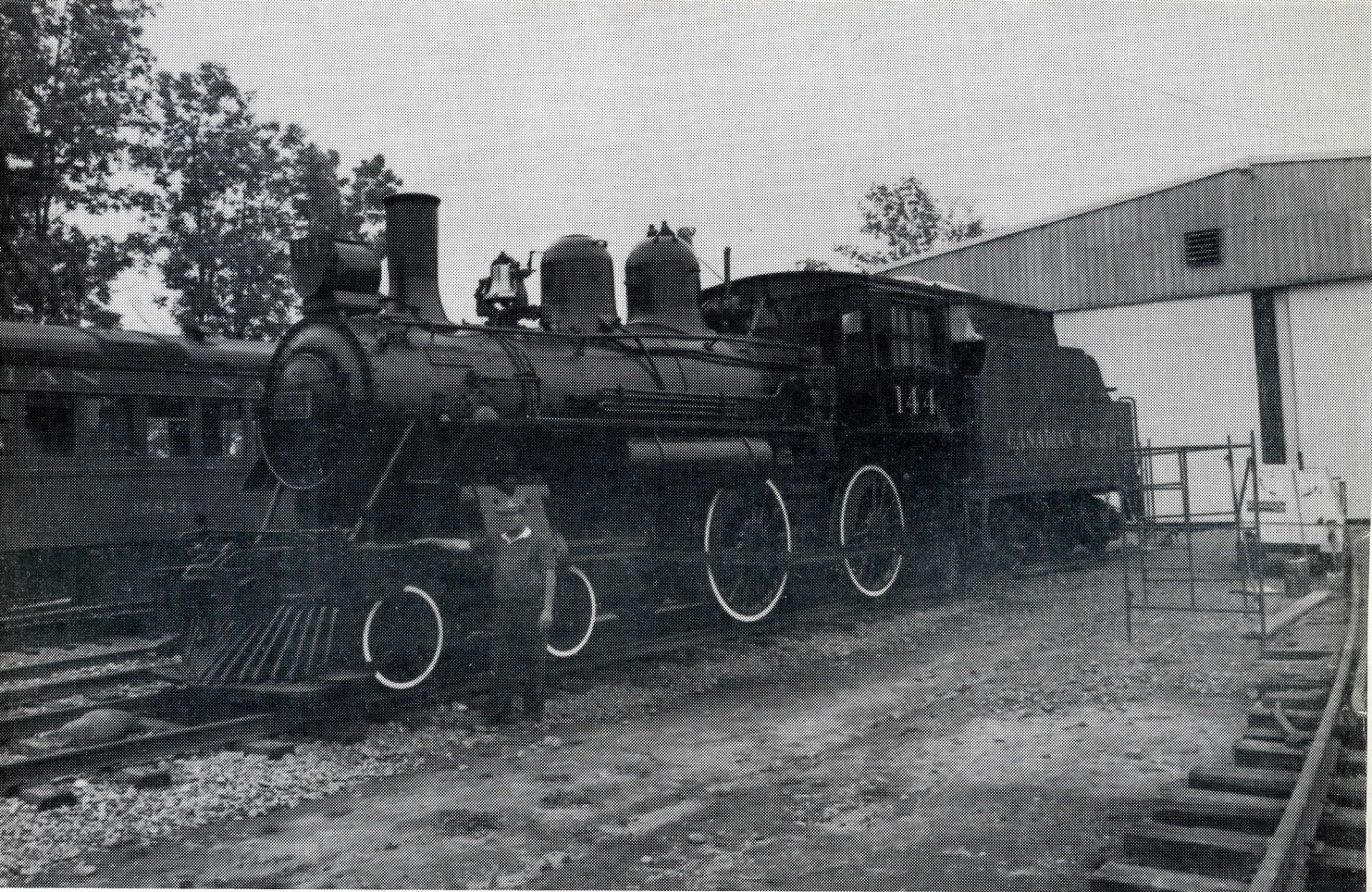


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Front Cover:

*ONE HUNDRED YEARS AGO. The Last Spike on the
C.P.R. main line, Craigellachie B.C. November 7,
1885. "The work has been well done in every way".
(Van Horne).*

Canadian Pacific photo.

Inside Front Cover:

*Progress at the Canadian Railway Museum: C.P.R.
144, getting ready for its 100th birthday next March!
It has been cleaned down to bare metal and painted
in appropriate coats of black paint. The paint was a
donation from our Niagara Division, and it was
applied by Odilon Perrault.*

*Restored by Ken Goslett and Ken DeJean, and
painted by Odilon Perrault, A.C. & H.B. No. 4341
adds another link in the Museum's freight car
collection.*

Both photos by A.S. Walbridge.

INFORMATION ON RAILWAY TIME SERVICE AND WATCH-CLOCK STANDARDS

By
Peter Kushnir C.M.W. C.M.B.H.I.
CP Rail
Time Service Technician

Starting with Rules on Time Service and Time Standards, one will clearly understand that rules are set out on the assumption of what could happen -- not necessarily what will happen. But over the years, rules pertaining to standard watches, clocks and time on most North American Railroads have been drastically reduced. The simple phrase "Reliable Watch or Clock" took its place.

I ask you gentlemen -- reliable by whose standard, or what definition. To be able to shed some light on how the situation looks today one must turn back to some past history of Standard Time as applied to rail operation.

First, I want to make clear that what I will say is not intended as criticism, but represents my own personal opinion which has been formulated from my involvement in watchmaking on this continent since 1947. To eliminate misunderstanding, I will minimize as much as possible technical words used in watchmaking.

For many years, I understood the meaning of "High Ball" and even enjoyed many of them, only to find out from Mr. J.C. Gaw a few days ago what this term means in rail operations. So let's "High Ball" on the subject.

At the start of railroading in U.S. and Canada there was no standard time. Every city and town and railroad had their own standard time. For example, before November 18, 1883, the Chicago Tribune listed 27 local times in Michigan, 38 in Wisconsin, 27 in Illinois and 23 in Indiana. In the table you have a comparison table and a map which gives you standard time in use locally before Sunday, November 18, 1883, which was called the "Day of the Two Noons". North American Railroads adopted the concept of Standard Time in May 1872, when the Association of Railroad Superintendents, a forerunner of Association of American Railroads, met in the Southern Hotel in St. Louis, Mo. Until that day, standard watches and clocks were never mentioned or even contemplated until the disastrous collision April 19, 1891, in Ohio on the Lake Shore, Michigan Southern Railroad between a fast mail train and an accommodation train, which I assume was a passenger train. The story has it that four people

lost their lives. In the subsequent investigation and trial, it was proven that the accident was due to a faulty watch in the hands of an employee in charge of the mail train.

This incident led to the development of standard watches and clocks as we know them today in the U.S. and Canada. Old rules books mention watches, but no reference is made about any standard or requirement of Railway Standard Watches. From the start of railroading in the U.S. and Canada, employees in train operations did possess watches. In the U.S. they were mainly of American manufacture -- Pitkins, Providence, Elgin, U.S. Watch Co., Illinois, Hampton, Rockford, Appleton Tracy, and Waltham. These watches were of 7 Jewels or more. So called reliable watches. In Canada in addition to these, watches of Swiss and British manufacture were also used.

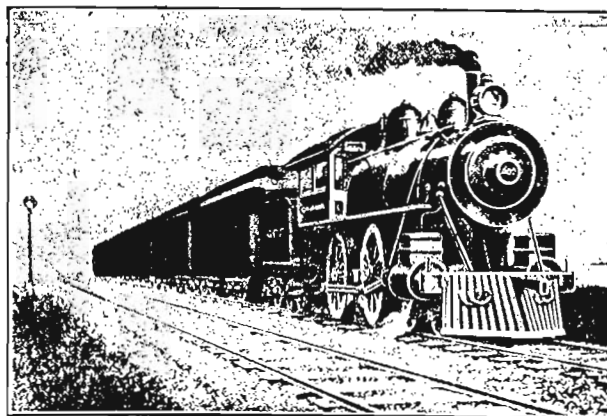
Clocks used by railroads of both countries were made by E. Howard; Waltham, Seth Thomas, Ansonia, Gilbert & Waterbury, to name a few. No improvements to clocks or watches were made unless the manufacturer came up with something on their own. These improvements were only due to competition with no regard to any other factor.

Finally, after the accident in Ohio the railways recognized the need and the importance of watch and clock standards and inspection. Mr. Webb C. Ball, a prominent jeweller from Cleveland, Ohio was called in as an expert witness in the trial pertaining to the accident on the Lake Shore, Michigan Southern. He subsequently was authorized to investigate the watch situation on the Lake Shore Lines, and set up a watch inspection system. More railroads recognized the importance of watch standardization and watch inspection and Mr. Ball was appointed as General Watch Inspector for many North American Railroads, operating out of offices in Cleveland, Chicago, San Francisco and Winnipeg, Canada. Some railroads set up their own Time Service Department also based on the system used by Mr. Ball. From then on any watch being used in rail service was required to meet the following specifications. (Here I will be obliged to use some technical terms).

1903 Elgin National Watch Company Movements.

Movements Specially Constructed for Exacting Railway Service.

**18-Size
O. F.
Lever
Set.**



**18-Size
O. F.
Lever
Set.**



①

Veritas. No. 214, O. F., Lever Set, Nickel.
23 extra fine ruby jewels (raised gold settings); adjusted to temperature, isochronism and positions; quick train with gold wheels; straight line double-roller escapement with steel escape wheel; poised pallet and fork; pallet arbor and escape pinion cone-pivoted and cap-jeweled; exposed pallets, compensating balance; Breguet hair spring, micrometric regulator; patent safety barrel with spring box rigidly mounted on bridge; barrel arbor pivots running in jewels; display winding work; patent recoiling click; patent self-locking setting device, double-sunk glass-enamel dial; dust ring, plates beautifully damaskeened, carefully timed, and parts finely finished throughout. **\$60.00**



③

R. W. Raymond. No. 240, O. F., Lever Set, Nickel.
19 fine ruby jewels (raised gold settings); adjusted to temperature, isochronism and positions; quick train with gold wheels; straight line escapement with steel escape wheel; exposed pallets, compensating balance; Breguet hair spring; micrometric regulator; patent safety barrel with spring box rigidly mounted on bridge; barrel arbor pivots running in jewels; display winding work; patent recoiling click; patent self-locking setting device; double sunk glass enamel dial; dust ring; damaskeened plates; carefully timed, and finely finished throughout. **\$40.00**

Open Face,
Lever Set.



ELGIN RAILROAD WATCHES



The Elgin's
**BIG
4**

Pass Muster
on
Railroads Throughout
the
United States.



②

Veritas. No. 239, O. F., Lever Set, Nickel.
21 fine ruby jewels (raised gold settings); adjusted to temperature, isochronism and positions; quick train with gold wheels; straight line escapement with steel escape wheel; pallet arbor and escape pinion cone-pivoted and cap-jeweled; exposed pallets; compensating balance; Breguet hair spring; micrometric regulator; patent safety barrel with spring box rigidly mounted on bridge; display winding work; patent recoiling click; patent self-locking setting device; double-sunk, glass-enamel dial; dust ring; damaskeened plates; carefully timed, and finely finished throughout. **\$50.00**



④

Father Time. { Htg., Lever Set, } Nickel.
{ O. F., Lever Set, }

21 fine ruby jewels (gilded settings); adjusted to temperature, isochronism and positions; quick train; straight line escapement with steel escape wheel; pallet arbor and escape pinion cone-pivoted and cap-jeweled; exposed pallets; compensating balance; Breguet hair spring; micrometric regulator; open face with patent recoiling click; double-sunk dial dust ring; damaskeened plates; carefully timed, and finely finished throughout. **\$40.00**

Railway watch had to be openface, size 18 or 16, 17 jewel, adjusted to five positions. Accurate to 30 seconds a week, adjusted to temperature of 34 to 10 degrees fahrenheit, double roller, steel escape wheel, lever set, micrometer regulator, winding stem at 12 o'clock, Arabic numerals printed on white dial and have bold black hands. Grade had to appear on a back plate.

These so called specifications as set out by Mr. Ball and the American Watch Manufacturers became a basic standard for railroad watches from 1892 onwards on North American Railroads. From this time on we see improvements in some watch requirements. Mr. Ball probably deserves much credit for raising the standards of watches used by railroad men and for the implementation of railroad watch inspections. But at the same time there were abuses by the watch manufacturers and Mr. Ball in particular, with the introduction of official railroad standard watch.

American watches made for railway use were becoming works of art with features that had no bearing on timekeeping, only decorative. Mr. Ball was patenting all kinds of unnecessary features and watch manufacturers would not let themselves be outdone and as a result, the railway employees had to pay a high price for a standard railway watch.

With the exception of E. Howard, all U.S. watch manufacturers sold watch movements only to jewellers and the same practice was used by case manufacturers. When purchasing a railway watch one selected a watch movement of an approved standard to be put in a case of his choice. Because of this practice, movements had to be very appealing to a layman's eyes. For example, a 17 jewel watch movement made by Hampton Watch Co. to railroad standards in 1892, wholesale cost was \$18.00 plus case, without unnecessary features. Same movement called New Railway cost \$50.00 plus case and Special Railway cost \$70.00 plus case, depending on quality of the case. The same pricing practice was used by all U.S. Watch Manufacturers. At that time five weeks of a conductor's salary was required to pay for a railway watch. It is obvious that such high prices were beyond reason. When imported quality movements that could have passed railway requirements, only cost \$10.00 wholesale in the U.S., they were not acceptable since requirements stated: "The only acceptable railroad grade pocket watches are those of American manufacture."

Some of the unnecessary extra features were up to 26 jewels which was completely unnecessary, lever set instead of pin set, jewels set in gold bezel, solid nickle movement, damaskeened (fine

engraving), chasing, three piece dial, and so on. The list is endless. A letter from the Erie's Chief Inspector who was an employee of the railroad was published in the June 15, 1906 issue of Railway Age. He accused the General Watch Inspectors who were tradesmen (apparent reference to Ball) of conspiring to require additional features for railroad watches which would add nothing to the durability or timekeeping capabilities of the watch.

U.S. Customs, to protect American watch manufacturers, set up an additional duty on imported watches having more than 17 jewels and those that were adjusted. For example, 17 jewel movement, duty charges - \$1.86 per movement. Having more than 17 jewels, duty becomes \$5.56 and in addition there is a forty-one cent to one dollar charge for each adjustment on the movement. As a result of these regulations all watches imported into the U.S., regardless of their quality, are stamped "unadjusted". These regulations are in force even today when there is no watch manufacturing in the United States and all imported watches into the U.S., regardless of their quality, are stamped "unadjusted".

Watch standards and time service requirements on Canadian Pacific were reorganized on October 1, 1899, and continued, more or less, on the same basis, as on most leading U.S. railroads. From that date watches for CP service were officially approved by proper authorities. This practice is still in force today. A list of watches that have been approved for CP service from October 1, 1899, until now is shown here.

In the early 1930's there was great pressure from Labour Unions for reduction of standards, comparison and cleaning intervals, and as a result of this the 1930's saw the beginning of erosion of watch inspections and watch requirements. No doubt the installation of C.T.C. also contributed to the reduction in these standards. U.S. railroads started gradually lowering their requirements for inspection and servicing of railway watches and some railroads turned back to the simple term "A reliable watch". Reliable by those standards? Yes, the employees had a valid reason to complain and action had to be taken. The following are some examples of relaxing the rules. Instead of examining the situation as it developed and redefining watch standards, eliminating unnecessary features and thereby reducing the cost to employees when buying a watch by approximately 75%, railways started reducing inspection requirements which actually did not represent any cost. As for maintenance (cleaning) which obviously cannot be ignored on any instrument, requirements became inconsistent

and almost nonexistent. The Hamilton 505 Electric Watch was accepted in the U.S. for rail service only because it was made in the U.S. But, under test, it would never meet the standard requirement for even an average time piece.

