Canadian Rail

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CP RAIL'S CONNAUGHT TUNNEL.

J.A.Beatty

Although the original line of the Canadian Pacific Railway through Canada's Rocky Mountains was probably best known for its precipitous 4.4% grade eastbound from Field to Stephen, British Columbia, the fabled "Big Hill", no less arduous was the "high line" originally built through Rogers Pass, between Donald and Revelstoke, or "Farwell" as the latter was originally called. Today, the climb up the west side of the Beaver River valley, from Beavermouth to Bear Creek is extremely difficult and the ascent on the west slope between Revelstoke and Glacier is not much easier.

After a series of disasterous avalanches in Rogers Pass in the early years of this century, which caused great property damage and considerable loss of life, the Canadian Pacific determined to eliminate the vulnerable portion of the railway through Rogers Pass.

From information since published in various journals, the reader will already be aware of the means by which this hazardous portion of railway was eliminated. It was decided to construct a tunnel under the pass and the basic specifications for the bore which was completed from Glacier to Bear Creek have been previously described. The advantages gained over the Rogers Pass route included ".... the climb was cut in half, the distance was shortened by four and a third miles and curves, equal to seven circles, were done away with".

During the period of construction of the tunnel, progress reports were published in Canadian Pacific Railway Passenger Department Bulletins of the day and these provide considerable detail not elsewhere published.

At the outset, in May 1913, the proposed tunnel was described in the above-mentioned publication as being a part of "..the double-track work between Calgary and Vancouver". The contract for

NOT LONG AFTER THE CONNAUGHT TUNNEL WAS OPENED IN 1916, A PHOTOGRAPHER took this view of the west portal, near the new operating point of Glacier. The view is shown on this month's cover. The old "high line" through Rogers Pass is visible on the mountain side at the right of the picture, which is presented courtesy of Canadian Pacific Limited.

THE EAST PORTAL OF THE CONNAUGHT TUNNEL SHORTLY AFTER ITS OPENING was no less impressive. Here, a double-headed passenger train from the east climbs up the grade from Bear Creek, working towards the summit near the westportal. Photo courtesy Canadian Pacific Limited.

the new tunnel was awarded in July 1913 and was expected to require 42 months for completion. At the same time, it was stated that ".... trains will be operated through the tunnel by electricity instead of by steam". Concepts of the latter half of the Twentieth Century were thereby almost anticipated.

It was reported in January 1914 that the work was proceeding as rapidly as possible, also that "as the height of the mountain through which the tunnel will pass precludes the sinking of vertical shafts and so working simultaneously at various points, it has been decided to bore a pioneer tunnel, 7 feet by 8, parallel to the route of the main tunnel and to cross-cut at short intervals, so as to enable several headings to be worked at once, and this pioneer tunnel will also assist ventilation of the main tunnel during construction. The main tunnel forms a very important part of the Company's programme of double-tracking between Calgary and Vancouver".

During September 1914, the tunnel was described officially as "The Rogers Pass Tunnel", a name convenient rather than permanent. By this time, the pioneer tunnel had been driven 3,440 feet from the eastern portal (Bear Creek) and 380 feet from the western end (Glacier). One wonders how machinery and supplies were lowered to the tunnel adits from the railway, which, on both the east and west sides of Rogers Pass, ran some several hundred feet above the workings on the mountainside.

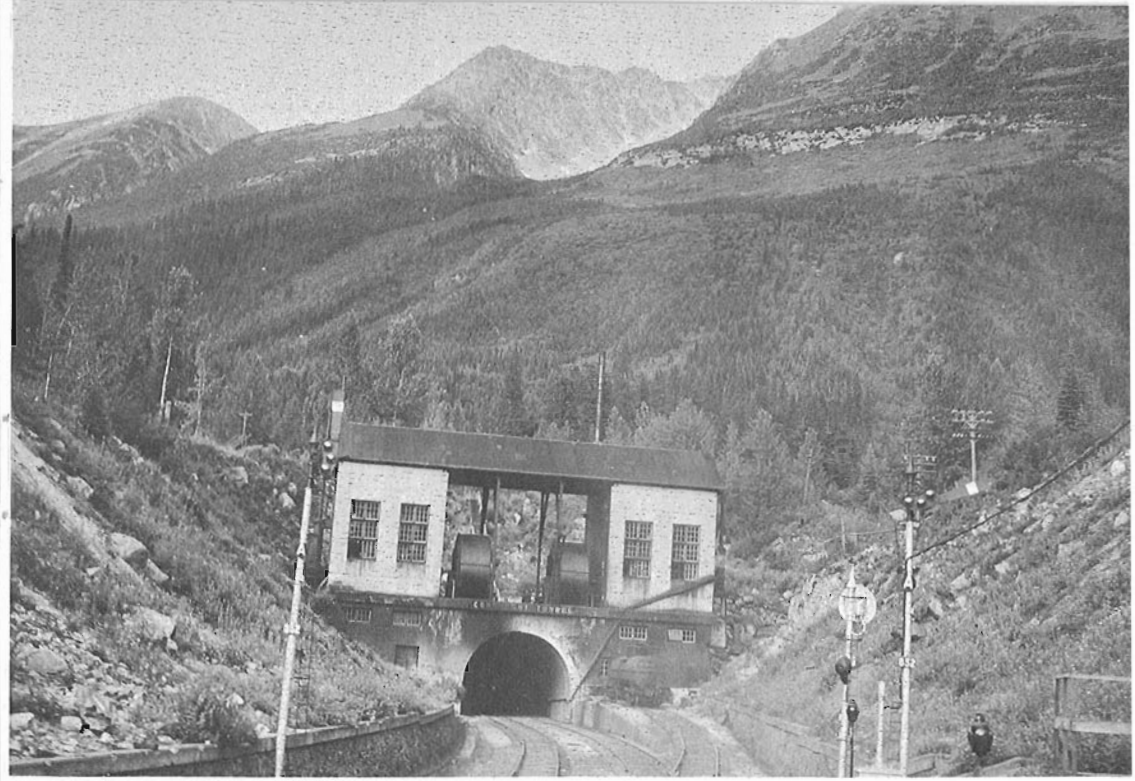
Notwithstanding the rigors of weather and construction, progress in May 1915 was described as "splendid", the pioneer tunnel having been completed 8,087 feet from the east entrance and 6,250 feet from the west. The east main heading was completed for 6,766 feet and the west main heading for 4,981 feet. The ends of the pioneer tunnels were then only two miles apart.

At 11.30 a.m., on December 19, 1915, the pioneer tunnel was completed through Mount Macdonald, the holing-through taking place at a point 13,818 feet from the east portal and 12,582 feet from the west portal. It was reported that "the ceremony of firing the connective shot was performed in the presence of a number of prominent railway and business men, civil engineers and four intrepid ladies, two and one-half miles from either exit and 6,000 feet below the surface". The climactic conditions in and under Rogers Pass at this time of year can well be imagined and the attendants at this historic ceremony are congratulated on their courage and determination.

On the same date, the shovels enlarging the tunnel to its full size had advanced from the east 8,502 feet and from the west 7,500 feet, leaving only 10,398 feet of enlargement to be finished.

The decision to operate trains through the new tunnel with steam power instead of electric engines required the installation of a high-power ventilating plant to remove smoke and gases from the tunnel. Steam locomotive exhaust removal would certainly be necessary since the top of the 2% grade westbound was only a few hundred feet inside the tunnel from the western portal. The ventilating machinery was therefore provided at the up-grade or west portal, not to suck air out of the tunnel, but to force air into it against the ascending trains, thereby blowing the exhaust gases back over the train. This benefitted the engine crew but was a hardship for the train crew. The ventilating fans were not used when eastbound or down-grade trains entered the tunnel.

A duplicate plant was provided, consisting of two multi-



THIRTY FOUR YEARS LATER, THE WEST PORTAL HAD NOT CHANGED VERY MUCH. The section-mens' houses had been relocated, the arched entrance had accumulated a little more soot and the semaphore signals were about to give way to colour-light signals. The tank car which supplied oil to power the McIntosh & Seymour engines was on the siding when this picture was taken on 9 August 1950. Photo CRHA E.A.Toohey Collection.

