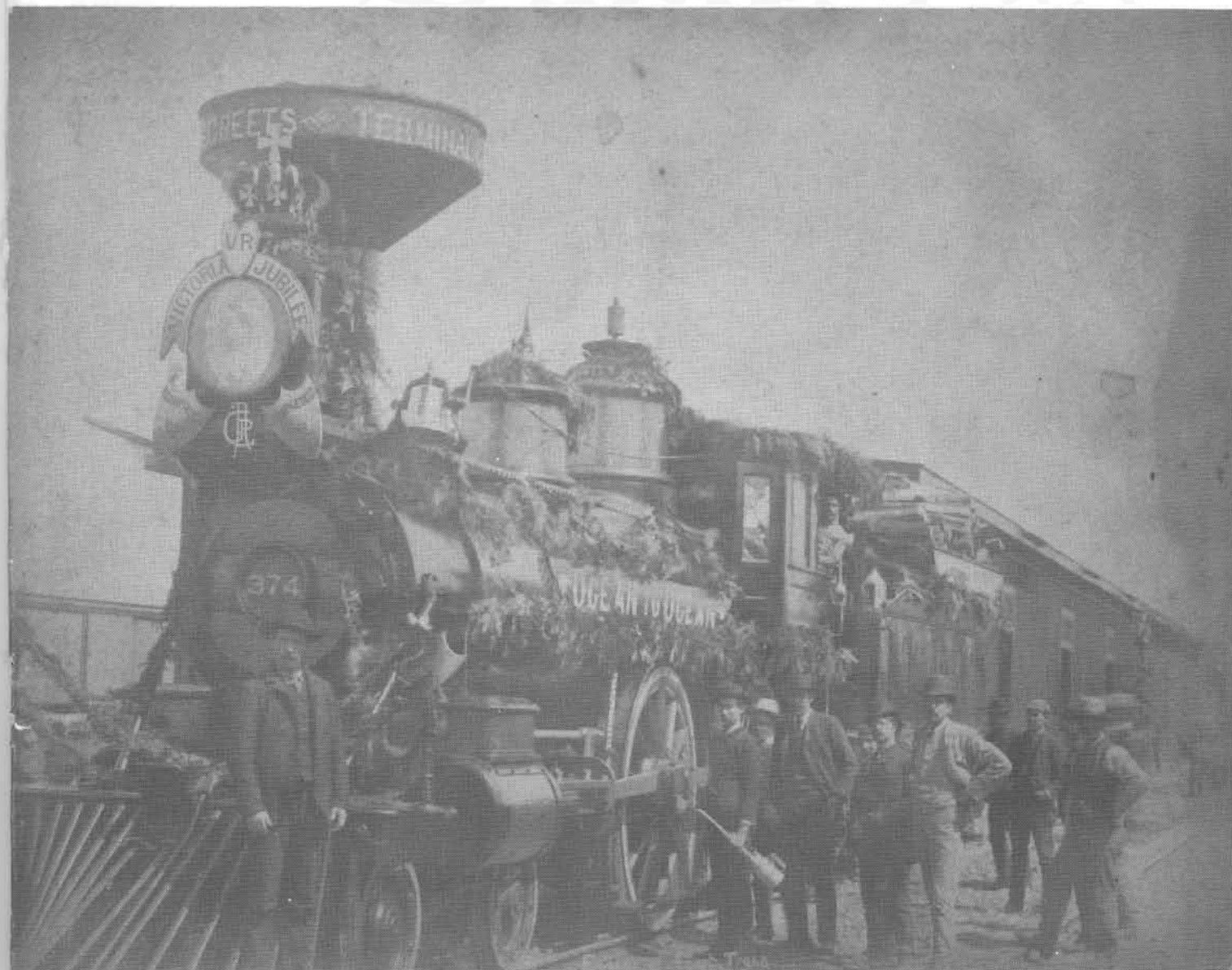
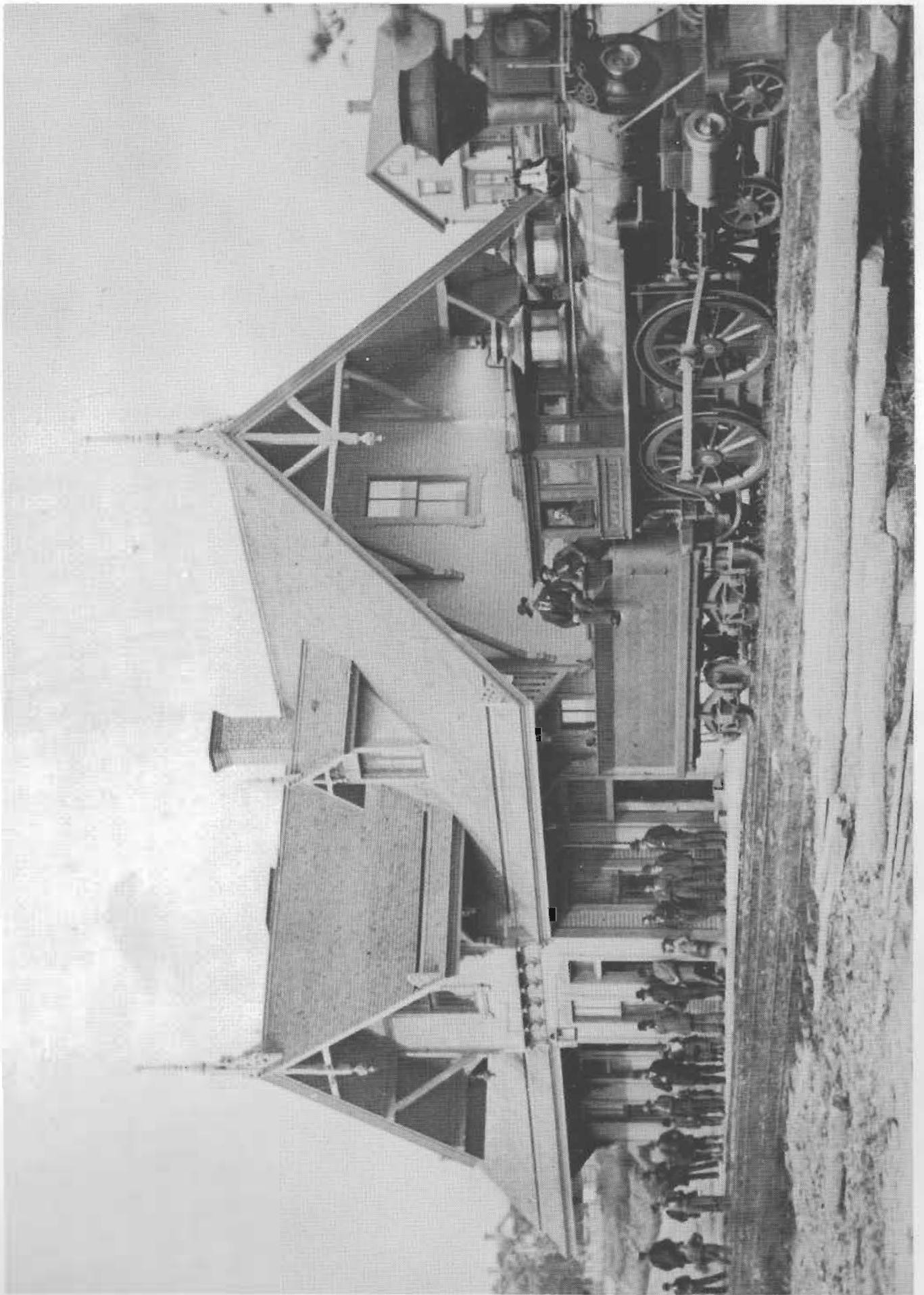


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FRONT COVER:

1986 marks the 100th anniversary of the founding of the city of Vancouver B.C., an event which will be commemorated by EXPO 86. Vancouver's career as a railway terminus began on a day in May 1887 when the first C.P.R. train to roll past the former terminus at Port Moody pulled into Vancouver. This photo, reproduced from an original sepia print, shows the locomotive just after it had been uncoupled from the first train. Just about everything from a picture of Queen Victoria (who was having her 50th jubilee) to evergreen boughs were used in the decoration. This locomotive, No. 374, has been preserved and will be one of the most important exhibits at EXPO 86.

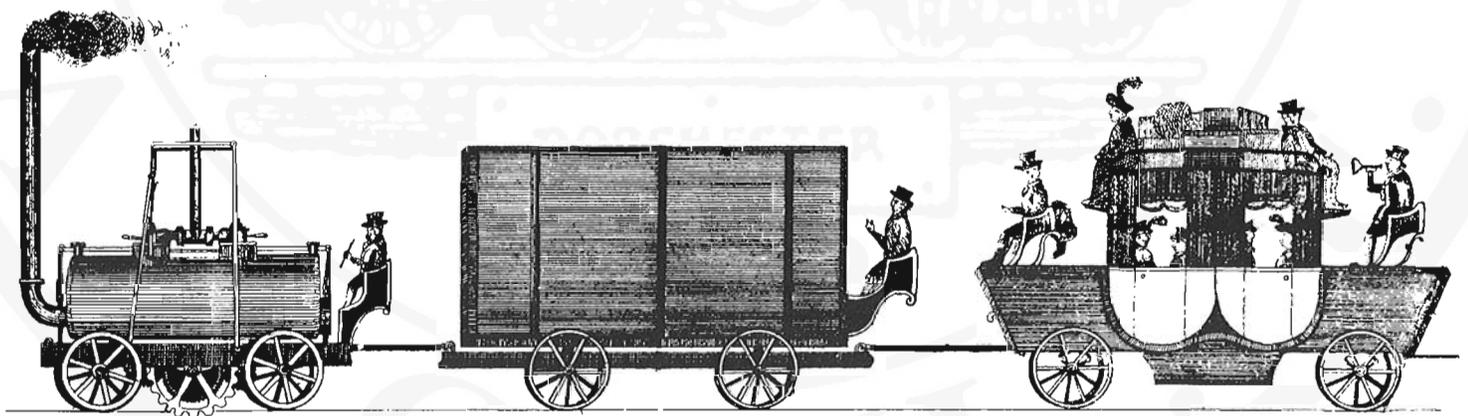
INSIDE FRONT COVER:

About the same time that 374 was arriving at Vancouver a continent away, in Yarmouth N.S., Western Countries Ry. No. 2 "GEO. DOANE" posed for its photo beside the ornate wooden station. This engine was later Yarmouth and Annapolis No. 2, and still later Dominion Atlantic No. 7. The station stood until about 1950.

Collection of Paul H. Cleveland.

A Question of Compatibility On Passenger Trains

By: Howard Shepherd, Fred Angus
and James Sponholz



Two views of a proposed steam-operated public railway of about 1820. In those days even the track was not standardized as witness the cog wheel beneath the locomotives.

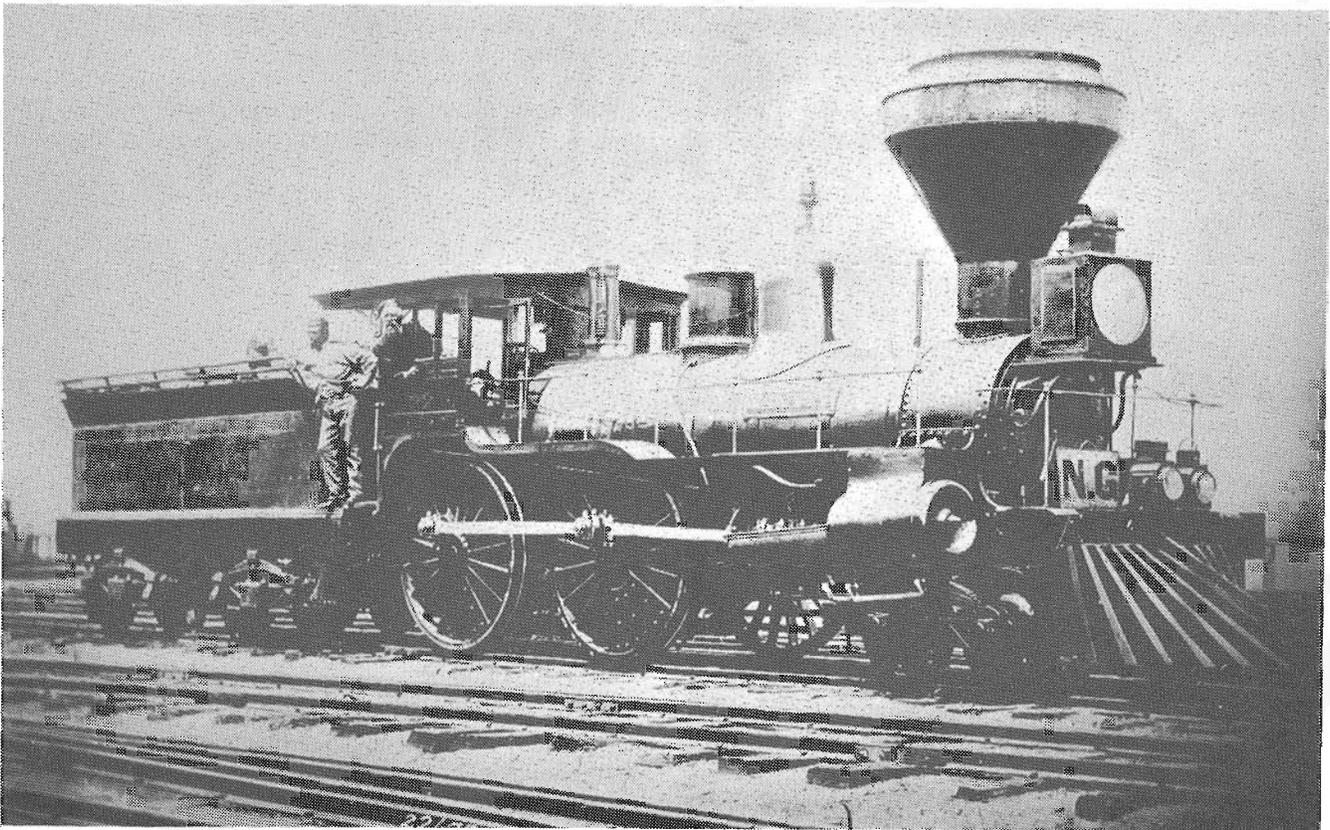
In the very earliest days of railways there were few common standards between the various lines. Wheels, gauge, couplers, brakes, even motive power, varied from company to company. But as most routes did not connect with each other it did not matter very much.

Gradually, as railway systems developed, standardization slowly came about. Flanged wheels and locomotive power came very early, in the 1830's. The most important item was gauge which, after various attempts, became reasonably standardized in North America by the late 1880's. The Westinghouse air brake came into great use during this time, and, in the 1890's, standard couplers replaced the various early designs. Thus by 1900 the whole North American continent was moving generally in the direction of standardization which would allow virtually complete interchange of equipment.

By 1910 passenger cars being equipped with safe electric light instead of oil or gas lamps. Usually each car had its own batteries and

