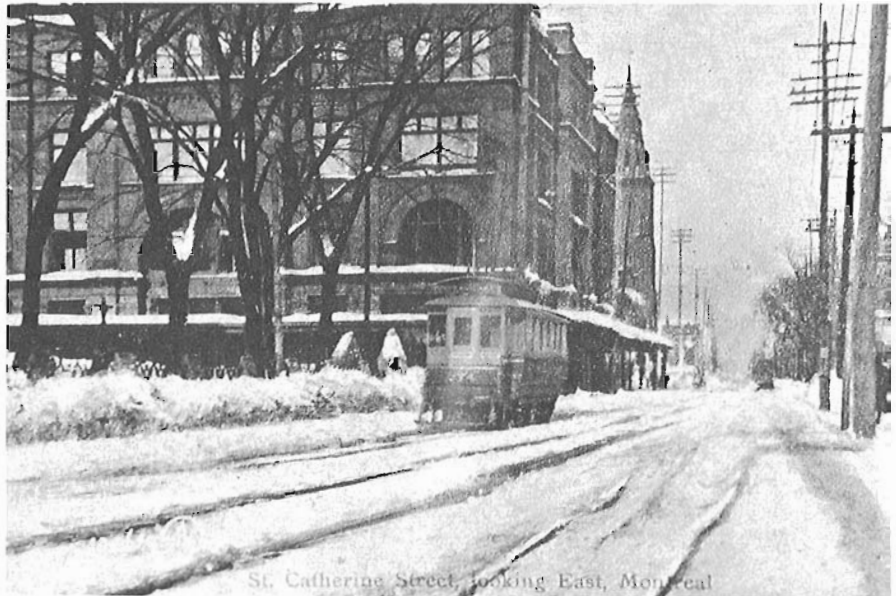
In order to fill the demand for this relatively large number of cars in a fairly short period of time, the MSR placed orders with no less than seven car builders as follows: N&AC Lariviere of Montreal, 15 cars; Newburyport Car Co of Newburyport Mass., 10 cars; Briggs Carriage Co. of Amesbury Mass., 5 cars; St. Charles

Car Co. of Belleville Ontario, 27 cars; Crossen Car Co. of Cobourg Ontario, 38 cars; Ottawa Car Co of Ottawa Ontario, 20 cars; Toronto Railway Co. of Toronto Ontario, 13 cars. The car numbers are quite scattered, indicating that they were assigned in small blocks as completed by the various builders. Only the Newburyport, Briggs and Ottawa groups occupy a single range. The cars were not placed in service in numerical sequence as some builders completed and delivered their orders faster than others. Deliveries appear to have peaked early in 1893, then slowed greatly as the electrification neared completion. It is significant that, in the two years following May 1894, only 19 new closed cars were acquired. The total of cars supplied, between September 1892 and May 1894, by these seven builders, adds up to 128, the 129th being, of course, the "Rocket" which was placed on MSR's roster during this time and was assigned number 350 which fitted neatly between a group of St. Charles cars and another group of Crossen-built vehicles. When 350 officially joined the MSR fleet is not known; it could have been as late as 1894 but, given the numerical evidence, it is more likely to have been in the first half of 1893 by which time the numbers had reached that point.

Among the earliest of the electric cars to be delivered to Montreal was a group of ten units, built by the Newburyport Car Company in Newburyport Massachusetts. These were assigned even numbers 274 to 292 and are known to have been in service before the end of 1892. Whether any or all of them were among the first electric cars to run is not known; one news account states that 25 cars were on hand by September 20. The Newburyports were very likely among them; however the papers do not mention any car numbers so we can not be sure. The Newburyport company had just completed an order of large cars for Boston and was well equipped, so it is not surprising that their products were among the first electric cars to come to Montreal. The first of the group, No. 274, is the one which has been preserved by the CRHA. Like all these early electric cars, except the "Rocket" the 10 Newburyports were typical North American closed cars of the early 1890's. They had 18-foot bodies with open platform, six windows per side, longitudinal seats and single sliding doors in each bulkhead. There was little to distinguish them from the hundreds of street cars going into service all over North America at the time. Therein lies the significance of 274 to the collection, and to electric railway preservation in general; it is a true representative of a critical era in the development of the industry.

Conversion of horse car lines to electric operation proceeded throughout 1893 and much of 1894. Finally, some time during October 1894, the job was complete and the last of the horses went to a well earned rest. Montreal's entire transit system was now run by electric cars, a situation which continued until 1919 when the first bus began to run on Bridge street. From then on the use of busses increased, at first in addition to street car lines, but then they gradually began to replace them. After the City took over the company in 1951, bus substitution was greatly increased, and the last electric car ran on August 30, 1959, sixty-seven years after the "Rocket's" famous run.

