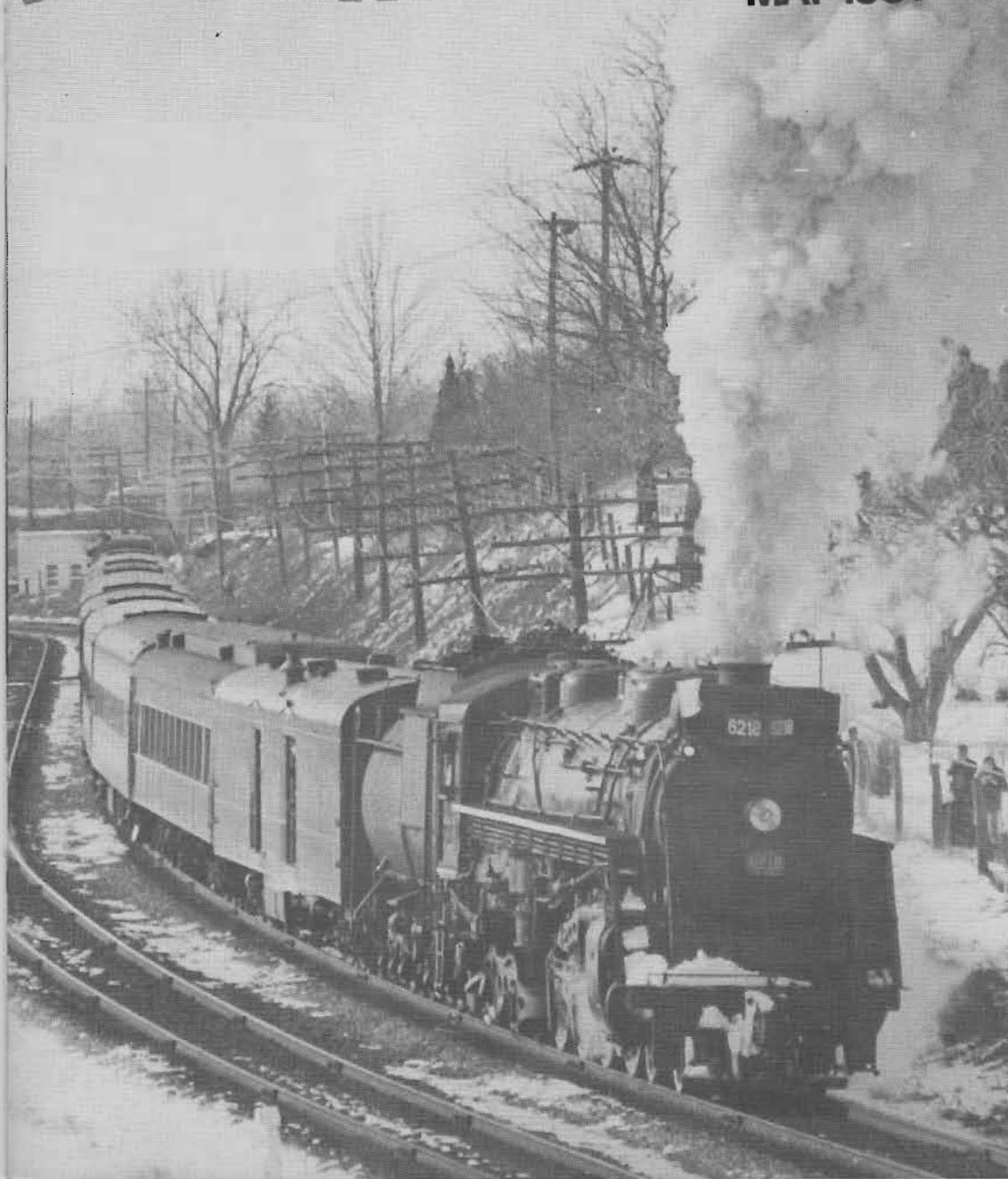


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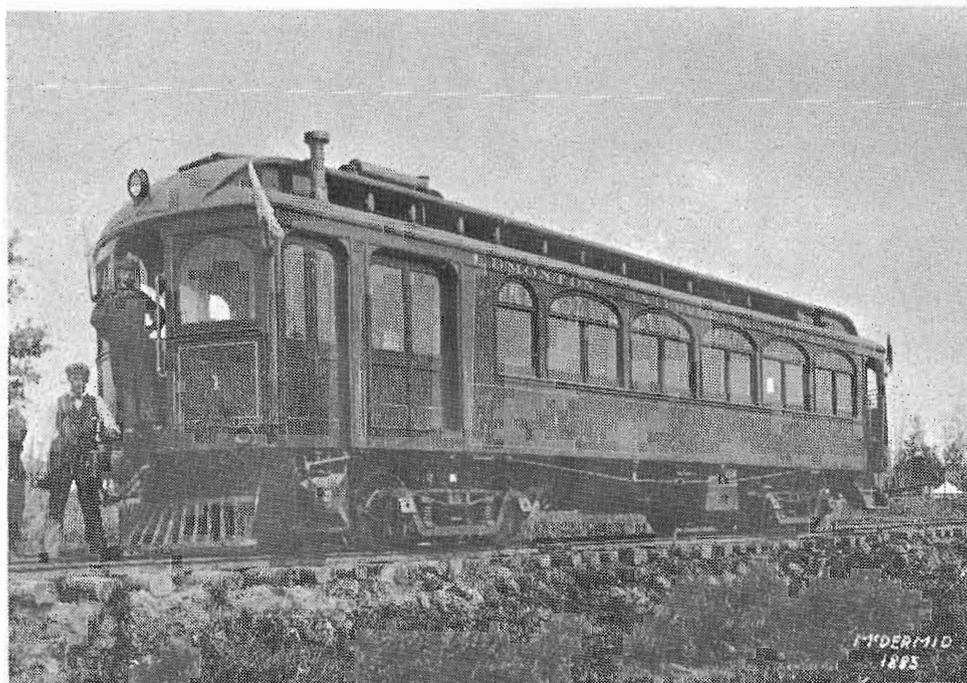
COVER:

WHILE IT MAY NOT SEEM THAT long to most enthusiasts, it is now ten years since Canadian National steam locomotive 6218 was retired, to be replaced later by 6060. Back in March 1971, time was running out for the famous 4-8-4, and that was the time when Robin Russell took this nostalgic photo.

OPPOSITE:

A MOST UNUSUAL "LASH-UP" IS SEEN AT LONDON ONTARIO on November 22, 1980. A westbound freight showed up with a C.P. Rail C-424 No. 4212, a C.&O. GP-30 No. 3029, and a GO Transit F40PH No. 513. This is a rare set used on a leased-power lash-up. The GO unit is being dropped here while the rest of the power continues on to the Windsor area. The GO unit was returned to Toronto on the next eastbound freight. Gordon R. Taylor.

