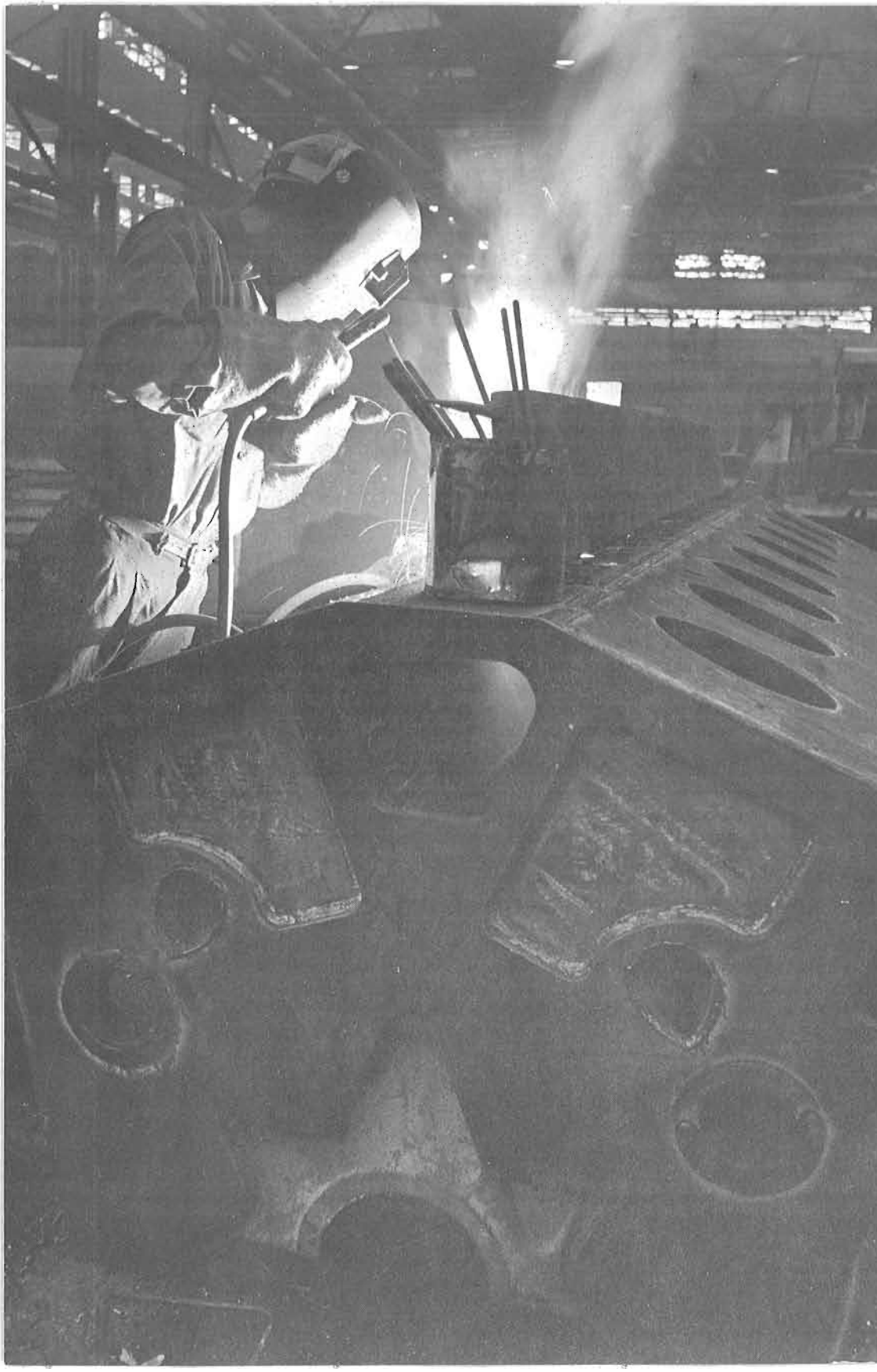
Canadian Rail

NO. 232
MAY 1971



"THE BIG M's"

How they are different !

S.S.Worthen.

THE MOST SURPRISING SEQUEL TO THE CLOSING of the diesel locomotive manufacturing plant of ALCO-Schenectady and the sale of ALCO's engine-building facility at Auburn,New York to the White Motor Corporation was not really in these two separate and distinct events.Rather,it was in the resurgence of ALCO's erstwhile affiliate in Canada - MLW-Worthington,Limited.

For a considerable period after the change in corporate title,this Montreal-based organization held its own in the diesel locomotive building game,working on some Canadian and a few export orders. The real transfiguration came when,in April,1969,Forster Kemp's "Observations" in CANADIAN RAIL recorded that CP RAIL had ordered 51 3,000 hp. units to cost an estimated $ 19 million. By the end of '69,the number of new units on order from CP RAIL alone had risen to 74 and,by this time,the machinery at MLW-Worthington,Limited was humming merrily!

In mid-1971,MLW Industries,a division of MLW-Worthington, limited is rated as Canada's leading designer and manufacturer of diesel-electric locomotives. One of two firms in Canada building these prime-movers,the division is rising rapidly to the top of the North American builders' heap. This statement infers that MLW Industries is out in front of GM Diesel of London,Ontario and is also breathing down the neck of GM's Electromotive Division in the United States. This claim may be quite justified in view of the orders placed by Canadian National Railways and CP RAIL,not to mention a few more purchase requisitions from Pacific Great Eastern,Roberval & Saguenay and slim-gauge White Pass & Yukon Route,plus at least two overseas customers. And what is more startling and encouraging is the fact that some United States railroads are seriously considering the possibility of buying MLW Industries diesel units for their south-of-the-border operations.

CP RAIL NO. 4704 - ONE OF 74 UNITS BEING CONSTRUCTED BY MLW INDUSTRIES - North America's third largest designer and manufacturer of diesel-electric locomotives. The unit is undergoing a series of tests before being delivered to CP RAIL. Photo courtesy CP RAIL.

THE PRIME MOVER FOR MLW INDUSTRIES NEW M-LINE DIESEL-ELECTRIC LOCOMOTIVES starts with the welding of the engine block. The basic 251 prime mover can be either a 3,000 or 3,600 hp. unit with 16 cylinders or a 4,000 hp.engine with 18 cylinders. Photo courtesy CP RAIL.

The predecessor company,Montreal Locomotive Works,Limited,was formed in 1902 for the purpose of designing and manufacturing steam locomotives for Canada's proliferating railways. It is said that they even built some wood-burners,in a time when wood-burning locomotives were considered as rare as first-generation units are today! Then as now,orders from overseas customers were anticipated. From that year until early in 1949,when the construction of steam locomotives in Canada was to all intents and purposes terminated (a few steam locomotives for export were built subsequently),the great complex of buildings in Montreal's east end produced nearly 4,000 steam locomotives for Canada alone.

At the time when the great diesel engine revolution occurred,MLW was one of the first companies to manufacture the new type of motive power in Canada. Since that revolution,the division has outshopped nearly 2,000 units,of which some 400 have gone to overseas customers. Initially deprived of the basic research,design and development facilities of parent ALCO-Schenectady, MLW-Worthington - for such it had now become - was quick to organize its own essential primary services and it is now staffed by a group of international transportation specialists,providing customers 'round the world with up-to-date concepts and technological improvements in transportation methods and motive power.

Versatility is the watch-word! Everything from 75-foot, all-aluminum subway cars (Toronto) to 4,000 hp. diesel electric units - one,so far,for CP RAIL - one of the most powerful single-engined production units in North America.

Note that phrase "in North America". The tricks that the French National Railways and the German Federal Railways are doing with diesel-electric units do not quite permit the claim for MLW Industries' 4,000 hp. unit on a world-wide basis - not just yet!

MLW Industries is not neglecting the important servicing aspect of this fiercely competitive business. They have organized many sales and customer service centres across Canada and,in at least 40 countries world-wide,there are MLW Industries representatives. These centres will take care of the units produced by the more than 1,000 employees working in the 500,000-square foot plant located on 43 acres of land,fronting on Notre Dame Street east,Montreal,in sight of the harbour and the famous St. Lawrence Seaway.

But what about these new units? To meet the challenge of the '70's - like CP RAIL's coal unit-trains - MLW-Worthington introduced and MLW Industries continues to build the "M" Line - the different diesel-electric units. The six-axle variety of these new units includes the M-630,the M-636 and now the M-640,rated at 3,000, 3,600 and (a beefy) 4,000 hp. While the first two models are obviously superceded C-630's and C-636's,the last one is something a little out of the ordinary.

And just in case you imagine that the "M's" and the "Centuries" are about equivalent,then please pay close attention to the description which follows. Naturally,the "M's" stress modular design and maximum interchangeability of components. What else would make sense ? And as a complement,there are the four-axle models in

the 2,000-2,700 hp. range,which include the basic modular design features of their six-axle "big brothers".