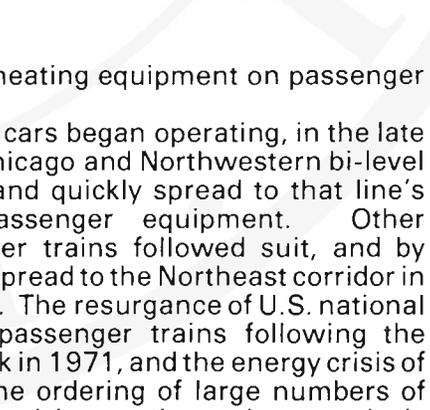
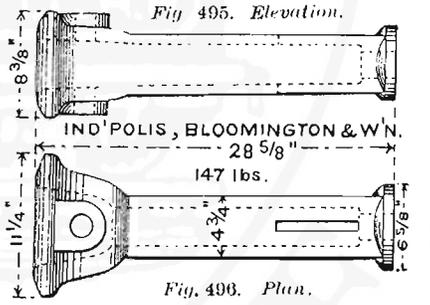
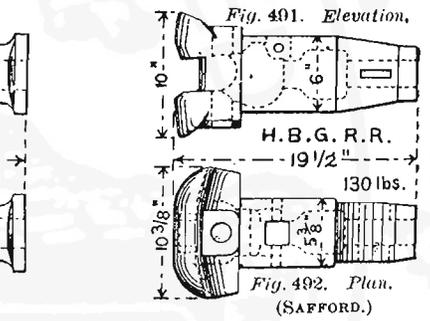
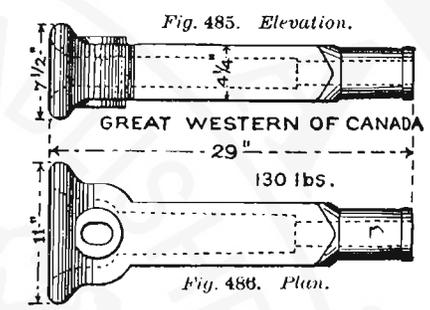
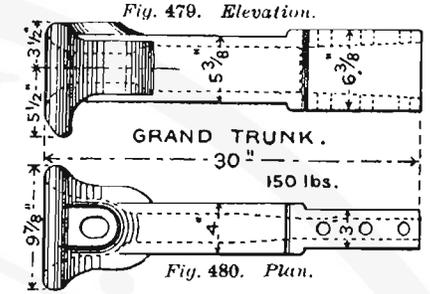
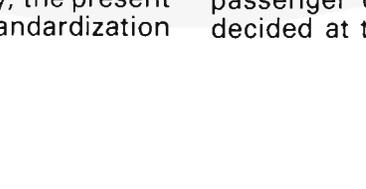
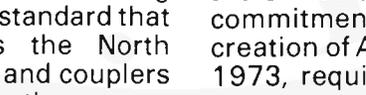
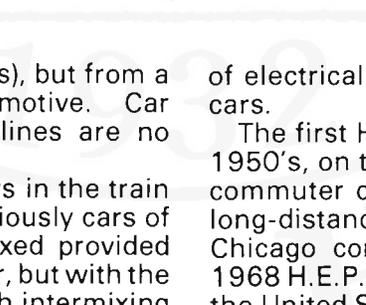
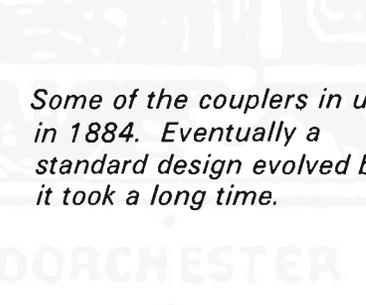
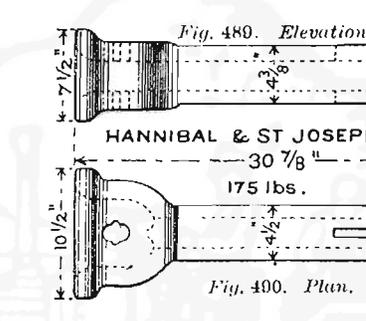
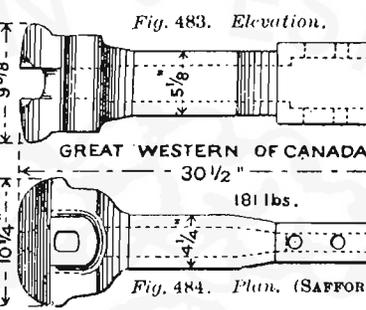
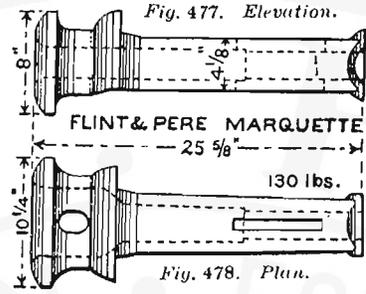
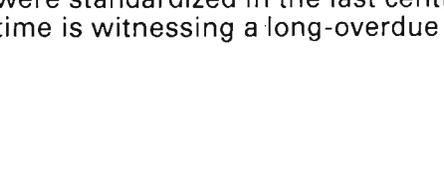
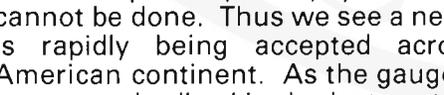
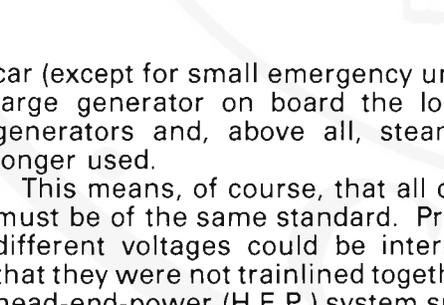
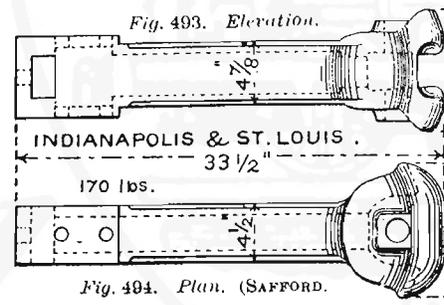
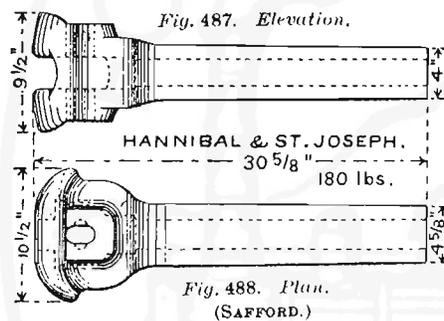
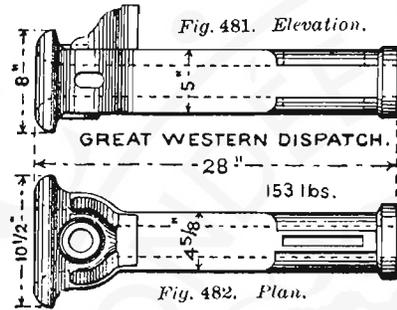
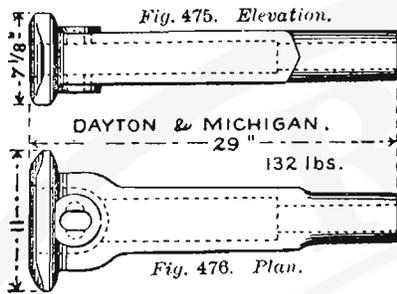
associated generator, but if equipment was to be trainlined, voltage and polarity would have to be standardized as well. The most usual standard came to be 32 volts direct current, and even now older cars, still in service, use this voltage. More modern passenger equipment, built from the late 1930's through the 1950's, had the higher 64 volt system, but this equipment could not be trainlined with 32 volt cars. Heating of cars had originally been done by stoves but this dangerous and inconvenient method was replaced by steam heat, a natural in the days of the steam locomotive but not so suited to diesel operation without specially equipped units.

However, both of these standards are fast being made obsolete by the latest generation of passenger rolling stock which uses an electrical system operating an 480 volts alternating current. The basic concept, known as head-end power, is different too, and is used for heating and air conditioning as well as lighting. The main power comes, not from batteries and generators on each



In the old days gauges were even mixed in the same train! This photo, taken about 1870, shows a Great Western train operating on dual-gauge track before the "Provincial" 5'6" gauge was abolished. The sign "NG" indicates that there were narrow gauge (i.e. 4' 8½") cars in the train.

Photo: Canadian National.



Some of the couplers in use in 1884. Eventually a standard design evolved but it took a long time.

car (except for small emergency units), but from a large generator on board the locomotive. Car generators and, above all, steam lines are no longer used.

This means, of course, that all cars in the train must be of the same standard. Previously cars of different voltages could be intermixed provided that they were not trainlined together, but with the head-end-power (H.E.P.) system such intermixing cannot be done. Thus we see a new standard that is rapidly being accepted across the North American continent. As the gauges and couplers were standardized in the last century, the present time is witnessing a long-overdue standardization

of electrical and heating equipment on passenger cars.

The first H.E.P. cars began operating, in the late 1950's, on the Chicago and Northwestern bi-level commuter cars, and quickly spread to that line's long-distance passenger equipment. Other Chicago commuter trains followed suit, and by 1968 H.E.P. had spread to the Northeast corridor in the United States. The resurgence of U.S. national commitment to passenger trains following the creation of Amtrak in 1971, and the energy crisis of 1973, required the ordering of large numbers of passenger cars and locomotives. It was wisely decided at that time to employ H.E.P. on all new



*A dual-gauge yard at Port aux Basques in Newfoundland. Here the two gauges come together and car bodies are transferred from standard-gauge trucks to narrow, and vice versa.
Photo by Fred Angus.*

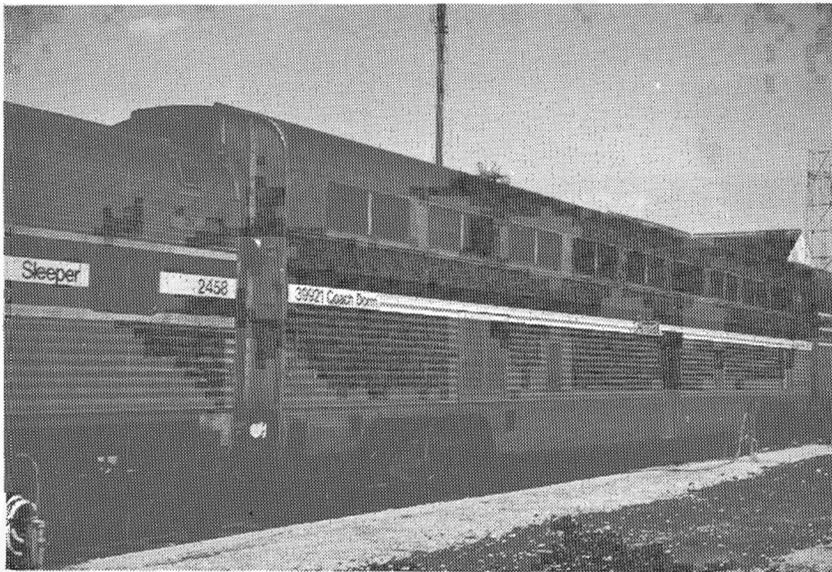
equipment and gradually to convert any older cars which would be retained in service and known as "Heritage Equipment". Until such older cars could be converted they could not, of course, be used in the same train as new equipment; this caused some inconvenience, such as no sleepers on certain long-distance overnight trains, but all have now been converted and equipment is now interchangeable.

The head-end-power concept is not confined to the United States but has, in fact, been in use in Canada for almost a decade and a half. The Canadian pioneers of this system were C.N.'s "Tempo" trains as well as the "GO" Transit operating out of Toronto. More recently VIA Rail's new L.R.C. equipment has adopted this system and on occasion actually does intermix L.R.C. locomotives, Tempo cars and Amtrak cars on the Toronto-Chicago run. So far no newer Canadian passenger cars have been placed in service although this situation may soon change. None of the older VIA equipment has been converted to H.E.P. and present plans do not call for this to be done. Thus we still have the semi-archaic sight of steam lines spewing clouds of vapour, steam-generator cars behind those locomotives that are not especially equipped for passenger service, lights that burn dimly if batteries are not properly charged and, of course, that old winter problem, frozen steam lines.

However the days of steam-heated cars appear to be numbered. First, Ontario Northland

announced that they would be ordering new bi-level intercity passenger cars, and then VIA Rail embarked on a policy of re-equipping its entire passenger fleet with new cars and locomotives. While full technical details do not appear to have been released yet, there is every reason to believe that the new equipment will have 480 volt A.C. head-end-power. The only disquieting note is that VIA does not, at present, plan to upgrade some of the older cars, such as the former C.P. stainless steel equipment, but prefers to replace them completely. While Amtrak originally had similar plans, they eventually adopted the modified idea of full upgrading of the best of its "Heritage fleet". Perhaps eventually VIA will do the same.

The United States adopted standard H.E.P. passenger trains at a time when its passenger fleet was being renewed and replaced from the wheels up. Such a renewal and upgrading is a necessity in Canada today as so much equipment becomes more and more unmanageable despite the interim refurbishing that has been done on some cars. It is hoped that VIA's new program of re-equipment (and, hopefully, upgrading of some cars) will proceed with full priority. While steam heat and similar anachronisms are interesting to railfans and historians, they must be replaced by more up-to-date technology if the passenger train is to survive in Canada. A good start has been made. This should continue to include all VIA trains and ensure full compatibility and interchangeability of the passenger train equipment throughout North America.



A "step up" car used by Amtrak to allow use of both single-level and bi-level cars in the same train. Tucson Arizona in June 1984.

Photo by Fred Angus.



When it gets cold lots of steam is needed. Here we see THREE steam-generator cars on the passenger train en route to Churchill Manitoba in May 1983. Such a sight will disappear with H.E.P.

Photo by Fred Angus.

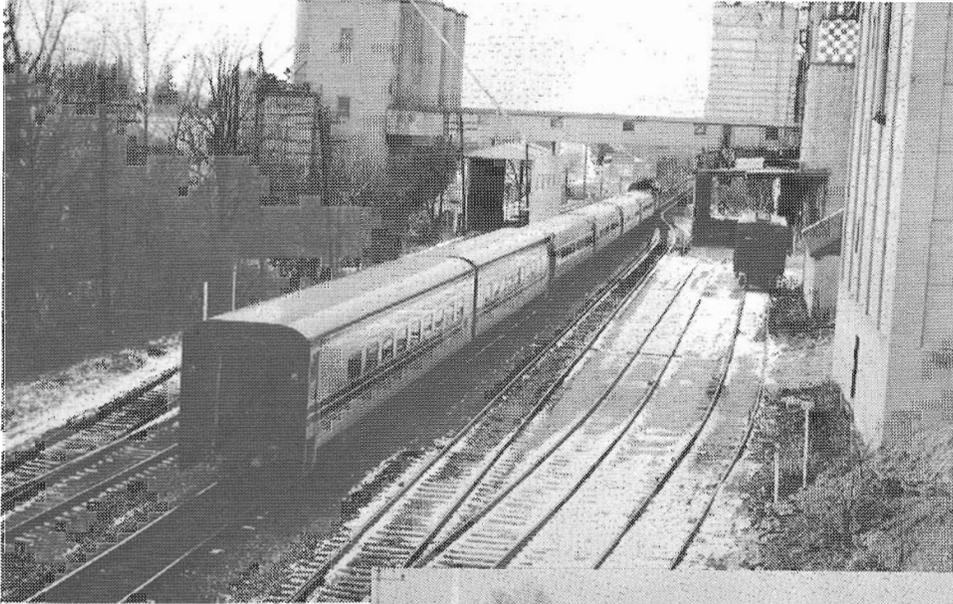


Clouds of steam pour from the front of the train on a cold day at Calgary Alberta. H.E.P. will eliminate this scene too.

Photo by Fred Angus.

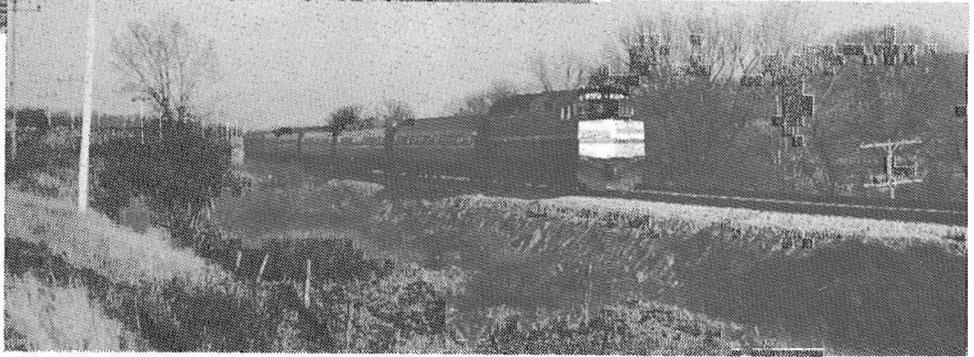


A present day Amtrak train including fully-rebuilt "Heritage" cars.



Intermixing of VIA and Amtrak equipment is done with the newer cars. Here we see "Tempo" cars on an Amtrak train; the "International" which runs between Toronto and Chicago.

Photos by Gordon Taylor.

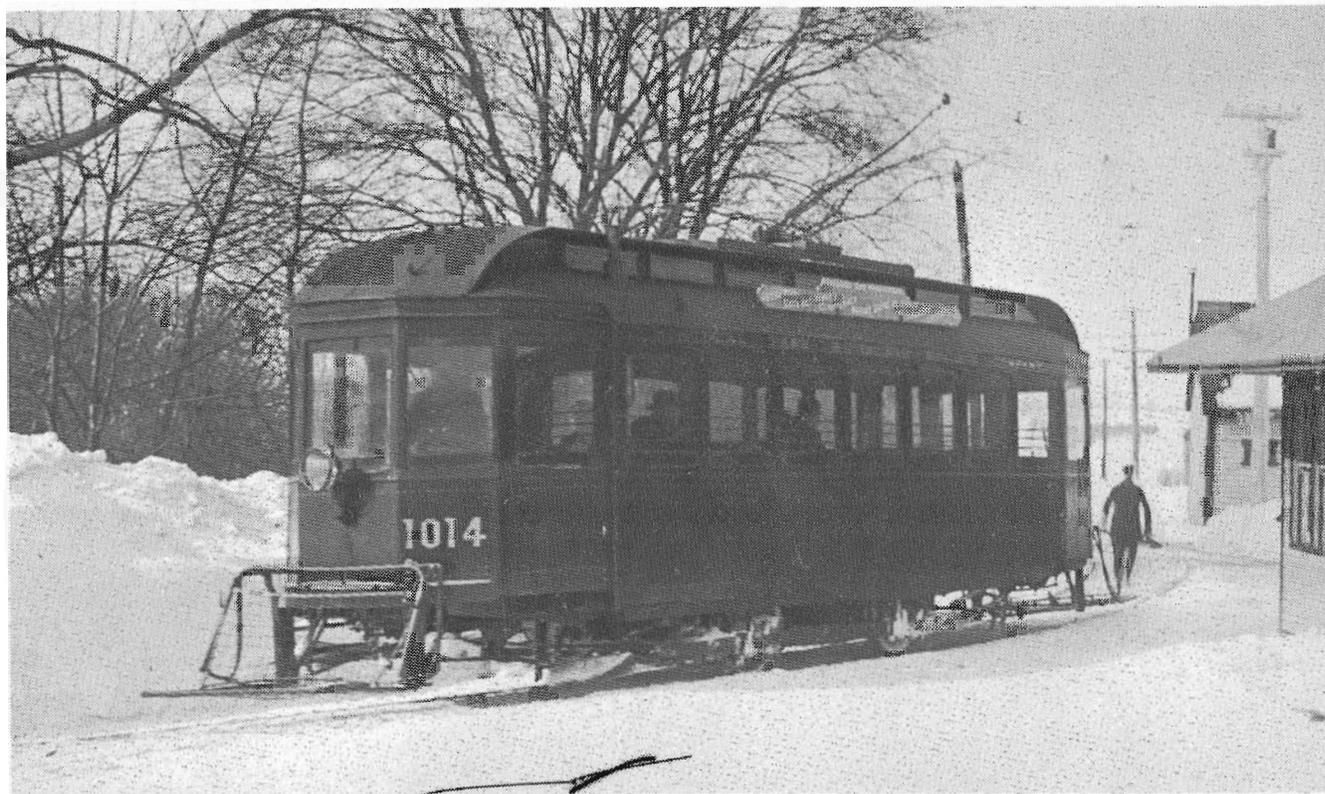


The new L.R.C. and "GO" cars are compatible with the new system.

