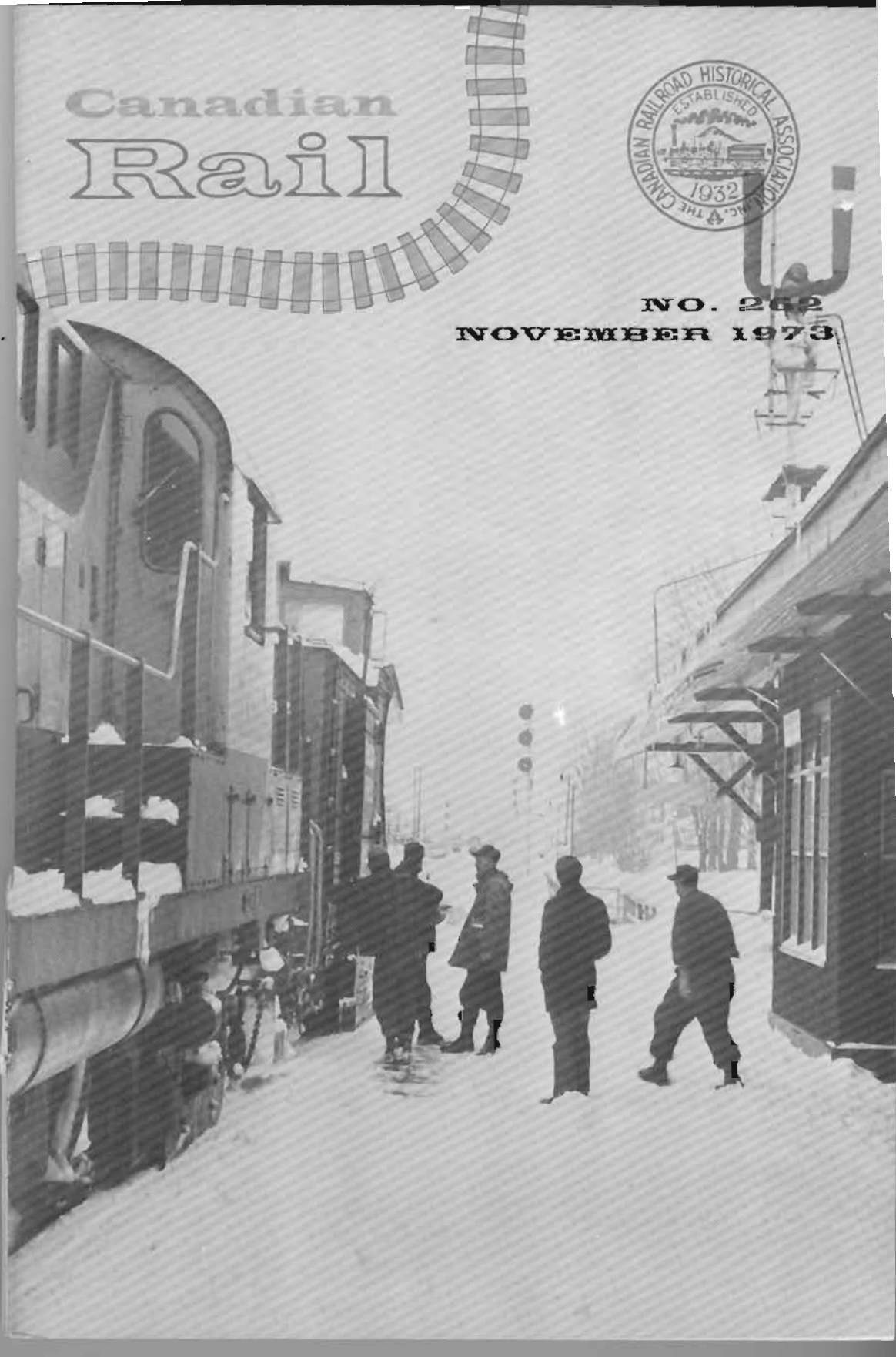


Canadian Rail



NO. 262
NOVEMBER 1973





EIGHT HOURS AT 'RO'

S.J.Smaill

From twelve midnight to 08:00 hours, when the third trick ends, you are the operator at Vaudreuil, Québec, mile 18.9 from Montréal's Montréal West on the Winchester Subdivision of CP RAIL. On the double-track main line west to Smiths Falls and Glen Tay, "RO" (Vaudreuil) is also the junction with the M&O (Montréal and Ottawa) Subdivision. There's seldom a dull moment!

As you come on shift, there's hardly time to exchange greetings with the second-trick man before the stacatto bark of two approaching DRF 36s cuts through the frosty silence of the November night and third-trick action at RO begins. Signing the transfer hastily, you grab the order hoops from their hooks and hurry out the door to assume the traditional and time-honored position, the classic position of "night operator hooping up the orders for the limited", as first 949's headlight blazes through the falling snow. The hogger acknowledges your highball with two shorts on the horn and about 120 cars later - after hooping up the van - the "all black" signals are exchanged with the rear-end brakeman.

Back into the office to the train-register and the dispatcher's 'phone:

"OS Vaudreuil....."

(A rasping mumble.....)

"Extra 4707 west by at - oh, let's say - nought nought fifteen.."

A pause.

"Yeah, O.K. Here's a Y west copy a bunch."

This from the dispatcher at Smiths Falls, Ontario, on the west end of the subdivision.

In case the dialect of the foregoing dialogue is not understood, "OS" is a simple, short way of saying "the train went by here", followed by the time of its passing. The abbreviation originated from the idea of a train being "on schedule" or, as is sometimes said, "on the dispatcher's sheet", the latter that sometimes large form whereon are recorded the times of all train movements, delays, and so on, in his territory.

"Y" is an abbreviated term that the dispatcher uses when he wants an operator to copy a specified number of 19Y train orders. The "Y" stands for "yellow" and means that the train for which the order is intended does not have to stop at the train-order office for it, but may pick it up "on the fly", or while the train is in motion. But woe betide the operator who fails to hoop up the order

↪ "... ALL TALKING AT ONCE, OBVIOUSLY UNIMPRESSED...", THE CREW OF PLOW Extra 8758 West, stood on the snowy platform at "RO" - Vaudreuil, Qué., waiting for orders. This month's cover illustrates one facet of operation at "RO" during an 8-hour shift. Photography by S.J.Smaill.

↪ ROARING AND RUMBLING, AMID A CLOUD OF CRYSTALLINE SNOW, EXTRA 4091 WEST thunders by the station at Dorval, Québec, with a bing-bang lashup of road and hoods, whirling the cold journals west along the Lakeshore in the direction of Vaudreuil and St-Lazare Hill on a cold February

successfully. If he fails, the train must then come to a stop to obtain the essential train-order. The results of bringing a 120-car train to a stop - to the operator, that is - can best be left to the imagination.

The other form of train-order used by Canadian railways is a 19R order. This is used when the running of a train is being restricted at the issuing station, as in the case of certain maintenance-of-way operations, extra-train movements, or when passenger train operation is modified in territory not protected by block-signals or the equivalent thereof.

Anyway, back to the desk at RO.

"SDY west", you say, reaching for the lever that will change the station order-board (semaphore) to a yellow indication for west-bound trains, while over the 'phone-speaker comes that familiar drone of a lengthy "wide-load" order, being transmitted.