On December 10,1969,Mr. Henry Vallé,President of MLW-Worthington,turned over the "keys" of the first 3,600 hp. unit built for CP RAIL to Mr. S.M.Gossage,Vice-President of Canadian Pacific and Senior Executive Officer for CP RAIL. This event was a solid reminder that CP RAIL had ordered some 74 units for a total value of close to $ 28 million. Mr. Vallé commented on the uniqueness of these units,the model being the only one of Canadian design on the market and having a better than 85% Canadian content of workmanship and materials.

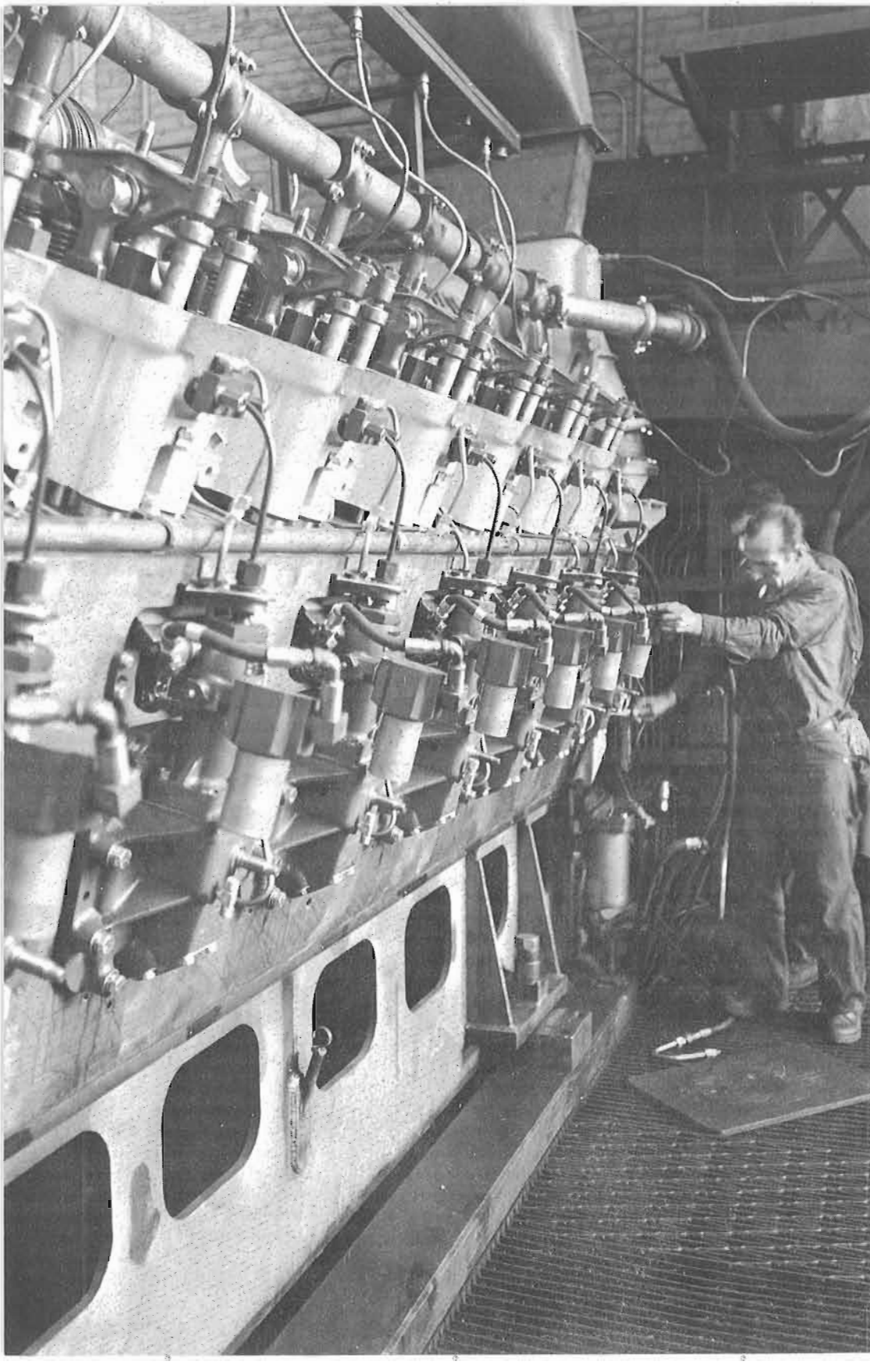
Mr. Gossage said that CP RAIL expected to realize significant economies with the new units,in powering priority freights in main-line service between Montreal and Calgary,Alberta. Two of the new units,he said,would do the same job as three or four of lower horsepower and do it more reliably and with less maintenance.It was understood that CP RAIL's mechanical department had cooperated with MLW-Worthington in the project,providing assistance with the many important improvements and innovations embodied in the new diesel-electric units. The ultimate in cooperation had been received from the other suppliers: DOFASCO,in their design and production of the high-adhesion truck; Canadian General Electric Company,for their part in the supplying of the electrical systems and traction motors.

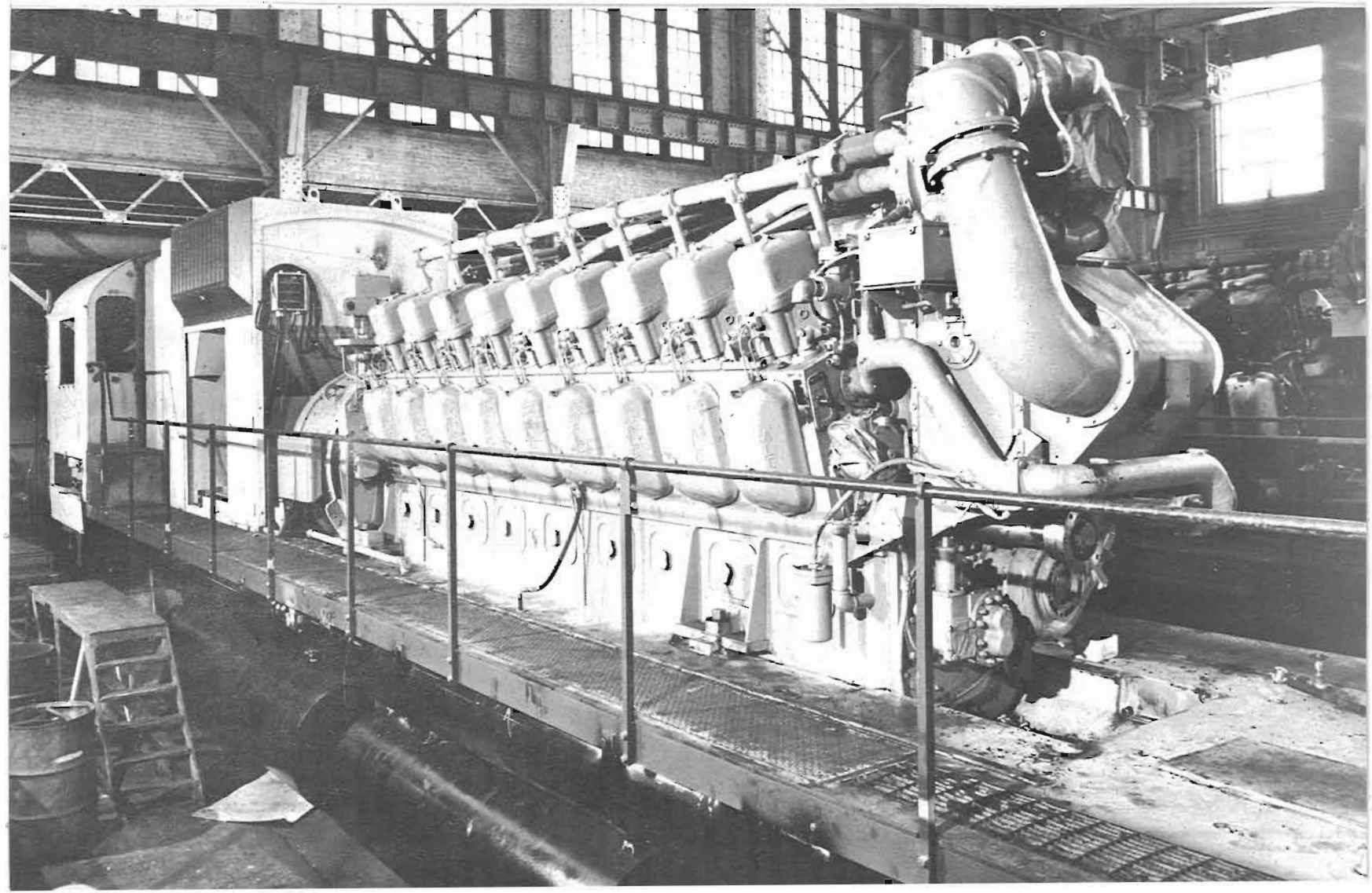
Apart from the complimentary phrases,the new units did embody a number of technological improvements,the primary selling points being:

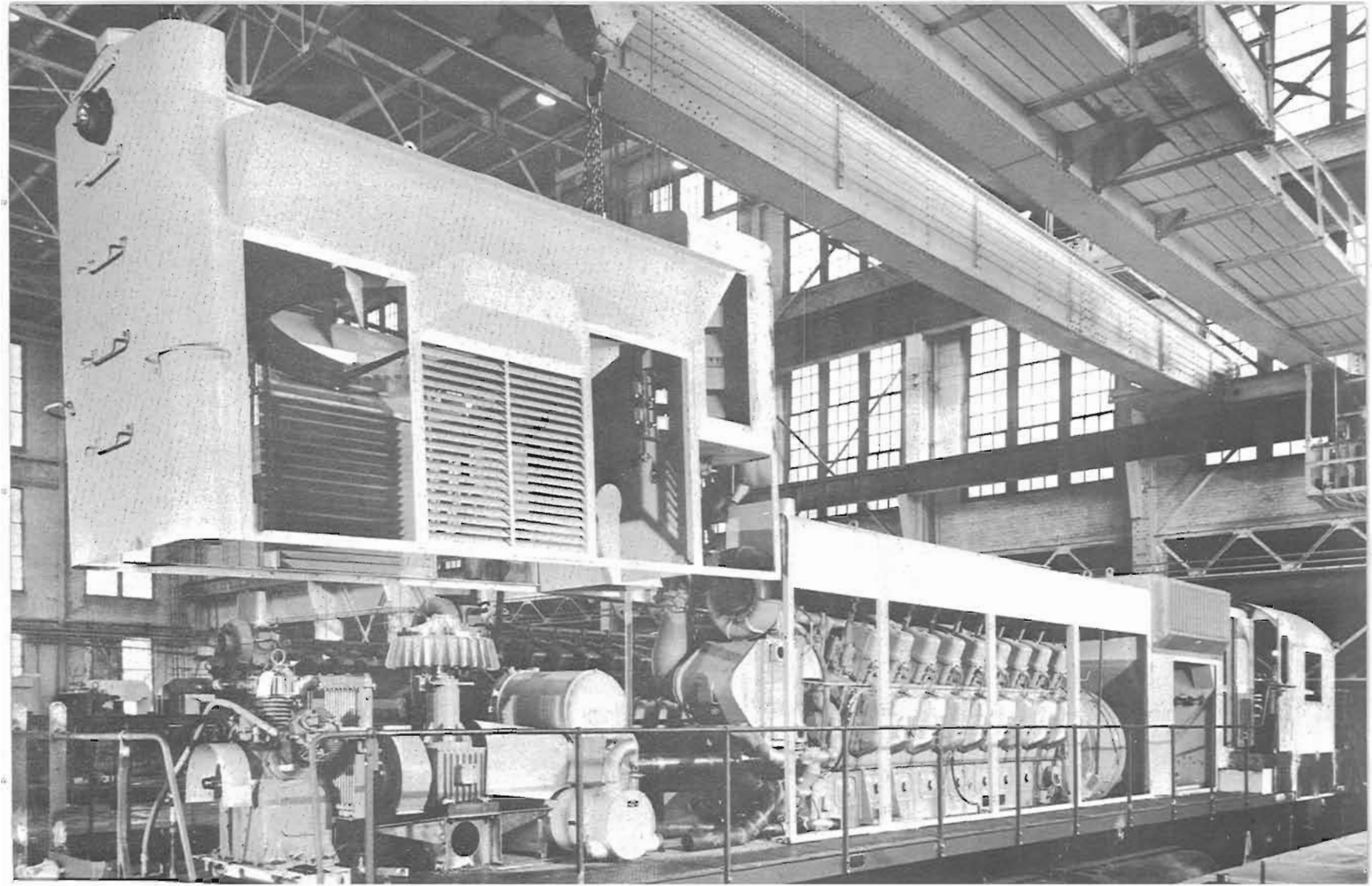
- a universal chassis developed by MLW-Worthington;
- a new model 251 engine,with high-capacity,water-cooled turbocharger and steel-cap pistons;
- a simplified,single,mechanically-driven blower;
- a fully ducted and filtered electrical cooling and combustion air system;
- a pressurized electrical control compartment;
- DOFASCO "HI-AD" trucks with low weight-transfer characteristics and an improved sensitivity wheel-slip indicator system.

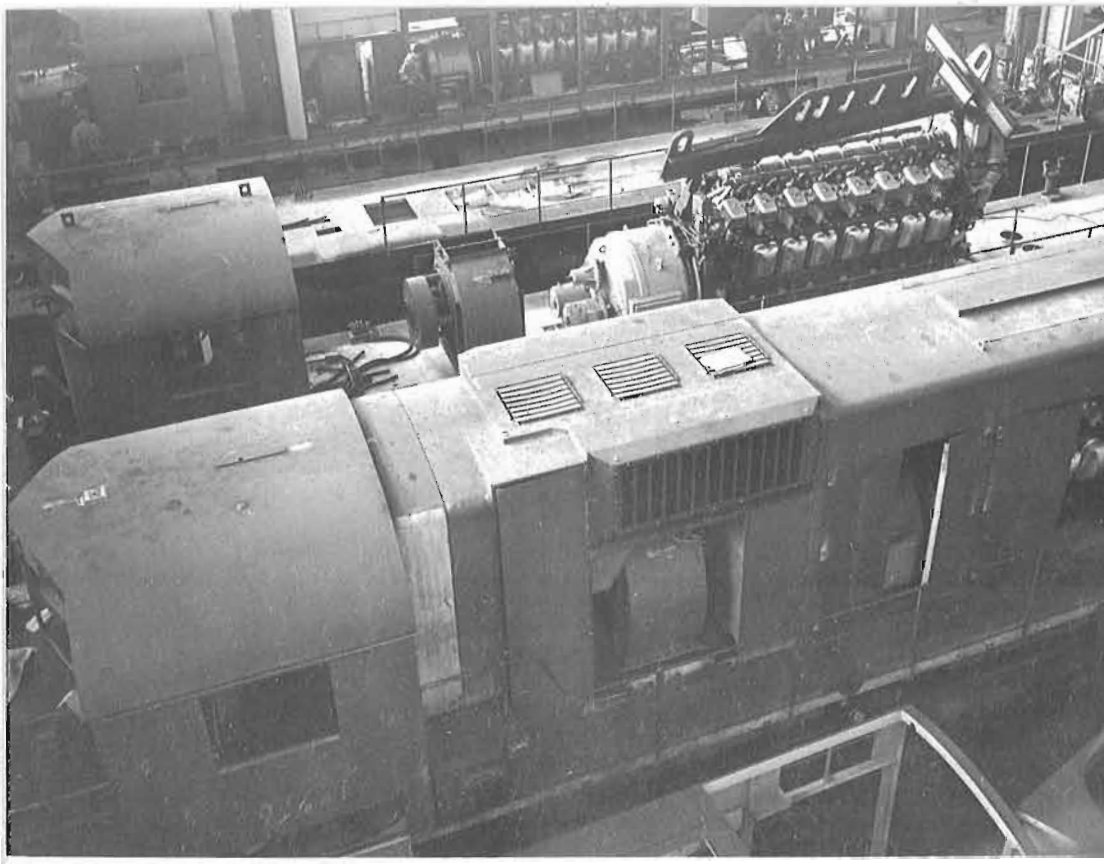
Mr. Gossage had said in his remarks that the 3,600 hp. units would be used on high-speed,main-line freight trains,while the 3,000 hp. types would be used on coal unit-trains from the Crows Nest Pass region (Sparwood,B.C.) to the superport at Roberts Bank,B.C. However,he did not make much mention of the single 4,000 hp. unit,specially commissioned by CP RAIL,nor did he speculate on its intended use. But you may be sure that this C-640 has been built with something very particular in mind,which is even now in the process of being investigated.