Interurban Railway from Edmonton to St. Albert

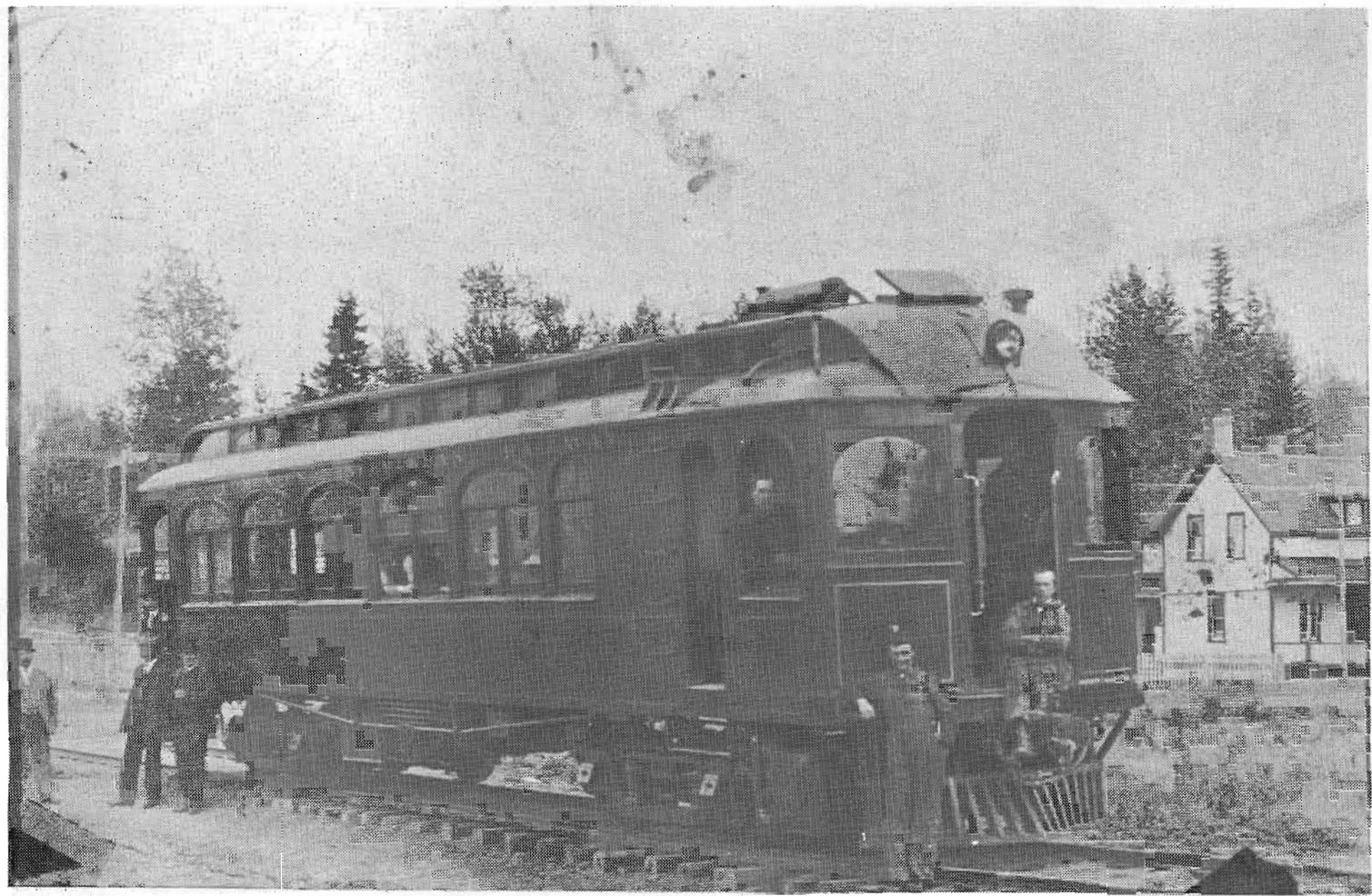


As a follow-up to the article on the Edmonton interurban which was published in the June 1980 issue of *Canadian Rail*, we are very pleased to publish these two interesting photos of car No. 1 of the Edmonton-to-St. Albert interurban line.

Both photos were taken in 1912, and depict this extremely rare piece of rolling stock - a gas-electric interurban car.

The view of the left-hand side of the car is from the photograph collection of the Provincial Archives of Alberta, while that showing the right-hand side is from negative number NA-1328-1885 of the Glenbow - Alberta Institute, originally photographed by McDermid Studios in Edmonton. Both photos were supplied by Lon Marsh.

The railway fell on hard times soon after the start of World War I (1914), and was abandoned shortly afterward. The cars were green coloured, and were powered by a gasoline engine. There seem to be no photos known of the railway or its equipment other than these and the ones that were published in the June 1980 *Canadian Rail*. Why the name St. Albert is not shown on the car is somewhat of a mystery.



The 1981 Canadian Silver Dollar

The Royal Canadian Mint is striking a special commemorative silver dollar depicting a locomotive. The purpose of this coin is to mark the 100th anniversary of "The approval by the Canadian government to build the Trans-Canada Railway". While the name of the railway is not mentioned in the official news release, it is, of course, the Canadian Pacific which celebrated its centennial on February 16.

The quality of this coin is the best ever seen on a silver dollar in Canada, since it is being offered in both uncirculated and proof. The proof coins are struck on a special press using special dies that show the raised areas in a frosted finish against a highly-polished background. The uncirculated ones are struck with a uniformly polished finish, and although the relief is not quite as high as on the proofs, the overall effects is also pleasing. Both varieties of coins come in plastic cases to protect them from tarnish and scratches.

The locomotive depicted appears to be a class "SA" 4-4-0 of the C.P.R., a type that was built in fairly considerable numbers in the 1880's, thus it is very appropriate for the coin. Two engines of this class that still exist (although very much altered) are 29 and 144 at the Canadian Railway Museum. No. 374, now at Vancouver, was also of that type.

In addition to the silver dollar, the regular-issue nickel dollar of the canoe design is also being struck in 1981, and these are the ones that will be available at banks for \$1.00. However the "Locomotive dollar" is only struck in an alloy of 50% silver which accounts for its relatively high price. Both uncirculated and proof silver dollars are available from the mint until October, the price of the former being \$14.00 while the latter costs \$18.00. Since this is the first official Canadian coin to depict a railway subject, and even unofficial ones (eg. the Montreal & Lachine token of 1847) are rare, this issue is of great interest to rail historians. Also, since it is the first Canadian proof coin issued to the public other than high denomination ones (eg. Olympic issues) it will be in demand for coin collectors. The 1981 Canadian silver dollar is bound to become a collectors item in years to come.



Locomotive Trials with Pictou Coal-1869

Christopher Andreae

By the 1850's the technical feasibility of burning coal in locomotives had been demonstrated in North America. Wood had fueled locomotive fireboxes until this time, and would continue to be used for several more decades, but fuel costs and operating efficiencies force locomotive designers to consider coal as an alternative. Never-the-less, individual railway managers were not converted wholesale by the apparent advantages of coal: many believed that important questions were still unanswered regarding the new fuel. Could coal of suitable quality be found? What were the actual economic advantages in the conversion to coal? Until these, and other questions could be satisfactorily answered, railway managers took a very conservative approach in switching their locomotives from wood to coal fuel.

The following article, excerpted from a study entitled "Report on Pictou Coals and Iron Ores" was prepared by the Geological Survey of Canada to answer these questions. As a government agency, this report was probably less biased than privately produced studies. The report, incidently, provides the modern reader with a glimpse of the state of the art of locomotive performance in the mid 1800's.

Coal was rarely used as a locomotive fuel in North America prior to the 1860's. Few coal deposits were mined and hence the fuel was neither cheap nor widely available. As well, several technological problems with the design of locomotives prevented coal from being successfully burned.

Wood was by far, the preferred locomotive fuel until the 1870's due to its cheapness and availability. Vast forests provided a seemingly inexhaustable supply of wood close to the rail lines. But against these advantages, wood had a lower heat value than coal and a greater quantity of wood was necessary to produce the same amount of heat. Wood was considerably more bulky than coal. Frequent stops which were required to "wood up" reduced the average speed of train. And, by mid-century, forest reserves were becoming depleted and wood was no longer as easy or cheap to purchase as formerly.

Despite the use of coal in locomotives in Britain and coal mining areas of North America, early experiments in North America with coal fired locomotives were not successful. Fire boxes were too small to burn coal effectively. In the cases where coal could be burnt, the life of the firebox and flues were greatly reduced. (1) Never-the-less, these problems were solved in the 1850's and coal became recognized as the best locomotive fuel.

Throughout the 1860's and 1870's many railway companies converted their locomotives to coal. Canadian railways were generally slower to adopt coal than their American counterparts. In Ontario and Quebec much of the countryside was still covered with dense forests and the nearest coal fields were located in Pennsylvania. Thus, although the Great Western Railway experimented with coal in the 1850's,