"Extra 4087 - eff-oh-you-are, en-oh-you-gee-aich-tee, ee-eye-gee-aich-tee, ess-ee-vee-ee-en - east - ee-ay-ess-tee - ordered to leave Smiths Falls....." and so on and on and on.

The dispatcher puts out this order to Vaudreuil (you), Walkley Yard (Ottawa), Smiths Falls, St. Luc (Montréal) and Windsor Station (Montréal). The reason for this replication is that all possible precautions must be taken to ensure that this wide load is protected, especially in double-track territory, from all opposing trains or those moving in the same direction on adjacent tracks. Trains receiving this order will pass Extra 4087 east with great care, as the extreme width of the shipment could foul an opposing train, thus causing a side-swipe, particularly in the event that the opposing train also had an oversized load. In addition, an opposing train might pass Extra 4087 east on a curve where there was a restricted clearance, although this possibility is normally avoided by an order or orders supplementary to the original 19Y.

".....Complete at nought forty two. L.B.C.", drones the dispatcher. "All right.. Your next guy is second 949's freight with the 5001 leading and, right behind him, 931 with the 4096."

With this parting intelligence, the dispatcher's 'phone goes dead, leaving you in peace - for the moment. You begin setting up clearances for second 949 and 931.

The Winchester Subdivision on which RO is located is dispatched using a combination of train orders and block-signal system. As there are automatic block-signals (ABS) from Dorval (mile 4.8) through to Smiths Falls (mile 123.8) where the double-track subdivision ends and crews change, no "authority" train orders are required. Trains leaving St. Luc Yard, Windsor Station and Smiths Falls are usually given clearance with "bulletin" orders - those relating to track conditions, status of sidings on the subdivision (full or empty), maintenance-of-way work and other temporary situations.

Because the Winchester Sub. is double-tracked all the way, the aforementioned wide-load orders are issued quite frequently.

➔ THE CP RAIL STATION AT VAUDREUIL (DORION) QUEBEC IS OF STANDARD Canadian Pacific Railway design and of wooden construction. It resembles many other CP RAIL stations all across Canada. Kenneth R. Goslett photographed it on February 11, 1973.



The third type of train order, used quite often in this kind of territory, is the form "R" - "against traffic" - order. As there is no way to protect a train and monitor its operation constantly in non-CTC territory - the situation on the Winchester Sub. - if a train is to run west on the eastward track, an order must be issued to permit this "wrong-way" running. This situation will arise during the (your) third trick, so be on the watch for it.

The approach bell sounds as second 949 hits the block and, with boots, jacket, cap and two order hoops - with orders - you hustle outside to the appropriate position on the platform, taking care to be ready with second 949's orders first and 931's - right on his block - second. No mixups!

The wind has picked up considerably and the snow is beginning to drift in places.

From a faint murmur to a louder rumble to a heightening roar and, as the wind dies, suddenly the basso-ostinato chant of GM645 engines fills the night. An eastbound container-express roars by on the adjacent Government road (CNR), the snow whirling and swirling around the long string of piggyback trailers and boxes on flats, terminated by two red eyes that rapidly disappear into the snowy night.

First hoop up and second 949 roars by, her five units shaking the platform, blasting against a full pin - all the tonnage they can handle up the long, steadily-rising gradient of St-Lazare Hill. Second hoop up and the van disappears. All black!

A westbound CN merchandiser bellows by, noisy, even in the snug operator's office, as you OS second 949. 931 won't be long. A glance at the line-up in the register book: Train 2, the "Canadian", is listed about five-and-a-half hours late, which should put her by RO right about...NOW! The block approach bell from the M&O (Ottawa) double-rings with the east block for the hotshot piggyback 931 west for Toronto. Things sure are picking up!

"....., Vaudreuil... Number 2 and 931 are both coming....."

Problem: Number 2, coming off the M&O, has to cross over the westbound main to reach the eastbound track. Do you slow 931 to let 2 cross over? After all, it's the Company's premier train, already late. Or do you hold Number 2 and let Number 931 come on through, keeping its speed for St-Lazare Hill?

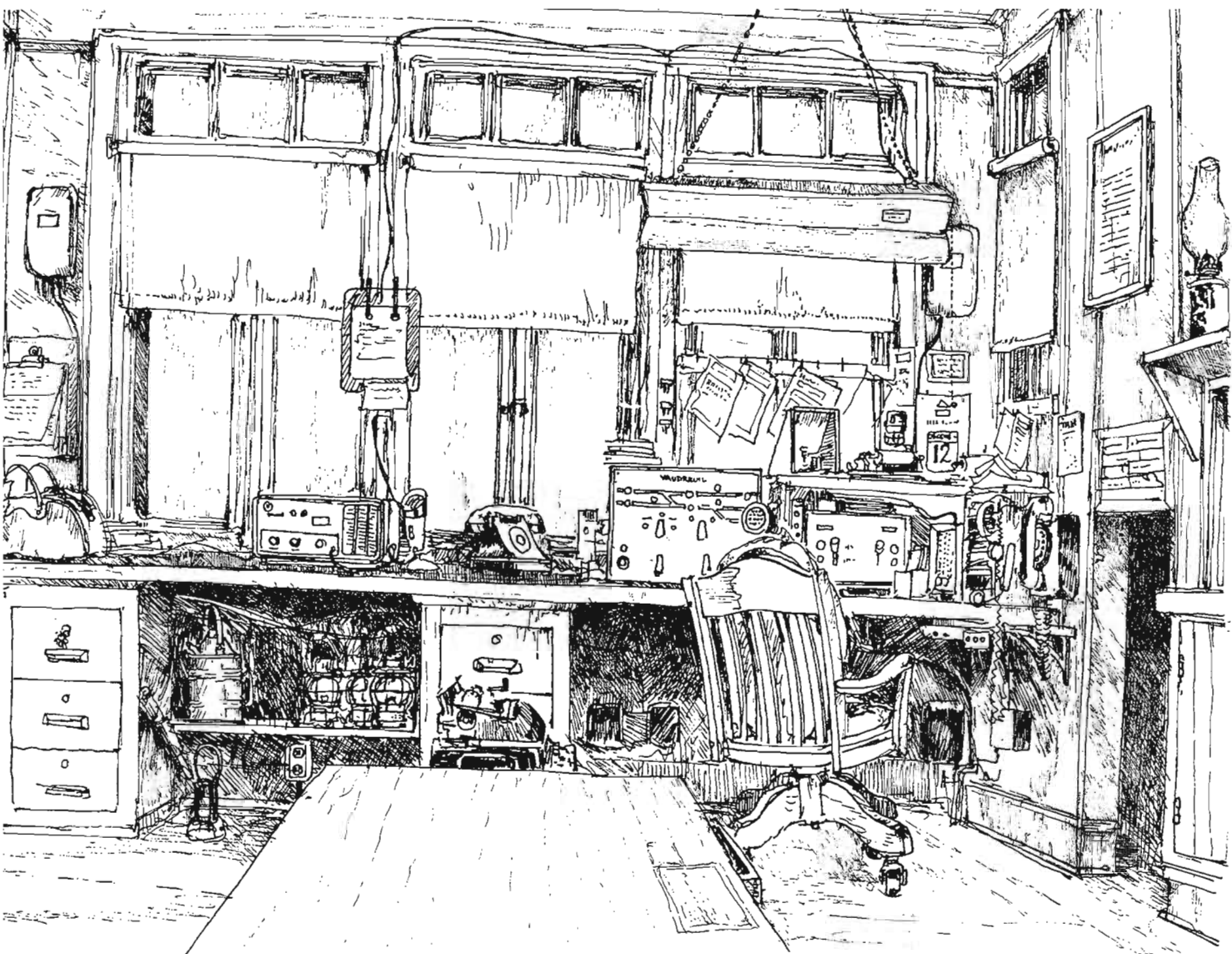
The dispatcher makes the decision.