Photo by Gordon Taylor.

DID THE RATHBUN COMPANY OF DESERONTO, ONTARIO, BUILD STEAM LOCOMOTIVES?

By: Fritz Lehmann



The Rathbun Company of Deseronto, Ontario, may have been the last traditional Canadian family firm to attempt locomotive manufacture: following in the footsteps pioneered by James Good of Toronto and the Kinmond brothers of Montreal in 1853. But Rathbun built very few locomotives if any, and does not seem to have attracted any customers outside the Rathbun "empire" of industries and short-line railways. Rathbun did not have the capital and other resources to pursue the locomotive dream for very long.

A new book on the Rathbuns of Deseronto, Donald M. Wilson's *Lost Horizons: the Story of the Rathbun Company and the Bay of Quinte Railway* (Belleville: Mika Publishing Co., 1983), adds considerably to the overall picture of Edward Wilkes Rathbun, his family firm, and the industrial empire centered on Deseronto,

Ontario, in the late nineteenth and early twentieth century. But it does not settle any of the questions about the Rathbun locomotive enterprise, perhaps because the evidence simply no longer exists. Some tantalizing photographs in this book show a few industrial shunting locomotives of a very "home-made" appearance (0-4-0T steam dummies, locally called "motors") in contrast to some larger conventional 0-4-OSTs; and there are two fine photos of the locomotive shops in 1882.

Edward Wilkes Rathbun (1842-1903) was an old-fashioned industrialist in the great nineteenth century patriarchal mold.¹ His American father, Hugo B. Rathbun, had a large lumber business centered around his home base at Auburn, New York. The father acquired a sawmill at Culbertson's Wharf, Ontario, and founded what became the present town of Deseronto

there. After school and business experience in New York City, Edward joined his father in the lumber business. His father's health began to fail and at the age of 20 Edward was in charge.

Edward Rathbun seems to have been a man of unusual judgment and energy. His letters show intelligence, directness, a forceful personality, and not much in the way of literary polish. He was not over-schooled, probably an advantage in his time and profession. By expansion and diversification, Edward built up the assets of H.B. Rathbun & Co., the family firm, from about \$50,000 when he took it over to over \$2,000,000 when he had the Canadian operations incorp-

orated in New York in 1884, but now with Oswego as its principal place of business. In 1889 the town of Deseronto was incorporated as well, and Edward Rathbun was its first and only mayor from that time until the year of his death, 1903.²

An excellent study of Rathbun by James A. Eadie brings out the strength of his character. In two speeches in Deseronto in 1898, Rathbun expressed his philosophy of life. He was proud to be a manufacturer, who "gives employment to enterprise, labour, and capital, the factors that combine to make a nation." A lifelong devout Presbyterian, Rathbun believed that "the



Sixteen street cars were built by the Rathbun company for the Montreal Park and Island Railway in 1896 and 1897. The 12 cars of 1896 were single-truck and numbered 20 to 31 (later 1000 to 1022 even numbers), while the four built in 1897 were double-truck and had numbers 32 to 35 (later 1024 to 1030 even numbers). Car 1014 seen at Snowdon Junction in 1904 and car 1030 seen on the Back River line the same year show both types as built.

M.U.C.T.C. Collection. C.R.H.A. Archives.

Christian religion is the foundation of progress, it inspires to faith in God and our fellow men." He went on to show how this fit in with his business philosophy: "faith is the creator of enterprise and progress, the very opposite of distrust, skepticism, and doubt." His religious faith thus reinforced his confidence that his life's work was morally as well as materially successful. "Providence will bless our efforts if honestly put forth," he said. "My life has been devoted to the building up of industries," and as he gazed around Deseronto, he saw factories and homes that "to me are of paramount importance to all else."³

With sawmills and timber licenses all over eastern Ontario, Rathbun became one of the pioneer champions of modern forestry practices--a passionate advocate of preservation and renewal of this resource. He also was energetic in efforts to utilise previously wasted resources, another pet idea of his, and set up sash, door, and blind factories, a large charcoal works, match splint factories, a shipyard, chemical works, cement and gas works. He built the Bay of Quinte Railway and Navigation Co. to connect Deseronto with the Grand Trunk, and acquired and completed the Napanee, Tamworth and Quebec Railway (renamed Kingston, Napanee & Western in 1890, merged into his Bay of Quinte Ry. in 1893) and built or acquired the Thousand Island Ry. and the Oshawa Ry. to link his industries and hinterland resources. Much of this energetic expansion and diversification was intended to move the Rathbun Co. and the town of Deseronto beyond a simple dependence on lumbering, as the marketable timber accessible to river and lake transport in the area was depleted.⁴

One part of this diversification effort concerns us. In the fall of 1889, the foundations for a "large locomotive repair shop" were laid in Deseronto.⁵ This was associated with a plant to manufacture railway cars there as well. The railway car works had a modest success and remained in business until 1913; the locomotive side of the business did not fare so well. The locomotive shop at first did repairs and rebuilding for the Rathbun railway lines, for instance, in December 1889 the new shop was fitting Napanee, Tamworth & Quebec #6 with a snow plough and vacuum brakes.⁶ But it was also looking for outside orders, and in that same month built two new snow plows for the Grand Trunk.⁷

There seem to be no surviving records of the Rathbun Locomotive Works and Car Shops at Deseronto, and the information available is very sketchy. Indeed, it is somewhat confusing. The

Kingston newspaper in the early 1890s report that *three* locomotives were built at Deseronto in 1890 and 1892 for the Bay of Quinte Ry., while *two* were built by Canadian Locomotive and Engine Co. of Kingston for that road in 1892 and 1893, and the Kingston works also produced "a portion" or "a boiler" for another in 1893--presumably finished at Deseronto. The Canadian Locomotive & Engine Co. works list shows only *one* locomotive for the Bay of Quinte Ry., its #5, completed in February 1893.⁸

These contemporary newspaper notes are better than nothing, but often too brief to do more than tantalize. "A second engine for the Bay of Quinte railway has been built at Deseronto," in the *Daily British Whig* of Oct. 4, 1890, certainly seems clear enough. But there is no reference to the first locomotive other than the implication here that there *was* a first locomotive also manufactured at Deseronto.

In August of 1892, we are told that the Rathbun Co. ordered thirty tons of castings from the Kingston Foundry.⁹ Some of these could have been for railway work, or for any of Rathbun's many industrial enterprises; they would not have been delivered in time to be part of the new locomotive (presumably the *third* built in Deseronto) reported later that month: a new locomotive for the Bay of Quinte Ry. in service on August 25, 1893, weighs 45 tons, and "a few of the largest details were made in Kingston, the balance in Deseronto." R. McLeod of Rathbun was "the constructor."¹⁰ Robert McLeod was foreman of the Deseronto locomotive works. But the following winter, the Rathbun Co.'s foreman, McKeown, was in Kingston to inspect the locomotive being built by the Canadian Locomotive & Engine Co. for his firm,¹¹ and we never learn what became of the boiler which the Kingston works produced at that time for Rathbun. So it looks like Rathbun can be credited with three, just possibly more, locomotives--all for a railway line owned by the same family.¹² This is close to being "own shop" production. Since Rathbun certainly hoped for outside business, however, and the exact relationship between the railway and the locomotive and car works is not clear, but would appear to be that of two distinct firms or divisions within the Rathbun empire, I think we can count Rathbun as one of the Canadian locomotive builders--albeit the smallest.

The Rathbun Co. had more luck with the railway car business, and are believed to have manufactured a number of freight cars for the Canadian steam railways of the day. The car

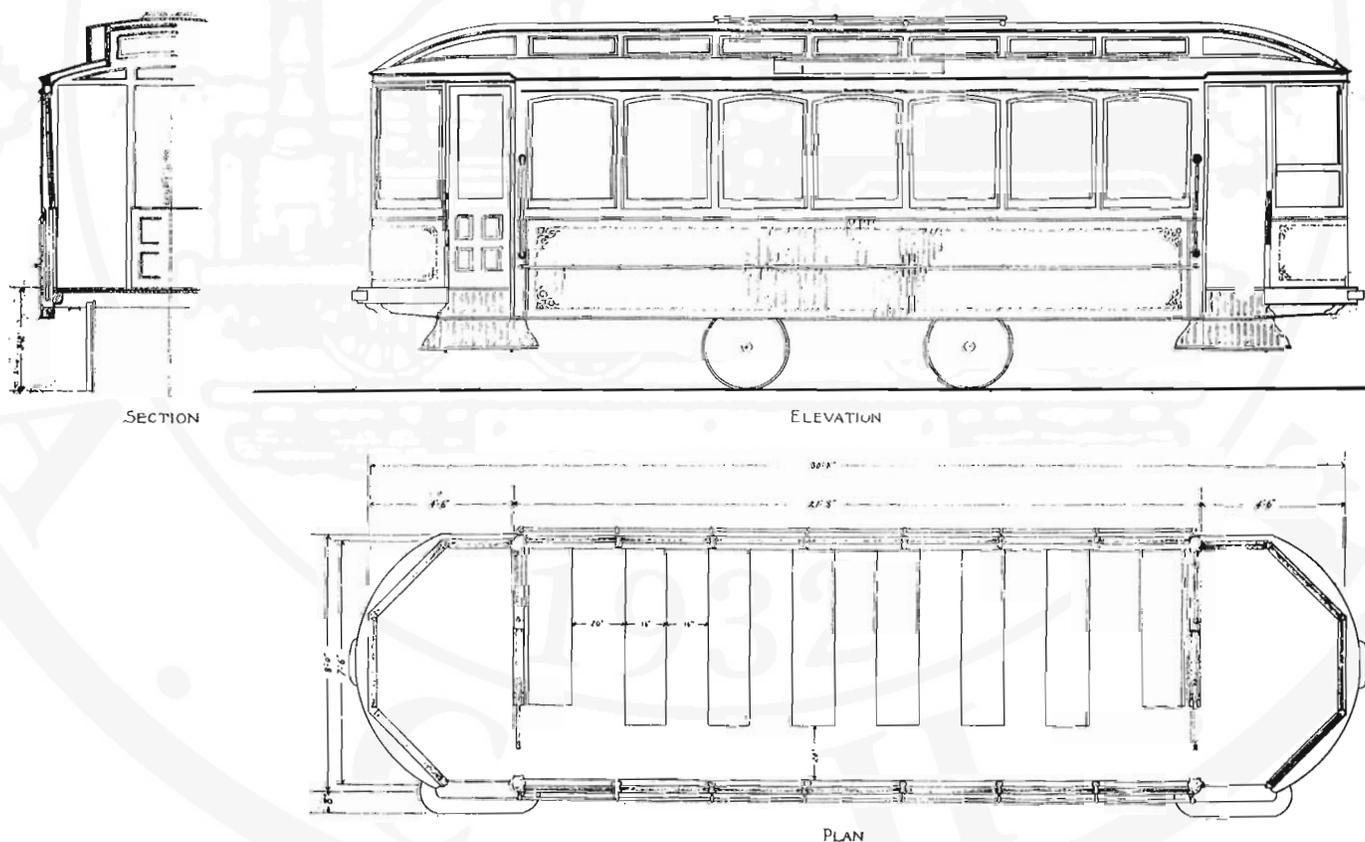
works also built passenger cars for the Kingston and Pembroke Ry. and the Bay of Quinte Ry., and built some electric cars in the beginning of the interurban traction era for the Cornwall Electric Ry., the Tillsonburg Ry., the Montreal, Park & Island Ry., and the Oshawa Ry.¹³ A large electric car for freight service, referred to as a locomotive, was built for the Kingston, Portsmouth & Catarauqui Ry. in 1898 ("The locomotive, to be used for the present on the Mooers elevator spur, has a strong pulling capacity.")¹⁴ Electric locomotives and a steam 0-4-0T were built for the Oshawa Ry.¹⁵

They were unfortunate in the timing of their entry into the locomotive business. The 1890s were a long period of depression. Even the Kingston works had an extremely thin time from 1892 until they went into liquidation in 1899. Their annual sales dropped from 11 in 1892 to 6 in 1893, and then 3, 3, 4, 7, and 1 in the next few years. Employees were laid off and the works were closed most of the year each of those years. Thus the times were not propitious for a new

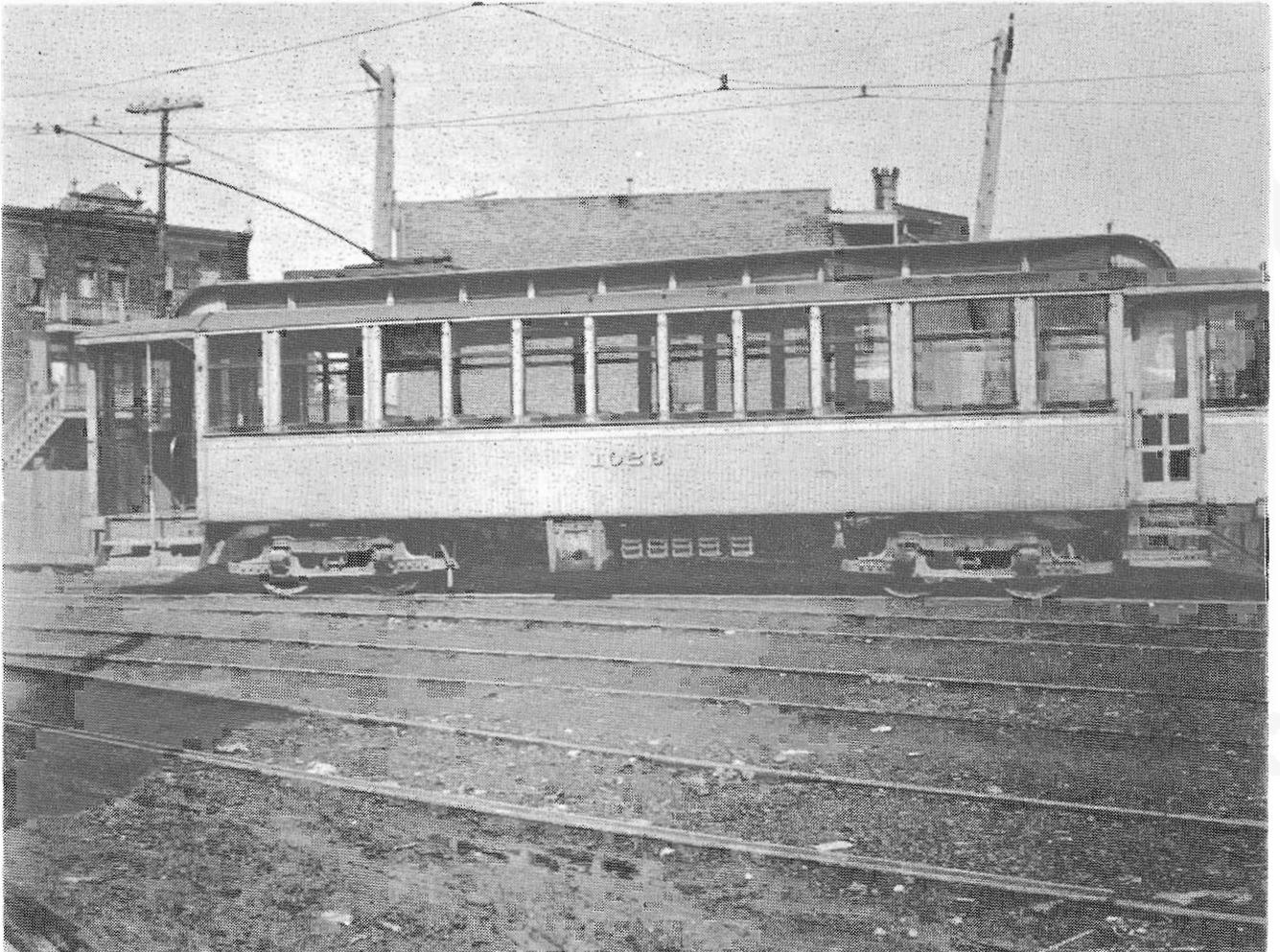
entrant to the Canadian locomotive field in the early 1890s. In fact, Dubs & Co. of Glasgow, one of the greatest locomotive producers of Europe, wrote off its 1886 investment in the Kingston works as worthless paper at this time, so it is no surprise that Rathbun's Locomotive Works failed to prosper.

There is evidence that the Rathbun companies possessed the technical competence to build locomotives, especially considering the relative simplicity and small size of the engines we presume were built (industrial 0-4-0s and light 4-4-0s). There is a Canadian patent issued to James B. Stewart of Deseronto in 1886 for "Counterbalance for Link Motion of Steam Engines."¹⁶ This is for application to stationary steam engines, making use of a small steam cylinder and piston bracketed to the fixed frame of the engine and arranged to take the weight of the valve and link motion gear from the eccentrics "whereby the gear can be more readily operated by the usual hand lever . . . my invention is applicable to propeller and other vertical

CLOSED PASSENGER MOTOR CAR
FOR THE MONTREAL PARK & ISLAND RAILWAY. August 6th 1896.