A tuning fork type watch, such as Accutron, stops for approximately four seconds each time it receives a shock. It was developed by Swiss physicist and made in the U.S. As such was acceptable. Being part of North America, Canadian railways usually follow the lead of their U.S. counterparts. The Association of General Railroad Watch Inspectors, whose responsibility is to guide the interest of their railroads and employees respectively, at their meetings overlook the possibility of conflict of interest. In good faith, they accept the recommendations of their watch and clock suppliers who naturally promote their own product with little regard to railway requirements. Finally, being under pressure by one of our suppliers to approve their product because everybody else did so, the problem had to be resolved. With the approval of CP Rail management and to protect our employees, in November 1977, we set up detailed specifications for CP Rail Standard Watch requirements. These included wrist and pocket watches of manual, automatic, electronic, semi-mechanical and quartz analogue type. CP Rail approved watches today, retail cost, range from \$165.00 to \$199.00 depending on brand. This represents approximately 1/3 of a trainman's salary for one week. While this stand, to my knowledge, was unprecedented, we feel that our actions were justified since our counterparts in Canada and some of the leading American Railroads have also adopted our standards. Now we have watches made to our specifications and needs and do not adapt our requirements to the available watches. In this way we have eliminated all kinds of problems and unnecessary expense to our employees.

We are now constantly on the lookout for proper products and can proudly state we are on the right track.

Clocks are another lengthy subject to deal with. In short, from the start of Canadian Pacific until approximately 1910, we had various clocks in use, mostly of American manufacture. After 1910, the concentration to standardize our system began. Head Office, Regional Offices and many major stations, were equipped with selfwinding master-set clocks, number 2, 17, 18 and 20. Station clocks were Seth Thomas World, 30 days or 8 days. Many of these clocks are still in service today, showing the original choice of a quality product was valid. For dispatcher clocks, we used Waltham 8-day, 15 jewel car clocks, especially cased for our

purpose. In the past we also used some Zenith Desk Chronometers and later Swiss portescap battery desk clocks for dispatchers.

In 1978 we designed a dispatcher desk clock and had these produced for us by a leading Swiss manufacturer. It is a quartz analog movement operated by a special battery (Mallory RM-1N) with vibration period of 4.5 million cycles per second. The only comment about this clock we have received from the line, is that the clock is operating as intended. Now we are in search for a proper replacement for our comparison clocks. But with all due respect to all electronic timing devices, I am of the opinion that for railway use, a good quality weight-driven pendulum clock is the most suitable, especially where safety is of the utmost importance. I am under the impression that all North American railways spend a lot of time and a considerable amount of money to promote safety and rules on their lines, but for some unknown reason, Time Service, Watch Inspection and Watch and Clock Standards are sitting on the back burner. This tolerance raises the question, are we waiting for another mishap to happen like the one on April 19, 1891. When one considers the cost today of the smallest derailment, it becomes very obvious that the cost of a properly organized and maintained Time Service Department for the largest railroad could be run for 50 years for far less.

I wish to thank you for the opportunity of being able to express just some of the facts of the situation and how it has developed. I would like to leave you with some idea of how this subject should be approached. Namely, it should be determined, first, what do we want. Why do we want it. And how do we get it.

I do not have all the answers for every application but, with these questions in mind, I believe CP Rail is well on the way to solving some of these problems for our Company.

APPROVED POCKET WATCHES IN
CP RAIL SERVICE
AS OF OCTOBER 1, 1899

Waltham

18 S.	Vanguard	19 Jewels
18 S.	Vanguard	21 Jewels
18 S.	Vanguard	23 Jewels
18 S.	Crescent St.	19 Jewels
18 S.	Crescent St.	21 Jewels
18 S.	No. 845	21 Jewels
18 S.	C.P.R.	17 Jewels
18 S.	Appleton-Tracy	17 Jewels

18 S.	C.T.S.	17 Jewels		Ball	
16 S.	Riverside Max	23 Jewels			
16 S.	Vanguard	19 Jewels	18 S.	Official Standard	17 Jewels
16 S.	Vanguard	21 Jewels	18 S.	Official Standard	19 Jewels
16 S.	Vanguard	23 Jewels	18 S.	Official Standard	21 Jewels
16 S.	Crescent St.	21 Jewels	18 S.	Official Standard	23 Jewels
16 S.	No. 645	21 Jewels	16 S.	Official Standard	17 Jewels
16 S.	C.P.R.	17 Jewels	16 S.	Official Standard	19 Jewels
16 S.	C.T.S.	17 Jewels	16 S.	Official Standard	21 Jewels
16 S.	Riverside	19 Jewels	16 S.	Official Standard	23 Jewels

Elgin

18 S.	Veritas	21 Jewels
18 S.	Veritas	23 Jewels
18 S.	Father Time	21 Jewels
18 S.	No. 349	21 Jewels
18 S.	B.W.R.	17 Jewels
18 S.	B.W.R.	19 Jewels
18 S.	B.W.R.	21 Jewels
16 S.	Veritas	21 Jewels
16 S.	Veritas	23 Jewels
16 S.	Father Time	21 Jewels
16 S.	B.W.R.	17 Jewels
16 S.	B.W.R.	19 Jewels
16 S.	B.W.R.	21 Jewels

Illinois

18 S.	Bunn Special	21 Jewels
18 S.	Bunn Special	23 Jewels
18 S.	A. Lincoln	21 Jewels
18 S.	Bunn	17 Jewels
18 S.	Bunn	19 Jewels
16 S.	Sangamo Special	19 Jewels
16 S.	Sangamo Special	21 Jewels
16 S.	Sangamo Special	23 Jewels
16 S.	Bunn Special	21 Jewels
16 S.	Bunn Special	23 Jewels
16 S.	A. Lincoln	21 Jewels
16 S.	Bunn	17 Jewels
16 S.	Bunn	19 Jewels

Hamilton

18 S.	No. 946	23 Jewels
18 S.	No. 940	21 Jewels
18 S.	No. 942	21 Jewels
18 S.	No. 944	19 Jewels
18 S.	No. 936	17 Jewels
18 S.	No. 938	17 Jewels
16 S.	No. 950	23 Jewels
16 S.	No. 960	21 Jewels
16 S.	No. 990	21 Jewels
16 S.	No. 992	21 Jewels
16 S.	No. 952	19 Jewels
16 S.	No. 972	17 Jewels

Seth Thomas

18 S.	No. 260	21 Jewels
18 S.	Maiden Lane	25 Jewels
18 S.	No. 382	17 Jewels

Howard

16 S.	No. 0	23 Jewels
16 S.	No. 1	21 Jewels
16 S.	No. 5	19 Jewels
16 S.	No. 2	17 Jewels
16 S.	No. 10	21 Jewels

South Bend

18 S.	No. 327	21 Jewels
18 S.	No. 329	21 Jewels
18 S.	No. 323	17 Jewels
16 S.	No. 227	21 Jewels
16 S.	No. 229	21 Jewels
16 S.	No. 223	17 Jewels

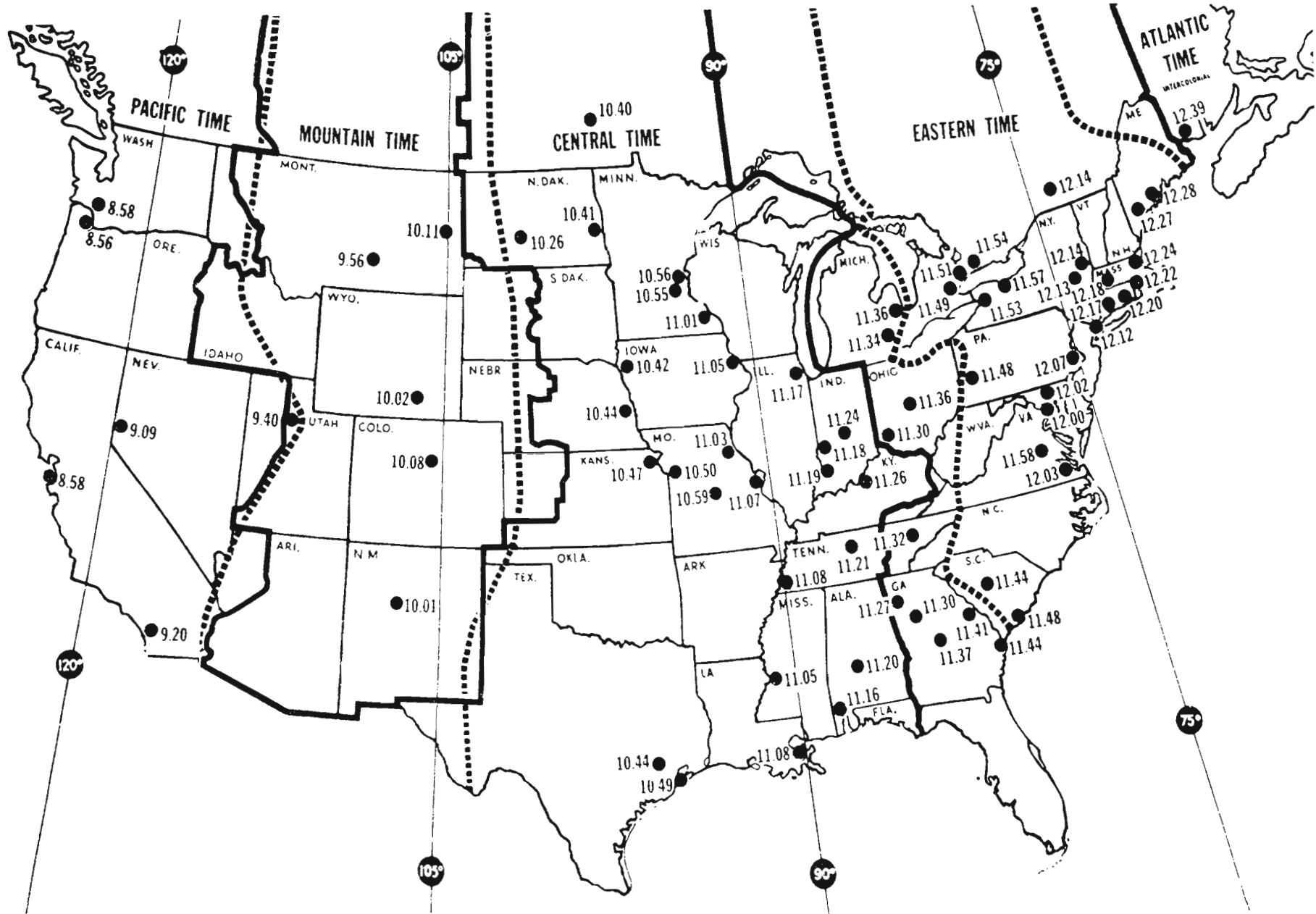
Longines

18 S.	Express Monarch	21 Jewels
18 S.	Express Monarch	23 Jewels
18 S.	Express Leader	17 Jewels
18 S.	Express Leader	19 Jewels
16 S.	Express Monarch	21 Jewels
16 S.	Express Monarch	23 Jewels
16 S.	Express Leader	17 Jewels
16 S.	Express Leader	19 Jewels

Zenith			Hamilton		
18 S.	Extra	23 Jewels	16.S.	No. 950	23 Jewels
18 S.	Superior	21 Jewels	16.S.	No. 992	21 Jewels
18 S.	Prima	17 Jewels	16.S.	No. 996	19 Jewels
18 S.	Prima	19 Jewels			
16 S.	Extra	23 Jewels			
				Illinois	
	Brandt - "Omega"		16.S.	Sagamo Special	23 Jewels
			16.S.	Bunn Special	23 Jewels
18 S.	D.D.R.	23 Jewels	16.S.	Bunn Special	21 Jewels
18 S.	C.C.C.R.	23 Jewels			
18 S.	C.D.R.	19 Jewels		South Bend	
18 S.	C.C.R.	19 Jewels			
16 S.	D.D.R.	23 Jewels	16.S.	No. 227	21 Jewels
16 S.	C.C.C.R.	23 Jewels			
16 S.	D.R.	19 Jewels			
16 S.	C.C.R.	19 Jewels			
				Ball	
	Rockford		16.S.	Official Standard	21 Jewels
			16.S.	Official Standard	23 Jewels
18 S.	Winnebago	17 Jewels			
18 S.	No. 918	21 Jewels		Howard	
18 S.	No. 905	21 Jewels			
18 S.	No. 900	21 Jewels			
16 S.	No. 405	17 Jewels	16.S.	No. 0	23 Jewels
16 S.	No. 545	21 Jewels	16.S.	No. 10	21 Jewels
16 S.	No. 525	21 Jewels			
16 S.	No. 515	21 Jewels			
16 S.	No. 505	21 Jewels		Longines	
16 S.	No. 655 (Indicator)	21 Jewels	16.S.	Express Monarch	23 Jewels
			16.S.	Express Monarch	21 Jewels
			16.S.	Express Leader	19 Jewels
APPROVED POCKET WATCHES IN CP RAIL SERVICE AS OF JULY 1, 1928				Zenith	
			16.S.	Extra	23 Jewels
			16.S.	Superior	21 Jewels
	Waltham				
16.S.	Vanguard	23 Jewels		Brandt	
16 S.	Crescent St.	21 Jewels			
16.S.	Riverside	19 Jewels	16.S.	D.D.R.	23 Jewels
	Elgin		APPROVED POCKET WATCHES IN CP RAIL SERVICE AS OF FEBRUARY 1, 1957		
16.S.	Veritas	23 Jewels		Zenith	
16.S.	B.W.R.	23 Jewels			
16.S.	B.W.R.	21 Jewels			
			16 S.	Extra RR 56	21 Jewels

	Waltham		APPROVED WRIST WATCHES IN CP RAIL SERVICE BATTERY POWERED	
16 S.	Vanguard No. 29, 634, 001 and up	23 Jewels	Bulova Accutron	
	Elgin		214	17 Jewels
16 S.	B.W.R.	21 Jewels	218 Calendar	17 Jewels
16 S.	No. 571	21 Jewels	Wittnauer	
	Hamilton		RR 12 WT Calendar	13 Jewels
16 S.	No. 950 B	23 Jewels	Rodania	
16 S.	No. 992 B	21 Jewels	RR 2780 Calendar	13 Jewels
	Ball		APPROVED WRIST WATCHES SEMI-MECHANICAL QUARTZ ANALOG BATTERY POWERED IN CP RAIL SERVICE AS OF 1978	
16 S.	(Hamilton) No. 992 C	21 Jewels	Bulova	
16 S.	No. 435 C	21 Jewels	Calendar 9362 Q	7 Jewels
	APPROVED WRIST WATCHES IN CP RAIL SERVICE		Calendar RR 960.111 Q	6 Jewels
	Longines		Rodania	
	RR 280	17 Jewels	Calendar 9952.111RR	6 Jewels
	Universal		Calendar RR 9361 Q	7 Jewels
	RR 1205	19 Jewels	Cyma	
	Zenith		Calendar RR 9361 Q	7 Jewels
	RR 120 T	18 Jewels	Calendar RR 960 Q	6 Jewels
	Girard Perregaux		Rotary	
	CP 307H.F.	17 Jewels	Calendar RR 9366 Q	7 Jewels
	Cyma		Wyler	
	RR 2852 M	17 Jewels	Calendar RR 9361 Q	7 Jewels
	RR 2872 A	25 Jewels	Wittnauer	
			Calendar RR 2 Q 115 C	7 Jewels

BEFORE AND AFTER THE ADOPTION OF STANDARD TIME NOVEMBER 18, 1883



● Local "sun" time by which the trains of one or more railroads were operated before Standard Time was adopted. Figures indicate local time when it was 12:00 o'clock noon in Washington, D.C. — Standard Time zone boundaries adopted by railroads Nov. 18, 1883. — Present Standard Time zone boundaries.

COMPARATIVE TIME-TABLE, SHOWING THE TIME AT THE PRINCIPAL CITIES OF THE UNITED STATES. COMPARED WITH NOON AT WASHINGTON, D. C.

