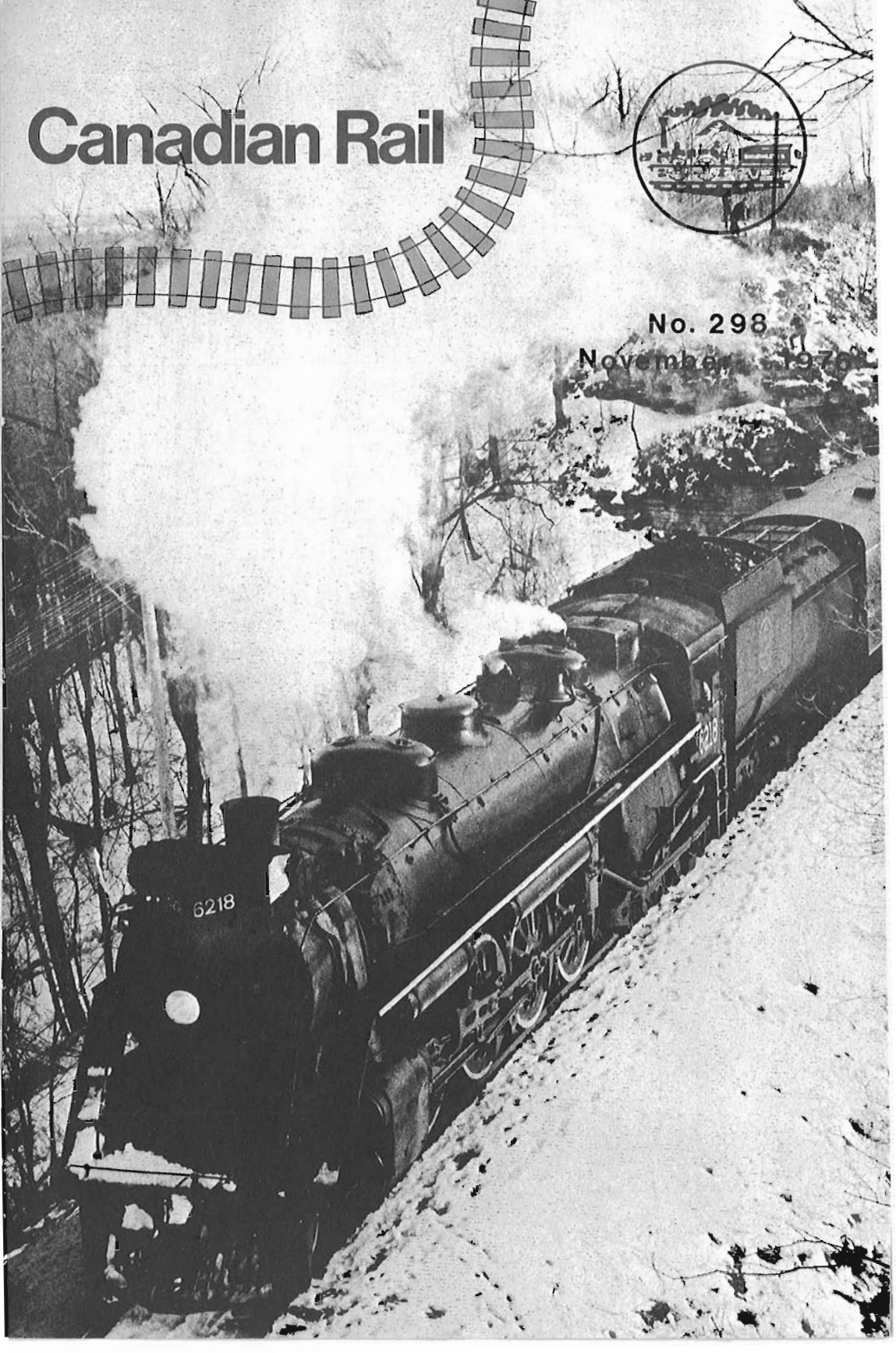


Canadian Rail



No. 298
November 1978





BY RAIL ...



TO THE BAY .

↑ READY TO LEAVE COCHRANE, ONTARIO, ON ITS RUN NORTH, THE "POLAR BEAR Express" is headed by Ontario Northland Railway unit Number 1515. The lack of contrast is regretted, but, after all, there is a limit to what you can do at 0700 hours.

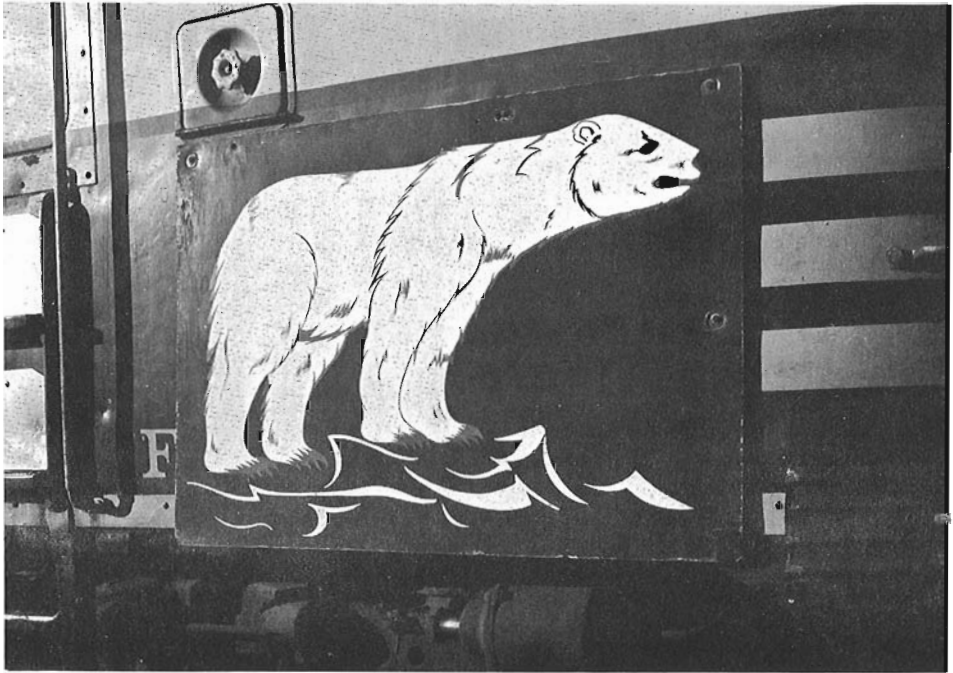
← THE RAILWAY STATION IN COCHRANE, ONTARIO, SHOWING THE EXTRAORDINARY sign that decorates it. In the right background, you can see the Cochrane Railway and Museum Train.

↪ YOU MIGHT CONTEND THAT THE PICTURE ON THIS MONTH'S COVER WAS TAKEN AT the wrong end of the winter season, inasmuch as it was a 6218 Special descending the Niagara Escarpment to Hamilton, Ontario, in March of 1971. However, Robin Russell, the intrepid photographer, remarked that snow is snow, whether it is November or March!

THE POLAR BEAR EXPRESS.

Robert F. Legget

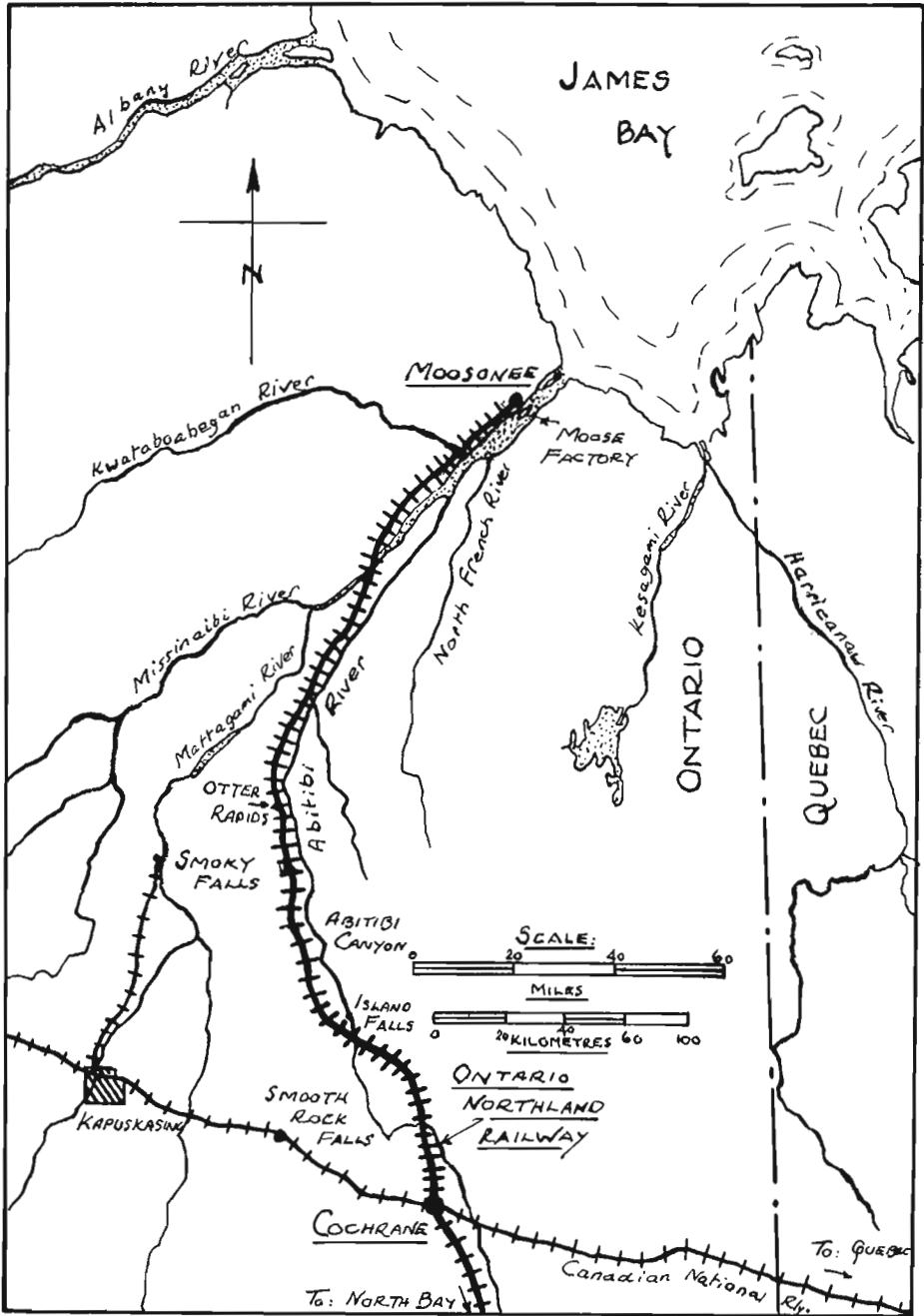
Map and Photographs by the Author.