A scale drawing of one of the 1896 Rathbun cars built for the M.P. & I. Ry. Note the unusual seating arrangement. These cars did not last very long in passenger service in Montreal, being retired in 1907.



engines." The Deseronto steam dummy "motors" give the appearance of being vertical-boilered, perhaps an adaptation of the logging industry's steam donkey engine, which would reasonably adaptation of practical expertise among the Deseronto mechanics.

Mathew J. Butler, Rathbun's chief engineer from about 1883 to 1900, is primarily known for railway, bridge, and factory construction. Michael Haney hired him away from Rathbun in 1900 to supervise his Hillsborough bridge contract in Prince Edward Island, and then Butler was the chief engineer for the construction of Haney's own project, the Locomotive and Machine Co. of Montreal in 1902-3 (which became the Montreal Locomotive Works in 1908). With boilers and castings from two suppliers in Kingston, Butler and the mechanics and engineers in Deseronto could easily build locomotives. What we would like to know for sure is, did they? how many? when? and for whom?

FOOTNOTES ON RATHBUN

- ¹ K(enneth) A. C(atto), "Edward Wilkes Rathbun," *A Standard Dictionary of Canadian Biography: Canadian Who Was Who*, ed. Sir Charles G. D. Roberts & Arthur L. Tunnell (Toronto, 1938), vol. II, pp. 371-372; Donald M. Wilson, *Lost Horizons: The Story of the Rathbun Company and the Bay of Quinte Railway* (Belleville, 1983).
- ² James A. Eadie, "Edward Wilkes Rathbun and the Napanee Tamworth and Quebec Railway," *Ontario History*, vol. 63 no. 2 (June 1971), pp. 113-130.
- ³ Rathbun's speeches, published in full in the Deseronto *Tribune*, Feb. 4 and April 15, 1898, are quoted in James Eadie, *op. cit.*, pp. 125-126.
- ⁴ James Eadie, *op. cit.*; Public Archives of Ontario, G. 8 #19, unpublished manuscript by Andrew Merrilees, *The Railway Rolling Stock Industry in Canada: A History of 110 Years of*



The 1897 double truck cars were converted to Pay-As-You-Enter operation and lasted in passenger service until the 1920's. Here we see 1026 and 1028 in service as rebuilt about 1913. The body of car 1026 lasted as a first aid shelter at St. Hubert airport as late as 1941. M.U.C.T.C. Collection. C.R.H.A. Archives.

Canadian Railway Car Building (1963), unpaginated, 2 pp. section "The Rathbun Company, Deseronto, Ontario;" M. D. Leduc, "Bay of Quinte Railway," *Canadian Rail*, no. 174 (Feb. 1966), pp. 213-214. The cover of this issue carries a photograph of Montreal Park & Island Ry. 1014, a trolley car built by Rathbun in 1896.

⁵ Kingston *Daily British Whig*, Nov. 1, 1889.

⁶ *Ibid.*, Dec. 14, 1889.

⁷ *Ibid.*, Dec. 20, 1889.

⁸ Canadian Locomotive and Engine Co. #440 of Feb. 1893. The Kingston *Daily British Whig* reports a locomotive for the Bay of Quinte Ry. "being built" at the Kingston Co., Dec. 31, 1891; an engine under construction for the Bay of

Quinte, Sept. 23, 1892 ("and a portion of one"); Jan. 26, 1893; Jan. 30, 1893 ("and a boiler for another"); this locomotive completed ("turned out another locomotive for the Bay of Quinte Ry. yesterday . . . has still another to build" -my emphasis), Feb. 9, 1893,

⁹ Kingston *Daily British Whig*, Aug. 10, 1892. Note that the Canadian Locomotive and Engine Co. itself got an order from the Rathbun Co. a year and a half later, for 40 tons of castings. Kingston *Daily News*, Feb. 2, 1894.

¹⁰ *Daily British Whig*, Aug. 27, 1892.

¹¹ *Ibid.*, Jan 26, 1893. Ref. to Robert McLeon as loco. works foreman in July 1892 in Donald M. Wilson, *Lost Horizons: the Story of the Rathbun*

Company and the Bay of Quinte Railway (Belleville: Mika, 1983), p. 179.

¹²The Clegg and Corley roster of Canadian National locomotives, based on official sources, shows three small Canadian Northern 4-4-0s as "rebuilt by Rathbun, 1893(?)." I believe that these must be the locomotives built at Deseronto for the Bay of Quinte Ry. in 1890-1892, and absorbed into the Canadian Northern roster when it bought Rathbun's railway in 1909. Anthony Clegg and Ray Corley, *Canadian National Steam Power* (Montreal, 1969), p. 68.

¹³Public Archives of Ontario, Merrilees manuscript (see footnote 4); Kingston *Daily British Whig*, April 6, 1869 (Cornwall, Tillsonburg, Feb. 13, 1897 (Montreal); Aug. 28, 1897 (dump car for Asbestos & Asbestic Co.).

¹⁴Kingston *Daily British Whig*, Jan. 15, 1898.

¹⁵Wilson, *Lost Horizons*, p. 154.

¹⁶James B. Stewart, Canadian Patent No. 24802, issued 1886 (application dated 13 August 1886).

¹⁷Wilson, *Lost Horizons*, pp. 59, 80, 125-126.

BQR 1, 2, 6, 7, 8, to Canadian Northern Ry. 55-59 in 1909. Canadian Northern stock records do not give a builder's name for these locomotives, but show them as "rebuilt" by the Bay of Quinte Railway. R. F. Corley and D. M. Wilson assumed that this meant simply overhauling and updating of existing locomotives purchased from some unknown supplier. Our evidence is too sketchy to be conclusive, but I believe it can be used to support a suggestion that these locomotives were in fact manufactured, or at least assembled with some components locally made, in Deseronto. Canadian Northern 55-57 (BQR 1, 2, 6) acquired

by Canadian National Rys., became 125, (1st) 126, (1st) 127. The 125 was altered with 63" drive wheels and 140 psi boiler pressure; scrapped in 1923, 1922, and 1920. Oshawa Ry. 1 scrapped 8/1916. NOTE: This list does not guess possible industrial locomotives. SOURCES: Kingston *Daily British Whig*, Oct. 4, 1890, and Aug. 27, 1892; A. Clegg and R. Corley, *Canadian National Steam Power* (Montreal, 1969), p. 68; Donald M. Wilson, *Lost Horizons: the Story of the Rathbun Company and the Bay of Quinte Railway* (Belleville, 1983), pp. 21, 38, 40, 64, 68-69, 142, 154, 179.

SUGGESTIONS FOR A LIST OF RATHBUN-BUILT LOCOMOTIVES

	date built	built for
(1)	1890 (?)	Bay of Quinte Ry. 1
(2)	10-1890	Bay of Quinte Ry. 2
(3)	08-1892	Bay of Quinte Ry. 6
?	?	Bay of Quinte Ry. 7
?	?	Bay of Quinte Ry. 8
?	?	Oshawa Ry. 1

type	cyls.	driv.	BP
4-4-0	17x24	62	145
4-4-0	17x24	62	145
4-4-0	17x24	62	145
4-4-0	15x22	62	145
4-4-0	15x22	62	145
4-4-0T	?	?	?

SPECIAL NOTICE

Canada's Railway Sesquicentennial Conference

The conference to help commemorate the 150th anniversary of the opening of Canada's first railway will be held in Montreal from July 18 to July 20, 1986.

There will also be post-conference activities and tours on Monday July 21, the actual day of the 150th anniversary.

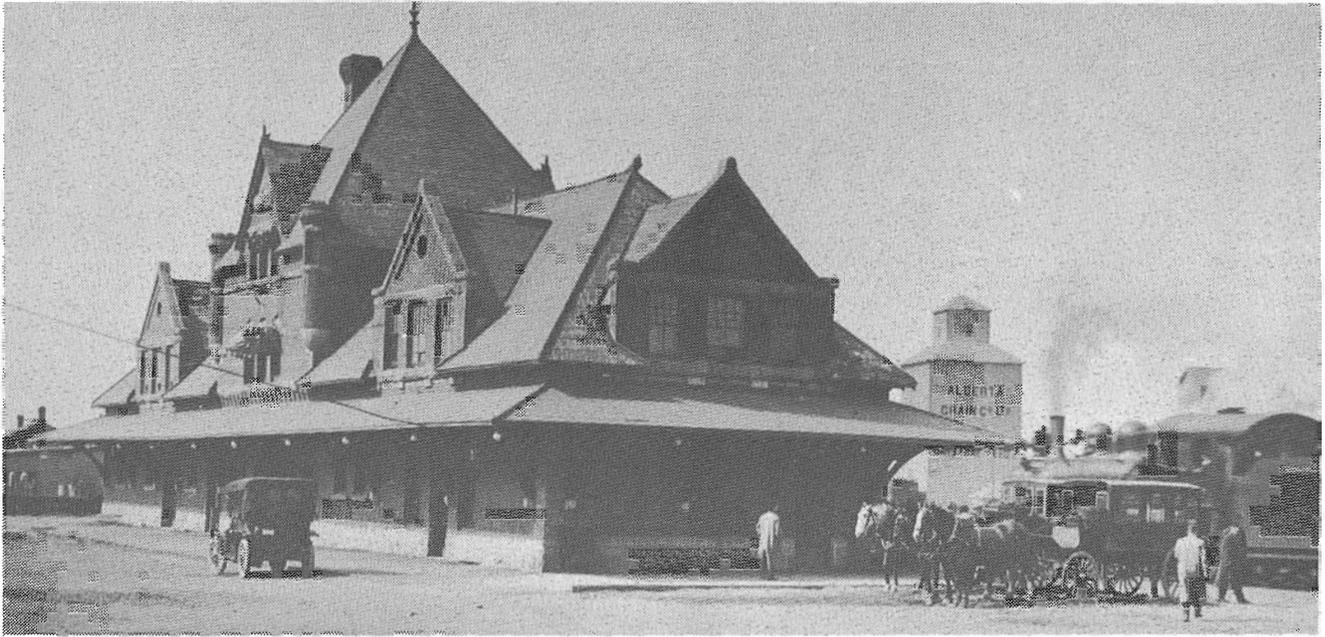
Help celebrate the sesquicentennial of Canada's railways!

Reserve the dates now!

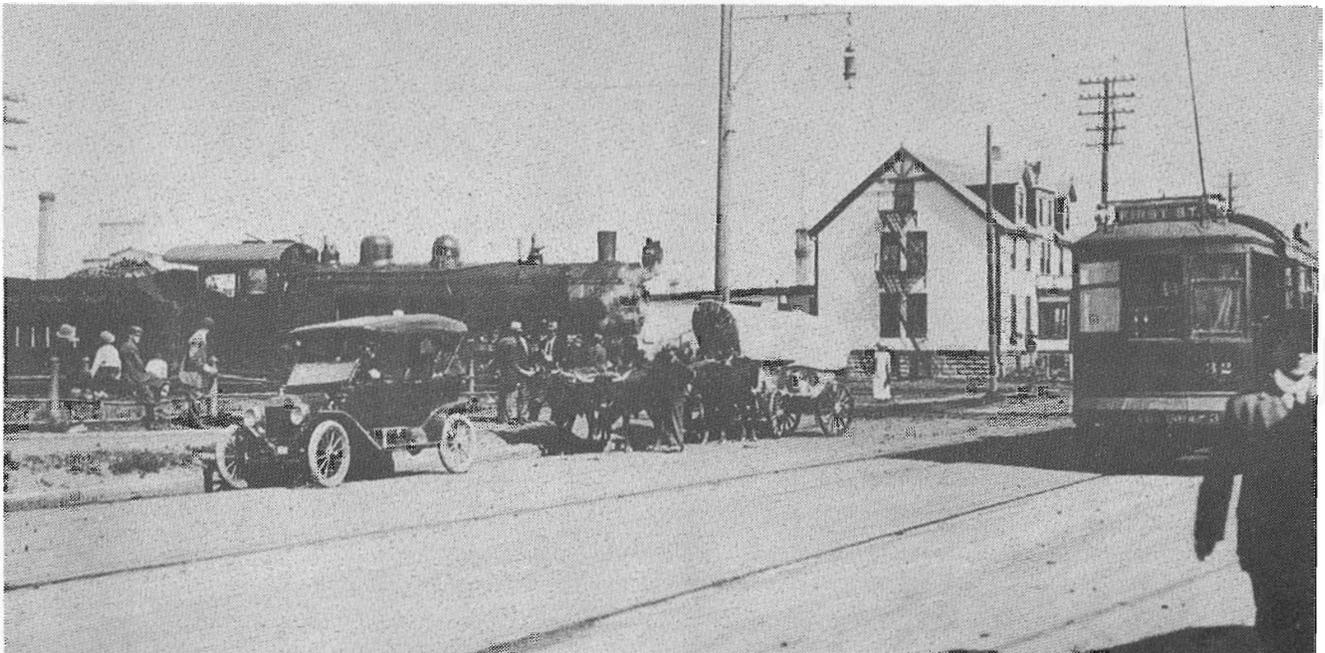
More details in the next issue.

EDMONTON RAILWAY PHOTO ALBUM

It is our great pleasure to present a collection of photos of the railways and bridges in Edmonton Alberta in the first quarter of the twentieth century. Unless otherwise indicated the photos are taken by McDermid Studios and are from the collection of Walter M. Stanley.



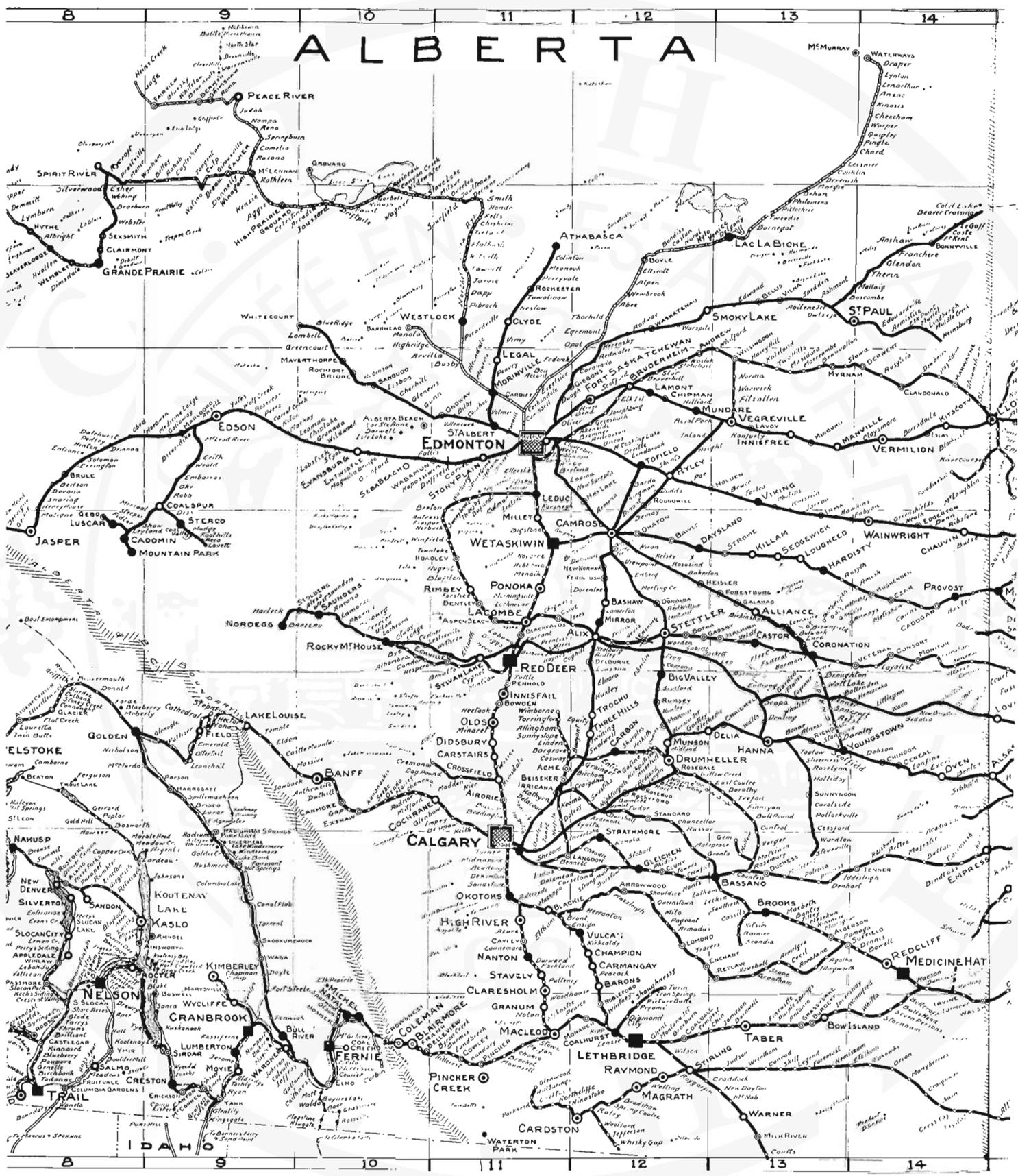
Edmonton Grand Trunk Station. Note - Horse drawn busses that transported passengers to their Hotels.



Scene just East of Grand Trunk Station showing four modes of transport. The building, middle right is the old Immigration Hostel long since gone. Since 1925 there is a subway under the tracks at this location.



The Map dated 1923 Revised 1945 was made from a large 4' by 8' map that used to hang in many a Western Stations. The original of this map was obtained at an auction and I have now donated it to the Railway station that has been built in the reconstruction of Fort Edmonton.