There is no "Standard Railroad Time" in the United States or Canada; but each railroad company adopts independently the time of its own locality, or of that place at which its principal office is situated. The inconvenience of such a system, if system it can be called, must be apparent to all, but is most annoying to persons strangers to the fact. From this cause many miscalculations and misconnections have arisen, which not unfrequently have been of serious consequence to individuals, and have, as a matter of course, brought into disrepute all Railroad Guides, which of necessity give the local times. In order to relieve, in some degree, this anomaly in American railroading, we present the following table of local time, compared with that of Washington, D. C.

NOON AT WASHINGTON, D. C.	NOON AT WASHINGTON, D. C.	NOON AT WASHINGTON, D. C.
Albany, N. Y.....12 14 P.M.	Indianapolis, Ind...11 26 A.M.	Philadelphia, Pa...12 08 P.M.
Augusta Ga.....11 41 A.M.	Jackson, Miss.....11 08 "	Pittsburg, Pa.....11 48 A.M.
Augusta, Me.....11 31 "	Jefferson, Mo.....11 00 "	Plattsburg, N. Y...12 15 P.M.
Baltimore, Md.....12 02 P.M.	Kingston, Can.....12 02 P.M.	Portland, Me.....12 28 "
Beaufort, S. C.....11 47 A.M.	Knoxville, Tenn...11 33 A.M.	Portsmouth, N. H.12 25 "
Boston, Mass.....12 24 P.M.	Lancaster, Pa.....12 03 P.M.	Pra. du Chien, Wis.11 04 A.M.
Bridgeport, Ct.....12 16 "	Lexington, Ky....11 31 A.M.	Providence, R. I...12 23 P.M.
Buffalo, N. Y.....11 53 A.M.	Little Rock, Ark...11 00 "	Quebec, Can.....12 23 "
Burlington, N. J...12 09 P.M.	Louisville, Ky....11 26 "	Racine, Wis.....11 18 A.M.
Burlington, Vt...12 16 "	Lowell, Mass.....12 23 P.M.	Raleigh, N. C. ...11 53 "
Canandaigua, N. Y.11 59 A.M.	Lynchburg, Va....11 51 A.M.	Richmond, Va....11 58 "
Charleston, S. C...11 49 "	Middletown, Ct...12 18 P.M.	Rochester, N. Y...11 57 "
Chicago, Ill.....11 18 "	Milledgeville, Ga...11 35 A.M.	Sacketts H'bor, NY.12 05 P.M.
Cincinnati, O.....11 31 "	Milwaukee, Wis...11 17 A.M.	St. Anthony Falls,10 56 A.M.
Columbia, S. C....11 44 "	Mobile, Ala.....11 16 "	St. Augustine, Fla.11 42 "
Columbus, O.....11 36 "	Montpelier, Vt....12 18 P.M.	St. Louis, Mo.....11 07 "
Concord, N. H....12 23 P.M.	Montreal, Can....12 14 "	St. Paul, Min.....10 56 "
Dayton, O.....11 32 A.M.	Nashville, Tenn...11 21 A.M.	Sacramento, Cal... 9 02 "
Detroit, Mich.....11 36 "	Natchez, Miss....11 03 "	Salem, Mass.....12 26 P.M.
Dover, Del.....12 06 P.M.	Newark, N. J.....12 11 P.M.	Savannah, Ga....11 44 A.M.
Dover, N. H.....12 37 "	New Bedford, Mass.12 25 "	Springfield, Mass...12 18 P.M.
Eastport, Me.....12 41 "	Newburg, N. Y....12 12 "	Tallahassee, Fla....11 30 A.M.
Frankfort, Ky....11 30 A.M.	Newburyport, Ms..12 25 "	Toronto, Can.....11 51 "
Frederick, Md....11 59 "	Newcastle, Del...12 06 "	Trenton, N. J.....12 10 P.M.
Fredericksburg, Va.11 58 "	New Haven, Conn..12 17 "	Troy, N. Y.....12 14 "
Frederickton, N. Y.12 42 P.M.	New London, " ..12 20 "	Tuscaloosa, Ala...11 18 A.M.
Galveston, Texas ..10 49 A.M.	New Orleans, La...11 08 A.M.	Utica, N. Y.....12 08 P.M.
Gloucester, Mass..12 26 P.M.	Newport, R. I....12 23 P.M.	Vandalia, Ill.....11 18 A.M.
Greenfield, " ..12 18 "	New York, N. Y...12 12 "	Vincennes, Ind....11 19 "
Hagerstown, Md...11 58 A.M.	Norfolk, Va.....12 03 "	Wheeling, Va.....11 45 "
Halifax, N. S.....12 54 P.M.	Northampton, Ms..12 18 "	Wilmington, Del...12 06 P.M.
Harrisburg, Pa....12 01 "	Norwich, Ct.....12 20 "	Wilmington, N. C..11 56 A.M.
Hartford, Ct.....12 18 "	Pensacola, Fla....11 20 A.M.	Worcester, Mass...12 21 P.M.
Huntsville, Ala....11 21 A.M.	Petersburg, Va....11 59 "	York, Pa.....12 02 "

By an easy calculation, the difference in time between the several places above named may be ascertained. Thus, for instance, the difference of time between New York and Cincinnati may be ascertained by simple comparison, that of the first having the Washington noon at 12 12 p. m., and of the latter at 11 31 a. m.; and hence the difference is 43 minutes, or, in other words, the noon at New York will be 11.17 a. m. at Cincinnati, and the noon at Cincinnati will be 12 43 p. m. at New York. Remember that places *West* are "slower" in time than those *East*, and *vice versa*.

The "Comparative Time-Table" reproduced above appeared in *Dinsmore's American Railroad and Steam Navigation Guide and Route-Book for October, 1857*, many years before the adoption of Standard Time.

SOME THOUGHTS ON WRITING ARTICLES FOR CANADIAN RAIL

by A.S. Walbridge

While reading CANADIAN RAIL, did you ever stop to think about who wrote the article, and why?

Most of the articles that appeared in CANADIAN RAIL were written by members who are interested in a particular topic related to, as the Association's Letters Patent read: (for) The collection, the preservation, the exhibition and distribution of information, relics, documents and other historical matter, relating to railways, locomotives and any other means of transportation in Canada for the mutual benefit of collectors of Canadian transportation history. (Take a long breath, and read those terms of reference again.)

All of us are not scholars of Canadian railway history; but most of us can be students of the subject. Think about taking some time to select a subject that interests YOU which is related to our favourite subject. The subject could be something of local interest in the Canadian railway field - something on which little may have been written or published; yet which might contribute to the total knowledge, and entertainment of your fellow readers. Local sources of information may be available to you, that would not be readily available to others - your local library, old newspaper files from your library's files, or from the newspaper's files. The files of many Canadian newspapers have been microfilmed under Federal Government programs; and can be ordered by your local library for you to pursue. It can be a fascinating experience; and you will find many more topics than railways in them that will interest you.

Interviews with Senior Citizens on their recollections of the early days of railroading in your area can be rewarding experiences. Try plumbing the thoughts of your grandparents, for starters. You may recommence their thinking processes on not only their early experiences, and of your grandparents parents. Their memories related to you may well disclose family history that you may not previously have been known to you - and not just about railways.

There are many County Museums that have collections of letters, newspaper clippings, "snapshots", and magazines containing early articles on the building of Canada's railways. Make careful notes as you examine these documents on where you saw them. Ask the Museum Curator, or Librarian for permission to borrow picture so that you can have reproductions made to accompany your article to CANADIAN RAIL. (You may have to

advance a deposit, to assure the safe return of the material - small matter!)

Then there are other sources of historical information. The Public Archives of Canada is available to you - manuscripts, photographs, maps, films, etc. Contact Information Services, Public Archives of Canada, 395 Wellington Street, Ottawa, Ontario, K1A 0N3 (Phone 613-996-1473).

And don't forget our own archives. Robert Nicholls, a member of our Association, and a founder of the Canadian Railway Museum, also was the instigator of OUR archives. It occupies the top floor of the Hays Memorial Building at the Museum in St. Constant, Quebec. Many of the thousands of references have been indexed; and the work continues as the people and funds become available. Unfortunately, we do not have a paid staff to handle your requests for information; but we'll do our best for you. (Address: Archives, c/o Canadian Railway Museum, P.O. Box 148, St. Constant, Quebec, Canada. JOL 1X0)

Provincial Archives that may be closer to you are frequently stocked with documents and photos on railway topics; and are generally waiting to be of service to you, the taxpayer-railway historical researcher.

Our Editor, Fred Angus, can frequently suggest sources of information, should you meet a stumbling block in your research. Fred's intense interest in the subject, and his endless and accurate recollections of events and dates can be invaluable to you. (Address: 3021 Trafalgar Avenue, Montreal, Quebec, Canada H3Y 1H3; Phone 514-935-2254).

The Corporate Archives of both of Canada's largest railways can be very useful sources of information. Both are located in Montreal and will generally help researchers to the extent of the size of their small staffs.

A few comments about grammar used in your article might not be out of place. Try to use short sentences. Your readers might be left breathless if you try to say too much in one sentence. Your article would be more readable if commas, semi-colons, and dashes are used.

Tell your reader early in your article - where, when, how, why, the events took place. Our membership covers the world; so if the action took place in Smithville, also let him know that Smithville is in British Columbia. When the article includes quotations, please state the source. And

why not finish off the article with a brief bibliography of the sources of your information.

Readers of CANADIAN RAIL like lots of relevant pictures to illustrate the articles. The Editor prefers black and white prints, strong in contrast. However, other forms of illustrations are welcome; but cost more to prepare for publication. If you wish your prints etc. returned, please ask for them. Our Editor is meticulous about returning them. If you would like extra copies of CANADIAN RAIL in which your article appears, please ask the Editor. Don't be disappointed if your article does not appear in the immediate future. The Editor probably will find space for it later, if not sooner.

Tell the Editor a few facts about yourself, so he can introduce Author to Reader. Compose captions for the pictures that you send. A dozen and a half words well chosen by the author are

more likely get the author's message across accurately than leaving the Editor's edit - for a variety of reasons - to keep the standard of performance up to par. The author is usually consulted before publication, if time permits.

Now, all of you researchers and writers, let's put some serious thought into filling the Editor's file with interesting, well-researched articles for the information and entertainment of your fellow members. You will feel well rewarded for your efforts.

Un mot a nos membres qui prefere d'ecrire en francais. Vos traveaux seront tres bienvenue, en francais, ou avec un traduction en anglais. Souvenez-vous que apeupres un quart de nos membres portent les noms francais.

Stephen Walbridge



REVIVAL

The "Atlantic"

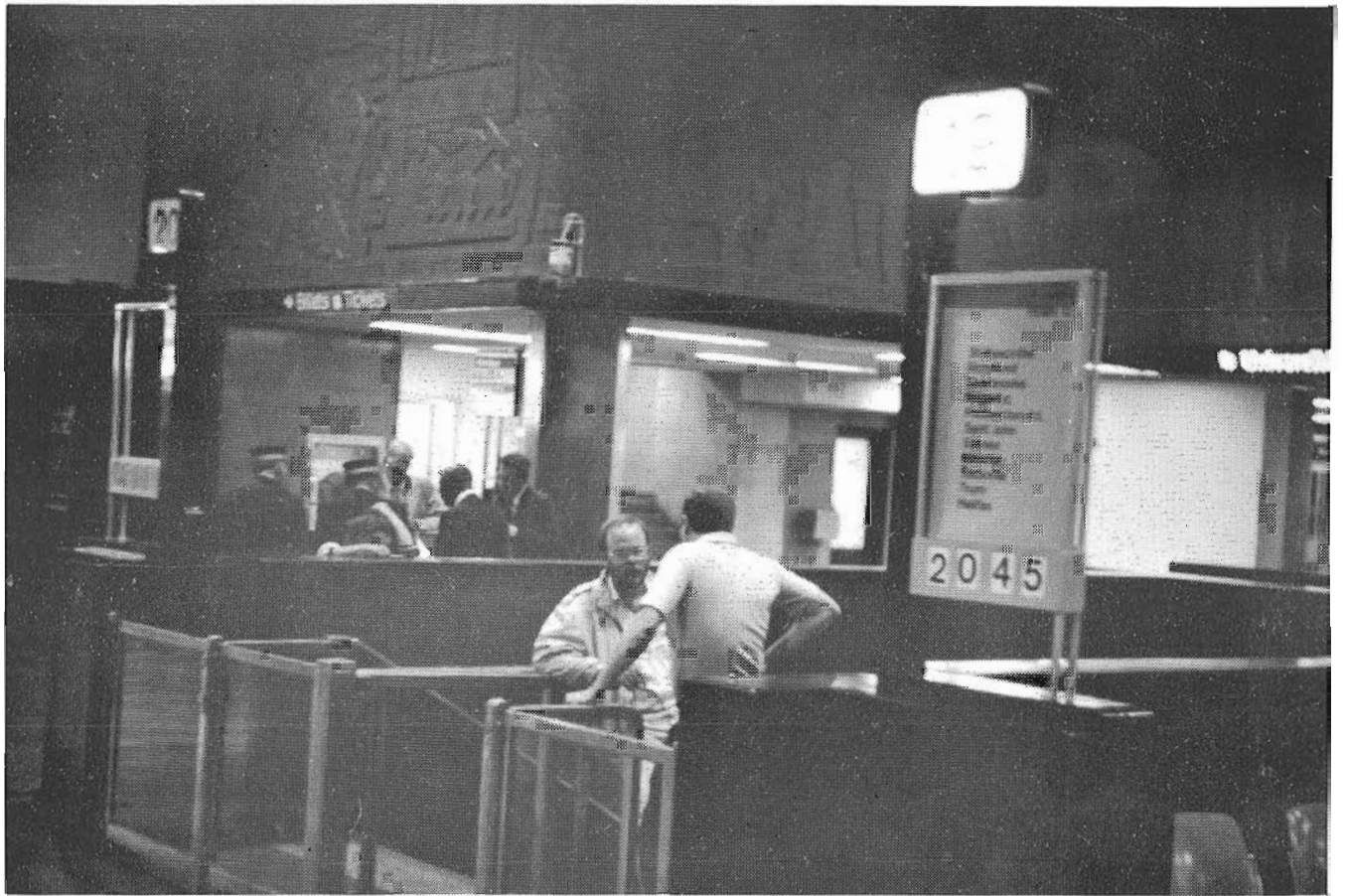
By: Fred Angus.

No doubt, no uncertainty now exists. The revival of passenger service on the Short Line is a fixed fact! With this expression, similar to that used by the reporter for the Saint John Telegraph in 1889, we report the success of the efforts to revive the VIA Rail passenger train from Montreal to Halifax via the State of Maine and Saint John New Brunswick. Passenger service on this line had been discontinued on November 15 1981 as a part of the large-scale cuts in the VIA system carried out by the Federal government of that time. For three-and-a-half years train travel between Montreal and the Saint John - Fredericton area meant a long "detour" on the C.N. line to Moncton, then west again to Saint John. Following the change of government last year it began to look more and more as if the discontinued service would return, and finally the announcement was made that the Atlantic, the Super Continental and several other trains would be reinstated on June 1. Your editor was on board the first regular run of the Atlantic when it left Montreal's Central Station on time at 8:45 P.M. Friday, May 31 1985 and

BEGAN ITS LONG-INTERRUPTED TRIP TO THE SEA

eleven cars behind locomotives 6777 and 6873. Appropriately enough the last car was "Banff Park" C.P.'s first "Park" series dome car. Many of the passengers that night did not realize it was the first run and that they would not be going through Riviere-du-Loup and Mont Joli. Some that knew of the planned re-instatement had it expected it to start the night of June 1 rather than May 31. However most did realize the significance of the occasion and quite a festive mood prevailed. VIA had recognized the importance of the event and had given each passenger a fine certificate, suitable for framing, indicating that the holder had been a passenger on the first train.