↑ THE ILLUSTRATIVE SIDE-BOARD CARRIED BY ONR LEAD UNIT NUMBER 1515 IS self-explanatory and, together with the title carried by the passenger cars, identifies the train clearly.

To most Canadians, members of the Canadian Railroad Historical Association excepted, travel by rail to the shores of Hudson Bay inevitably connotes the Hudson Bay Railway from The Pas to Churchill, Manitoba. There is, however, another rail line to the northern shore of Canada, as ardent railway students know well: the Moosonee line of the Ontario Northland Railway. Both the ONR and the CN's Hudson Bay Railway provide passenger services, for the territory served is a part of Canada where no roads exist.

A trip to Churchill, one of the most fascinating rail journeys in North America, necessarily involves the expenditure of about a week, even for a fast return trip. Moosonee, on the other hand, can be visited in a comfortable day's journey from Cochrane during the summer months and with a single overnight stop during the remainder of the year. The summer service is provided by the "Polar Bear Ex-



ROUTE OF THE 'POLAR BEAR EXPRESS'

O. N. R.

press" and this article is a sharing of a thoroughly enjoyable experience on this appropriately named train.

The Ontario Northland Railway is the modern name for what used to be the Temiskaming and Northern Ontario Railway. The present name was adopted in 1945 to avoid confusion with the reporting marks of the Texas and New Orleans Railroad. Old-timers and railway historians, however, still speak, somewhat naturally, of the T&NO in northern Ontario. It was conceived as a colonization line. Construction started from North Bay in 1902. Excavation for the right-of-way in the Cobalt area uncovered a spectacular find of silver ore that started the great mining development of this part of northern Ontario. Rails reached Cochrane on the National Transcontinental Railway in 1908.

Extension "to the Bay" had always been a dream of the promoters of the T&NO, but it was not until 1922 that the first 44 miles of the section north of Cochrane were built, necessary to bring in materials for the construction of the Island Falls generating station on the Abitibi River. Another extension of the line was built shortly after, to assist in the construction of another hydroelectric project in the Abitibi Canyon. Final extension of the line to a point close to tidewater in the estuary of the Moose River was completed in 1932, to some extent as an unemployment relief measure during the financial recession of the 1930s. This provided the T&NO with a main line 440 miles long from North Bay.

The redoubtable Harry MacLean was head of the contracting company, Dominion Construction Company Limited. As was his custom at the end of all of his major contracts, he erected a concrete cairn at the Moosonee terminus, mounting bronze plaques on each of its four faces, with the full wording of Rudyard Kipling's fine poem "The Sons of Martha", "in loving memory of those who worked and died here", but with no mention of Kipling's name, nor his own!

The possibility of developing an ice-free port at or near Moosonee was now the dream, but every study that has been made of this proposal, the latest completed in 1975, has been forced to the conclusion that the shallow water in James Bay and the many shoals in the mouth of the Moose River estuary prevent the proposal from being economically sound. The Moosonee line has therefore been continued as a service line for the tiny settlements along its route, for the various hydroelectric generating stations, for the growing town of Moosonee and the 300-year-old settlement of Moose Factory and the surrounding areas.

Construction of the Otter Rapids hydroelectric development, also on the Abitibi River, and of post-World War II defence installations in this part of Canada's north, provided short periods of considerable freight traffic. It is ironic that the railway cannot now be used to assist in the construction of the great James Bay hydroelectric project in western Québec.

Passenger service on the ONR is provided throughout the year by a mixed train, Train 421 northbound, leaving Cochrane at 0845 on Mondays, Wednesdays and Fridays, taking six hours for the 186-mile journey. The mixed returns southbound on Tuesdays, Thursdays and Saturdays. The "Polar Bear Express" operates daily except Fridays from about 15 June to Labour Day weekend. It has no booked stops and a running time of four hours thirty minutes northbound, is allowed.

Well before the departure time of 0730 on the day of our trip, the trim looking train was ready at the platform of Cochrane's "Union" station. This building still is a railway station, well main-



↑ ONTARIO NORTHLAND COACH NUMBER 835 IS TYPICAL OF THE CONSIST OF THE "Polar Bear Express"; the special lettering and the stencils of the polar bear in white identify this very "special" train.

tained in spic-and-span condition, with a typical, good railway restaurant and attractive exterior decoration (photograph). At the east end of the station is the Cochrane Railway and Pioneer Museum. The train was headed by ONR diesel units Numbers 1515 and 1511, built by General Motors Diesel Limited, London, Ontario, and outshopped in June 1952 (photograph 2).

The lead unit carried interesting "Polar Bear" side-boards, as shown in photograph 3. The consist included six coaches and one restaurant car. The latter had been rebuilt with one long counter at which excellent service was provided with a limited but quite adequate bill-of-fare. Several of the coaches had been specially painted for service on the "Polar Bear Express" (photograph 4), one of them obviously in experimental, but not at all attractive, colours. All coaches were immaculate. No freight or baggage is carried, even for one-way passengers. Express and luggage is handled by the tri-weekly mixed train.

Promptly at 0730, we pulled away from the station in Cochrane and very soon were running through well cultivated fields which, surprisingly, continued until the Abitibi River was crossed - to its east bank - at Mile 11. The line dropped some 100 feet in this distance, from an elevation of 900 feet above sea level at Cochrane, but grades on the railway do not exceed 0.7% and are all short. From here to Fraserdale, Mile 69, the line was almost level. As the train crossed the Abitibi River again, now from east to west bank, near Mile 44, the upper parts of the headworks of the Island Falls hydro-electric plant could be seen, above the water in the reservoir created by the huge concrete dam.

ONTARIO NORTHLAND
WELCOMES YOU
TO
MOOSONEE
ON
ARCTIC TIDEWATER

MOOSONEE
GATEWAY TO THE ARCTIC

RUPERT HOUSE	85 MI
CAPE JONES	285 MI
FORT GEORGE	200 MI
FORT ALBANY	190 MI
ATTAWAPISKAT	150 MI
POLAR BEAR PK	285 MI
POVUNGNIKUK	350 MI
WINISK	350 MI
FORT SEVERN	415 MI

It is an impressive experience to travel parallel to this great river, now restrained by three hydroelectric power plants, its wild rapids now a thing of the past. The very thought - from a comfortable seat in a modern passenger coach rolling north at 45 miles per hour - of the heroic journey of Chevalier de Troyes and his gallant band on their way north in 1685, down the Abitibi River to capture the English forts on the Bay, following the earlier winter journey of Pierre-Esprit Radisson, is breathtaking.

After the first crossing of the river, farm lands gave way to what became continuous forest, with trees which sometimes reached a height of 100 feet, until the lowlands around the Bay were reached. Vast wood-yards occurred occasionally, a reminder of the importance of the forest crop that is now harvested here to feed the digesters in the paper mills to the south. The disused spur line to Island Falls was observed curving off to the east, just after the second crossing of the river, but for the next twenty miles, the occasional wood-yard provided the only break in the otherwise endless stretches of forest.

The running of our train was remarkably steady, despite the multitudinous curves and small bridges. Careful timing of successive miles showed an almost constant speed of 48 miles per hour. Special tribute must be paid to the maintenance-of-way crews, who were responsible for the excellent permanent way. A bit of a "rough ride" might have been expected on such an isolated railway with such restricted traffic, especially in view of the so-called economies being imposed on permanent-way maintenance on main railway lines in Canada. But I have never experienced a smoother ride at such speeds on any line in Canada, with the possible exception of the Montreal-Toronto main line of Canadian National Railways. This is tribute, indeed, in view of the long stretches of railway built over muskeg at the Moosonee end of the line.