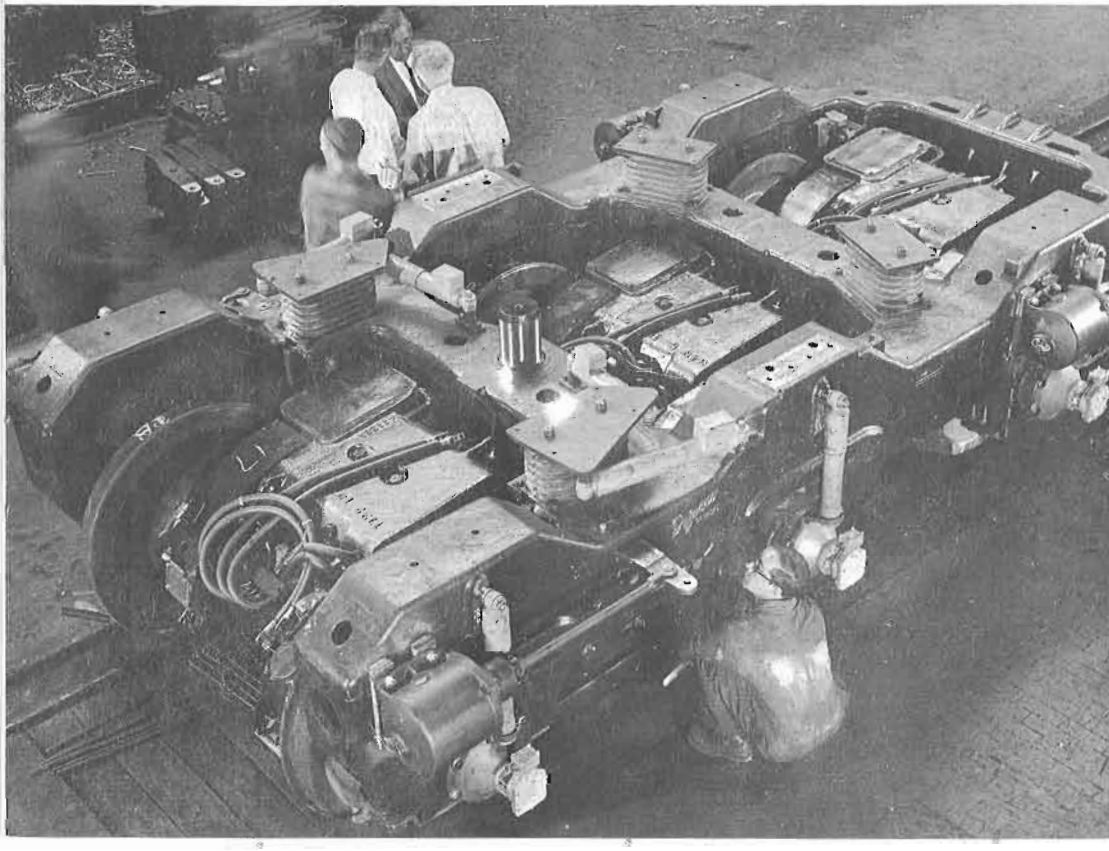
While all this ceremony of presentation was going on,MLW-Worthington was being awarded an order from Canadian National Railways for a further twenty 3,600 hp. units,for delivery beginning in the first quarter of 1970. This represented another $ 8-9 million order for the aggressive Montreal diesel-electric locomotive builder.











The 3,000 and 3,600 hp. units for both Canadian railways are powered by MLW-W built 16V251E and 16V251F diesel engines. The single 4,000 hp. unit for CP RAIL has an 18V251 engine - the power plant with the absolutely biggest crankshaft that MLW Industries is able to handle at the moment. Bore and stroke of the engines is 9x 10½ inches, which is standard for the 251's.

Engine revs are 1100 per minute for all three models. The new model 165 turbocharger has a watercooled, stainless-steel gas inlet casing and has a higher pressure ratio and increased after-cooler capacity. Actual delivery of the new 4,000 hp. unit from MLW Industries was delayed about a week in March, 1971, when there was a failure of the turbocharger. This kept the enthusiasts dangling for a whole week until the big red unit went into service.

Steel-capped pistons are an improvement in the power assembly. They combine the obvious advantages of greater strength and wear of steel with the light weight of aluminum in the piston body. The rate of flow of cooling oil through the piston has been increased substantially. Valve overlap has been modified to provide additional cooling of the "power assemblies". The Lubricating oil capacity has been increased by 30% by deepening the engine base and oil sump. Optional is an auxiliary 150-gallon lube oil tank integrally built into the main underframe, with air-operated transfer equipment.

The electrical control system by Canadian General Electric is type E, with solid-state components on plug-in cards, in standardized "building-block" panels. This greatly facilitates change-out and maintenance of these unitized components.

Transition is simple, involving only one event, with full field operation - a condition which enhances and extends the life of the traction motor. Maximum performance from the high-adhesion truck particularly under adverse rail conditions, is assured by a sensitive rate-of-change wheel-slip system, which responds to rates-of-change in traction motor current and thereupon modulates electrical output.

TECHNICIANS COMPLETE THE FINAL ASSEMBLY OF A 3,600 HP. 16V251F PRIME MOVER at the Montreal plant of MLW Industries. This engine is scheduled for installation in one of CP RAIL's M-636 units.

THIS IS THE 18V251 PRIME MOVER INSTALLED ON THE M-640 FRAME. WITH THE RANge of gear ratios available, this unit can travel at speeds varying between 65 & 84 mph.

HERE IS THE FIRST M-640 IN ITS FINAL ASSEMBLY STAGE AT MLW INDUSTRIES' MONtreal plant.

THE CANADIAN-DESIGNED AND DEVELOPED TRUCK - THE "HI-AD" - IS AN ESSENTIAL part of the M-630's, the M-636's and the M-640. It was developed by DOFASCO.

A PARTIAL VIEW OF MLW INDUSTRIES DIESEL-ELECTRIC LOCOMOTIVE ASSEMBLY AREA in the Montreal plant. 10 units can be fabricated simultaneously. In the foreground are 3,000 and 3,600 hp. units being built for CP RAIL and in the background is a 2,000 hp. unit being made for the Pakistan Eastern Railway. Photos courtesy CP RAIL & MLW Industries.

And as if this weren't enough, some of the "Big M's" are equipped with an electric-start system. Formerly, high-horsepower units were fitted with an air-start apparatus on AC-generator-equipped units, but after January, 1970, the electric-start system was basic. The auxiliary generator and exciter, which are, after all, basically the same machine, have a start-winding built in, enabling them to "motor" the prime-mover until it starts. All three models have an AC/DC transmission system, with alternator output rectified to DC for conventional 752-type DC traction motors.

Gear Ratios may be selected in 74:18, 65:18 or 81:22, 80:23 and 79:24, with maximum speeds thereby available from 65 to 84 mph. Continuous current rating of the traction motors is 1195 amps. at 11.4 mph., with 65:18 or 81:22 gear ratios. Unit weight may vary from 360,000 to 420,000 lbs., depending on the equipment included.

Another innovation on the new six-axle units is the high-adhesion truck, a name which DOFASCO has shortened to "HI-AD". This truck is designed for all six-axle, three-motor standard-gauge operation at maximum axle loadings permitted on North American railways.

To simplify truck maintenance, there are replaceable bushings, manganese wear plates, easy accessability to the motors and brake components and the adoption of wheel and axle assemblies which are interchangeable with existing diesel-electric road units. The low weight transfer characteristic of the truck permits higher tractive effort to be realized, through the reduction of weight losses on certain axles. In this respect, the "HI-AD" has better tractive effort capabilities than any other North American three-axled truck.

The main underframe and accessories are standard for all three "M"-type models. Most of the above-deck components are the same, except for the additional magnetic clutch for the compressor drive on the 4,000 hp. M-640. The short hood, cab, electrical compartment, ventilating system and lubricating oil and cooling systems are essentially the same, except for the additional lube oil filtering and cooling system capacity. Piping is simplified; possible lube oil leaks are remote from electrical and other auxiliary equipment and this arrangement allows easy access for servicing.

Implicit in the "HI-AD" truck design are simplicity of construction, economy of maintenance and ease of accessability to components. The truck utilizes parts which are interchangeable with components in service over the years on other MLW-Worthington road unit trucks. There is no truck bolster or underframe centre plate. The car-body underframe is supported on the truck by four rubber "snubbers" at the outer ends of the truck transoms. A frame-mounted non-loading bearing centre-pin - a part of the main transom - is fitted into a swivel block, which is attached to the car-body through two rubber units. This arrangement provides controlled lateral movement on either side of the centre. There is no metallic contact between the car-body and the truck. This eliminates all wear plates and isolates rail noise and some vibration from the unit structure.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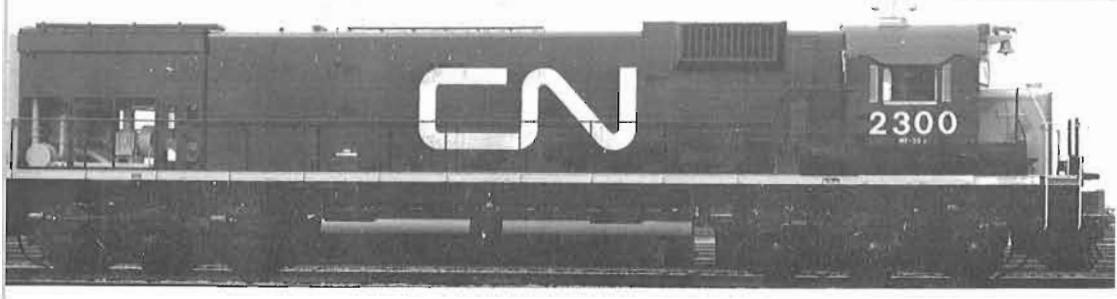

THE FIRST OF CANADIAN NATIONAL'S M-636's - ROAD NUMBER 2300.
Photo courtesy Canadian National Railways.