Until midnight the train did not officially exist but ran as "Extra 6777 East". Nevertheless the soon-to-be-scheduled time was kept to fairly closely with departure from Sherbrooke at 11:29, just 12 minutes late. At four minutes after midnight the train performed the back-up manoeuvre unto the C.P. Rail line at Lennoxville,



*"All aboard for the Atlantic". Gate 19 Central Station in Montreal on the evening of May 31 1985. The first "Atlantic" in more than three-and-a-half years is about to leave.
Photo by Fred Angus.*

and at that time became a regular train, VIA No. 12. So the Atlantic continued till the early morning when there was a

STOP FOR CUSTOMS INSPECTION
at Jackman Maine. Until 1981 through passengers did not have to undergo inspection at the U.S. border but now all must answer questions. The train was already late due to a disturbance at Megantic, and the customs showed extra zeal in their inspection. Since then things are somewhat easier if the through passenger is a Canadian or American, and the delay is less. However these various delays meant that departure from Jackman was not until 4:15 A.M. or 1 hour 20 min. late. It was daylight at Brownville Junction on June 1, and a wet day it was. Rain fell most of the time with few letups. Nevertheless some time was made up, especially on the run from McAdam to Saint John. Finally, at 12:21, 1 hour 11 minutes late the Atlantic

PULLED INTO SAINT JOHN

and came to a stop just as the skies opened and a deluge almost drowned the disembarking passengers! Some said that this was a good omen, a real "baptism" of the new service. In contrast to the large crowds that greeted the original through train on June 3 1889 there were few people at the station to greet the incoming train. This was due to the bad weather as well as the fact that there had been an "Advance Atlantic" on May 24 which did not carry regular passengers but which received the publicity given by the media to the start of the service. In contrast the original inspection run arrived quietly in town on May 16 1889 carrying only W.C. Van Horne, R.B. Angus, and F.W. Cram General manager of the N.B. Railway, with a few lesser officials. They stayed only three hours and returned; the big celebration then was reserved for the first regular train seventeen days later.

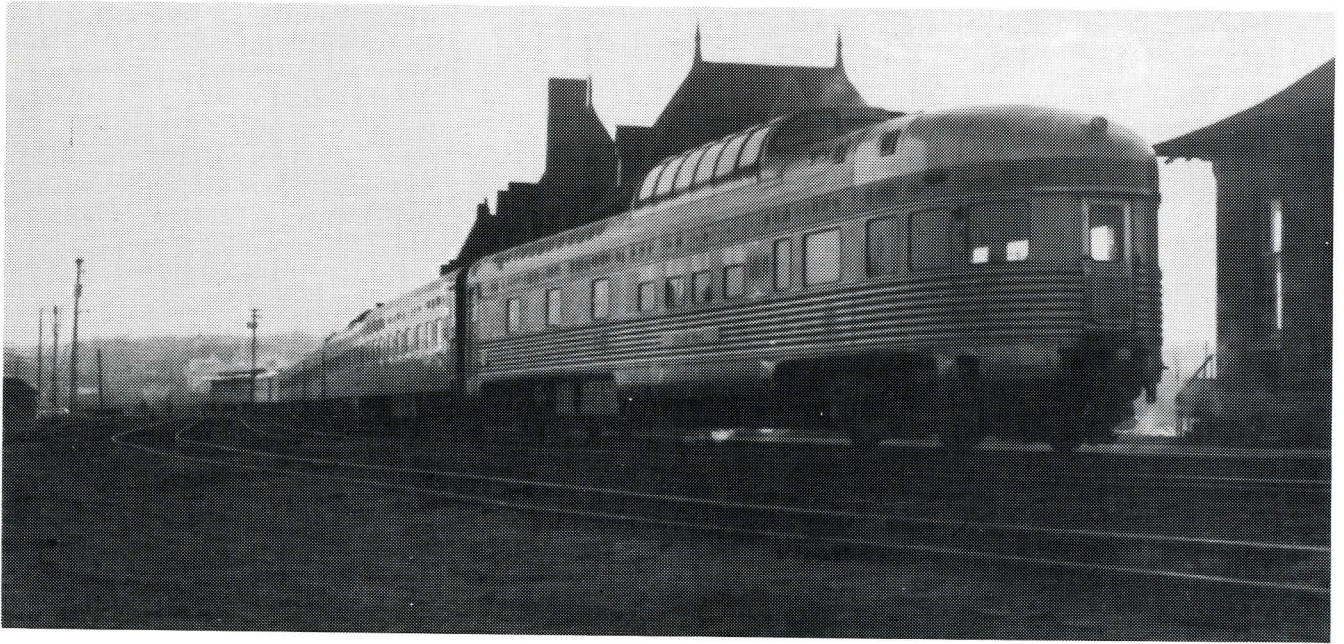


This is to certify that the holder of this certificate was a passenger aboard the first run marking the restoration of the "Atlantic" service between Halifax, Saint John, Fredericton and Montréal via the State of Maine.

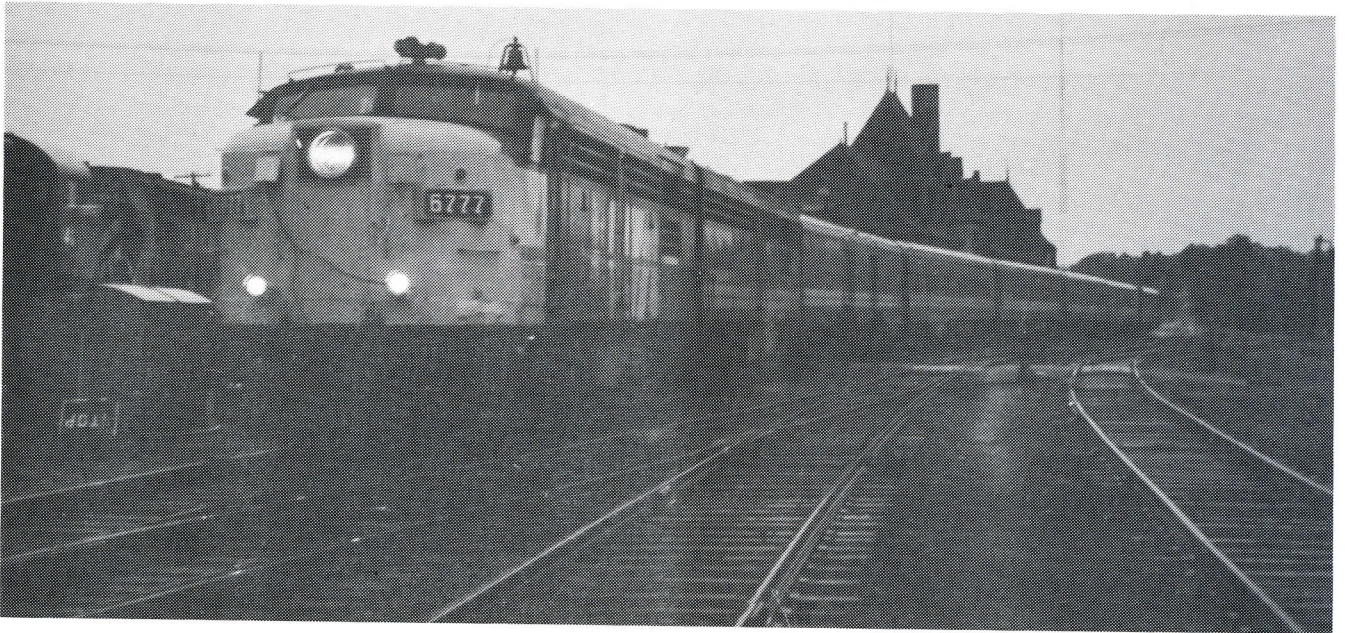
June 1985



VIA Rail Canada Inc.



*The "Advance Atlantic" seen at McAdam on May 24, 1985.
Photo by David Morris.*



*McAdam N.B. June 1 1985. The first regular passenger train for three-and-a-half years.
Photo by Fred Angus.*

Just as in 1889, the new Atlantic continued on to Halifax and made up more time en route. Since then it has run regularly, and some of the problems are being solved. The Atlantic is now the only through train, as the Ocean now terminates at Moncton for the first time since it was inaugurated in 1904. It is strongly rumored that the October time change will see the Atlantic depart from Montreal at 6:00 P.M. instead of 8:45. This will mean that the Jackman customs stop instead of near 3:00 A.M. will be about midnight a much more civilized hour! The

Atlantic will no longer offer connection with the Canadian in Montreal, but this is not very serious as the connection was seldom kept anyway and VIA often had to fly passengers from Sudbury to Montreal to connect.

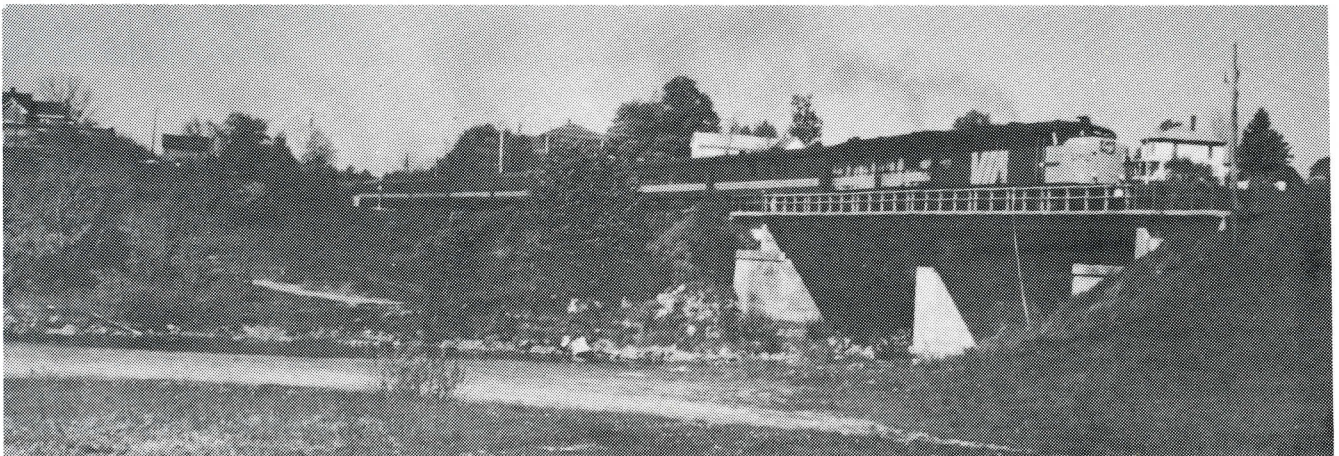
Anyone who has not done so should take the trip on the Atlantic. It is a scenic run and the most direct connection to the Maritimes. If passengers continue to use it it will show that those who fought for its re-instatement were right and the "Short Line" service will continue well into the twenty-first century.

SOME SIGNIFICANT DATES IN "SHORT LINE" HISTORY

- Dec. 10, 1888 Last spike on "Short Line" driven at 8:00 A.M. 12 miles east of Brownville Junction, Maine.
- May 16, 1889 First official inspection train from Montreal arrives in Saint John.
- June 2, 1889 First regular through train leaves Montreal arrives at Saint John next day.
- Sept. 24, 1955 First use of name "Atlantic Limited" for Montreal-Saint John train. The name had previously been used by the Soo Line - C.P. train from Minneapolis to Boston via Montreal, started in 1889 and closely allied with the Saint John service.
- Oct. 27, 1979 Last C.P. Rail "Atlantic Limited" leaves Windsor Station Montreal.
- Oct. 28, 1979 First VIA Rail "Atlantic" Montreal -Halifax via Saint John.
- Nov. 15, 1981 "Atlantic" discontinued due to government order. No service in the State of Maine.
- May 24, 1985 Advance run of revived "Atlantic".
- May 31 - June 1, 1985 "Atlantic" back in service.



*Arrival at Saint John. 12:21 P.M. June 1 1985. The skies opened!
Photo by Fred Angus.*



*The second eastbound Atlantic crossing from the United States into Canada at Vanceboro Maine - St. Croix N.B.
on June 2 1985.
Photo by Fred Angus.*



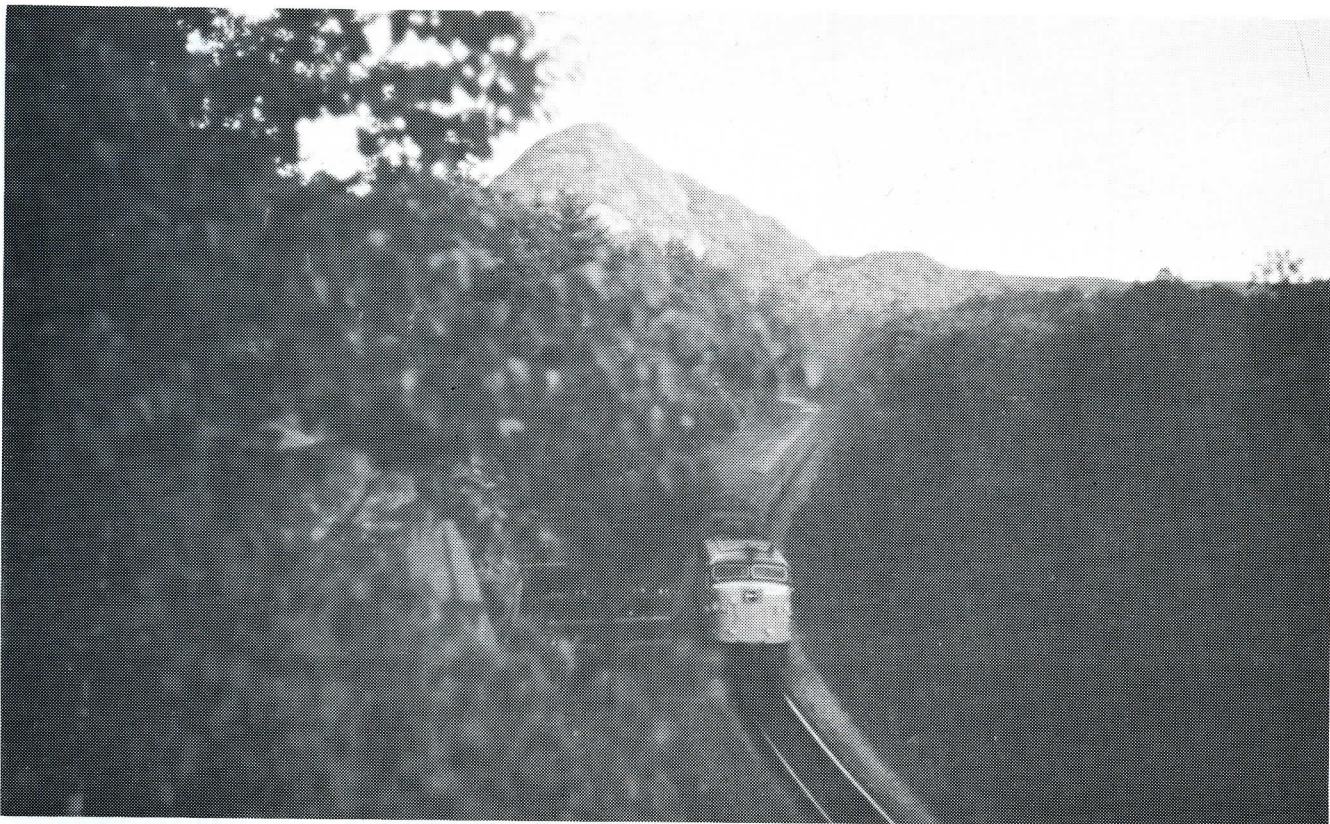
June 3 1985, the 96th anniversary of the arrival of the first through train at Saint John. Appropriately enough the train bears the inscription "Short Line 96".

Photo by David Morris.



Once more this scene will be visible. The rear-end dome car of the Atlantic in the early hours of the morning at Jackman Maine.

Photo by David Morris.