The height of the adjacent trees decreased noticeably as the famous Abitibi Canyon, now the site of a famous water power development of the same name, was approached at about Mile 69. A trailing junction provides the link with the spur to the site of the power plant. Electrical transmission lines crossing over the railway line provide an indication of the location of the generating station. More surprising was the sight of a road, crossing the railway at Mile 70.5. This road had come up from Smooth Rock Falls, where it connects with Ontario Highway 11. After providing an outlet for Fraserdale, the town at the Abitibi Canyon power plant, the road goes on to the west to serve Smoky Falls, another hydroelectric plant on the Mattagami River, the main source of electricity for Kapuskasing. Highway transit advocates would like to see this road extended north to Moosonee, but this proposal is, as yet, just another visionary northern road project that needs most careful study before any decision about it is made.

Once past Fraserdale, the descent to the lowlands around James Bay began, with a six-mile stretch of 1% grade, this being the ruling grade for the whole line. In the 23 miles to Otter Rapids, the railway elevation falls from 770 to 430 feet and then down to 220 feet above sea level at Mile 112. Thereafter, the line follows a very

← PASSENGERS ON THE "POLAR BEAR EXPRESS" ARRIVING AT MOOSONEE, ON JAMES Bay, are reminded that, while this may be the terminus of the railway, it is the starting point for other journeys further north.



gradual descent to an elevation of 50 feet above sea level at Moosonee. The steep descent to the lowlands, with its winding alignment and numerous small bridges, provides a fascinating part of the trip, while it requires rigid speed control.

A ride over this part of the line explains why the return trip is made in 15 minutes less than the northbound trip in 4 hours and 15 minutes, at an overall average speed of 43 miles per hour.

At Mile 86 we passed the remains of what appeared to have been a nasty wreck on the west side of the track. This surprising sight was explained as the remains of a pile-up in January 1975, due to an open switch. Fortunately, there was no loss of life. A reminder of the safety requirements which have given the ONR such an enviable operating record was the two-minute stop at Carol (Mile 97) to enable the two brakemen to make the mandatory 100-mile wheel inspection.

Before this stop, the Otter Rapids power plant was passed at Mile 92. This is the only one of the three generating stations which can be seen really well from the train. It requires only a little imagination to picture the rapids in the river as they used to be, a real hazard to early travellers down the river, albeit it is so well harnessed for the "use and convenience of man" by Ontario Hydro.

Once on the lowlands, with relatively straight track, our speed increased to a steady 55 miles per hour, which was maintained for most of the distance to Moosonee, except at the major river crossings that distinguish this part of the line. Long bridges across the Moose River and then the Kwataboahagan River provided splendid views of these wide but sluggish streams. The difficulties that are presented by muskeg can well be seen by observing the unusual supports which are necessary to maintain the telegraph/telephone poles paralleling the railway in a vertical position. Some day, radio transmission will doubtless make such structures redundant. The widespread muskeg makes the occasional stands of hardwood and spruce all the more surprising, even at such northern latitudes.

As the train pulls into Moosonee, the sight of the town is in great contrast to the still-wild country through which the "Polar Bear Express" has travelled. Arrival was five minutes early, at 1155. It was surprising to see how quickly the train emptied. Most of the day-return passengers lost no time in walking down to the waterfront on the Moose River, where they boarded one of the grand Fort Rupert freight canoes for the trip over to Factory Island. Alas; these magnificent canoes are now "kicker" operated. Manpower, particularly at Moose Factory, is expensive.

Moose Factory has an interesting church and (now) an excellent historical museum. The town's simple roads have been hallowed by their use for most of three hundred years by men of the "Company of Adventurers of England Trading into Hudson's Bay", to give "The Bay" its full title. The sharp-eyed observer can occasionally catch a glimpse of some of the real problems of Canada's northern territories, but these are not normally associated with railway matters.

Excellent meals, and accommodations for those who wish to stay, or who are going onward to places up the Bay, are available in Moos-

← THE ONTARIO NORTHLAND RAILWAY'S YARD AT MOOSONEE, ONTARIO: ENGINE house on the left, "Polar Bear Express" on the main line, station building in the right-centre. The small park, recently developed, in which the MacLean/Kipling plaques are presently displayed, are under the wooden cover behind the station on the far right.



one at Moose Lodge, operated by the Ontario Northland Commission. We enjoyed a first-class buffet "supper", or early dinner, before returning to the station to examine the interesting signs (Photograph 5) and the station yard (Photograph 6).

The yard at Moosonee consisted of four well-maintained tracks, with a two-track engine house and necessary ancillary services. There did not seem to be a wye, for the two diesel units ran around the train and coupled up to what had been the rear passenger car. To puzzle the unwary, the "Polar Bear" sideboards were transferred to unit Number 1511, now in the lead (Photograph 7).

The cairn erected by contractor Harry MacLean was not easy to find at first, but it was eventually located at the south end of the yard. The concrete is in bad condition. The bronze plaques have been removed. Vandalism is almost immediately thought to be the cause, until the plaques are discovered, mounted on very plain wooden supports, in a small park that has been developed just across the tracks from the station (see Photograph 6). It is hoped that this situation can be remedied by the civil engineers association of Ontario.

The return trip of the "Polar Bear Express" was equally prompt in departing from Moosonee at 1800 hours. The long, winding grade up from the lowlands around the estuary of the Moose River was tackled in splendid fashion and the arrival at Cochrane, naturally in the dark, was exactly on time at 2215.

The same train crew works both trips, but only three times a week. A second crew shares the regular service with them; their good service must be noted with appreciation.

Back again in Cochrane, it gives one a strange feeling to look back on the 186-mile journey from a "normal" part of Ontario to the shores of James Bay and so to Canada's Arctic waters and a visit by canoe to the first English settlement in Ontario, today one of the oldest trading posts of the Hudson's Bay Company.

There must be few if, indeed, any day-trips in the whole Dominion that combine so excellent and interesting a train journey with such an unusual excursion into Canadian history. Every young Canadian, in particular, should have the privilege of making the trip to Moosonee and back on board the "Polar Bear Express".

← THE "POLAR BEAR EXPRESS" IN THE YARD AT MOOSONEE, READY TO DRAW FORWARD into the station, for its return trip south to Cochrane. The two units have run around the train and the "Polar Bear" side-boards have been transferred from unit Number 1515 to unit Number 1511. The two-track engine shed is on the extreme left.



MANITOUWADGE

MIXED

Kenneth A.W.Gansel

Photographs by the Author.

ometimes,
when you run out of things to do,
it is diverting to pick up the system
timetable of either of Canada's two
major railways just to see what short,
non-intercity, non-transcontinental runs
there still are, across Canada.

This past-time led me to a consideration of Canadian National Railways' shorter runs and I must confess that there was one passenger-carrying train that caught my fancy. Ever since I first discovered it in CN's public timetable - on the last page - I have wanted to ride on it. Surely, if the train was a "mixed" and had a destination like Manitowadge, there must be something interesting about it, its route and its terminus!

Hornepayne is a railway town on the Canadian National's main line in northwestern Ontario. Some distance to the southwest, there is another spot on the map labelled Manitowadge, very remote and apparently unimportant. But the careful observer will also remark that CP RAIL also has a branch into Manitowadge and this immediately raises the question as to what is so important at Manitowadge as to require branches of both of Canada's major railways. The answer, of course, is easy. Manitowadge has an ore mining operation and it is the ore traffic that attracts both CN and CP RAIL.

The opportunity to make a rapid visit to Manitowadge occurred on 21 February 1976, while I was returning from Winnipeg via Canadian National. Although it necessitated an overnight stop in Hornepayne, CN's Manitowadge Mixed, Train M269/M270 was certainly worth the stop. The combine, or "mixed" portion of the mixed, was right out of the 1920s or '30s, with colonist-car seats, a baggage area and (not one but) three oil stoves, no water in the toilets plus, if you did not know how to light an oil-stove, you would have no heat, and that was no laughing matter in February.

My two friends and I arrived at the station at Hornepayne at 0730, being on the early side just in case the crew of the mixed decided to hasten the departure time a little. Of course, in the end they decided to stick with the advertised time of departure. We had been told that the mixed would back up to the station platform to entrain passengers - all three of us! When this did not seem about to happen, we hurriedly walked across the yard tracks and climbed aboard the combine. Having made all the arrangements to ride this train, we were not about to be left behind.

As you might have guessed, at 0930 we were still sitting in the combine at the station in Hornepayne, waiting for the switcher to add the revenue portion of the train. In the interval, we could see that the train crew just could not understand why three men who were

not company employees wanted to ride to Manitouwadge and back on the twenty-first of February. The brakemen did not seem to be really convinced that we were railfans and it seemed as though we were suspected of being foreign spies, government (DOT) employees, or just three slightly crazy citizens. Maybe they thought we were three inspectors from the Railway Transport Committee come to study this important passenger train service, prior to ruling on the petition to abandon it. However, I doubt that we looked like CTC inspectors.

Fifteen minutes later, we were rumbling along westbound on the main line, 42 miles to Hillsport, which is where the Manitouwadge branch leaves the main stem. But our first stop occurred about 14 miles or so west of Hornepayne, where we had to pick up a snowmobile and snowplow set which had been located beside the track. A man who runs a camp in the bush had to bring these essential items to the railway to take them into Hornepayne to have them repaired.


Did I say we had to "pick them up"? It was quite true, literally. There were four of us on the ground and three of us in the baggage car to hoist and lift the snowmobile and snowplow, and after much lifting, hoisting, grunting and groaning, we did manage to get the contraption on board. Thus, we made our small contribution to the perpetuation of the usual "way of life" in northern Ontario. We were assured that the snowmobile is essential to survival in this part of the province in winter. Nothing could be learned regarding the necessity for a snowplow in this remote area.