TWO MEMBERS OF THE M-630 TRIBE - CP RAIL UNITS 4500 & 4501 on the point, moving a freight through St-Clet,Qué.,west of Montreal in the summer of 1969. Photo courtesy Ken Goslett.

ANOTHER CP RAIL M-630 - number 4516 - heads a long freight on St-Lazare Hill,west of Dorion,Qué.,on February 7,1970. Photo courtesy Ken Goslett.

Further improvements to the riding qualities and performance of these units,achieved through modifications in the suspension,include the placing of the major portion of the vertical springing on the primary coil-springs; provision for additional lateral on the centre axle and the use of "viscous friction" for the snubbing of vertical,lateral and rotational movements of the truck.

The braking system on the truck is based on a single brakeshoe per wheel. Made of composition material,it is activated by a single cylinder for the numbers 1 and 6 axles and one cylinder for axles 2,3 and 4,5. This arrangement gives good clearance above the track and offers maximum protection for exposed parts.

The "HI-AD" truck has been specifically designed to permit the high-speed operation of heavy six-axle units through better riding characteristics. Results from high-speed testing on Canadian National Railways between Montreal and Toronto show that the "HI-AD" has as good riding characteristics as the best riding coach on RAPIDO passenger trains - stable and quiet,as well. Please note that speeds at which this claim can be made are critical. RAPIDO trains may make 90 mph. Freight trains seldom do - yet!!

In the air filtering and cooling system,improvements include the elimination of right-angled drive,ventilation fan, engine air-inertial filters and the dynamic-braking motor and blower, used on the "Century" models. A large airfoil-type blower provides cooling air for the traction motors,alternator,rectifiers,prime -mover and dynamic brake resistor grids. This blower is mechanically driven from the alternator gear train and protected by a blower-failure safety circuit,which automatically returns the unit to "idle" in the event of a blower failure. It is remarkable that this blower supplies sufficient cooling air so that on 65:18-geared units, approximately 11% more retarding effort is available,with maximum braking effort increased from 55,200 to 61,000 lbs.

Improvements in the water-cooling system include the elimination of the engine aftercooler shutter and radiator arrangement at the alternator compartment. This accessory has been incorporated in the main engine cooling-water radiator system,with a consequent reduction in piping and overall simplification of the system. On

the new models,the shutters are of the gravity type,eliminating the shutter cylinders and attendant mechanisms.

During a visit to MLW-Worthington in April,1970,many of the members of the Canadian Railroad Historical Association were able to examine these new units close-up. Observed in all stages of construction,the systems and improvements described above were demonstrably most important.

Montreal Locomotive Works,Limited became MLW-Worthington Limited in 1968 and,in 1970,the parent company formed MLW Industries,a division which includes all of the activities at the Montreal plant. MLW International was organized simultaneously to seek out manufacturers in other countries,to build MLW-designed products under licence,where various restrictions prevent direct export from Canada.

While MLW Industries has already scored some notable "firsts" in the manufacture of diesel-electric units,its activity is not restricted solely to this one product. It is presently working with the Aluminum Company of Canada and DOFASCO in the development of a lightweight,rapid,comfortable (LRC) train,designed for high-speed intercity travel over existing main-line trackage.

But MLW Industries most recent triumph was outshopped on February 22,1971,when the first M-640 rolled off the assembly line. Described as "the most powerful single-engine locomotive to enter revenue service on any railroad", the M-640 does not differ appreciably in appearance from the M-636 units. As Mr. F.S.Burbidge,Vice-President of Marketing and Sales for CP RAIL so aptly put it," This record-sized locomotive represents much more than just 4,000 horsepower. It is a bench-mark in the railway industry,a reference point from which we can assess CP RAIL's progress in developing more efficient transportation systems". Robert Grassby,President and General Manager of MLW Industries might well have made the latter remark.

The next fascinating question that presents itself to both MLW Industries and CP RAIL is,"Where do we go from here ? After 4000 hp. from 18 cylinders,then what ?"

The "Big M's" are different,all right. It will be very exciting to see how they will continue to stay that way.

CP RAIL'S UNIT 4705 IS ONE OF MLW INDUSTRIES NEW M-636's - 3,600 HP. DIESEL-ELECTRIC locomotives. It is shown here leaving MLW Industries shops for final road-testing before delivery to CP RAIL. At that time,these big units were the highest powered units built in Canada and in use on a Canadian railway. Photo courtesy CP RAIL.

THIS IS THE BIG ONE! CP RAIL'S NO. 4744 - THE FIRST M-640 - 4,000 HP.FROM one 18V251 prime mover. Completed for delivery February 22,1971 in Montreal,actual road-testing was delayed for a few weeks until a new turbocharger was installed. MLW Industries describes this engine as "the most powerful ever to go into revenue service on any railroad". It is destined for CP RAIL's fast freight service between Montreal and Calgary,Alta. Photo courtesy MLW Industries.


4705
4705
CP Rail


4744
CP Rail
4744
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DIESELS WEST !

PHOTOS by R.A.LOAT

SECOND SECTION -------

THREE HILLS SUB. LOCAL - - - - - -

The Three Hills Subdivision - Canadian National's line from Mirror, Alberta to Sarcee Junction (Calgary) - normally has one freight per day in each direction - "The Speeds" - which run at night and do whatever local work is necessary. However,when the wheat moves,daytime extras are run,handling all the local work,along with the grain. Here are two GP9's - 4242 and 4283 - running as an extra south, arriving at Wye North Switch (Calgary) in the early morning, after handling all the traffic offered on the line.Note: Only one white flag is flying,barely visible behind the bell. Date:May 18,1966.

THE DOMINION OF CP RAIL - - - - - -

The summer "Dominion's" - Trains 3 & 4 - included foreign tour sleepers - sometimes had 30 or more cars,necessitating the display of power photographed at Lake Louise,Alberta on August 20,1965. Power was FP7A no. 1430;GP9's 8528,8519;F7B no. 4462; FP7A no. 4036.

These tour cars normally spent one or more days at Banff and so the "Garden Tracks" (coach yard) became a mecca for passenger car spotting fans.

Although the consist of this particular train was not recorded,a number of consists were taken for trains in the summer of 1965. By far the most interesting was a very late one seen in Regina,Sask., on July 13,1965.It totalled 39 cars in two sections. Unfortunately, both sections arrived after dark and were therefore not photographable. Here are the consists,although not in order:

1st. No. 3
FP7A no. 4031 FP7A no. 1421
CP 4455 - Baggage
CP 115,2204,2253 Coaches
CP SKYLINE 502
CP NIXON
SP 9020
CP SAULT STE. MARIE
CP SCHREIBER
CP JELLICOE
CP 437405

2nd. No. 3
FP7A no. 1418 RS-10 no. 8573 RS-10 no. 8477
CP 4754 Baggage
CP POPLAR GROVE CP BIRCH GROVE CP FIR GROVE
CP WALNUT GROVE CP LAKE ERIE SAL OCALA
CP GLEN BALLYENON E-L CHARLES MINOT CP RICHFORD
CP ROMFORD PENN ALEXANDER M. BYERS

CP TILBURY PENN IMPERIAL VIEW
CP APSLEY PENN IMPERIAL MANTLE
CP ATHALONE SOUTHERN ROANOKE ISLAND
CP ALNWICK CRI&P GOLDEN WEST CRI&P GOLDEN HOUR
CRI&P GOLDEN DREAM CRI&P LA QUINTA
ACL SAVANNAH RIVER ACL CAPE FEAR RIVER CP TREMBLANT
C&O CITY OF CLIFTON FORGE PULL.CHICAGOLAND PARK

CUT OFF YOUR NOSE - - - - - -

CP RAIL is chopping the noses on three GP9's for better visibility in pull-down service at the Alyth Hump-Yard. No. 8635 was out-shopped from Ogden Shops on December 4,1970 and this is how she looked the next morning. The nose and number-board were made at Ogden,however they are identical to the SD40's,so perhaps they used the other's tracings!

UPPER QUADRANT: CN XS 4242,4283,Wye North Switch,Calgary,Alta.,May 18,1966.
LOWER QUADRANT: CP RAIL TR.4 Nos. 1430,8528,8519,4462,4036:Lake Louise,Alta.

THIS MIGHT BE CALLED "COSMETIC SURGERY"! CP RAIL'S UNIT 8635 ONCE HAD THE standard GP-9 profile. Now it is no longer so. Photos courtesy R.A.Loat.