A rare view of the Atlantic at Onawa Maine as the first rays of the sun touch Boar Stone Mountain in the background. The late schedule (soon to be modified) and the fact that the train was late allowed this view at 5:37 A.M. on July 28, 1985.

Photo by Fred Angus.



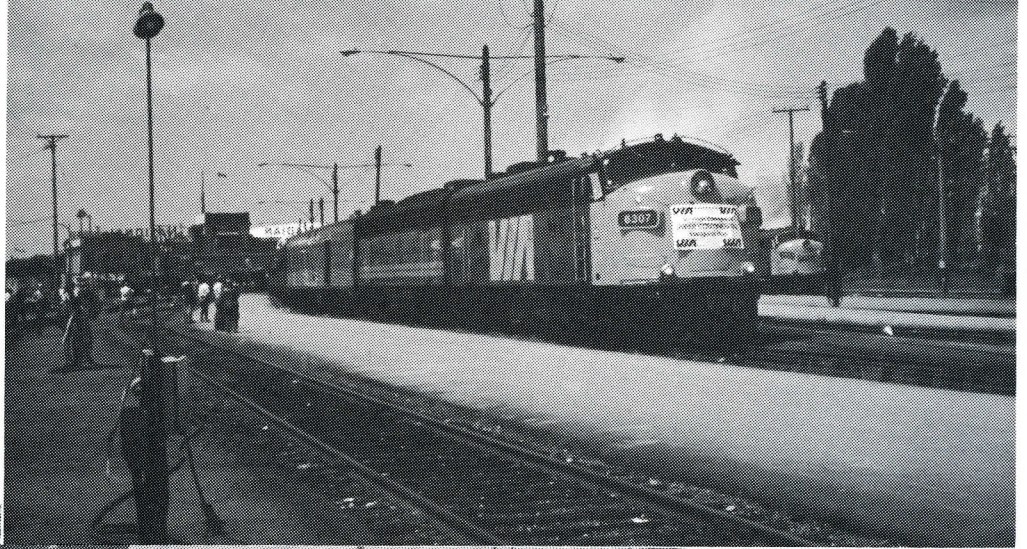
One casualty of the revival of the Atlantic was the R.D.C. service between Fredericton Junction and Fredericton. It did not cease immediately but was re-scheduled and lasted until September 14. This is the last trip, about to leave Fredericton on Saturday, September 14, 1985.

Photo by Fred Angus.

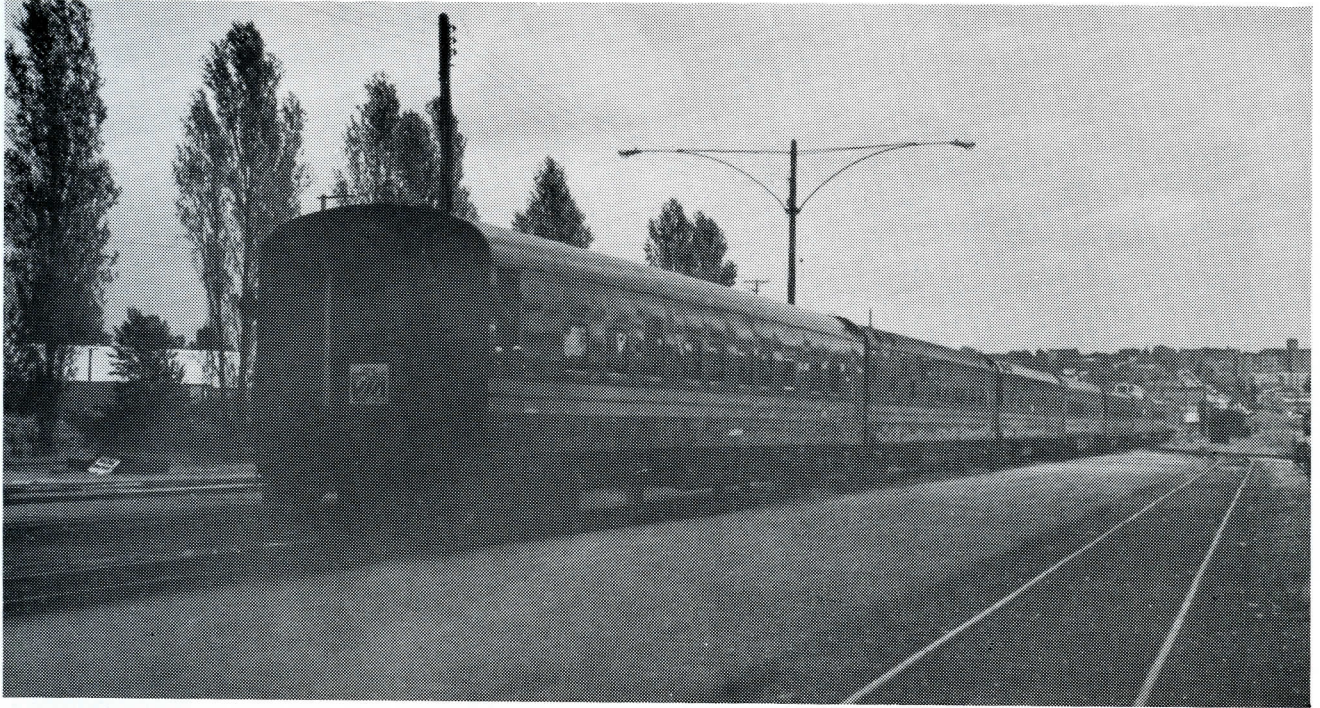
The "Super Continental"



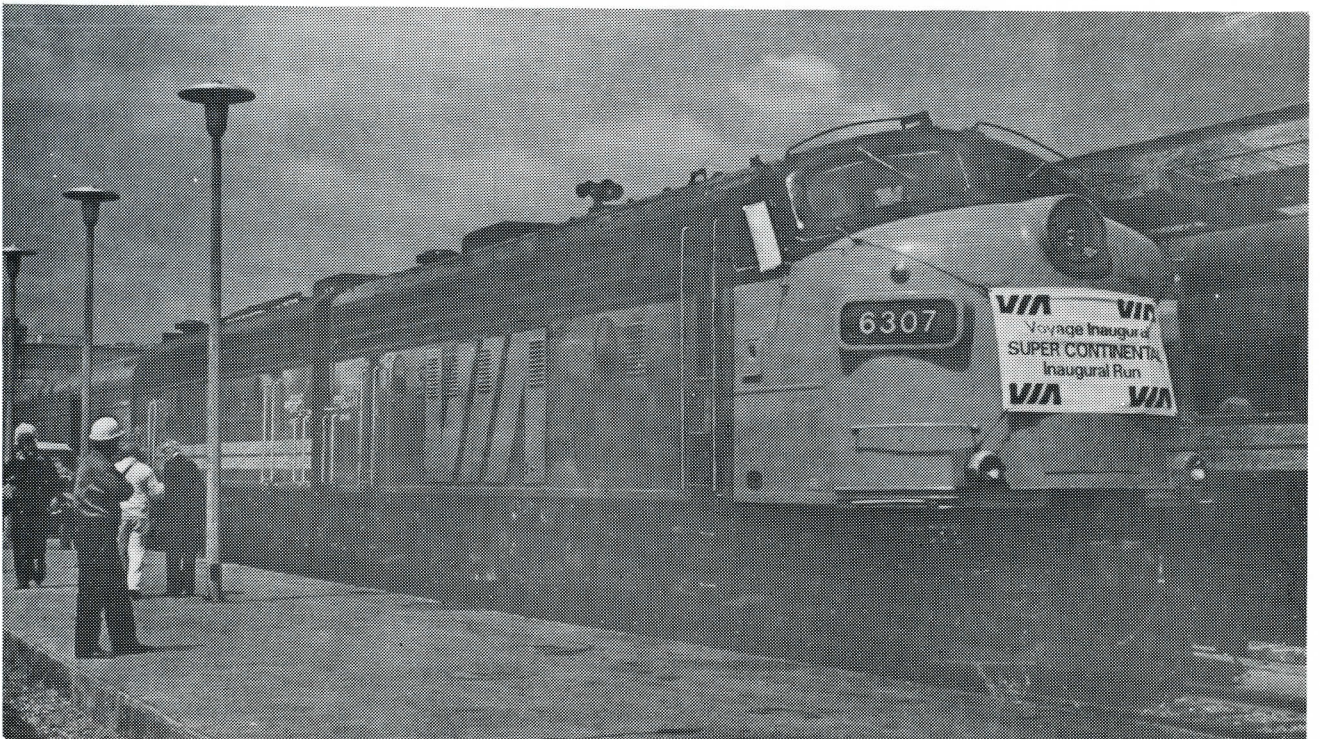
By: Mark Paul



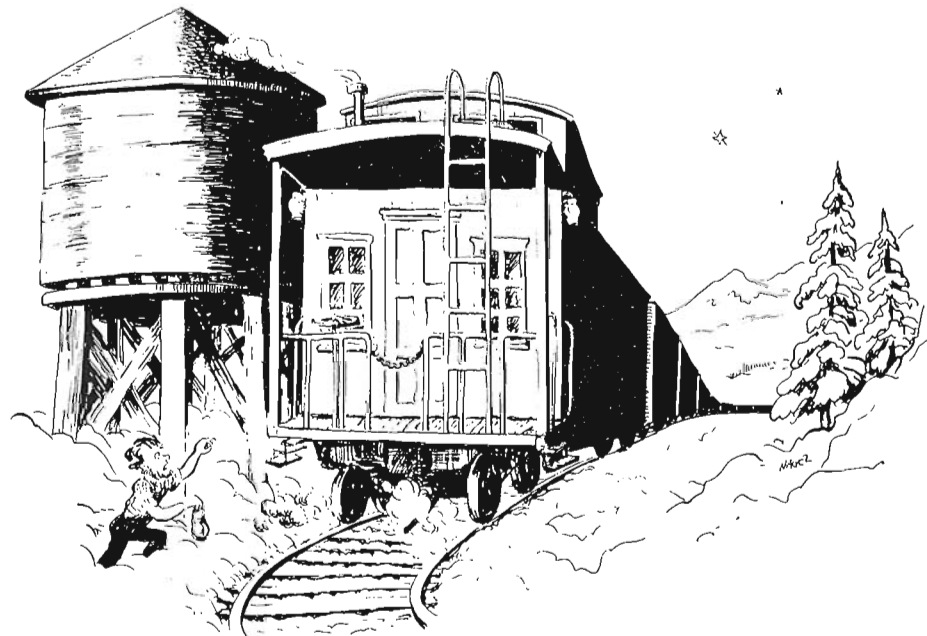
On the same day that the "Atlantic" returned, the "Super Continental" also departed from Vancouver on its "second inaugural" run. Our member Mark Paul was on hand to photograph the activity at Vancouver station as both the "Super" and the "Canadian" prepared to leave.



*The first "Super" just leaving Vancouver on its long run to Winnipeg.
Photo by Mark Paul.*



*Locomotive 6307, suitably decorated with a banner, headed the first eastbound "Super".
Photo by Mark Paul.*



Red

'Twas Christmas eve in the Windermere,
Forty below -- bright and clear,
The night he left our head-end shack,
Without a hat or coat to his back.

I'll tell the story if I can,
'Bout this tall red-headed man,
Who walked from Parson to Harrogate,
The night the train was four hours late.

'Twas bitterly cold as I said before,
Forty below, and then some more,
But we galloped along with half a train,
Forty-five empties going back for grain.

'Twas Lacey who thought of the boys up ahead,
And with a generous look he turned to Red,
"There's a shot of rum in the locker there,
Take it up to the Engineer."

So Red climbed down without hat or coat,
('Twas a cold winter's night, this fact you must note)
And ran up ahead to the water tank,
Plunging through many a snowy bank.

"Merry Christmas up there, old timer Mack,
Pat that old Hog over the back,
This shot of rum will do the Deed,
'Twill put new life in your old iron steed."

"Hello, down there, is that you, Red?
Merry Christmas yourself," the Hogger said.
"I'll never forget you in my dreams."
(And proceeded to forget right then it seems).

She coughed and spluttered, then held her feet,
And rushed those cars by Red so neat,
Right then it happened -- 'Twas one fell blow
When we left Red standing knee-deep in the snow.

A storm came up, as the miles flew by,
And colder it got, not a star in the sky,
But we galloped along through the frosty night --
Not a thought of Red and his pitiful plight.

Soon, perchance, we had switching to do,
Some cars on ahead for a tie-making crew;
"Where's Red?," says Lacey -- "Dam'f I know;
When I saw him last he was wading in snow."

The thought flashed quickly -- the mistake we'd made
We had opened her up, as if making a grade,
And pulled that train by Red so quick,
(We had to admit to a very mean trick).

The boys got busy and hung up the phone,
The dispatcher had answered in a very hard tone,
"Go back with your engine as quick as you can,
And keep on going till you pick up your man!"

So we backed her up that Christmas morn,
We were all half frozen, and very forlorn
And wondered what the "Super" would say,
And if we'd all get fired next day.

"My God," says Lacey, "There's a brakeman's light,
ease up on her,
Mack, it's Red alright".
He'd walked eleven miles to Harrogate,
That's why the train was four hours late.

F. W. Mackenrot
(1876 - 1938)
Hogger, C. P. R.

C.R.H.A. communications



COMMUNICATIONS

NEWS FROM THE DIVISIONS

Pacific Coast Division: Last June 1, the Division officially opened the Fraser Mills station in conjunction with Coquitlam District's "Dogwood Days" celebrations. The restoration work was admired by about 75 people who expressed their pleasure at the work which had been done so far.

Rocky Mountain Division/APRA: June was a busy month in Edmonton too with the APRA museum participating in the Edmonton Journal's "Country Tourin" Project on June 9. In the span of four hours some 1,600 people visited the museum!

The museum tour was well organized. Visitors were first met by member David Brandenburg who provided a brief history of the station and water tank. Then Alan Vanterpool guided them on to enginehouse number 1 where Don Evans, Mike Carlson and Blackie Clark guided people through engines 1392 and 73. Harrie Pollard answered questions and showed off the baggage. Other members involved in continuing the description tour were Les Corness, Colin Hatcher, John Gilpin, Gary Bellrose (employee at the museum), Jerry Vandermeer, Don Scafe, Willie Wilson, John Parker, Jim Rutledge, Geoff Lester and Trent Klein.

Everyone went away happy and it is unlikely that any of their questions were left unanswered.

During the summer the museum made good use of government programs for student employment which helped to speed up the progress of the many projects.

Bytown Railway Society: The Society celebrated its 20th Anniversary as an organized railfan group and as such is one of the oldest other than a few which were founded many years before (eg: CRHA Montreal) from a membership of approximately 75 in the early years, the Society has grown to over 260 members with approximately 40% of these from out-of-town.

The Society's magazine **BRANCHLINE** has developed from a two to four page newsletter produced sporadically, to an eighteen page monthly periodical which includes photographs and which is now offset printed.

Other Society activities have included the acquisition and restoration of equipment ranging from a Central Vermont steam crane to a CN 1958 Pontiac.

In addition the group has participated in the steam operations at Wakefield since it started firstly with #1057 and then #1201. The most recent activity has been the publishing business

with among other things the successful **CANADIAN TRACKSIDE GUIDE**.

The Society has been a success for the past 20 years and the plans and prospects for the future look just as good!

Notes:

Each year, the accounts of the Association Renewal Funds, The Canadian Railway Museum, our Capital Trust Funds, and the National Museums Specialized Museums Funds are audited by DELOITTE, HASKINS & SELLS, the International Accounting Firm. Our 1984-1985 Financial Statements have been received after being audited. At normal rates for professional accounting services, the cost of the audit was \$5,950. D.H. & S. invoiced the Association for \$2,800. Thank you DELOITTE, HASKINS & SELLS for your kind treatment of our Association.

(signed) Stephan Walbridge, Treasurer

Special Note:

As you probably have noticed, **COMMUNICATIONS** has been rather sparse for a number of issues particularly for "News From the Divisions". There were a number of reasons including limited activities of members during the summer. But as has been mentioned before, the main reason is the lack of input from the Divisions.