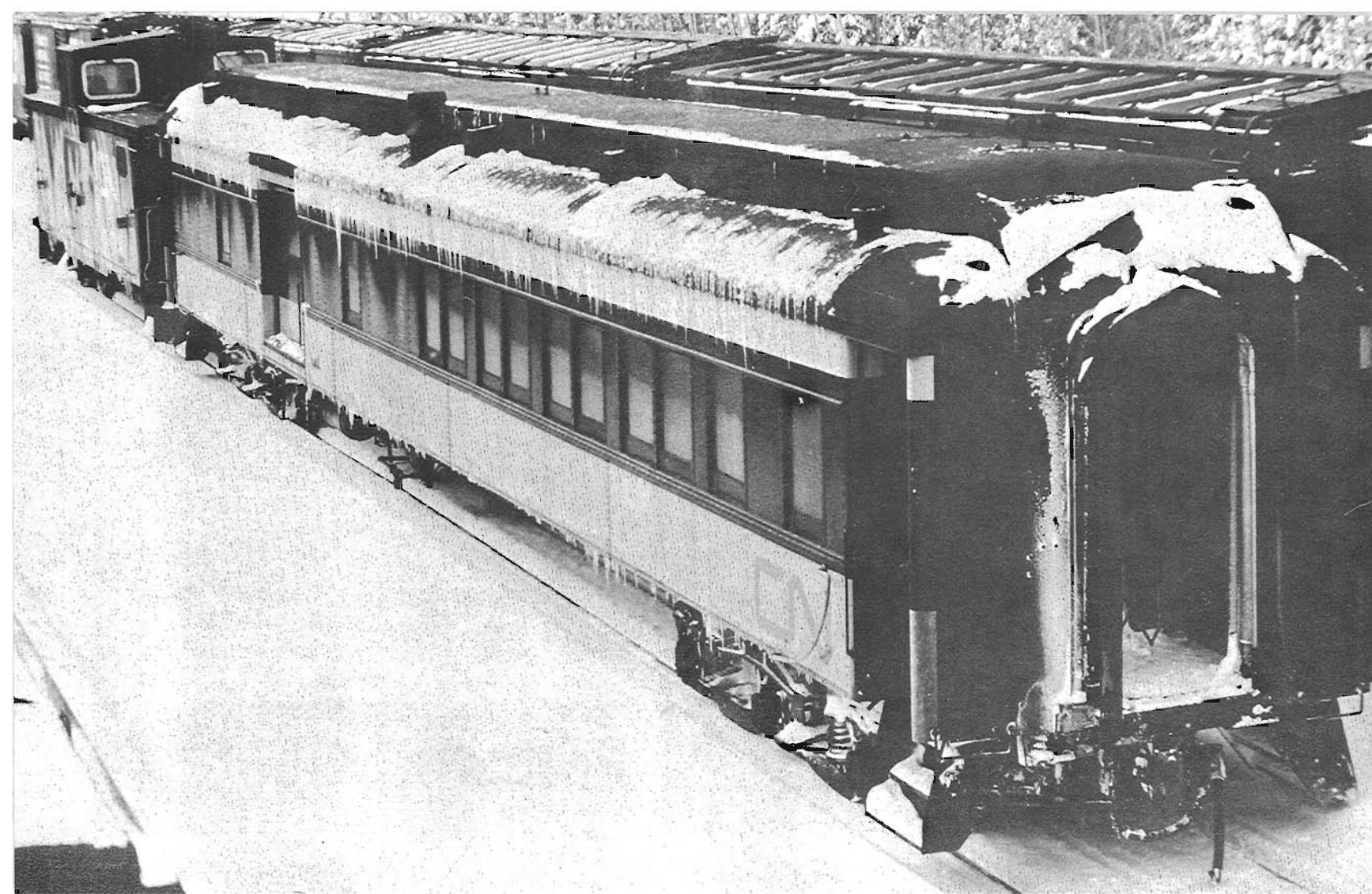
As we recovered our breath, our train slowed down and the head-end brakeman threw the switch for us to enter the siding at Hillsport, which led to a second turn-out, which was the beginning of the Manitouwadge S/D.

All along the branch, the back-tracks were plugged with bulk-end flats, for the strike of pulpwood cutters in the woods had been settled only a day or two before. This was the reason why the carforeman from Hornepayne was riding with us; he got off at Geco to inspect some 40 or so flats to see if the brasses were still in the journals and if the cars were fit for service after some three months of standing idle on sidings.

Out of Hillsport, our train had 35 boxcars assigned to wood-chip service out of Manitouwadge. Hillsport - what there was of it, that is - was the first sign of civilization we had seen since leaving Hornepayne; if you call four houses for the section-men and one radio tower civilization. But it is wrong to make fun of this kind of small settlement in this region, because this size of settlement is just about all you can expect to see in such a remote part of Canada.

Between Hillsport and Geco on the Manitouwadge Sub., we rumbled through a dense forest of towering pines, a winter landscape complete with deep snow-drifts and a brilliant blue sky, an apparently uninhabited land, certainly unspoiled and beautiful. While the distance between these two settlements is but 23 miles, it took us about 50 minutes to make the run. By this time, the three railway enthusiasts were riding in style in the steel caboose which brought up the rear of the mixed. The oil-stoves in the combine were going full blast, too. In spite of the bright sunshine, it was cold outside.

 THE "MIXED" PART OF CANADIAN NATIONAL'S TRAIN M269, SITTING ON THE main line at Manitouwadge, Ontario. The melting snow on the roof attests to the tropical temperatures inside the combine.



Our arrival at Geco was at 1230 and here we dropped the car-foreman in the snow, which was waist-deep. Then we clattered down CP RAIL's trackage to Manitowadge, about five miles to the south. The train crew told us that CP RAIL's ore train operated on the days that CN's mixed train did not; this effectively avoided any conflict in operations, particularly collisions. We stopped about a mile north of the station to switch out the 35 wood-chip cars. After that, we pulled ahead to the station to deliver the waybills.

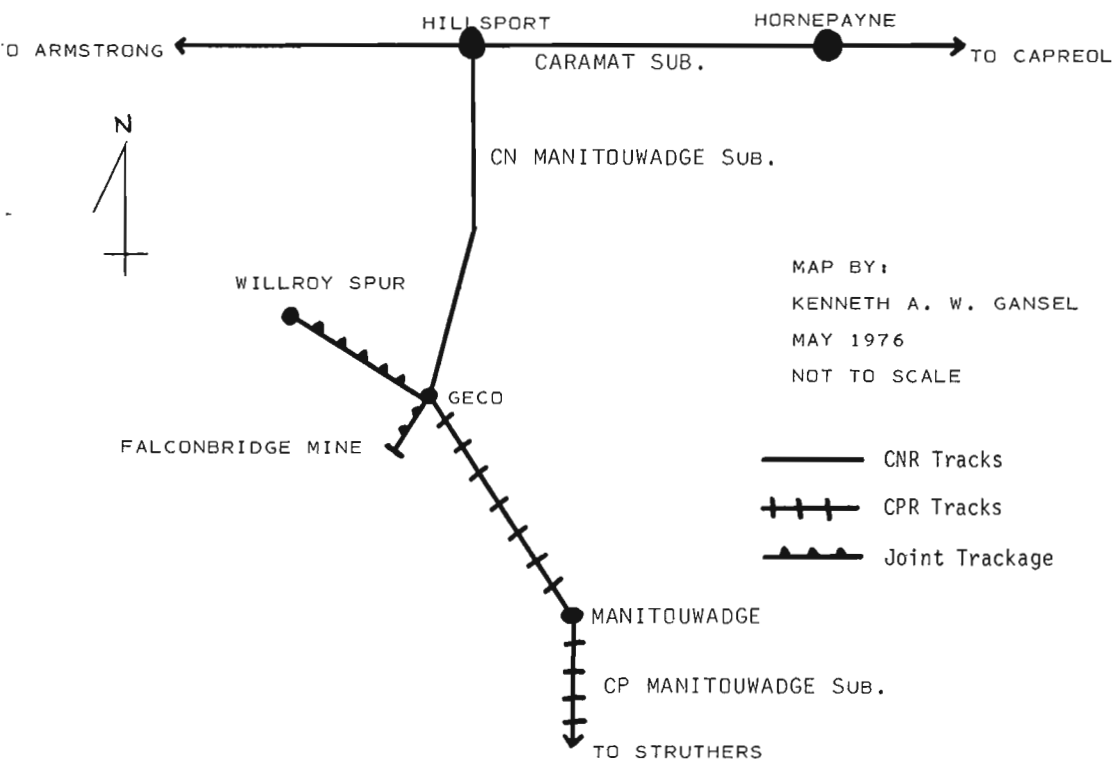
We stopped at the station for only about two minutes, but this was long enough for photographs to be taken of the CN and CP RAIL signs, indicating that the station is jointly operated. It should be pointed out that the station at Manitowadge is located about five miles from the town, which has about 5,000 inhabitants. On our return to Geco, we picked up the car-foreman, who was very happy to be back on board in the warm caboose and combination car. With the temperature at about -3° C outside, we were happy for him, too.