ALBERTA

PEACE RIVER

SPIRIT RIVER

GRANDE PRAIRIE

EDMONTON

JASPER

GOLDEN

NAMUSP

NEW DENVER

TRAIL

ATATHABASCA

ROCHESTER

WESTLOCK

EDMONTON

WETASKIWIN

REDEER

CALGARY

OKOTOKS

CLARESHOLM

PINCHER CREEK

SMOXY LAKE

FOR SASKATCHEWAN

LEGAL

EDMONTON

PONOKA

REDEER

CALGARY

HIGH RIVER

NANTON

LETHBRIDGE

LA CLA BICHE

SMOXY LAKE

SMOXY LAKE

EDMONTON

STETTLE

REDEER

CALGARY

BLAICHIE

CLARESHOLM

LETHBRIDGE

WATLWAYS

ST PAUL

SMOXY LAKE

EDMONTON

WAINWRIGHT

REDEER

CALGARY

BLAICHIE

CLARESHOLM

LETHBRIDGE

8

9

10

11

12

13

14

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13

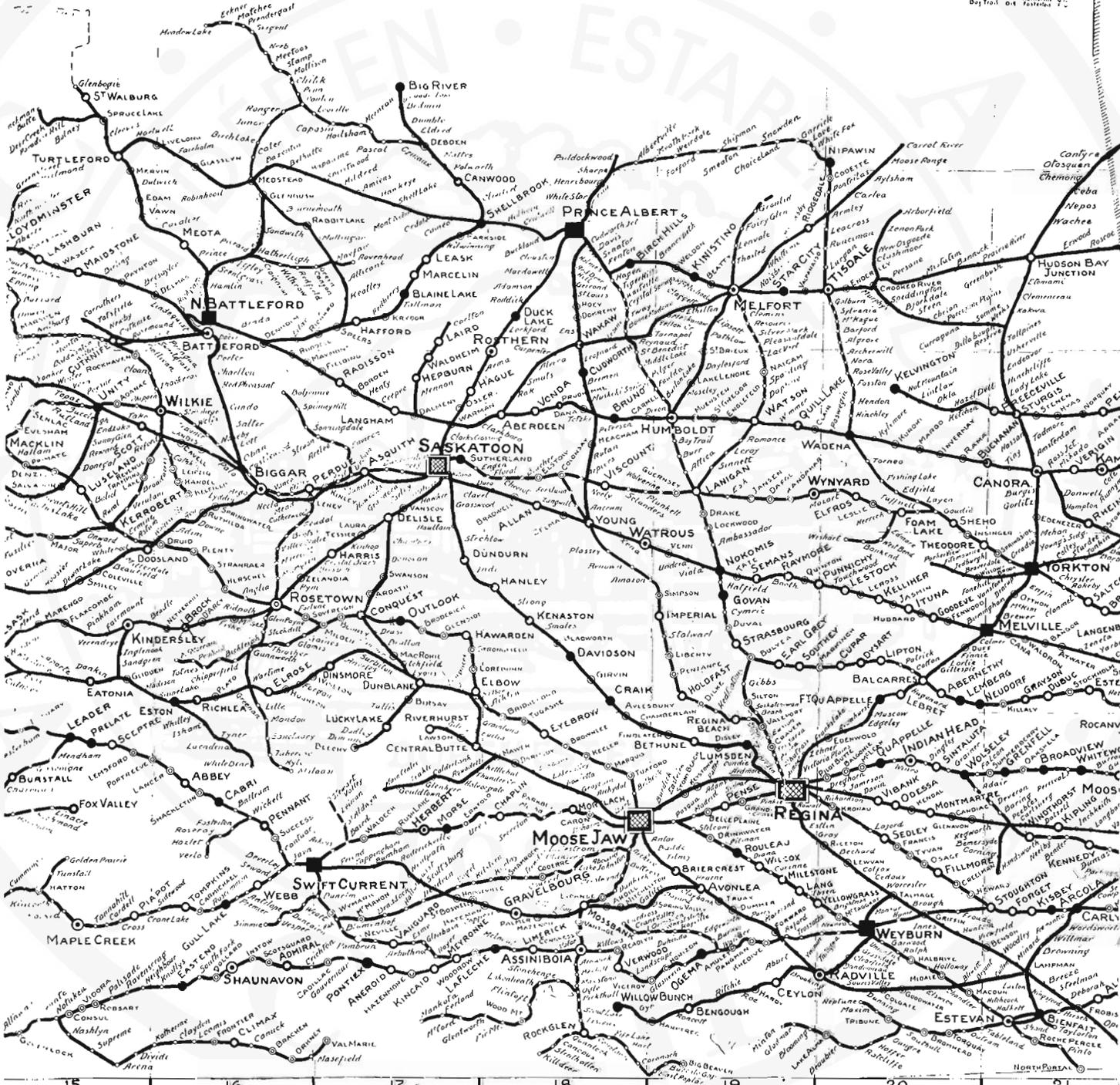
14

SASKATCHEWAN

SASKATCHEWAN

ADDITIONS TO INDEX

Alton	18	11
Archie	18	11
Baker	18	11
Becker	18	11
Bell	18	11
Brown	18	11
Clark	18	11
Cooper	18	11
Croft	18	11
Dunn	18	11
Evans	18	11
Finlay	18	11
Gibson	18	11
Grant	18	11
Hart	18	11
Henderson	18	11
Jones	18	11
Kelly	18	11
Lang	18	11
Little	18	11
Macdonald	18	11
McIntyre	18	11
Miller	18	11
Moore	18	11
Nelson	18	11
Phillips	18	11
Reid	18	11
Roberts	18	11
Scott	18	11
Stewart	18	11
Taylor	18	11
Thompson	18	11
White	18	11
Wilson	18	11
Young	18	11



MANITOBA

REFERENCE

Populations
Cities

Cities/towns over 3,000

Towns over 1,000

over 500

over 250

over 50 @ Station on Ry

RAILWAYS

Canadian Pacific

Canadian National

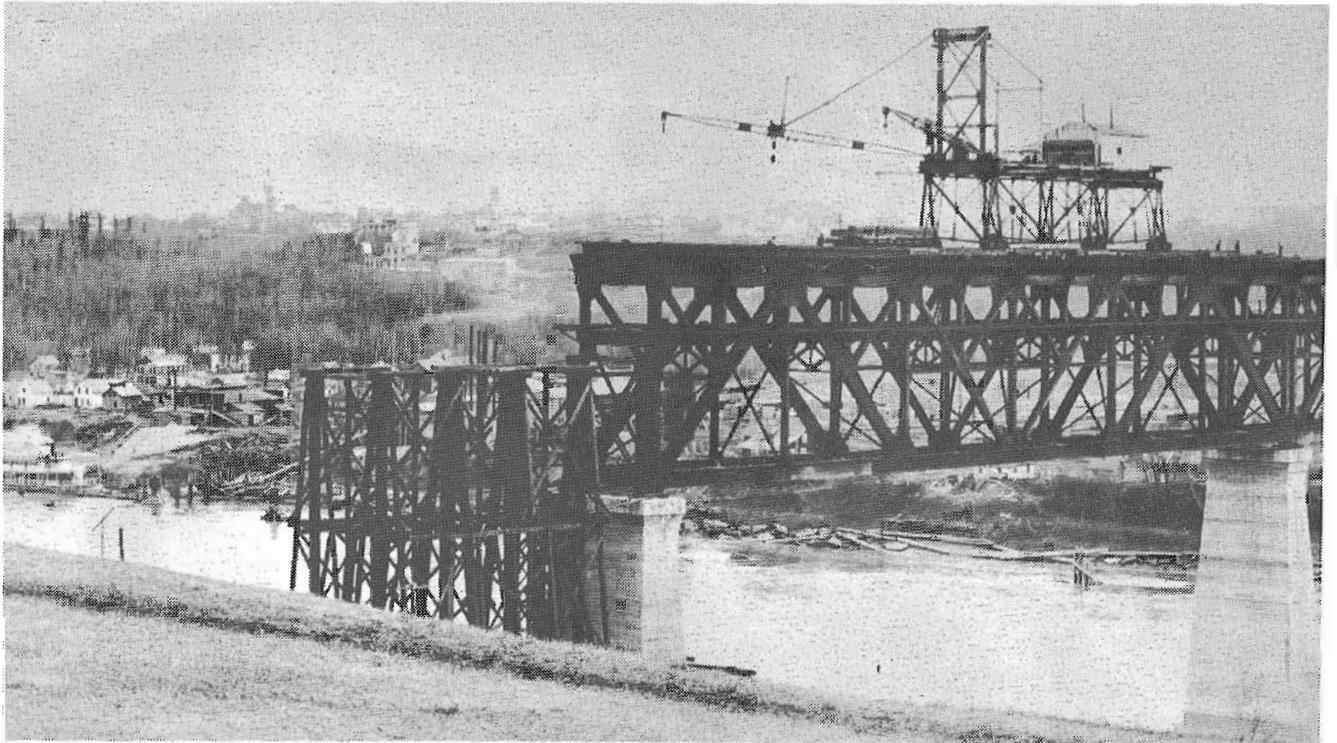
Other Ry.

Western Canada Routing Map

ADDITIONS TO INDEX
Mainly Points on the Churchill R. & Points near the Ontario Boundary

1940	1930	1920	1910	1900	1890	1880	1870	1860	1850	1840	1830	1820	1810	1800
100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
200	200	200	200	200	200	200	200	200	200	200	200	200	200	200
300	300	300	300	300	300	300	300	300	300	300	300	300	300	300
400	400	400	400	400	400	400	400	400	400	400	400	400	400	400
500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
600	600	600	600	600	600	600	600	600	600	600	600	600	600	600
700	700	700	700	700	700	700	700	700	700	700	700	700	700	700
800	800	800	800	800	800	800	800	800	800	800	800	800	800	800
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1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000	1000

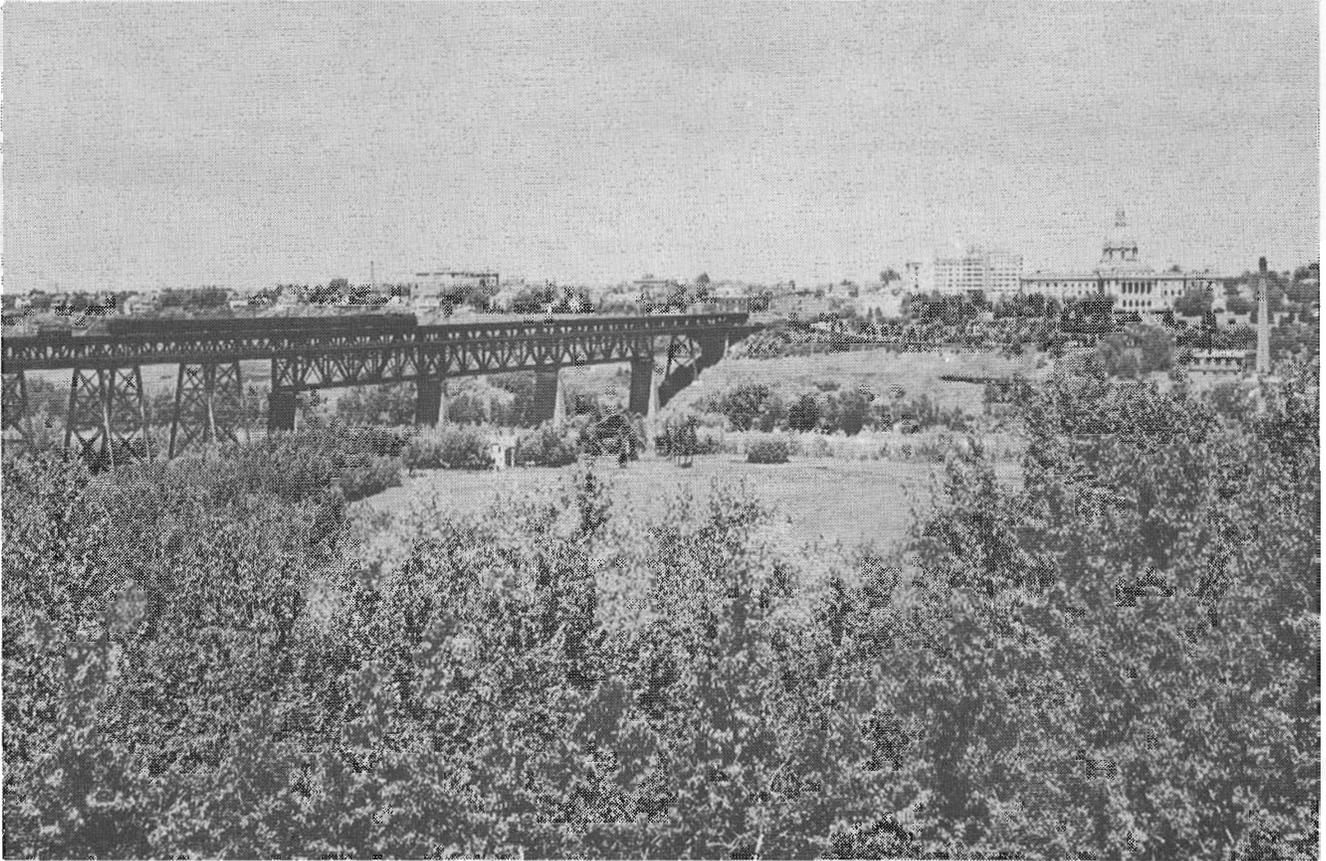
MANITOBA SECTION
WESTERN CANADA ROUTING MAP
by MUNDY MAP CO.
Copyright Canada 1923
by C.G. Mundy Folio 4111



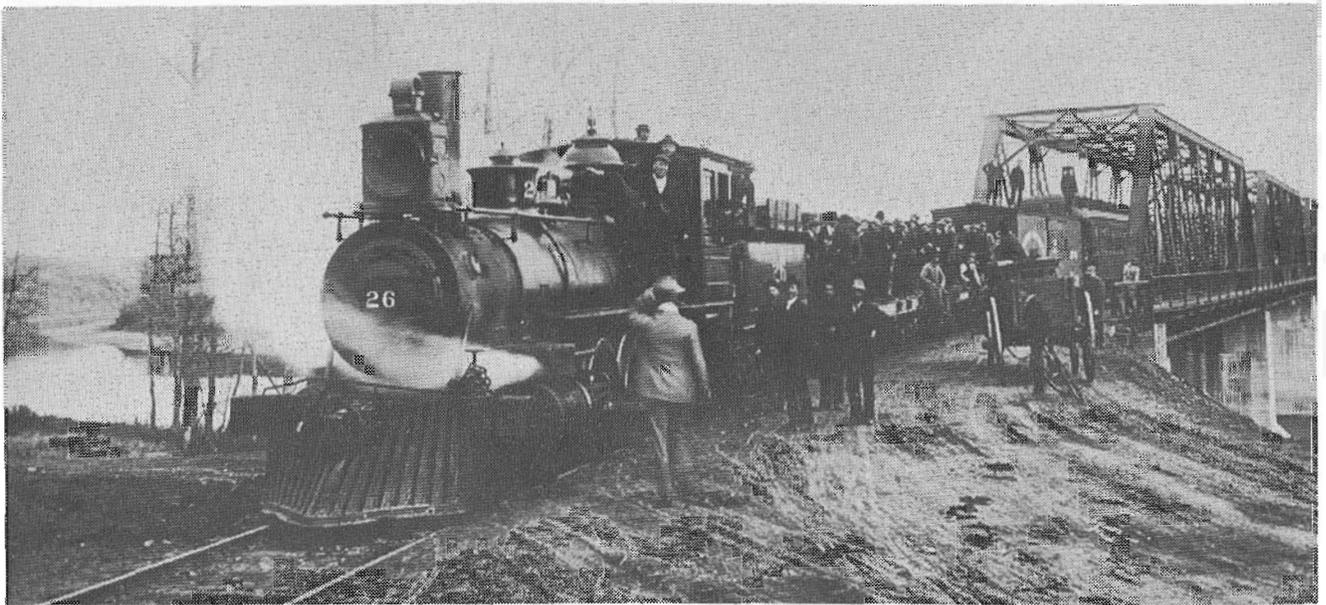
Early construction on the Canadian Pacific high level bridge. Buildings in the distance are those of what was then called Strathcona.