THE GREAT RAILROAD-BUILDING ADVENTURE

George S. Dennis

Every once in a while, somebody writes a story about our fearless, founding forefathers and how they carved a clearing in the wilderness or built a railway across the country. Both of these activities generally resulted in the establishment of some towns which later grew into the large cities of today. These famous founding fathers are all carefully recorded in elementary school history books.

Nowadays, any railroad enthusiast who is worth his salt and gives a damn about railways has, at one time or another, dreamed of building a genuine railroad - or a miniature counterpart - in emulation of his aggressive ancestors. But sometimes the realization of such a dream is a little slow in achieving reality. So it was with the Algoma Eastern Miniature Railroad. This Company was chartered more than 15 years ago, but its progress was retarded because of lack of money. In this respect, it resembled many other Canadian railways very closely.

In more recent years, the promoter of the A.E.M.RR. read of an offer to sell two miniature steam trains at Crystal Beach Park, near Fort Erie, Ontario. Now this is quite a long way from Terrace Bay on the shore of Lake Superior in the same Province, but after careful inquiry, the promoter of the Algoma Eastern Miniature Railroad found that he could buy some badly worn but very essential spare parts from this source.

These essential parts, except for the boiler and frame, were brought back to Terrace Bay by the promoter in a two-wheeled trailer and in the trunk and back-seat of a 1951 Hudson automobile. The boiler and frame of the locomotive, being somewhat larger and heavier, followed by water transport from Thorold, Ontario to (then) Port Arthur. From Port Arthur, the frame and boiler came to Terrace Bay by truck. It might surprise you to know that the 140-mile journey from Port Arthur to Terrace Bay by truck cost more than the entire trip from Thorold, by boat.

When the boiler and frame finally arrived, the first thing that had to be done was to remove about 35 pounds of scale from the boiler. After that, the boiler had to be lowered into the basement

of the promoter's house for further repairs.

By this time,it is pretty obvious that the promoter of the Algoma Eastern Miniature Railroad is none other than George S. Dennis (ME!) and the locomotive is a 15-inch-gauge model of an American-type 4-4-0. But the size of the locomotive (I can assure you) did not reduce the work required proportionately. I might just as well have been working on a prototype 4-4-0 from the old Algoma Eastern Railway.

Seven years and $2,800 later,the promoter of the A.E.M.RR. had an operating steam locomotive. The blood,toil,tears and sweat, the many hundreds of man-hours of sometimes very frustrating work were all forgotten in the overwhelming sense of achievement and the long-awaited sound of exhausting steam. Although the second-hand parts had been very badly worn,every single one of them was required for the completion of the motive power rebuild and they all had been obtained. Of course,even if George Dennis never heard a discouraging word at home,there were always those people who said "It'll never run;",or something to that effect.

They were wrong.

Run it did and very well,too,after a breaking-in period,which is normal with any full-size locomotive,either brand-new or rebuilt.

The many hours of hand-filing,hack-sawing and wheel-grinding sprinkled with lots of patience and some impatience,had finally paid off. Only dedicated operating live-steam enthusiasts can really appreciate the magnitude of this project.

Every bolt had to be replaced. All threads had to be renewed. Dirt,grease and scale had to be laboriously removed. George Dennis used or broke almost 100 hacksaw blades,3 coarse grinding-wheels, 2 fine grinding-wheels and three wire-brush wheels. Sometimes, he thought of selling the resulting iron filings to the nearest steel mill.

The tender frame was made from two-inch channel iron. Putting on his other hat,George designed and built arch-bar trucks for it,using auto-engine valve springs. The big jobs,such as new driving-wheel axles and crank-pins,along with bearings for the tender-truck axle-boxes,were subcontracted to a local machine shop.

Not content with taking on one big project,when the locomotive was completed,George decided that he also needed a coach and a caboose. The caboose was modelled after Algoma Eastern Railway's number 9616,portrayed in an early photograph. The design of the new coach was strictly free-lance and purposely included a low centre of gravity. Although formal plans were not drawn up,George knew what he wanted and surprisingly enough,made few mistakes in the construction. The real idea behind the laborious rebuilding of the locomotive and the construction of the caboose and passenger car was to provide a series of "winter-work" projects,besides proving to himself that he could really do what he had set out to do.

Some jobs associated with these three projects provided

quite a bit of time to think about other things and one of these other things was the idea of purchasing a property somewhere near the united city of Thunder Bay,Ontario,where a man could retire comfortably. After checking over or looking at several hundred parcels of land in the area,George finally found one that suited him.

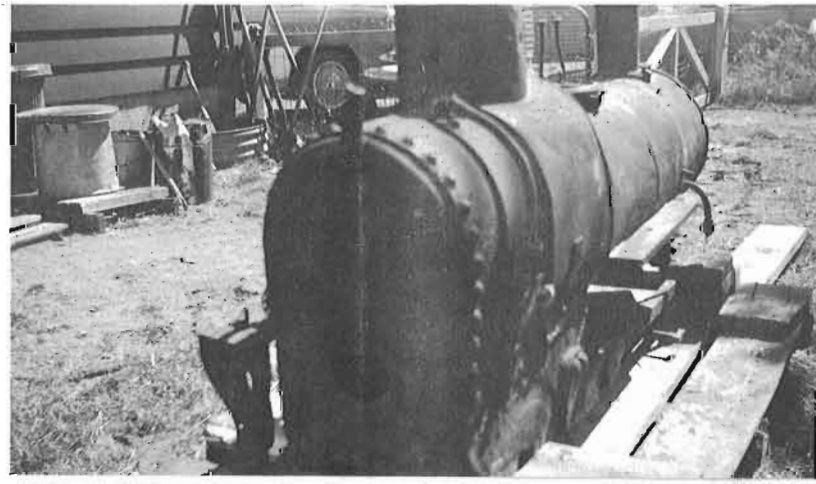
The property of some 4.75 acres was located 6 miles from the old city limits of Port Arthur and 3 miles from those of old Fort William. It was very handy to each city and is just as handy to the new city of Thunder Bay. Shortly after the final inspection,the purchase of this property was finalized and after some consideration George concluded that there would be ample room on it for the Algoma Eastern Miniature Railroad. A rough plan of the track location was prepared,the right-of-way staked and then began two summers(and on into the fall) of cutting trees and brush,piling and burning it. After the proposed new railroad had been generally located, the right-of-way was pegged through the cleared areas.

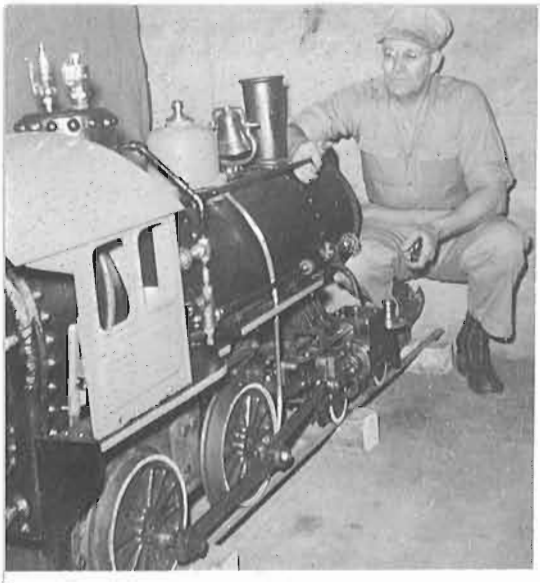
At this juncture in the construction,the capital of the new railroad company was beginning to disappear. But before the company was obliged to declare bankruptcy,there was a small legacy from the promoter's father and mother. This enabled the continuation of the construction,the erection of a building to house the locomotive,coach and caboose and the purchase of 1,500 feet of rail and a few very essential maintenance-of-way tools.

Both of George's parents had been very interested in the infant enterprise. George's Dad had a special interest in it,for he was once an engineer on the old Algoma Eastern Railway until it was sold to the Canadian Pacific Railway in 1930.

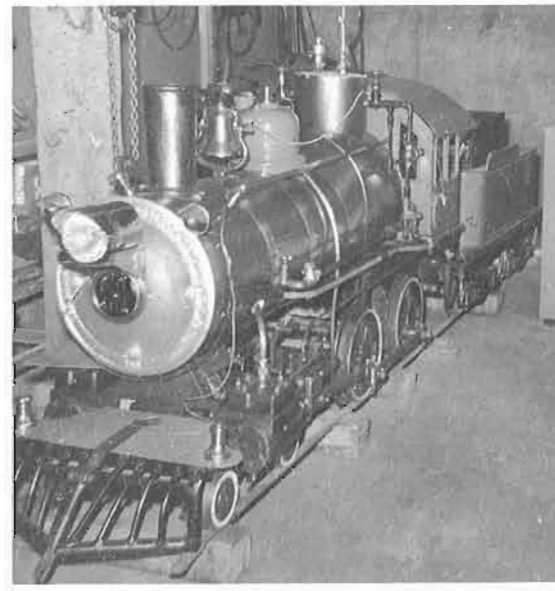
The clearing of the trees and brush and the locating of the right-of-way on the new property took the better part of four summers. Getting to Maplewood Drive,Thunder Bay,Ont. was no very easy thing,as it is 140 miles from Terrace Bay,where the promoter was then living and this return trip was made every seven days until the job was finished.

