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FRONT COVER: During the waning days of steam on the Dominion Atlantic Railway, an unidentified photographer paused to record this meet of the Halifax-Yarmouth trains at Annapolis Royal, Nova Scotia. Train 95 is hauled by CP Pacific 2617 which was built at CP's Angus Shops in 1912. Train 99 is headed by Pacific 2665, a 1914 "graduate" of Angus. On August 16, 1956, steam made its final run on these trains and was replaced by the economical, but unromantic, Rail Diesel Car. Photo from Canadian Pacific Corporate Archives.

As part of its activities, the CRHA operates the Canadian Railway Museum at Delson / St. Constant, Que. which is about 14 miles (23 Km.) from downtown Montreal. It is open daily from late May to early October. Members, and their immediate families, are admitted free of charge.

Development of the Hudson Class Locomotive 2860 : Royalty on the Howe Sound Route Celebrating a Half Century of Good Living 1940 - 1990

By Howard E. McGarry

June, 1990 marks the fiftieth anniversary of the building of former CPR Royal Hudson 2860, which has become one of the most beloved, and certainly the most photographed, of all Canadian locomotives as it runs on its daily trips between North Vancouver and Squamish, along British Columbia's scenic Howe Sound.

During the late 1920's, North American railroads were faced with increased competition for passenger traffic. The so-called Roaring Twenties was a period when great masses of the urban population were finding a new thrill in greater mobility. Main and branch line traffic was booming as travel by rail was the popular accepted method of land transportation. Railroads provided service to lake and beach resorts, and weekend picnics to popular camping spots made up trains of standard day coaches, even utilizing tourist class to provide the working classes with an outlet for excess energy following long arduous hours of menial labour.

As main line traffic increased between major population centres, and overnight travel became common practice, there was a need to provide sleeping accommodation for passengers. Early makes of sleeping cars were spartan, but as demand increased, better creature comforts were in order, with more comfortable seating, heating and cooling equipment, air conditioners and various designs and improvements in sleeping cars, from upper and lower berths to bedrooms. Dinner in the diner became a truly enjoyable experience, with white linen, sterling silver service, "maitre de" and white-jacketed waiters, able and willing to please the most discriminating traveller. These improvements to car interiors would naturally add weight which required greater carrying capacity, both structurally and in suspensions and running gear. All these changes dictated new designs using steel-reinforced, and later all-steel, construction. Six-wheel trucks, along with anti-sway devices, improved riding qualities, with greater stability on curves. Frame end construction provided greater tonnage-pulling capacity for couplers, along with the near elimination of slack run-in, with spring loaded coupler mounts.

Prior to 1920, the Canadian Pacific Railway had less than 100 steel passenger cars, while by 1930 it had over 700 with more being

built. Over a twelve year period passenger train tonnages increased from 375 tons to more than 500. During the 1920's, the company built or improved station buildings, built new improved hotels, leased and operated the Kettle Valley Railway through the southern interior of British Columbia, and continued a process of gradually improving the comforts, in some cases to a luxurious level, of the travelling public.

In the years from 1902 to 1915 head-end power relied on the ubiquitous "D" class locomotive with 4-6-0 wheel arrangement, and during that period this type was the backbone of CPR motive power, with over 500 units of the D-10 type being acquired by the company. These work horses served for a wide variety of duties, passenger, freight and way freight, yard switcher and work trains across the system; this continued well into the 1950's. There were also some light Pacifics, 4-6-2's in the G-1 and G-2 class, with driver sizes ranging from 69" to 75" with tractive effort at 30 to 33,000 lbs. The CPR Vaughn class D-10 was the first large scale production of motive power to use the Walschaerts valve gear, the highly efficient design of linkage providing long life, greater accessibility and lower maintenance compared to older style inside valve or slide valve motion. Operating at 200 lbs. boiler pressure, with superheaters giving a total heating surface of 2800 to 2900 square feet, they carried 156,000 lbs. driver weight on 63-inch wheels.

This was adequate power for trains of older wooden coaches, but heavier power was needed as tonnage increased. In the U.S. northeast, the Pennsylvania's K-4 Pacifics, and similar power on the Baltimore & Ohio and the Reading, were equipped with 80-inch drivers, operated at 205 lbs. pressure and were designed for high stepping intercity and commuter traffic. The K-4 was, for a time, superseded by the Duplex drive 4-4-4-4 in 1942 to 1946, but these eventually were retired because of high maintenance costs. A superior effort was necessary to find a machine capable of competing for traffic through states having great concentrations of industry and commerce with related services staffed by personnel living near the work place.



*The builder's plate of Royal Hudson 2860.
Photo by H.E. McGarry.*

By comparison, in Canada, population density was not as high. Industry was developing in a narrow band along the shoreline of Lake Ontario between Hamilton and Montreal, but across the Dominion there were vast expanses with little or no settlement. Particularly during the early 1930's, the CPR had to economize at every level to turn a small margin, satisfy the shareholders (between 1932 and 1943 the company paid no dividend on the common stock) and plow money back into capital equipment.

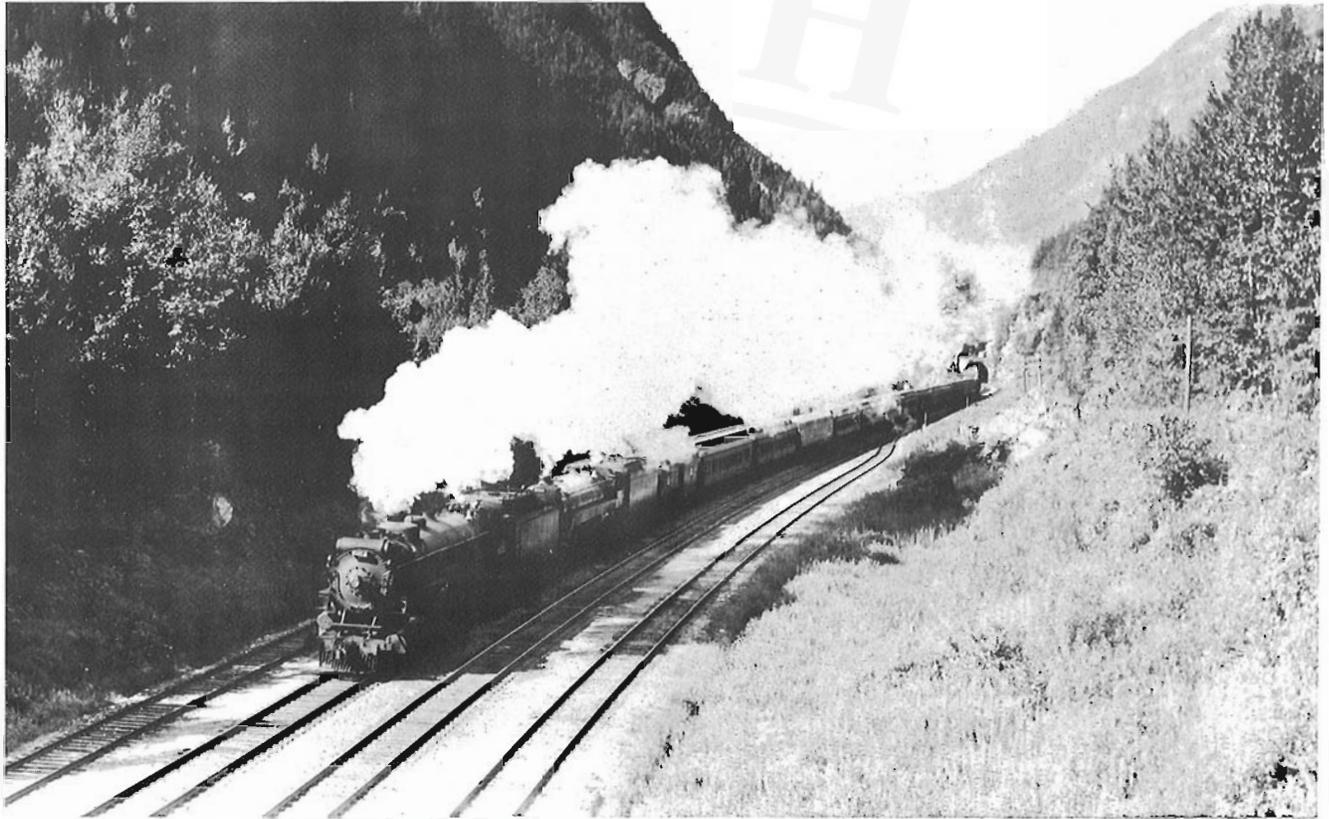
Beginning in 1919, the mechanical department began the design for G-3 class 4-6-2 Heavy Pacifics, increasing boiler pressure to 275 lbs. from the earlier models having 200 lbs. Tractive effort went up to 45,000 lbs. from the earlier 33,000 lbs. and total weight on the 75-inch drivers was 199,000 lbs. These engines were intended for main line intercity and transcontinental service. Many design improvements had been made through various sub-classes, such as the first North American built locomotives to use nickel steel in the construction of boilers. Other features included feedwater heaters and automatic stokers. These engines had good rail adhesion, and under most operating conditions could handle trains of moderate tonnage on passenger schedules from the end of World War I to the end of the steam era. However, under adverse conditions, although performing well within their design qualifications, they could not produce an adequate supply of steam for long periods at sustained high speed. Clearly there was need for yet heavier power to handle increased demand, and the purpose here is to detail how the changes brought about by the introduction of the 4-6-4 wheel arrangement produced a locomotive dramatically capable of fulfilling that need. The addition of the second trailing axle (4-wheel trailing truck) made provision for the additional weight to be accommodated when tube and firebox capacity was increased.

Boiler pressure, cylinder size, wheel diameter and tractive effort remained the same as in one series of G-3, but the steam generating capacity of the 4-6-4 was greatly enhanced by the

increase in heating surface. Tractive effort, essential when starting a heavy train or pulling at lower speeds on moderate grades, jumped to 57,000 lbs. by using the trailing truck booster output of 12,000 lbs. Boosters had first been applied to CP's only two Northern's, built at Angus Shops in 1928. These were 3100 and 3101 (preserved in museums) and, although there were other design problems with these two, the use of trailing truck boosters proved a useful appliance for starting heavy loads.

Economics during the depression years from 1929 onward had dictated a policy of taking delivery of new units with provision for later installation of appliances, e.g. boosters. When orders were placed for class H-1-a (2800 - 2809), they came with Commonwealth trucks ready for boosters, and in the mid 1930's boosters were installed at Angus Shops on H-1-b 2811 and 2813. These two filled in as stand-by power for the two Northern's on the fast overnight schedule between Toronto and Montreal as well as the Montreal to Quebec City service. When delivered from the production line of the Montreal Locomotive Works, H-1-c 2838 through 2842 and H-1-d 2850 through 2854 had boosters.

In North American railroading, the two most popular passenger steam locomotive classes of later years undoubtedly were the Hudsons and the Northern's. As most readers well know, the 4-6-4 wheel arrangement was initiated by the New York Central on the high density water level route in the valley of the Hudson River, the race track for trains running between New York and Chicago. The 4-8-4 Northern classification began with the Northern Pacific with their first Baldwin-built A-2, and this type of locomotive was used by many railroads with various drive wheel diameters as a dual service machine, a reliable powerhouse in medium and heavy weight, in use well after the introduction of the diesel-electric locomotive. When the Canadian National Railways was formed between 1918 and 1923, it consisted of several financially-troubled smaller rail lines that were taken over by the Government of Canada and amalgamated into one huge transcontinental system. Because these lines were made up of varying sizes of rail, CN found it necessary to impose weight restrictions and consider light axle loadings when placing orders for a standard all-purpose locomotive. CN acquired approximately 200 4-8-4's (CN and GTW combined) designated U-2-a with 237,300 lbs on drivers (59,325 per drive axle) while the CPR H-1-e (e.g. 2860) had weight on drivers of 194,000 lbs or about 64,670 per drive axle. Canadian Pacific had built most of its own right-of-way with adequate sized rail for that era, and axle loadings could be heavier. On some sections of the lakeshore route between Toronto and Montreal, CN and CP lines ran parallel and, while a U-2-a with 73-inch drivers could move ahead of a CP H-1 at the start, it was usually the H-1 with 75-inch drivers that pulled away from the competition, engineers often giving a derisive two shorts on the whistle as they coaxed their machine into performing as designed; highballing at 90 MPH plus.



*Canadian Pacific T-1-a 5914 and H-1-e 2864 eastbound at Clanwilliam B.C. in the early 1950's.
Photo from Paull / Bordertown collection. Courtesy British Columbia Archives HP-99491.*

One less drive axle and, its corresponding counterbalancing, meant less dynamic augment (drivers pounding rail head) and overall maintenance reduction. The NYC Hudsons on 79-inch drivers were designed for use on relatively flat terrain in comparison with CPR across its whole system. The north shore of Lake Superior and mountain divisions in British Columbia had miles of curved and reverse curvature which was instrumental in the CPR decision to accumulate a total of 65 Hudsons. The last five of the H-1-e's, produced in 1940, were equipped specially for service between Revelstoke and Vancouver on the "Dominion", at that time the company's premier cross-country passenger train. They were built as oil burners (bunker C fuel), had trailing truck boosters installed at the factory on Commonwealth trucks, and had tenders riding on six-wheel Buckeye trucks which had extreme flexibility and excellent roadability on miles of curved roadbed. All sixty-five H-1's gave excellent reliable service, engine crews found them good riding and easy steaming, and the maintenance department, dispatchers and operators alike spoke highly of their good handling qualities and dependability.

In 1930, number 2808 became the first Hudson to head the "Dominion" without engine change from the Lakehead at Fort William (now Thunder Bay) to Calgary, a distance of approximately

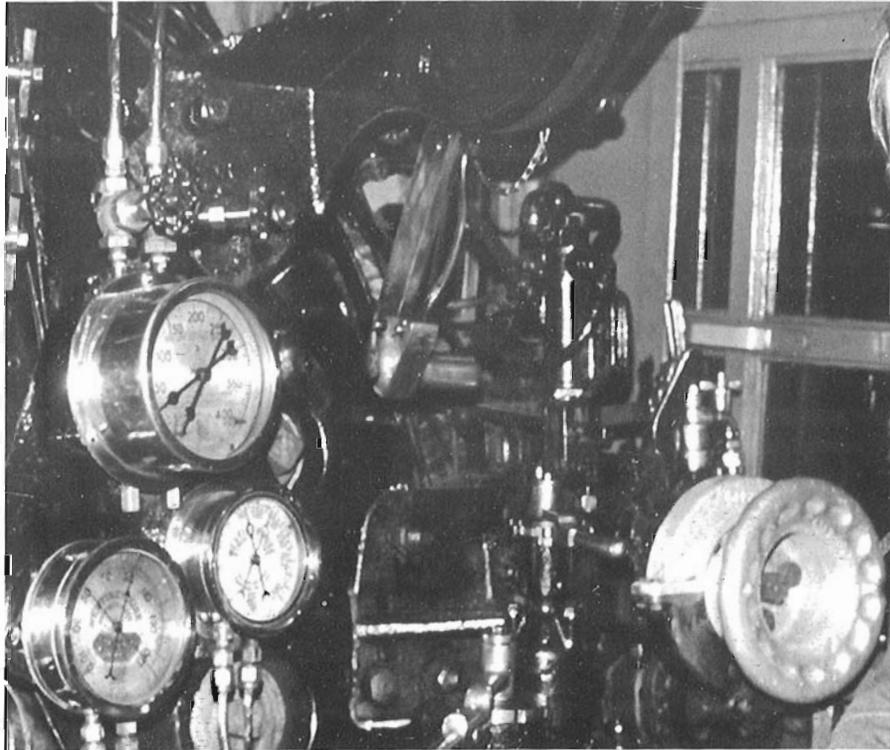
1250 miles. This strategy developed into a practice of making less engine changes on through trains, with quick service checks, replenishing water and fuel at division points, a crew change and then highballing out of town, helping to shorten schedule times between major centres. In summary then, the 4-6-0 was replaced by the 4-6-2, and ultimately by this superior breed of 4-6-4 designed by the CPR mechanical department, under command of Henry B. Bowen, in October 1928.