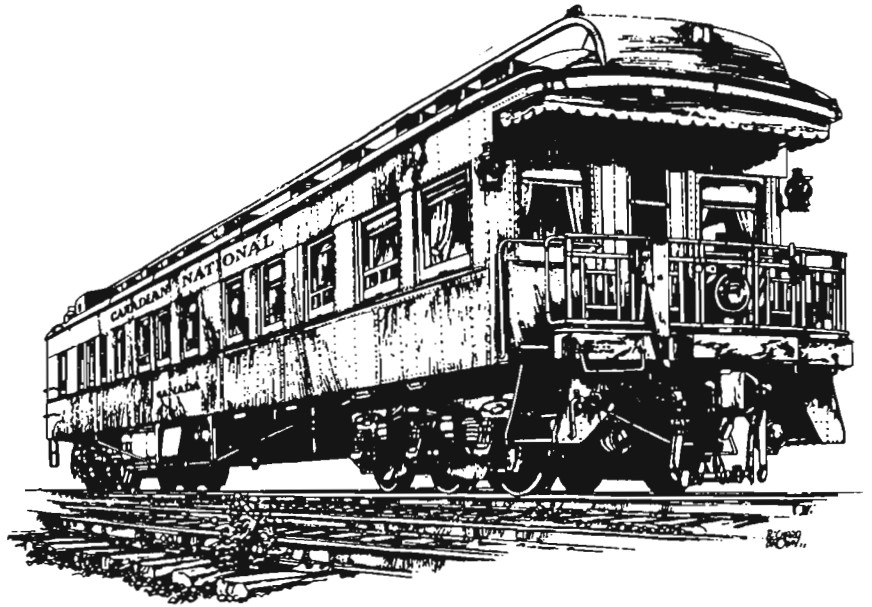
Except for the occasional letter (my thanks to those who wrote), the information for **COMMUNICATIONS** comes from the Divisions' newsletters which I get directly or indirectly (via the Bytown Railway Society). For Divisions who do not regularly publish a newsletter I have no source of information on these activities.

At the **CANADIAN RAIL "Review Meeting"** last February I made the suggestion that Divisions be encouraged to assign a member to report to **COMMUNICATIONS**. This member could be an up-and-coming one who the directors feel might be future executive material. This "Communications Reporter" (for want of a better title) could perhaps attend executive meetings and "learn the ropes" as he/she is making notes for the report to **COMMUNICATIONS**.

I for one find it interesting to know what is happening in the other Divisions. This activities and projects can be helpful for other Divisions as well when they plan new projects and programs. The successful tour of the APRA museum in Edmonton is a good example of a well organized program. The BRS anniversary illustrates how a railfan organization can develop and grow.

So how about it. As well as the regulars let's here from everyone (Crowsnest & Kettle Valley, Keystone, Windsor & Essex, Grand River, St-Laurence, New Brunswick etc.).

The business car



YOU DON'T HAVE TO BE A RAILWAY BUFF OR naturalist to join the party celebrating the centennials of two of this country's institutions — the Canadian Pacific Railway and the national parks system.

The last spike of the transcontinental railway was driven on the second try by Donald Smith at Craigellachie, B.C., on Nov. 7, 1885. He bent a spike on his first swing.

The Canadian Pacific Railway linking East and West brought with it a transcontinental passenger service that made Canada's natural grandeur available to everyone.

The CP Rail main line passes through the first three national parks — Banff, established in 1885, and Glacier and Yoho, both established in 1886. Today, they are excellent places to soak up early rail history and all three are easily reached by the Trans-Canada Highway.

But informal pilgrimages are probably the best way to salute the double centennial. Craigellachie, a small picnic ground with a marker for the last-spike ceremony and a cairn, is only a fleeting sight for passengers facing north on The Canadian, Via's transcontinental train, whose run between Calgary and Vancouver is one of the world's great rail trips.

Of the three original parks, Glacier in the Selkirk Mountains, halfway between Golden, B.C., and Revelstoke, is the westernmost and closest to Craigellachie. It probably has the best combination of natural beauty and railway lore.

Glacier is avalanche and bear country. There, railway and nature forge a flimsy truce at Rogers Pass, the most difficult mountain rail crossing in Canada.

A century ago, the route snaked treacherously through the pass, hugging the slopes of Mount McDonald (2,893 metres) and Avalanche Mountain (2,864 metres).

Thirty-one snowsheds, covering 6.5 kilometres of track, were built to keep the line open in winter. But 200 people still died in avalanches in the first 25 years the line was open. The biggest tragedy occurred March 4, 1910, when 62 people were smothered by an avalanche as they were clearing the line.

That prompted Canadian Pacific to build the Connaught Tunnel under Mount McDonald. Today, the railway, as part of a \$600-million project, is building a second tunnel and double-tracking much of the line through the pass to handle increasing traffic demands.

The right of way abandoned when the Connaught Tunnel was built is now used for hiking trails. Parks Canada, aided by CP Rail, has built a small museum — called an information centre on road signs — at the summit of the pass, where the rail line's history is told in photos, models and movies.

Three rails in the park, suitable even for Sunday walkers, trace old rail lines. One, called Abandoned Rails Trail, crosses through snow sheds at Mount McDonald. Several more difficult climbs provide inspiring views of several peaks named after Canadian Pacific directors and officials, including Mount Sir Donald (3,297 metres), which honors Smith.

Parks Canada has issued a centennial pamphlet titled *Snow War: A Guide to the History of Rogers Pass*, with suggested hiking trails and vantage points to appreciate the scenic glory of

the mountain peaks and deep valleys. Another guide, Footloose in the Columbias, offers information on 34 trails in Glacier and nearby Mount Revelstoke national parks. Both are free from the Superintendent, Mount Revelstoke and Glacier National Parks, P.O. Box 350, Revelstoke, B.C., V0E 2S0.

Source: The Edmonton Sun July 14, 1985. Via Lon Marsh.

ON THE MORNING OF NOV. 7, 1885, WHILE photographer Alexander Ross was preparing to record the driving of the last spike, a young boy worked his way to the front of the assembled group and, positioning himself just beyond Donald Smith, became one of the central characters in what would eventually come to be one of Canada's most recognized photographs.

It was not completely by chance that the lad, Edward Mallandaine, was on hand for the occasion as he was rather enterprising for his age and had already established a small courier service out of Farewell, later renamed Revelstoke, that same year.

A CHALLENGE

The son of an architect and civil engineer who emigrated from England in 1860, Mallandaine lived and was schooled in Victoria, B.C.

While in school, his teacher once made the mistake of commenting that "you can't set fire to water."

Taking up the challenge, he soaked wood shavings and paper in oil, dumped them in Victoria harbour and set them alight. Fortunately no harm came from his prank, but it was some indication of the boy's impetuous nature.

10¢ A LETTER

At the age of 17, he set off eastward to fight Indians during the Northwest Rebellion. He got only as far as Golden, B.C., before the hostilities ended.

Returning west as far as Farewell, he started a small freight service catering to the railway contractors, the newspapers and businessmen. He earned an average of 10 cents per letter delivered.

Farewell was a wild town in those days, as were all of the fledgling communities along the railway. In later years Mallandaine was to comment: "life was exciting, for there were numerous accidents, fights, rows and thrills every day, and all day on the road and the camp and town. Drinking! Yes, the medical men were kept busy."

When Mallandaine heard that the party from the East was en route to Craigellachie in order to witness the driving of the last spike, he was determined to be there.

Hopping the last construction train, he headed west on Nov. 6 and arrived in good time to ensure his place in history.

THE LAW

Fifty years later, as stipendiary magistrate and reeve of Creston, B.C., which he help found, he still recalled the excitement of the moment: "everybody cheered; the locomotive whistle shrieked; several short speeches were made and hands were shaken.

"Major Rogers, the discoverer of the pass named after him, became so gleeful that he up-ended a huge tie and tried to mark the spot by the side of the track by sticking it in the ground."

Mallandaine continued his association with Canadian Pacific by serving as land agent for several years, based in Cranbrook and reporting to Colonel Dennis, the department head in Calgary.

Enterprising throughout his life, Mallandaine worked as an architect, engineer, land surveyor, tie and lumber agent, irrigation engineer, townsite commissioner, magistrate, councillor, reeve as well as serving as a Colonel in Canada's First World War overseas forestry corps.

The last surviving member of the Last Spike photograph died in Creston in Aug. 1949 at the age of 82.

THE CASE FOR DOUBLE-DECKER, SELF-powered passenger cars. Even 40% empty, a three-car train still covers operating costs. By Andy Turnbull.

Like the cry of a lost soul, the mournful wail of a steam whistle sounds across the lonely prairie. A brilliant light stabs the darkness and the night express — a mighty steam locomotive pulling a string of brightly lighted passenger cars — thunders on its way.

In some of those cars the rich and powerful dine by the light of crystal chandeliers. In others, lonely hearts count the miles and the minutes until they meet their loved ones, honest settlers plan their future holdings and eager adventurers look forward to the new sights of a new day.

That's the way it used to be. Steam trains tied Canada together in the years that followed Confederation and they were the preferred long distance transportation for almost all Canadians until about 40 years ago.

Better roads and air travel changed that. Jet

planes carry most long distance travellers now and road vehicles handle the short runs.

Many of us like it that way. Air travel is faster over long distances and cars are more convenient for the short haul. Often more expensive — in real terms — than rail travel, air and road costs are buried in the infrastructure of our society and we don't see them. The passenger rail service that persists is subsidized at a cost of hundreds of millions of dollars a year.

Doug Smith wants to change all that. A senior planning officer in the Railway Passenger Branch of Transport Canada, he proposes a new machine he says could recover the operating costs on some routes immediately, and which should cut the costs on all routes. Developed now, it could also be the basis of a new export industry.

Enter Smith's proposal for the double-deck, self-powered railcar — a combination of the two tried and proven ideas.

A double-deck railcar costs and weighs only about 20% more than a single-deck car of the same length, according to engineer Harry Valentine, who prepared a technical report on the idea for the Science Council of Canada, but it can haul 70-100% more passengers. Double-deck railway coaches make Toronto area's GO Transit commuter trains practical, they are used on busy routes in France and in the U.S., and their use is planned in Denmark, Switzerland and Sweden.

Self-powered railcars have been successful in Europe where the engines have been located inside the cars rather than under them. There's room for a bigger engine inside the car, and the engine is protected from the weather, making servicing easier and cheaper.

One design for the car, which Smith refers to as a "BRC" (Bi-level Rail Car) would be 27 metres long, would be powered by a single 1000 horsepower diesel engine with electric drive, and would carry up to 130 people at speeds up to 145 kilometres an hour. Each BRC could tow a single unpowered trailer car which could carry an additional 130 passengers; two or more BRCs could be connected to make up a train.

At about \$2 million each, BRCs would be much cheaper to buy — in terms of cost per seat — than conventional trains of the size used on most routes in Canada. According to Smith, a BRC pulling a trailer car would be cheaper still, and would offer sufficient seats to fill the needs of most Canadian routes.

Based on Smith's 1980 figures and on engineering projections, BRCs could run in two-car consists for less than the perceived cost of driving an automobile and a three-car train of BRCs could actually recover operating costs with a 60%

load — a goal beyond practical consideration for conventional passenger trains.

Even running as single cars, BRCs would lose less money per seat than a three-car conventional train loses now. That could make it practical to consider increasing the frequency of service on many routes — a move that would probably attract more customers and which might well make more routes recover their operating costs.

Some railway equipment manufacturers dismissed the BRC as an impractical idea when Smith's report on the potential of a bi-level rail car was published by the Science Council in 1982. But an analogous car since developed in Italy has proved to be one of the most practical and efficient passenger rail vehicles in the world. Smith's concept looks even better than the Italian design, which can run only as a single unit, and considerable interest is now being shown in the BRC in Canada and elsewhere in Europe.

One supporter of the concept is Jim Ferguson, recently retired as director of engineering for Can Car Rail Inc., Thunder Bay, Ont.

"The idea is feasible," Ferguson says, "there's no doubt about that. BRCs could be built with existing, well-proven components. I've spoken to some of our British associates about the idea and they like it too."

The possibility of export sales offers more promise for Smith's proposal. In the United States the BRC could turn around many unprofitable routes and potential sales for a Canadian-designed and built BRC could be very good.

In the Los Angeles-San Diego corridor, for example, Amtrak carried 1.2 million passengers in 1980 and lost more than \$2 million on revenues of \$7.2 million. Smith's figures show that BRC trains carrying the same number of passengers on the route would have covered operating costs.

Development and construction costs for the first BRC would total about \$4 million, Smith says, noting also that it should pay for itself after a few years of operation.

Whether a BRC will ever carry Canadian passengers is not known, but certainly the chances are improved because of Doug Smith's ability to come up with the right idea at the right time.

The breakthrough came three years ago when the Science Council commissioned a study of new ideas on intercity passenger travel. The assembled high-powered scholars peppered air, bus and car travel with new ideas, but came up dry on rail. Smith, then employed by the Canadian Transport Commission, was seconded for one week to help try to save the report.

"The only solution I could see that would improve performance and be economically viable

was the bi-level vehicle," Smith recalls. "The Council liked the idea. They put Harry Valentine on the technical evaluation and I spent a year of my spare time researching and writing the economic side of the argument."

"I already had a government job and they don't pay public servants twice, so I guess you could call this my gift to the transportation planners of Canada," Smith says jokingly.

"Most passenger trains of the 1980s," Smith says, "are the same as those of the late 1890s — a locomotive hauling one or more passenger cars with a basic crew of five. In 90 years of railroad development the locomotive has changed from steam to diesel and the cars from wood to steel; speed, safety and comfort have been improved; but the basic concept remains the same."

"That concept was developed when labour was cheap, when relatively few Canadians travelled, and when the railways had no competition. Times have changed, and old ideas just don't work any more."

"A train consisting of a locomotive and one 88-seat passenger coach cost at least \$7.50 per train kilometre or more than 8¢ per seat kilometre to move in 1980. Since the practical load factor for most services is about 60% occupancy of seat kilometres operated, the real cost was nearly 14¢ per passenger kilometre."

Longer trains cost less to run, but that doesn't make them better transportation. A five-coach train could run for less than 3¢ per seat kilometre — or about 5¢ per passenger kilometre — in 1980, but five-coach trains are not practical in the modern travel market. It takes 264 people to make up a 60% load for a five-coach train, and even between major centres loads that size can't be assembled frequently.

In real life studies, frequency of departures has shown to be a major factor in the use of passenger trains. A tale of four cities illustrates the point.

The city of London in southern Ontario has the benefit of three rail services to Toronto — it's on the Toronto-Windsor and the Toronto-Sarnia routes as well as being an end point on the Toronto-Kitchener-London route. In total, there are 14 trains a day each way between Toronto and London. These trains carry about 22% of all traffic between the two cities.

In a comparable situation there are only five trains a day between Ottawa and Montreal and they carry about 2% of all travellers.

"If London business people want to go to Toronto for a day they take the train," Smith says, "because they know they can come back when they want to. They will not have to wait more than an hour."

"But Ottawa business people who go to Montreal

have to plan their trips carefully. If their meetings run five minutes overtime they may face a three or four-hour wait for the next train. Rather than take the chance, they usually drive their own cars."

Among the known ways to increase passenger rail traffic are to keep fares down and to increase the frequency of service. But increased frequency could mean fewer passengers per trip as some passengers abandon old trains for new ones — and therefore higher losses with conventional trains.

That's an old problem for the railways and one that might have been solved in 1948 with the introduction of the Budd Rail Diesel Car — usually referred to as an RDC. An 88-seat passenger coach with two small diesel engines hung under it, the RDC could run alone as a one-car train or as one of two or three making up a larger train. Either way, only two operators were required and running costs were much lower than for conventional trains. It was a good idea, but it came at the wrong time.