NOVA SCOTIA RAILWAY.																
STATEMENT OF MILEAGE, OF LOCOMOTIVES, FOR THE YEAR ENDING 30TH SEPTEMBER, 1865.																
No. of Engine.	MILES RUN.						RUNNING.									
	Reglr. and Extra Passgr. trains.	Extra Freight Trains.	Maintenance of Way Service.	Shunting.	Assisting Trains.	Construction Service.	Total Miles.	Wood, cords, at \$2.52 3/4	Amount.	Oil, gallons, at \$1.18 2/3	Amount.	Tallow, lbs., at 10 3/8	Amount.	Waste lbs., at 28 1/2	Amount.	Wages of Drivers, Firemen, and Cleaners.
1	7192	27	.....	140	.....	.....	7368	180 25	456 02	72 1/2	86 83	282	28 88	120	86 13	291 60
2	.....	166	.....	8	.....	.....	178	2 97	7 62	1	1 18	16	1 61	1	0 29	13 50
3	7419	2538	2080	628	165	.....	19730	464 25	1174 00	156 1/2	186 19	720	72 40	271	77 21	662 16
4	90	24	.....	724 1/2	.....	.....	736 5	189 25	478 68	60 1/2	69 78	409 1/2	41 15	108	30 71	478 10
5	20252	.....	.....	359	.....	.....	20611	617 26	1308 03	114 1/2	136 76	658	66 17	285 1/2	81 35	741 00
6	13096	.....	.....	619	.....	.....	13714	482 00	1218 89	103 1/2	122 44	690	69 34	259	73 79	690 64
7	12835	.....	.....	646	.....	.....	13481	458 75	1160 00	135 1/2	160 33	563	56 42	251 1/2	71 65	617 73
8	3549	28	1358	557	.....	86	6848	161 75	409 04	58 1/2	69 65	232	23 36	107 1/2	30 55	281 20
9	18510	60 1/2	100	519	54	.....	19859	696 00	1507 17	124 3/4	147 70	816	82 65	338 1/2	96 53	953 33
10	9348	85 1/2	.....	498	40	.....	10238	255 00	644 85	61	72 21	377	37 93	147 1/2	41 80	405 58
11	9423	476	278	648	314	.....	11139	384 60	977 30	98 1/2	116 52	642 1/2	64 56	201 1/2	67 37	527 92
12	5235	3210	3826	373	84	.....	12227	314 60	785 32	136 1/2	161 22	603 1/2	60 59	227 1/2	64 65	477 06
13	13019	.....	.....	650 1/2	.....	.....	13575	421 26	1065 26	108 1/2	128 22	468	47 08	214	60 94	471 83
14	16000	.....	.....	672	.....	.....	15978	429 76	1086 76	144 3/4	171 28	670	67 33	260 1/2	74 20	625 07
15	297	.....	616	310	.....	.....	11790	67 62	145 73	22 1/2	26 63	79	7 48	50 1/2	14 29	46 53
16	4680	1221	1242	616	.....	.....	7998	220 26	668 98	78 1/2	92 83	363 1/2	36 67	153 1/2	43 53	352 66
17	2931	1187	670	676	10	.....	4978	127 67	822 88	43	50 90	186	18 63	67 1/2	16 29	181 07
1865	137210	10658	10468	20172	667	86	179261	6265 01	18314 42	1610 1/2	1787 57	7274 1/2	791 75	3063 1/2	871 37	7865 86
1864	130446	10976	7937	16101	.....	22	171181	4560 97	10284 81	1263 1/2	1088 89	6778	710 99	2768	670 29	7624 94

THIS TABLE OF MILEAGE and consumption of stores of the Nova Scotia Railway locomotives covers the period from Oct. 1 1864 to Sep. 30 1865, just a few years before the tests of Pictou coal were made. Locomotives 7 and 19 were used in the tests. Note that No. 7 was mostly confined to switching duties.

the fuel was too expensive to be used. Both the Great Western and the Grand Trunk gradually converted their locomotives to coal during the 1870's and the Grand Trunk even stretched the conversion program into the 1880's.(2)

Coal had been mined on a commercial scale in Nova Scotia since the 1820's. Railways associated with the coal mines burned the fuel from the start of mining operations. However, main line railways of Nova Scotia and New Brunswick were not connected to the coal fields and thus continued to use wood. The Pictou coal fields, containing the most active mines, did not obtain a rail link to the trunk network until 1867. The Nova Scotia Railway immediately began a trial use of coal in the locomotives on one of the company's branch lines. Apart from this one example, railways in Nova Scotia and New Brunswick continued to burn wood well into the 1870's despite the close proximity of coal deposits.

Although the advantages of coal over wood were well known by the 1850's, the best coal to burn was still subject to argument. In fact, early experiments with coal fired locomotives had largely failed because anthracite coal was too difficult to burn.(3) With only limited knowledge about the qualities of various coals the only way to determine the steaming characteristics of coal deposits was to undertake practical studies. The following trial of coal from the Pictou area of Nova Scotia was performed not only to study its effectiveness as a locomotive fuel but also to offer a practical demonstration of the superiority of coal over wood.

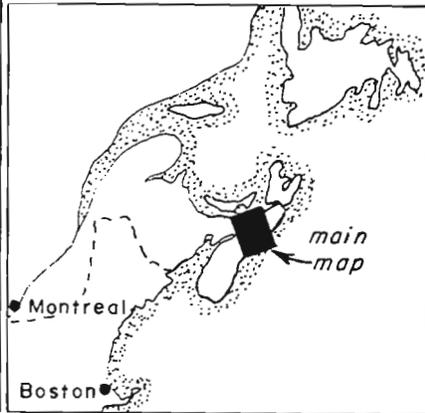
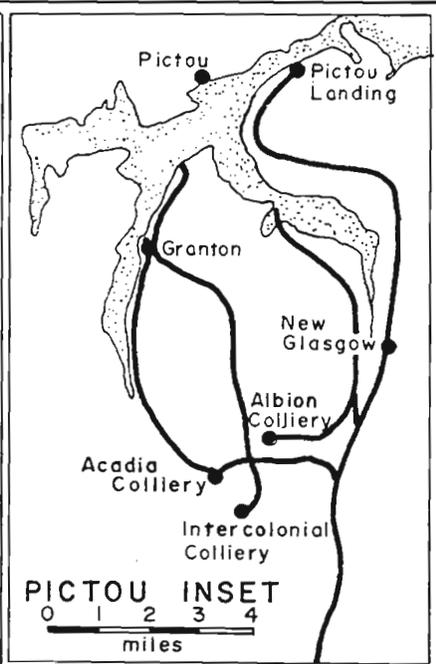
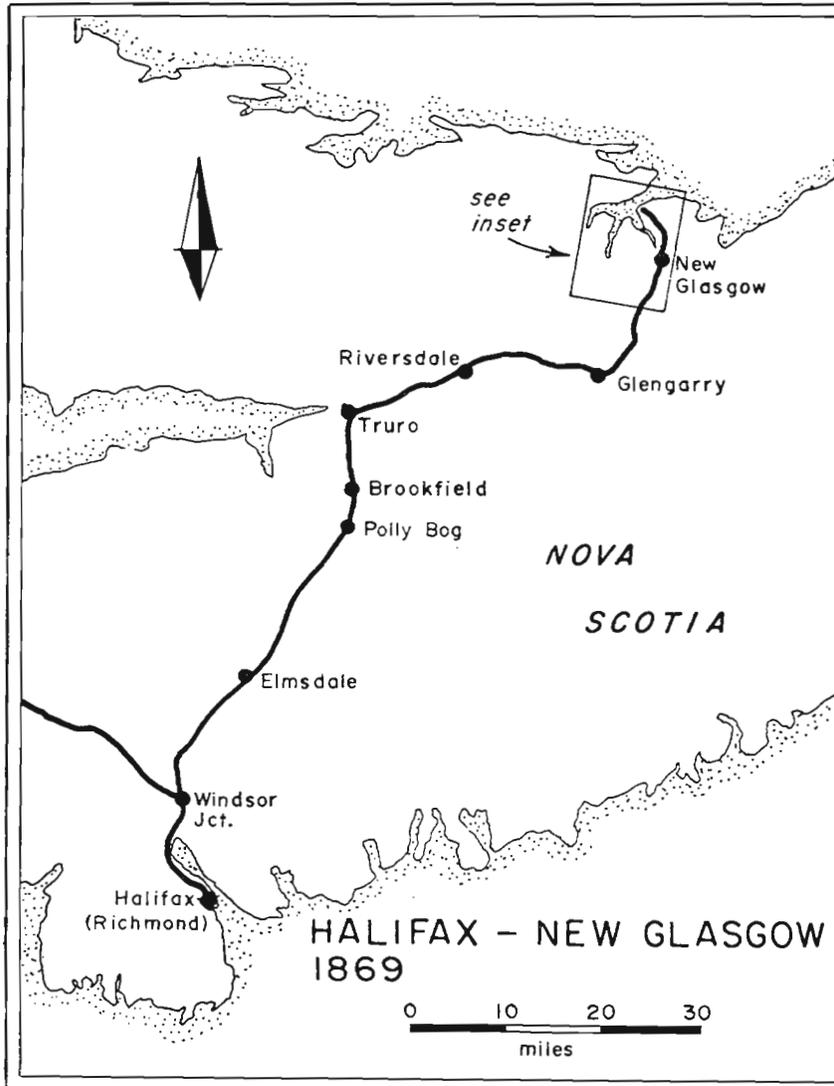
The following report was one of the first studies undertaken by the Geological Survey of Canada (GSC) in the maritime provinces. The Survey had been established in the 1850's to serve the colonies of Canada East and Canada West (Today Quebec and Ontario). After Canada was created in 1867, the GSC expanded into New Brunswick and Nova Scotia. For political reasons it was advantageous for the GSC to offer a high profile in the maritimes. Hence, the Survey undertook to study economic minerals in Nova Scotia.(4) Pictou was the site of a large coal field, promising iron deposits and a large industrial community. Research undertaken in this area was sure to be given prominent coverage in the province. The report on Pictou coals and iron ores was prepared from field work undertaken in 1868 and 1869 and published in 1870.