"Dammit, clear 2 but let 931 go first. He's heavy tonight. He's got small units, so don't stop him."

Particularly not at the bottom of St-Lazare Hill.

Seconds later, 931 rockets by in a blizzard of flying snow. It is almost impossible to see anything, as he makes a determined run for the hill. Train 2 cools its wheels at the block to the west, impatiently waiting for the red-over-green-over-red. As 931's van flies by over the switches and clears the block, the middle red changes to green and, presently, a pair of garbage-can-headlighted GP 9s lead the "Pride of the Fleet" through the crossover to the eastbound main, past the station. The fireman, grabbing a bite to eat, slings the hoop, as the geeps whine eastward on the last lap of the train's long journey.

Back inside to the 'phone.



"Extra 4096 west by at nought one thirty and Number 2, with the 8515, 8507 and ten cars at nought one forty five."

"All right, Vaudreuil. How's your weather?" queries the DS.

You tell him that the snow is starting to drift and the temperature is dropping. This pleases him no end, as the prospect of stiff grease in axleboxes and pulled drawbars crosses his mind - and yours.

For a moment, it seems, you will have time to have something to eat and a brief period to relax. 931 and 2 are on their ways. A grain drag howls through the snow on the competition's line, interrupting the cold silence of the night with its passing. Quiet returns, broken only by the methodical off-beat ticking of the Seth Thomas clock on the wall. The silence is, indeed, golden.

Then it is abruptly shattered. The clang of the approach circuit bell to the west alerts you to the advent of 904, a freight, coming at you down St-Lazare Hill.

"East man coming, dispatcher....."

"That's 904's train, extra 4042 east. Let him go!" says the DS.

No orders. He got them at Smiths Falls.

Out the door to look him over, as the headlight of the blunt-nosed ALCO cuts through the gently falling snow. Surprisingly, the storm seems to be letting up a little. 904 roars and rattles by, all black. You hurry back inside to OS the freight. St. Luc comes on the line to OS first 915, westbound manifest to Toronto with cars for the U.S. connections at Windsor, Ontario and the Detroit gateway.

"Well, he'll be here in about 20 minutes", you say to yourself, making up his clearance. Half-an-hour later, the dispatcher comes on the 'phone, looking for him. So are you.

"I'll see if I can get him on the radio", you tell him. Hang on....."

Pick up the radio hand-set. Button to SEND.

"Operator Vaudreuil calling extra four nought six five west... come in please...over...."

"Yeah, this is the forty sixty five", snaps a disgruntled-sounding voice, that of the hogger.

"Where are you at?"

"We're just coming at Ste-Annes and the lead unit has just died on us, so you'd better tell the dispatcher to get another unit out here damned quick or else we'll have to leave half the train at Vaudreuil...over".

Wonderful! Just dandy!

The dispatcher feels about the same way. With variations. A more emphatic and colourful description, with a few interpolations, comments on certain types of motive power. And presently, first 915 limps past the station and dies, shortly thereafter. Hogger, fire-

← PHILIP MASON DID THIS PEN-AND-INK SKETCH OF THE INTERIOR OF "RO" VAUDREUIL Station. Many familiar pieces of operating equipment are visible: train radio, track-circuit board, telephones, oil lamps and lanterns and well-padded swivle-chair. The Seth Thomas clock is absent.



VAUDREUIL

TELEPHONE



↑ CPR EXTRA 4715 EAST AT VAUDREUIL, QUE., MEETING PLOW EXTRA 8758 West on the double-tracked Winchester Subdivision. In the background, Number 1, the CANADIAN, disappears to the west on the M & O Subdivision. January 10, 1971. Photo by S.J.Smail.

← AT "RO", OPERATOR J.A.QUINTIN HOOPS UP 19Y ORDERS TO CP RAIL TRAIN 1, the "Canadian" before she heads west on the M&O Subdivision to Ottawa and the West. Train-order signal is at "clear", since it applies only to trains on Winchester Sub. Date is February 6, 1972. Photo S.J.Smail.

man and head-end brakeman all unload and stomp back into the station, all talking at once and all obviously unhappy.

"Wouldn't be so bad if we were getting paid for this, ya know, but this ain't even a pay-point!" complains the fireman. Just as though the whole, sorry performance - or lack of it - were your fault. You reassure them that a replacement unit is on its way and will arrive almost immediately. They calm down somewhat and all go back outside to cut off the dead A unit, to park it in the yard to the west of the station.

The dispatcher's 'phone hums to life.

"Copy three east, RO. St. Luc, copy five west ", it yaps, as the dispatcher puts out a form R to let the replacement unit run light from St. Luc west on the eastward main line, since 951 is effectively blocking all westward main line movements.

915's head-end crew returns to the warmth of the station, having disposed of the dead A unit, and dig into their lunch-buckets while they wait for the replacement to arrive. The minutes begin to accumulate.

"Vaudreuil.. any sign of that engine yet?" rasps the DS in exasperation.

Simultaneously, the light engine rings the block-bell to the east -and 928 hits the one to the west. More complications. Engine

8903 rumbles by the station on the eastbound main and grinds through the crossover to the westbound, some distance beyond the station.

"OS Vaudreuil... engine 8903 arrived at nought six ten and 928 is on the way down..."

"O.K... Copy one, bust that "right over" and let him go", snaps the dispatcher.

You annul 8903's right to operate west on the eastbound main, so that 928 east can run through to St. Luc. While the head-end crew are coupling the 8903 to 915, 928 burbles by, heading into the first pale light of daybreak, painting the sky to the east. The snow has stopped and it is bitterly cold. The mist rises in wispy streamers from the Ottawa River, just east of the station.

"Hell, Vaudreuil, what are those guys doing?" explodes the dispatcher. "If he doesn't get a move on soon, he's going to stab that wide load, which otta be down around St-Clet right now."

Just as though the whole thing were your fault!

In anticipation of the DS's next threat, the deep-throated roar of opposed-pistons announces that first 915 is about to move - again. Drawbars clang, slack springs complain, journal-box grease slips unctiously and the ground trembles as you pass up the hoop with the wide-load orders for extra 8903 west. The Sunday morning silence reverberates with the roar and rumble of westbound tonnage drumming and grinding up St-Lazare Hill.

Another OS, and a glance at the clock. Ten minutes more will just about do it. The day-man and the day, man, are here!

Making out the transfer takes a minute. Exchange a few words. Wide-load is coming but that's his problem. Now home, some food and then to bed. Not a bad night, after all. Oh yes! Dead unit in the yard, but someone else will rescue it.

For the last time on this trick, on with boots, jacket, hat and gloves and out onto the platform, while the competition's overnight sleeper from Toronto scurries east to the Big City.

For you, the day ends. For others, another day begins.