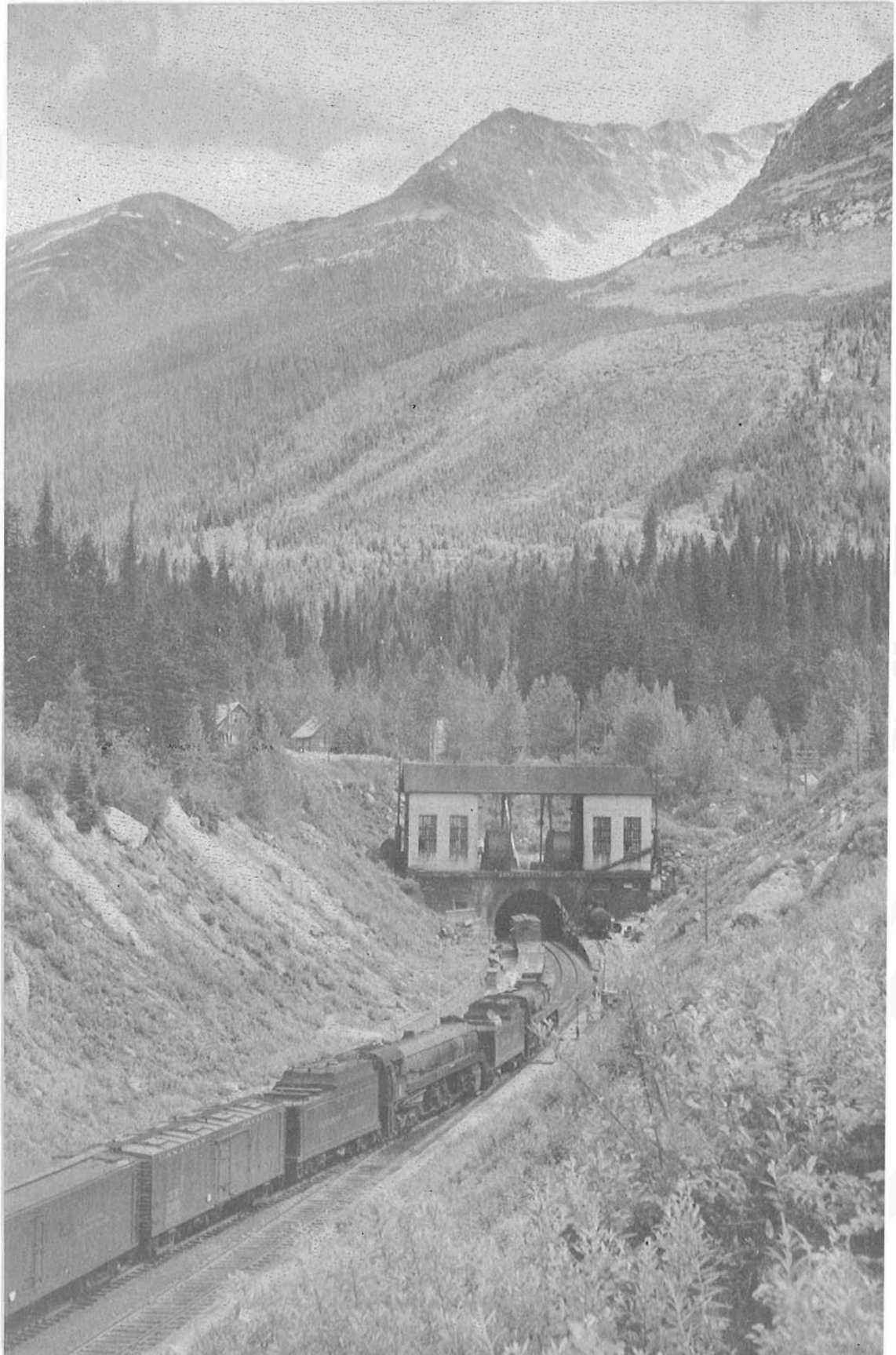
blade fans furnished by B.F.Sturdivant Company of Galt, Ontario.These fans were 12 feet 3 inches in diameter by 8 feet 3 inches wide, capable of delivering together 700,000 cubic feet of free air per minute, at a temperature of 70°F . They had 7/8-inch housings and two ring-oiled, self-aligning bearings. The fans were powered by two 4-cylinder, 4-cycle, 500 hp. diesel engines manufactured by McIntosh and Seymour of Auburn, New York, U.S.A. Each engine weighed 156,000 pounds and operated at 190 rpm. McIntosh and Seymour of Auburn grew to greater importance with the advent of the diesel-electric locomotive in the 1940s and '50s, as many readers will be aware.

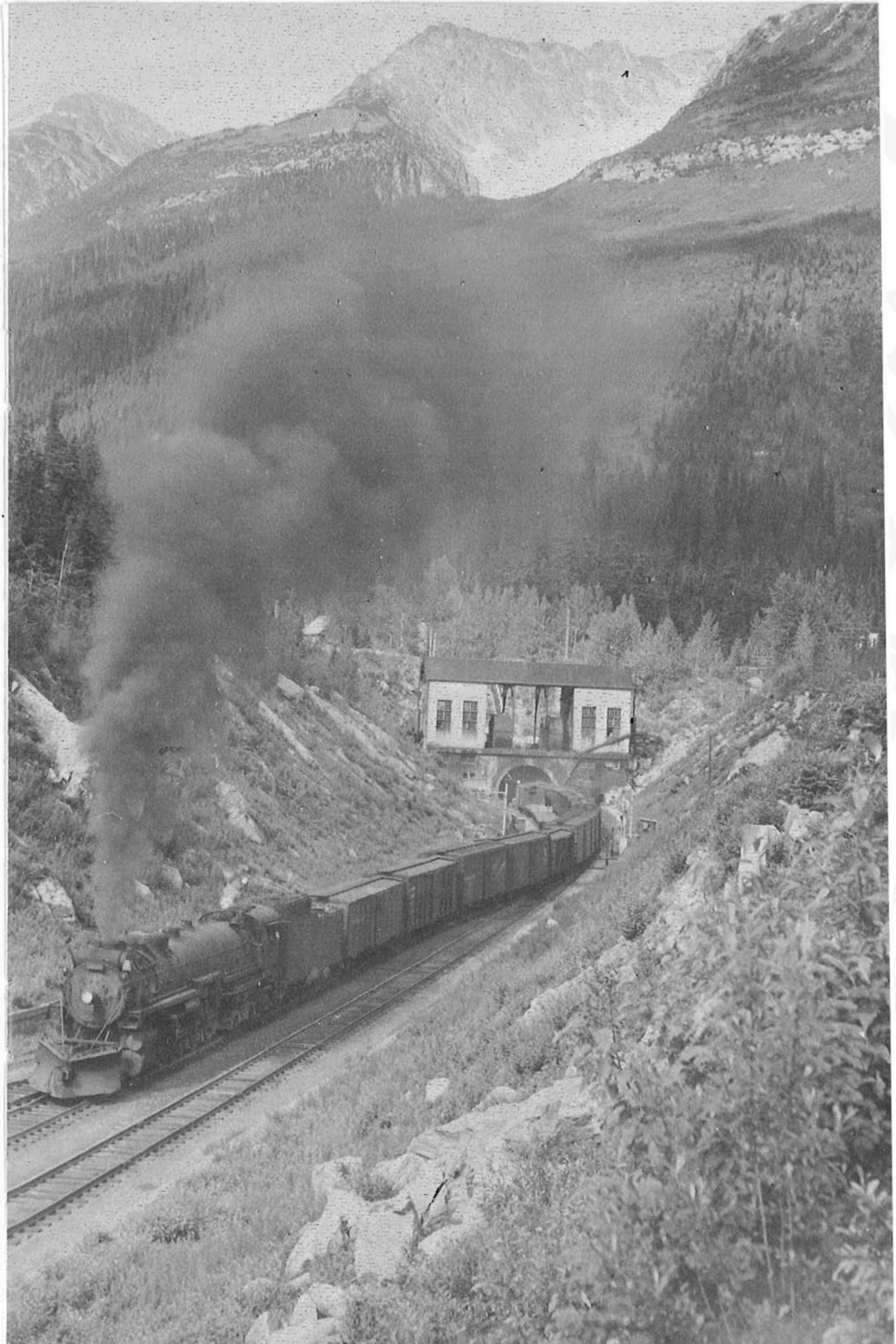
The diesel engines were directly connected to the fans and to a three-stage air compressor, compressing to 850-900 pounds per square inch and supplying air to two receivers of 11 cubic feet capacity each. This compressed air was used to start the diesels,which