The track layout at Geco can best be described as a very large wye, with the north end leading to Hillsport, the east leg to Manitowadge and the west extension to Falconbridge Mines and Willroy Mine. The Willroy Mine spur is more interesting from an operational point of view, because it is very steep and, in fact, the grade can be plainly seen. The crew backed up our train on this spur so that



AN INTERIOR VIEW OF COMBINATION CAR NUMBER 7197, COMPLETE WITH COLONIST-car seats and baggage section, the latter containing one snowmobile and accessories. The accommodations for passengers were spartan but warm.

ROUTE OF THE HORNEPAYNE - MANITOUWADGE MIXED



our engine could work the Falconbridge Mines sidings.

The only reason we used the Willroy Mine spur was to set out our train; we did not go down to the mine sidings. Switching started at Falconbridge Mines, which produces a copper-zinc ore. The whole area around Geco is taken up with piles of tailings and pipes which pump the tailings in a slurry to settling ponds.

Our two GP 9s disappeared momentarily into the buildings around the concentrator houses and soon returned with six gondolas full of ore concentrates being shipped to the smelters. By 1545, we were making preparations to depart on the return run to Hornepayne. The train was now made up and when the engineman released the brakes, the train began to roll rapidly and began to pick up speed on the down-grade, only to be brought to a halt at the main-line switch to pick up the train crew and three passengers: us!

Having no more stops to make, we rumbled briskly up the branch to Hill Sport, where we hit the main line east to Hornepayne. We had

→ CANADIAN NATIONAL'S "MANITOUWADGE MIXED" STOPPED AT THE SEMAPHORE signal which controls the spur to Willroy Mine. This is joint CN-CP RAIL trackage and the signal control has both AN and CP RAIL locks.



a meet with a freight, Train 303, at Leigh, 25 miles west of the division point. We rolled into Hornepayne at 1745 and proceeded into the yard, as there were no other passengers on the train and the crew considered that we could find our way to the station by ourselves.

Of course, if there had been other passengers, the train would have stopped at the station to detrain them. According to the crew, the only passengers that ride the Manitowadge Mixed are section men and their families, going to and from Hornepayne. In summer, there is the odd visitor going to one of the isolated camps in the bush, along the line.

All in all, we concluded that it had been a very interesting trip and very worthwhile. When the mines are in full production and the pulpwood cutters are back on the job, the Manitowadge freight operates daily except Sunday. It only becomes the Manitowadge Mixed, Train M269/M270, complete with combine, on Tuesdays, Thursdays and Saturdays.

It was very gratifying to see that, in the April 1976 CN public timetable, this service was still offered by Canadian National Railways. You had better take advantage of this offer and make the trip before this most interesting service is no longer operating.



↑ CN GP 9 units Numbers 4510 & 4512 switch gondola cars of ore concentrate at Falconbridge Mines, Manitowadge, Ontario, while making up Train M270 for the return trip to Hillsport and Hornepayne.

LOCOMOTIVES OF THE GRAND TRUNK RAILWAY COMPANY

Lorne C. Perry

A few years ago, Mr. Lorne C. Perry, our member in Montreal West, Québec, made available to CANADIAN RAIL some prints of pictures of steam locomotives of the Grand Trunk Railway Company of Canada. These prints were made from glass-plate negatives in Mr. Perry's collection.

We are pleased to be able to provide a second selection of these unique pictures, beginning with 0-6-0 Number 60, built by the Company at its shops at Pointe-St-Charles, Montréal, Québec, in 1903, S/N 1430; cylinders 20x26"; drivers 56"; b.p., 190 psig. Built as GTR second Number 60, she retained the same number in 1904, series, class F; renumbered GTR Number 1650, class F, in 1910 series, becoming Canadian National Railways' Number 7124, class 0-9-a.

GTR Number 553, a sprightly 4-4-0, was built in the Company's Pointe-St-Charles Shops, Montréal, in 1893, S/N 1274. She had 18x24" cylinders, 74 5/8" drivers and a boiler pressure of 180 psig. Built as GTR second Number 82, she became Number 553 in the 1898 series; renumbered GTR 424, class H-5 in 1904; renumbered GTR 2214, class H-5 in 1910 series, becoming Canadian National Railways' Number 286, class B-15-a.

Grand Trunk Pacific Railway's 4-4-0 Number 110 was built in 1909 (S/N 46087) by the Montréal Locomotive Works, Montréal. She had 18x24" cylinders, 69" drivers and 200 psig boiler pressure. Built as GTP class H-1, she became Canadian National Railways' Number 384, class B-26-a. She was one of the last 4-4-0s built in Canada.

Number 1359 of the Grand Trunk was a 4-6-0 Vauclain compound, an 1898 product (S/N 15919) of the Baldwin Locomotive Works, Eddystone, Pa., U.S.A. Her cylinders were 14x24" and 14x26", her drivers 56", and her boiler pressure 180 psig. She was built as the Ottawa, Arnprior and Parry Sound Railway Number 636, becoming Canada Atlantic Railway Number 636, when the OA&PS was absorbed by the CAR. She became GTR Number 1359, class A-2, in 1905; was renumbered GTR 1646 in the 1910 series and was converted to simple expansion with 19x26" cylinders between 1910 and 1913. After 1913, her cylinders were converted to 21x26" and she was superheated with a boiler pressure of 170 psig; later she was fitted with 57" drivers. She became Canadian National Railways' Number 1174, class G-20-a.

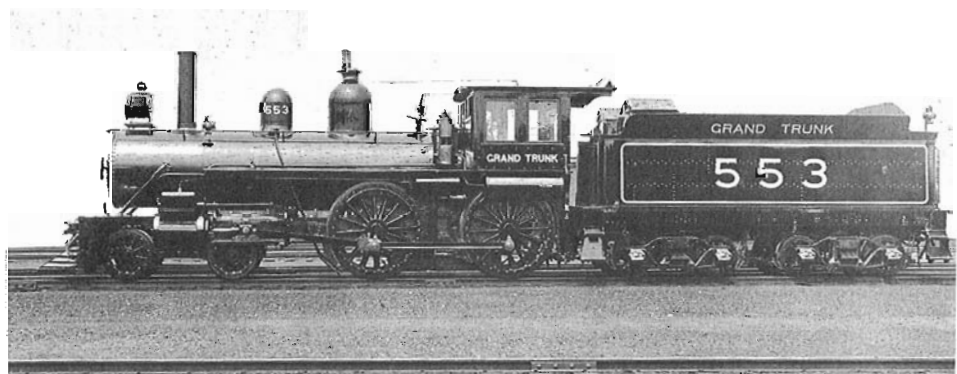
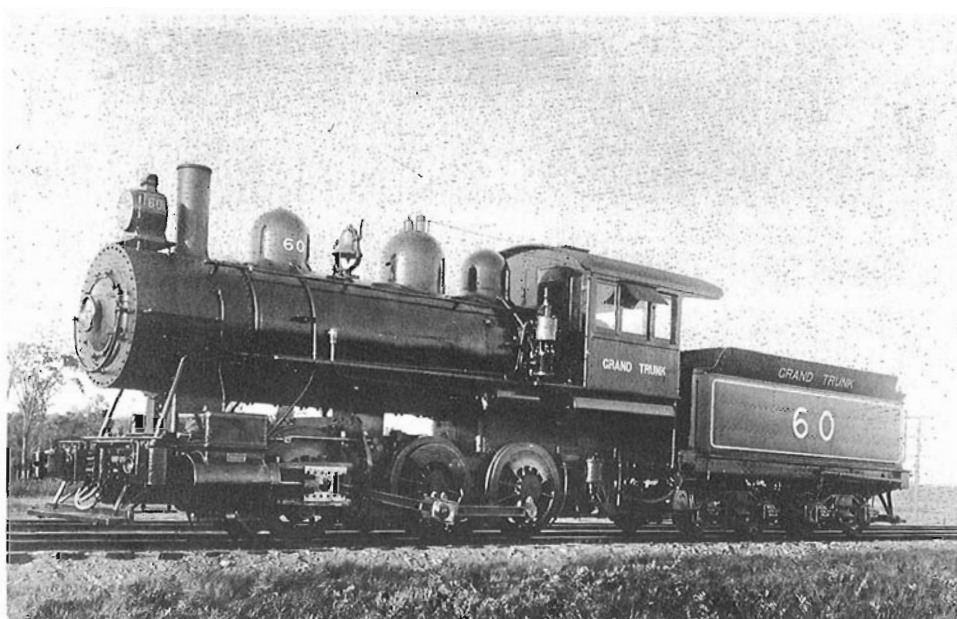
Tenwheeler Number 320 of the Grand Trunk was built in the Pointe-St-Charles Shops of the Company in Montréal in 1901, S/N 1355. Her cylinders were 20x26", her drivers 72", her boiler pressure 200 psig. Built as GTR 984, she retained the same number in the 1904 series, class A, was renumbered GTR 320 class A in the 1910 series and became first Number 1564, class I-6-b on Canadian National Railways.