↓ SUMMER TIME! SUNNY TIME! THE CHILL WINDS OF WINTER LONG FORGOTTEN, ON the "People's Railroad", Freight 307 comes rumbling down Vaudreuil Hill, heading for Montréal behind SD 40s Numbers 5024 & 5223 in notch 8. Pierre Patenaude caught them on 14 July 1973.



The Development Of Canadian Rail and Track

PART II

The First Railway Era: 1850 - 1880

John Beswarick Thompson

(Editor's note: The first part of Mr. Thompson's article appeared in the August 1973 issue (Number 259) of CANADIAN RAIL.)

The Lines of the 1850s.

In 1850, when the United States could boast of having almost 9,000 miles of railroad track, British North America could claim only a paltry 66 miles. But by 1860, over 2,000 miles had been added to this figure in a decade of spectacular railway development. When it was over, it was clear that most of the work had been done hurriedly and badly. Nowhere was this more obvious than in the permanent ways of the new Canadian railways.

Slip-shod work might have been anticipated on some of the short local lines which linked towns like Cobourg and Peterborough, Ontario, or Carillon and Grenville, Québec. "My intention," wrote a civil engineer about such a line, the Bytown and Prescott Railway, "is to make the cheapest possible kind of road."⁽¹⁸⁾ To these poorly financed companies, frugality or downright miserliness was a virtue; quality was something to be considered later.

It is more surprising to find that the major railways were also built in a second-rate fashion. The three longest lines in Canada West, the Ontario of today, the Northern Railway, the Buffalo, Brantford and Goderich and the Great Western Railway (Canada), in vying for the dubious honour of being the first to offer service in this region, rushed construction and neglected to ballast their tracks. The Northern Railway won the race in 1853, but suffered severely from a jerry-built permanent way and poor rails for the rest of the decade, the direct result of "scamping" by the United States contractor, Storey and Company. Finally, in 1859, the railway company decided that "works of restoration" were necessary and began to rebuild the whole line from one end to the other, under the careful supervision of Sandford Fleming, the well-known Canadian civil engineer. This was the price the Northern had to pay for being the "first".

The Buffalo, Brantford and Goderich jubilantly celebrated its partial completion from Fort Erie to Brantford in January 1854, but two years later it was forced to suspend service altogether with the admission that "from the state in which the Road was, very great danger was incurred by Parties travelling over it and it was not a safe Road to travel."⁽¹⁹⁾

The Great Western was equally unsafe, but it never suspended service. Between the beginning of operation and 1 November, 1854 - a period of less than 12 months - 17 accidents involving a loss of life occurred. After the most serious of these accidents, when 52 passengers were killed near Chatham, the Government appointed two commissioners, W.F.Coffin and M.C.Cameron, to undertake an investigation of the line. A Chatham newspaper, with rather grim wit, reflected the low esteem in which the Railway was held by the public, when it noted "the accidents on this line have become of such frequent occurrence that even Mr. Cameron, the government commissioner, declines to travel upon it without his coffin." (20) The report of the commissioners, subsequently rendered, was highly critical of the deplorable state of the Great Western:

"At the opening of the road, the embankments and cuttings were in a dangerous state; the ties and sleepers were laid without the stay or support of gravel on the surface; the road-crossings and cattle-guards were unfinished...Neither grading nor superstructure were in a fit state to hazard the prosecution of traffic in the face of the contingencies of the coming winter and spring in this climate and country." (21)

In due course, the Great Western, forced by public opinion and governmental pressure, bolstered its rails with ballast and improved its cuttings and road-crossings. But no sooner had this work been completed than the rails of the railway began to wear out.

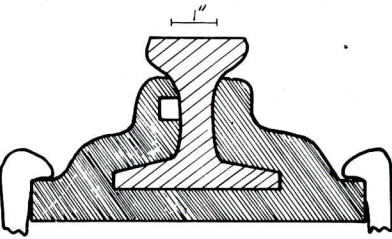
Three different types of rail had been used in the construction of the Great Western. Thirty-four miles had been built with T-rail, joined by fish-plates, the kind used by most United States railroads. Thirty-eight miles of compound rails had been laid and, finally, 156 miles - the largest portion of the line - had been constructed with bridge-rail fastened at the joints by wrought-iron plates, on which the ends of the rails rested and which were spiked to the cross-ties and bolted together. (22)

If the multiplicity of rail types was intended as an experiment, operations during the 1850s proved beyond argument that the best rail was the T-rail. Unfortunately for the Great Western, there was less of it on their line than any other kind. By 1860, the Company "having suffered severely from bad rails," (23) had replaced 82 miles of bridge and compound rail with T-rail. Experience was a great and good teacher.

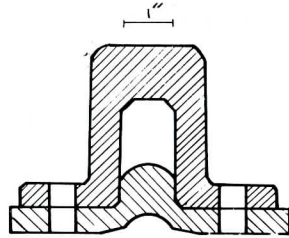
The Omnipotent Grand Trunk.

Of all the railways built in Canada during the first railway era, the one that should have been most soundly built was the Grand Trunk Railway, a line promoted "to be superior to any American or Canadian railway... and equal to a first class English railway." (24) Once it was in operation, the Grand Trunk made a parody of its prospectus.

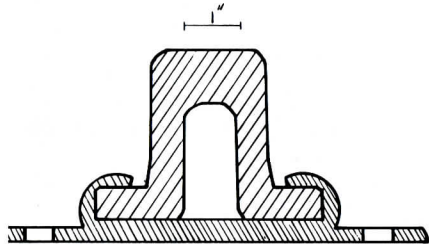
Certainly, the heavily travelled Montréal-Toronto main line was far from being "first class". From the outset, there was a suspicion of corruption surrounding its construction. The Chief Engineer, A.M.Ross, planned to have inspecting engineers for every 60 to 70 miles. This practice was quickly labelled "humbug" by a Canadian engineer, Walter Shanley, who charged



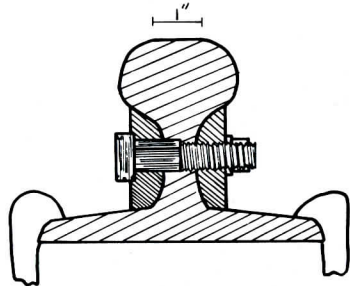
1. T-RAIL SUPPORTED BY CAST IRON CHAIR. CHAMPLAIN AND ST. LAWRENCE RAILWAY, 1847.



2. 65 LB. BRIDGE RAIL SUPPORTED BY IRON SHOE. GREAT WESTERN RAILWAY, 1855.



3. 63 LB. BRIDGE RAIL SUPPORTED BY SPECIAL WROUGHT IRON CHAIR. GRAND TRUNK RAILWAY, 1854.