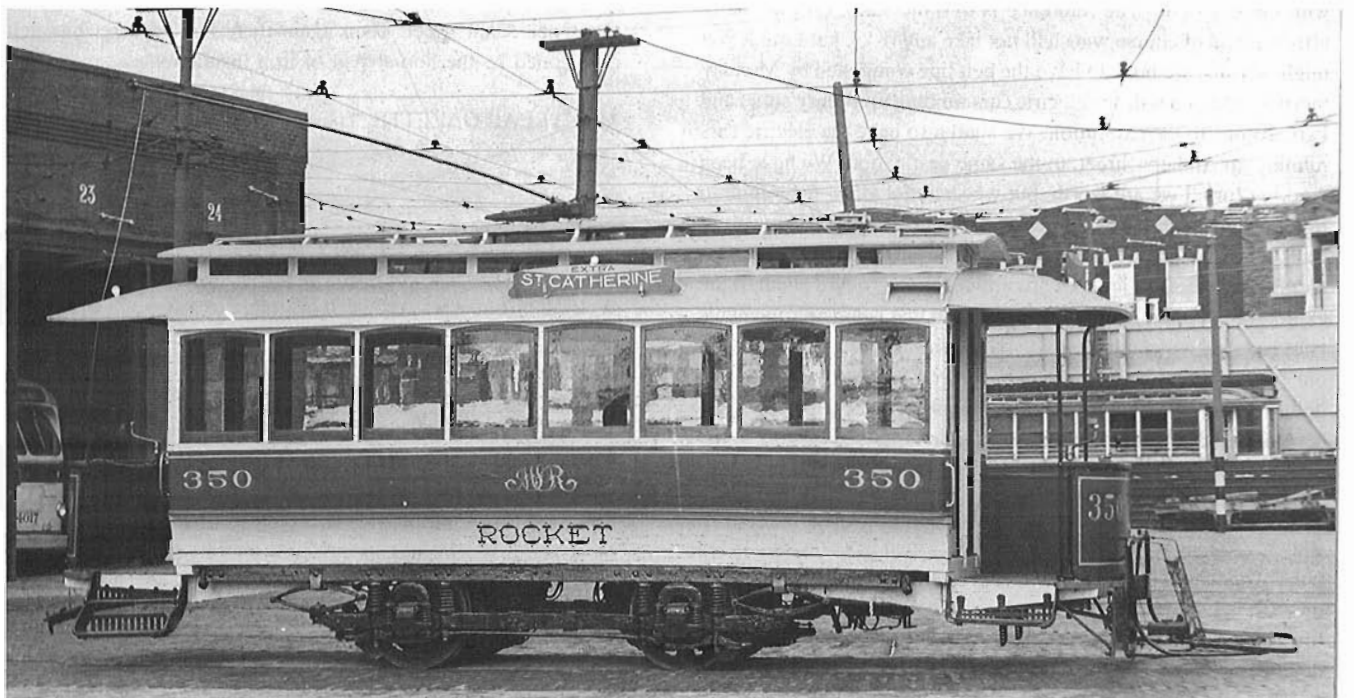
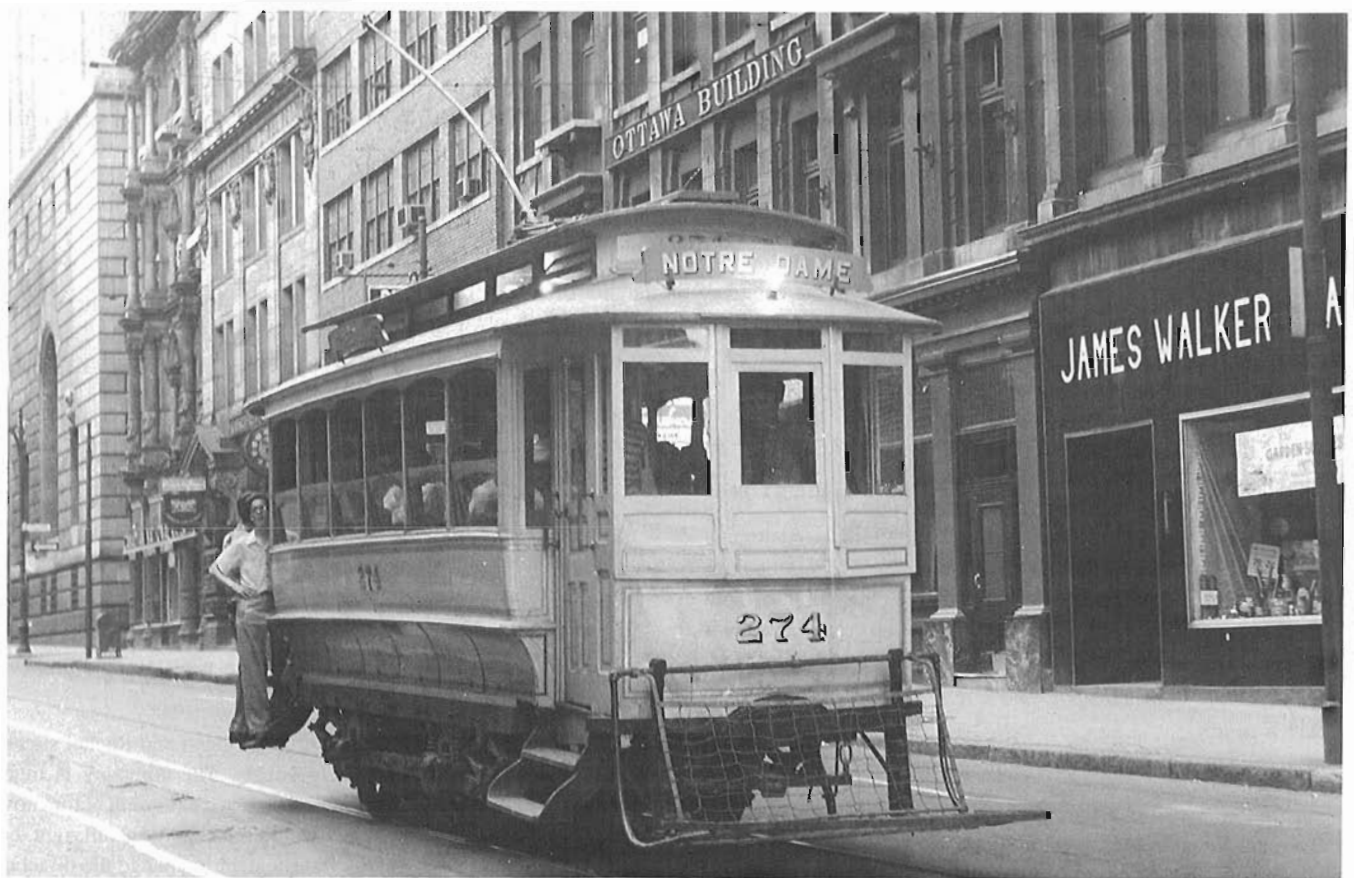
The cars of 1892 to 1894 were the latest development in their time but, with the rapidly changing technology, they quickly became out of date. After 1895, improved designs appeared, and the successful introduction of double-truck cars in 1900, and large steel PAYE cars in 1907 soon rendered the street cars of the early 'nineties obsolete. Massive new car orders between 1911 and 1914 caused widespread retirements and the few remaining pioneer electric cars were seen only in rush hours. Finally, in 1916, the last pre-1896 Montreal street car was retired and the era ended. Both 274 and 350 were in regular service for more than twenty years. In 1912, No. 274, along with some other cars of that era was taken out of passenger service and converted to a salt car which was used in winter to place salt on the rails to melt ice. No. 350, the former "Rocket", continued to carry passengers for two more years until it reached the end of its career in 1914. At this point a mysterious, but very fortunate, event took place. Some person in authority in the Montreal Tramways Company (the successor to the MSR)



Another rare photo, taken by sheer chance, is this winter view of 274 on Ste Catherine Street, in regular passenger service, about 1905. The picture appeared on a post card printed in Germany during the first decade of the century; long before 274 became a salt car.

realized that this car was the historic "Rocket" of 1892 and ordered it to be saved from scrapping. For more than forty years it remained under cover in the car barns and shops, seldom seeing the light of day. In this way it survived intact (minus motors) still bearing its original interior paint finish, including the inscription "Brownell's Patent, November 3, 1891" and some of the brown-tinted clerestory glass showing the builder's name. In 1956, with a big parade scheduled to mark the end of street car service on Ste. Catherine Street, the car was re-motored, the vestibules (added about 1895) were removed and the exterior was given a somewhat fanciful paint job, quite unlike that ever used on the car, once again incorporating the name "Rocket". Fortunately, the interior paint scheme, now one hundred years old, was left intact. By contrast, No. 274 continued to work as a salt car after 1912. Painted grey, it was seen on the streets in winter for 38 more years (almost double its passenger career) until replaced by newer equipment in 1950. In 1951, No. 274 was presented by the Montreal Tramways Company to the CRHA and later restored to its passenger car appearance. In 1963, Montreal's historic street car collection, including No. 350, was presented by the Montreal Transportation Commission to the CRHA and all the cars, as well as No. 274, were moved to the Canadian Railway Museum at Delson - St. Constant.