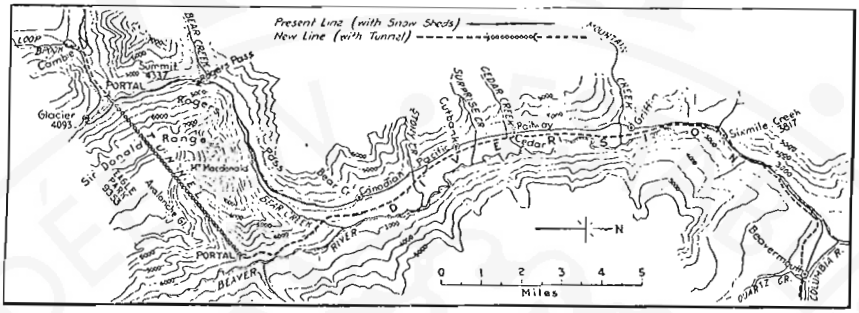
WITH A CLEAR BOARD, CANADIAN PACIFIC RAILWAY TRAIN 4, ENGINES NUMBERS 5468 and 5925 thunder through Glacier, towards the west portal of the five-mile-long, double-tracked Connaught Tunnel on a bright, sunny July 15, 1951. Photo CRHA E.A.Toohey Collection.

CANADIAN PACIFIC RAILWAY TRAIN 14, ENGINES NUMBERS 5467 & 5935, NINE box-baggage cars and seven coaches and sleepers rumble by the station and wye at Glacier, B.C., towards the Connaught Tunnel. The famous wye at Glacier achieved a unique status because the tail was in a tunnel in the mountainside.July 15,1951Photo CRHA E.A.Toohey Collection.

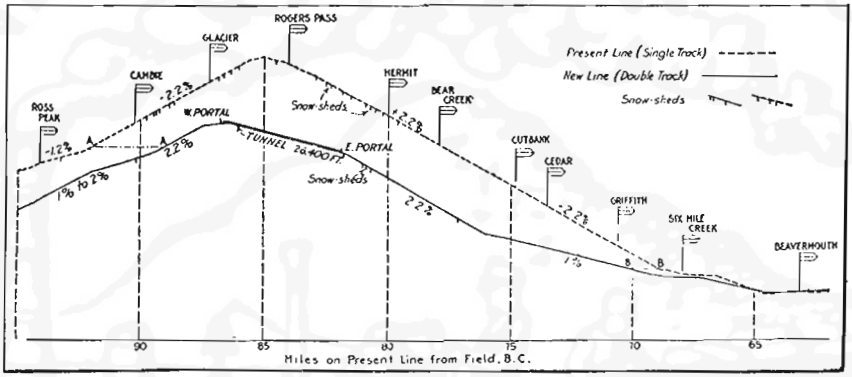

5468







Revision of C.P.R. at Rogers Pass, with Double Track, Five Mile Tunnel.



Profiles of Old and New C.P.R. Lines at Rogers Pass.
At A-A and B-B the double track line will be on the same location as the present single track; the differences in distances indicate the saving by the new line.

operated on a cylinder compression of 460 pounds per square inch. An auxiliary air storage bottle holding 3 cubic feet was provided for the injector equalizer.

The McIntosh and Seymour engines burned California crude oil at the time they were used, which was the same kind of crude oil as was used by the oil-burning steam locomotives of the Canadian Pacific, between Field and Vancouver, British Columbia.

As the work on the new tunnel neared completion early in July 1916, the tunnel was, for a brief period, renamed the "Selkirk Tunnel", after the mountain range which it pierced. The work of enlarging the bore to its final full size for the double track was completed throughout on July 6.

Adequate recognition of the magnitude of this great engineering feat was generally absent at the time of its completion, since Canada, the Commonwealth and Great Britain were totally involved in the most critical months of World War I. The completed project was inspected on July 17, 1916 by His Royal Highness the Duke of Con-

TRAIN 14 WITH SIXTEEN CARS CROSSES OVER TO THE EASTBOUND MAIN LINE - avoiding a work train on the westbound main, in the process - and prepares to make the five-mile trip through the Connaught Tunnel on 15 July 1951. Photo CRHA E.A.Toohey Collection.

EXTRA WEST 5907 EMERGES INTO THE SUNLIGHT OF JULY 15, 1951 AT THE west end (Glacier, B.C.) of the Connaught Tunnel. The freight used the eastbound main line because a work train was occupying the westbound main. Photo CRHA E.A.Toohey Collection.

ON THE REAR END OF EXTRA 5907 WAS PUSHER ENGINE NUMBER 5901, EQUIPPED with a pilot snowplow as late as 15 July 1951. The freight could not have been a very long one, if it only required two 5900s to boost it up the hill from Beavermouth, B.C. Photo CRHA E.A.Toohey Collection.

naught, Governor-General of Canada, on the occasion of his journey to British Columbia.

The Passenger Department Bulletins reported on September 1, 1916 that the Rogers Pass/Selkirk Tunnel had definitely been named "The Connaught Tunnel", with the kind permission of His Royal Highness.

Official operation of trains through the five-mile-long, double-tracked Connaught Tunnel under Rogers Pass began on December 9, 1916. Four years later, the lining of the "Big Hole" was commenced. Steel reinforced concrete in 22-foot-long sections was installed at the rate of 132 feet in six days, using six sets of forms.

With the completion of the tunnel, the problems and hazards of operation over the "High Line" through Rogers Pass, particularly during the long, cold months of the Rocky Mountain winter, finally were ended.

Afterword

To provide greater clearances for oversized boxcars and trilevel auto transporter cars, Connaught Tunnel was single-tracked early in November, 1958 and single-track operation began on the 11th. of that month.

FARTHEST NORTH!

Robert F. Legget

If, one day, you should chance to be perusing a map of the very large part of the North American continent which is identified as Canada, you might just happen to notice that there is a thin thread of railway line which winds north from Edmonton in Alberta, towards the Arctic Ocean. This thin line is intercepted by a large inland body of water called Great Slave Lake, long before it reaches the shores of the northern ocean.

If the map is of sufficiently large scale, you will discover that, just before the railway reaches the southern shore of Great Slave Lake, it throws off a branch to the east, which also terminates on the southern shore of the lake at the town of Pine Point, Northwest Territories. The main line ends at Hay River.

These two points are, then, the end of standard-gauge railway in Canada's north. Which of these two terminii is the farthest north is difficult to say, for the COMINCO mine and air-strip at Pine Point is located at 60° 52" north latitude, while the town of Hay River is described as being at 60° 50-52" north latitude. Either way, this is the most northerly point in North America reached by a continuous line of standard-gauge railway but, as we shall see, this has only been true since as recently as 1965.

Traditionally, access to this northwestern part of Canada was by the great Mackenzie River system. The time and effort required to transport goods to this northern region was somewhat diminished by the construction in the Thirties of a branch of the Northern Alberta Railways to Waterways, Alberta, at the junction of the Clearwater and Athabasca Rivers. Sternwheel steamboats or diesel-powered tugs of the Hudson's Bay Company pushed loaded barges down the river to Lake Athabasca and onward to Fort Smith on the Slave River.

At Fort Smith, all of the freight for points farther north had to be portaged around Pelican Rapids and loaded onto other barges for the onward journey to Great Slave Lake and thence down the MacKenzie River to the Arctic coast. It is hard to realize that over 60,000 tons of freight were moved in this way during two short summer working seasons in the 1940s, for building the CANOL pipeline, long since abandoned.

Transport to the north was improved in the '50s with the completion of an all-weather road from Grimshaw, Alberta, northward across the 60th. parallel to Hay River at the western end of Great Slave Lake. But the irresistable impetus for the construction of a railway to this remote location was the discovery of a spectacular deposit of lead-zinc ore at Pine Point, 55 miles east of Hay River. What was urgently needed was a means of transport out to the refineries of the south, but first, large amounts of machinery and other materials had to be brought to the site to open the mine.