Because of several design improvements, use was made of metal alloys in vital components. Where previously main frames had been fabricated of steel plate sections with cross-member bracing and gussets, a one-piece Commonwealth casting, with main cylinders, brake cylinders and air reservoirs integral, allowed the finished product to continue performing throughout their period of service over a wider variety of roadbed conditions on a water level route in relatively moderate terrain. Boiler and firebox assembly utilized nickel steel alloys for considerable weight reduction and added strength. Type "E" superheaters gave an excellent high output of superheated steam by adding approximately 1325 square feet to that of the type "A" used in the 4-6-2. As shown in the photos, a multiple throttle unit was mounted directly over the superheater header, all in close proximity to where the steam is

needed, in the valve chambers and main cylinders. Where the G-3 Pacific had approximately 3460 square feet total of heating surface (tubes, flues, firebox), the H-1 had 3790 square feet. Between the rear tube sheet and the front of the brick arch a depression in the boiler shell provided a longer area for combustion of unburned coal being lifted off the fire by the draft. This had an added advantage in allowing particles of ash and cinder to accumulate there instead of in the flues, easily removed when

renewing the brick arch. Improved draft was the result of baffles placed between the grates and ashpan. The positions of the arch tubes and brick arch were designed to keep the heat concentrated in the centre of the firebox, thereby giving less temperature variation at the sides. Thus there was less distortion that would otherwise cause staybolt leakage and related performance and maintenance problems.

H-1-b class 2810 through 2819 were delivered with roller bearings on axles of the leading trucks and Commonwealth 6-wheel tender trucks. Beginning with H-1-c 2820, outer steel sheathing of the boiler was modified in combination with a semi-streamlined front end stack housing to match. A profile view along the top of the boiler casing revealed the absence of the conventional steam dome, replaced by a dry pipe inside, so reducing the moisture content of steam entering the superheater and improving the efficiency of superheated steam production to the multiple throttle housing. Reverse gear was now actuated by an air powered assist, operated by the engineer by moving a short-stroke lever forward or backward as desired for full or partial settings of the valve gear. BK or HT automatic stokers brought coal to the firebox door on H-1 2800 through 2859.



In 1975, during the American Freedom Train tour, Royal Hudson 2860 travelled to Seattle with a full train of 800 fans for a ceremonial meet with SP 4449 at the King Street station. After 2860 had been turned on the Wye for the return trip, Doyle McCormack paid a visit to the cab to see what the competition had to offer.

Photo by H.E. McGarry.

When King George VI and Queen Elizabeth visited Canada in 1939, considerable time, effort and expense was expended in providing transportation, in conjunction with the CNR. H-1-d 2850 was dressed in a stainless-steel jacket, royal blue and silver paint and a royal crown emblem was attached on each side near the front of the running boards. The Royal couple commented favourably on the beauty and performance of the engine, and subsequently Royal assent was given to H.B. Bowen's idea to designate the semi-streamlined Hudsons,

2820 through 2864, as ROYAL HUDSONS by attaching Royal crown emblems similar to those used on 2850. This title remained to the end of the steam era.

These engines proved time and again their worthiness, and the company policy of maintaining the fleet in excellent mechanical condition kept them in number one position until replaced by the diesel-electric. When the time came for them to be struck off the roster, as everyone knows, only a scant few steam locomotives escaped the torch. Forty-one of the streamlined Hudsons (2820 to 2864) were scrapped, but four were preserved. The original Royal Hudson, 2850, is preserved at the Canadian Railway Museum at Delson, Quebec, 2839 is currently in Florida, while 2858 resides at the National Museum of Science and Technology in Ottawa. What follows is the story of the rescue of 2860 from the scrap line where it lay rusting in Winnipeg, Manitoba.

About 1967 the former Vancouver Railway Museum prodded the then mayor of Vancouver, Bill Rathie, into negotiating with CP Rail to purchase 2860 for exhibit or possible excursion service. Canadian Pacific refurbished the rusting hulk and brought it to Vancouver. Purchase price, while not revealed, was set at scrap value; however problems arose from dissension and inability to

raise funds. Ownership reverted to CP because it had not received payment. As a result, the engine sat in the Drake Street yards in the Vancouver rain for 6 years while Joe Hussey, businessman and salvage dealer, seriously considered bidding on the engine with hopes of restoring it to running condition. Eventually Joe acquired ownership for somewhere between \$7,500 and \$10,000 and, in 1973, the British Columbia government purchased the engine for \$25,000. In June 1974, the Royal Hudson Steam Train, consisting of refurbished CPR coaches, began the very successful summer excursion service on the British Columbia Railway along the Howe Sound scenic route between North Vancouver and Squamish.

2860 has ventured more than once during recent years on to mainline rails. It visited Seattle's King Street station, over Burlington Northern trackage, to meet Doyle McCormack's 4449 with the American Freedom Train in 1976. In 1978 it crossed Canada as far as Quebec City, returning by way of Windsor, Detroit, Chicago, North Dakota, Winnipeg and the CP main line to Vancouver. In March 1977 the special train travelled to Los Angeles on a promotional tour to advertise B.C. tourism, and in 1979 it made a circular tour through the British Columbia interior, going as far south as Spokane Washington and Sandpoint Idaho before returning to home base.

Many years of similar service can still be obtained as T.L.C. (Tender Loving Care) continues on both 2860 and 3716. For several years, Robert E. Swanson's Railway Appliance Research Ltd. had contracted repair and maintenance, using the antiquated shop facilities still remaining at CP Rail's Drake Street Yard. However EXPO 86 brought a complete facelifting to the False Creek area which included the roundhouse. The rail connection to the main line through the Dunsmuir tunnel under downtown Vancouver has been severed. The tunnel bore was heightened to allow an upper and lower track for B.C. Transit's Skytrain to gain access to the waterfront, the original purpose as used by the CPR. This necessitated the building of new shop facilities adjacent to the BC Rail passenger station in North Vancouver, and it is this property that 2860 and 3716 now call home for their summer operation. Maintenance and repair of both engines is now done under the supervision of the highly capable Al Broadfoot, and his well qualified staff do all major overhaul and assembly, except for lathe and machine shop work, which is contracted out to Burrard



Al Broadfoot, highly capable Chief Mechanical Officer at B.C. Rail's steam maintenance facility in North Vancouver, with over 20 years of super dedication to keeping 2860 and 3716 running, is called upon frequently to advise or supervise repair and overhaul of various steam locomotives, such as CN 6060 and White Pass & Yukon 73. Photo by H.E. McGarry.

Shipyards nearby. Ownership of the engines is now in the hands of BC Rail, and the passenger department advertises package tours by boat one way in conjunction with daily trips on the Howe Sound route. As outlined previously, the Hudsons would run on track other than high speed tangent track, however it most certainly would cause H.B. Bowen to mutter and turn over in his grave if he could see his pride and joy negotiating the miles of reverse curves on the Howe Sound route. However, the engine has been coping with it for years now in an admirable performance each day, and in the process attracts steam enthusiasts, young and not so young, from far and wide. They stand with a misty stare and reminisce of years gone by when the distant whistle, mournful or beautiful, could be heard as the night train hurried on its way to distant points. The engine has probably made Kodak and Fuji brass very happy, as camera fiends have taken photographs from every conceivable angle, in a myriad of weather and light conditions, using still, movie, 35 mm. and video to preserve the memory of one of steam's very best; sadly made obsolete in the march of progress and replaced by the more efficient type of motive power, the diesel electric.

Labour intensive, requiring constant attention to replenish coal or fuel oil supply as well as water, and highly skilled mechanical knowledge to keep it running at peak performance, the steam locomotive was doomed as labour costs began to rise after World War II. Economies started on a recovery process that improved the standard of living for working class people throughout the world,



*Canadian Pacific R-3-d 5786 and H-1-e 2860 westbound, leaving Revelstoke B.C. in the early 1950's.
Photo from Paull/Bordertown collection. Courtesy of British Columbia Archives HP-99490.*

and costs for men and materials rose dramatically. Today the price of most road diesel units is easily four or five times what was paid for a large modern steam locomotive fifty years ago. In the steam era if double or triple heading were required to move heavy trains, each engine had to have a crew on board. This was not really a problem from a cost standpoint when labour rates were at rock bottom, but it rose to be a serious consideration when those rates started to climb. In many cases, outdated freight rates put the railroads in a price squeeze and the diesel electric saved the day with the ability to M.U. several power units staffed by only one engine crew. Today's labour costs would not have allowed the continuation of this enormous labour force. Now a 12,000 to 13,000 ton unit train can march up a 2.2% grade with ten or eleven power units producing 30,000 to 33,000 horsepower. Meanwhile the engine crew sits relaxed while the on-board computer does the worrying, matching power to the grade, and wheel slip control does the rest.

A great majority of today's production diesel locomotives run on 40-inch and 42-inch wheels and are, of course, designed to pull freight while factory-installed gear ratios take the place of yesterday's wide variety of driving wheel diameters, almost all of them custom ordered to the whims of mechanical department chiefs of each railroad. Freight and unit trains now interchange between railroads with power sharing and equipment pools. In many cases there is similarity between the different railroads' motive power, so train watching now is often a matter of viewing a different coloured paint job, some rather drab, and some showing exceptional talent in choosing a really good paint job to enhance each unit. This is very different from the days of steam.

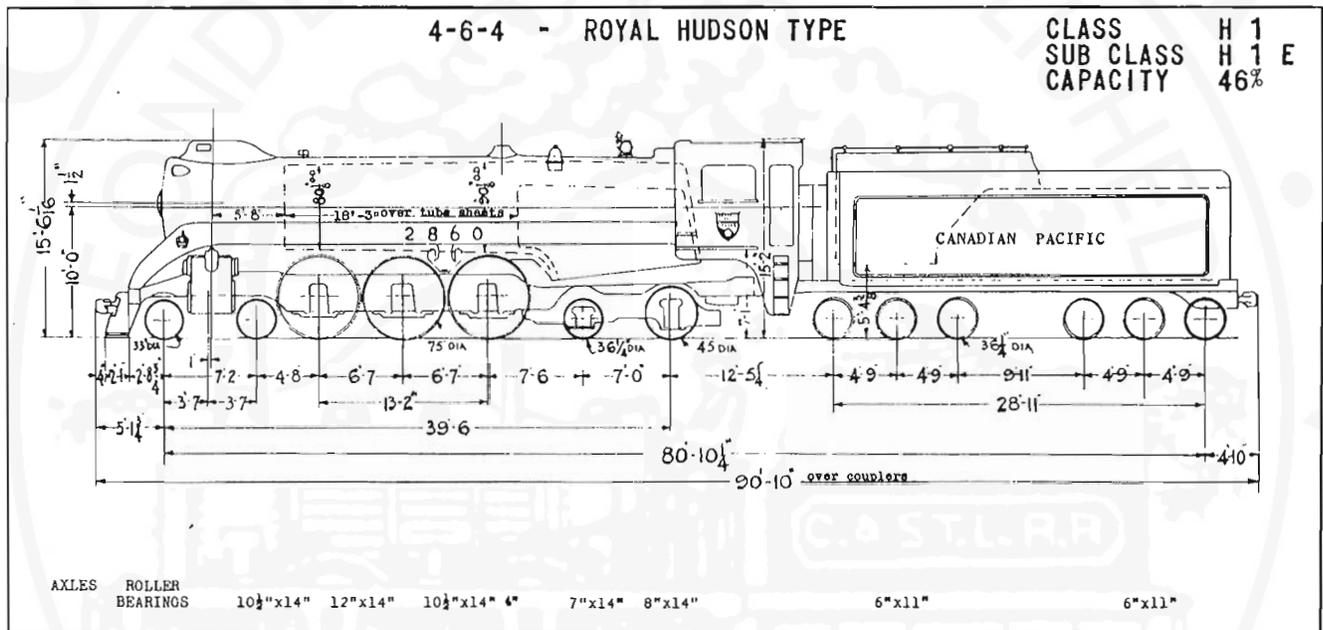
Today, after fifty years, Royal Hudson 2860 is still in active service, and we hope it will remain so for many years to come. It is an interesting question to wonder what changes in motive power will take place in the next half century and we sincerely wish that 2860 will still be around to see them.

Inside 2860 The mechanical features that make a steam locomotive work

During the "glory years" of steam railroading, a roundhouse with back shop, a fully equipped machine shop, maintained a stock of replacement parts. That, together with low labour costs, made it relatively inexpensive to keep a main line steam locomotive in top running condition. With today's higher labour costs, capital cost of buildings and associated facilities and, in many cases, custom machining of replacement parts, the annual expense can be astronomical, amounting to several hundred thousand dollars.

A steam locomotive dismantled for major repairs gives an opportunity to record, with photos, some of the vital elements that are part of that great mechanical creation. This machine, preserved and maintained as in its hey-day, helps bring back fond memories of a stack barking at the sky overhead, as well as a well tuned chime whistle screaming at road crossings.

Herewith, are presented a few of the vital components, partially dismantled, exposing inner detail not normally seen by the average steam enthusiast.