Today, both these historic cars have reached the venerable age of one hundred years, a lifespan many times what their builders ever expected. It is reported that only 23 pre-1893 electric cars survive anywhere in the world and only six, built as electric cars before 1892, remain in America. Of these six, three are in Canada: MSR 274 and 350, as well as Toronto Railway 306. All three were built in 1892 and it is impossible to say which is the oldest, all three must be considered of equal age. It is an interesting coincidence that Montreal's historic first electric car bears number 350, a number which has added significance this year, the 350th anniversary of the founding of Montreal and the 100th of its inauguration of electric street car service.



Montreal street cars 274 and 350 as they appear after restoration. In the top view we see 274 on a CRHA excursion (the only one ever held using this car) on June 23, 1957. The bottom view shows 350, with its "restored" paint scheme, at St. Denis car barn in 1956.

Both photos were taken by Mr. Omer Lavallée, and are from the Binns Collection.

Appendix

Some Contemporary Newspaper Accounts of the Start of Electric Street Car Service in Montreal in 1892

Note; Original language, spelling and punctuation have been retained throughout.

The words "street" and "avenue" in the names of thoroughfares are not capitalized in these accounts.

Accordingly this convention has been followed to keep the "feel" of these old news items.

STREET RAILWAY NEWS

Electric Cars Will Not be Running When the Exhibition Opens

The street railway will take you to the Exhibition grounds on the 15th September. So said the enthusiastic aldermanic representatives who voted for the company to have the contract. In order to find out whether or not the company would carry out the promises of their backers, a Herald man called upon Mr. Cunningham, the engineer-in-chief, to ascertain exactly the position in which the company stands.

"Will you have the electric cars running on the opening day up Park avenue?"

"The cars will not run by the 15th. You see we have done our best, but we could not go against impossibilities. The cars and motors with the trails [sic. The reference is to trailer cars. Ed.] are daily arriving, and of course, we shall not take any risks, but I think you might say that we hope to have the belt line completed by Monday morning and you will see electric cars running up Bleury street and Park avenue to the exhibition. We shall also have the electric cars running up Amherst street, to the same destination. We have been working for all we are worth, but we shall not allow the public to ride in the cars until everything is in a fit condition. You must not think because I have said this that we shall not have proper facilities for the public on the first two days to convey them to the exhibition. I would be glad for you to say that every arrangements [sic] have been made to give the public the best service that lies in our power. Many new switches have been and will be laid down before Thursday morning and every available car will be put on the several routes to enable us to carry the thousands of visitors to the exhibition with ease and comfort."

The activity spoken of by Mr. Cunningham was fully borne out by a later visit paid to the several streets on which new lines are being put down. The one on Park avenue is almost completed so far as the rails are concerned, but they require ballasting to complete the line. That on Amherst street is in a very forward condition and the double track on St. Lawrence Main street is right up to the avenue.

Mr. Everett, the managing director, is expected to be in town on Friday.

MONTREAL HERALD, Tuesday, September 13 1892.

STREET CAR NOTES

A one-minute service was inaugurated on St. Lawrence Main street yesterday morning [This service was provided by horse cars. Ed.], and there are already in the city twenty-five trolley cars ready to go on the road.

"The public must understand" said the managing director yesterday, "that after 12 o'clock midnight it is ten cents straight and two tickets will not be accepted".

The electric cars will be first put on Amherst and Rachel streets, Park avenue, Bleury and Craig streets. The company is much disappointed in not getting the electric service running before now. It was expected that last Friday would see everything all right, but it was found necessary at the last moment to change the direction of the belt line, owing to trouble about the double tracking of St. Lawrence Main street. Then again there has been serious delay occasioned by the non-arrival of iron insulators.

MONTREAL GAZETTE, Tuesday, September 20 1892.

A SUCCESSFUL TRIAL TRIP

Wellington street was crowded last night to see the first trial of an electric motor car in the city of Montreal. The car was started from the yard of the Royal Electric company on the regular track, running four blocks west and four blocks east, a total distance of five hundred yards. The trip was made without a hitch, and was repeated eight times, to the great delight of the spectators. There were on board the car Managing Director H.A. Everett, of the Montreal Street Railway, and his secretary, Mr. F.G. McNally; Mr. Charles W. Hagar, manager and secretary of the Royal Electric company; Mr. H.H. Henshaw, treasurer; Messrs. Thomson, Starr and Badger, and about fifty other prominent citizens. Messrs. Thomson and Starr acted as motor and brakesman, while Mr. Badger took care of the rear platform in charge of the trolley arm. The trial was very successful, and there is no doubt that this week will see an electric service in full swing in Montreal.

MONTREAL GAZETTE, Tuesday, September 20 1892.

READY AT LAST

A Herald Representative Rides on an Electric Car

Running To-day

The electric railway is what our French copatriots would call "un fait accompli". Last night about 8:45, the first electric car to be run in the city of Montreal went for its trial trip and the first passenger was a Herald representative.

During the last week or two, Royal Electric and M.S.R. employees have been busy binding [sic] the rails, putting up posts and stretching wires on the Wellington street track between McGill and Nazareth streets, the object being to have a section of track handy on which to test both the efficiency of the cars, and the electric generator. Yesterday morning the trolley wire was put up, and when the Herald representative called on Mr. Chas. W. Hagar, manager of the Royal Electric, he was informed that the first car would go for a trial trip on the "measured mile" about 8 p.m. About that time quite a crowd collected around the gate of the yard opposite the Royal Electric works, where the cars are being fitted with the electrical apparatus. It was not, however, till nearly nine o'clock that the gate opened and the car, appropriately named the Rocket, which had been bought by the M.S.R. from the Royal Electric, was pushed out by willing hands into the centre track, and in a few moments the car was bolting [sic] merrily along on her first journey. Everything worked well. There were, of course, some complications with passing horse cars at the switches, but nothing more than happens daily at these inconvenient substitutes for a double line. Of course, in such a short space it was impossible to get up any amount of speed, but even so a faster rate than that obtained from horses was obtained.

This morning four electric cars, each with one or more trailers, will run on the belt line including Park avenue, Mount Royal avenue, Amherst and St. Catherine streets, and Montreal will at last have an electric service.

MONTREAL HERALD, Tuesday, September 20 1892.