To the Arctic
120° W.
115° W.
110° W.
Great Slave Lake.
Mackenzie River
Hay River
Pine Point
NORTH WEST TERRITORIES
Slave River
60° N
Fort Smith
Hay River
Peace River
Lake Athabasca
BRITISH COLUMBIA
ALBERTA
SASKATCHEWAN
Waterways
Clearwater River
Hines Creek
Roma
Peace River
Dunvegan Creek
McLennan
Lesser Slave Lake
Athabasca River
55° N
Grande Prairie
Athabasca
Lac la Biche
Barrhead
White Court
C.N.R. Main Line
EDMONTON
GREAT SLAVE RAILWAY.
Northern Alberta Railways.
Canadian National Railways.
0 50 100
Miles.

Timetable No. 3—April 25th, 1971 5

NORTHWARD TRAINS

MANNING SUBDIVISION

Miles from N.A. Rly. Jct.	Yard Limits		STATIONS	Office Signals	Siding Car Capacity
0.0			N.A. Rly Jct. ..... Z	----	----
			Jct. with N.A. Rly. 1.0		
1.0			ROMA JCT. ..... CKYZ	----	Yard
3.0	3.0		11.8		
12.8	----	Manual Block System	LEDDY	----	73
			14.3		
27.1	----		DIXONVILLE	----	96
			18.2		
45.3	----		DEADWOOD	----	73
			10.0		
55.3	----		MANNING	----	96
			13.8		
69.1	----		HOTCHKISS	----	73
			15.0		
84.1	----		HAWKHILLS	----	96
			25.6		
109.7	----		KEMP RIVER	----	96
			18.6		
128.3	----		KEG RIVER	----	96
			9.7		
138.0	----		PADDLE PRAIRIE	----	73
			21.0		
159.0	----		METIS	----	96
			23.9		
181.0	181.0				
182.9			HIGH LEVEL ..... BCYZ	----	Yard

Rule 105A not applicable.
Rules 321 to 323 applicable.
Rear flag protection in accordance with Rule 99 is not required.
Main track commences at yard north switch mileage 1.6.
Rule 105 applies between mileages 0.0 and 1.6.

SOUTHWARD TRAINS

MANNING SUBDIVISION FOOTNOTES

1 RULE MODIFICATIONS

1.1 **TRAIN REGISTER MODIFICATIONS—**
Roma Jct.—Standard Clock and Bulletins only.
High Level—Bulletins only.

1.2 **SPECIAL INSTRUCTIONS APPLY—**
SYSTEM 2: applicable on yard limit signs.
AREA A-1, A-2 and A-3—on entire sub.
MANUAL BLOCK MB-1 to MB-18: applicable between mileage 3.0 and mileage 181.0.

1.3 **OTHER MODIFICATIONS—**
SYSTEM Special Instructions 9(b), 9(c), 9(d), 9(e), and 10(b) not applicable.

2 SPEEDS

2.1 Mileage		Miles per Hour All Movements
0.0 to 2.0	Zone	15
2.0 to 182.9	Zone	40
73.1 to 74.4		20
Sidings and Other tracks		10

3 HOT BOX DETECTORS

Located at mileages 43.4, 76.0 and 137.1.

4 OTHER TRACKS

	Mileage	Capacity	Points Face
Ballast Pit	10.0	35 cars	N S
Swanson Lbr. Co. Ltd.	111.6	10 cars	S

To assist in the development of this orebody, the Government of Canada decided to underwrite the cost of a railway, to be built almost parallel to the highway between Grimshaw and Hay River/Pine Point. Construction of the line started in February 1962. The problems which were encountered were unique, particularly since there was no very large body of knowledge in Canada pertaining to railway construction under these conditions and at these latitudes.

THE TRI-WEEKLY ORE CONCENTRATE TRAIN FROM PINE POINT MINES APPROACHES the wye-junction at Pine Junction, NWT., 8.2 miles south of Hay River on the Meander River Subdivision of the Great Slave Lake Railway. 81 covered gondola cars, mostly loaded with 100 tons of lead-zinc concentrates, are hauled by Canadian National Railways' units Numbers 4345, 4352, 4349 and 4353. Photo courtesy R.F.Legget.

Nonetheless, the 60th. parallel of latitude was finally crossed, with all due ceremony, on 29 August 1964 and the whole line was in operation by mid-1965.

Muskeg and permafrost were the major terrain problems, but Canadian National Railways' engineers, to whom construction of the line had been delegated, soon became experts in overcoming such natural difficulties. A CN-designed track-layer, humorously dubbed "The Pioneer", made the job of laying the ties and rails much simpler, once the roadbed was complete. Forty-five construction contracts were awarded, which included 41 river crossings requiring the building of 34 bridges, the largest of which was one of 2,000 feet, spanning the Meikle River valley. The total cost of this unique 430-mile railway was about $ 86 million.

Although Canadian National Railways had been given the responsibility of constructing and operating the Great Slave Lake Railway, the question of the route to be followed was hotly debated prior to its selection. On the one hand, the Northern Alberta Railways' line could be extended from Waterways, parallelling the Athabasca River. On the other hand, an entirely new line connecting with the NAR's existing main track in the Peace River country, 400 miles further west, could have been selected. Indeed, this latter route was adopted, thus avoiding the necessity of building a large bridge over the Athabasca River. Moreover, the highway which had already been built in this area simplified the logistics problem. During the construction period, a small CN diesel switcher was taken north by road so that construction could be carried on at the north and south ends of the line, simultaneously.

The new railway turned north from a junction with the main line of the Northern Alberta Railways to Hines Creek at Roma, a settlement just to the west of the town of Peace River, Alberta. It was located almost due north for 377 miles to the town of Hay River on Great Slave Lake. Seven miles south of Hay River, a branchline was built 54.3 miles eastward to the mine and settlement of Pine Point, on the south shore of the same lake. Thus, at one and the same time, transportation was provided for general merchandise moving north by rail and barge and ore concentrates moving south by rail to the smelters.

When the railway was completed, it was rather austere and possessed only those amenities essential to its efficient operation. It was single-track throughout, except for occasional necessary passing tracks. Although the number of timetable locations has increased during the eight years of operation, at first they were few, since there were no real settlements along the length of the line. Much to the satisfaction of the citizens of these northern districts, whenever possible, Canadian National Railways hired men living in the region and especially trained them for operating crews for the new railway.

Traffic on the Great Slave Railway has increased considerably since the line was completed. Three ore trains of up to 100 cars

Timetable No. 3—April 25th, 1971 7

WESTWARD TRAINS

PINE POINT SUBDIVISION

Miles from Pine Jct.	Yard Limits	Manual Block System	STATIONS	Office Signals	Siding Car Capacity
54.3			PINE POINT MINES ..... Z	-----	Yard
			4.0		
50.3			PINE POINT ..... YZ	-----	Yard
49.0	49.0		16.0		
34.3	-----		MELLOR	-----	55
			17.7		
16.6	-----		BIRCH C	-----	55
1.8			16.6		
1.4	1.4		PINE JCT. ..... YZ	-----	----
0.0			Jct. with Meander River Sub.		

Rule 105A not applicable.
Rules 321 to 323 applicable.
Rear flag protection in accordance with Rule 99 is not required.

EASTWARD TRAINS

PINE POINT SUBDIVISION FOOTNOTES

1 RULE MODIFICATIONS

1.1 SPECIAL INSTRUCTIONS APPLY—

SYSTEM 2: applicable on yard limit signs.

AREA A-1, A-2 and A-3—on entire sub.

MANUAL BLOCK MB-1 to MB-18: applicable between mileage 1.4 and mileage 49.0.

1.2 OTHER MODIFICATIONS—

RULE 111—Westward trains handling ore from Pine Point Mines must stop for standing inspection at Mellor.

SYSTEM Special Instructions 9(b), 9(c), 9(d), 9(e) and 10(b) not applicable.