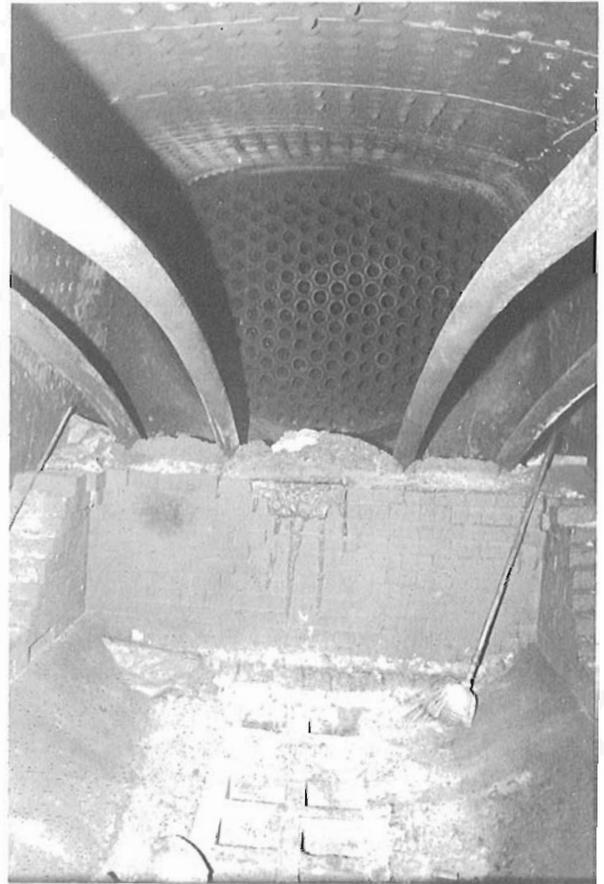
DATE Jan. 9, 1945 REVISED

		H 1 CLASS					
		WITHOUT BOOSTER			WITH BOOSTER		
		H1a	H1b	H1c	H1b	H1c	H1e
SUB CLASS							
BOILER PRESSURE	LEBS./SQ. IN.	275	275	275	275	275	275
CYLINDERS		22" x 30"	22" x 30"	22" x 30"	22" x 30"	22" x 30"	22" x 30"
DRIVING WHEELS		75"	75"	75"	75"	75"	75"
TRACTIVE EFFORT	LEBS.	45300	45300	45300	45300	45300	45300
TRACTIVE EFFORT OF BOOSTER	LEBS.				12000	12000	12000
FIREBOX WIDTH, INSIDE		88-7/8"	88-7/8"	88-7/8"	88-7/8"	88-7/8"	88-7/8"
FIREBOX LENGTH, INSIDE		131-1/16"	131-1/16"	131-1/16"	131-1/16"	131-1/16"	131-1/16"
GRATE AREA	SQ. FT.	80,8	80,8	80,8	80,8	80,8	80,8
NUMBER AND OUTSIDE DIAMETER OF ARCH TUBES		4 3-1/2"	4 3-1/2"	4 3-1/2"	4 3-1/2"	4 3-1/2"	4 3-1/2"
NUMBER AND OUTSIDE DIAMETER OF TUBES		62 2-1/4"	62 2-1/4"	58 2-1/4"	62 2-1/4"	58 2-1/4"	62 2-1/4"
NUMBER AND OUTSIDE DIAMETER OF FLOES		171 3-1/2"	171 3-1/2"	171 3-1/2"	171 3-1/2"	171 3-1/2"	171 3-1/2"
DISTANCE BETWEEN TUBE SHEETS		18' 1-7/8"	18' 1-7/8"	18' 1-7/8"	18' 1-7/8"	18' 1-7/8"	18' 1-7/8"
TUBE AND FLUE HEATING SURFACE	SQ. FT.	3509	3509	3465	3509	3465	3465
FIREBOX HEATING SURFACE	SQ. FT.	288	288	288	288	288	288
ARCH TUBE HEATING SURFACE	SQ. FT.	38	38	38	38	38	38
FIRE HEATING SURFACE	SQ. FT.	3835	3835	3791	3835	3791	3791
SUPERHEATING SURFACE	SQ. FT.	1640	1640	1542	1640	1542	1542
COMBINED HEATING SURFACE	SQ. FT.	5475	5475	5333	5475	5333	5333
WEIGHT ON DRIVERS	LEBS.	194000	194000	194000	189000	194000	194000
LOADED WEIGHT OF ENGINE	LEBS.	360000	360000	355000	369000	366000	366000
LIGHT WEIGHT OF ENGINE	LEBS.	329000	329000	324000	338000	335000	335000
LOADED WEIGHT OF TENDER	LEBS.	292000	298000	293500	298000	293500	283000
LIGHT WEIGHT OF TENDER	LEBS.	132000	138000	133000	138000	133000	123500
FUEL CAPACITY - COAL, IN TONS		21	21	21	21	21	21
FUEL CAPACITY - OIL, IN IMPERIAL GALLONS		4100	4100	4100	4100	4100	4100
WATER CAPACITY- IMPERIAL GALLONS		12000	12000	12000	12000	12000	12000

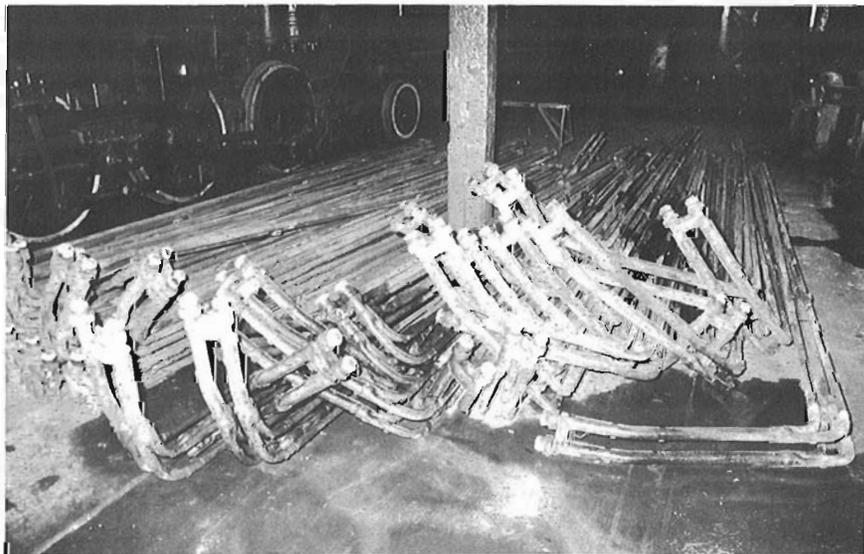
The vital dimensions and specifications of 2860. From a CPR diagram book of 1945.

All photographs in these sections were taken by Howard E. McGarry.

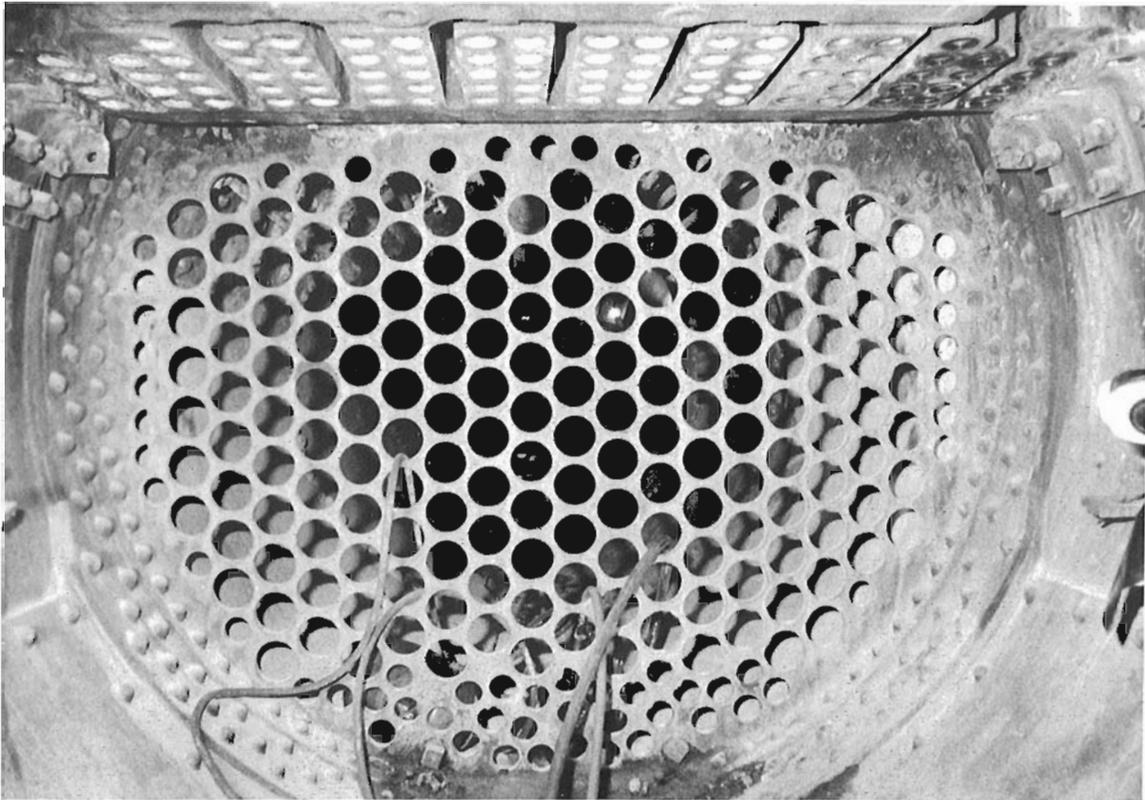
I. Firebox and Boiler



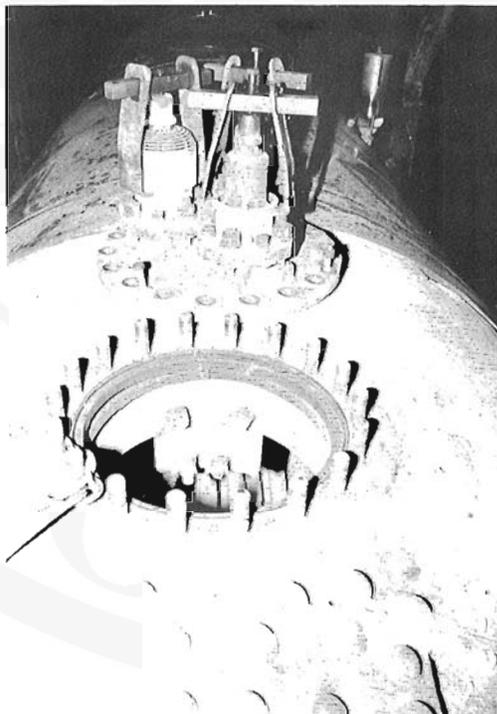
Arch or siphon tubes, and rear tube sheet.



Superheater tubes as seen when removed from boiler.



The front tube sheet clearly shows superheater header above, with flues and tubes removed for de-scaling of boiler shell. Flues are straight, 18 ft. 3 in. by 3 1/2 in. diameter, with ends flared to hold against sheet. The superheater elements, with 90 degree bend at one end, fit vertically into the header.

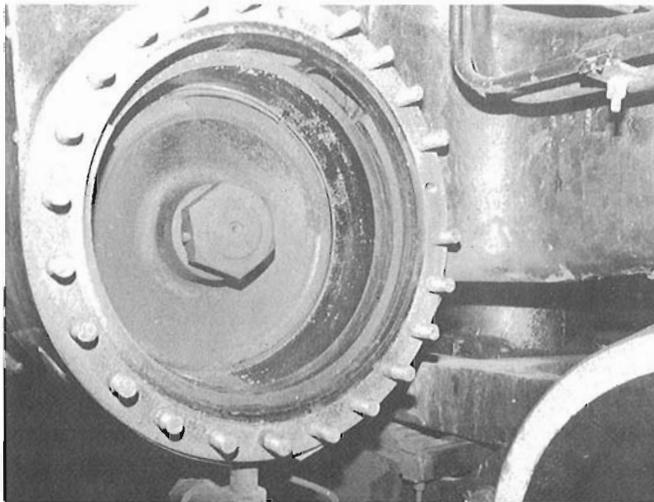


LEFT: The safety valve removed from the top of the boiler, allowing a view through the manhole to the tubes visible below.

II. Mechanical Features



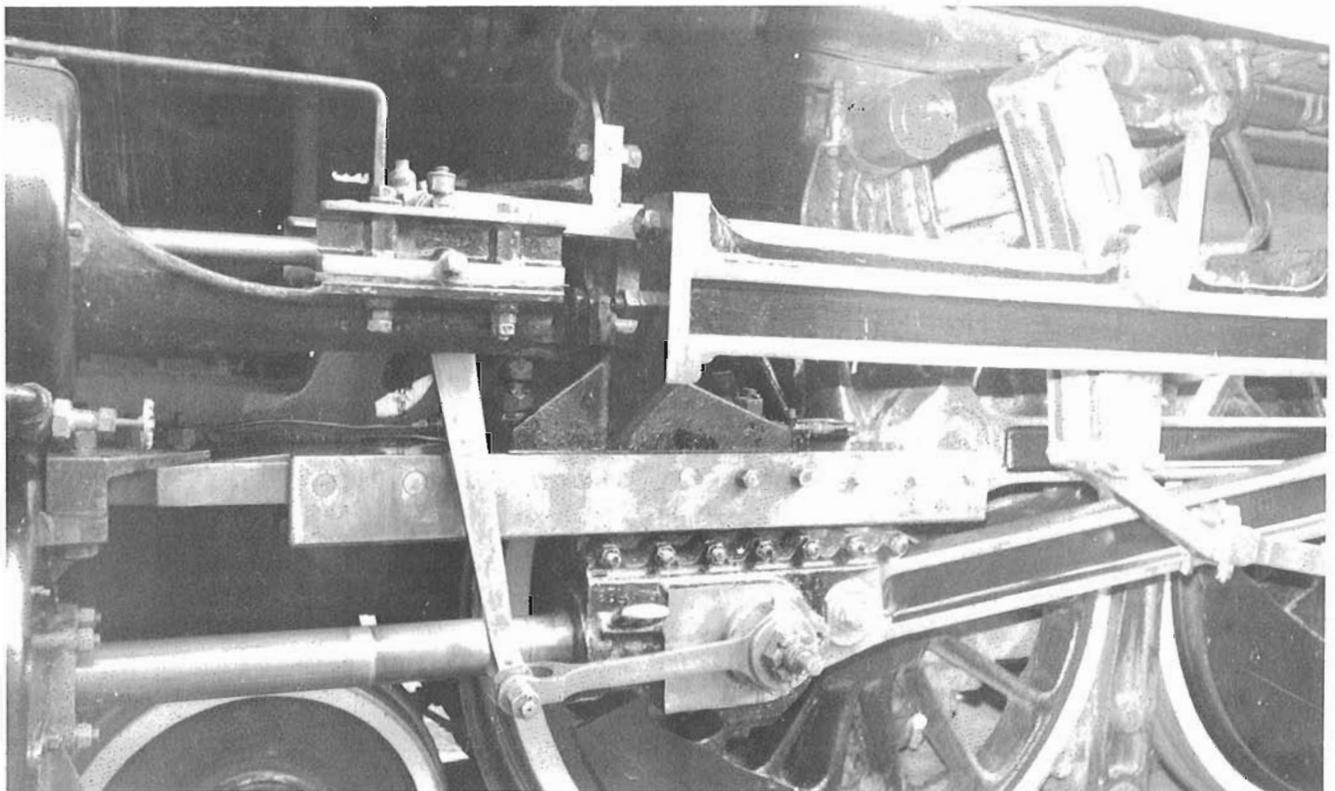
MULTIPLE VALVE THROTTLE. Steam locomotive design engineers had several types of throttle control to choose from, but a very high percentage used the multiple valve throttle with its many superior operating and maintenance advantages. It is contained in the upper manifold section of the superheater header, thus having fewer steam joints, and is accessible by a removable cover on top of the smokebox directly behind the stack. The circular small steel valves within the unit give a close regulation, without warping, to the main cylinders. When the throttle is first opened, a camshaft lobe easily unseats the small pilot valve to admit steam from the top chamber of the header to the bottom chamber, allowing pressure to equalize both above and below the surface of the throttle valves, so permitting easy movement of the throttle lever. Opening the throttle lever further rotates the camshaft, opening the first main valve, allowing a small amount of steam to pass to the centre chamber and on to the main cylinders. Cam lobes are arranged so that further opening of the throttle rotates the cam, opening the second and third valves in sequence until all are open in full throttle position.