WRETCHED SERVICE

Overcrowded Horse Cars and Shocking Cruelty to Animals

Many Montrealers woke up yesterday morning with the idea that for the first time they would see electric cars gliding through the streets of Montreal and materially relieving the already overstrained resources of the Street Railway company. Alas! they were doomed to disappointment. The electric cars often promised, oft delayed did not run yesterday, and it is very problematical whether they will run today or even this week. Meanwhile the horse-car service is totally inadequate to the strain put upon it. There can be little

doubt but that the M.S.R. did its level best to meet the emergency, but that best was a very poor one. It is safe to say that never before were cars so crowded as they were yesterday. Sixty-eight passengers were counted on a single car, and this was no solitary example. It was the rule rather than the exception. With such a load, what must have been the suffering endured by the poor struggling horses. It was sheer cruelty to animals, and made one's blood boil to watch them. Only at one or two of the steepest grades could any assistance be offered to them, and on the level, especially on stone pavements, it was with the greatest difficulty and suffering that the poor panting, struggling beasts were able to proceed. Under such circumstances it is not to be wondered at that very bad time was made. In one instance a car which was timed by an onlooker took fifty-one minutes to go from the corner of Craig and St. Lawrence streets to the Exhibition, and at the same time was closely followed by six or seven other cars, which were equally dilatory in making the journey.

MONTREAL HERALD, Wednesday, September 21 1892.

LE TRAMWAY !!

Le premier char électrique fait le tour de la ville aujourd'hui

Les incidents du voyage etc.

C'est aujourd'hui que la compagnie du tramway a fait l'essai de son premier char électrique sur la ligne de ceinture passant par les rues Bleury, avenue du Parc, avenue Mont-Royal, Rachel, Amherst et Craig.

Le char modèle "Rocket" a inauguré le service en partant à 10.10 hrs. a.m. de la cour de la compagnie Royal Electric, rue Wellington.

Son moteur, a été mis en activité par deux puissants dynamos qui lui donnaient une force de 25 chevaux.

Les personnes sur le char étaient MM. L.J. Forget, Everett, Mackenzie président du tramway électrique de Toronto, Lusher, Cunningham, l'hon. M.J.R. Thibodeau, Brainer, électricien de la compagnie, le Dr. Désaulniers, H. Berthelet de La Presse et le représentant du Herald.

Le char "Rocket" a fait sans anicroche le trajet entre la rue Wellington et la rue Bleury. Au coin de la rue Craig il a subi un déraillement, occasionné car la courbe était trop accentuée pour la distance entre les deux trucks du wagon, 7 pieds et 6 pouces. Les mêmes accidents ne se produiront plus avec les autres chars qui n'ont qu'un espace de sept pieds seulement entre leurs trucks. Pour la même raison, il y a eu d'autres déraillements aux autres garages, c'est-à-dire au coin de avenues du Parc et des Pins, en face du terrain de l'Exposition, sur la rue Amherst à l'encoignure des rues Craig et Amherst. Les aiguilles des voies de garage, n'étant pas encore huilées, ont aussi été une des causes du déraillement.

Lorsque le "Rocket" eut descendu la côte de la rue Amherst il fut arrêté et il la remonta avec autant de facilité que s'il avait été sur une rue parfaitement de niveau.

La foule sur tout le parcours de la voie de ceinture était aussi compacte que lors d'une grande procession. Sa curiosité était piquée au vif, A chaque arrêt du "Rocket" il fallait voir des groupes de badauds à quatre pieds près de la voie, essayant de voir les détails de la machine locomotrice. Malheureusement pour eux il n'ont pu voir que la boîte contenant le dynamo. Un électricien perché sur l'impériale du char veillait au bon fonctionnement de la perche pompant le fluide électrique du fil central du trolley.

Les directeurs de la compagnie du tramway et les électriciens ont été unanimes à déclarer que le nouveau système allait fonctionner à merveille. Les travaux du trolley ont été accomplis dans le court espace de 60 jours sur une étendue de six milles.

Le "Rocket" est arrivé au coin de la côte de la place d'Armes et de la rue Craig à onze heures trois quarts.

Lorsqu'il est passé devant le magasin de l'échevin Villeneuve celui-ci enthousiasmé par le succès de l'opération a invité les passagers à sabler du champagne mais malheureusement chaque instant était précieux, vu que l'arrêt du char aurait causé un retard à tous les wagons faisant le service de l'Exposition. Il a failu par conséquent décliner l'offre du populaire représentant du quartier St-Jean-Baptiste.

Demain, le public pourra voir cinq chars électriques faisant le service de l'Exposition.

Un mot maintenant sur les nouveaux chars électriques. Rien n'a été négligé par les directeurs pour donner tout le confort possible aux passagers. Les bancs sont moelleusement capitonnés avec du tapis coûtant en gros \$4 la verge, et tous les sièges sont à ressorts.

Cinq lumières incandescentes fournissent l'éclairage de chaque char.

A chaque extrémité extérieure du wagon on lit l'inscription "Il est dangereux de se tenir sur la plateforme".

Les passagers entrent par deux portes à la même extrémité du char. L'une de ces portes est tenue fermée pour empêcher l'encombrement d'une foule qui se précipiterait à l'intérieur.

Un côté de la plateforme est muni d'une barrière en acier à clairevoie pour empêcher les passagers de descendre sur l'entrevoie et d'être frappés par un autre char venant en sens inverse.

Les déraillements arriveront rarement à cause de la pesanteur des chars et des chasse-pierres fixés à chaque extrémité.

Des stores d'un dessin élégant sont fixés à chaque carreau pour protéger les passagers contre les rayons du soleil.

LA PRESSE, Mercredi le 21 Septembre, 1892.

CITY AND DISTRICT NEWS

The First Electric Cars Run Over the Belt Line

Montreal's electric cars ran yesterday. They didn't run very far or very fast; but they established the fact that Montreal is in the procession and on the move.

Yesterday morning the model [sic] electric motor car Rocket was sent over the belt line route. The trip was not as successful as was expected inasmuch as the car went off the tracks at each of the curves, although it ran fairly well on the straight streets. It is said that the curves are too sharp for the Rocket's trucks [sic] which are 7 1/2 feet apart. At all events five electric cars will be on the route today. Contrary to general expectation the horses seemed but little disturbed by it, and doubtless will soon become accustomed to the presence of electric cars. Each of the cars is beautifully upholstered and lit by five incandescent lamps, and, when they are once running, will be a great improvement upon the company's present rolling stock.

MONTREAL GAZETTE, Thursday September 22, 1892.

A TRIAL TRIP

M.S.Ry. Electric Cars Viewed by Many Montrealers

Yesterday the new electric cars were out on show, and the company was doubtless pleased at the enthusiasm displayed by the gaping onlookers, who raised a series of cheers as they came in sight. But it would appear that a regular service is yet afar off. It was in order to "test" the new line that yesterday morning about half past nine the "Rocket" which the night before had been hauled by horsepower from the Royal Electric works on Wellington street over to Cote street, started on its journey from the latter place, filled with Aldermen, Royal Electric and M.S.R. magnates and others. The car proceeded, heralded by its gong, along the belt route including Craig street to Bleury, up Bleury to Park Avenue and Mount Royal Avenue, and passed the exhibition, where its advent excited cheers from a good sized crowd. Thence the "Rocket" rumbled down St. Lawrence to Rachel street, along which it made its way to Amherst street by which thoroughfare it reached Craig, and so on to Cote street again. As an experiment the run seemed quite satisfactory. There were one or two hitches as was only to be expected on a first trip, but none of them were [sic] serious. One was a difficulty in turning the Bleury and Craig street corner, owing to the rails not having been properly bound. On Park Avenue some stones got on the rails, and the car very promptly went off, but she was quickly got on again and no harm was done.