The RDC was designed and built for trips of 320 kilometres and less, but buses were taking over the short runs in 1940s and early 1950s. Buses never were and probably never will be as fast or as comfortable as trains but they had the advantage of being smaller, and being able to operate efficiently with smaller loads — and therefore to provide more frequent service.

Rather than try to compete with buses, the railways chose to concentrate on long distance travel — a market they thought they could dominate — and they invested more than a billion dollars in streamlined express trains. Within a few years new airliners gave the market to the airlines and virtually wiped out the railways' billion-dollar investment. In the 1950s, North American railways gave up any hope of making a profit on passengers and most have considered passengers a liability since.

But that may have been a mistake because experience in other countries shows that modern trains can be faster than aircraft over downtown-to-downtown distances up to about 500 kilometres. On these shorter trips, air travellers can lose more time on the ground than they save in the air. With the right trains, Smith says, many Canadians would soon be back on the rails.

THE TRINITY TRAIN LOOP WILL BE PRESERVED
as an historic site, thanks to the tireless efforts and determination of railway researcher Clayton Cook of Brooklyn.

Mr. Cook became concerned about the preservation of the Trinity Loop when Terra-

Transport announced that it would be discontinuing rail service on the Bonavista Branch and the 89 miles of track from Bonavista to Clarenville would be removed.

In May of this year he wrote a letter to the MHA for Trinity North, Charlie Brett, and sent copies of that letter to the councils of Trinity and Bonavista.

In a letter to the editor which appeared in the May 8 edition of the Packet Mr. Cook pointed out that during the summer months, hundreds of tourists from Newfoundland and outside the province visit the train loop. Through research Mr. Cook discovered that the loop at Trinity was one of the only three in Canada. The other two are located in the Rocky Mountain railway chain and are not visible because they are located within two mountains.

The Trinity Loop, being more visible in scope, he said, makes this train loop unique, and as such, makes it a tourist attraction.

In June of this year Mr. Cook wrote letters to Bill Matthews, provincial minister of Culture, Recreation and Youth; James Morgan, MHA for Bonavista South; Glenn Greening, MHA for Terra Nova and Morrissey Johnson, MP for Bonavista-Trinity-Conception. In his letters he pointed out the importance of the Trinity Loop and urged these people to support his idea of having the loop declared a provincial historic site.

All of these people took action. Mr. Brett wrote to Mr. Matthews on May 16 with the suggestion that the Loop be declared an historic site.

"Probably some consideration should be given to preserving it as a tourist attraction with appropriate walking trails, lookouts, etc.," he wrote.

The Town of Bonavista sent letters to TerraTransport, MP Morrissey Johnson, the Hon. Mr. Matthews and Mr. Morgan. The Town of Trinity also wrote letters urging that the loop remain.

Mr. Morgan, Mr. Greening and Mr. Johnson wrote letters to officials of TerraTransport supporting the retention of the Loop as a tourist attraction.

In the early part of July the efforts of all these people were rewarded when TerraTransport announced that the Trinity Loop would remain intact.

In a letter to the Town of Trinity, dated July 5, P.A. Clarke, President and General Manager of TerraTransport, confirmed that the Trinity Train Loop will be retained as an Historical Site when the removal of the Bonavista Branch Line commences.

"I am pleased to confirm," he wrote, "that the portion of trackage including the Railway Bridge,

which forms the Trinity Loop will remain in place."

UNIQUE IN CANADA

When the survey was made for the railway from Clarenville to Bonavista, engineers encountered a problem in finding a route which would allow the tracks to run down to the tide-water at Trinity from the high country region between Trinity and Bonavista Bays.

The ground in the area was very hilly and the distance from the high country to tide-water was so short that if the tracks were laid to the incline the grade would have been too steep for trains to operate.

In railway construction the track can only be laid to a certain incline. For a given distance, there can only be a certain drop in elevation. If the distance is too short from one point to the other to allow this drop in elevation, then the line has to be lengthened. Such was the case for the Trinity Loop.

When the survey was engineered, it was found that a direct line down one of the valleys in the Trinity Pond/Trinity region could not be located in Trinity because of the short distance and the sudden drop in elevation. This drop had to be overcome, and to do so the distance had to be increased. As a result, the railway was curved into a loop around a circular pond.

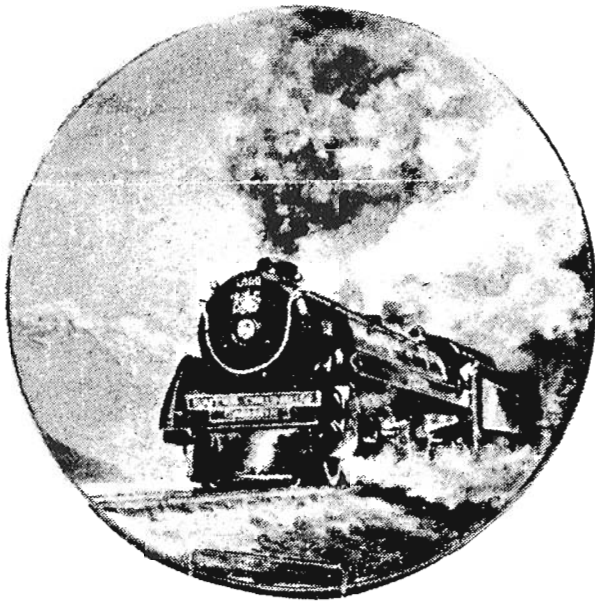
The circumference of the loop is one and a quarter miles and the drop in elevation in circling the pond is a little over 34 feet.

On the route from Clarenville the train went over the bridge, traveled the one and a quarter miles around the pond and then emerged under the bridge and along the edge of a steep ravine, and continued to Trinity.

The Bonavista Branch railway was opened in the fall of 1911. Last year TerraTransport received permission from the Canadian Transport Commission to discontinue the railway service from Clarenville to Bonavista.

The tracks from Bonavista to Clarenville will be removed by the end of this year. But the Loop at Trinity will remain; a reminder of the days when train was the only means of overland transport along the Bonavista Peninsula, and a testimony to the engineering skills of those who planned and built the Bonavista Branch line.

Source: The Clarenville Packet July 31, 1985. Via Mike Wragg.



AN ONTARIO COMPANY AND A U.S. ARTIST have combined to help keep the B.C. Government's money-losing Royal Hudson steam train on the rails, and to make money doing it.

Christian Bell Porcelain Ltd. of Mount Forest, Ont., will donate \$25,000 to the Government, part of the expected proceeds from the sale of ceramic plates marking the train's 10 years as a summer tourist attraction.

"It's somewhat bizarre," said Derek Dulley, proprietor of a North Vancouver store that will sell the \$89.50 plates, "an Ontarian and somebody from the U.S. donating \$25,000 to preserve our local attraction."

The Royal Hudson, built for CP Rail in 1940, was bought by the Government in 1973 to carry tourists along the scenic B.C. Railway line between North Vancouver and Squamish.

It has been a crowd-pleasing money-loser ever since. In 1982, it lost \$685,000, and the Government provoked a public outcry by announcing it was seriously considering cancelling the run.

Ted Xaras, a Philadelphia artist who designed the commemorative plate, said he suggested the idea of making a save-the-Hudson donation to Christian Porcelain owner Horst Muller.

Mr. Xaras said that, on a visit to British Columbia two years ago, he rode in the cab of the train up to Squamish and was impressed.

"Then we heard that there was almost a threat from within the B.C. Government of cost-cutting and they actually proposed to get rid of this thing."

"If you mention to rail fans that there's going to be a railroad eliminated, they sort of spring into action."

Mr. Xaras said he and Mr. Muller were motivated by more than simple altruism, but he denied the \$1-a-

plate donation is simply a marketing gimmick.

Mr. Dulley, the North Vancouver store owner, said the money will be used to start a permanent Royal Hudson Steam Train Fund. His shop, Queensbury Collectibles, is selling Hudson buttons for \$1 and giving 50 cents to the fund.

TORONTO — IN EARLY SEPTEMBER 1985, CN'S *Laser* piggyback service will link Montreal, Toronto, and Chicago. CN will invest more than \$15 million in capital improvements to attract use of this service. The new *Laser* run will use the St. Clair tunnel between Sarnia and Port Huron, and will run on both CN's and Grand Trunk Western tracks.

CN's *Laser* piggyback service generated more than \$7 million in revenue last year. The new line additions are expected to generate a potential additional \$20 million in revenue.

The new *Laser* service intends to take advantage of the nearly one million cross-border movements which filter through Ontario annually. As Chuck Schell, manager freight services says, "CN is going where the market is."

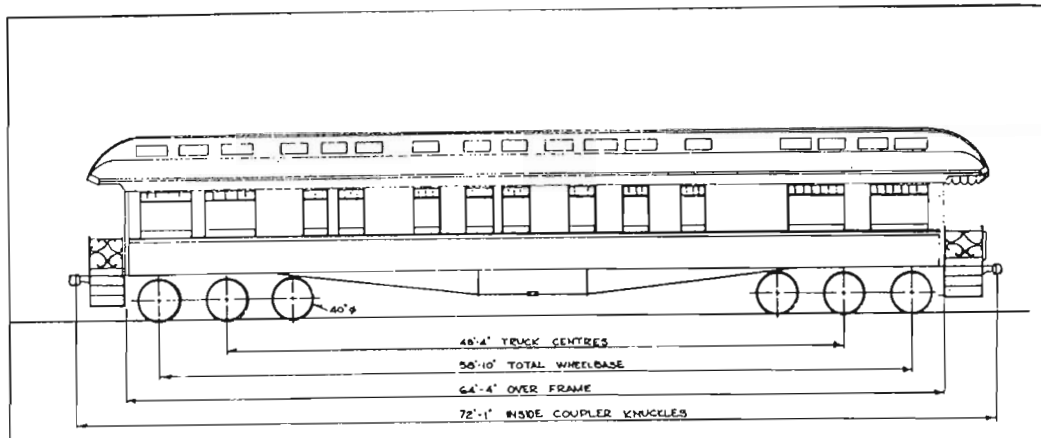
Initially, shipper-owned or U.S. rail-owned trailers carrying fruits and vegetables, paper, and general merchandise are targeted for *Laser* marketing efforts. This is because more than 90% of trailer container traffic carrying these commodities goes by highway simply because an effective alternative doesn't exist. "We expect *Laser* will capture a good percentage of this highway market," says Jim Powell, manager intermodal services.

According to Mr. Powell, transit time between Toronto and Chicago will be 13.5 hours; between Chicago and Montreal 23 hours. With a capacity to handle some 69,000 loads per year.

One of *Laser's* biggest selling points is the reliability of the service it offers. According to Ken Moffatt, project manager intermodal, and the man in charge of the *Laser* program, *Laser* trains reach their destination within 15 minutes of scheduled arrival more than 97% of the time. He attributes this achievement in part to centralized traffic control and double track, but most of all to the positive attitude of the train crews.

"They don't like anyone getting in their way when it's time to depart," says Mr. Moffatt. "They're really enthusiastic about this."

In anticipation of this run extension, CN is committing up to \$12 million for specially designed rail equipment to carry trailers through the St. Clair tunnel, and \$2.5 million for track expansion and additional gantry crane at Brampton intermodal terminal (BIT). Approximately \$500,000 will be spent for a piggybacker at the Montport container terminal (MCT).



Plan of the British Columbia and the car itself as restoration begins.

BACK IN 1890, THE YEAR THAT BARNEY AND Smith Company built a sleeping car named "Sherbrooke" for the Candian Pacific, the passenger train was king of the rails, and the care and attention lavished on its finish and details reflected that royal status. The Sherbrooke was built entirely of wood, with the frame of oak and the exterior sheathing of Honduras mahogany; the interior walls were also mahogany, inlaid and varnished and set off by polished brass fittings and hardware. Heavyweight six-wheel trucks ensured a smooth ride and a good night's sleep for those who rode the CPR's transcontinental route on which the car served.

After twenty years in its intended role, the Sherbrooke was removed to the CPR Angus shops in Montreal and converted to an officials' car with kitchen, dining room, deluxe sleeping accommodation, and lounge. The car's ends were converted to open observation platforms, and in this new configuration it was christened "New Brunswick". In fact, over the next 15 years, it was renamed five more times before at last being downgraded to a numbered car in 1928, serving as such for yet another 35 years. Sold for \$1000 in 1963, it was left largely to the elements

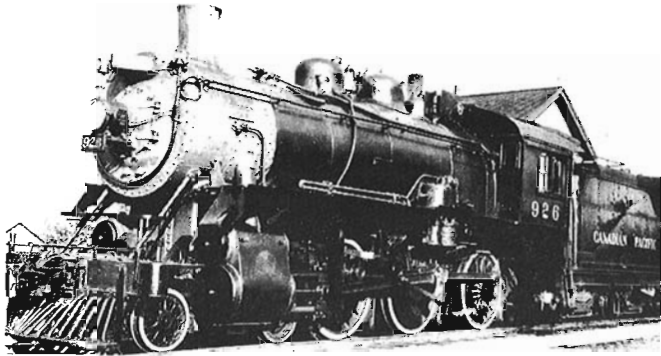
until the West Coast Railway Association acquired the decrepit car in 1983.

Today, under the direction of project manager Gary Oliver, restoration work is slowly returning the coach to its former splendor. Appropriately, its last name, "British Columbia", has been returned, while its panelling is being stripped and refinished, its flooring replaced, its roof rebuilt, and at last the classic CPR tuscan applied once again to the outside. The task, performed by WCRA volunteers and three experienced wood craftsmen hired under a Canada Works Program grant, is immense but the group is confident that the car will be ready for display at STEAMEXPO in May of 1986. A \$50,000 B.C. Heritage Trust grant helps pay for equipment and materials, although private sources must still be relied on to provide as much again to see the work to completion.

British Columbia will be the oldest piece of intact heritage rolling stock in the province when it is finally ready to roll to STEAMEXPO's False Creek yards, and should be a standout among the many venerable coaches coming to the event. Source: The Pacific Express, August 1985.

LAMOILLE VALLEY RAILROAD - THE LVR HAS TAKEN delivery of four passenger cars, ex-Lackawanna MU's, to be used by the line for scheduled excursions during the summer. The schedule contemplated would be as follows: End of June through end of August - Tuesdays, Thursdays and Saturdays only - Morrisville to Joe's Pond and return. Middle of September through middle of October - Special Fall Foliage trips - Tuesdays, Thursdays and Saturdays only - Morrisville to Greensboro Bend and return.

LVR locomotives assigned to the Twin State Railroad are being housed in the unheated former Ralston-Purina facility in St. Johnsbury. Alco's RS-3 #7803 and #7805 have been assigned to the Twin State. #7803 is the only LVR unit equipped with an electric engine block heater permitting it to be shut down during cold weather. #7805 recently froze up in St. Johnsbury during the recent middle of January deep freeze. CHAMPLAIN VALLEY NRHS via the 470 March 1985.



THE NUCLEUS OF WHAT MIGHT BE THE START OF a Victoria railway museum has been identified in a study by Pat Hind of the B.C. Railway Historical Association.

Friends of the E & N have taken up the cause and will try to gauge public support for the venture.

It's also tied to the possibility of bringing back CPR locomotive 926, which is in the National Museum of Science and Technology, to operate a steam train on the E & N in 1986. The proposal first got off the ground with the study. John Cooper of Friends of the E & N followed up with CP Rail.

The railway has offered to give an historic steam crane to a local group for preservation, rather than ship it off to be scrapped.

"It could be the beginnings of a railway museum here, but we need to put together a group quickly who would assume responsibility for this project," says Cooper.

The 1913 crane was built in Bay City, Mich. and is in excellent condition. Maintenance on the crane and boom car which supports the crane's heavy boom, would be minimal, but a secure storage facility is vital.

It's the last steam-operated crane in working order with either of the two transcontinental railroads.