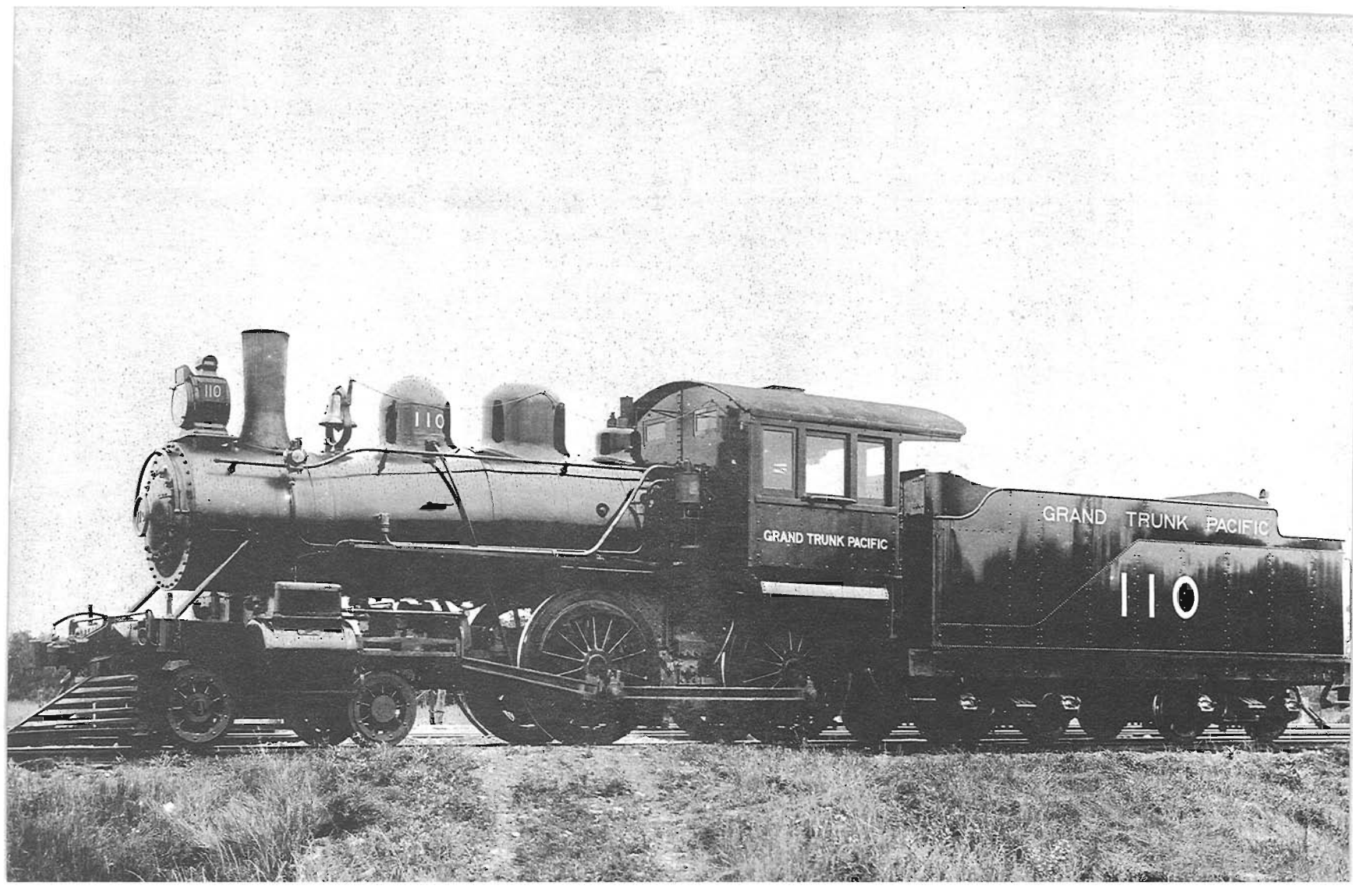
One of the first of the piston-valve engines on the Grand Trunk, Number 976 was built in the Company's Pointe-St-Charles Shops in 1902, S/N 1364. She had 20x26" cylinders, 73" drivers and a b.p. of 200 psig. Built as GTR Number 976, she retained this number, class A, in 1904 series, being renumbered 329, class A, in the 1910 series. She became Canadian National Railways' Number 1570, class I-6-b.

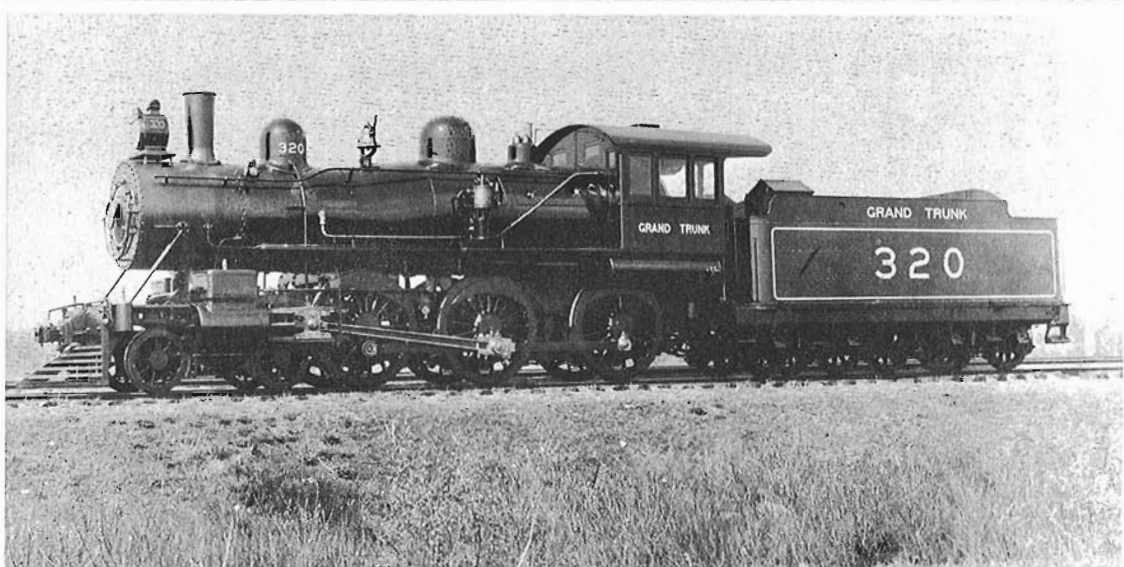
This frisky GTR consolidation, Number 646, was a Vauclain compound built in 1899 (S/N 171914) by the Baldwin Locomotive Works of Eddystone (Philadelphia) Pa., U.S.A. Her cylinders were 15½x28" and 26x28", her drivers 56" (third driver blind) and her boiler pressure 200 psig. Built as GTR Number 955, she was renumbered GTR second 790 in July 1904; renumbered GTR Number 646 into 1904 series. She was sold to the Grand Trunk Pacific Railway and renumbered GTP 500 in December 1907. She was converted to simple expansion with 20x28" cylinders by the GTP; she was renumbered GTP 800 about 1910. She became Number 1971, class M-7-a, Canadian National Railways.

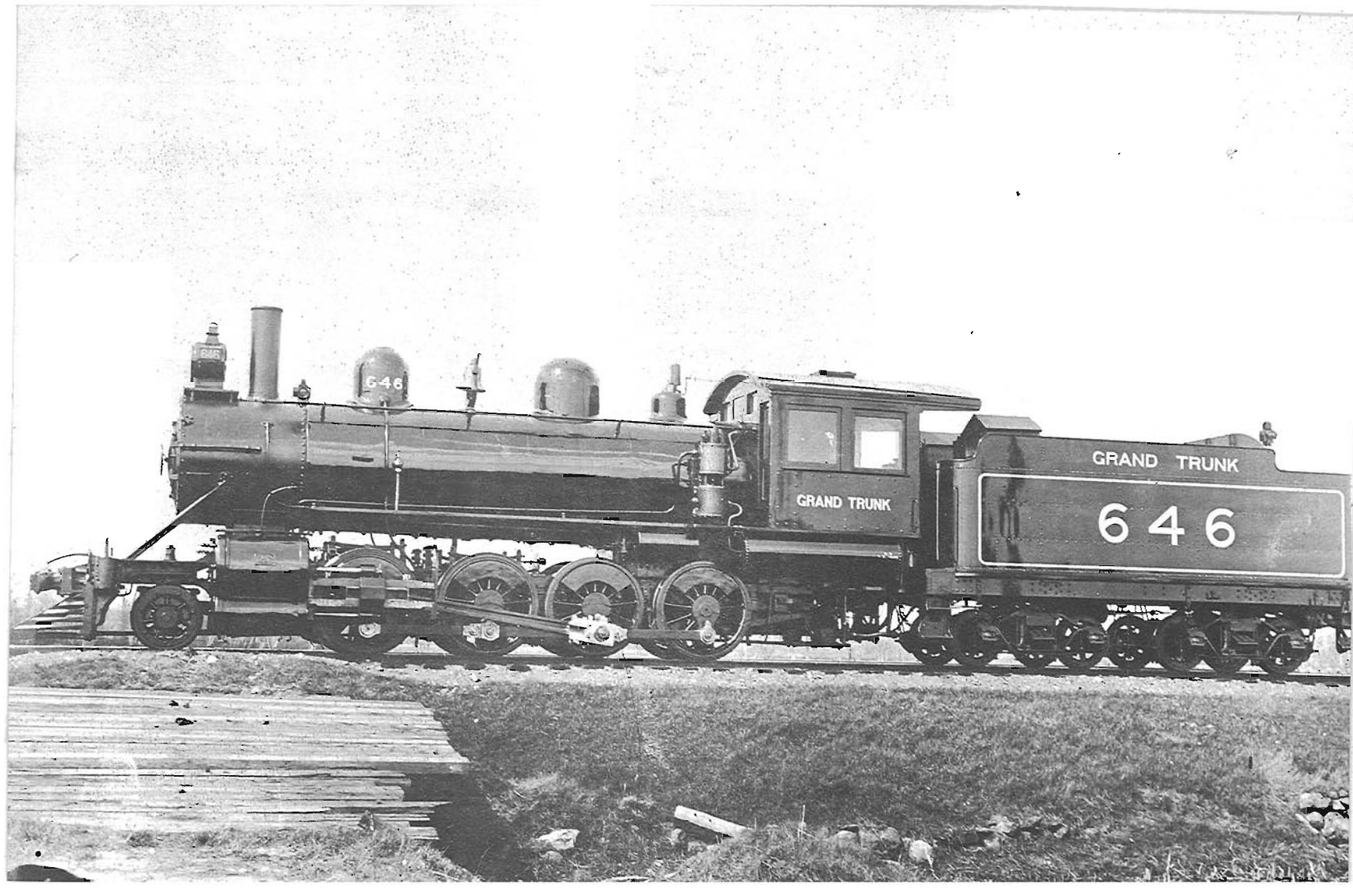
Mikado Number 513 of the Grand Trunk was built in 1913 by the American Locomotive Company of Schenectady, NY, U.S.A. (S/N 52801). She was built as GTR Number 513, class M. She became Canadian National Railways' Number 3418, class S-1-f.