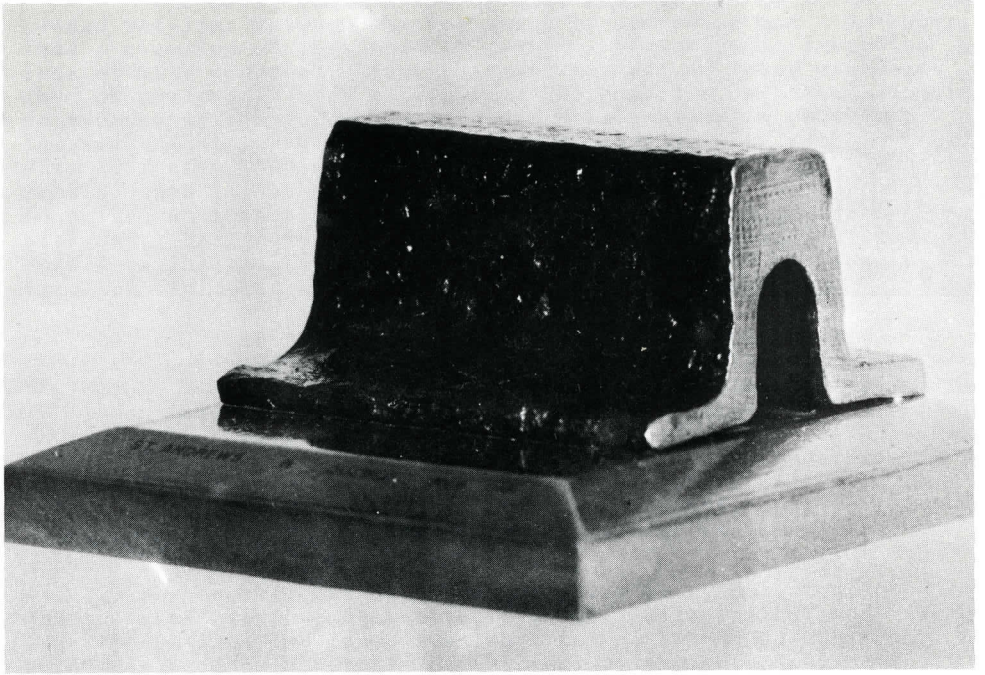


4. 63 LB. T-RAIL WITH FISH PLATE JOINT. GRAND TRUNK RAILWAY, 1860.



A SELECTION OF TYPES OF RAIL USED ON THE GRAND TRUNK RAILWAY AND ITS antecedents from 1847 to 1860. It is easy to imagine how these various shapes of rail and the fastenings would be affected by the Canadian winter. The sketches are by the Author of this article.

"Ross and his brother swindlers know perfectly well these inspectors will be wholly powerless to exact proper work....There is but one course to pursue: pitch the damned road to Hell and let the contractors have full swing."(25)



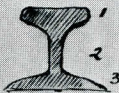
FROM THE COLLECTION OF C. WARREN ANDERSON OF SUSSEX, N.B., THIS PHOTO of a section of rail laid in the spring of 1851 on the St. Andrews & Quebec Railway. It was raised in 1876. Photographed by Pridhem 3Feb 1951.

Not long after the opening of the Montréal-Toronto section, the extent of the "swing" of the contractors became apparent. Although the stations were well-built and the bridges were solidly constructed of brick or stone, the rest of the permanent way left much to be desired. "Little or no ballast under the Ties anywhere," wrote one observer.(26) "Positively hilly," wrote another.(27) But the Grand Trunk's greatest defects were to be found in the chairs and rails used.

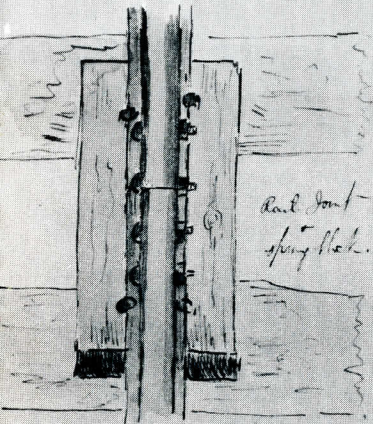
The chairs by which the rails were joined together and secured to the ties were much less substantial than those that had been used on the pioneer Champlain and St. Lawrence Rail Road when it had rebuilt its permanent way in the early 1850s. These fastenings had been chosen by Ross for their simplicity and cheapness.

"We lay upon the sleeper a wrought iron plate about nine inches square by half-an-inch thick. The middle portion of each side of this plate is cut and turned up to cover and secure the flange of the rails on each side.

The plate itself is secured to the sleeper by four spikes, two on each side of the rail, and, consequently, two on each side of every joint."(28)



- 1 The head
- 2 " Web
- 3 " flange



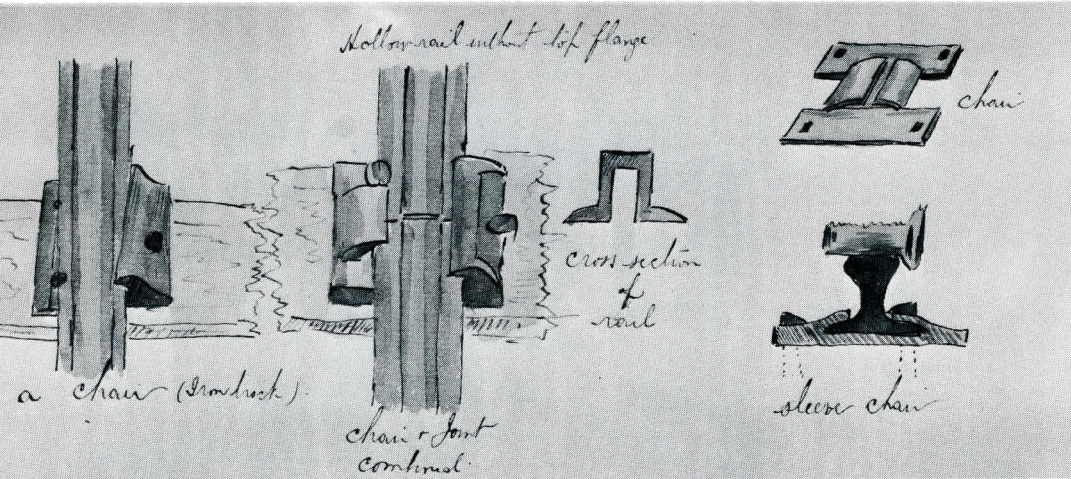
Iron rested on the C. F. R. between Montreal - Portland.

- | | | | |
|----------|---|--|---------|
| American | } | A. & R. I. & S. Co. TROY. 1875. STEEL. | } Iron. |
| | | B. I. Co. STEEL. 74. | |
| | | P. S. Co. 77. | |
| | | P. R. M. 73. | |
| | | P. 68. | |
| British | } | BARROW STEEL. 1873. 74. | } Iron. |
| | | JOHN GRISWOLD & Co. 1875. STEEL. | |

↑ JOHN MUIR ALSO SKETCHED OTHER TYPES OF RAIL AND FASTENINGS ON THE GTR between Montréal and Portland, Maine. He identified the manufacturer of some of them. "P" 68 probably means "Pittsburg-1868". Pub. Archives.

Ross boasted that this was "an efficient and permanent mode of securing the joints of the rails." This assertion was denied by Captain Douglas Galton of the Royal Engineers, who inspected the line in 1857 and stated that the chairs were "not calculated to secure good joints and that, as a Government Inspector, he should not have been satisfied with these chairs." Sarcastically, he added that there was "no excuse for its adoption upon a Railway for which the contracts were that it should have been equal to a first class English line." (29)

Galton, not Ross, was proved correct. The chairs were not equal to the extreme climactic conditions in Canada and began to break in the winter of 1859-60, scarcely three years after the line had been opened. By 1860, the Company was forced to start a wholesale replacement of the "bad chairs," as the Railway's own inspecting engineers then described them. (30)



↑ JOHN M.C. MUIR, A RODMAN ON THE GRAND TRUNK RAILWAY SURVEY OF ITS TRACK east of Montréal in 1878, made pen & ink and watercolour sketches of what he saw. Here are some rail fastenings. Photo Pub. Archives Can.