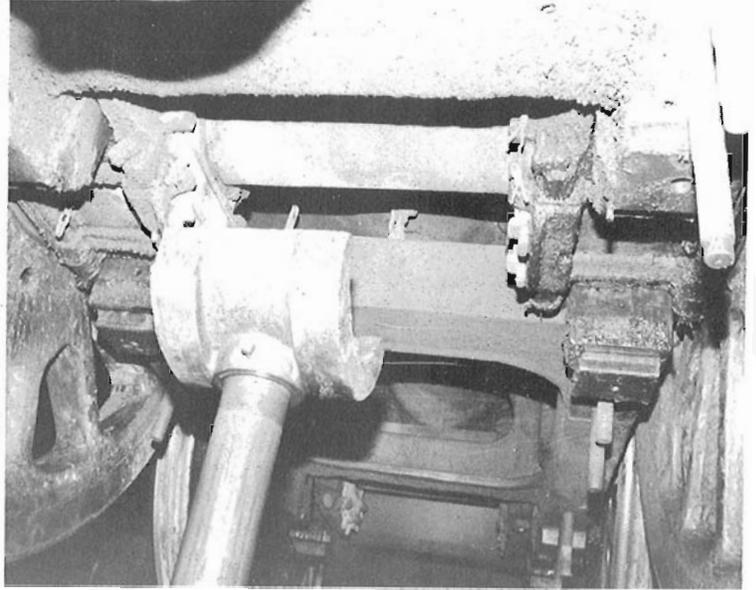
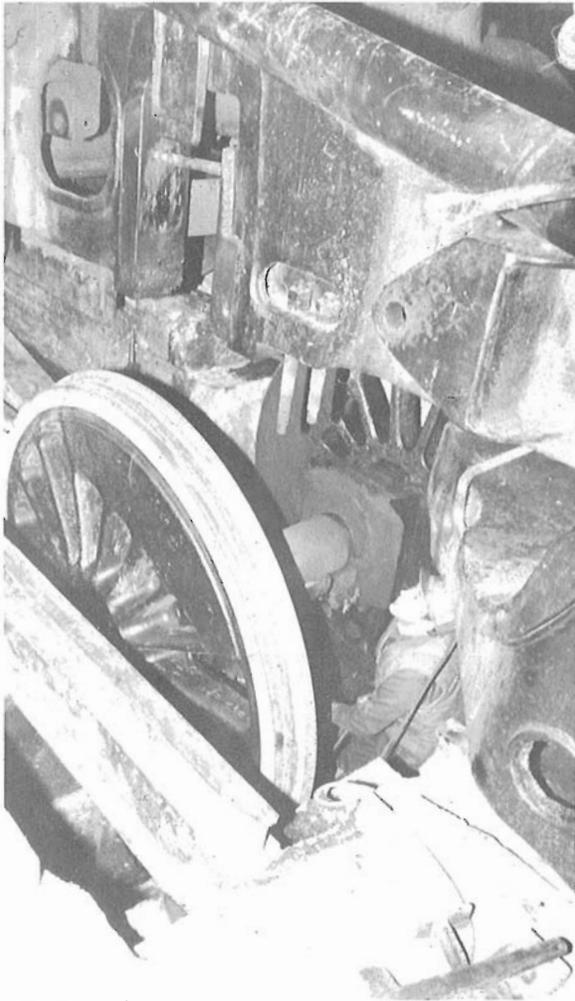
The main cylinder and piston with the cylinder head removed.



The turbo generator, which produces electricity needed for the lights etc. on the locomotive, sits atop the boiler.



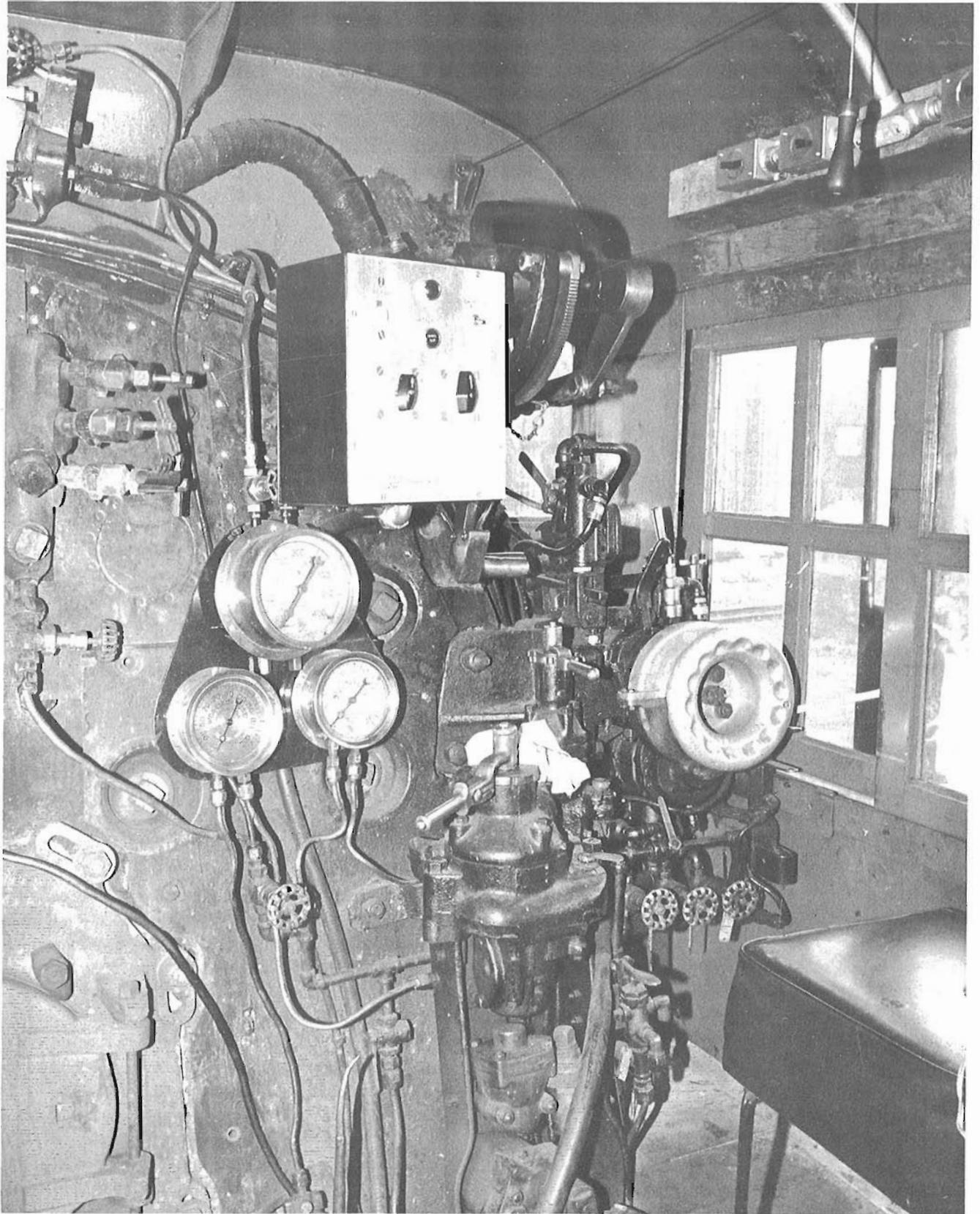
Walschaerts valve gear: Valve gear is vital to control the forward or backward direction of locomotive travel, and also to provide cut-off as track speed increases. The piston valve chamber is the upper portion of the main cylinder assembly. When a locomotive is starting a full train, full forward position of the lever (Johnson bar) on the quadrant in the cab gives the largest volume and late cut-off coming from the dry pipe to the main cylinders. As momentum is gained, the lever is notched back in stages toward center, causing progressively earlier cut-off, by shortening the stroke of the valve piston. Full superheater pressure gets to the main cylinder piston, but in reduced volume, thereby economizing on use of steam and fuel. This results in the most efficient power stroke and smooth operation of the valve gear.



ABOVE AND LEFT: Removing main drivers on steam locomotive. When driving wheels and axles require major repair, each axle assembly is removed from the engine frame by use of a hydraulic dollie which runs on rails in the drop pit at right angles to the track above. Engine weight is supported on the pony and trailing trucks, while each axle is positioned separately over the drop pit, removed one at a time and raised by hoists to the shop floor.



LEFT: Horn jaws with shoe, wedge and binder. The horn jaws for one main driving axle with the shoe temporarily held in place toward front; also the tapered wedge at the rear and locked in by the binder at the base. The crown brass enclosed in the bearing box on the main drive axle is held in position by the above components. The main driving axle, with crown brass enclosed in bearing box, fits into the horn jaws. shoe at front and tapered wedge at rear, and is locked in at the base by the binder.



A fine view in the cab of 2860, showing the engineer's controls.

Seventy five Years Ago

Death of Sir William Van Horne

September 11, 1915

At 2:30 P.M. on Saturday, September 11, 1915 occurred the death of Sir William Van Horne at the age of seventy-two. He had been in excellent health until about two years before his death, but on November 17, 1913 had been taken ill. After being laid up some time, he made a good recovery and made some trips to Cuba, besides spending considerable time at his country estate at St. Andrews New Brunswick. Through the summer of 1915 his condition grew worse, and during the night of August 22 he was taken hurriedly to the Royal Victoria Hospital in Montreal where an emergency operation for an abdominal abscess was performed at 2:30 in the morning of August 23. At first he appeared to be improving, but about two weeks after the operation his condition deteriorated and five days later he passed away. On September 14, his funeral took place at his house on Sherbrooke Street in Montreal. The occasion was a remarkable national tribute as representatives of the Governor-General, the Dominion and Provincial governments and many directors and officers of the Canadian Pacific Railway were present, not to mention numerous representatives of many businesses with which Sir William was connected. His funeral procession went from his house to Windsor station amid throngs of onlookers. The funeral train, drawn by locomotive 2213 suitably draped in crepe, departed at 11:00 A.M. for Joliet Illinois near where Sir William had been born seventy-two years before and where he would be buried. The last car in the train was the official car "Saskatchewan" which had been used by Van Horne since it was built in 1883. The day of the funeral the CPR general offices in Montreal were closed for two hours, and flags flew at half-mast on company buildings over the entire system from London England to Hong Kong. Sir William's last trip ended at Joliet at 10:00 A.M. the next day and the train was met by a delegation of the oldest families of Will County, some of whom had known Van Horne as a boy. He was buried in the family plot beside his father and mother.

Railway enthusiasts in Canada will need no introduction to William Cornelius Van Horne who was without a doubt Canada's greatest railroader. He was born on February 3, 1843 in a little log

house at a small crossroads settlement then called Chelsea in the wooded country between Frankfort and Mokena, in Will County Illinois, the son of Cornelius Covenhoven Van Horne and Mary Miner Richards. When William was very young, the family moved to Joliet, and in 1852 the elder Van Horne became that city's mayor, holding that position until his untimely death from cholera in 1854. Living with his widowed mother, William attended school until 1857 when he entered the service of the Illinois Central Railroad as a cub telegraph operator. He received \$40 per month, a munificent salary for a boy whose training had been bounded by the rail fences of an Illinois farm. Advancement came fast; in 1858 he entered the service of the Michigan Central R.R., and in 1862 he became a ticket agent and telegraph operator on the Chicago and Alton, soon becoming a dispatcher. This was during the height of the American Civil War, and it is at this time that Van Horne acquired the knowledge of military moves that would make him the "Railway General" in the building of the CPR and would also give him the amazing ability to move troops in record time to the North West rebellion of 1885.



SIR WILLIAM VAN HORNE 1843 - 1915

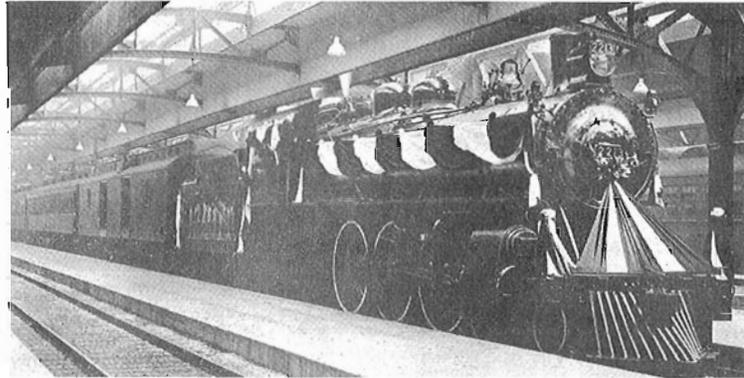
In 1872 he was appointed General Manager of the St. Louis, Kansas City and Northern Railroad, and, in 1874, occupied the same position with the Southern Minnesota Railroad, later becoming President of that line. In 1878 he returned to the Chicago & Alton as General Superintendent while retaining the Presidency of the Southern Minnesota! On January 1, 1880 Van Horne was appointed General Superintendent of the Chicago, Milwaukee & St. Paul Railroad and took up residence in Milwaukee. It was at this time that the project of building the Canadian Pacific Railway began to move forward again after numerous delays, and the CPR Company was incorporated on February 16, 1881. By late 1881 it was realized that work was not proceeding fast enough and, it is said by the suggestion of James J. Hill (one of the original CPR Syndicate and later the "Empire Builder" of the Great Northern), Van Horne was appointed General Manager of Canadian Pacific. On January 1, 1882 he took up his new duties at Winnipeg Manitoba.

The story of the building of the CPR has been told so often that there is no need to tell it again here. Suffice it to say that for more than four years Van Horne "did the most with the very least" and the transcontinental line was completed five years ahead of schedule. When the Last Spike was driven on November 7, 1885 Van Horne, asked to make a speech, said simply fourteen words "All I can say is the work has been well done in every way". On May 14, 1884, while construction was still under way, Van Horne became Vice President of CPR and on August 7, 1888, following

the retirement of George Stephen, he became the company's second President. On May 24, 1894 he became Sir William, being created, by Queen Victoria, a Knight Commander of the Most Distinguished Order of St. Michael and St. George "in recognition of his great services to the Dominion and to the Empire in providing the great all-British highway to the Orient by way of Canada".

On June 12, 1899 Sir William resigned the Presidency of the CPR and was succeeded by Thomas Shaughnessy, formerly of Milwaukee. The latter had known Van Horne since 1880, and had been hired by him, for the CPR, in 1882 soon after Van Horne had come to Canada. Shaughnessy remained President until he retired in 1918. However Van Horne continued as CPR Chairman of the Board until 1910. He retired from the Presidency with the reputation not only of having accomplished the most difficult feat of railway engineering ever recorded, but of being the most successful railwayman the North American continent had produced and the organizer of the greatest transportation company in the world.

Sir William Van Horne was not destined to be in retirement for long. Following the Spanish-American War in 1898, Cuba had been freed from centuries of Spanish rule, and Van Horne realized the great benefit that a new railway would give to the island. In 1900 he organized the Cuba Company and became its first President. During the next few years, despite problems of every kind, both physical and political, the Cuba railway was completed, more than 1000 miles including branches, which was about 45% of all the railway mileage on the island of Cuba at that time. Later, he built a 200-mile railway in the Republic of Guatemala, extending from the capital city to the Port Barrios on the Atlantic coast.



THE LAST JOURNEY. The funeral train of Sir William Van Horne at Montreal's Windsor Station. The train is headed by locomotive 2213, while Van Horne's old official car "Saskatchewan" brings up the rear.