2 SPEEDS

2.1 Mileage		Miles per Hour All Movements
0.0 to 54.3	Zone	40
Sidings and Other tracks	.....	10

3 PUBLIC CROSSING AT GRADE

3.1 Mileage 0.5—automatically protected.

Movements over the crossing from the north leg of the wye Pine Jct. must not obstruct the crossing until automatic protection has been in operation for at least 25 seconds.

4 HOT BOX DETECTOR

Located at mileage 9.7.

A MOVE, NOT WHAT IT APPEARS TO BE, ON THE GREAT SLAVE LAKE RAILWAY. The unit Number 4147 off the main-line train is moved in reverse by the Hay River switcher, Number 1280, pushing its caboose. The object of the exercise is to push Number 4147 to the small engine maintenance shed at Hay River, NWT. Photo courtesy R.F.Legget.

each, carrying as much as 10,000 tons of concentrates, normally leave Pine Point every week for the south, with trains of empties returning north on alternate days. Motive power for these trains is usually CN 4100 or 4300-series diesel-electric locomotives, running in multiple.

More recently, the search for oil along Canada's Arctic coast has resulted in increased traffic on the Great Slave Lake Railway. Moving by rail to Hay River, shipments are loaded onto large steel barges for the journey down the Mackenzie River by the Northern Transportation Company. Gas and petroleum finds on the Arctic coast make the possibility of major oil pipelines almost a certainty. In the scant four-month summer '72 navigation season on the Mackenzie, almost 400,000 tons of freight were moved by rail and river barge, although some of it came to Hay River by road.

An examination of the accompanying map will reveal that either Hay River or Pine Point is the northern "end of steel" for the whole North American standard-gauge system. A look at one of the accompanying pictures will give the reader a closer view of the northern end of track in the yard at Hay River, mile 380.0 from Roma Junction, Alberta. Two tank cars were occupying this unique piece of railway at the time the picture was taken.

When the information for this article was being collected, the southbound ore train from Pine Point took the east-to-north leg of the wye at Pine Junction and proceeded to the freight yard at Hay River. Here, southbound empties from the Hay River dock were coupled into the train and it departed with four units and 116 cars,80 of which were loads of ore concentrates. A diesel yard switcher was assigned to Hay River for shunting and general service duties and


4147
CN
CN

NORTHWARD TRAINS

MEANDER RIVER SUBDIVISION

Miles from N.A. Rly. Jct.	Yard Limits	Stations	Office Signals	Siding Car Capacity
182.9		HIGH LEVEL BCYZ		Yard
184.2	184.5	18.3		
201.2		HUTCH LAKE		73
		21.8		
223.0		MEANDER RIVER		73
		17.8		
240.8		SLAVEY CREEK		73
		17.8		
258.6		LUTOSE		73
		13.2		
271.8		STEEN RIVER		73
		19.5		
291.3		INDIAN CABINS		73
		19.9		
311.2		GRUMBLER		73
		19.7		
330.9		ALEXANDRA FALLS		73
		18.8		
349.7		ENTERPRISE		73
367.3	367.3	19.1		
368.8		PINE JCT. YZ		73
		Jct. with Pine Point Sub.		
		8.2		
377.0		HAY RIVER BZ		Yard

Manual Block System

Rule 105A not applicable.
Rules 321 to 323 applicable
Rear flag protection in accordance with Rule 99 is not required.
Main track ends at yard switch mileage 375.8.
Rule 105 applies between mileages 375.8 and 377.0.

SOUTHWARD TRAINS

MEANDER RIVER SUBDIVISION FOOTNOTES

1 RULE MODIFICATIONS

1.1 TRAIN REGISTER MODIFICATIONS—
High Level—Bulletins only
Hay River—Bulletins only

1.2 SPECIAL INSTRUCTIONS APPLY—
SYSTEM 2: applicable on yard limit signs.
AREA A-1, A-2 and A-3—on entire sub.
MANUAL BLOCK MB-1 to MB-18: applicable between mileage 184.5 and mileage 367.3.

1.3 OTHER MODIFICATIONS—
SYSTEM Special Instructions 9(b), 9(c), 9(d), 9(e), and 10(b) not applicable.

2 SPEEDS

		Miles per Hour All Movements
2.1 Mileage 182.9 to 377.0	Zone	40
Sidings and Other tracks		10

3 PUBLIC CROSSING AT GRADE

3.1 Mileage 350.2—Automatically protected.
Movements over the crossing from siding Enterprise must not obstruct the crossing until automatic protection has been in operation for at least 25 seconds. Automatic protection may be started by occupying the main track immediately south of the crossing or by operating start key located on the instrument case.

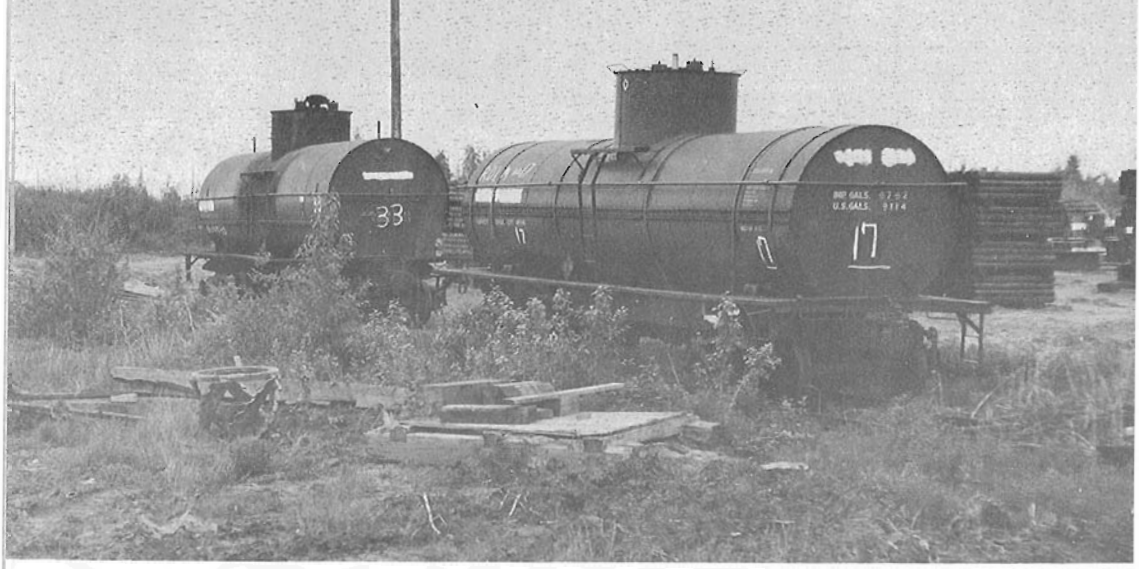
4 HOT BOX DETECTORS

Located at Mileages 233.3, 294.3 and 350.4.

5 OTHER TRACKS

	Mileage	Capacity	Points Face
Imperial Lbr. Co. Ltd.	214.3	13 cars	S
Ballast Pit	226.0	40 cars	S
Spur	300.0	15 cars	N

← REPAIRS ARE SOMETIMES MADE WITHOUT THE LUXURY OF A BACKSHOP! UNIT Number 4147 has the tyre on the right front wheel repaired by hand-welding, the welder being barely visible behind the pilot. The welding generator is behind the unit, while the ore concentrate train in the background waits for cars from Hay River to be added to the consist. Photo courtesy R.F.Legget.



FARTHEST NORTH ON THE STANDARD GAUGE IN CANADA? THE REAL " END OF steel" - Mile 377.0 from Northern Alberta Railways at Roma Junction, Alberta, via the Great Slave Lake Railway. Two tank cars stand on one of the several sidings at the north end of the railway's extensive yards around the loading wharves at Hay River, North West Territories, on the south shore of Great Slave Lake. A rail tie across the siding at the extreme right of the picture marks the actual end of the railway in Canada's north, the true end of continuous standard-gauge railway in North America. Photo courtesy R.F.Legget.

a one-stall shed was available for its off-duty storage and maintenance.