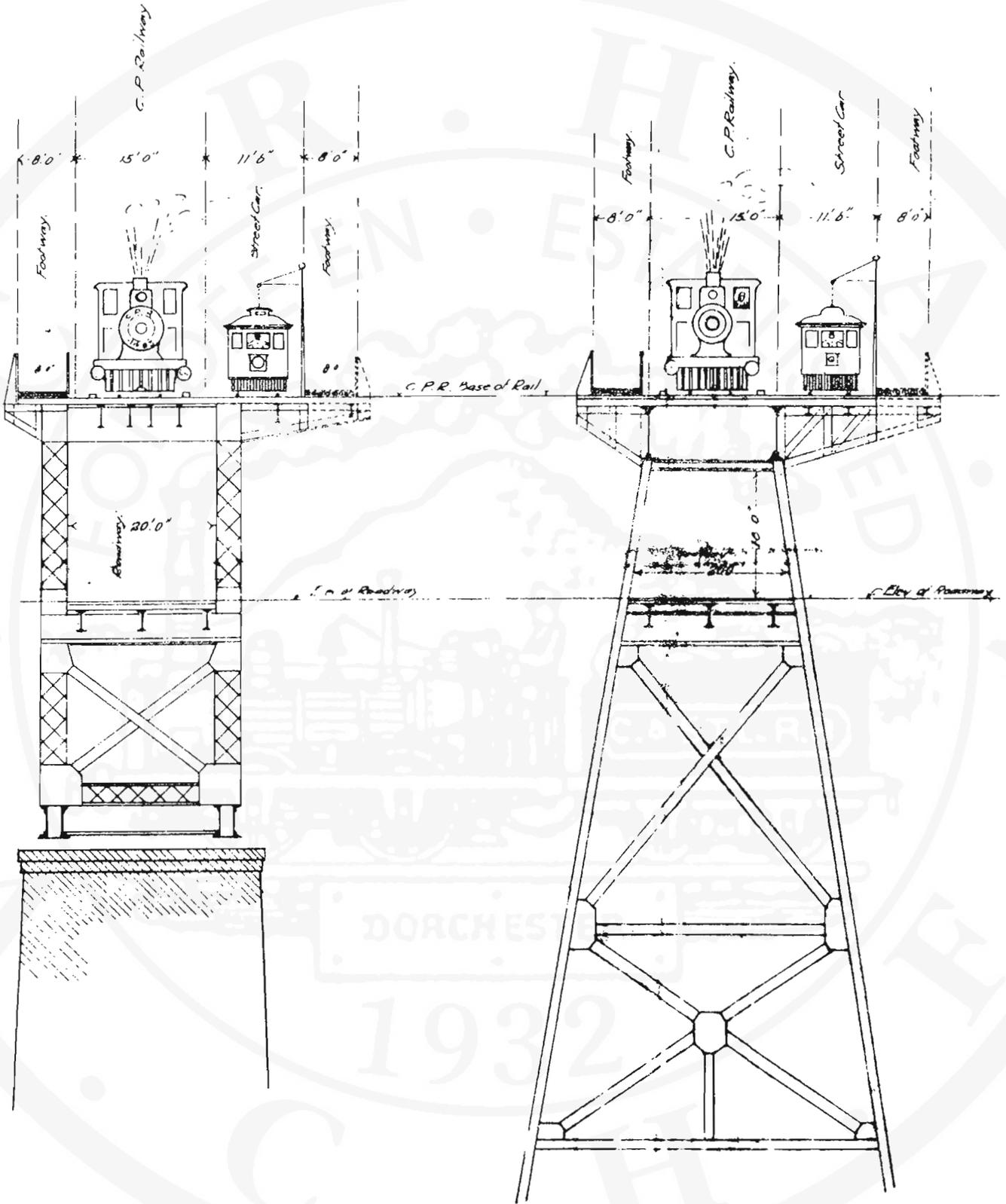
Canadian Pacific High Level Bridge under construction. It also shows some of Fort Edmonton buildings on the grounds of the Parliament Building with the dome still being constructed.



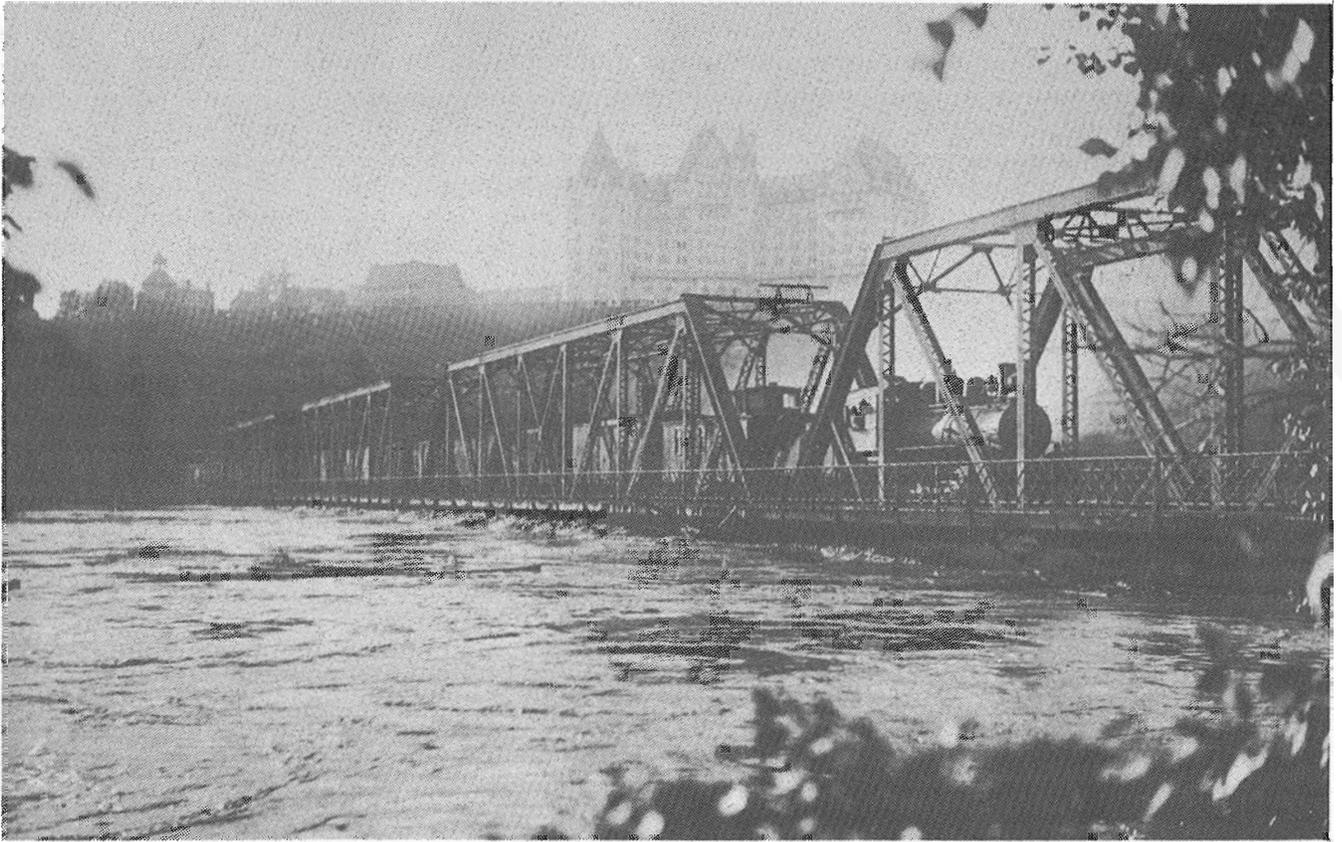
A Street car and train on the completed bridge.



October 2nd 1902, the first train to cross the Low Level bridge which allowed trains into Edmonton from Strathcona.

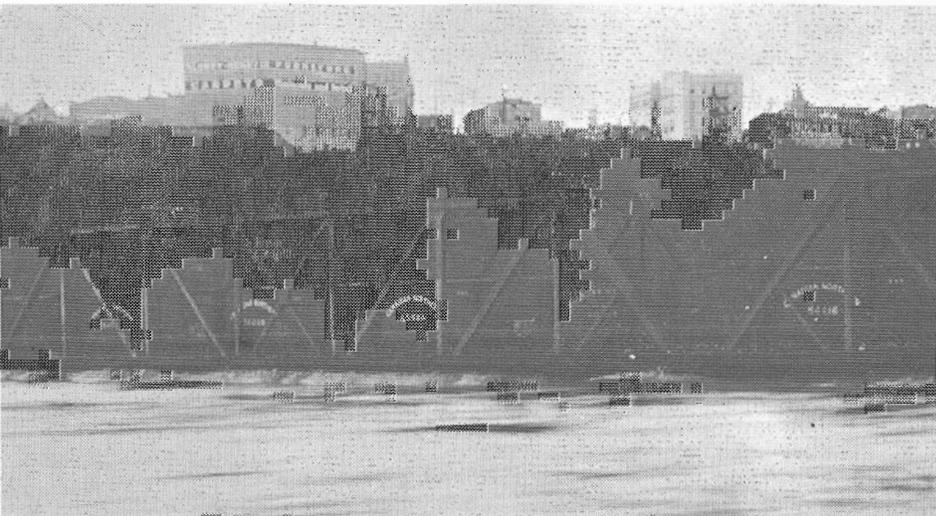
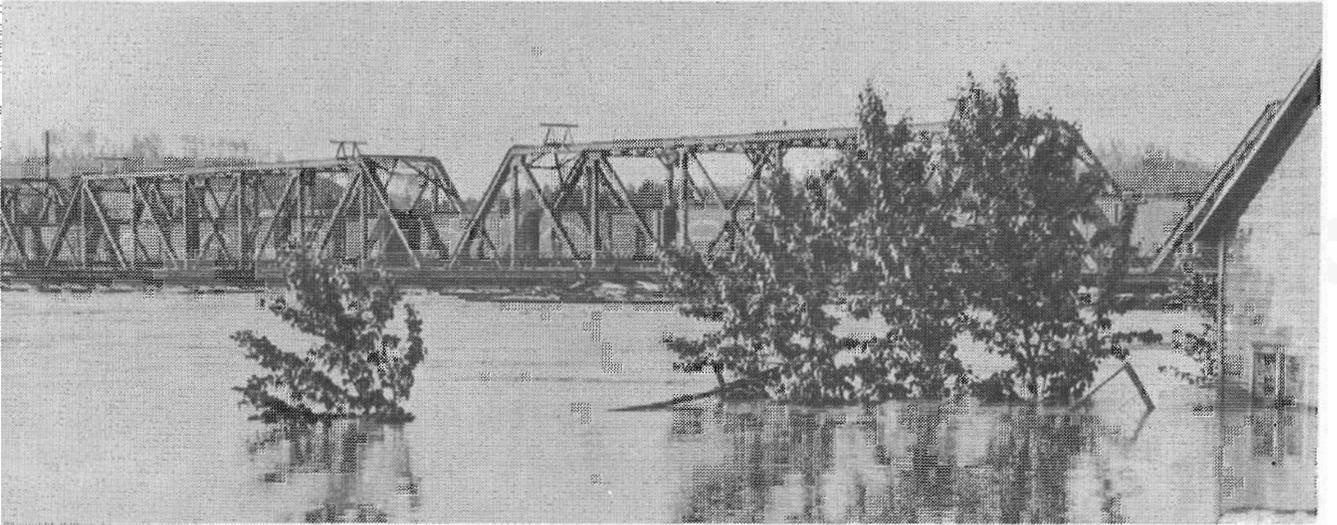


The blue print of the proposed High Level Bridge was found in an old C.P.R. desk

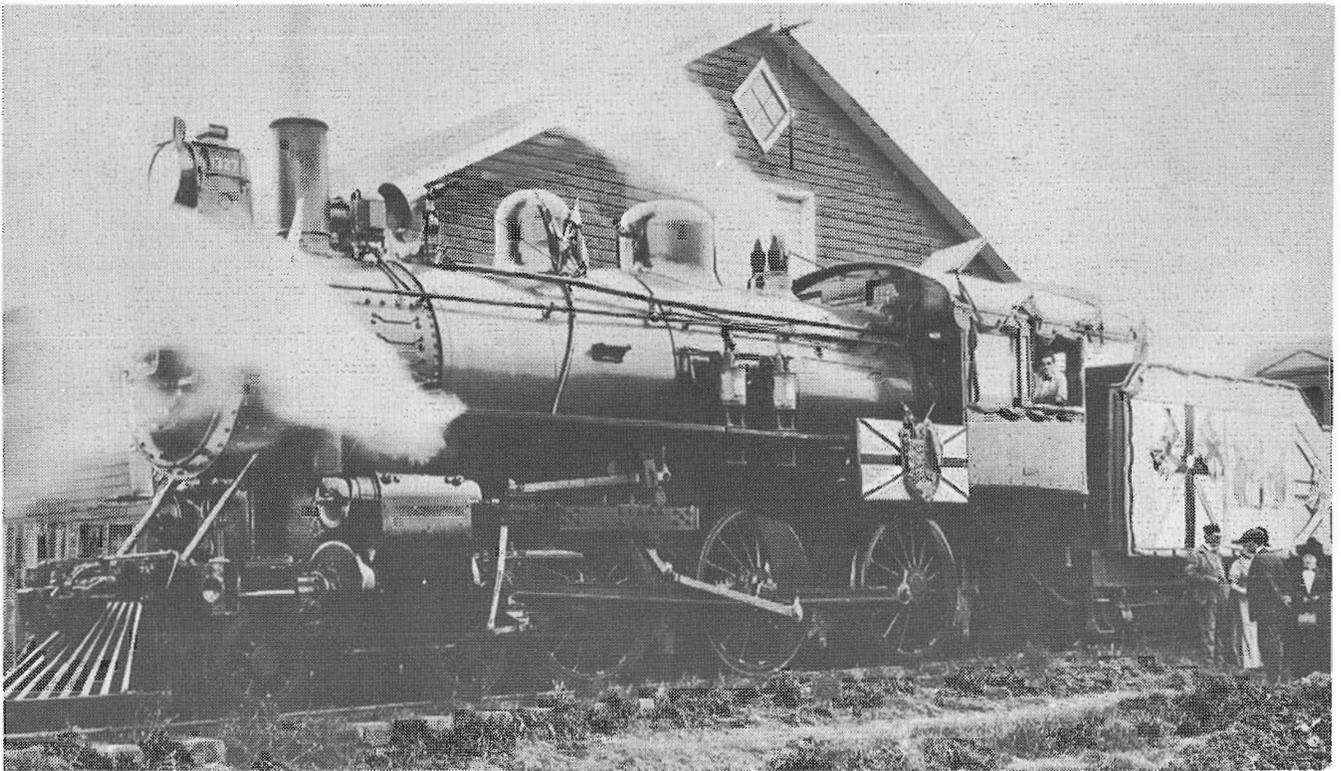


The Low Level bridge during the 1915 flood. A one time there was a loaded train stationed on the bridge with a locomotive on each end to help stabilize the bridge. If it looked like the bridge would give way the locos would then pull each half of the train off the bridge. Note: the C.N. MacDonald Hotel on the top of the river bank.