On May 9, 1910 Sir William retired as CPR Chairman on the grounds, as he put it, that the post was "only a nominal one, not at all useful and hardly ornamental". At that time he said "You see, I am getting old, and I do not wish even to keep up the appearance of attending to business. I am getting out of everything that may make the least demand on my time or freedom. I shall of course remain on the Board of the CPR as long as the shareholders see fit to elect me, for naturally the CPR has a large place in my affections. But in such a concern as the CPR there can be but one active head.

Sir Thomas Shaughnessy is that head, and has been for a long time, and I need not tell you what a competent head the company has in him, nor how abundantly he is able to manage its affairs without the aid of anybody. It is my heartfelt wish that he will stick to it for years to come". Sir William lived for only five years after his retirement. His time was divided between his house on Montreal's Sherbrooke Street (unfortunately demolished by developers in 1973) and his estate in New Brunswick. He had amassed one of the greatest collections of art treasures in Canada with a value estimated at \$2,000,000 in 1915. He also had one of the most complete collections of original models of ancient war vessels, not to mention his fossils and other objects. In addition, Sir William was an accomplished artist himself and many of his paintings are to be seen in art galleries today.

By 1915 the world was changing greatly from the days when the CPR was being built. The outbreak of World War I the year before had brought the world suddenly and violently into the twentieth century uncertainty that exists to this day. However the heroic pioneer days were not entirely forgotten then or since, although the people who were there gradually disappeared from the scene. The stories about Van Horne, and of the building of the CPR will be told for as long as railway historians and enthusiasts exist. It was truly the end of an era when Sir William Van Horne died seventy-five years ago.

F.A. September, 1990.

Much of the information in the foregoing was taken from an article which appeared in Canadian Railway and Marine World number 212, October, 1915.

Rail Canada Decisions

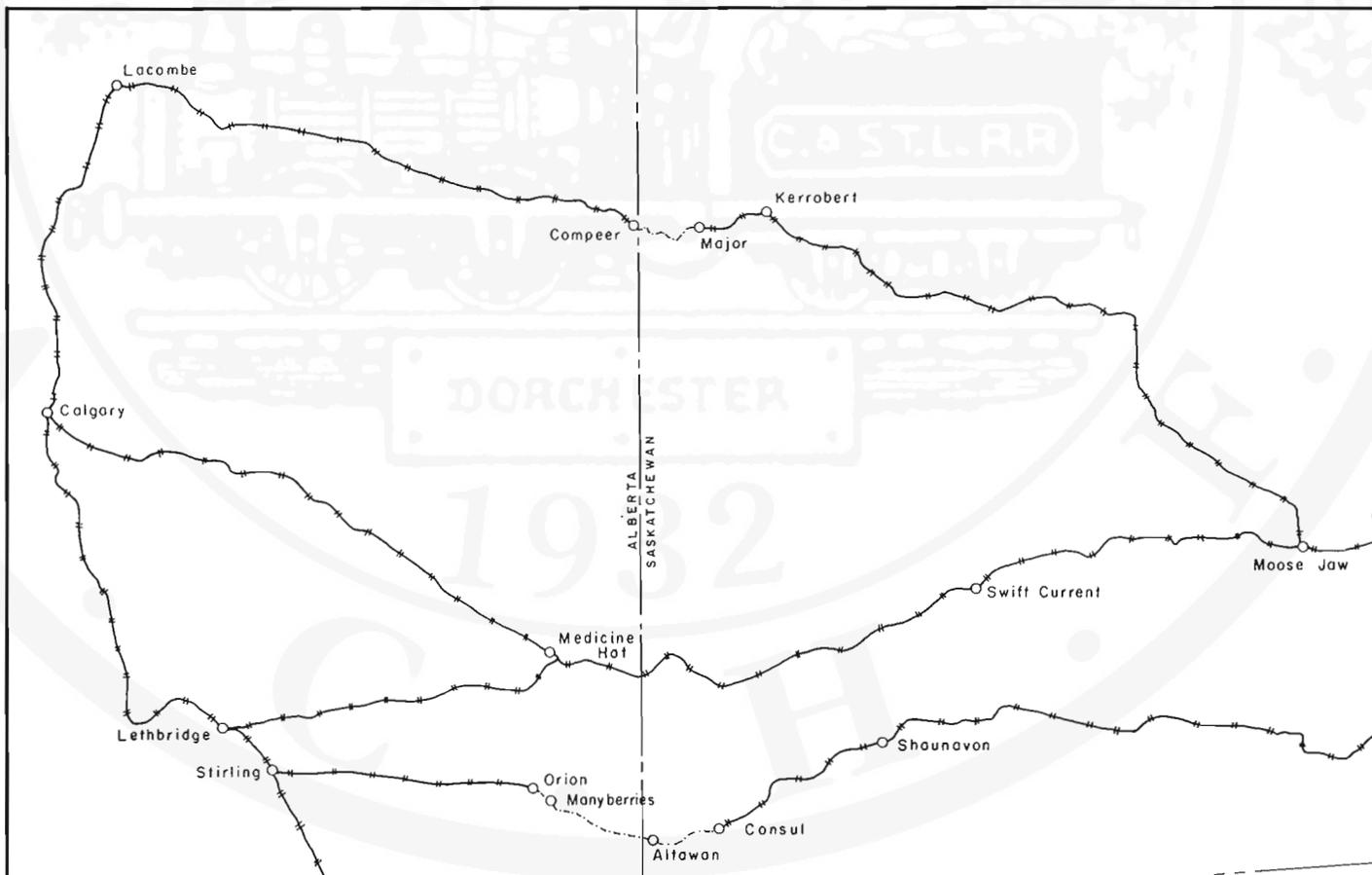
By Douglas N.W. Smith

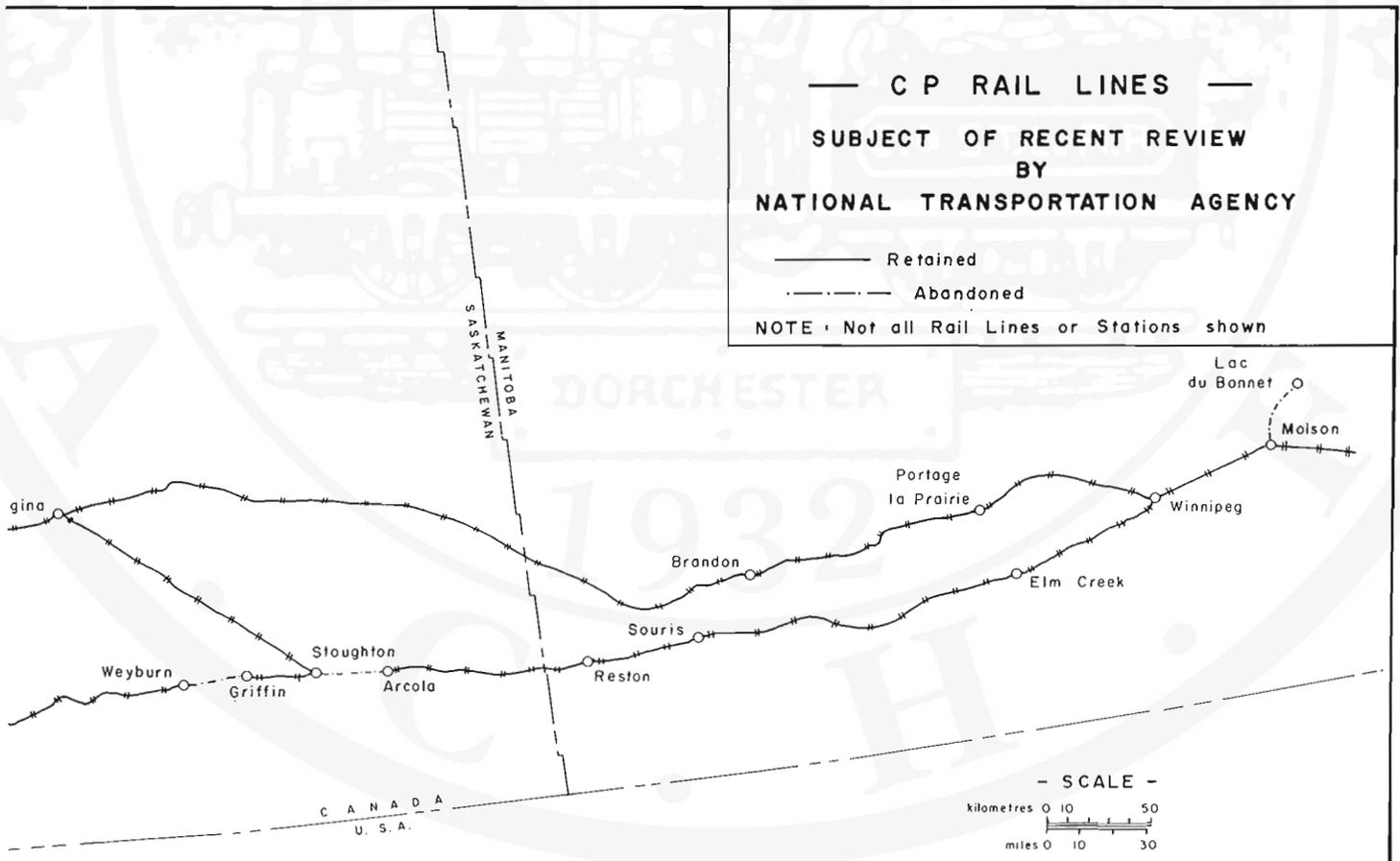
SOUTHERNMOST CROSS-PRAIRIE LINE SEVERED

Recent decisions by the National Transportation Agency (NTA) have severed, in three different places, a CP route which spanned the three prairie provinces. Lying south of the Winnipeg - Calgary transcontinental line, this route passed through Souris Manitoba, Weyburn Saskatchewan and Lethbridge Alberta. Completion of this line took more than 35 years, many more years than were required to build the main line across the prairies.

Construction of the line began from Winnipeg in the 1880's. The line reached Reston, near the Manitoba / Saskatchewan border, in 1892. After a pause of a dozen years, the line was extended from Reston to Regina via Stoughton in 1904. The section from Stoughton to Weyburn opened in 1908 and from Weyburn to Altawan, near the Saskatchewan / Alberta border, in 1914. In order to finish this trans-prairie line, all that was needed was to close the gap between Altawan and Stirling, a community on the CP line from Lethbridge to the U.S. border. In 1915, CP completed the line from Stirling to

RIGHT: Souris served as a hub for CP passenger trains running through southwestern Manitoba. Twice daily, Winnipeg-Stoughton-Regina and Brandon-Melita-Estevan trains exchanged passengers, mail and express at this point. Travellers could seek refreshment at the station restaurant during the thirty minute station stop. In this view, train 55 from Winnipeg and train 137 from Brandon engage in their daily-except-Sunday rituals. The large number of head end cars reflects the important role the railways played in commerce in the days before Purolator and Federal Express. On October 16, 1952, both trains were hauled by 4-6-2's; train 55 by 1286 and train 137 by 2548. The 1286 was one of the last steam locomotives built in Canada, and was only four years old when the photo was taken. After retirement, it was sold to Americans, and is now pulling passenger trains on the Alleghany Central out of Cumberland Maryland. Photo from Patterson-George Collection.







Kenmay, Manitoba is 8.2 miles west of Brandon. At this point is the junction between the Broadview and Estevan Subdivisions. In this undated picture, CP locomotive 2912 is shown heading train 137. Built by the Canadian Locomotive Company in 1937, these 4-4-4 type locomotives were designed for use on branch line and local passenger trains. The wheel arrangement is not one which found favour on many other North American railways. A truly diversified set of head end cars trail the 2912, including a wooden truss-rod equipped baggage car, a steel express box car and two different steel baggage-express cars. Photo: Patterson-George Collection.

Manyberries. The remaining 38-mile gap between Manyberries and Altawan, however, would not be closed for another eight years. Construction was deferred as steel and labour were in short supply during World War I, while the years immediately after the war were spent restoring CP's physical plant.

Built to open the region to agricultural settlement, through service was never a feature of the line. While passenger service was available over the entire line for more than thirty years, any passengers desiring to travel between Winnipeg and Calgary over this line would have had to have been exceptionally determined travellers. The through journey would have required a minimum of four days given the lack of connections and minimal frequency on certain portions of the route. Daily except Sunday passenger trains were provided between Winnipeg and Weyburn (passengers made a connection at Stoughton), between Weyburn and Shaunavon, and between Lethbridge and Calgary. Due to the small population between Shaunavon and Stirling, a twice-weekly mixed train was

operated between Lethbridge and Manyberries, while a tri-weekly mixed ran between Manyberries and Shaunavon.

In two recent decisions, the NTA permitted CP to abandon 103 miles of this route. The sections of the line abandoned are as follows:

November 23, 1989. Altawan Subdivision. 56.4 miles. From a point 3 miles west of Consul, Saskatchewan to Manyberries, Alberta.

November 23, 1989. Kisbey Subdivision. 17.3 miles. From Griffin to Weyburn, Saskatchewan.

April 10, 1990. Stirling Subdivision. 6.0 miles. From Manyberries to Orion, Alberta.

April 10, 1990. Kisbey Subdivision. 22.8 miles. From Stoughton to Arcola, Saskatchewan.

All the trackage was to be abandoned 30 days from the date of the NTA decision.