The report was divided into several sections of which only part of the second section, "Practical Trials of Pictou Coals" is reproduced here. Edward Hartney, among the first geologists hired by the GSC to study the maritime provinces resources, researched this section of the report. His first season of field work was in 1868 and he continued to study the coal fields of Nova Scotia until his untimely death in November 1870.(5) The practical trials of Pictou coal consisted of burning coal from several mines in a number of locomotives under controlled conditions. In addition to locomotive tests, a trial was also made with a steam boat. This is referred to as "Trial Number Two" in the report but has not been reproduced in this article. Two companies were selected to provide the coal. The Acadian Coal Company had been mining coal since 1866 while the Intercolonial Coal Company had only shipped its first coal in 1868.(6)

The main line of the Nova Scotia Railway between Pictou Landing and Halifax was the location of most of the testing. Track from Halifax to Truro had been constructed in 1858 and was one of the oldest sections of rail in the maritime provinces. The Truro to Pictou Landing route had only been completed in 1867.(7) Additional test runs were made on the railway of the Intercolonial Coal Company's 6.75 mile track opened in 1868 from its mine to a shipping pier.(8)

An interesting aspect of the following experiments is the technical descriptions and performance characteristics of the locomotives. The experiments provide an insight into locomotive technology of the 1860's. Since the tests on the Nova Scotia Railway were designed to compare coal and wood, every attempt was made to have the locomotives as technically similar as possible. The locomotives chosen were virtually identical American types with 16X21 cylinders, 60" drivers, 25 ton weight, and built by Neilson of Glasgow, Scotland. Number 7 had been built in 1857 and converted to coal fuel about 1869. Number 19 was wood burning and had been built in 1859.(9) Locomotive number 3 of the Intercolonial Coal Company was a 0-6-0 tank locomotive built by Dubs and Company of Glasgow with 60" drivers and 14X22 cylinders. The locomotive had been constructed as a coal burner, probably in 1868.(10)

Thus the trials of Pictonian coal were undertaken with equipment and track in relatively new condition. The locomotives were 12, 10 and 1 years old. The oldest section of track was 11 years old but the rest was one and two years old. The tests were conducted in as close to optimal conditions as possible. Only the weather could not be controlled. As described in the report, winter sleet storms ruined many of the proposed tests.



Never-the-less, the trials proved the points the GSC set out to establish. The report was overwhelmingly in favour of coal over wood as a locomotive fuel. Coal had lower labour costs, fewer fueling stops, and required less fuel than wood to perform the same work. All this led to reduced operating costs and faster travel time. The tests with Acadian and Intercolonial coal indicated that both were high quality steam coals. The quality of Pictonian coal as a locomotive fuel withstood the test of time and the area continued to supply coal to railways in the maritime provinces until dieselization ended that market for coal.

Notes

1. White, J.H. Jr., American Locomotives, An Engineering History 1830-1880 (Baltimore, 1968), 78.87.
2. Currie, A.W., The Grand Trunk Railway of Canada (Toronto, 1957), 157, 175, 207.
3. White, American Locomotives, 87.
4. Zaslów, M., Reading the Rocks (Ottawa, 1975), 116.
5. Ibid., 96, 118.
6. Cameron, J.M., The Pictonian Colliers (Kentville, Nova Scotia, 1974) 34-35, 48-49.
7. Stevens, G.R., Canadian National Railways volume 1 (Toronto, 1960) 162, 184.
8. Cameron, Pictonian Colliers, 34
9. Brown, R.R., "Early Canadian Rolling Stock," Bulletin Railway and Locomotive Historical Society, October, 1941, 52.
10. Cameron, Pictonian Colliers, 35

The following article is excerpted from the Geological Survey of Canada Report of Progress, 1866-1869, "Report on Pictou Coals and Iron Ores," pages 365-442.

Aerial Photograph Interpretation in Railway History

J. Derek Booth

Historical geographers and archaeologists have long recognized the value of aerial photographs in studying those remnant features of past landscapes which frequently have little or no visible expression when seen from ground level. The several series of Canadian government and other air photographs which have been systematically compiled for southern settled Canada since the 1930s and which are readily available from the National Air Photo Library of the Department of Energy, Mines and Resources, similarly provide valuable information to the railway historian on the location of abandoned railway lines and other elements of railway infrastructure.

Despite the fact that much of Canada's railway network is less than a century old, historical information on lines that were abandoned prior to the beginnings of the National Topographic Map series in the early 1900s is sometimes very scanty. Published maps often fail to show early ephemeral branch lines, of which there were many, and here the aerial photograph can be of great use in precisely locating these railways.

Air photos provide the same perspective on a landscape as do maps as they make it possible to see patterns and distributions from above, but they go far beyond maps for while these are abstractions of reality and show only selected aspects of the countryside by means of symbols, the aerial photograph is literally a picture of everything that is visible from the air at the time the photograph is made. The shapes of fields, the distribution of forest, even the types of trees and crops growing are all discernable from aerial photography.

Any disturbance of the earth's surface leaves a scar that remains visible. The severity of the disturbance and the nature of the physical environment will determine the duration and scale of the impact. The building of railway embankments or the excavation of cuttings constitute rather major impacts on the land surface and not surprisingly the traces of such activities are still visible in some cases after over a century has elapsed.

Railway alignments can be discerned on aerial photographs in several ways, in the first instance by shape. Few other man-made or natural phenomena exhibit the same type of gentle sinuosity as do railways in uneven terrain. While roads may take almost any conceivable configuration in response to local topographic conditions, the constraints of grade and curvature impose limitations on the shape of the pathways of railways. A tenuous line, devoid of the kind of irregularities that roads or rivers can have is often the first indication on an aerial photograph of the presence of an abandoned railway and it is only from a vertical perspective that even this slender thread is apparent.

The clarity and continuity of the line of the railway as seen on the aerial photo is directly related to the amount of disturbance that an area has experienced since the abandonment of the line. It is clearly very difficult (but not always impossible) to follow railway lines through urban areas where the traces are largely obliterated. In rural regions, even ones of considerable agricultural activity, the problem is much less severe.

Where there are embankments, abutments or cuttings still visible on the ground, the line on the aerial photograph is very clear even though individual disconnected segments on the surface might not give a clue as to their origin. But even where embankments were low and cuttings shallow indirect evidence remains. The most valuable such type of indirect indicator for the presence of an old rail line is the vegetation pattern in the area.

As railway historians know, the best time of the year for field work is that period of early spring when the snow cover has melted but before the leaves are out on the vegetation. At that time any topographical irregularities associated with railways are most clearly visible. While most of the aerial photographic coverage flown in Canada has been done during the summer months when foliage and crop cover are at their maximum density, most remnant features are still readily discernable and in many ways the vegetative cover can provide additional evidence of surficial disturbances caused by railway structures.

Because of the fact that the growing conditions for natural vegetation on the disturbed soils of railway rights of way differ from those on adjacent sites it is not uncommon, even after many years, to find markedly different species of plant growth on such sites. These variations are, in turn, readily visible on the aerial photograph although often imperceptible as a pattern at ground level. Even here rights of way have been levelled and the land cultivated for decades, crop marks reflecting soil variations can still betray the location of the line.

There are several railways in southern Quebec, long abandoned, whose routes and very existence are confirmed by air photo interpretation.

One such line is that of the New Rockland Quarry Railway. This narrow gauge railway of approximately four miles in length operated in the 1890s to haul slate from the large quarries at New Rockland, Quebec to Corris, an operating point on the grand Trunk Railway between Windsor Mills and Richmond. Despite the fact that the slate mining industry in this region was the most important source of slate in Canada at the time, only scanty mention is made in the literature about the railway serving the quarries and its route did not appear on any contemporary maps. The author has been able to discover only two photographs of the operation, one of the narrow gauge locomotive used on the line and the other of the rather substantial bridge built to carry the railway across the St. Francis river. Beyond these fragmentary pieces of information even the precise location of the line remained obscure.