If the chairs were bad, the rails were worse. Although at the time the Grand Trunk was built, T-rail had been almost universally adopted by United States railroads and had proven satisfactory on the Champlain and St. Lawrence, Ross used English bridge-rail. He hoped it would last indefinitely. Unfortunately, it did not. In the winter of 1859-60, three years after the opening of the Montréal-Toronto main line, 790 rails broke "like glass." (31) The next Canadian winter destroyed another 800. The beleaguered traffic manager of the Grand Trunk testified to the plight of the railway in 1861:

"The destruction of property and the interruption of trains owing to the breakage of rails are very great and of frequent occurrence. In fact I may say that no day passes now without some cars being disabled or some train stopped from this cause, and that no accident has occurred to passenger trains, or that no life has been lost in any of the many accidents happening to freight trains may be looked on as purely providential." (32)

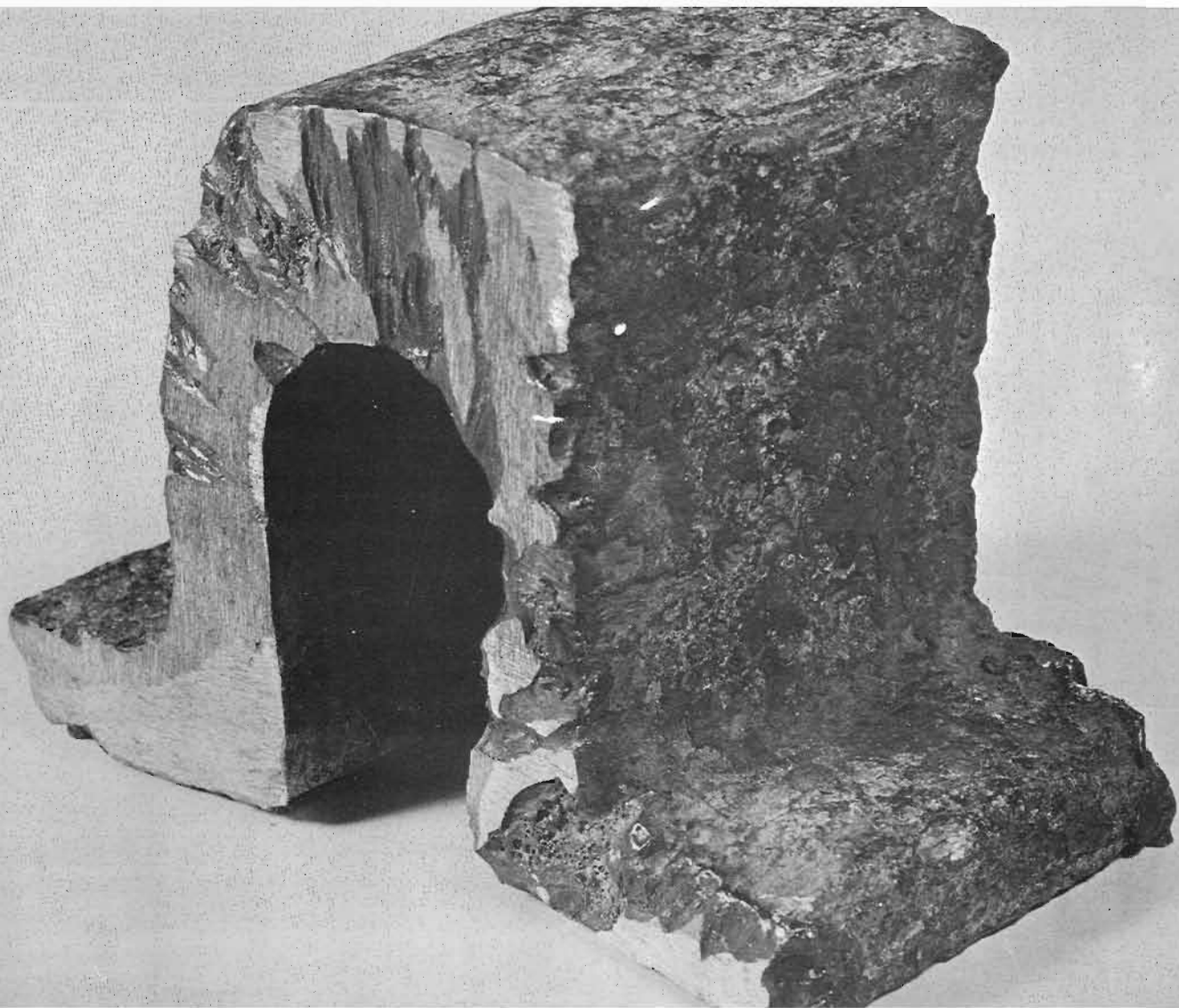
And to add to the Grand Trunk's embarrassment, someone pointed out that, on the 41-mile Champlain and St. Lawrence portion of the Montréal and Champlain Rail Road, five T-rails had broken during the same period that 300 had failed on the Grand Trunk's 68-mile Montréal-Cornwall section!

To correct what was becoming a demoralizing and dangerous situation, in 1860 the management of the Grand Trunk, following the lead of the Northern Railway and the Great Western, began to replace their unsatisfactory bridge-rail with 63-pound T-rail. Some was to be ordered from England, but most of it was to be made by the Toronto Rolling Mills, which undertook to hammer the old bridge-rail into a new shape, adding "iron of the best quality" to the top of the

↓ THE PLAQUE UNDER THE SECTION OF SCOTTISH U-RAIL IS SELF-EXPLANATORY.
The picture was taken by Ken Papineau.

↻ THE SIDE-VIEW OF THE SAME SECTION OF RAIL SHOWS THE PECULIAR CONTOUR
of the rail and the fissures in the wrought-iron rail. Photo K.Papineau.





rail. According to the Superintending Engineer of the Grand Trunk, "the form of the new re-rolled rail is that of a high T-rail with fish holes; it is joined to its neighbours by means of a pair of fish plates and four bolts."(33)

In other words, it looked somewhat like the rail that is used today. Yankee ingenuity had triumphed over British practice, but the real significance of that triumph was unperceived.

The track renewal continued throughout the early 1860s and, although rail breakage was gradually reduced, it was by no means eliminated. The notation "train off track in consequence of broken rail" was frequently recorded in a Grand Trunk Railway report of accidents in 1864, which listed at least eight serious mishaps, involving injury, due to faulty track. The lingering problem was blamed on poor quality iron T-rails imported from Britain in the 1860s. G.L. Reid, the highly respected chief engineer of the Great Western Railway of Canada, commented in 1867 that, during the previous six or seven years, "frequently it has happened that rails sent out from England have proved very inferior in quality."(34) To Canadian civil engineers, it must have seemed that every advance toward an improved permanent way was marked by only partial success and complete frustration.