The Editor is grateful to Mr. R.F. Corley of Scarborough, Ontario, for verifying this information.







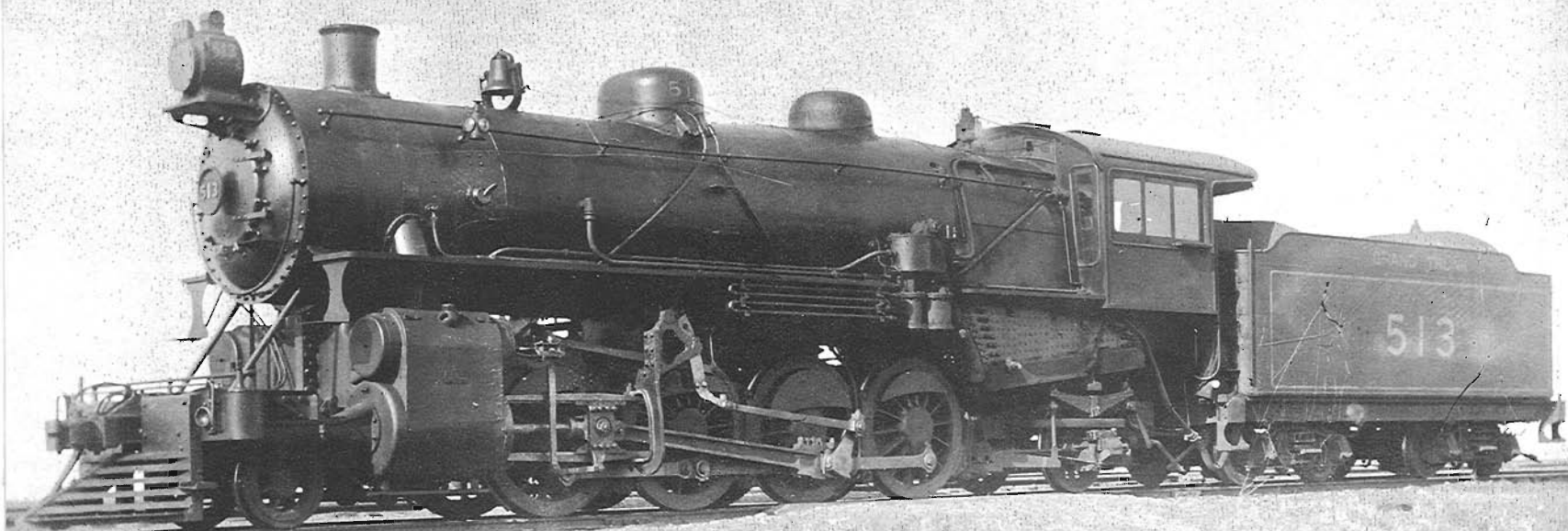


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GRAND TRUNK

GRAND TRUNK

646



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November 1976

WAYBILLS

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FOR THE EASTERN EXPRESS COMPANY,

McKenney

THE INVITATION TO TENDER WHICH WAS PUBLISHED IN THE MONTREAL "STAR" and other Canadian newspapers about July 1, 1976, recalled to the mind of the observer all of the articles and press reports which have appeared to date on United Aircraft of Canada's TURBO and the now well known LRC, the two-component prototype, that is. The aforementioned tender, issued by Canadian National Railways and CP RAIL, acting as agents for transport Canada, invited bids for the acquisition of up to ten (10) trainsets of railway passenger motive power equipment and/or rolling stock in various configurations to be used for the demonstration of improved rail passenger services in the Québec-Windsor Corridor.

Not so long ago, trade and technical journals and some of the daily newspapers in eastern Canada carried reports on the "new" train which had already appeared sporadically on Canadian National and CP RAIL main lines from Québec to Montréal, Ottawa and Toronto. The new shape soon became familiar to residents in some areas of southern Ontario.

This "new" train was not the UAC/CNR TURBO, which, we are frequently reminded, has been running off and on since 1968.

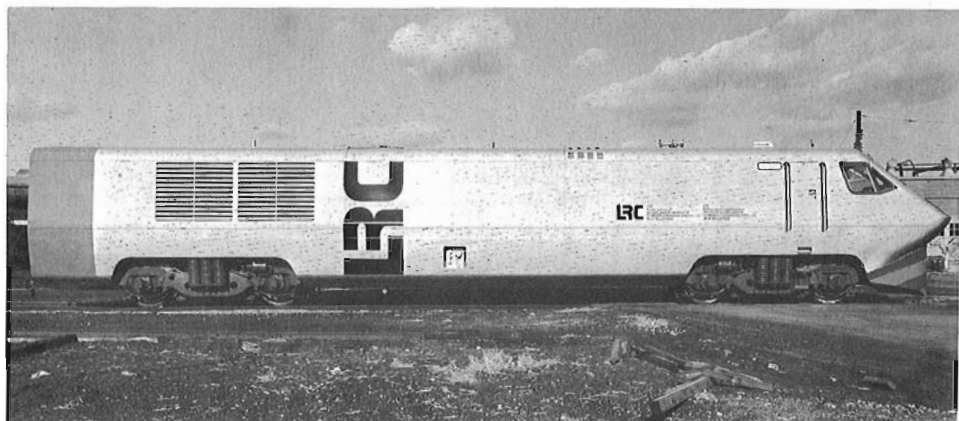
While it may be new, "train" it is not, except by Uniform Code definition. Presently, the LRC-JV1 consists of one power unit and one passenger car, the latter half-equipped with swivel seats and half with electronic measuring and monitoring equipment.

To rehearse the initials which constitute its technical name, "LRC" stands for Light, Rapid and Comfortable, or Léger, Rapide et Confortable, if you prefer. JV1 translates to "Joint Venture 1, since the project is a joint venture of Bombardier-MLW Limited, ALCAN Canada Products and DOFASCO (Dominion Foundries & Steel). The project has been heavily backed by Transport Canada and Industry, Trade and Commerce, the latter ministry firmly believing that the LRC design concept represents exportable technology.

LRC looks modern, but is it? It does not have gas turbines to drive it, it has no hydraulic transmissions, guided single axles and, to quote the United States' publication TRAINS, "a speedometer reading up to 160 mph".

But LRC has more reliable components, such as a standard ALCO-patent 251F-series V-12 prime mover, rated at 2900 hp. After deducting engine auxiliary and head-end power requirements, 2000 hp is said to be available at the rail. This is not the way a diesel-electric locomotive is usually rated, but it seems to be a more realistic description of unit power.

The LRC concept originated in 1967, the brain-child of Mr. William Bailey of ALCAN Aluminum Limited. When the designs were complete, Mr. Bailey described LRC as "the most imaginative innovation in railroad passenger train design since the Nineteen Thirties". Collaborating with Messrs. R.N. Dobson of DOFASCO and John Byrne of then MLW Industries, the LRC project rapidly became part of Canada's federal government Program for the Advancement of Industrial Technology. The project was announced in January 1970, the Canadian Tr-



THIS BUILDER'S PHOTOGRAPH OF THE PROTOTYPE LRC POWER UNIT WAS PROVIDED through the courtesy of MLW Industries Division, Bombardier-MLW.

transport Commission completed a study in the following September which defined LRC's role in the Montréal-Toronto-Windsor/Sarnia corridor and construction of the prototype passenger coach began that December.

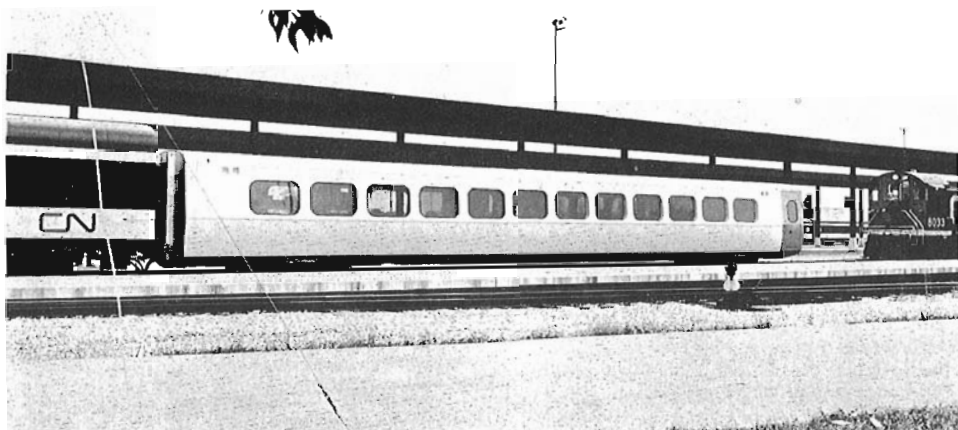
While the locomotive or power car contains a standard power plant and is supported on conventional trucks, slightly modified, it has a low profile and a low weight, compared to standard diesel-electric units. The electrical systems for both locomotive and passenger car were manufactured by Canadian General Electric of Peterborough, Ontario.