A Street railway attache is authority for the statement that four electric cars will start running a ten-minute service on the belt line this morning.

MONTREAL HERALD, Thursday, September 22, 1892.

LE TRAMWAY

Hier et aujourd'hui

NOTES SUR L'ORIGINE DU CHEMIN DE FER URBAIN

Nos chars électriques, etc.

Le tramway, avec le système chevalin, disparaissant aujourd'hui pour prendre place dans le musée des entreprises surannées, nous croyons intéresser les lecteurs de La Presse en leur donnant quelques notes historiques sur l'origine de nos chars urbains.

Le règlement civique autorisant la construction d'un tramway, à Montréal a été adopté par le conseil municipal à sa séance du 12 septembre 1860.

Les premiers chars ont commencé à circuler le 26 novembre 1861 en donnant un service d'une heure.

Le premier bureau de direction était composé de MM. William Molson, John Ostell, William Dow, John Thompson et William McDonald.

Le premier président a été M. Ostell. Il a été élu le 29 août 1861.

Pas un seul des anciens directeurs ne survit pour assister à l'inauguration du système électrique.

La compagnie a débuté dans ses opérations avec un capital de \$150,000.

Les travaux de construction ont été commencés le 18 septembre 1861, à l'ancienne barrière se la rue Ste-Marie, (aujourd'hui rue Notre Dame) au coin de la rue Frontenac et se sont dirigés vers l'ouest jusqu'à la barrière des Tanneries des Rolland, en face des ateliers de M. Cantin.

Six chars seulement faisaient alors le service.

Des cochers de places qui voyaient d'un moyen de locomotion les privant d'une large partie de leurs bénéfices organisèrent alors une espèce de croisade contre le tramway.

Pendant les premières semaines il ne se passait guère une journée sans que des obstacles fussent placés sur les rails pour gêner la circulation des chars urbains. Ces embarras furent de courte durée grâce à la vigilance et aux mesures rigoureuses de la police.

En 1861 la compagnie ne possédait que 12 chevaux, aujourd'hui ce chiffre a atteint 125.

Ce matin la compagnie avait trois chars électriques sur la voie de ceinture de l'Exposition. Ce soir, dit M. Everett, il est très probable que deux autres seront lancés dans la circulation.

La semaine prochaine, dix chars moteurs seront placés sur toutes la longueur de la rue Sainte-Catherine, avec dix autres trainés à leur remorque, au lieu du service de 12 chars que nous avons aujourd'hui.

Hier soir vers huit heures une foule d'au moins mille personnes était groupée sur différents points de la rue Amherst pour voir passer les nouveaux chars.

LA PRESSE, Jeudi, le 22 Septembre 1892.

LE TRAMWAY ELECTRIQUE

Ce que dit l'ingénieur

M. Cunningham, l'ingénieur du tramway électrique, au cour d'une entrevue avec le représentant de La Presse fournit les renseignements suivants au public.

Nous avons terminé ce matin la pose des fils trolley sur toute la longueur de la rue Ste-Catherine; cet après-midi nous lancerons un char sur la ligne pour en faire l'essai. Nous commencerons le service régulier de cette voie samedi ou dimanche prochain.

Nous n'avons eu aucun accident à enregistrer depuis la mise en opération de notre système électrique malgré que nos chars ne soient pas encore pourvus de chasse-pierres: cette amélioration ne se fera pas longtemps attendre.

Les dangers pour la vie des passants sont-ils aussi nombreux avec votre système qu'avec celui des funiculaires, comme à New-York et à Chicago?

Avec la système du câble souterrain les accidents peuvent être nombreux parce que souvent le crochet peut manquer de casser les mailles. Avec le système électrique un char peut être arrêté dans une distance moindre que sa propre longueur, pendant qu'il a une vélocité de 6 milles à l'heure.

Comment expliquez-vous le fait que nos chars électriques n'ont pu monter les côtes en trainant un autre char à la remorque?

Il m'est facile de vous en donner la raison. Un jour nous avons compté 206 personnes sur deux chars, ce qui donnait une moyenne de 15 tonnes pour les deux chars, tandis qu'il n'y avait de sièges que pour 36 passagers.

Comment ferez-vous votre service d'hiver avec les chars trainés par des chevaux, sur la rue Notre-Dame, par exemple?

Nous espérons tenir la voie de la rue Notre-Dame déblayée de neige, sur toute sa longueur, pendant l'hiver prochain. Nous y laisserons essez de neige cependant, pour ne pas entraver le trafic.

Nos chars d'hiver, je parle de ceux qui sont sur des roues, seront chauffés avec des poêles à charbon. Je vous ai dit que les autres chars auront le carolique produit par l'électricité.

Pour déblayer la voie de la rue Notre-Dame en hiver nous aurons recours à des charrues mécaniques ou des balais rotatifs ayant un diamètre de 30 pouces.

Le service de la voie de ceinture va se continuer jusqu'à nouvel ordre.

Après l'inauguration de la ligne électrique de la rue Ste-Catherine nous adopterons le système électrique sur la ligne des rues Craig, St-Denis et Wellington. Vers Noël nous espérons avoir 30 chars électriques en opération.

Demain matin, 11 de ces chars seront en circulation.

LA PRESSE, Vendredi, le 30 Septembre 1892.

The Grand Valley Railway

By Douglas N.W. Smith

In the papers of the Board of Railway Transport Commissioners for Canada at the National Archives in Ottawa is a series of files dealing with complaints about high rates, poor service, and other alleged failures of the railways to meet the needs of the public. One such file contained a complaint by a passenger of the ill-starred Grand Valley Railway which lead the Board to dispatch one of its engineers to investigate the situation. This is recorded in the fascinating (to the present-day reader) correspondence reproduced below.

The Grand River flows through the heartland of southwestern Ontario passing the cities of Berlin (now Kitchener), Galt (now part of Cambridge), and Brantford. At the turn of the century, there was no direct rail connections between these thriving manufacturing cities. Being located along a major river, it seemed appropriate to link these cities with an electrified railway line.

The Grand Valley Railway traced its origins to 1900 when the Port Dover, Brantford, Berlin & Goderich Railway (PDBB&G)

Brantford 29 August 08

The Sec'y
Railway Commission
Ottawa

Sir,

I wish to call the attention of the Commission to the dangerous condition of the Grand Valley Electric Railway between here and Galt, also to the disgraceful manner in which it is conducted, the state of the rolling stock and the manner in which the public is treated.