Finally, there occurred the revolutionary development in the treatment of iron which ended the frustrating search for a satisfactory rail. The Bessemer process for producing steel from iron made the manufacture of relatively cheap steel T-rails commercially feasible. The Grand Trunk was among the first railways on the North American continent to experiment with the new rails, placing a trial order for them in 1865.(35)

The Company reported in 1869 that the durability of the steel rails far exceeded that of the best iron rails and, most important to a Canadian railway, extreme low temperatures, as much as 30 degrees below zero Fahrenheit, did not injuriously affect them.(36) Although much impressed by the apparent advantages of steel rails, the Grand Trunk delayed total conversion because the high initial capital cost would add to the Company's already heavy financial burden. Reluctantly, it continued to use iron rail throughout the late 1860s.

Elsewhere in Canada, the Great Western, following the advice of Chief Engineer G.L.Reid, took the lead in converting its track to steel. First laid in 1869, the new steel rails immediately proved to be a "great improvement...very satisfactory," and in 1872, the Company was lavish in its praise:

"New heavy steel track has enabled the Traffic Department to conduct the heaviest half-year's business in the history of the railway, with despatch and freedom from casualties and has diminished wear and tear on the engines and rolling stock."(37)

At length, in 1871, following the practice established by the rival Great Western, the Grand Trunk began "stealing its rails."(38) The conversion was, by necessity, a slow process. As late as 1886, the Chief Engineer's report showed over 100 miles of iron rails still in use. But as each section was changed to steel rails, the benefits became more and more apparent. Decreased rail breakage meant safe and dependable service. Increased rail strength meant that heavier and stronger locomotives could be used to power longer freight trains and faster passenger trains. The average Grand Trunk locomotive in 1857 weighed 25 tons and took 15 hours to haul the "Through Express"

from Montréal to Toronto. By 1884, the weight of express locomotives had doubled and the time for the same trip had been reduced to only 11½ hours.

Envoi.

A century has passed since the introduction of steel rails on Canada's railways. In that time, there have been many improvements in the permanent way: harder steel, heavier track, stronger joints, standardized designs, but no radical changes. The sight of steel T-rails on wooden ties, disappearing in the distance, is as familiar today as it was to those pioneer railwaymen who drove the Great Western trains to Windsor, Ontario or the Canadian Pacific construction specials to the "end of steel" at Port Moody, British Columbia.

By the beginning of the 1870s, a century ago, the time of trial and error had ended. The railways of Canada were finally on the right track.

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End Notes

Part II

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November, 1973.

WAYBILLS

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FOR THE EASTERN EXPRESS COMPANY,

IN A LETTER DATED APRIL 19 1973, THE HONORABLE JEAN CHRETIEN, Minister of Indian and Northern Affairs advised Mr. N.J. MacMillan, Chairman and President, Canadian National Railway Company, of his department's interest in railway buildings, principally stations, and his concern about the rapid disappearance of these in disuse. Meanwhile, the Historic Sites and Monuments Board of Canada stimulated to action the Canadian Inventory of Historic Buildings, Research Division, National Historic Sites Service, National and Historic Parks Branch. The CIHB assigned two undergraduate architects, two temporary-staff photographers and at least one "historian" to prepare the necessary photographs, screening papers and justifications which would be required to permit the Minister to recommend to the presidents of Canada's railways that certain railway stations be preserved.

The recommendations of the CIHB group came through the Historic Sites and Monuments Board and were approved by the Minister on July 30, 1973. On August 15, the Minister of Indian and Northern Affairs advised Mr. MacMillan that the following recommendation had been made at the June meeting of the Board:

"that the following Grand Trunk Railway stations are of national historic interest and architectural significance and that every effort should be made to ensure their preservation, the priorities being tentative pending more comprehensive material being available for discussion by the whole Board:

- Large category.....1. Kingston Grand Trunk station
- 2. Belleville Grand Trunk station
- Small category.....1. Port Hope Grand Trunk station
- 2. Prescott Grand Trunk station
- Small stations no longer in use.....1. St. Mary's Junction Grand Trunk station
- 2. Ernestown Grand Trunk station."

The Minister's letter went on to say that the Board's expansive research into the part that railways have played in Canadian history is continuing and during the time it takes to reach a conclusion, it would be appreciated if Mr. MacMillan would assure that the six stations named would be saved from demolition and preserved in their original condition - the latter requirement a remarkable request. Apparently these stations are of particular significance and when the Board's overall study is complete, it will indicate what place these stations would play in its plans.

It should be understood that (a) the total evaluation project is as yet incomplete and (b) these six buildings are initial suggestions. There may be more. In fact, there are sure to be more!



FORMER CANADIAN NATIONAL RAILWAYS STATION AT JONQUIERE, QUEBEC, A modern brick structure ca. 1930, today is used by l'Ordre Loyal du Moose! The beautiful 1866 brick station of the Montreal & Vermont Junction Ry., at St-Armand, Qué., is the town hall. Photos K.R.Goslett.



If six Ontario stations have been designated, then it naturally follows that there will be an equal number from Québec. Having established this level of selection, it may be assumed that there will be at least two or three from each of the other Provinces, which will make a grand total of some 20 or 22 stations, since Prince Edward Island and Newfoundland can muster about one each.

Even if this number is cut in half, or reduced by as much as 80%, Canada does not need 15 preserved railway stations. While the preservation of one or two architecturally and historically significant stations might be justified, it would be preferable to delegate their preservation to private, self-sustaining organizations, which combine enthusiasm for the project with the will to make it an ongoing, permanent, community-related activity and not an undertaking totally unrelated to and unwanted by the society in which it is located, resulting in added expense to Canadians in general.

The Minister might also have been advised on the number and variety of railway station preservation projects presently being undertaken in Canada and perhaps, had he known, he might have had a crumb or two of praise - and money - to throw their way. Readers of CANADIAN RAIL already know that there are a few.

The further recommendations of the Historic Sites and Monuments Board of Canada - and the justifications for these recommendations - are awaited with interest.

S.S.Worthen.

AN APOLOGY IS DUE TO DR. PHILIP R. HASTINGS, OUR MEMBER IN WATERLOO, Iowa, U.S.A. Through some accident, the credit line from the two photographs on page 223 of the July 1973 (number 258) of CANADIAN RAIL was lost and only now can we express our rather belated thanks to Dr. Hastings for allowing us to use his two excellent pictures of the St. Johnsbury and Lamoille County Railroad, as it used to be.

SPEAKING OF THE ST. JOHNSBURY & LAMOILLE COUNTY, IN ITS FRIDAY, AUGUST 24 1973 issue, the St. Albans, Vermont DAILY MESSENGER had the following news item:

"The Vermont Transportation Authority told the State Emergency Board Thursday that it would take the \$ 75,000 needed to repair tracks of the St. Johnsbury & Lamoille County Railroad out of money used to buy the line.

The Authority voted last Saturday to purchase the line from Mr. Samuel Pinsley of Boston for \$ 1.4 million. Authority Chairman Robert Gensburg of St. Albans appeared before the Emergency Board Thursday to give a status report on the 99-mile line between Swanton and St. Johnsbury.

The railroad will be leased to a group of Lamoille County business men for eight months. The Authority will pay the group \$ 11,000 a month to operate the line.

Businessmen in northern Vermont expressed concern that if the line went under on September 3 when the Interstate Commerce Commission said it could be abandoned, they would be left without adequate transportation for their raw materials and products."

Editorial Staff.