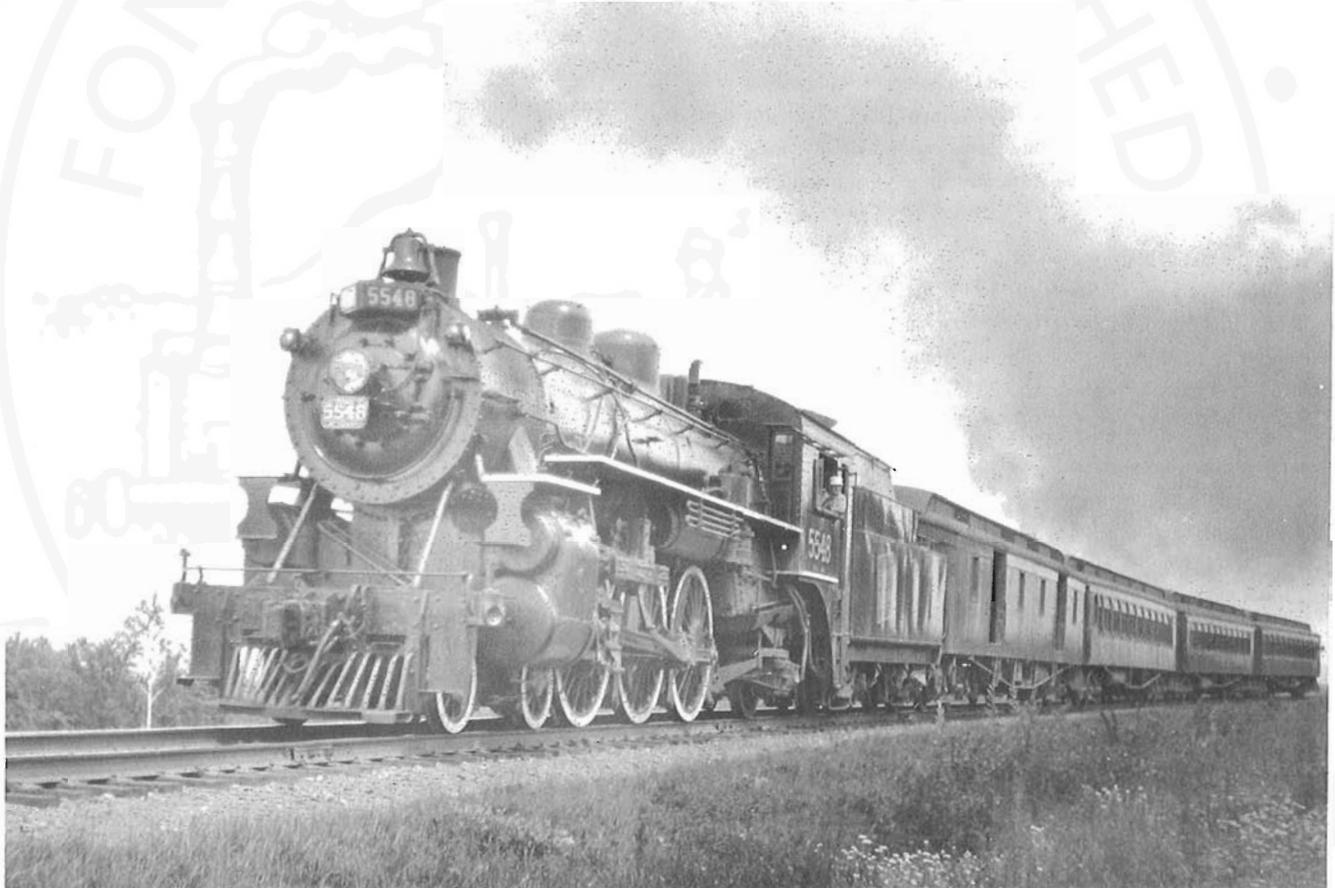
QUEBEC & RICHMOND RAILWAY FAREWELL

The first of the four railway lines which were eventually built between the two major cities of Quebec was the Quebec & Richmond Railroad (Q&R). Chartered in 1850, the Q&R was projected to be built from Hadlow, a point on the south shore of the St. Lawrence river opposite Quebec City, to Richmond where a connection would be made with the St. Lawrence & Atlantic Railroad. The St. Lawrence & Atlantic was the Canadian portion of a rail line destined to link Longueuil, opposite Montreal, with Portland, Maine.

Efforts to raise funds in Britain to build the Q&R were fruitless until the firm of Jackson, Peto, Brassey and Betts (JPB&B) made

an offer to build the line. This firm was one of the largest financial and railway constructing firms in the world. It would later secure the contracts to build the Montreal-Toronto line of the Grand Trunk.

Before entering into a contract with the Q&R promoters, JPB&B required them to secure financial guarantees from the government of the Province of Canada. The legislature acceded to a Q&R petition to have it declared to be a portion of the Main Trunk Line. As originally conceived, the Main Trunk Line consisted of the line extending from the American border, through Montreal and Toronto, to Sarnia. For rail lines of more than 75 miles in length, the province guaranteed to pay the interest charges on up to one-half of the cost of the railway.



Peace had returned to Europe when this view of train 683 was taken on August 7, 1945. Having departed Quebec City at 12:00 noon, train 683 was photographed approaching Bridge station which was located near the site of the current St. Foy station. Few speed records were set on the Danville Subdivision, as train 683 was not scheduled to arrive at Richmond until 1555. The engineer should have no trouble keeping his light weight train of four wooden cars on time. At Richmond, passengers desiring to travel to points west would transfer to train 17 en route from Portland to Montreal. Those passengers going to points south would transfer to train 24 en route from Montreal to Sherbrooke. Built by the Montreal Locomotive Works in 1914, engine 5548 began life as Canadian Government Railways 449. Locomotive 5550, a sister to the 5548, is part of the collection of the Canadian Railway Museum at Delson, Quebec. Photo. Patterson-George Collection.

With the financial guarantee in hand, a contract was entered into by the two parties on July 29, 1852. Almost one year later, on July 21, 1853, the Q&R shareholders approved a plan to amalgamate the Q&R with the Grand Trunk Railway (GT). On December 18, 1854 the merger was consummated.

Though the first sod turning ceremonies had occurred in August 1852, it was not until 1853 that major construction activity began. On August 6, 1853 the "Quebec Mercury" reported that the first locomotive for the Q&R had been running since last Thursday and was engaged in moving gravel. This was probably a small contractor's locomotive, as no roster of the Q&R shows any locomotive being acquired by the company prior to 1854.

On August 30, 1853, it was announced that the Q&R line would be extended along the shore line of the St. Lawrence from Hadlow to Pointe Levis due to the extraordinary growth of the place.

On May 20, 1854, the two ferries, built to transport freight and passengers across the St. Lawrence at Quebec, were launched at the Cantin's shipyard in Montreal. By August 1854, work on the extension from Hadlow to Pointe Levis was underway. Progress had been delayed due to the difficulty in acquiring land for the right-of-way.

The contract called for the Q&R to be completed in November 1854. However, on October 24, 1854, the "Quebec Mercury" reported that the Chaudiere bridge was not yet finished, the ballasting of the line was not completed and the station house at Pointe Levis had not yet been roofed in.

The 1,100 foot long tubular bridge across the Chaudiere river near the present-day community of Charny was the most impressive piece of engineering on the Q&R. The iron for the bridge was fabricated in England. The "Quebec Mercury" noted that the contractor had been delayed due to the loss of several vessels which had been carrying bridge iron.

On November 14, 1854, an inspection train ran from Longueuil to Pointe Levis. Four days later, a special trip was run from Point Levis (named Quebec South by the GT in deference to feelings in the provincial capital about not being directly served by rail) to the Chaudiere bridge. The report of the day's activities, and of the facilities existing along the line, is reported in Appendix I.

The line was opened to the public on November 27th. Initially, two passenger trains operated each way, providing day and overnight service. An account of the first trip to operate from South Quebec is reproduced in Appendix II.

While schemes to bridge the St. Lawrence at Quebec were discussed from the time the railway was built, more than six decades would elapse before the awkward and unpredictable crossing was eliminated. On December 23, 1854, the Earl of Elgin, who was serving as the Governor General of the Province of Canada, took the train from South Quebec to Portland. In order to reach the station from the vice-regal residence in Quebec City, he

and his party travelled by canoe. The GT ferry boats were not running as their paddle wheels could possibly be damaged by ice flows in the river. A month later, passengers were crossing the frozen river in horse-drawn carriages. Transfer time for passengers and mail from South Quebec to the capital city was reported to be one hour from the time of the arrival of the train.

The route became the preferred way for immigrants from Europe to reach their final destinations. During the nineteenth century, many ocean-going vessels did not proceed further up the St. Lawrence than Quebec City. The poorly-marked channel and treacherous shoals posed a hazard to ocean-going vessels which, due to their deep draft, lay low in the water. Prior to the opening of the Q&R, most immigrants transferred to paddlewheelers which had a shallow draft in order to complete their journey up the St. Lawrence from Quebec City to Montreal.

The GT rapidly gained a major scheme of this business. By 1857, it was reported to be handling one-third of the immigrants coming to Canada from the United Kingdom. In 1858, the GT expanded the wharf accommodation at South Quebec permitting steamships to land their passengers directly at the railway terminus. Prior to this, all passengers landed at Quebec and had to cross the river on the ferry boats. A newspaper reporter investigated the immigration facilities at South Quebec in 1893. His account of these is reproduced in Appendix III.

In December 1855, the GT opened a line from Charny to St. Thomas (now called Montmagny). Five years later, it was extended to Riviere du Loup. Following the completion of the Intercolonial Railway in 1876, the former Q&R became a key link in the rail network linking the Maritimes to Montreal. However, in 1898, the Dominion government secured the lease of the Drummond County Railway which shortened the rail distance between Quebec and Montreal by 15 miles, and eliminated some heavy grades on the former St. Lawrence & Atlantic west of Richmond. Thereafter the former Q&R was operated as a branch line. The line became part of the Canadian National in 1923.

As of July 1985, freight service between Richmond and Victoriaville operated five days per week while that beyond Victoriaville to Plessisville was provided on an "as required" basis. At this time, freight service between Plessisville and the Chaudiere, the point where the Danville Subdivision joined the Drummondville Subdivision, was discontinued.

The reduced level of service reflected the large reductions in asbestos shipments from the mine at Asbestos, Quebec. CN attributed the decline to the competition from trucks and a shift to intermodal services.

In 1987, total freight volume had declined to 427 carloads, generating an estimated loss of \$841,000. On February 8, 1989, the National Transportation Agency permitted CN to abandon the line six months from the date of the order.



This view shows the terminal complex at South Quebec prior to the 1880's. Tied up at the wharf is an early steamship discharging its cargo of immigrants and tourists. As eighteen passenger cars are visible in this view, it appears that the Grand Trunk expects to move a large number of travellers. To the right of the passenger station are hotels which accommodated travellers transferring between ships and trains. Photo: Quebec National Archives GH 1071-5.

APPENDIX I

GRAND TRUNK RAILROAD [sic]

[Quebec Mercury, Tuesday, November 21, 1854.]

Progress is a law which, since the birth of Time, has been a prime ordinance of Nature. In human affairs its operation has never ceased, and the Civilization of one century has in general indicated an advance beyond its predecessor. Taking a glance at history, this progress does not perhaps invariably manifest itself, and retrogression may even at times appear, - such darkening shadows have however been caused merely by clouds which, when once passed away, have been succeeded by brightness more brilliant than before. As civilization then is the manifestation of Progress, so Commerce is observed to be the great worker of civilization, any means therefore that tend to create the former must also collaterally promote the latter.

Now within the last quarter of a century, commerce has found no so certain a regenerator as the Rail Road, this mode of transport having given to trade in general the greatest impetus that it ever received. The "Iron Horse" works wonders - it revolutionizes as it flies, destroying old errors and old habits, and giving in exchange new ideas and systems. It dispenses on all sides plenty and profit, it draws trade and business from every quarter, creates and re-creates more and more, lives on it perpetually, and is always insatiate. Its capacity of swallow [sic] is only equal to its power of production.

But we of this ancient metropolis have until the present date been compelled to view at a distance the metamorphoses wrought by this Horse of Iron, its pasture ground having ever been on other fields than on ours; now, however, the fiery steed has made its way to our own doors, and its loud and startling snort may, even as we write, be heard right close. Yes, - the Richmond Rail Road is on the eve of going into active operating, - will in fact do so on and from

Monday, the 27th of November instant; this of course has been the drift of our thoughts throughout.

An epoch, ever to be marked with an **alba lapide** in the calendar of our history, is about to transpire, a new era now dawns upon us. We are no longer to be isolated one half of the year from the rest of the world, to the immense prejudice of our greatest interest, but are now to be attached as to another link to the massy [sic] iron chain which stretches throughout the length of the continent. That this line between Quebec and Richmond has been constructed in the superior manner which even a limited inspection by a non-professional eye at once discerns, and that the undertaking has not fallen through before a succession of difficulties and disasters of no ordinary nature, can only be attributable to the happy circumstances that the work was in good trust, in the hands indeed of such eminent Contractors as Messrs. Jackson, Peto, Brassey and Betts.

But we must at once proceed to give a brief sketch of a highly interesting visit which, under invitation, we made on Saturday last to the Tubular Bridge over the Chaudière river.

The invitees, to the number of about one hundred and fifty gentlemen, met according to appointment at the Queen's wharf at ten o'clock on Saturday, morning, where the Railway Company's new and powerful Ferry steamer was in waiting to convey them to the South Quebec terminus on the opposite side of the river. A quarter of an hour's grace having expired, the boat started from her mooring, leaving behind an honourable gentleman of the Assembly, who was no doubt with equal reluctance on both sides, afforded a proof of the necessity of punctuality. Ten minutes movement of the machinery, and the engineer's bell announced our arrival at the quay of Tibbit's cove, which, like that on the city side, is solidly constructed, and by a floating slip admits of the most facile embarking or landing of passengers and freight. Here a half hour was profitably spent in examining the buildings of the company, and the cars and locomotive by which we were to be borne over the new road. The Station is of neat design, built of brick, is about two hundred feet in length and well divided. There is a double track under its shelter capable of holding four passenger cars on each side, and allowing a spacious platform to each train. The span of the roof is an immense arch of novel construction to our eyes, the arches being composed of seven or eight layers of planks held together with iron bolts and standing at the extremities on iron pillars.

The Station House and other buildings adjacent, at the terminus, are constructed by Mr. John Aughton, who is also engaged in the erection of a handsome Hotel close by.

The Cars are made similar to those of the American railroads as regards size and model. They are adapted to hold sixty persons arranged in couples, with a passage through the centre of each car, for the conductor to gather the tickets and allowing free communication throughout the train at all times when in motion. In Britain this kind of carriage is, we understand, still unknown, and

a gentleman lately arrived from Edinburgh, who was in the train on Saturday, and who had travelled over nearly all the lines in the mother country, expressed to us the great astonishment as well as gratification he felt in finding that the people of this continent were half a century ahead of their contemporaries across the Atlantic. Those on the Lachine railway at Montreal are constructed on the antiquated English principle, by which great space is lost, and the passengers are locked up, in fact stowed like cattle more than anything else, without room or leave to stir when once under weigh. In the United States cars, the seats are made with swinging backs to admit of sitting vis-a-vis when desired. The cushions are of stuffed velvet, the ceiling and sides are ornamental with handsome tapestry, there are water filters, lamps, stoves for cold weather, blinds to exclude the midsummer sun, hat and umbrella frames, &c, &c. Unlike any American cars however that we have met with, those of the Grand Trunk Company before us (for which we may **en passant** credit Messrs. McLean and Wright of Montreal, the manufacturers) do not dazzle the eye with a surfeit of fantastic gilding and paint, they are made throughout of seasoned hard wood, oak, walnut and mahogany, whose smoothly polished surface, not only on the doors but throughout from end to end of each carriage, gives an air of solidity and elegance to the whole structure. One is fitted up as a kind of State Car for distinguished travellers, it contains sofas, tables, mirrors, curtains, and other luxuries.

Five minutes ride, and the train came to a stand at Hadlow, where the Engine Shed became the next subject of inspection to those unacquainted with the history of the Iron Horse, which here might be now seen in all its component parts, as they land from the vessel after the voyage from Birkenhead; some half put up with wheels under them, some without, one complete and ready for its place on the line, and a dozen others alongside all in different stages of progress towards completion. In this building is the turning platform from which as many as ten locomotives are, or will be, run up to their different 'stalls' if we might use such a term, every night, the smoke from each individual funnel rising into ten separate conductors which meet in the roof at the centre of the building. Each engine may here be examined throughout by the workmen, taken to pieces, and cleaned or repaired. An immense doorway with a railway track across the floor, leads the visitor into the fitting department, on the way to which we pass the water tank - an immense vat, heated day and night throughout the winter season to prevent its freezing - from which the boilers are filled before starting and which is sufficiently elevated to cause the water to rush in its descent through the boiler tubes to aid in their cleaning, which is frequently required. The Fitting Department is an immense machine shop where the most massive or delicately minute parts of the engines can be made or repaired, and applied to the place they are intended for. The turning lath[e]s and other implements were all in motion as we entered, being worked by wheels and belts from the ceiling, connected with a stationary engine in another department.