The GSL railway is operated as the Great Slave Lake Branch of the Mountain Region, Canadian National Railways. In the Employees' Operating Timetable No. 3 of 25 April 1971, the "Branch" was divided into three subdivisions: the Manning Subdivision from N.A.Railway Junction to High Level, Alberta, 182.9 miles; the Meander River Subdivision from High Level to Hay River, Northwest Territories, 194.1 miles and the Pine Point Subdivision from Pine Junction to Pine Point Mines, NWT, 54.3 miles.

Maximum train speed on all subdivisions was 40 mph. and hot-box detectors were installed at mileages 43.4, 76.0, 137.1, 233.3, 294.3 and 350.4 on the main line and mile 9.7 on the Pine Point Subdivision.

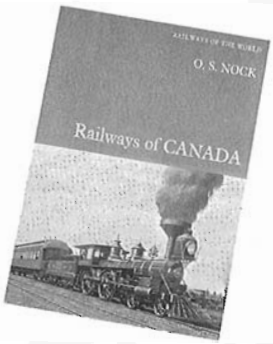
A small amount of freight is still moved through Waterways, for developments on Lake Athabasca, but its one-time importance as a main route north has been completely pre-empted by the Great Slave Lake Branch. This change of route to the north is accentuated by the new $ 10 million synchronously-operated drydock system, recently completed by the Northern Transportation Company at Hay River, in anticipation of the future potential of this inland port.

When gas and petroleum pipelines are built, it is inevitable that a large part of the necessary materiel will come "down north" on the Great Slave Lake Railway. Prospecting for mineral deposits, proceeding simultaneously with oil and gas exploration, will possibly discover additional mineral resources around and to the north of Great Slave Lake. If this happens, the GSLR might one day be extended, but only to aid such major mining developments, since it is entirely improbable that any other industrial developments will ever be established in the valley of the mighty Mackenzie, seventh longest river of the world.

HIGH LEVEL, ALBERTA, ON THE WAY NORTH TO HAY RIVER AND PINE POINT, North West Territories, is a thriving centre, with a saw mill and three grain elevators. Photo courtesy Canadian National Railways.

WHENEVER POSSIBLE, OPERATING PERSONNEL FOR THE GREAT SLAVE LAKE RAILway were chosen from among Canadians resident in the areas through which the railway passes. UHF radio plays an important part in daily train operation. Photo courtesy Canadian National Railways.

BOOK REVIEW



reviewed by

Christopher A. Andreae

Among the books about railways recently published in England is RAILWAYS OF CANADA, written by Mr. O.S.Nock, a railway enthusiast and author familiar to many of us as one of the best known writers on the railways of the United Kingdom and, indeed, the world.

The title, RAILWAYS OF CANADA, the size of the work - 335 pages - and the price in the U.K. (£ 7) would lead one to think that this is a comprehensive survey of the Canadian railway network. Alas, this is not quite true. The book is based, apparently, on the author's one "railway only" trip to Canada, with information obtained from books on the subject, and some personal interviews, liberally interpolated.

One might draw the obvious comparison of a Canadian writer about railways who travelled to the United Kingdom, rode the former Great Western main line to Bristol, managed a trip in the cab of the locomotive on the "Flying Scotsman" to Edinburgh - with a side-trip to Oban - visited the railway museum at York and, on his return to London, made a diversion to visit the Festiniog Railway - and then came home to write a book on the railways of Great Britain.

In reality, Mr. Nock's new book is very like one of the "Railway Holiday..." series published in England several years ago. Mr. Nock describes most of the railways in Canada that a tourist might plan to see. Considering the readership at which the book is aimed, this is a correct approach. The railways' history, however, has been reported minimally, as has any railway in Canada that Mr. Nock did not personally inspect.

Among the subjects - in the reviewer's opinion most notable - which Mr. Nock's book does not describe, are the Newfoundland railways; most of the railways in Ontario, including the Toronto, Hamilton and Buffalo and the bridge-lines from the United States;railways of the Maritime Provinces - except for a brief glance at the Intercolonial Railway - and the White Pass and Yukon Route, the pride and joy of narrow-gauge enthusiasts everywhere.

What Mr. Nock does describe, quite disproportionately to its importance, is the Canadian Pacific Railway. Surely this is a failing shared by all overseas enthusiasts, who are completely transported, as it were -justifiably perhaps- by the romance of the CPR, but are thereby blinded to the fact that there are other equally if not more important aspects and representatives of the Canadian railway

scene. The splendid history and world-wide renown of the Canadian Pacific Railway Company, a result of the Company's many achievements and a hard-working Public Relations Department, naturally have made CPR Canada's best known railway. But the writers on railways and the enthusiast visitors are regretfully depriving themselves of interesting experiences and information by concentrating so closely on a single aspect of a complex subject.

As previously noted, there is very little about the history of Canada's railways in Mr. Nock's book. Perhaps this aspect was beyond the scope of the work, but its inclusion would have rounded and completed the story.

Sad to relate, what history is included has been presented in a most haphazard manner, making it difficult to grasp the historical development of Canadian rail lines. The story of the Canadian Northern Railway and the National Transcontinental-Grand Trunk Pacific Railway are discussed simultaneously in three pages (pp. 37-39), with numerous references and comparisons with the Canadian Pacific, producing a most confusing impression in the mind of the reader.

This is the reviewer's first reading of a book by Mr. O.S.Nock. The style, to him, is disappointing. It is a rambling dialogue containing large portions of unnecessary text. The following passage, written as a post-scriptum to a cab-ride in a CPR locomotive on the "Canadian", might well have been deleted:

> For the next three hours I enjoyed the luxury of the train, watching the fascinating countryside roll by from the privacy of my sitting room; sampling what another railway scribe once called "the grosser pleasures of the dining car"; and then, after lunch, up to the dome at the rear where I found that many of the "sightseers" had dozed off! (p.207)

The axioms about citing passages out of context of course apply.

A very English propensity in which Mr. Nock indulges is that of train-timing and discussion of gradients and their effects on speed. To a limited extent, the North American reader will be interested in accounts of the speeds at which trains travel at various points in Canada, but he must assimilate example after example of:

> I saw Whitemouth and Molson, and noted that the 15 3/4 miles between them took only 13 minutes and that the 87 3/4 miles from Kenora had taken only 96 minutes from the restart. (p. 213)

As for the grades, Mr. Nock certainly did his homework. Apparently there was not a single section of track of which he could not say, as in the case of the Québec, North Shore and Labrador Railway:

> I was to see for myself how the rugged country had favoured the laying out of a route that had a gradient of no more than 1:250 against loaded southbound trains. (p. 121)

But as with train speeds, the importance of such statements tends to elude the reader, whose mind is replete with mental images of much vaster proportions.

For the edification of English readers, Mr. Nock indulges in continuous comparisons of Canadian landscapes, geography and rolling

stock with their British counterparts. To most Canadian readers, such comparisons have no meaning:

> We were nearing Jack Fish Bay, and here the railway performs a perfect horseshoe convolution. Imagine the famous "Horseshoe Bend" of the West Highland Railway, beneath Beinn Dorain, in Argyllshire, but instead of making a circuit of an almost waterless glen, to encircle on three sides a blue, mirror-like inlet of the sea, running for much of the circuit on rocky ledges cut in "iron" cliffs descending sheer into the water.

Then, there are a few amusing - albeit strained - comparisons between British and Canadian steam locomotives. There is no real reason to commingle Canadian National Railways' Number 6000 - a 4-8-2 of 275 tons weight - with Number 6000, a 4-6-0 ex-GWR of British Railways, weighing but 135 tons, except that they bore the same number!

Having now been unmercifully critical, the reviewer ought to admit that there are several very praiseworthy aspects of Mr. Nock's book. The reader's eye will be caught at once by the excellent paintings of Mr. Jack Hill, whose reputation and experience is unfortunately not described either on the dust-jacket or in the introduction. Mr. Hill's paintings are well-done and accurate representations of scenes on Canada's railways, yesterday and today, and one can only hope that they may be made available at a later date as individual - and perhaps larger - colour reproductions.

Mr. Nock's text is well illustrated by an additional 108 black-and-white photographs and about 17 maps and plans.