The Orford Mountain railway was extended from Kingsbury to Windsor Mills in the period 1903 to 1905 and its appearance rendered the New Rockland Quarry Railway redundant, for henceforth slate was shipped on the OMR which passed close to the quarries, and the narrow gauge railway was abandoned.

Since its abandonment approximately eighty years ago, the line of the New Rockland Quarry Railway has in part reverted to forest and in part been incorporated into cultivated farm acreage. Nevertheless it is possible to trace the entire route of this line on the 1945 air photographs and to verify its position in relation to the Orford Mountain Railway's line, now also abandoned.

The same air photos which show the Orford Mountain and New Rockland lines also reveal the existence of an even older and more obscure bit of the railway history of the region.

In 1870 the Missisquoi and Black Rivers Valley Railway was incorporated to build a line from Melbourne on the Grand Trunk Railway South to the vicinity of Mansonville there to join the South Eastern Railway. Construction of the grade began in three sections in the fall of 1874 including the northern part from Melbourne south towards Kingsbury. The M&BRV during its corporate existence only succeeded in completing ten miles of operating railway from Dillonton near Eastman south to Potton Township and this in 1877. For lack of funds rails were never laid on the remainder of the completed grade and the intervening sections were not finished.

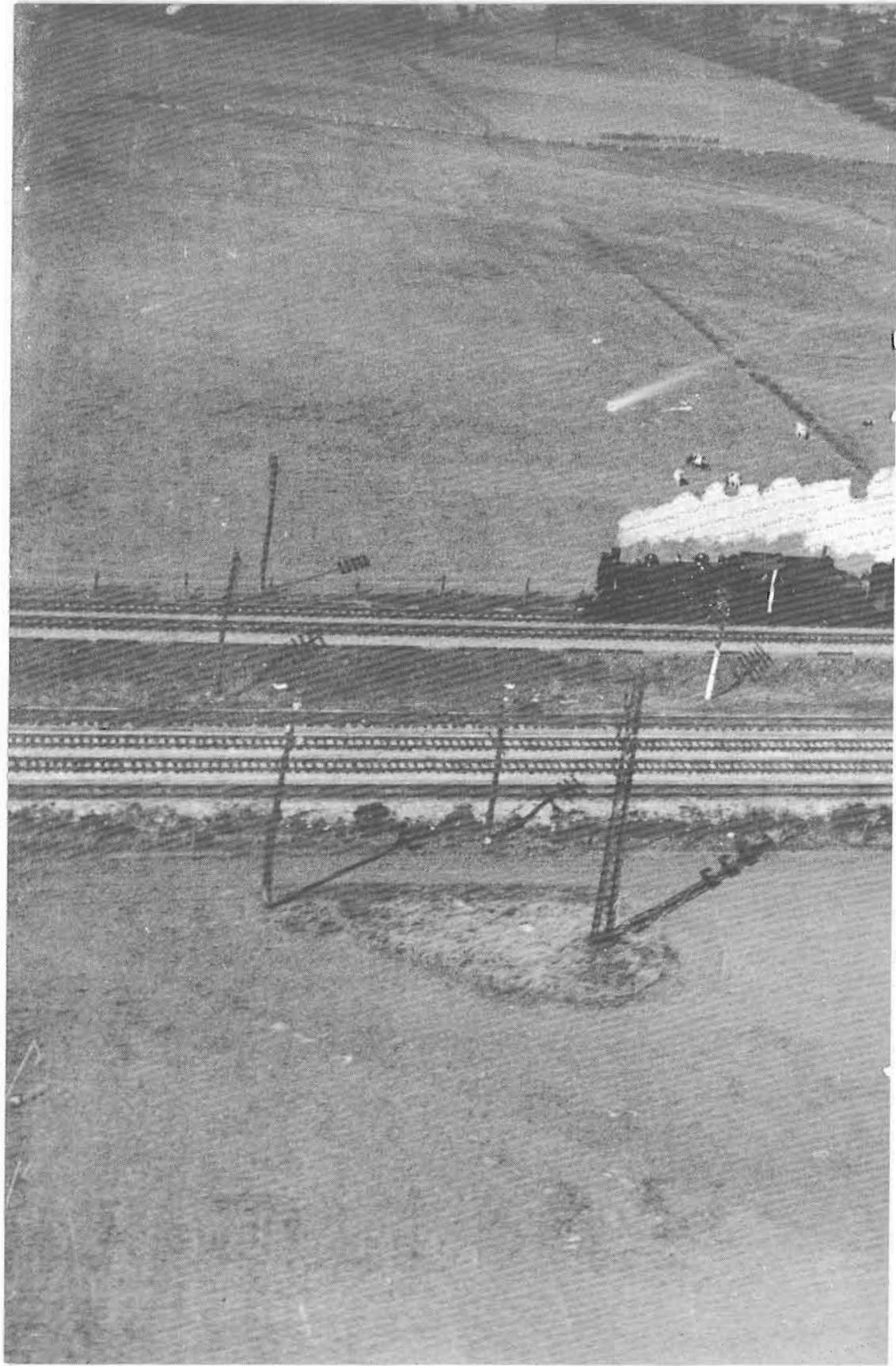
When the Orford Mountain Railway was incorporated in 1888 to build a railway along essentially the same route as the M&BRV, the OMR in fact used the completed sections of M&BRV roadbed from Eastman north through Lawrenceville and Kingsbury. From Kingsbury on to the St. Francis River the OMR, instead of heading north towards Melbourne as the M&BRV had planned to do, turned south in the direction of Windsor Mills and so diverged from the graded line of the M&BRV.

Despite the fact that the M&BRV embankment was built over one hundred years ago and never carried rails, it remains visible on aerial photographs in the region east of Kingsbury and along the St. Francis River towards Melbourne.

So in the pass leading down to the west bank of the St. Francis River near Golden Bay are no fewer than three separate railway alignments, those of the Orford Mountain, New Rockland Quarry and Missisquoi and Black Rivers Valley railways - all clearly visible from the bird's eye view of the aerial camera.

Another topic of contention which can be resolved today by reference to air photos is the exact route of the Waterloo and Magog Railway between Magog and Sherbrooke. While some published maps show this railway crossing the Magog River in the town of Magog and then following the south bank of the river to Little Lake Magog, air photos corroborated by field checking, reveal that in fact the line followed the north bank of the Magog River crossing over only slightly upstream of Little Lake Magog.

Although urbanization normally obliterates all traces of any previous railway structures, again in the case of the Waterloo and Magog Railway, indirect evidence exists to show the route of the railway through what subsequently became part of the city of Magog. It is quite common for railway embankments to be turned into roads in rural areas but such was also the case within the town of Magog. After the W&M was abandoned by the Canadian Pacific Railway in 1888 St. Joseph Street in Magog was laid out along the former roadbed. While certainly not apparent from street level nor even from a





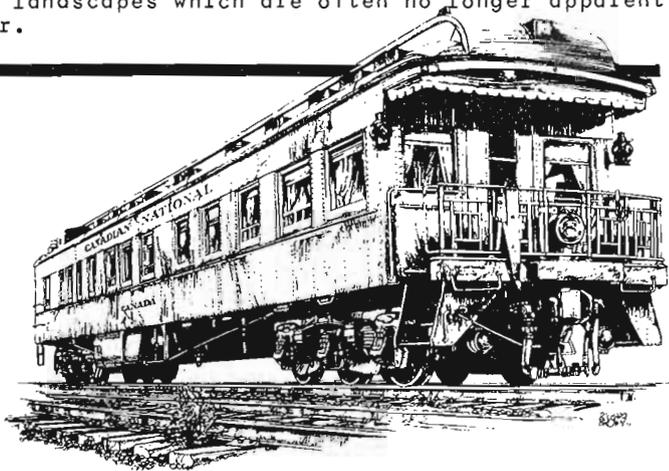
WHILE AERIAL PHOTOGRAPHY IS VERY USEFUL in tracing long-abandoned railway lines, it can also be used for depicting contemporary events that will soon become history. It would be difficult to find a better example of the latter than this classic photo! The scene is the West-Island (Lakeshore) of Montreal, and the event is a "race" between C.P. and C.N. trains, both steam-hauled of course. While at the moment the C.P. train (complete with wooden baggage car and open-platform commuter cars) is winning, this could rapidly change at the next station! The date of the photo is probably the late 1930's before the highway was built alongside the tracks. The railway lines are still there, but the locomotives, wooden cars, fields, trees, and cows are long gone, and the area is now part of Montreal's suburbia.