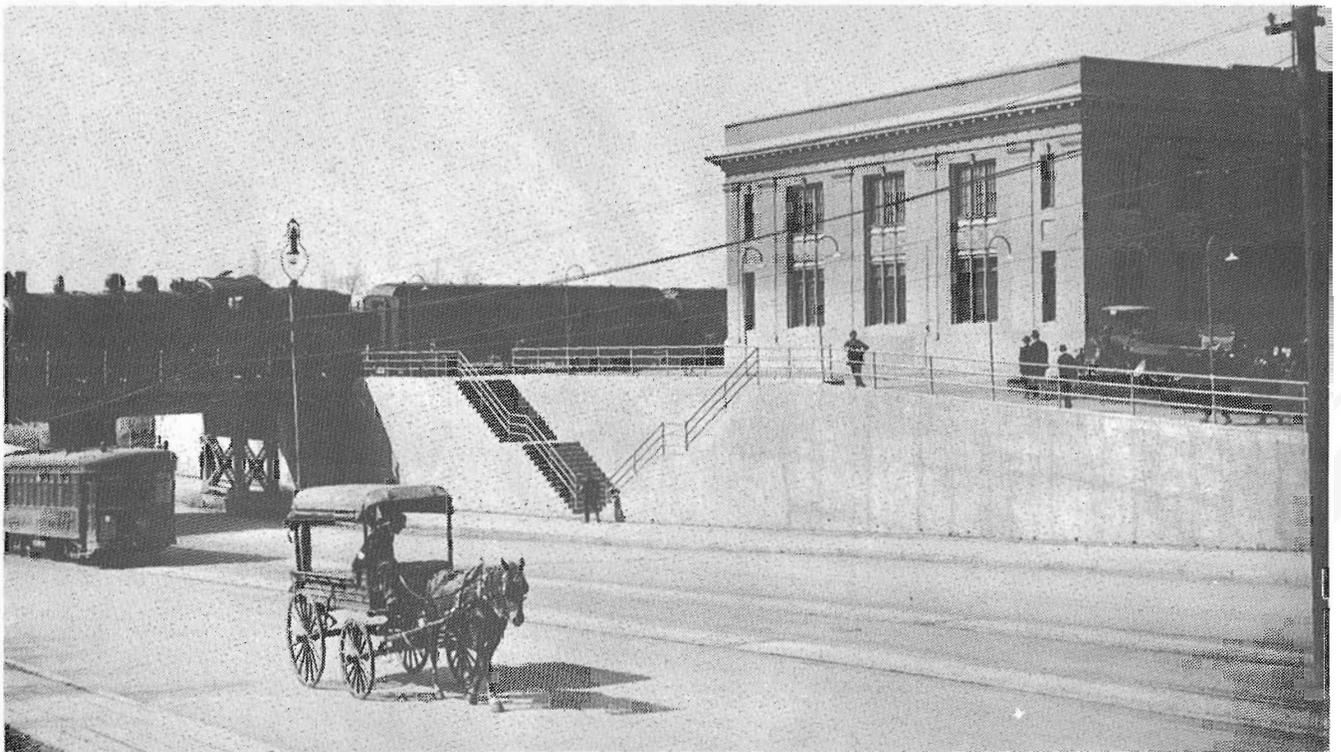




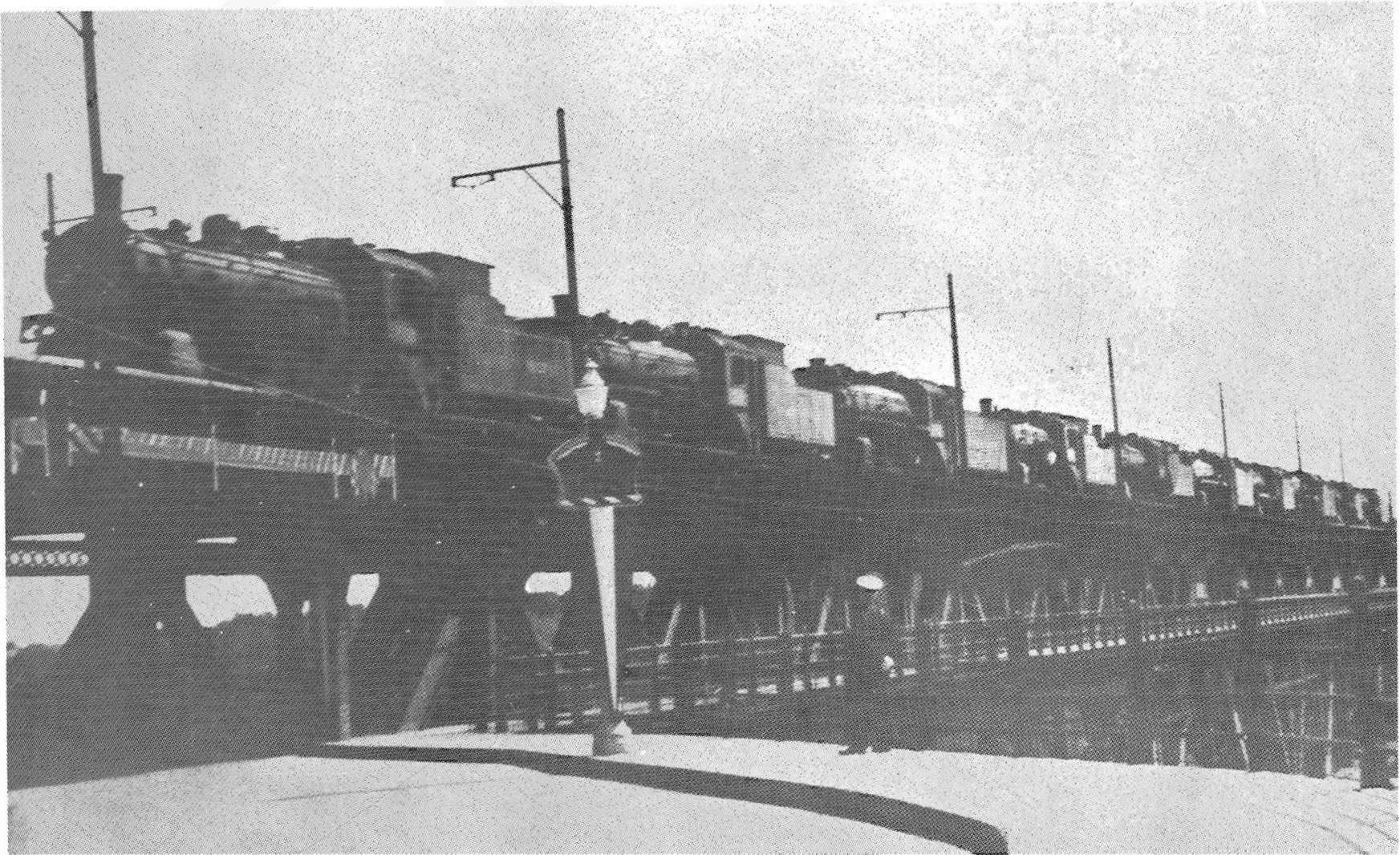
Four spectacular views of the 1915 flood at Edmonton showing the efforts of the Canadian Northern to save the low-level bridge. A train of box cars loaded with coal was moved on to the bridge in an attempt to weight down the bridge and prevent it from being swept away. For a while it was touch-and-go as we see in the view of the ruins of a building piled up against the bridge. However the effort was successful and the bridge still stands today. City of Edmonton Archives. Nos. EA-25-20, EA-25-38, EA-25-8, EA-25-30. All courtesy of Lon Marsh.



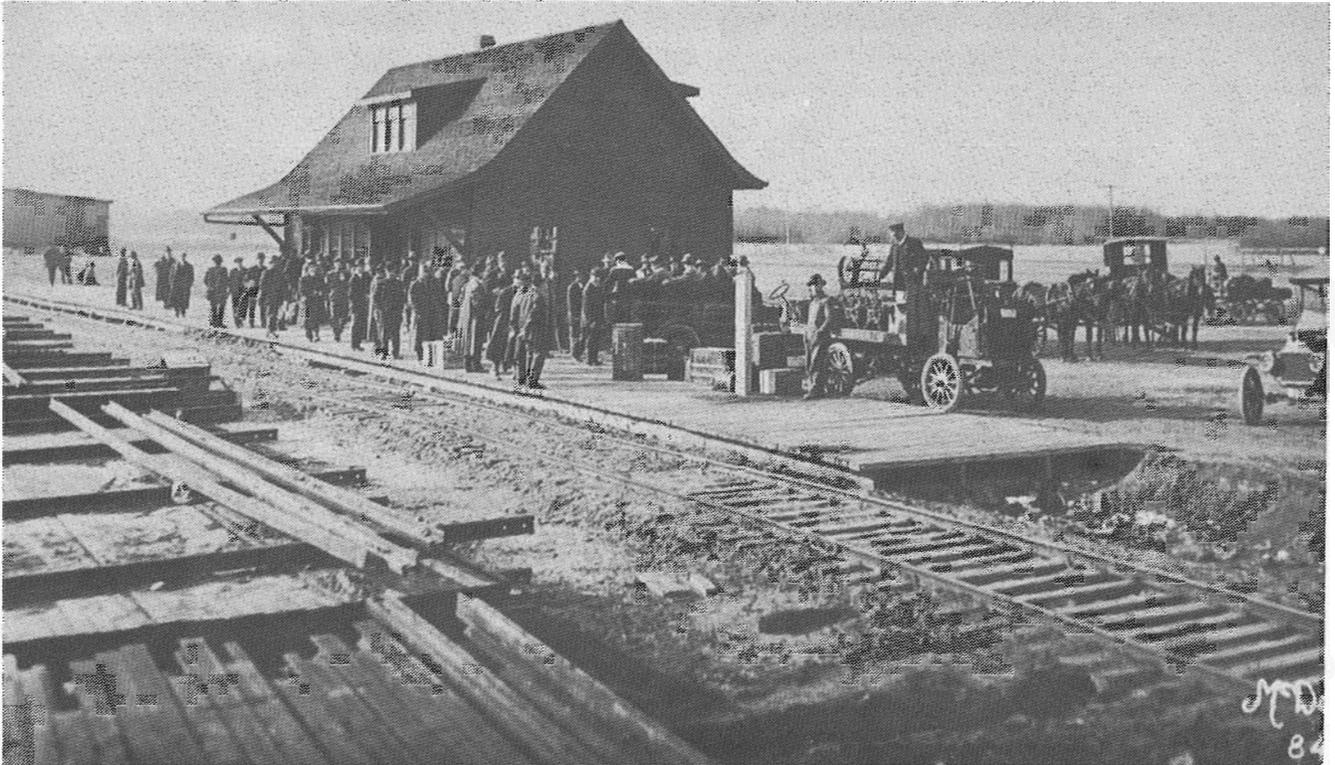
A decorated locomotive used on an early Royal Visit. It was either the Duke of Gloucester or Duke of Connaught.



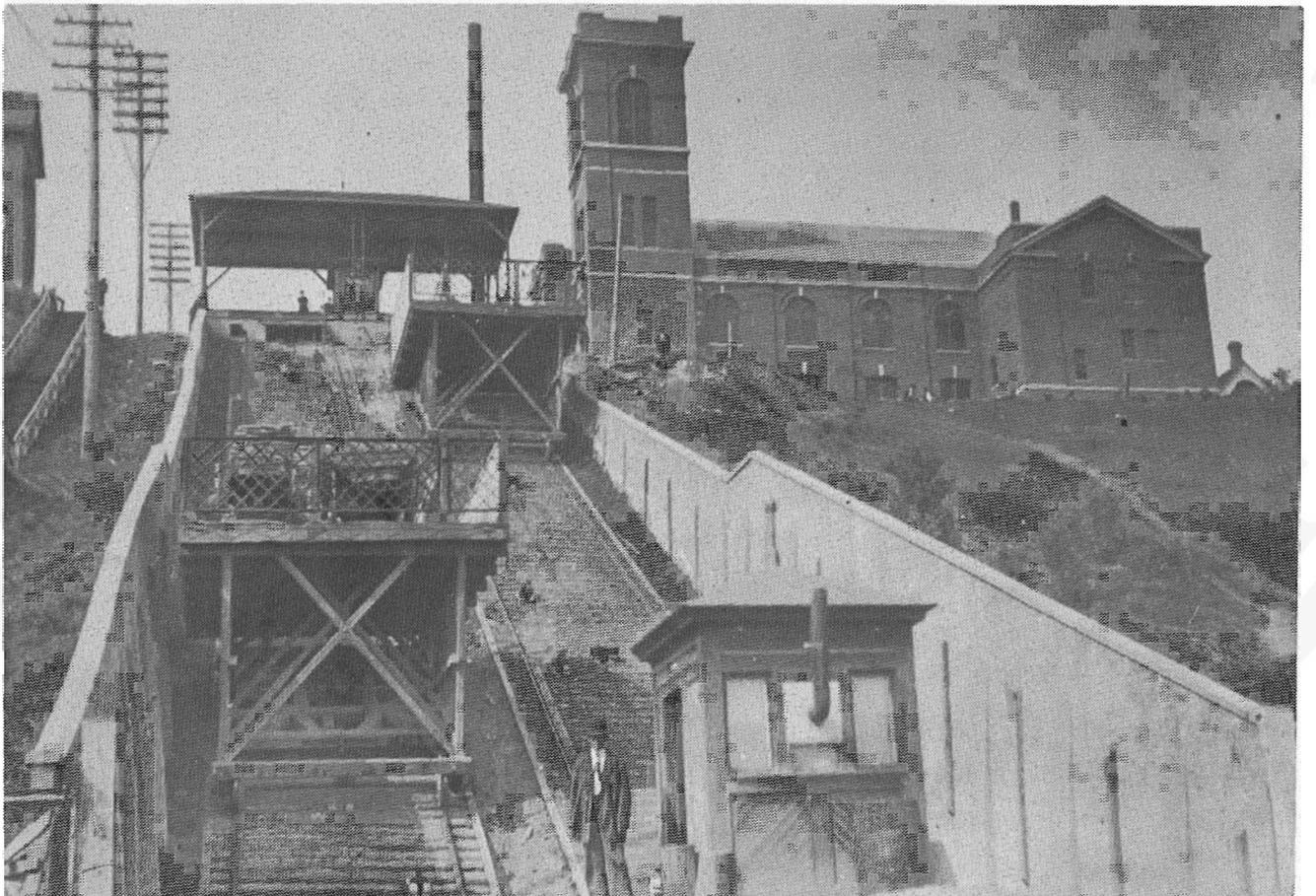
Jasper Avenue underpass newly completed under the C.P.R. tracks, with a train headed south toward the High Level.



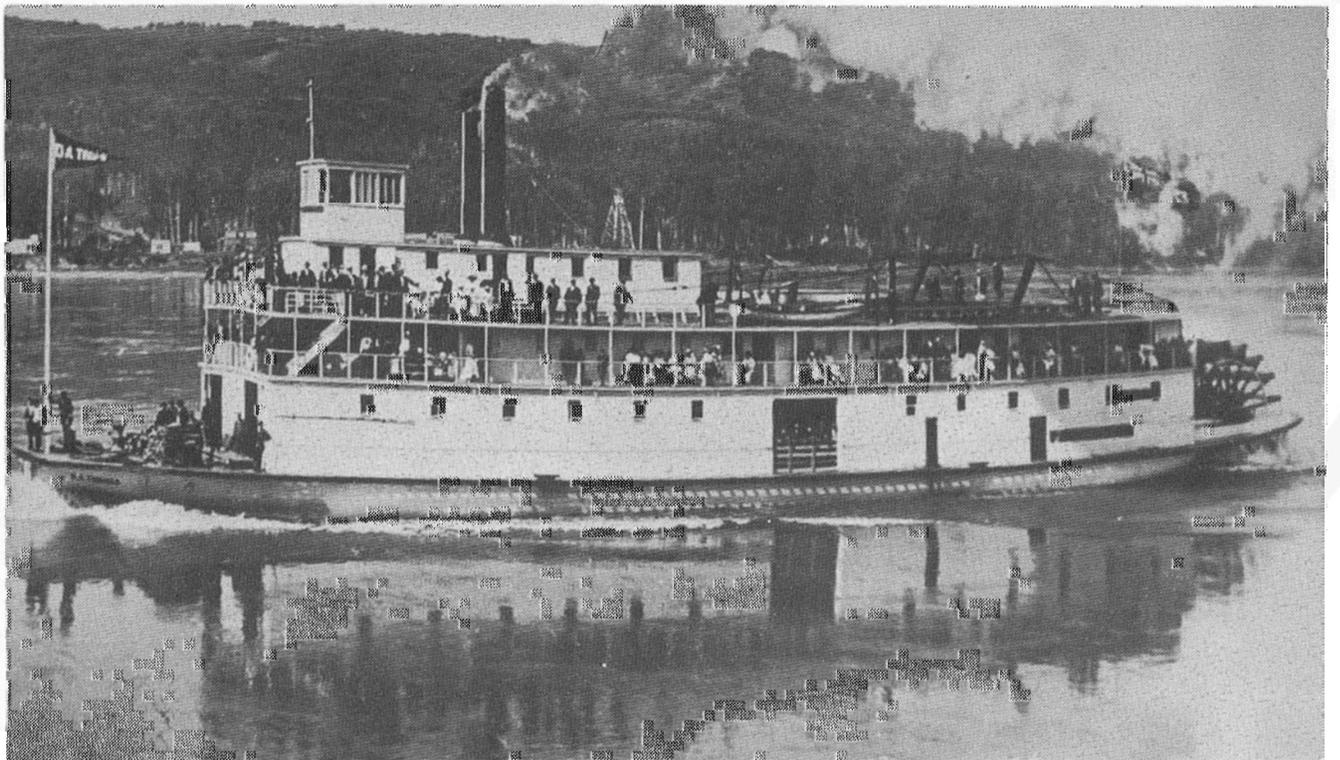
No less than TEN C.P.R. locomotives crossing the high level bridge en route to the shops on the South side. The occasion was the Royal visit of 1939. Quite a tonnage for the the old bridge!



An early scene at Dunvegan just outside of Edmonton.



The incline railway that lifted heavy loads from the river valley to the top the hill at 101 street. The C.P. Chateau Lacombe is now built on this site.



Two of the river Paddle boats that plied the North Saskatchewan river in Edmonton. These were mainly used as pleasure excursions between Fort Saskatchewan to the North East and Big Island up river.



The business car

VANCOUVER: STEAMEXPO, THE LARGEST-EVER assembly of steam locomotives since the 1948 Chicago Rail Fair, joins the roster of EXPO 86 "once-in-a-world" Special Events. More than 25 operating steam locomotives plus vintage rail cars will gather in Vancouver, British Columbia, from May 23 to June 1, 1986.

This splendid celebration of the bygone era of steam enhances the 1986 World Exposition's transportation and communications theme. It also marks the centennial of the completion of the transcontinental rail road in British Columbia. As well, the May 23 opening date of STEAMEXPO commemorates the arrival of the first transcontinental passenger train in Vancouver in 1887.

"STEAMEXPO is guaranteed to make train buffs of hundreds of thousands of visitors," says Claude Richmond, minister of Tourism/EXPO 86. "It's a thrilling addition to the Exposition's already unparalleled programming."

Initial response to STEAMEXPO has been overwhelming. All participating nations have been invited to send steam locomotives for public display and demonstration. From North America alone more than 25 groups have now expressed strong interest. Participants will absorb their own transportation costs.

STEAMEXPO will be held at the CN railyard on Terminal Avenue, adjacent to the East Gate on the main Expo site. EXPO 86 is upgrading the display area and will contribute to participant's expenses during this Special Event.

STEAMEXPO will generate enthusiasm and excitement amongst railway aficionados around the world. Inquiries are already pouring in to EXPO INFO from all corners of the world for information on the STEAMEXPO Special Event.

STEAMEXPO is coordinated by Granville Transportation Consultants Ltd. of Vancouver.

EXPO 86 will feature one of the largest gatherings of these "iron horses" in North America during its special STEAMEXPO event. Among the collection of more than 25 locomotives plus vintage rail cars at STEAMEXPO from May 23 to June 1, 1986 will be:

Royal Hudson: British Columbia's own and most famous steam locomotive will lead the grand parade of steam on May 23. Built for CPR. The Royal Hudson saw the end of its in-service life steaming between Vancouver and Revelstoke. During its time, it also ran in the prairies. It now operates as a tourist attraction during the summer months. During STEAMEXPO, locomotive 3716 will fill in on the Hudson's regular run between North Vancouver and Squamish.

Two Spot: This Shay-type locomotive was built in 1912 and retired in the late 1950's. The Two Spot spent its entire lifetime working the forests around Port Alberni. It was returned to steam by volunteers from the Alberni Industrial Heritage Society. Currently it is on display at the Alberni Valley Museum. In addition to this locomotive, the Alberni Valley Museum is bringing two loaded log cars, two steam-donkey engines, a 14-ton

switching locomotive (built in New Westminster) and a 1947 Hayes logging truck. During STEAMEXPO volunteer crews from Port Alberni will put the Two Spot to work with actual steam logging operations.

Inyo #22: One of the locomotive built by the Baldwin Locomotive Works in 1875, Inyo #22 was a prized possession of the Virginia & Truckee Railroad, which ran between Reno, Nevada and Virginia City. Retired from the railroad Inyo #22 was purchased by Paramount Studios and featured in several western movies. It was repurchased by the State of Nevada and restored to original condition complete with brass trim and fine paint. Joining Inyo #22 is another Virginia & Truckee Railroad treasure -- Caboose #9. It too has been refurbished and is once again complete down to spitoons built into the floor. The Inyo comes from the Virginia & Truckee Railroad Museum in Carson City, Nevada.