BRING BACK THE 926

The 926, a D-10 type locomotive, is the only original E & N locomotive in existence. It would require some work to be made operable again, but indications are good that the National Museum of Science and Technology might loan the locomotive for a 1986 steam train service. That is the year of the centennial of the E & N's completion.

OTHER EQUIPMENT

A former E & N parlor car, the Strathcona, now located at the B.C. Forest Museum, has also been identified as a possible donation to a rail museum. Over a century old, it was used on the E & N from 1901 to 1929, when it was sold to the former manager of the railway for a Shawnigan Lake summer cottage. It was donated to the Forest Museum in 1968, but apparently is surplus to their needs.

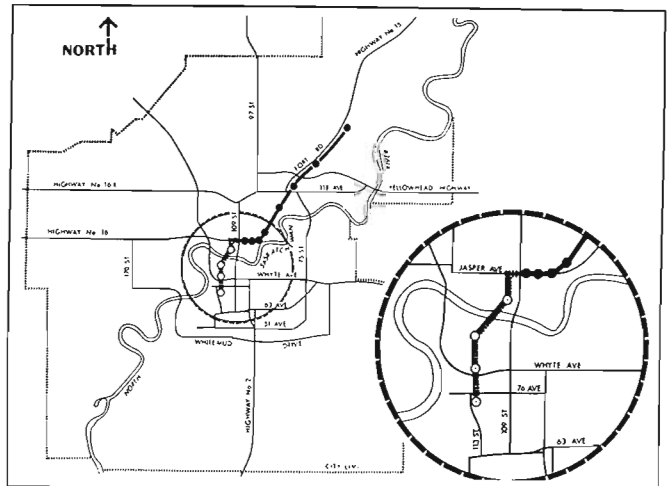
In the CP Rail yards at Victoria is a 1905 Colonist car, one of the last of a type built in the hundreds to carry emigrants to Canada across the country. It became a work train unit in 1950 and was partially converted, although the centre of the car remains essentially in original condition, under many layers of paint.

The Forest Museum at Duncan also has an E & N cabooses of turn-of-the-century vintage. It was built in Nanaimo by John Work between 1895 and 1900 and was donated to the museum in the 1960s. Again, it is surplus to the museum's needs and might be made available to a railway museum.

S. E and N NEWSLETTER, Jan. 1985. via Donald Stewart.

THE CITY OF EDMONTON HAS AWARDED A contract for the project management and co-ordination of the \$150-million southward extension of Edmonton's LRT system to Stanley Associates Engineering Ltd. The project involves underground trackage, underground stations and the crossing of a river valley with bridge and tunnel portals. As well more traditional on-grade sections will connect the University of Alberta and south side residential districts with the downtown and existing section.

City of Edmonton south Light Rail Transit extension.



"It's a natural extension of our developed LRT expertise which includes bridges, track and station design in Calgary and planning and maintenance facilities in Edmonton," said Ron Triffo, P.Eng., Stanley president. "The project is also in line with our development in the transportation area internationally."

Overseeing the project for the city are Ron Neuman, P.Eng., and Rod Heise, P.Eng. Ben Novak, P.Eng., vice-president of Stanley's northern region, is principal in charge of the project. "We have all the systems in place for scheduling, cost control and planning and quality

control, some from previous projects internationally. Therefore, our top project manager, Ken Sorensen and Bob Kavanagh, will ably co-ordinate some 30 consultants and possibly over 15 major construction contracts," said Novak.

S. CANADIAN CONSULTING ENGINEER, February 1985.

PEOPLE LOOK ON THE RAILWAYS AS BEING old fashioned. They look at a train and it's the same as 20 years ago. Freight trains certainly look the same.

Locomotives are the same shape and maybe even have the same paint jobs as in the 1960s, when diesel replaced steam, but they're incredibly more efficient. The fuel efficiency of General Motor's new SD50s is so good that it's cheaper to scrap older locomotives than rebuild them to the new standards. Efficiency is not only in the engines, but the way power is controlled and, in the near future, the use of micro computers to interrogate the locomotive to see how it feels.

Some automobile manufacturers have recently introduced diagnostic search systems as an add-on feature. When a car goes for service, a mechanic connects a diagnostic search machine and sensors permanently planted in the car report on its condition.

The railways have used the so-called search machine for at least 15 years. Some 170 sensors in a locomotive's electrical system report to the search machine. Seventy-five per cent of line failures are electrical, so nothing is more important than keeping a locomotive's electric circuits in order.

The offboard search machine will be overshadowed by a soon-to-be-introduced onboard version. Bill Draper, CN's assistant chief of motive power, is one person eagerly awaiting four SD 60 Series locomotives on order from GM.

"The offboard diagnostics have no memory," Bill Draper told me. "Let's say the spring tension in a relay contact is giving trouble out on the line but not when the locomotive is stationary in the shop. The offboard machine can't tell you that. It simply says that at this moment the contacts are OK."

"The onboard diagnostics, by comparison, have memory and logic. They store valuable information about malfunctions, and with a little detective work you can probably find out what's wrong. Let's say the high voltage system is acting up. Instead of locomotive engineers telling the repair people, 'I've got a sick locomotive, but don't ask me what's wrong,' the engineers interrogate the onboard computer. They ask it the date the

first malfunction occurred. It tells them it was April 7. More questions and answers follow. How many malfunctions? Four. Throttle position? Eight notch. Speed? 32 mph. Ahaa, now we're getting somewhere because 32 is the transition point from series parallel to parallel. The most common hindrance to a clean transition is defective diodes. Now it's a simple matter of replacing diodes."

Bill Draper is saying that a locomotive may look the same on the outside, but what's inside is new and exciting, or soon will be newer and more exciting.

The current move to computer technology may not look like much compared to the switch from steam to diesel in the 1960s, but it's much bigger.

In the days of steam, there were three people in the cab and two at the back of the train. Hand written train orders were handed up to locomotive engineers on bamboo hoops. Morse code was the medium for talking up and down the line. The move to diesel meant fewer locomotives, because each was more powerful, fewer workers at the front, because there was no coal to shovel, and longer sidings, because diesels could pull more cars. That was really the extent of it. One form of motive power was substituted for another.

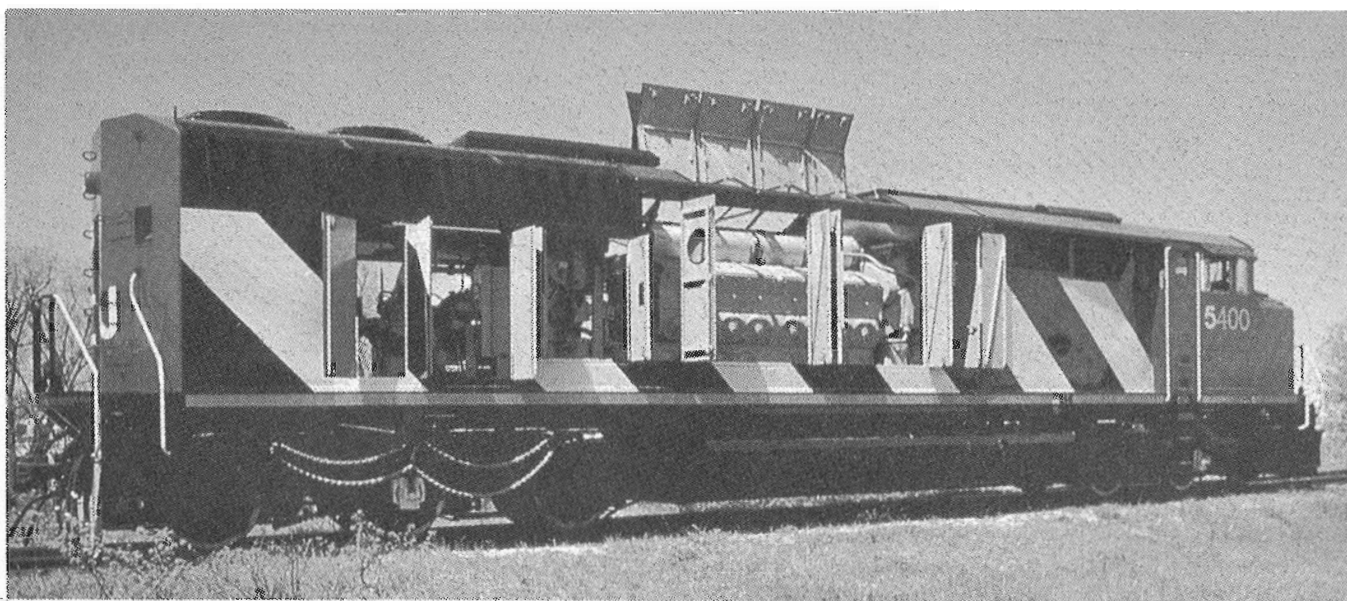
Now computer technology is allowing railways to make notable advances. None is more impressive than the new automated system for the car management and car tracking.

You could go into a railway station in Saskatoon, Moncton or any other city, and, if you were allowed to, ask the computer to locate any of CN's 85 000 cars, and the same for the cars in CP Rails system. The railway people know where each car is and where it is going.

Railway signalling is not new. Canadian railways have had it since 1942, but modern versions allow a dispatcher to set a train route automatically. Computers help the dispatcher decide on passing schedules, which on the busiest 300-400 mile sections could mean up to 400 "meets" or passing points a day.

The dispatcher has the information because the tracks are wired. The locomotive shorts a current between the rails and shows up on a traffic control panel. Wiring is not technically difficult, but assuring a continuous bond where rails meet can make maintenance costly. The rails take a beating, a link breaks and someone has to go out and fix it.

Burlington-Northern, Union Pacific and other U.S. railways are testing the use of satellites put up by the military to locate trains. That may be the way of the future but, as Canadian railway people note, it is only one of several technologies being



assessed, with much of the work being done in Canada.

A consortium of systems engineers will report this September on the best options in train control for Canadian and U.S. railways.

According to Peter Detmold, special consultant with Canadian Pacific Ltd. and general manager of the Canadian-American advanced train control systems begins next year, with implementation beginning in 1987.

Detmold notes that raising the level of control technology will bring down other costs for the railways. "The utilization of track, motive power and cars will increase substantially," he said, "and think of all that fuel we could save!"

Current signalling is extremely safe, as Bill Moore Ede, CN's manager of advanced control systems, noted, but it's inflexible, making it costly to build and maintain. "Modular" is the key word when you talk with Moore Ede about controlling. "Our current system is an all-or-nothing system; you take all the features or none of them," he told me. "Modular systems allow us to add and take away features as we wish. We avoid putting them in where they are not needed. As an example, broken rails are not a problem on lightly used lines, they occur on highly travelled, heavily loaded lines. Under today's set up if we want to put in signalling on lightly used lines we must also include costly, hand-wired broken rail alarms. With a modular system we only put in what we need."

One person who will benefit from advanced train control is the locomotive engineer. The job in the cab will be safer, Moore Ede noted, because instructions will be clearer and more precise, and

also because "by putting information in the cab we tie in with the train's brake system, and if the instructions are not followed, the brakes are applied."

It will also help the track maintenance people who have to share the line with passing trains. Knowing train times more precisely, and knowing the system would not allow a train to arrive early, will make their work safer and more productive.

With so much interest in the future, the existing areas of computer control might easily be overlooked. An early example is hot box detection, pioneered by CN in Canada.

When a CN train pulls out of, say Ottawa, it is moving on instructions from Montreal, the nearest control centre. Heading east, and barely out of the city, the train goes over the first hot box detector, which "reads" the passing train.

The temperature of each axle journal box is measured and transmitted to the Montreal control centre where an employee "watches over the train." An overheated journal or even a piece of dragging equipment triggers an alarm. The dispatcher calls the train engineer by radio: "You've got a hot box that could seize." Then the dispatcher consults a computer print out and tells the engineer precisely where to look. "Four cars from the rear, it's the third axle on the right."

CP's warnings are flashed locally. An electronic message, telling which axle is overheating, is flashed on a wayside signal for the locomotive engineer to read, or communicated directly to the engineer by radio, using a computer-generated voice.

Remember all the talk about electrification? We have it now as an experiment on a section

of B.C. Rail. One reason it hasn't caught on is that the manufacturers have done such good work improving the diesel. Electrification means heavy investment in overhead wires. The economics favour the diesel at the moment, but the B.C. Rail experiment will provide valuable data on Canadian conditions should the energy scene change.

Maybe steam will have the last laugh. We made a big thing of progressing from steam to diesel. Now we hear that American Coal Enterprises has been testing an old Chesapeake & Ohio steam locomotive on regular service, six days a week for four weeks. It's highly instrumented, with measurements of crank rod stress and exhaust emissions, that sort of detail. Steam-generation will be computer-controlled on a proposed later version.

Ross Rowland, who heads the U.S. group, says steam engines would be most suitable in coal mining and coal hauling areas. You may find that diesel will be supplanted in some areas not by electric but by steam.

Maybe one day you'll be riding a Canadian train through the world's longest tunnel — CP Rail's Roger's Pass tunnel now under construction. The rails are permanently attached to concrete slabs instead of ties, another maintenance free innovation being tested by CP Rail. The train's precise location is controlled by a computer in Montreal. Problems with the locomotive are picked up by computer assisted monitors, and shop crews know precisely when and where to step in to make repairs. Lastly, you're riding a steam locomotive. It doesn't look like a steam engine of old. But it sounds like one — the haunting banshee wail of old.

Source: *Transpo 85*, Volume 8/3.

A NEW AND REVOLUTIONARY GRAIN CAR WAS previewed at Transcona shops early May.

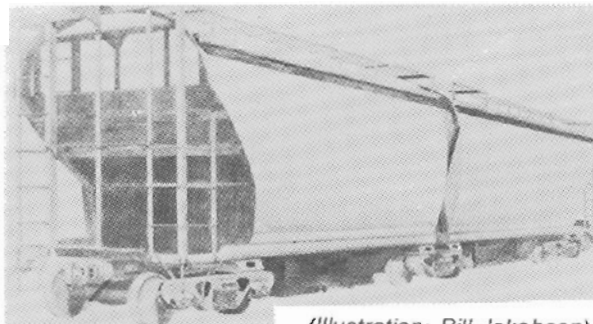
Development of the car is part of a \$93-million subsidiary agreement signed by the Province of Manitoba and the Government of Canada in April last year.

The concept and design for the prototype 108-ton articulated grain hopper was undertaken by CN's equipment department. Prototype construction began on March 18 at the Transcona shops.

Development of the car was prompted by the fact that CN's existing boxcar fleet is gradually being retired. Also, the rail line to the port of Churchill in

northern Manitoba cannot safely handle the present generation of 100-ton hopper cars.

CN investigated various alternative car designs before selecting an articulated hopper. The car features two bodies supported by one 70-ton truck at the centre and a 50-ton truck at each end. This arrangement of axle spacing results in less track loading than the conventional 70-ton hopper cars.



(Illustration: Bill Jakobsen)

The prototype features a low centre of gravity (213 cm above the top of the rail), an articulated connection, and a relatively short distance between truck centres (7.8 m). These features provide good dynamic stability and make the car ideal for rail lines with severe surface irregularities.

The car has a more uniform track load distribution, a design feature that will subject the rail and track structure to lower stress, thereby decreasing maintenance costs. It also compares favourably to other car types in terms of load capacity.

Under the agreement, CN will pay for designing the new car, while the federal and Manitoba governments will share equally the cost of prototype construction.

The prototype is expected to be completed in mid-June, and field testing is scheduled for this summer.

Sources:

- 1) *Transpo Canada 85*, double decker item.
- 2) *CN MOVIN*, imax film item.
- 3) *Keeping Track*, grain car item.
- 4) *Vancouver Sun VIA Norris Adams*, Steam expo item.
- 5) *CP Rail News*, Edward Mallandaine item.

Back Cover:

August 8, 1985 saw the re-enactment of the Last Spike ceremony at Craigellachie B.C.. A more detailed account of this and the November 7 re-enactment will appear in the next *Canadian Rail*

Photo by David Johnson.

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