THIS COULD BE DESCRIBED AS THE "NUCLEUS" FROM WHICH THE ENGINE FOR THE Algoma Eastern Miniature Railroad began — as received on the property.





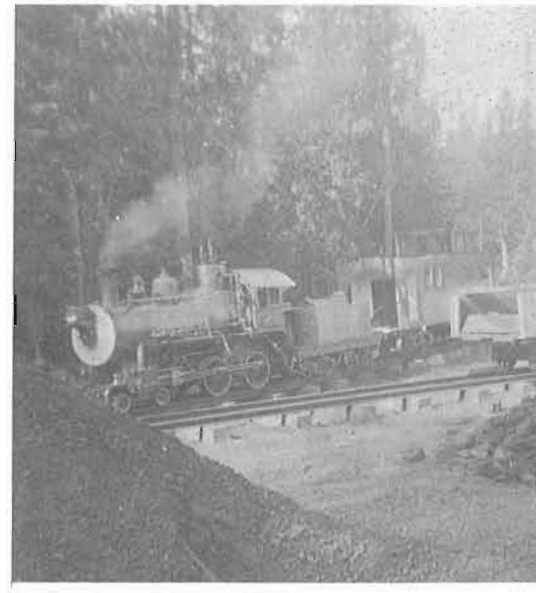
THE PRESIDENT (!) checks over 4-4-0 no. 51 of his road, the first power to run over the new line.Having passed her hydrostatic test,Number 51 is now ready to be fired up for a trial run on the main line.



During the period of railway construction,4-4-0 Number 51 reposed in the erecting shop alongside the body of Caboose 9616,then under construction

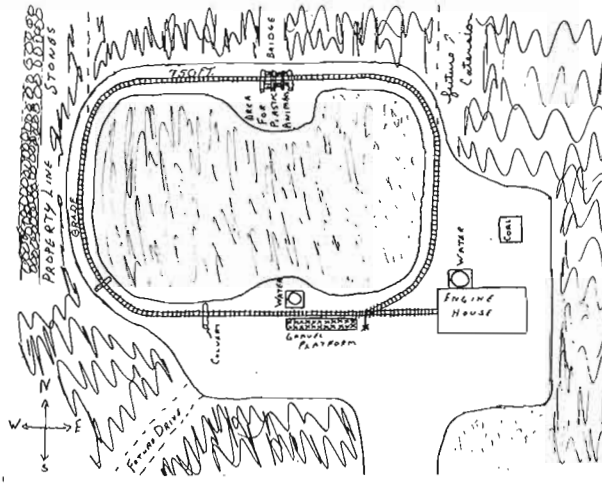
With a full head of steam,Engine no. 51 waits at the end of steel to take the construction gang back to headquarters.

Engine no. 51 and Caboose 9616 - otherwise Extra 51 West - wait on the main line for the signals at Maplewood Junction to clear.



Ready for the morning's run, Engine no. 51 and Caboose no. 9616 stand on the main line next to the coal pile and the engine shed.

The well-located but temporarily unballasted main line of the Algoma Eastern Miniature Railroad winds through the woods near "West Lakehead".



Tom Dennis,George's cousin,who is an engineer on CP RAIL's CANADIAN between Mactier and Sudbury,Ont.,helped to pull stumps out of the grade location and afterwards moved a good deal of shale for the roadbed - by wheelbarrow! He travelled over 700 miles to help. With the arrival of the steel and the track-laying equipment, construction began in earnest.

On August 17,1967 - at the height of Canada's Centennial Year - the first rail was laid on the Algoma Eastern Miniature Railroad. The preparation of the roadbed,which had taken four summers , significantly shortened the construction period and,amid great (personal) rejoicing and celebrations,the rails were joined on October 21,1968 and the last spike was drived on October 22. The last link in the 750-foot long line of the Algoma Eastern Miniature Railroad at Thunder Bay,Ontario,had been completed. The ceremony was attended by the President and Chairman of the Board of Directors - Mr. George S. Dennis.

In the construction of the right-of-way,each tie-end had to have a steel plate placed under it to prevent it being pounded into the soft shale when the rail was spiked to the cross-tie. Each rail-joint as well had a tie under it to provide added support. Some of the lengths of rail were bent for the curves and the curves were spiralled and elevated. There are two steel culverts on the line, two concrete-block culverts and one bridge.

There are,unfortunately,no tunnels!

The 550-odd ties,the keg-and-a-half of spikes and the three tons of rails were all put down by the Chairman of the Board and President - ME! The roadbed is composed of about 200 cubic yards of shale and there are 35 cubic yards of crushed gravel for ballast . Maybe other people build railways and railway museums on a larger scale than the A.E.M.RR.,but 200 cubic yards of shale are 200 cubic yards of shale all the way from Corner Brook to Roberts Bank and anyone who has moved this amount of the earth's crust really knows it! I know it!

Miss Lynda Fontaine,long-time Secretary of the Corporation, helped to ballast the track by firing and running engine number 51, the motive power for the gravel train - and any other movements on the line. She did this job very well and supplied the essential "woman-power" for the construction. At one point,her boyfriend even

went so far as to become involved,too,and shovelled a significant quantity of gravel ballast.

Although engine number 51 had made a few trial runs on the unballasted line in the process of hauling the shale to the "head of steel",the first official run over the completed line took place on Saturday,October 26,1968 at 1.45 p.m. - a truly memorable occasion. It was,as you can quite well imagine,a very satisfying and satisfactory trip.

Tom Dennis has come up for a weekend visit two years in a row and when he arrives,the operation of Number 51 and train is gladly turned over to him. He is a really first-class "hogger" and his love for the steam engine - any size of steam engine - never wavers.

The Algoma Eastern Miniature Railroad is becoming better-known as the months pass. This last summer,passenger traffic was quite good,the passengers being 50% adults and 50% children.

Number 51 - the 4-4-0 - burns only the best Pocahontas coal which is not too readily available. In her front-end smoke-box, she has a single blast-pipe (instead of two shallow S-shaped pipes)dead-centered on a 5/8-inch opening. A draft plate in the smokebox, set at an angle,controls the draft through the front and back sections of the firebox grates. The fire is forced up to "wash" the crown-sheet before being drawn down to go through the boiler tubes and smoke-box and thence up the stack.

The valve settings used are 10-thousandths in forward gear and 12-thousandths in reverse,which theoretically makes her more powerful in forward motion and faster in reverse. At any rate, she runs like a scared deer! She is also a very free steamer.Normally, she only carries 90 pounds steam pressure on the clock, but her boiler has been tested at 186 pounds per square inch. She can handle the whole train,plus passengers,with ease and so 90 pounds of steam on the clock is plenty.

When Number 51's boiler arrived at Terrace Bay,it was very apparent that boiler scale had been a problem. To avoid a repitition of this condition,she now uses rain water,which is free and generally in good supply. This certainly avoids the chronic scale problem. With plenty of oil to lubricate her bearings,valve-gear and motion,Number 51 is projected to run for many years.

The visitor looking for the Algoma Eastern Miniature Railroad may have considerable difficulty in finding it on days when No. 51 is not in steam. Only about a quarter of the main line can be seen. For the most part,the line runs through a heavy growth of cedar,birch,spruce and tamarack,which has defied the might of the all-conquering bulldozer.

Perhaps one of the most remarkable things about the Algoma Eastern Miniature Railroad of Thunder Bay,Ontario,is that its right-of-way is located less than a quarter of a mile from the old roadbed of the Canadian Northern Railway. Now,in the 1970's,the same Canadian forests re-echo to the sound of the steam locomotive exhaust and chime-whistle,albeit in miniature!

WAYBILLS _ _ _

Editorial Staff

CANADIAN RAIL

WHEN CANADIAN NATIONAL RAILWAYS DISCONTINUED full dining car service on some of its Montreal-Ottawa trains,there was a rash of complaints from Patrons who had been used to partaking of a leisurly breakfast or dinner during the trip. CP RAIL shortly thereafter examined the profitability of the dining car service on its Montreal-Quebec trains and later discontinued the dinette-parlor-dome car, formerly in the consist of these trains. The discontinuance elicited hardly a murmur and was not even reported in the Montreal papers.