For example. On Thursday evening the 27th inst I, with other passengers were at Paris, desirous of reaching here. I went to the "station" at 7.30 pm & on making enquiry of the lady agent could get absolutely no information as to the probable time of the next car for this point, but ascertained there had been no car since about 5³⁰ pm.

At 8⁴⁵ a car came from here for Galt & the conductor told me there would be a car in 20 minutes. I waited till nearly 9 pm & no sign of a car nor any information.

I am informed that no car came until far into the night & that there had been some trouble up at Galt. But surely that did not prevent some action being taken to accomodate the passengers amongst whom were two little girls of tender age & several ladies.

The road bed is absolutely neglected & in a dangerous condition as also are the cars.

I am credibly informed that the Coy can hardly pay their men, let alone do anything towards the betterment of the road.

I can get many responsible gentlemen to substantiate my statements & I beg that the Commissioners will take steps to immediately investigate this matter.

There have been more than one narrow escapes from serious accidents on this road through its rotten condition & in fairness to the public the Company should be compelled to repair & equip & run road in a proper manner or lose their charter.

If it be necessary for me to get other sources in order to get the Honorable Commissioners to act, I will be pleased to do so.

Awaiting your kind reply.

I am Sir

Yours faithfully

Fred E. Tobias

I omitted to say that I was compelled unwillingly to remain over in Paris all Thursday night which was most in-convenient to me.

OPPOSITE: The Grand Valley was very much a hard-luck railway. In this view, which is perhaps more typical than one would like to contemplate, one of the interurban cars has left the rails while making a Paris-Brantford trip circa 1912. The GV followed the unusual policy of naming its interurban cars. The names were displayed on circular plaques as shown in the centre of the car below the windows.

National Archives of Canada photo PA-185941.



**BOARD OF RAILWAY COMMISSIONERS
FOR CANADA**

OTTAWA Sept 18th 1908

A. D. Cartwright Esq.,
Secretary Railway Commission,
Ottawa

Dear Sir,-

In accordance with the instructions of the Board I went to Brantford to make an inspection of the Grand Valley Railway on a complaint of F. E. Tobias. I arrived there on September 11th. I was accompanied by Mr. Kellet, Assistant Manager and Chief Engineer, and given a special car to make the inspection of the entire line.

I first examined the power house at Brantford and found it in good shape. It had evidently been allowed to run down, but at present they are renovating it. I then examined the track carefully at different places from Brantford to Galt, a distance of 22 miles. This line was built between four and five years ago and, therefore, is not in my opinion in any condition that could be described as "rotten". The ties are small, in fairly good order, but not enough of them, in a great many places only ten to a rail, and in my opinion there should be fifteen.

The location of the Grand Valley Railway makes it very difficult to handle any great volume of business over it. It parallels the highway and goes over some very steep grades. The present Company contemplate in the immediate future to change the location of this line to a more level ground in order to get better hauling capacity for freight business, and this seems to me to be a good move. Should they do this before commencing another season then I do not think it would be necessary to make very many improvements in present roadbed, except that the track might be lined a little better, as it is badly out of line.

The structures are sound except that the two bridges between Brantford and Blue Lake should have long ties and proper guard rails on them, and the one close to Blue Lake should have proper batter posts 10 x 10 put at the end of two bents inside the planking that is there now. This matter I called the attention of the Chief Engineer to on the ground, and he said he would fix it inside of forty-eight hours.

There were no cattle guards or highway crossing signs on this road. These ought to be put in at once. One or two open culverts on the line, which were blocked, ought to be properly fixed up with stringers. All of these things I called the attention of the Chief Engineer to at the time, at each particular place. I examined their car barns which had been allowed to run down, and also their cars. They are painting and cleaning their cars in a proper manner, and they are also building and have nearly completed a very nice machine shop at Brantford, which will no doubt keep the repairs up.

I had a long talk with Mr. Tobias at Galt, and his principal complaint was that the service was bad, and this occurred some two weeks ago. Mr. Kellet for the Grand Valley Electric Ry admitted that this had occurred at that time. The day I was there the cars ran to the minute, and we made each crossing satisfactorily up to three o'clock in the afternoon, when a very serious accident occurred at Brantford, by the explosion of gas, blocking the main track and demoralizing the service for part of that day. I explained fully to Mr. Tobias what I had found in my inspection and he concurred in this, but particularly requested that the service be improved, and I think in that particular his complaint (sic) is entitled to consideration. I would, therefore, recommend that if they continue to operate this line on the present location they be required to place additional ties in the track making them not less than two foot centres, that they re-line the track, and put a lift of ballast of at least four inches under the ties for its entire length. If they decide next season to change the location I would think that the ballasting and increasing of ties might be left over, but that the lining of the track be done this Fall.

The Grand Valley Ry have a telephone line the whole length of their line, which was not in service when I was there, and this would probably be the cause of delays at sidings where cars made crossings. I would, therefore, recommend that the telephone line be put in repair, and line telephones be put up at each of these crossing sidings so that in case of delay the crossings at other points could be made. I think if this was done it would fully satisfy everybody, and covers all that I think was called for in the complaint.

Yours truly,

George A. Mountain

Chief Engineer.

BRANTFORD November 13th, 1908.
Canada

Mr. G. A. Mountain, Chief Engineer,
Board of Ry. Commissioners for Canada,
Ottawa, Ont.

Dear Sir.-

We have fixed up all of the bridges along the Grand Valley Railway from Brantford to Galt. This work has been done in accordance with Blue Print showing bridge details sent you personally some time ago. The only change being that the ties used were 7 x 10 placed on an edge 16" centres with 8 x 8 Guard Rail.

Our men are working on the Telephone Line and overhead work, and have same completed as far as Glen Morris. We expect to have the line completed all the way to Galt within the next ten days.

The Railway Crossing signs, we have just received from the painters. We will have these put up sometime within the next ten days also.

With reference to the lining up of the track, would state, that we are waiting for ties, which have been ordered from Port Dover. We intend to place additional ties in the curves and have the track lined up before winter sets in.

Our men are also at work at present time putting up snow fences as such points along the line where the drifts are bad.

Yours very truly,

William P. Kellett
Chief Engineer.

was chartered to build between its namesake communities. As its first concrete act, the PDBB&G acquired the Brantford Street Railway in 1902. That year, the PDBB&G was renamed the Grand Valley Railway (GV).

Building from Brantford, the GV extended its line to Paris in 1903. The following year, the tracks reached the outskirts of Galt. Through service to the centre of Galt began the next year, after arrangements were completed with the Galt Preston & Hespeler Street Railway to use its tracks. Further construction came to a grinding halt, however, as the principal businessman behind the GV disappeared leaving unpaid bills.