Public Archives of Canada. No. PA 37487.

contemporary street map of the city, St. Joseph Street while not conforming to the pattern of neighbouring streets clearly aligns with the remainder of the W&M line leading out of Magog.

One of the most ephemeral of all southern Quebec railways was the Montreal Portland and Boston Railway's line leading south from Frelighsburg over the international boundary to a point on the Missisquoi Railroad near Sheldon Junction. Completed by the MP&B on September 9, 1882 it was abandoned only six months later on March 1, 1883. Railway legend holds that only one train was operated over the line and some doubts have been expressed as to whether it was even in fact built. This latter question is resolved by the early air photos of the region for they clearly show the railway's right of way crossing the border.

Historical maps, timetables, statistics, photographs and railway documents have traditionally formed the basis for much research into railway history in Canada. The purpose of this brief report is to point out the value of the aerial photograph as a tool in certain types of research. Because of their visual perspective aerial photographs can reveal through a variety of interpretive techniques both direct and indirect, phenomena and patterns from earlier landscapes which are often no longer apparent to the ground observer.



The business car

A NEW TYPE OF METRO SERVICE IS BEING BUILT FOR COMMUTERS IN the Greater Montréal area. Running mainly above ground, it will make use of existing railway lines, and will initially serve the central, northern, and northeastern sectors of the Island of Montréal. This transportation mode has already been proven elsewhere, and will provide service comparable to the present underground metro system. For the initial period of operation, trains will run every six

minutes during rush hour, and many motorists will find it useful to take advantage of this quick and comfortable transportation system.

The first section to be put into service will start from the Du Collège Metro Station, located on the western leg of Metro Line 2, and will run east on the present Canadian National railway line, passing through Ville Saint-Laurent, Ahuntsic, Saint-Michel, Montréal-Nord, Rivière-des-Prairies, and Pointe-aux-Trembles. It could also be extended to Repentigny. Plans call for 14 stations of which at least 3 will be transfer points to other metro lines.

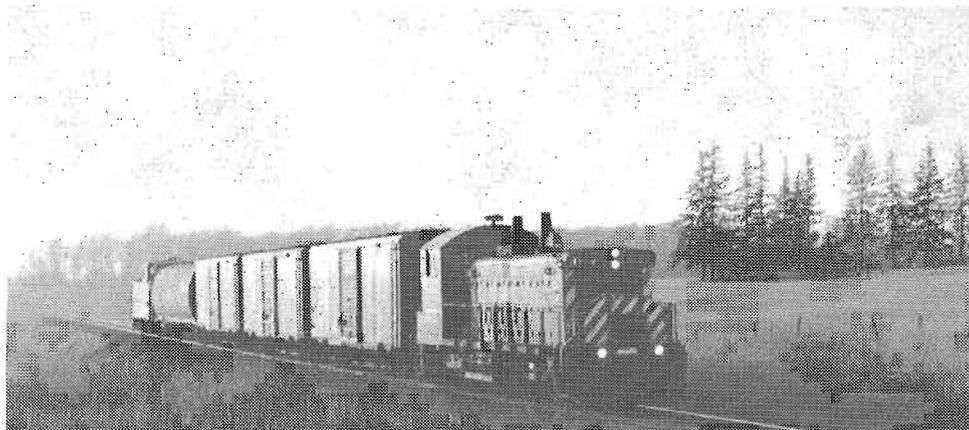
Another Surface Metro line will start from Central Station and run north and northwest, passing through Ville Mont-Royal, Ville Saint-Laurent, the municipalities located on the northwestern part of the Island of Montréal, and the western part of Laval, terminating at Deux-Montagnes. This line will replace the present commuter train service, and will have 10 stations of which 2 will connect with other metro lines.

The construction of these two lines has already been approved and entrusted to the Montréal Urban Community for completion.



THESE TWO UNITS are used by C.P. Rail to trim bushes along the right-of-way. One man drives the unit, another operates the cutters, while another protects crossings and keeps onlookers back. The photo was taken at Lakeside Ontario on March 23 1980.

Gordon R. Taylor.



IN THE SUMMER OF 1980 C.P. Rail unit 8142 with a short freight, known locally as the "peanut special" returning after a trip up the St. Marys branch. The main freight hauled is inbound paper rolls and outbound cement. It runs anytime with no set schedule, and the consist averages about ten or twelve cars.

Gordon R. Taylor.

A third Surface Metro line has been proposed and will eventually link central Laval with Montréal. It will start from the Vimont area and travel over the Canadian Pacific railway line. It could also be extended to Mirabel via Sainte-Thérèse and Blainville.

The extension of Metro Line 2 to Ville Saint-Laurent, which is presently under construction near Décarie Boulevard and Victoria Avenue, will be completed and put into service gradually between now and 1984.

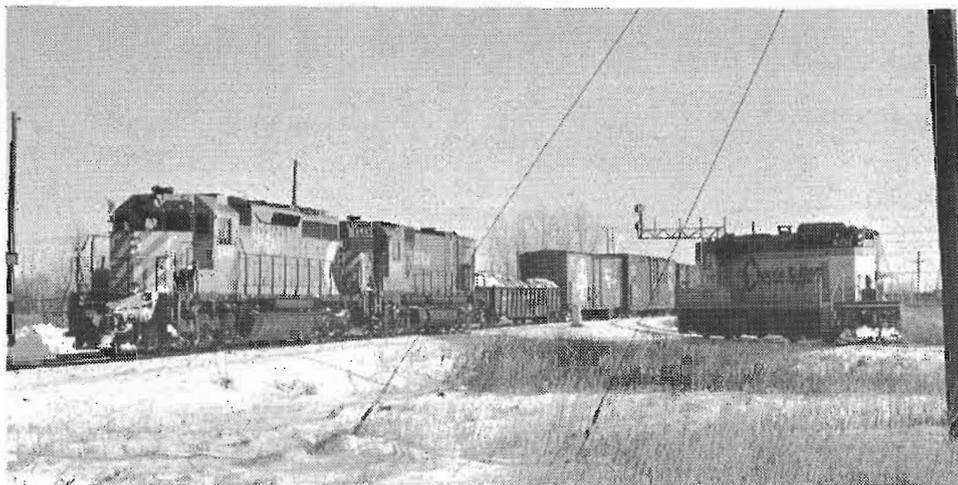
Metro Line 5 will also be completed. It will start from the Snowdon Station in the west end and serve Côte-des-Neiges, the campus of the University of Montréal, and Outremont. From there, it will run east from l'Acadie Boulevard under Jean-Talon, to Saint-Léonard and Ville D'Anjou. There will be at least 3 transfer points to other metro lines.

The Central Station-Deux-Montagnes commuter train service will be replaced by a Surface Metro line as described above. The two remaining commuter lines will be modernized. The first starts from Windsor Station and goes to Rigaud, while the second leaves from Central Station and extends to Saint-Hilaire, serving Saint-Lambert, Saint-Hubert, Saint-Bruno, and Beloeil. New cars will replace those presently in service on the Saint-Hilaire line. On both



C.N. SNOWPLOW UNITS, seen at Stratford Ontario on December 28, 1980, between duty calls. This is not the normal way the units are used in snow plowing, since they back into the dead end siding when not in use. During late January 1981 the units were sent to the Montreal area but were back a couple of weeks later. Since the Stratford shops almost closed, the units are now stored or held at London.

Gordon R. Taylor.



AT THE C.P. RAIL / C. & O. DIAMOND at Chatham Ontario on January 10, 1981 we see a westbound C.P. Rail freight, extra 5549, with 4553 as second unit. On the interchange track is recently repainted 5731, a C. & O. GP-7, waiting to pick a cut of cars off the interchange. This is the first unit of the Canadian division of the C. & O. to be painted in the new Chessie System colours.

Photo by Gordon R. Taylor.

lines, however, the service, the stations, access roads, and parking will be improved.