The Gypsy: A unique, little logging locomotive, the Gypsy is the proud possession of the Northern Counties Logging Interpretive Association from Eureka, California. Measuring about six metres long, Gypsy has four driving wheels, the usual boiler, an open cab and a steam-operated winching machine on front. This part-locomotive, part-log-loader, part-yarding engine is the only one of its type in existence. During STEAMEXPO, Gypsy will be accompanied by two log cars and a redwood log two metres in diameter and five metres long. Gypsy's enthusiastic crew, dressed in authentic loggers' clothes from the early 1900's, will entertain with several demonstrations.

Two historic locomotives, as yet to be announced, from California State Railroad Museum in Sacramento, California will also share STEAMEXPO's platform space. This museum, one of the finest in North America, features a multitude of exquisitely restored locomotives.

For further information, contact:

Gail Flitton,
Director, Media Relations,
(604) 689-1986.

THE WORLD'S FIRST IMAX 3-D FILM WILL BE screened at Expo 86 as part of Canadian National's contribution to the international transportation and communications fair.

The film is being sponsored by CN, produced by the National Film Board of Canada, and will be presented at the CN Theatre — a permanent, 500-seat auditorium located at Canada Place, site of the Government of Canada's Expo pavillion.

IMAX, the trademark of IMAX Systems Corporation, Oakville, Ontario, is a Canadian-developed film-making technique that involves a screen 15.2 metres* high by 21.3 metres wide.

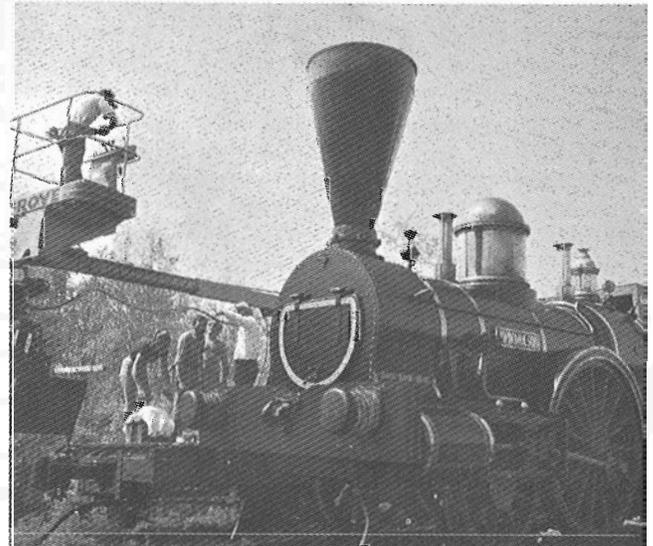
The first 2-D IMAX film, made by National Film Board film maker Donald Brittain, was seen at Expo 70 in Osaka, Japan. At Expo 85, being held at Tsukuba, Japan, both 2-D IMAX films and 3-D Omnimax films are being screened. Omnimax was developed by the same company and involves projecting onto a dome — planetarium style.

For the 3-D film to be shown at Vancouver, the audience will see the double-projected images by wearing glasses with right and left sides polarizing light from different angles.

IMAX theatres — not in 3-D — are also found at the Smithsonian Institution in Washington, D.C.; the Kennedy Space Centre at Cape Canaveral, Florida; the National Museum of Photography, Film and Television, in Bradford, England, and at 30 other locations around the world.

Omnimax theatres are in place in Hong Kong, Paris, The Hague, Yokohama, and at several locations in the United States.

The IMAX film uses the widest motion picture stock available, with an almost square picture for each frame. As a result, the projection will be the largest film image in the world. The cameras and projectors required are large and complex, but have proven themselves through 15 years of quality production.



The third dimension

Creating the 3-D film for Expo 86 requires twice the normal camera requirements to do the filming, and twice the projector equipment to screen it.

It also requires completely different points of view on the part of the producer and director to understand the limitations and new-found freedoms that the process offers.

Colin Low of the National Film Board is writing and producing the CN movie, and he said that "what interests me is the chance to give viewers a conscious awareness of themselves and the experience at the same time. That's what art is, what great theatre is."

The film itself is being created to blend entertainment and information about CN. It will present a view of why things are carried, and explore how people's wants are satisfied through transportation and communications.

It will zoom in on people as they use technology in the service of others, and then zoom in on others as their needs are fulfilled.

The first metre of film was shot on October 5, 1984, and before it is completed more than 50 000 metres of film will pass through the two IMAX cameras. This summer, that will be edited down to 2633 metres — times two, since two prints will run simultaneously for the 3-D process.

The story board

The opening sequence of the movie shows voyageurs paddling down the fur route from western to eastern Canada in the 1660s. The scene was actually shot in the Gatineau district near Ottawa, when the trees were at their brilliant fall best.

Other scenes include a ride with an engineer down the Fraser Canyon, a snowmobile journey through a forest, a helicopter trip over another forest as logs are flown out.

Subject to the final editing, some of the other CN jobs to be featured in the film include: train dispatcher, motive power controller, track maintainer, P-811 track maintainer, truck driver, forklift operator, signal maintainer, telecommunications technician and telephone equipment installer.

On camera: Among the scenes being shot for the CN Rail IMAX 3-D film is this one of an operating replica of the John Molson steam engine, on display at Canadian Railway Museum at St-Constant, Québec.

ONE STEP FORWARD, TWO STEPS BACKWARD.

That sometimes strikes me as the prevailing formula in Canadian transportation.

For example, in March 1976, the LRC — Light, Rapid, Comfortable — train set a Canadian rail-speed record of 129 m.p.h. at a CP Rail test track in Montreal. (This was in the nice days when trains still went miles, rather than kilometres.)

A month later, the Turbo train beat that record,

reaching 140 m.p.h. at an Ontario test track. The Turbo, as we know was later scrapped and replaced by the LRC.

But the interesting thing is the previous rail speed record of about 112 m.p.h. had stood for 40 years. It was set in 1936 by a CP steam locomotive on a regular run.

Now, as a taxpayer, I felt a curious sense of unease. After hundreds of millions of dollars in research and development involving untold energy and intellectual and engineering talent, we managed to develop two trains that could go faster than a piece of equipment operating on 19th century technology.

City stations shut

There have been few reports of any paying passenger on the Montreal-Toronto run ever experiencing these speeds on a regular LRC or Turbo run.

Meanwhile, at the same time we were setting those records, trying to speed up transport, we were closing downtown train stations and opening Mirabel airport.

Maybe they understood transport better in the days of steam, before the advent of high-priced consultants and research and development budgets.

Back in the 1970s, the geniuses who run Transport Canada (encouraged by then Quebec City Mayor Gilles Lamontagne) decided to close the old station. And they built a tacky new station way out in the suburb of Ste. Foy, in the shadow of the Pierre Laporte Bridge.

Presumably, that decision was arrived at by the same geniuses who decided to close downtown stations in Ottawa and other Canadian cities and spend more taxpayers' money building new stations out where the airports are.

Now, I'm not a highly paid transportation consultant, but I can say with a fair amount of certainty those were bound to discourage passenger rail traffic. Whether this was the plan, I can't tell. But that certainly was the result.

One of the best arguments in favor of train travel over air travel is downtown-to-downtown convenience.

But I stopped using the Quebec City train simply because it meant taking a \$10 taxi ride from that insipid commuter-style Ste-Foy station to get into town. The same goes for Ottawa.

Transport Department geniuses managed to make me into an intercity bus passenger.

Guy Chartrand, president of Transport 2000, a lobby and study group, says it cost the federal government \$6 million to shut the old Gare du Palais. The property was then given to Quebec City, which turned it into a farmers' market.

Via Rail then proceeded to lose 100,000 passengers a year.

The new mayor of Quebec City, Jean Pelletier, Transport 2000 and other people who aren't Transport Department geniuses have lobbied for years to get the trains back into the downtown Gare du Palais, where they should have remained in the first place.

Putting the 8.7 kilometres of track back in shape, and laying new track into the station proper, has cost \$28 million.

Chartrand estimates Quebec City spent \$17.2 million because of the shutdown in 1976 — \$12 million to change road structures, and \$5.2 million fixing up the station. Add to that an estimated \$10 million in lost revenue to Via Rail.

All told, Chartrand figures, the closing of the old station was a \$60-million mistake.

(Nick Auf der Maur - The Montreal Gazette)

BEFORE PACIFIC STREET GREW INTO THE SWEEPING

six lanes of Pacific Boulevard, the CPR Roundhouse was hidden deep in industrial territory at the foot of Drake Street. Now the boulevard runs right beside what is left of the Roundhouse complex. Anyone who passes the Expo 86 site can look toward the water and see "the legacy people" at work.

There were once seven brick buildings on the 13.5-acre Roundhouse site. Half of one of them is left. The portion that is still standing includes one of the three oldest buildings in Vancouver.

But the back of the blacksmith's shop is gone. The 12 Roundhouse stalls erected in 1912 are gone. So is the oil storage building, repair shed, car shop, coach yard administration and repair shop, dining car and linen storage building.

Expo 86, a transportation fair, had no use for these

buildings. B.C. Place, the crown corporation that has leased the land to Expo, had no use for them either, at least until widespread protest in 1981 forced a reconsideration.

Legacy-person Dykes looks at the structure under repair and says: "You can see how tempting it would be to bulldoze the whole lot."

It's true that the building is far from looking good. What remains is the 33-metre turntable and two sections of the roundhouse itself — the original six-stall 1886 section and an addition to the west of it built in 1950 to service diesels.

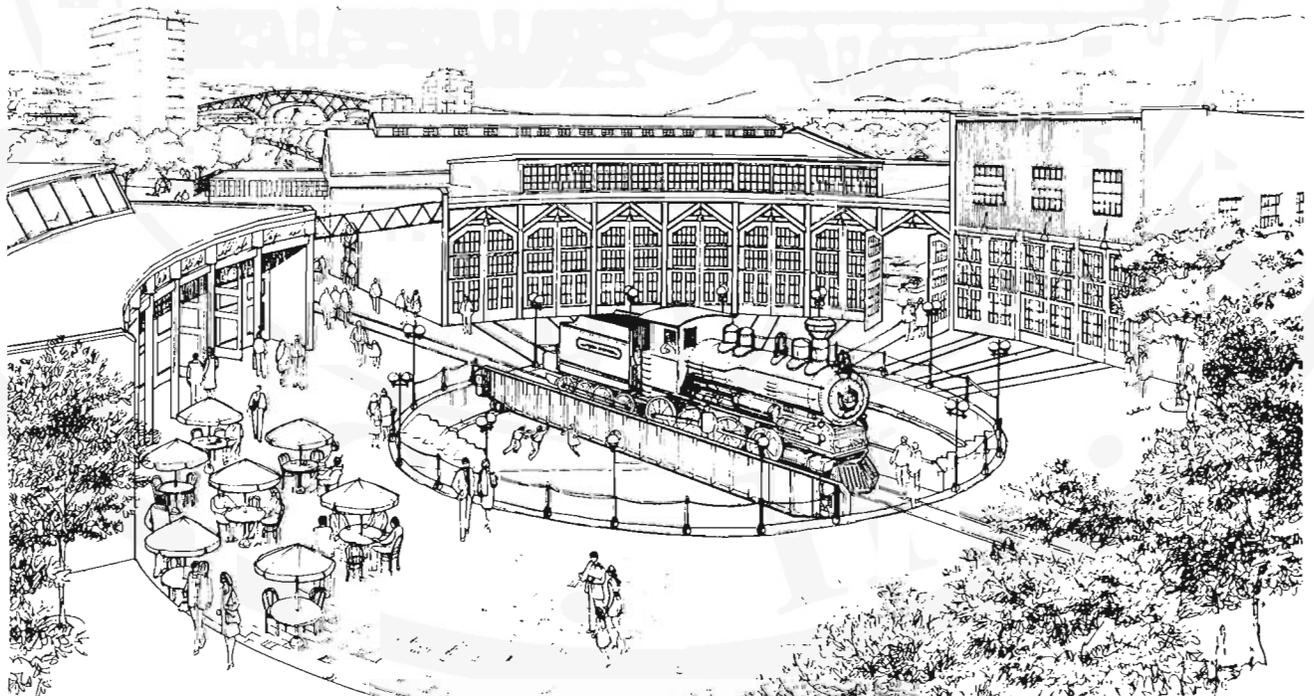
The Roundhouse doors are gone, and the windows that haven't been removed are smashed. The curved 1888 section that serviced Engine 374 after its inaugural trip from Montreal to Vancouver stands open to the skies, waiting for replacement roof.

The pits where men worked under steam engines are full of water. Rotted posts have been sheared off at the bottom and the roof they once supported rests on temporary steel braces. The walls remaining from 1888 look pitifully weak, especially now that the 1912 section that shored up the east side has been torn down.

The Roundhouse looks considerably more healthy in the drawings in architect Norm Hotson's office on Hornby Street. The prettily colored elevations show warm red brick walls, red metal roofs, the great engine doors painted forest green, the glass all replaced and a new entrance at the back of the blacksmith shop where the building was cut off.

Since mid-September, an eight-man crew from Halse-Martin Construction Co. has been at work on the building to bring it up to the standard of the National Building Code by next spring.

The \$2.46-million renovation includes \$1.2 million



in new electrical services, plumbing, heating, air conditioning and structural upgrading.

In Hotson's design, the steel is painted brick red. There's no attempt to hide the steel. "We're saying this is an old building that we braced," Hotson says.

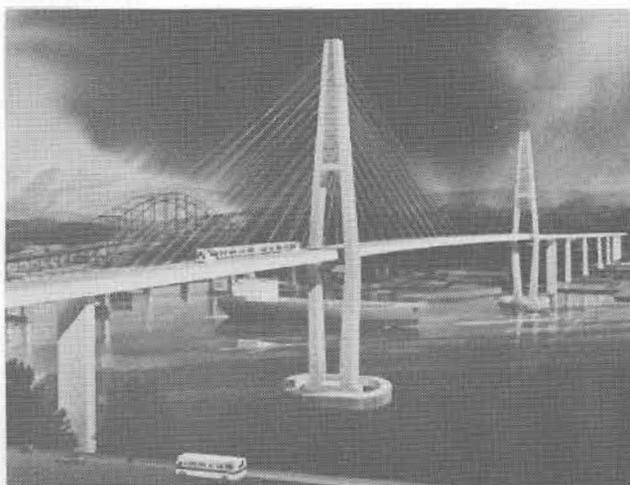
For the duration of Expo, the Roundhouse will be one of four theme pavilions, and will be dedicated to man in motion. The machine shop will house the Luke Rombout-curated Expo art exhibition.

After Expo, the Roundhouse will be converted to retail stores and restaurants, some serving the surrounding residential area, others drawing consumers from the rest of the city.

The machine shop may become a community centre. In what he calls "an interesting mixture of uses," Hotson is hoping that part of the 1888 section can be used as a functioning railway museum, with facilities for the repair of steam engines.

AN ADVANCED BRIDGE DESIGN TO MATCH the modern rapid transit technology — that's the key to bringing the Vancouver Regional Rapid Transit line to Surrey.

The bridge to be built across the Fraser River is a cable-stayed structure, similar to a suspension bridge.



Steel cables fan out from the tops of two-110-metre towers to anchor the bridge deck. Rapid transit trains will cross the bridge's twin guideway.

A rapid transit-only bridge was chosen after engineering studies determined that piggy-backing on the Pattullo Bridge would take longer and cost more.

The innovative and lightweight cable-stayed bridge can be built for about \$33 million, in 1983 dollars.

Tentative plans call for the bridge to cross the Fraser River at an angle, about 200 metres downstream from the Pattullo highway bridge

and the CN railway bridge.

Considerable local expertise in cable-stayed bridge technology has been generated by the engineering studies related to the proposed Annacis highway bridge from North Delta to New Westminster.

The rapid transit bridge will have the same ultimate passenger-carrying capacity as the Pattullo Bridge; it will be lighter and thus cheaper to build. It will have to carry only one rapid transit train on each track, of a maximum train size of seven cars.

A highway bridge must be designed to carry a load equivalent to all lanes full of traffic, although this occurs infrequently.

Another factor reducing weight and cost is the width of the rapid transit bridge. It needs to be only wide enough to carry a twin guideway — about 8.5 metres.

A highway bridge capable of carrying an equivalent number of people would have to be several times wider and would cost two to three times as much.

On the New Westminster side, the bridge approaches will start from a point just west of Elliot Street and Columbia Street. The bridge itself would be approximately 745 metres long — about the same as the Pattullo Bridge.

But the centre span between the towers will be about 300 metres long, double the Pattullo's main span. It's an important consideration for a bridge across such a heavily-used navigable river. On the Surrey side, the bridge "touches down" in the Bridgeview area, close the Pattullo Bridge approach.

Cable-stayed bridges in Montreal is a Canadian example of the technology.

S. VANCOUVER REGIONAL RAPID TRANSIT



For that reason, the pits in the floor are being covered, not filled in, and Hotson is fighting to have all of the track leading into the building, and at least 40 feet of outside track connecting to the turntable returned to the site.

"It seems odd to have to fight for these things because that's what makes it authentic," he says.

BACK COVER: *A view, taken about 1925, showing Edmonton's new C.N. station as well as the old G.T.P. one. The station has now been replaced by the new C.N. tower. McDerimid Studios. Collection of Walter M. Stanley.*

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