While new owners were found, the GV proved to be not a financial success. The lack of strong financial backing had resulted in a poorly built line. A major deficiency was the sharp grades which prevented it from handling carload freight traffic. Less than ten years after construction began, the GV went into receivership in 1912 and was taken over by the City of Brantford in 1914.

In 1911, CP decided to extend its system into the Grand River Valley. At this time, the only city CP served was Galt which lay on its Toronto-Windsor main line. In order to tap the industries lying in the Grand River Valley, CP acquired a controlling interest in the electric rail lines running between Galt and Waterloo and bought up the charter of the Lake Erie & Northern Railway (LE&N) which empowered it to build a electric line southwards from Galt to Port Dover via Paris and Brantford.

When the LE&N opened in 1916, the City of Brantford abandoned the GV between Galt and Paris. Service between Brantford and Paris continued to 1929 when the GV interurbans were replaced by buses.

While the company should have been successful in the years before widespread ownership of the automobile reduced the demand for short haul rail transport, the GV staggered from one minor disaster to another due to the effects of chronic underfunding. Indicative of this situation is the above series of letters revealing the shortcomings of public transit in those long ago Edwardian days.

The Railway and the War

By Thurstan Topham

The requirements of WARTIME TRANSPORTATION brought the development of several new types of Railway cars. The HOSPITAL CAR (at Right) → was designed by Dr. John McCombe, Chief MEDICAL OFFICER of the Canadian National Railways. It serves as the Medical Centre in trains carrying casualties. The KITCHEN COMMISSARY CAR (below) was developed by Catering experts of the C-N-R. These cars in service on the National System were converted in the Company's Shops —



HOSPITAL CAR



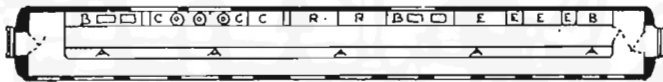
Mess Orderlies obtain food in Commissary car (at left) — and serve to Men through train.



A - Washrooms B - Nurse C - Beds D - Stretchers
E - Dispensary F - Kitchen G - Doctor

WARTIME CATERING is a big job. Since the start of the war, chefs on C-N-R troop trains have served — 68000 THREE-POUND LOAVES OF BREAD

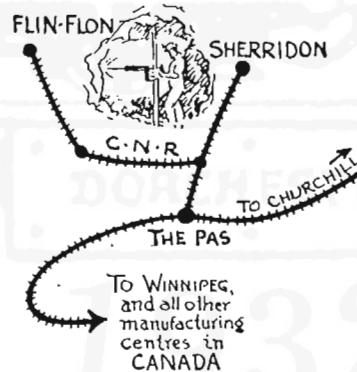
74 TONS OF BEEF 13 TONS OF BACON
165 TONS OF POTATOES 22 TONS OF ONIONS
26 TONS OF MARMALADE & JAM
396000 EGGS 22 TONS OF COFFEE
AND OTHER FOODS IN PROPORTION.



A - Service Counter (Bread & vegetable lockers, cutlery drawers, etc., below)
B - Sinks C - Steamers R - Ranges E - Refrigerators

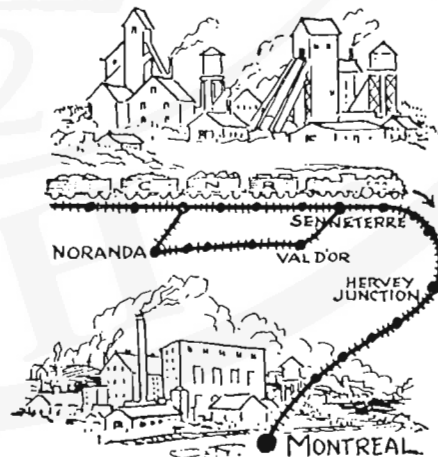
COPPER, vital wartime metal, is now being produced in great quantity from areas which were wilderness before the railways came. Lines of the National System that were built into the unpopulated sections of the country have proved to be of tremendous value in —

CANADA'S WAR EFFORT



The FLIN-FLO - SHERRIDON development, made possible by the building of C-N-R branch lines in northern MANITOBA, is one of the greatest COPPER producers in NORTH AMERICA

NORANDA-SENNETERRE AREA, developed since construction of C-N-R "TRANS-CONTINENTAL LINE" in 1915, where 27 Mines produced Gold, COPPER, and other metals, to the value of \$ 55,000,000. in 1941



In this issue we continue with the series of drawings showing the part played by Canada's railways in World War II. Featured this time are the hospital cars and the commissary (food service) cars, so vital in the movement of troops. Also featured are the railway lines, often in remote northern areas, used to transport copper and other metals, strategic to the war effort, from the mine to the factories.

The drawings, from a series commissioned by Canadian National Railways, are by Thurstan Topham and appeared in more than 900 newspapers in Canada and the United States about 1942. They have been made available to Canadian Rail by the Duche Library of Canadian National. We are privileged to print them in commemoration of the tremendous contribution of the railways to the war effort fifty years ago.

Century Old Railway News Items

September, 1892

TRANSFER TICKETS

Yesterday was transfer day with the Street Railway Company. They have had attacks of transfer before, but always mild cases which readily yielded to simple remedies. Yesterday the seizure began early and lasted all day. The former transfer agents who used to stand on certain street corners gravely herding the sheep, stood yesterday in an ornamental attitude on the same places and grinned - at the conductors. The latter practised profanity from the rising of the sun to the going down of the same. They were expected to issue transfer tickets to all passengers who asked for them, and, in addition, to look after their other duties of starting and stopping the car, turning the switch or point, collecting the fares, selling tickets, answering questions and looking civil. Where the conductor was a driver as well he also had a horse on his hands, so to speak, his life was one long torment. He groaned with despair, and the muttered imprecations that came from the front platform were not good to hear. Yet what could the poor men do? They were being asked to accomplish more than the human system as at present understood and wound up could manage. When 6 o'clock in the evening came chaos rode on every car and made itself felt. Clamorous passengers demanded transfers, which the official was too busy to furnish. The point of intersection arrived long before the ticket was ready, and shoals of determined men broke away from one car to tackle another, ticketless it is true, but with an expression of resolve to finish their ride home that boded ill to any official who would stand on ceremony or a ticket. Car men measured the muscular force of such passengers, and let them pass without a murmur. In fact the first day's trial of the new transfer ticket illustrated their perfect adaptability to Duffin's Creek, from which metropolis they never should have been transplanted. The company will do well to try again.

Toronto Empire, Friday, September 2, 1892.

[This refers to the first use of street car transfers in Toronto. The first type, introduced on September 1, 1892, proved to be too complicated, requiring too many punches, and was discontinued after a few days.]

STREET CARS DURING EXHIBITION

During the exhibition 24 electric motor cars will run on King street, each with a trailer. This will give a two-minute service. A temporary crossing will be made at King and Yonge, as the switches cannot be got ready in time.

Toronto Empire, Friday, September 2, 1892.