The cost of this improved public transit service, which is expected to approach \$1 billion, will be assumed in entirety by the gouvernement du Québec in accordance with its new mass transit subsidization policy. It is expected to make a significant contribution to Québec's economic growth and particularly to that of the Greater Montréal area. In addition, this investment will greatly assist Québec corporations to develop their competence in the general area of transportation, and thus better equip them to penetrate foreign markets. An important feature of the project is the 10,000 jobs that are expected to be created during the course of the next six or seven years.

Gouvernement du Québec
Ministère des Transports.

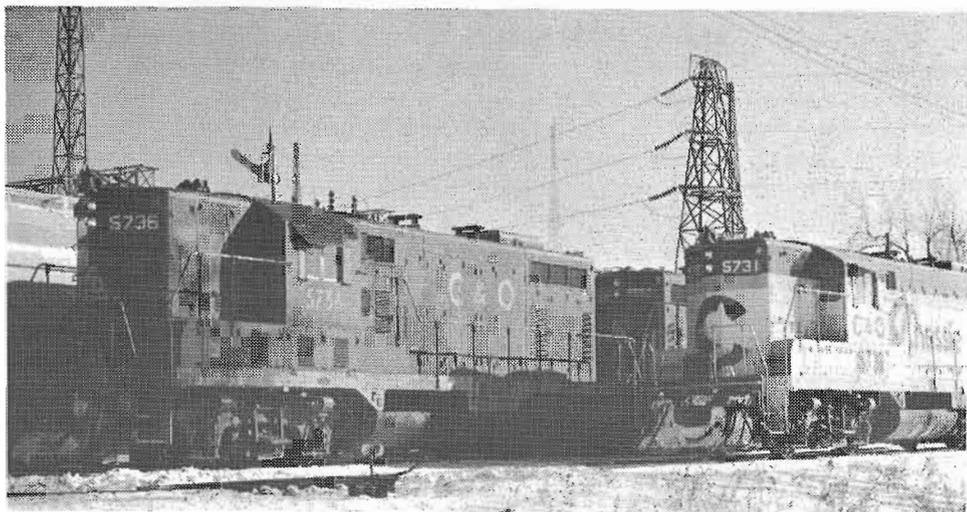
THE RENEWAL OF THE MATCHBOARD SHEATHING ON FORMER TORONTO sweeper S-31 has been made possible by the donation of \$2,000 by John E. Amlaw, one of the founding members of the Seashore Trolley Museum. Earlier in the summer the lumber was purchased and milled in preparation for the fall when there would be space in Town House shop for the project to commence. Only one side and one end are being done at a time so the car can be available for snow duty if necessary before the entire job is done. This \$2,000 donation covers the production and installation of the matchboard sheathing. The extra labor involved to deal with replacement of wood filler pieces along the steel side end sills, a time consuming task, along with reinforcement of the steel end frame broom supports will bring the total estimated cost of the project to \$3,000. With unrestricted cash expected to be tight this winter, the museum is not in a position to fund any deficits in the project. We are appealing, therefore, to the membership to match 50 percent of John Amlaw's generous contribution. Let's make this classic Russell Snow Seeper ornamental as well as useful! Contributions to the S-31/P-601 Fund may be sent and made payable to Seashore Trolley Museum, Box 220, Kennebunkport, Maine 04046.

The car arrived from Toronto in early November 1973. In the fall of 1974, the original broad gauge (4 ft, 10 7/8

in), Brill27E trucks were "temporarily" replaced with the Standard C60P trucks from Boston bottom dump car 3618 whose body had gone to the Arden Trolley Museum. A new roof canvas was applied in the spring of 1977 which prepared the car for its sojourn in Boston the following winter on the MBTA's Mattapan-Ashmont line. During these years, the faded TTC red paint weathered and peeled revealing the rotted sheathing which was deteriorating at an accelerating rate.

John Amlaw has been a lifelong student of the Eastern, Mass. St. Ry. which was the first owner of our sweeper whose original number was P-601. His total recall of the most minute details of the company's operations, car liveries, and other features has served the museum well over the years. The prospect of seeing this former Eastern, Mass. work car restored inspired Amlaw to provide the seed money for the project. The society acknowledges his generosity with grateful appreciation.

The present phase of the sweeper restoration includes removal of all the old sheathing, renewal of the wood filler pieces which are set in the steel l-beam side and end sills and serve as the bottom nailing strip for the sheathing, and replacement of many large carriage bolts which go through the



C. & O. UNITS 5736 AND 5744 are stopping to pick up the cars that 5731 brought over the interchange at Chatham Ontario on January 10 1981.

Gordon R. Taylor.

steam beam and secure the filler pieces. The old bolts were so corroded that they could only be removed with the cutting torch. Virtually all of the wood framing above the sill is quite sound, and requires little replacement. New window sash were made and installed while the car was in Boston. The new matchboard should be on by the time you read this. When the restoration of the wood carbody is done, the brooms will have to be re-caned and new canvas curtains made up and installed on each end. Ultimately the original 27E trucks will be regauged and placed under the car. The S-31/P-601 project is one of two specially funded car restorations which will keep a three-man crew working in the shop right through the winter.

Whether to finish the exterior as Toronto S-31 or Eastern Mass, P-601 has not been decided, the decision will be made when it is time to order the paint -- next spring.

THE TROLLEY MUSEUM DISPATCH.

CONSTRUCTION IS UNDER WAY ON A 400-FOOT RAIL TUNNEL WEST OF Union Station, designed to help clear up the Bathurst Street bottleneck of trains approaching and leaving downtown. This marks the first phase of a \$30-million upgrading and redevelopment scheme, scheduled for completion in 1983.

The twin-track tunnel, or "flyunder", will permit more direct and unimpeded access to Union Station for trains on CN's Weston and Oakville subdivisions and CP Rail's Galt subdivision.

Up to 100 trains a day are delayed currently, waiting for signals to enter or leave the area.

The old Bathurst Street bridge does not permit any further trackage through the underpass, so another method had to be found to improve operations in this ever-increasing western corridor.

The project also features the construction of eight storage tracks in the North Yard for GO Transit commuter trains with direct access to Union Station under the Spadina Avenue bridge.

This saves bringing these trains over six miles from Willowbrook Yard (Mimico) in rush hours through Bathurst along the Oakville subdivision. Crow quarters are also being built in the mini-GO yard.

Almost a third of the project's costs will go into a highly sophisticated and automated signalling system to handle anticipated traffic through Bathurst Junction.

Bill Wanamaker, chief engineer, Toronto Terminal Railways, in charge of the redevelopment, said the purpose "is to increase capacity for the movement of trains and permit higher operating speeds on the western approaches to Union Station."

He said that after four years of planning, a route separation is finally under way.

Twelve million dollars have already been spent on improvements to the passenger handling facilities in Union Station.



AN INTERESTING VIEW OF C. & O. 5744 "half repainted" in the new colours. The underframe is black, and the frame and decks are bright yellow, but the carbody is in the old scheme, since the unit was hurriedly returned to service because of an upsurge in traffic. It has since been fully repainted in the new colours.

Gordon R. Taylor. Chatham Ontario Jan. 10 1981.

The first stage of tunnel construction involves open excavation, so near the existing main lines that retaining walls made of "soldier pillings and tie backs" are needed.

Provision is being made for a third track through the fly-under, if required at a later date. The approaches will be quarter-mile depressions at two-per-cent grade at an angle of only 13 degrees from the surface lines overhead.

Mr. Wanamaker said everything has been carefully planned to impede present operations as little as possible during the construction period.

KEEPING TRACK

IN OCTOBER 1978, CPCS WAS AWARDED A CONTRACT BY THE COSTA Rican government to rebuild the country's 110 km of narrow guage mainline. The project costs \$16 million and will see the line equipped with welded rail and concrete ties. Its principal function is the transport of bananas to the seaport of Moin from the plantations.

A new contract has been awarded to CPCS to supervise the construction of the yards at Moin at a cost of \$6 million. Sydney Steel has supplied much of the track hardware for the job.

SRS NEWS

FROM SWITZERLAND COMES NEWS THAT THE WINTERTHUR LOCOMOTIVE Works, in co-operation with the Sulzer Corporation is building a NEW steam locomotive for the Indonesian Railways. This is not a research project, but a firm order for a 42 inch guage rack and adhesion locomotive to replace the diesels currently in use.