While no date is available for this photograph, it shows the original station at Richmond in either the 1850's or 1860's. The portion of the structure on the left hand side of the picture was occupied by a refreshment room. Here the traveller, in the course of an all-day trip between Quebec's two largest cities, would be able to have a quick meal between trains. The structure at the extreme right of the photograph is an enclosed water tank. National Archives of Canada photo PA-165572.

The great power of the machinery, as in one place it bores into a mass of metal with the same speed and smoothness that a carpenter would work an auger through a pine deal, and in another turns a rough bar into any desired form, is seemingly under complete control of its manipulators.

After riding past several extensive cuttings through capes of solid rock, the next stoppage is to view the first tubular bridge on the line, which crosses the mouth of the Etchemin; a stone's throw from its confluence with the St. Lawrence. The span of this bridge is greater than that of the Chaudière, being 155 feet. [This presumably refers to the length of the individual span, not to the total length of the bridge.] The piers are rough hewn granite, and have every appearance of durability that one could look for. To enjoy a fair view of the structure the party went a short distance up the bank of the river, the Honourable member for Haldimand bravely in advance of the rest, perching himself on top of a long ladder that pointed aloft from the beach below. The iron tube, to whose upper surface the rails are secured, is one of a dozen similar, on a smaller scale, laid across the rivers lying in the route. All these tubes are on the plan of the well known Britannia Bridge across the Menai Straits in Wales.

A few minutes more and, before the party were aware of its proximity, the Chaudière River was beneath us, its dark waters

visible from the cars on both sides, without the least object of any kind intervening to remind the passenger by what agency he was supported at such an elevation above its bed! The Falls, though only a quarter of a mile distant, are lost in view, the site of the bridge being above them. The spray meets the eye, at times, as it rises over the crest of the hill. A halt at the further end of the bridge, the special object of the trip, and all disembarked to view its proportions, a treat that will not be afforded to the mass of travellers over the surface, for there is no curve in the line to bring it into view. The bridge consists of an iron tube 9 feet square, and 1100 feet in length, resting on 11 piers 92 feet apart from each other. The height of the tube from the river is 60 feet. The piers are, to the elevation of 8 feet above high water mark, constructed of large blocks of rough granite, extending on the upper side so as to form a solid and sharp cut-water, capable of resisting any pressure of ice at the highest spring floods. The upper portion of the piers are of fire brick of the best description. The total width of the tube on its upper surface is 16 feet including a light iron gallery on each side for pedestrians. Viewed from a short distance, the entire structure looks slight and open, aye light as gossamer, and anything but the enduring and substantial way over which hundreds of tons weight of passengers and goods will daily pass, at 40 miles an hour, without causing a

deflection of more than an inch-between the piers. To meet the demands of our climate, allowance is made for contraction of the metal in winter, and its expansion in summer, the bridge being nowhere fixed to the masonry and having a space of two or three feet clear at each end where it unites with the banks. The countless myriads of rivets used in the construction of the work are inserted at the junction of the plates while red hot, and then by about fifteen or twenty smart blows given by two men on the smaller end without, while the head within is held steady by a lad armed with a sledge hammer, the joint is secured, the subsequent cooling of the metal drawing the parts closer together than any power could weld them. At such points as the weight of the tube is not materially important, its strength is increased by the plates being doubled and trebled, while in the very centre of the spans but one set of plates is used. We had the pleasure of descending in to the interior and inspecting the plates, ribs, and girders holding the structure together. The passage admits a man six foot high with his hat on. Candles were carried down to show us the way, there being no apertures whatever for the admission of light.

Numerous triumphal arches, with flags and rows of trees, decorated the road at all points, and the inhabitants of Point Levi, Hadlow, New Liverpool, and Chaudiere, together with the workmen whose labors have now terminated, mustered in goodly array to welcome the first passenger train from this city that has visited their district, and greeted its approach by loud acclamations and firing of guns and cannons.

The inspection of the bridges at an end, the train advanced a few perches further to the Chaudiere station where the company were invited to enter and partake of a most tempting feast spread by Mr. Lamb of the Music Hall caterer to the Legislature when in session. Ample justice being done to the substantial no time was lost in proposing and responding to the Toasts appropriate to the occasion, but which, together with the remarks of the speakers - Hon. W.B. Robinson, Sir Cusac[k] P. Roney, Hon. John Ross, Colonel Thorndyke, R.A. Lieut. Col. the Hon. E.P.Taché, Hon. W. Cayley, Hon. F. Hincks, Mr. Turcotte M.P., Mr. Cauchon, M.P., - we are denied the pleasure of inserting from want of adequate space.

For the attention which we received from the distinguished Secretary of the Railroad Company, Sir Cusac[k] Roney, on the occasion in question, we return our thanks and an expression of our best wishes for the success of the GRAND TRUNK RAILWAY.

We were also indebted for information to the resident engineer of the company, J. Fosdick, Esq. agent in charge, Mr. J. Hanson, and Mr. H.B. Palmer, all of whom will no doubt soon, become favourably known to the travelling community.

The company's Ferry steamer runs between the Queen's Wharf and South Quebec every half hour, starting from the city side at 8, 9, and so forth.

The section from Toronto to Sarnia is under contract to well known Canadian contractors Messrs. Gzowski, Galt, Rolton & McPherson. All the other portions of the line, including the Victoria Bridge, to the English contractors Messrs. Peto, Brassey, Betts & Jackson.

There has been already expended on the

Victoria Bridge about.....	£150,000
Toronto and Montreal section.....	1,131,063
Quebec and Trois Pistoles section.....	165,350
Quebec and Richmond Section, about.....	50,000
St Lawrence and Atlantic section.....	916,000
Toronto and Sarnia section.....	576,758

The amount of money actually expended by the Company, including the capital paid in on the Quebec and Richmond, and the St. Lawrence and Atlantic lines, now consolidated into it is £3,721,900.

We are informed by Sir Cusack Roney that the line from Montreal to Brockville, will be opened for traffic in September 1855, and from Toronto to Stratford, 90 miles, October 1, 1855, from Toronto to Whitby, 35 miles, and from Quebec, to St. Thomas, 40 miles, in the course of the same month, making 290 miles to be opened next autumn, or 682 miles in all.

The capital of the Grand Trunk Company is £9,500,000 sterling.

APPENDIX II

NOTES ON THE GRAND TRUNK RAILWAY

[Quebec Mercury, Thursday, November 30, 1854.]

The Quebec and Richmond branch of the Grand Railroad is now opened to the public, and is in every respect, **un fait accompli**, as briefly announced in our last. Quebec is now placed in direct and speedy communication during the whole course of the year with here sister cities both in Canada and in the neighboring States.

The first public train ever run on the line left South Quebec station on Monday morning at nine o'clock, and proceeded with passengers and mails **en route** to Richmond, there to meet the trains running north and south between Portland and Montreal. We had been favored with an invitation to accompany Sir Cusac[k] Roney and the officers of the company on this initiatory trip, and right gladly availed ourselves of the same. In spite of occasional thick snow storms, we dashed along in glorious style through cutting, clearing, bush and forest till we reached Richmond. There we arrived at one o'clock, having made the run in four hours, including stoppages at the Chaudière, Kelly's, Black River, Méthot's, Bécancour, Somerset, Stanfold, Nicolet, Harvey's, and Danville stations, ten in number, at which mail bags are exchanged every



One of the oddest railway car ferries ever to see service was the "John S. Thom". The collapse of the first Quebec bridge in 1907 made it patently clear that a number of years would elapse before a railway bridge would be completed across the St. Lawrence at Quebec. The Grand Trunk decided that it could not wait to secure a connection with the National Transcontinental Railway and to share in the rapid growth in traffic experienced at the port of Quebec during the early 1900's. Consequently, the GT arranged with the Quebec and Levis ferry Company (Q&LFC) to provide a car ferry service between Levis and Quebec City. The Great Lakes package freighter "Henry R. James", which had been built in 1890, was acquired from the Rutland Railroad. As the water level in the St. Lawrence changes significantly due to the tides in the river, a hydraulic lift was employed to raise the railway cars to wharf level. The vessel was renamed to honour the President of the Q&LFC. The exact dates of its operation are not known, but it was in service in 1910 and probably remained in use until the completion of the Quebec bridge in 1917. In this view, which clearly shows the lift, the tracks on the "John S. Thom" are occupied by box cars from the Grand Trunk, Intercolonial, Grand Trunk Pacific, Quebec Central and New York New Haven & Hartford, as well as an unidentified flat car. National Archives of Canada photo PA-166763.

day trip, the mail conductors accompanying the cars. Though the track is not ballasted for about ten miles, the drive was most agreeable throughout. Among the party were Mr. Reekie, agent of the contractors, Mr. Martin, superintendent of the line, and Mr. McKenzie, superintendent of the motive power on the Quebec and Richmond district, nephew to the celebrated civil engineer of that name in Britain; to all these gentlemen we are indebted for information. We were permitted on request to accompany the Engineers on the locomotive itself, during a part of the journey, a position that we would by no means recommend to the timid excursionist, who could not but participate in the thrills of horror we every now and then experienced at the deplorable recklessness

of our still unenlightened country people as they walked along the track in many places, and, notwithstanding the timely warning notes of bell and whistle obstinately held their ground till they were all but reached by the bounding train. However such carelessness may merit punishment. God forbid that the people should persevere in this practice till warned by the sad lessons elsewhere too often told of wherever the iron track is laid! Besides being enlightened as to the power and peculiarities of an English engine, we witnessed satisfactorily from this proximate point of observation the readiness with which all its movements can be controlled. Having, however, previously determined to extend our stroll southward from Richmond, the diversion gave us an opportunity of a most charming moonlight

drive (down the very banks of the St. Francis,) on the return the same evening, upon a locomotive of American construction, one of great power, which, to our eye, had many advantages over the Birkenhead engine that conveyed the first Quebec train westward. It possessed the improvements of its English companion, and had others of native origin, we presume, the chief of which is its being built on eight wheels, the four front ones forming an independent carriage from those in rear, so as to permit of the locomotives working with greater freedom, and causing it to jar less than if too solidly connected front and rear, especially in running round a curve. Space is not given us to extend as we would into the details of feeding and working the Iron Horse.

At Sherbrooke the Grand Trunk company have a more extensive suite of buildings than at South Quebec. In approaching that station the very extensive Brompton Mills, owned by Mr. Clarke, form a prominent object of attention to the stranger. Large quantities of lumber are exported thence to the south.

The Portland route is exceedingly well built, and the cars glide most smoothly over its heavy and secure rails.

The Company, unlike that of the Great Western line in Upper Canada, have taken into their employ many Canadians as well as Englishmen. The conductor with whom the first passengers went out, Mr. Vallée, being a Franco-Canadian, and as we are informed an intelligent and active officer. The uniform of the conductors merit a passing notice; it is but right that the party authorized to question and attend to the passengers should wear some distinguishing mark. They are clad in a neat blue surtout, with gilt buttons, and "G.T.R." in small letters on the collar indicates the company in whose service they act. They wear also a blue cloth forage-cap with gold band. In the winter, though it may be permitted to dispense with this light dress, we do not admire the adoption of a complete mufty, as if aroused from his slumbers on a night train, any man asked to show his ticket would feel justified in demanding the credentials of the "gent" should he wear the garb of an ordinary passenger.

Talking of the minor comforts of American cars, we decidedly prefer them to those of England, or even the more snug and cozy cars of *la Belle France*, where the want of a stove is only in part compensated for by the feet warmers.

At Richmond the excursionists were met by a number of familiar faces from Montreal, who had started from the opposite end of the route at about the same hour as ourselves of Stadacona, and the half-way meeting formed an appropriate place and occasion to satiate the the [sic] appetites of all the *voyageurs*, a matter of no minor consideration to either caterer or guests, after the keen though agreeable weather experienced in the morning. A most grateful collation was generously provided, including every luxury of meats and wines. Sir Cusac[k], and Lady Roney, Mr. Martin, Mr. and Mrs. O'Brien and others were at the head of the table: appropriate toasts were honored, and it is needless to add that

ample justice was done by all concerned, when the shrill whistle warned us that the hour of departure had come.

Quite a number of passengers made their entry and exit as the train halted at the various country posts on the way, a most satisfactory indication of the extensive business the line is certain to do when its details of its management and working, and the hours of starting, &c., become generally known to the many small communities throughout the district which it traverses. We understand that as many as one hundred and fifty through passengers came down by one of the first evening trains.

APPENDIX III

THE IMMIGRATION BUSINESS

[Quebec Chronicle, April 29, 1893.]

The GTR employees at Point Levis had a pretty heavy contract to wrestle with on Thursday last. Besides having to attend to ninety-eight loaded local cars arriving at the station, over four hundred passengers from the "S. S. Lake Huron" had to be looked after and forwarded to their destination. This work could have been attended to without much inconvenience on the part of its well organized and veteran staff, but then there was thrown in over one thousand pieces of baggage which had to go through the disinfecting process. To meet this latter call upon its resources, the Company under the supervision of Mr. Smallhorn, its agent at South Quebec, had had the necessary fumigating apparatus placed in position on the southeast side of the large wharf parallel with the St. Lawrence and which is known as the Steamship wharf. The east end of the dock in question has been fenced off so that communication with it is not obtainable by those who have no connection with the work. The east end of the freight shed on the wharf has been divided into two rooms, the most easterly one of which is to receive the passengers' baggage landed from the steamers or ferry boats. In this room the immigrants unpack their box or trunk, where the contents are at once conveyed to the disinfection cars on the south side of the building. These cars are fitted up with the necessary shelves to hold all manner of clothing. When they are filled, the doors are closed and steam from a boiler placed on the wharf is forced into them. The boiler is capable of running the temperature up to 230 degrees. When necessary, the cars are so arranged that a jet of steam from the locomotives can be used and the temperature raised to 260 degrees. After the articles have undergone the necessary fumigation, they are removed and placed in the second room to be repacked. All this work can be done without in any way interfering with other business on the wharf. Although the apparatus was first brought into service on Thursday last, and that under many disadvantages, it speaks well for its capacity when it is shown that the four hundred passengers received from the steamship on that day were ferried across the river, their baggage disinfected, themselves put on board the cars and on their way to their new

homes the same evening. And it may be added that while the fumigating was going on the passengers suffered neither hardship or inconvenience, for Mr. Smallhorn very thoughtfully had well heated and comfortable colonists cars brought down to the wharf in which the women and children were placed until the work on the baggage was completed and many of the little ones were enjoying the tranquil sleep of childhood when the train left the station for its destination.

Besides providing for the disinfection of baggage, the GT company have also made other improvements around its station during the past winter. The immigrant ticket office has been greatly enlarged and will afford much more accommodation for parties exchanging their steamship for railway tickets. The large dining hall on the wharf, the exterior of which by no means presents a handsome appearance, has been completely gutted, the windows enlarged, and the whole interior refitted and painted so that it is now a large well-lighted and comfortable room. What it lacks in outward appearance is amply made up for in its interior fittings. In this building can be obtained everything the immigrant may require for his railway journey at city prices.

SHORT TURNS

ONTARIO: On November 29, 1989, the NTA amended the abandonment date for the CP Carleton Place Subdivision. Originally set for December 29, 1989, the date was set back to January 15, 1990 to cover the last weeks of operation of the Montreal - Sudbury section of the "Canadian". A history of this line was reviewed in the March-April 1989 issue of Canadian Rail.