THE JOURNAL OF COMMERCE IN ITS MARCH 1,1971 EDITION,CARRIED A LONG article by William A.Martin of its Washington,D.C.bureau, on the Penn Central's continuing cash flow problems and their probable effects. Many of the PC's non-transportation assets were examined.The PC's trustees will without doubt return to the United States Congress e'er long to ask for more federal funding. Interestingly enough,only in the case of the Toronto,Hamilton & Buffalo Railroad did the trustees express any hope of recovering some cash for the Penn Central operation. This would amount to only about $ 11 million , which derives from the 37% interest (20,120 shares) which the PC has in this line. The balance of the stock in the 111-mile line is owned by Canadian Pacific,Michigan Central and Canada Southern,-the latter two companies also subsidiaries of PC. Other interesting PC assets include postions of Merchants Despatch Line,Pullman Company, Railway Express Agency,Pittsburgh & Lake Erie Railroad and (of all things) Norfolk & Western Railroad,through the Pennsylvania Company.

JACK LOMBARD SENT A PRESS CLIPPING FROM THE Windsor,Ontario STAR,announcing the completion (December 18,1970) at the Hike Metal Products shipyard at Wheatley,Ont.,of the M.V.(?) PHYLLIS YORKE, a 99-foot long by 35-foot wide pusher-tugboat of very unique design. Built for F.M.Yorke & Son of Vancouver,British Columbia,the PHYLLIS YORKE & her sister,the M.V.(?) MARGARET YORKE will be leased to Canadian National Railways to expedite rail-barge services at the Windsor-Detroit and Sarnia-Port Huron gateways. The two vessels are powered with deck-mounted 2,000 hp. twin-diesel engines and have their pilot houses on an ingenious tripod mounting. PHYLLIS was scheduled for transfer from Windsor to Sarnia at the end of January, when

MARGARET was ready for service at Windsor. These new tugs reportedly will be used with the S.S.LANSDOWNE and the S.S.SCOTIA II . Further developments are awaited with interest.

WITH REGRET,WE RECORD THE UNTIMELY DEATH OF MR. H.R.(HARRY) WOOTTEN, Manager,Rail Operations,Algoma Central Railway. Victim of a coronary accident,the late Mr. Wootten was of great assistance to railway historians in the western Ontario region and was,more particularly, a noteworthy example of the school of positive management in this sector of the Algoma Central Railway's operation. This note from Mr. Dale Wilson of Sudbury,Ont.

READERS OF "CANADIAN RAIL" WHO ENJOY FINE FOOD - and who does not? - may combine advantageously their two predelictions by making a visit to the city of Potsdam in northern New York state. An enterprising restauranteur has taken over the old passenger station building of the New York Central System and rearranged and redecorated it as a most attractive restaurant,maintaining its railroad atmosphere, even to the extent of using the old waiting room benches - suitably refurbished - with station signs of the district as wall decorations. Dr. Robert F. Legget of Ottawa reports that the name of the establishment is " The Station for Steaks"! It should also be noted that the station's baggage room has been transformed into an excellent bar and is already wellknown as just that: "The Baggage Room Bar".
A visit is enthusiastically recommended!

UNITED STATES' SECRETARY OF TRANSPORTATION VOLPE'S "RAILPAX"- "RAILpox" to some - proposals were finalized in January,1971 for implementation May 1,and to no one's great surprise,Delaware & Hudson's New York-Montreal passenger service was not on the list. True, lengthy legislative discussions were held at Albany,New York, with labor groups,rail groups,civic groups and Public Service Commission representatives all having their say. It was concluded that while there were other important passenger train services in the State of New York which had to be protected,the New York-Montreal passenger service should be maintained. "Fine", said the D&H,"just so somebody else picks up the deficit-operation tab!" But with the starting date of May 1 fast approaching,no offers had been received nor had any overtures been made for the possible subsidy from the Canadian Transport Commission for the 45-mile (odd) portion of the operation in Canada over the Napierville Junction Railway.Meanwhile, D&H added immeasurably to the decor of their ex-Rio Grande coaches when they replaced the D&RGW maps with magnificent color enlargements of on-line equipment and scenery by Jim Shaughnessy, well-known Trojan photographer.

IN CASE YOU'RE WONDERING,ROBERVAL & SAGUENAY'S 2-8-0 no. 17 (CLC no. 1959,blt.1940), recently sold to John E. Thompson of Monee,Illinois,may not be leaving the Lake St. John region of the Province of Québec immediately. Condition of the engine is said to be such that Canadian National Railways - only long-distance carrier in the area - is rather dubious about moving her on her own wheels. And who but C.R.H.A.'s Rocky Mountain Branch could re-tyre a locomotive at a distance of 500-odd miles from the nearest class-1 repair shop?

CANADIAN NATIONAL ANNOUNCED IN FEBRUARY,1971,THAT,SUBSEQUENT TO THE purchase of the Cornwall Street Railway,Light and Power Company's electric freight lines at Cornwall,Ontario,operation by CN would commence about April 1 with electric operation being phased out before May 1 .

REPORTS EMANATING FROM VANCOUVER'S WATERFRONT advised early in March,1971,that PC Shay no. 114,formerly owned by Precision Engineering , was being readied for flat-car shipment to the Cass Scenic Railroad at Cass,West Virginia,U.S.A. Sister PC Shay no. 115 is destined to join ex-Duke of Sutherland's "Dunrobin" at Fort Steele,British Columbia. Meanwhile,it is rumored that the Cowichan Valley Forest Museum will sell Shay no. 3,formerly of the Mayo Lumber Company,to the Museum of Science and Technology,Ottawa,Canada.

CANADIAN NATIONAL PROPOSES TO INVEST $ 4 MILLION IN AN EXPANSION of motive power and freight car repair facilities at Transcona,Manitoba. The project,to be completed in three years,is in addition to the million-dollar wheel-shop project now under way. Expansion of the diesel unit repair shop is required to handle the large 3,000hp. secpnd-generation units now in use. These 70-foot units are too long to be processed through existing facilities expeditiously.

INTERPROVINCIAL STEEL & PIPE CORPORATION OF REgina,Saskatchewan,has added another exhibit to its embryo railway museum at IPSCO PARK, two miles east of Saskatchewan's capital city. The acquisition is ex-CP RAIL business car no. 36 (ex-RIVER CLYDE,ex-CAPE CHURCHILL),a solarium-lounge car,identical to car no. 13 of the Upper Canada Railway Society. The business car, purchased in the autumn of 1970, joins ex-CPR steam locomotive no. 3101 and will be used as a reception salon for visiting officials and distinguished guests.

PRINCE EDWARD ISLANDERS ARE MUCH DISMAYED BY A RECENT ANNOUNCEMENT in which CN revealed that M.V.JOHN HAMILTON GRAY will be withdrawn from Cape Tormentine-Port Borden service and reassigned to one of the Newfoundland routes during summer '71. To allay the fears of Prince Edward Island's Premier Alex Campbell,CN has promised that JOHN HAMILTON will be re-assigned to Island service "when traffic conditions warrant". Just how this will be accomplished is quite beyond the comprehension of most observers,but likely JOHN HAMILTON will appear for holiday weekend and summer vacation service. Some pretty fancy (computerized ?) scheduling will be necessary if this undertaking is to be accomplished.

CANADIAN NATIONAL HAS ESTABLISHED A CENTRE FOR Transportation Control at Moncton,New Brunswick. The goal of this centre is improved traffic planning,better distribution of empty cars for loading and improved train performance.Subject to control will be as many as 50 main-line trains and 30 branch-line trains daily. Already the new centre has proved its usefulness, as it enabled the Atlantic Region of CN to respond more quickly to severe storm conditions in February and March,1971,by changing freight train marshalling sites from snow-clogged yards to those which were not so badly affected.

EX-CANADIAN PACIFIC "ROYAL HUDSON" no. 2860 IS PRESENTLY THE PROperty of Mr. Joseph Hussey of North Vancouver,B.C. A proposal to operate this locomotive on the Pacific Great Eastern Railway during British Columbia's Centennial Celebrations has been abandoned.

OPERATION OVER 5.4 MILES OF THE UNUSED COWICHAN Subdivision of Canadian National Railways on Vancouver Island,British Columbia,has been approved for Pacific Tours Limited of Vancouver, B.C.,provided that some supplementary conditions can be met bef e the lease is signed. It is likely that the mot e power would be Hillcrest Lumber Company's Climax No. 10,presently the property of Mr. Terrance Fergusson of Vancouver,B.C.

BOB LOAT'S PICTURE OF THE SOUTH OKANAGAN WAYFREIGHT - CP RAIL WORK EXTRA 8609 at Mile 34 of the Osoyoos Subdivision,Osoyoos,B.C. September 5,1966.

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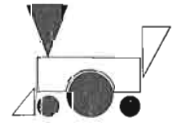
VISIT THE Canadian Railway Museum OPEN MAY SEPT.



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Our 10th. Anniversary . . . . . Notre 10em. Anniversaire.

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