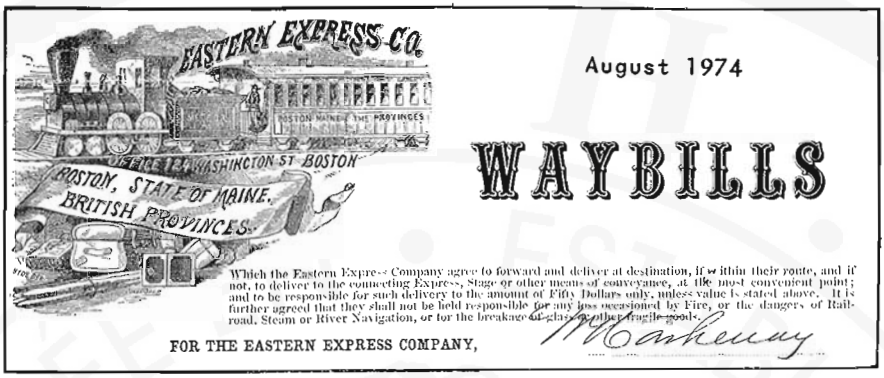
Although there may not be a wealth of new material for the well-informed Canadian railway enthusiast in Mr. Nock's RAILWAYS OF CANADA - apart from the descriptions of the Québec, North Shore and Labrador Railway and the Carol Lake automated project - he may enjoy the recitation of known information from an alternate point of view. However, neither of the two railways referred to above have been adequately treated in Canadian enthusiast publications and Mr. Nock's first-hand account of their operation is quite fascinating.

Mr. Nock's career in business in England has been that of a railway signalling engineer and it is therefore not surprising that he consecrates more than a few pages of his book to this subject. His appreciation of Canadian railway signalling equipment and its operation is very informative and factual and should be required reading for anyone not familiar with this subject.

To the gratification of the various railway museums in Canada, Mr. Nock is very generous in his praise of those that he was able to visit. The Canadian Railway Museum at Saint Constant, Québec, and the Prairie Dog Central Railway of the Vintage Locomotive Society of Winnipeg, Manitoba, ought to be eternally grateful.

If an adjustment of the price of Mr. Nock's book for the Canadian market can be effected, it will make RAILWAYS OF CANADA a valusble addition to one's library. Despite the alleged omissions in RAILWAYS OF CANADA, what the author does say about Canada's railways is generally correct and generously laudable.

RAILWAYS OF CANADA	Nock, O.S. 335 pp.; colour plates, 108 photos	
Adam & Charles Black	London, England 1973	£ 7.0.0



August 1974

WAYBILLS

CP RAIL AND CANADIAN NATIONAL RAILWAYS, LONGTIME COMPETITORS FOR THE lucrative newsprint traffic from Canadian paper mills to customers in the United States, are at it again! A few years ago, INCAN Marine Limited was jointly established by CP RAIL and Inchcape and Company Limited, the latter a United Kingdom company with worldwide marine interests. Early in 1974, INCAN proposed to inaugurate a rail-barge service for freight cars and truck trailers on Lake Superior, between Thunder Bay, Ontario and Superior, Wisconsin. The vessel to be used in this service is being built by Burrard Dry Dock Limited of Vancouver, B.C., and will have a capacity of 31 railway cars or about 45 truck trailers, or a combination of both, and can cruise at 14 knots.

The purpose of this new service is to reduce CP RAIL's disadvantage in moving pulp and paper products from the Thunder Bay area to the central United States. CP RAIL hitherto has had to route its newsprint traffic via Emerson, Manitoba, 115 more miles than CN's route via Fort Francis, Ontario and the Duluth, Winnipeg & Pacific to Duluth Minnesota.

In Québec, INCAN has a similar project under consideration, by which it will ferry boxcars of paper from Baie Comeau to Québec City starting in 1975. The Québec North Shore Paper Company at Baie Comeau produced over 510,000 tons of newsprint in 1973, all of which moved to the New York market by ship. The proposed INCAN ferry would handle about 26 boxcars per trip.

Canadian National, without doubt considering a similar operation, could dock car-ferries at Rimouski and reach their main line at Matane, over the Canada and Gulf Terminal Railway.

Who knows? Maybe newsprint unit-trains will be running on the Canada & Gulf Terminal and the CNR - and CP RAIL - before the end of 1975.

John D. Welsh.

- CLIMAX 2T GEARED LOCOMOTIVE NUMBER 2, FORMERLY SHAWNIGAN LAKE LUMber Company Number 2, owned until recently by Mr. Granger Taylor of Duncan, Vancouver Island, British Columbia, has been purchased by the Government of British Columbia and may be transferred to the Provincial Museum, Victoria, to join British Columbia Electric Railway Birney Car 400 (see CANADIAN RAIL, February, 1974, page 53).

Number 2 was built in 1910 (B/N 1057) as Number 1 of the Channel Logging Company, Cowichan, V.I., B.C. Later, she was owned by the Sahtlam Lake Lumber Company and was purchased from the Shawnigan Lake Lumber Company by Mr. Taylor in 1969.

A TRIO OF COMINGS AND GOINGS: PIERRE PATENAUDE SENDS US THREE PICtures of late '73 aspects of the railway scene in La Belle Province. In Number 1, Canadian National Railways' GP 9 Number 4287 in the old paint-scheme doubles with Precision National

Corporation's GP 10 Number 3445 at Montréal Yard, 17 November 1973.

In Number 2, CN Train 419 comes west from Garneau, Québec, with C-424 No. 3208, C&O GP 9 No. 6054 and RS 18 No. 3101 on the point. On the right, CN Train 428 is heading for Garneau with CN RS 18 No. 3658, C&O GP 9 No. 6178 and CN RS 18 No. 3728. The picture was taken at Pointe-aux-Trembles, Québec, on 3 November 1973.

Pierre's third photograph is of CN transfer freight Train 7091 with CN GP 38-2 Number 5517, C-424 Number 3232 and idling S-4 Number 8078 at Pointe-aux-Trembles, Québec.

- CANADIAN NATIONAL RAILWAYS' FREIGHT SERVICE FROM COWICHAN BAY TO Youbou on Vancouver Island was suspended late in January 1974, when the car-barge slip at Cowichan Bay was closed for rebuilding. CN G-12 class unit Number 991 departed via car-barge for the Point Ellice yard at Victoria, where sister unit Number 992 was working. The British Columbia Forest Products mill at Youbou managed to function without rail transportation until about May 1, when the car-ferry slip was repaired and Number 991 was brought back from Victoria.

There is the possibility that a log-hauling operation may be resumed south of Deerholm, as CN's new superintendent in Vancouver thinks that CN can re-open discontinued operations on Vancouver Island and thereby realize an operating profit.

John E. Hoffmeister.

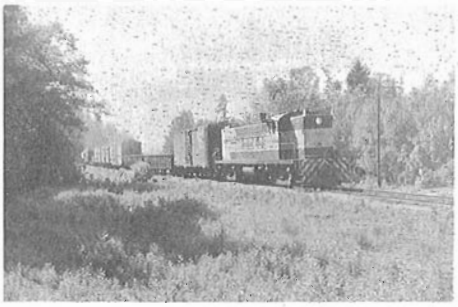
- ANOTHER OF CP RAIL'S VANCOUVER ISLAND BALDWINS WAS DAMAGED ON FEBruary 20, 1974, when Train 52, with heavy tonnage, powered by units Numbers 8531, 8613 and 8005, went on the ground at Mile 66.8 of the Esquimalt & Nanaimo, not far south of the location of the accident of June 1973. Trailing unit Number 8005 suffered moderate damage, was re-railed and subsequently sent to Ogden Shops, Calgary, Alberta, for repairs. Here, she joined Number 8003, being examined for crankshaft problems.

Number 8003 was repaired using the prime mover from Number 8005 and was again in service by May 10. Number 8005 was scrapped in May 1974 at Ogden Shops, Calgary.

Units Numbers 8006, 8007, 8008 and 8011, involved in the wreck of June 12, 1973, were sold in May 1974 to John Gorosh, a Nanaimo scrap-dealer.

This, alas! leaves the score seven units still in service (Numbers 8000, 8001, 8002, 8003, 8004, 8009 amd 8010) versus six units scrapped (Numbers 8005, 8006, 8007, 8008, 8011 and 8012).