To accomplish this feat, the Sulzer and Winterthur engineers have re-invented the steam locomotive using high-technology metallurgy, solid state electronics, and a new understanding of the thermodynamics of high-pressure steam. Although the principal companies will not release the details of the engine until after delivery, redimentary specifications are available. It will be a cab-forward, lignite fired 2-8-4 or 4-8-4. It will use a Sulzer marine boiler operating at 800 - 1000 psi, well braced to take

the pounding of rack operation on poor track. High strength aluminum alloys will be used wherever possible, as will carbon-epoxy composites developed by the aircraft industry. The locomotive will be a 4 cylinder compound capable of 80 kph (50 mph) on adhesion, and 30 kph (19 mph) on the triple-Abt-system rack.

The most notable feature will be the valve gear and throttle system. The valve gear is of a radical design using an electronic feedback sensing system to admit exactly the right amount of steam into the cylinder to assure maximum efficiency. The throttle will use a computer to monitor the load, track adhesion conditions, and steam supply, to assure maximum tractive effort or motive power while running on or off the rack. The boiler will use distilled water, which will be reclaimed by the condensing tender. The condensing mechanism is a space programme spin-off, capable of reclaiming in excess of 99% of the steam. (Reported by Dale G. Kraus in Smoke and Cinder, newsletter of the Tennessee Valley Railroad Museum, and reproduced in the March 1980 issue of the Society for Industrial Archaeology Newsletter).

SRS NEWS

IN AN EFFORT TO COMPLY WITH THE U.S. BUY AMERICA ACT, Bombardier announced in November that it would spend \$4 million to construct a rail transit vehicle assembly plant in Barre, Vermont. Canadian companies such as Bombardier, who have developed considerable expertise and experience in building various types of rail passenger equipment, have been badly shaken by U.S. Government assertions that any American cities using federal funds to purchase transit equipment, must buy from American manufacturers. Given the fact that the Canadian government scarcely knows that railways exist for carrying people, these companies had placed great hopes that the U.S. market would provide a profitable outlet.

SRS NEWS

C.P. RAIL IN OCTOBER ANNOUNCED ITS FIRST LOCOMOTIVE FLEET retirement since steam was withdrawn. Under the programme, 300 of the first generation diesels

which pushed out the Royal Hudsons and the Jubilees will be scrapped, 400 second generation engines will be totally rebuilt, and 160 new engines will be ordered. Each block of locomotives will be downgraded a notch - the first generations to the scrap heap, the second generations to the role of yard switchers, and the new power to the heavy mainline freights.

The rebuilds will be carried out by the CPR at its Ogden shops in Calgary, and this will involve straightening bent frames, engine rebuilds, suspension and bogie overhauls, and total rewiring. The crews too, will receive some of the benefits of the programme - the cabs will be equipped with new acoustic insulation, bigger heaters and more comfortable seats. Diehard rail fans will be able to exercise their expertise since the rebuilds will receive totally new identities, right down to new serial numbers.

As for the discarded first generation power, they go to the scrap heap for the same reason as their more romantic predecessors, they had simply become too costly to maintain and at the same time, could not haul today's massive freights.

SRS NEWS



AFTER HAVING HAD A LOT OF "DOWN TIME" with the Ex-TEE motive power, the Ontario Northland rebuilt four of its FP7A's in its own shops. No. 1987, seen here at Gravenhurst Ontario on September 21 1980 at 3:40 P.M., was formerly O.N.R. No. 1510.

Gordon R. Taylor.

Now that Betty's home, Harry is sharing the limelight with the engine, since the two of them form an almost inseparable team. "I'm not sure I know how to cope with all of this," he laments.

But 6060 is the real celebrity. On the Whitecourt trip, one oldtimer, "with tears in his eyes," told Harry that he had travelled 450 miles to see the old engine.

ALBERTA TRANSPORTATION MAGAZINE

THEN THERE WAS THE ONE ABOUT THE LITTLE ENGINE THAT COULD - and did. CN's Engine 6060, known as Bullet Nosed Betty, has come home to Alberta at last. But she almost didn't.

Finally, after a week-long voyage across the country, with whistle stops in more than a dozen small towns along the way, Betty chugged into Edmonton August 8, hauling a 100-car freight train and aided by three regular diesel engines.

When it was decided to retire 6060 from active service earlier this year, the city of Stratford, Ontario, made a bid for the engine, planning to put it on display. The deal almost went through, much to the delight of Ontario railway buffs. But their delight turned to chagrin when somebody remembered that Alberta was to get 6060 back. Thus began tender negotiations between Transportation Minister Henry Kroeger and CN to bring Betty home.

This odyssey was the start of a third life for the old locomotive. Built by the Montreal Locomotive Works in 1944, the 300-plus ton "Mountain Type" steamer was among the last of 20 steam locomotives ordered by CN. Originally a coal-fired engine, it consumed 18 tons of bituminous coal on a 150 mile haul.

In 1955 the engine was converted to oil, which proved more efficient and economical according to engineer Harry Home, who brought 6060 back to Alberta. Switching to C type crude bunker oil meant an end to the shower of cinders and dust which made rail travel uncomfortable for early travellers.

The conversion was equal to the task in powering Betty's 73 inch drivers and maintaining her 260 pounds per square inch boiler pressure.

Betty was also pressed into yeoman service hauling heavy freights up to speeds topping 90 miles per hour. She saw thousands of miles of service before being retired in 1962 to a siding in Jasper.

Restored to service by CN, 6060 was brought out of retirement a decade later and returned to Toronto for a popular tourist run to Niagara Falls.

The engine is now on loan to the Alberta Pioneer Railways Association, which used it to carry tourists to Whitecourt, Calgary, Hanna, and Drumheller this summer. The province has also granted the association \$515,000 for retubing 6060's boilers and building a storage facility.

"It really means something to a lot of people," engineer Harry Home smiles, referring to CN's old Engine 6060, the last great Canadian railway steam engine, which has returned home to Alberta.

A railway man for 31 of his 47 years, Harry, of Jasper, Alberta, was instrumental in bringing Engine 6060, known as Bullet Nosed Betty back to Alberta for tourist trips by the Alberta Pioneer Railway Association. However, Harry says most of the credit for Betty's return belongs to Transportation Minister Henry Kroeger, who saved the engine from languishing on a siding in a small southern Ontario town. "He was really the one who got the ball rolling," Harry says.

Harry drove Betty across the Prairies 20 years ago and restored her when she was retired to a siding in Jasper in 1962. CN reactivated 6060 a decade later for tourist runs in the Toronto - Niagara Falls region of Southern Ontario. Harry and 6060 were reunited early this summer when the Alberta government acquired the old engine, and Harry was in the driver's seat for the 2,200 mile trip from Toronto to Edmonton.

People turned out in droves, sometimes in pouring rain, to see Betty as she whistle-stopped through numerous small towns along the way. Hospitality was the order of the days for the train's crew during the week long trip. "The thoughtfulness of people was overwhelming," recounts Harry, who brought 6060 back on his own time. It was an exhausting journey, and Harry did routine maintenance on the engine along the way. This included greasing her lubricators and crawling underneath the big engine while stopped, with only nine or 10 inches clearance between ties and undercarriage. "It was tiring, but well worth it."

Harry also drove 6060 for the first of the Alberta Pioneer Railway Association's four trips through Alberta, taking 1,100 people to Whitecourt and back. "If that response was any measure, I think we've got a real winner here." The reaction everywhere is the same: people simply love the old steamer. And Harry's got all sorts of ideas for tourist trips around the province, on unused and little used lines. With the proper care, he can see 6060 carrying passengers "for 20 years, anyway. She's in good shape mechanically."

Nonetheless, the upkeep needed to keep Betty running requires expertise, time, and money. Harry and other members of the Alberta Pioneer Railway Association are spending a lot of time keeping Betty in top shape, and a number of retired machinists and boiler workers have also volunteered their time to work on Betty.

"They provide the brains and we provide the brawn," said Harry. Much of his knowledge about steamers and rail mechanics is self taught, fulfilling his "lifetime desire" to work on the railway. Following in his father's footsteps as an engineer, he pored over engine manuals as a child, sometimes letting his school work suffer as a result of his interest and affection for trains. "I remember from Grade 3 on getting the strap for reading railway books and not doing my homework," he recalls.

BACK COVER

CANADIAN NATIONAL F-7 No. 9179 at Stratford ontario while in snow plow service on February 24 1980. Note the snow is quite thin on the ground, and bare patches are showing through. The winter of 1979-80 was noted for the small amount of snowfall. 9179 was then in service on branch lines in the Stratford area.

Photo by Gordon R. Taylor.