The LRC car, on the other hand, is different. It incorporates DOFASCO's hydraulic banking system, which can tilt the body of the car as much as 14 degrees, thus enabling maintenance of train speed on curves without passenger discomfort. This implies that expensive rebuilding of crooked right-of-way will not be absolutely necessary.

Another important feature of the LRC design is that locomotives and cars can be coupled and uncoupled in about 10-15 minutes, like regular railway passenger motive power and rolling stock.

On July 22, 1971, the prototype LRC coach made its first test runs from CN's Research and Development Centre at Montréal Yard to Glen Robertson, Ontario, on the main line to Ottawa. The prototype coach was previewed to government and industry on October 5, 1971, when a trial run was made from Ottawa to Glen Robertson, with Jack Pickersgill, then Chairman of the CTC - among others - in attendance. The LRC car was hauled by CN unit Number 6774 and the train included a CN baggage car between the diesel and the LRC car, as a buffer.

By December 1972, the LRC locomotive had been completed and painted. The box-section frame had a dropped centre section to achieve a low profile and centre-of-gravity and the welded aluminum body was aerodynamically styled and dimensioned to conform to the coach contours. The two DOFASCO trucks, with a 9-foot 6-inch wheelbase, were non-tilting and METALASTIC laminated-rubber chevrons were used as the primary suspension medium. The wheels were 40-inch, rol-



THE LRC COACH HAS A CONSIDERABLY LOWER PROFILE THAN PASSENGER EQUIPMENT normally used in service. Here, the prototype coach appears together with some standard equipment at the Ottawa station.

led steel and the trucks were equipped with standard locomotive tread-brakes. The GE No. 752 dc traction motors are axle-hung and their noses are resiliently supported on the bogie-frame transom.

What makes LRC different and desirable? Locomotive weight, for one thing: 215,000 pounds vs. 300,000 plus pounds for a standard E unit. It was calculated that in a 1-10-1 conformation (power car, ten coaches, power car) with 75% supplies, the LRC train could reach 120 mph in seven minutes and, in the 1-6-1 formation, in four minutes. LRC's silhouette is two feet less than standard. More than that, LRC is flexible. The 251F prime mover runs at a constant speed, thus reducing strains by levelling out power requirements during acceleration.

The LRC passenger car, seating 84 people in its 85-foot body, has a maximum width of 10 feet 5 inches and rides on two four-wheeled DOFASCO trucks, equipped with the hydraulic banking system. Couplers are standard type H tightlock, which makes power unit and car compatible with same-level standard rolling stock.

Critics may say that LRC should be compared to Britain's APT (Advance Passenger Train) and HST (High Speed Train) prototypes and France's regular production units of the TGS and ETG designs and prototypes of the RTG and TGV, already flying across the French countryside - and the midwest United States - at speeds of 100-200 mph and more.

But critics are misled, unless they take into consideration as an essential factor the rights-of-way over which these high-speed trains are scheduled to operate, together with the very considerable modifications in track layout and signalling systems which are essential before speeds of this order can be postulated or accomplished. LRC has shown its ability to operate reliably at speeds about the 100 mph mark on conventional track, controlled by conventional signalling systems.

Meanwhile, in LRC's history, the two elements went to the United States' Department of Transportation's test track at Pueblo,



H.L.HOWARD PHOTOGRAPHED TEMPO TRAIN 651 AT BAYVIEW JUNCTION ON MARCH 3, 1976. It is understood that no passengers were carried in the LRC coach while it was in TEMPO service.

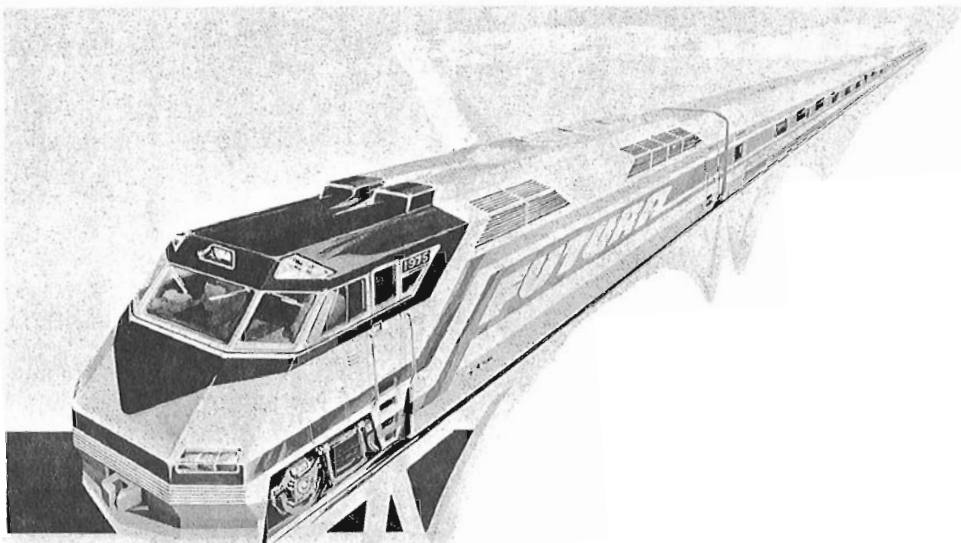
Colorado, late in 1973, to take its certificate in reliability. It completed 1094.76 miles of continuous operation - 120 laps on the test track - at an average speed of 96.8 mph, with but two ten-minute inspection stops.

LRC's return to Canada generated an additional spate of press coverage, as did its demonstration run from Toronto to Hamilton and Welland, Ontario, on February 17, 1975 and a second run from Toronto to London and return on February 24. These runs were the harbingers of entry into regular service.

LRC entered revenue service on March 3, 1975, as part of Canadian National's TEMPO Train 651, departing Toronto for Sarnia at 0830. Ten days later, Mr. H.L.Howard of Hamilton, Ontario intercepted Train 651 at Bayview Junction, just east of Hamilton, and the result is presented herewith.

Canada's DOT and DITC continued to press CN for statements affirming LRC's capabilities, in order to generate interest in other countries, notably the United States (AMTRAK), Brazil, Argentina and Tanzania/Zambia, where MLW Industries products are already well known. CN continued to hesitate, being reluctant to say very much about the performance of a train consisting of a 1-1 conformation. Of course, it would be great to have a prototype train to test, in either the 1-5, 1-6-1 or 1-10-1 configurations, but the problem of who would underwrite the expense of construction has not yet been discussed publicly, let alone resolved.

More recently, LRC established a new Canadian speed record for railway passenger trains, when it touched 129 mph on a test run on CP RAIL between Montréal and Trois-Rivières, Québec.



AN ARTIST'S SKETCH OF DD GM/HAWKER SIDDELEY'S "FUTURA", DEPICTED IN a push-pull configuration. Photo courtesy Diesel Division, GM of Canada.

Meanwhile, the competition has not been inactive. UAC's TURBO continues to slither back and forth from Montréal to Toronto, often hitting some remarkable speeds in the process. In late April, 1976, CN announced its new rail passenger train logo VIA and TURBO emerged from Central Station, Montréal, in a new, highly visible ensemble, featuring the VIA logo. Simultaneously, CN announced six new train services in the Québec-Windsor Corridor, but this had no effect on TURBO timings or LRC.

It might have been expected that the other major diesel-electric locomotive producer in Canada, Diesel Division, General Motors of Canada, Limited, would respond to the emergence of the LRC. It did, on February 25, 1975. Jointly with Hawker Siddeley of Canada, DD GMCL announced "FUTURA - A Modern Concept in Passenger Railroading". Preliminary design information showed that FUTURA would not have a hydraulic banking system and that the train was contemplated to operate in a 1-6, 2-15 or 1-15-1 conventional configuration.

Coaches, to be built by Hawker Siddeley, will carry 76 passengers in a 2-2 seat configuration, 42 passengers in a club-galley coach (14 club-style seats, 28 coach seats), a café-bar-lounge seating 22 café-style and 26 lounge-style, separated by - of all things - a bar!

Motive power was announced as a completely redesigned and streamlined GM 645 locomotive, available in either 2000 or 3000 hp version. Much stress was placed, in the press announcement, on engine protection, optimum visibility and excellent working environment in the locomotive cab, with massive collision posts and heavy-gauge steel construction. FUTURA was described as being capable of 120 mph according to projected performance data.

Providing that the present economic uncertainty does not last too long and assuming that developing countries continue to show interest in these new types of passenger trains, the test results, as they become available, should be most interesting.

S.S.Worthen.

CANADIAN NATIONAL RAILWAYS' TURBO TRAINSET, PAINTED IN YELLOW AND dark blue and sporting the new monogram "VIA", is ready to depart Montréal's Central Station. Photo courtesy Canadian National Railways.



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