ON THE TROLLEY CAR

Clever citizen, to farmer - Fruit is very plentiful about the streets just now.
Farmer - Is that so? What kind of fruit?
Clever citizen - Electric currants.

Toronto Empire, Saturday, September 17, 1892.

A LOCOMOTIVE EXPLODES

Near Stellarton Station This Morning

Miraculous Escape of the Engineer and Fireman

New Glasgow, Sept. 9 - Engine No. 193 [of the Intercolonial Railway] exploded this morning at 8 o'clock near the Stellarton [N.S.] station. The driver, David Duncan, and fireman, E. Cutton, were in the van at the time of the explosion, but miraculously escaped uninjured. The boiler is a complete wreck, but the van and tender remain without much damage. The engine is one of those made in 1881 for the Eastern Extension, and at that time was No. 9. She was made by the Kingston Locomotive works, and is one of the same make as the one which exploded in Stellarton, killing four men, two year [sic] ago. The locomotive was half-an-hour out of the round house before the explosion happened and was going to Pictou Landing with a coal train. Baxter was conductor. Some of the pieces of the engine were thrown four hundred yards; one piece weighing forty pounds was thrown fully three hundred yards into Mr. Charles Dickson's yard, another in William McIntosh's and a heavy piece landed on the roof of Mr. John Mooney's house, making a whole [sic] through the roof. Some of the wires of the Western Union Telegraph company were interrupted also. The engine is being cleared away. The accident will not interfere with traffic.

Halifax Morning Chronicle, Saturday, September 10, 1892.

[Editor's note: This account contains a serious error. The locomotive was not ICR No. 193, but was No. 173. It was built by Fleming and Sons in Saint John N.B. in 1886. A photo of it, after the explosion, will appear in the next issue of Canadian Rail as part of the account of Fleming's foundry. The explosion occurred on September 8, 1892, not the 9th as might be inferred from this account. No. 173 was not repaired after the accident, but was retired and presumably scrapped soon thereafter].

A HORRIBLE ACCIDENT

A horrible accident took place on the railway track between Pointe Claire and Beaconsfield sometime on Monday night [September 19, 1892]. It appears that a farmer named Isaac Boileau, formerly of St. Annes, but more recently of St. Genevieve, came to Montreal on Saturday to transact some business. He started to return on Monday night and it is believed got on the Chicago express, on which he rode to Vaudeuil. He intended to walk back along the track and nothing more was heard of him until his frightfully mutilated body was found lying on the track with the head, arms and legs strewn along the rails. The remains were gathered up and placed in a flour barrel to await the action of Coroner Madore.

Montreal Gazette, Tuesday, September 20, 1892.

BACK COVER: Montreal Tramways one-man street car No. 1992 was photographed in 1929, not long after its construction, by the Canadian Car and Foundry Co. earlier that year. This was the last type of street car to run in regular service in Montreal, August 30, 1959, ending an era which had begun with the first run of "The Rocket" in 1892. CRHA Archives, Binns Collection.

Canadian Rail

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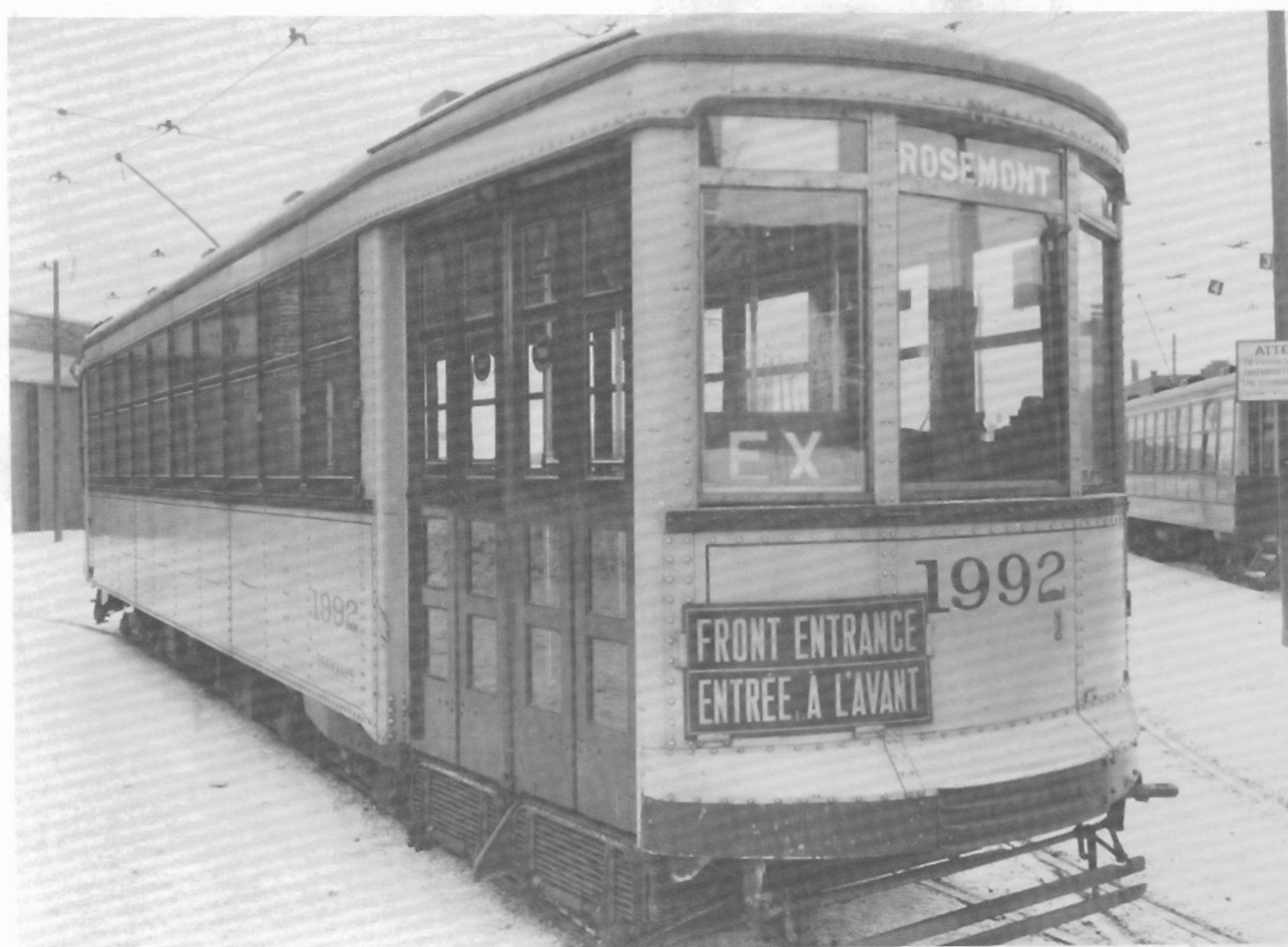
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Montreal 1992