John Hoffmeister, who sends this information, also included two photos. In the first, Extra 8000 south slows to 10 mph on Jayem Hill at Superior Road, Mile 83. The "Hill" is the ruling grade southbound between Parksville and Nanaimo.(May 23, 1973)



In the second scene, Extra 8661 north to Port Alberni charges past Extra 8000 south at Wellington. The "Port Man" is a rather light 17 cars; it is usually about 30 cars in length.

- GORDON TAYLOR OF LAKESIDE, ONTARIO, HAS BEEN TRAIN-WATCHING RECENTly and writes to say that CP RAIL M-640 Number 4744 has been running regularly (May 20) in the area, mainly as a trailing unit. PRENCO leased unit Number 900 continues to appear in a somewhat untidy condition, with "ALCO" painted out and PNC added

on sides and front, the overall colour scheme being black.

Gordon says that at Komoka, the crossing-at-grade between CN and CP RAIL 10 miles west of London, Ontario, all kinds of power can be seen, including CN RDC "Railiners" and GO TRANSIT GP 40-2 units, the latter running in a power pool with CN.

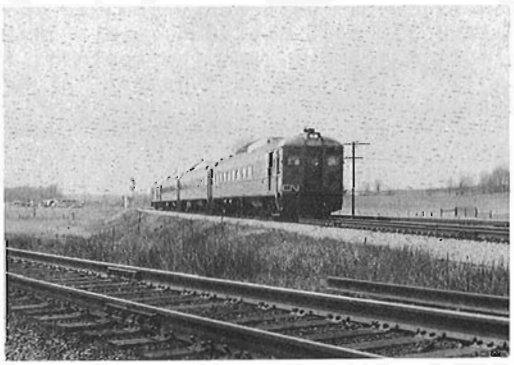
In the first photo, CNR RDC "Railiners" polish the double track on the eastbound passenger Train 158 from Sarnia, Ontario.

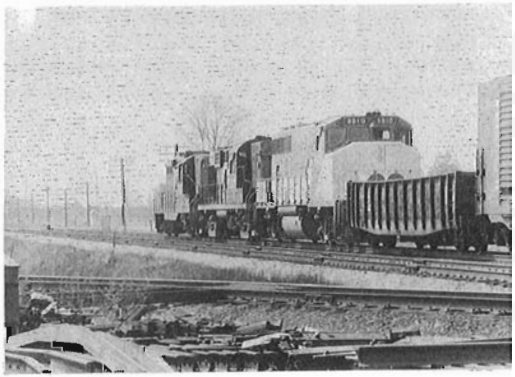
GO TRANSIT Number 9810 is the third unit on a CN freight westbound on the double-track, in Gordon's second picture.

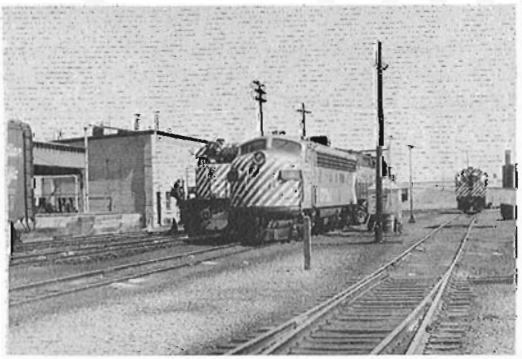
In CP RAIL's diesel servicing area at London, Ontario, hood Number 4040 and low-nose Number 5537 await assignment.

In Gordon's fourth picture, CP RAIL RS 10 Number 8589 leads an unidentified RS 3 and an FB 2 down the single track with eighty-odd cars.

By way of contrast, CN Number 4535 brings home a box car and a high-end wood flat - and the van - on a local freight.

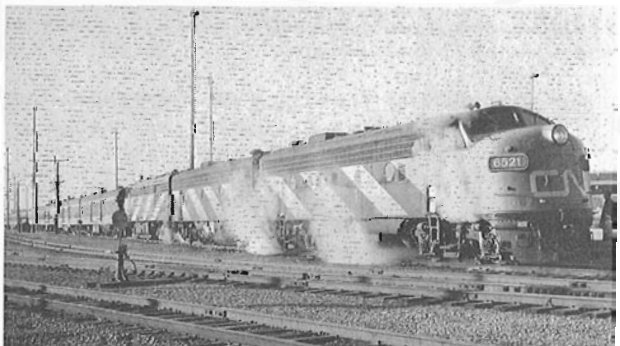






- FROM MONCTON, NEW BRUNSWICK, OUR MEMBER MR. WENDELL LEMON, SENDS us a selection of photographs of railway doings in Moncton and central New Brunswick. At Moncton on December 8, 1973, Canadian National Railways' Train 14, the "Ocean", with units Numbers 6521, 6628 and 6760 on the head-end, paused for passengers. The total mileage run up by these units on this date was 8.4 million miles. A couple of months before, Mr. Lemon photographed CN Mr-14a class, Number 1803, at the Moncton Diesel Shop on October 19, 1973.

On May 26, 1972, Mr. Lemon discovered CN Train 726, Centreville to Saint John, New Brunswick, operating by trackage rights on CP RAIL at Burtt's Corners, N.B., with units Numbers 1704, 1712 and 1713 on the point. CN Trains 726-725, Saint John-Centreville and return, use CP RAIL trackage between South Devon and Valley, 1.9 miles south of Woodstock, a distance of 65.1 miles. The CP RAIL multimarked caboose was on CP RAIL Train 79, which had stopped to register at



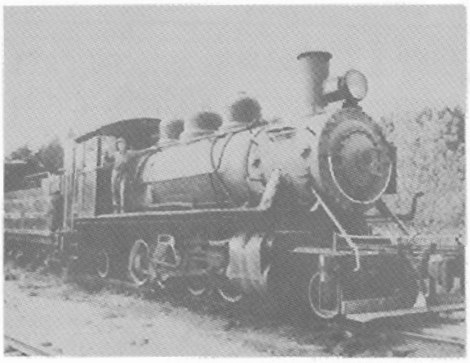
Southampton, junction with the Southampton Subdivision, Mile 22.0 of the Gibson Subdivision.

- THE SUMMERTIME TOURIST LINE, VICTORIA PACIFIC RAILWAY, OF VICTORIA, British Columbia, was negotiating with CP RAIL in May 1974 for trackage rights over CP RAIL's Victoria-Shawnigan Lake line on Vancouver Island. For the past two summers, reported the Victoria EXPRESS, the Victoria Pacific Railway has used part of Canadian National's Victoria Shawnigan Lake line, but CN wanted to terminate the arrangement.

If an agreement with CP RAIL can be concluded, the Vic-

toria Pacific would gain a terminal in Victoria and would benefit from the highly scenic "Malahat Route" of CP RAIL, north to Shawnigan Lake, which offers spectacular views of Arbutus Canyon and Niagara Canyon in Goldstream Provincial Park.

The accompanying picture of Victoria Pacific's Number 2, a 2-8-2, is reproduced with the kind permission of the EXPRESS.



THE "ICE CAPADES SPECIAL" FROM MONTREAL TO MECHANICVILLE, NEW YORK, on April 2, 1974, via the Delaware & Hudson Railway from Rouses Point, NY, came south powered by Providence and Worcester Railroad's two new M-420R MLW Industries units Numbers 2001 & 2002. The two units, classed as MRS-20a by the P&W, took Boston & Maine freight Train TC 100 east to Gardiner, Massachusetts. Jim Shaughnessy photographed the two Canadian-built units at Mechanicville yard amid a sprinkling of B&M power.

WHEN YOU TURN THE PAGE, YOU WILL SEE WENDELL LEMON'S PHOTOGRAPH OF Canadian Pacific Railway's unit Number 22, a side-rodded class HS-5d, a Model DT2 built by the Canadian Locomotive Company, Kingston, Ontario, in May 1960. Number 22 was used as the local CP RAIL switcher in Chipman, New Brunswick, on May 21, 1972. While CP RAIL crews come over from Minto every second day to work the yard, all tonnage leaves and arrives by Canadian National rails, since the CP RAIL bridge into Chipman has been condemned. Number 22 arrived at Chipman in March 1972 and is still doing local work there.

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