ABOUT 09:15 HOURS, FRIDAY JULY 20 1973, ONE OF THE TWO UNITED AIR-craft of Canada Limited \$ 2 million, 4-car TURBO trainsets, sold last December to AMTRAK USA for service to and from Chicago, Illinois, slid smoothly out of Canadian National Railways' Central Station, Montréal, for a 240-mile round-trip test run on the Montréal-Toronto main line west to Brockville, Ontario. The white front-and-rear power cars bore the usual AMTRAK headless arrow and the two intermediate coaches were painted with blue and red stripes. The name "AMTRAK" was prominently displayed in large letters on both sides of the power cars and the destination signs indicated "Chicago".

At about the same time, Canadian National's overnight piggyback-container freight Train 228 from Toronto to Turcot Yard, Montréal, was passing Dorval and reducing speed, in preparation to taking the crossovers at Ballantyne to the direct-access north track to Turcot Yard.

As the TURBO trainset swished through Ville-St-Pierre, the westbound main line signal 52 L, controlling switch 47 at Ballantyne, came into view. Whatever its aspect, the trainset's speed, estimated at 60 mph, was not significantly reduced.

Container-piggyback Train 228 was then in the process of negotiating the crossover from Track 3 to Track 2 at Ballantyne, from the eastbound main to the westbound main and thence to Track 1 for Turcot Yard. It was moving over switch 47. TURBO was also approaching switch 47 on the westbound main line at about 60 mph.

As the 4-car trainset sped towards Ballantyne, mile 8.9, at about 09:45, members of the traincrew and others in the control cab atop the forward power car saw four 89-foot container flats and the caboose, the rear end of Train 228, moving cautiously through the crossover. At that moment, the AMTRAK TURBO train had less than 15 seconds in which to stop.

As soon as he saw the freight blocking the westbound main, the man at TURBO's controls applied the brakes in emergency. But in the time and distance left, there was no way that TURBO could be stopped. At 09:47, at an estimated speed of 40 mph., the trainset struck the long container flat, loaded with two empty 40-foot ACL containers, fourth from the end of Train 228.

The corner of the 89-foot flat sliced into the side of the leading power car just behind its bulbous nose, about three feet above rail level on the right-hand side in the direction of travel. It knifed into the aluminum carbody, apparently striking one of the turbines and severing fuel lines and electrical connections. Under the force of TURBO's momentum, it continued shearing through the carbody of the first coach and along the side of the second coach for about a quarter of the latter's length, before TURBO was thrown sideways to the left off Track 2 onto Track 3. The rear of the second coach and the rear power car had their sides scraped and dented, but the aluminum bodies were not ripped open.

Within seconds of the collision, fuel from the broken pipes ignited and there was a burst of flame and smoke which seemed to shoot nearly a hundred feet into the air. This was followed by a second, less violent explosion. Flames spread rapidly through the interiors of the leading power car and first coach.

CN personnel, AMTRAK representatives, UAC employees, guests from the Illinois Central Gulf and Milwaukee Railroads and the United States National Transportation Safety Board escaped from the flames and smoke through the windows of the control cab, knocked outward with a fire-axe, or through the nose-door of the power car. Fortunately there were no fatalities, but there were burns, bruises and scrapes.





ACL

Amtrak

The front power car and first coach were now blazing furiously, the heat being sufficient to melt the aluminum roofs and sides of the cars. Firemen from the City of Lachine, Québec, rushed to the scene of the collision, were able to confine the flames to the forward power car and the two coaches, but the inside of the rear power car was apparently extensively damaged by heat and smoke. Efforts to bring the fire under control were hampered by the fact that CN's main line west at Ballantyne runs through a 40-foot-deep rock-cut.

CN main line passenger trains to Toronto, Ottawa and the west were rerouted through the Mount Royal Tunnel to EJ Tower and thence over the St-Laurent Subdivision to Montréal Yard, regaining the main line about 1,000 feet west of the scene of the accident.

At about 17:00 that afternoon, the remains of the burned-up front power car and first coach of the AMTRAK TURBO trainset were loaded into two gondola cars by the Montréal Yard auxiliary. Track crews were making temporary repairs to the crossover switches and track, torn up by the derailment. The second AMTRAK TURBO coach and rear power car were upright on Track 4, but could not be moved because the single pair of supporting wheels between the two coaches had been demounted, probably when the rear portion of the trainset was dragged back away from the two blazing forward units.

The AMTRAK TURBO trainset which collided with Train 228 was composed of power car Number 54 leading, followed by coach Number 77, coach Number 76 and rear power car Number 55. Damage to the front power car and first coach was so extensive that neither can be rebuilt. Coach 76 will require major rebuilding, while rear power car Number 55, unless badly damaged inside, can be rebuilt.

In a press statement on July 31, 1973, J.W.G. Macdougall, Executive Vice-President of Canadian National, said that the accident had occurred because the TURBO passed a red signal governing the switch being cleared by the piggyback-container freight. He affirmed that the freight had the right-of-way over the crossover switch. He also pointed out that the TURBO trainset had withstood the force of the collision as well as could have been expected and said that an investigation of the cause of the subsequent fire would be undertaken in cooperation with the Railway Transport Committee of the Canadian Transport Commission.

S.S. Worthen.

FURTHER NEWS OF CP RAIL'S BALDWIN UNITS ON VANCOUVER ISLAND, BRITISH Columbia, comes from John Hoffmeister of Victoria, B.C. In mid-August, Number 8007 had been sent back to Ogden Shops, Calgary, Alberta, for repairs and what was postulated to emerge was a conglomerate of Numbers 8007 and 8012. A representative of the railway's motive power department said that Number 8006 might be reparable by using parts from destroyed units Numbers 8008 and 8011.

Mr. Hoffmeister planned a visit to the Olympic Peninsula of the State of Washington, U.S.A., in September, to investigate the isolated branch of the Milwaukee Railroad which runs from Port Townsend to Port Angeles. The SD 9 units which handle much paper traffic run through some very scenic country. Connection to the Milwaukee's main line at Seattle is by car-barge from Port Townsend. This isolated branch is the farthest-west railroad in the continental United States.

→ HOW MANY TIMES YOU'VE SAID TO YOURSELF, " I WONDER WHAT THE AUTHOR looks like!" Well, now you can see for yourself. On the front plate-form of CP RAIL Baldwin DRS-4-4-1000, Number 8000, stands John E. Hoffmeister of Victoria, B.C., author of several articles for CANADIAN RAIL. The date is May 25, 1973. The place is Victoria, B.C.



EARLY IN AUGUST, 1973, THE DOMINION ATLANTIC RAILWAY'S MACHINE SHOP at Kentville, Nova Scotia, was completely destroyed by fire. Glenn Wallis, our member in Kentville, who sent this information, reported that the fire caused some \$ 250,000 damage and its cause was unknown. The other railway buildings and equipment adjacent to the machine shop, were kept wet down with water and thus saved. Built in the 1920s, the building was used mainly to house DAR maintenance equipment. The west end was rented to the American Can Company which had about a million cans stored in it for use by food processors. The building was used as a machine and blacksmith shop before steam locomotives were replaced by diesel units.

Norris on "Railroading in the Rockies".



"Patience, folks . . . we have a slide, a wash-out, a hot box, a flat wheel, and we're awaiting the roll of the dice on the next location for the selective strike . . ."

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