MANITOBA: On April 10, 1990, the NTA authorized CP to abandon the 22.1 miles of the Lac du Bonnet Subdivision between Molson and Lac du Bonnet 30 days from the date of its order. This line was opened in June, 1901 to access timber stands.

SASKATCHEWAN: On April 4, 1990, CN received permission to abandon the 45.6 miles of the Butte Subdivision between Moose Jaw Junction (near Moose Jaw) and Mawer. The abandonment is to take effect 30 days from the date of the order. This line was built by the Grand Trunk Pacific Branch Lines Company, a subsidiary of the Grand Trunk Pacific Railway, as part of a line from Melville to Riverhurst via Regina. The portion from Moose Jaw Junction to Mawer was opened in September, 1913.

SASKATCHEWAN / ALBERTA: CP has received permission to abandon a portion of the Kerrobert Subdivision spanning the Saskatchewan / Alberta border. The rail line from Kerrobert, Saskatchewan to Lacombe, Alberta was severed by the NTA decision of April 10, 1990 which permitted abandonment of the 20.2 miles between Major, Saskatchewan and Compeer, Alberta. The order was effective 30 days from its issuance. The abandoned portion of the line was built by CP in 1914.

PORTION OF DEASE LAKE LINE TO BE REOPENED

BC Rail and a consortium of forest product companies have concluded an agreement which will see the 196 miles of line between Fort St. James and Sloan, British Columbia upgraded. The project will cost BC Rail about \$25 million. This expenditure will be recovered by freight rates over the 20-year contract period.

Traffic is projected to be between 11,000 and 13,000 carloads per annum. This represents a 5% increase over the total traffic handled on BC Rail in 1989. Work started this spring and will be completed late in 1991.

Construction of a line northwards from Fort St. James towards the Yukon border began in 1970. As planned, the line was to terminate at Dease Lake, some 412 miles from Fort St. James.

STATION HERITAGE ACT PROCLAIMED

On August 15, 1990 the Heritage Railway Stations Protection Act was proclaimed as law almost two years after being passed by Parliament. The legislation was put forward, as a private member's bill, by Gordon Taylor, a former Conservative member of Parliament from Alberta. After being passed by the House of Commons, and a somewhat stormy passage through the Senate, the bill received Royal Assent and has now become law. It is one of the few private member's bills to become law in recent years.

Under this act, no railway company "may remove, destroy, alter or in any way dispose of a heritage station under its control". Environment Canada, which administers the act, said that railways wishing to sell, alter or demolish a designated station must first get cabinet approval or be subject to fines of between \$50,000 and \$1 million. The act does not apply to former stations which are no longer owned by the railways.

Initially, twelve stations have been designated as heritage structures under this act. They are: CP Windsor station in Montreal Quebec, Union Station in Toronto Ontario, CN station in Aurora Ontario, CN station in Brantford Ontario, CN station in St. Thomas Ontario, CP station in Winnipeg Manitoba, CN station in Winnipeg Manitoba, Station in Dauphin Manitoba, Station in Virden Manitoba, CP station in Red Deer Alberta, CP station in Lake Louise Alberta, CN station in Smithers British Columbia.

A spokesman for Environment Canada said that this is only the beginning and that the government hopes to evaluate about 500 stations over the next five years to determine which will be classified as heritage structures under the act. Many of the stations are still in use by VIA Rail. At first Canadian Pacific and Canadian National Railways resisted the bill, but now they are cooperating. Heritage Canada, the group dedicated to the preservation of Canada's architectural heritage, said that the act is a big step forward because it provides protection to heritage railway stations.

Adapted from articles in the Gazette and the Globe and Mail.

Asbestos and Danville Locomotive Roster

The recent article on the Asbestos and Danville Railway (Canadian Rail number 414, January-February 1990) has brought forward some interesting comments from our members. Messrs. Ray F. Corley, Colin J. Churcher and Robert R. Lowry have pointed out a number of errors and omissions in the roster published with that article. We have included these corrections and, since they were quite numerous, have decided to reprint the entire roster as corrected. Since we now produce Canadian Rail by computer, we have taken advantage of the new facilities and modified the layout of the roster to a more easily read tabular format. Mr. Corley has noted that, in September 1947, the following twenty locomotives were in service on the A & D: 16, 20, second 25, 26 to 39 inclusive, 40, 41, 42.

Two other points, not in the roster, should also be mentioned. Locomotive 14, shown at the bottom of page 7, is almost certainly not an Asbestos & Danville engine, since there is no record of the A & D ever having had a 4-6-0. Can anyone help to identify it? Secondly, it has been pointed out that CN no longer has a connection with the A & D, as the connecting line was abandoned recently.

We thank those who have written, and say that any further comments about the A & D will be welcomed, for there are many unanswered questions. Information on the early narrow-gauge locomotives in particular is difficult to find, and the relationship between the builder's number and road number of these engines is still somewhat conjectural.

NARROW GAUGE

NUM	WHEELS	DIAM	CYLNDRS	DATE BLT	BLDR	NUM.	ACQUIRED	NOTES
1	0-4-0T	24"	7 X 12	Aug 1897	Porter	1785	NEW	"Bartholomew", disposition unknown.
2	0-4-0T	?	?	?	Porter?	?	?	Second hand, could be No. 3.
3	0-4-0T	?	8 X 14	Aug 1908	Porter	4196	NEW	Could be No. 2, disposed of c. 1917.
4	0-4-0T	?	10 X 14	Aug 1909	Porter	4385	NEW	Disposed of c. 1917.
5	0-4-0T	?	8 X 14	Aug 1910	Porter	4651	NEW	Disposed of c. 1917.
6	0-4-0T	?	10 X 14	Sep 1911	Porter	4948	NEW	Disposed of c. 1917.

STANDARD GAUGE

1	4-4-0	60"	16 X 26	Aug 1868	Neilson	1405	Jul 1897	Blt. as GTR 261, renum 61 Oct 1873, standard gauge Nov 1874.
2	0-4-0T	50"	16 X 26	1908	M.L.W.	45583	NEW	Built as 0-4-0 tender engine "Lynn", renumbered 11 c. 1920.
3-6	-----	---	-----	-----	-----	-----	-----	Numbers not used for standard gauge.
7	0-6-0T	28"	13 X 16	May 1914	C.L.C.	1239	NEW	Sold 1930.
8	0-6-0T	28"	13 X 16	Apr 1916	C.L.C.	1319	NEW	Sold 1930.
9	0-4-0	?	15 X 22	Oct 1911	Porter	4977	1917	Ex H. Kerbaugh of Philadelphia, sold after 1928.
10	0-4-0	?	15 X 22	Oct 1911	Porter	4982	1917	Ex H. Kerbaugh of Philadelphia, sold after 1928.
11(1)	0-6-0T	44"	18 X 24	May 1917	C.L.C.	1403	NEW	Renumbered 18 c. 1920.
11(2)	0-4-0T	50"	16 X 26	1908	M.L.W.	45583	NEW	Ex 2, scrapped 1937.
12(1)	0-6-0T	44"	18 X 24	May 1917	C.L.C.	1444	NEW	Renumbered 17 c. 1920.
12(2)	0-4-0	?	-----	1922	Can-Car	?	1926	Gas mechanical, rebuilt by A&D 1926, scrapped c. 1940.

13	0-6-0T	42"	15 X 22	Jul 1914	C.L.C.	1248	1920	Ex Baldry, Yerburgh & Hutchison 26. *
14	0-6-0T	42"	15 X 22	Jul 1914	C.L.C.	1249	1920	Ex Baldry, Yerburgh & Hutchison 27.
15	0-6-0	40"	17 X 24	1913	M.L.W.	54481	1919	Ex Dominion Dredging Company 1.
16	0-6-0	40"	17 X 24	1913	M.L.W.	54482	1919	Ex Dominion Dredging Company 2.
17	0-6-0T	44"	18 X 24	May 1917	C.L.C.	1444	NEW	Ex first No. 12.
18	0-6-0T	44"	18 X 24	May 1917	C.L.C.	1403	NEW	Ex first No. 11.
19	0-6-0	44"	19 X 26	1900	Schenec	5521	Sep 1923	Ex NYC 324, renumbered first 25.
20	0-6-0	44"	19 X 26	1902	ALCO(C)	27148	Oct 1923	Ex NYC 365.
21	0-6-0	44"	19 X 26	1900	Schenec	5588	Jul 1923	Ex NYC 338, with boiler ex 322, builder number 5519.
22	0-6-0	44"	19 X 26	Oct 1901	ALCO(S)	25008	Dec 1923	Ex NYC 384.
23	0-6-0	44"	19 X 26	May 1900	Schenec	5525	Jul 1923	Ex NYC 328.
24	0-6-0	44"	19 X 26	Oct 1900	Schenec	5527	Dec 1922	Ex NYC 331.
25(1)	0-6-0	44"	19 X 26	1900	Schenec	5521	Sep 1923	Ex 19.
25(2)	0-8-0	46"	23 X 28	Dec 1926	ALCO(R)	67172	1947	Orig. Birmingham Southern 52, then Newburg & South Shore No. ?, sold to Canadian Johns-Manville.
26	0-6-0	50"	21 X 28	Dec 1906	ALCO(RI)	41035	Jun 1937	Ex NYC 6757, nee 452.
27	0-6-0	50"	21 X 28	Feb 1906	ALCO(C)	30180	Jun 1937	Ex NYC 6754, nee 191.
28	0-6-0	56"	20 X 26	Mar 1907	ALCO(S)	42330	Sep 1942	Ex Gen Equip, ex GTW 7154, ex GT 1698 with boiler off GT 1693, builder number 42069.
29	0-6-0	44"	21 X 28	Nov 1923	ALCO(B)	65332	1944	Ex Detroit Terminal 22.
30	0-6-0	44"	21 X 28	Apr 1924	ALCO(S)	65478	1944	Ex Detroit Terminal 24.
31	0-6-0	44"	21 X 28	Apr 1924	ALCO(S)	65479	1945	Ex Detroit Terminal 25.
32	0-8-0	44"	22 X 28	Jun 1920	ALCO(B)	61953	1946	Ex Delray Connecting Railroad, ex Solvay Process Co. 62.
33	0-6-0	44"	21 X 26	May 1927	Lima	7212	1946	Ex Michigan Lime & Chemical Co. 12.
34	0-6-0	44"	22 X 26	May 1925	Baldwin	58420	1946	Ex Fairport Painesville & E. 7.
35	0-6-0	44"	22 X 26	Apr 1926	Baldwin	59093	1946	Ex Fairport Painesville & E. 8.
36	0-6-0	44"	21 X 26	Jun 1924	ALCO(R)	65535	Apr 1947	Ex Pittsburgh & Ohio Valley. **
37	0-6-0	44"	21 X 28	Nov 1923	ALCO(B)	65333	Apr 1947	Ex Detroit Terminal 23. **
38	0-6-0	44"	21 X 26	Nov 1923	ALCO(B)	65280	1947	Ex Mopac 9801, ex Union Terminal of St. Joseph 3, nee Swift Co. 3.
39	0-6-0	44"	22 X 28	Aug 1926	Baldwin	59370	1947	Ex Mopac 9802, ex Union Terminal of St. Joseph 4.

* R. Tourret reports that No. 13 was later No. 101 of the United States Army Transportation Corps.

** Original owners of 36 and 37 based on serial numbers. Engines rumoured to have been bought by A&D from Union Terminal.

40	B-B El	?	-----	1928	Diffco	737	?	Dump motor.
41	B-B El	?	-----	Dec 1929	G.E.	11060	NEW	70-ton 660 HP, scrapped Feb 1952.
42	B-B El	?	-----	Dec 1929	G.E.	11061	NEW	70-ton 660 HP, sold to Hudson Bay Mining & Smelting Co. Feb 1952.
43-45	-----	---	-----	-----	-----	-----	-----	Numbers not used.
46	S-4	?	-----	Nov 1949	M.L.W.	76495	NEW	Sold to Canadian Johns-Manville Longue-Pointe Que. Jul 1981, as 46, then to Potash Corp. Penobsquis (Sussex) N.B. in 1982, as 92-010.
47	S-4	?	-----	Nov 1950	M.L.W.	77587	NEW	Sold to Quebec North Shore Paper Baie Comeau Que. Mar 1983, as 47, then to Potash Corp. Penobsquis N.B. May 1983, as 92-018 (renum 92-019).
48	S-4	?	-----	Aug 1953	M.L.W.	77294	NEW	Retired, disposition unknown.
49	S-4	?	-----	Aug 1956	M.L.W.	81258	NEW	Sold to Provincial Diesel as M/84, then to Abitibi-Price Alma Que. Aug 1984, as 49.
50	S-13	?	-----	Aug 1962	M.L.W.	83214	NEW	Sold to Provincial Diesel, then to Abitibi-Price Jonquiere (Kenogami) Que. Feb 1985, as 50.
51	S-4	?	-----	May 1953	ALCO(S)	80463	May 1973	Ex BN 918, nee Northern Pacific 718, from G.R. Silcott, scrapped 1979.
52	S-6	?	-----	May 1955	ALCO(S)	80926	Jul 1976	Ex SP 1203, nee 1036.
53	?	?	-----	?	Indus	?	?	Brownhoist crane.
54	S-6	?	-----	Sep 1956	ALCO(S)	81812	Jan 1977	Ex SP 1238, nee 1071.
55	S-6	?	-----	Jun 1955	ALCO(S)	81294	Jan 1977	Ex SP 1211, nee 1044.
56	S-6	?	-----	Dec 1955	ALCO(S)	81425	Dec 1978	Ex SP 1274, nee 4638.
57	S-6	?	-----	Nov 1955	ALCO(S)	81423	May 1979	Ex SP 1272, nee 4636.
58	S-6	?	-----	Dec 1955	ALCO(S)	81432	Jun 1979	Ex SP 1281, nee 4645, cannibalized for parts 1988.
59	S-6	?	-----	Dec 1956	ALCO(S)	82287	Jun 1980	Ex SP 1252, nee 1085.
60	S-6	?	-----	Aug 1956	ALCO(S)	81734	Apr 1980	Ex SP 1230, nee 1063, cannibalized for parts 1988.
61	S-6	?	-----	Dec 1956	ALCO(S)	82291	Jun 1980	Ex SP 1256, nee 1089, bought for parts only, never used by A&D.

EXPLANATION OF ABBREVIATIONS

M.L.W. = Montreal Locomotive Works.

C.L.C. = Canadian Locomotive Company (Kingston).

Schen = Schenectady Locomotive Works.

ALCO(C) = American Locomotive Company, Cooke plant.

ALCO(S) = American Locomotive Company, Schenectady plant.

ALCO(B) = American Locomotive Company, Brooks plant.

ALCO(R) = American Locomotive Company, Richmond plant.

ALCO(RI) = American Locomotive Company, Rhode Island plant.

Can-Car = Canadian Car and Foundry Co.

G.E. = General Electric.

CRHA Communications

ANNUAL AWARDS

The winners of the Annual Awards for 1989 have been chosen by the distinguished panel of judges, and it is a privilege for the Association to honour those who have contributed so much to the recording and preservation of Canada's railway history.

LIFETIME ACHIEVEMENT AWARD: A sense of vision and a sense of great perseverance are the two factors that make Dr. Robert V.V. Nicholls the recipient of the CRHA Lifetime Achievement Award. Dr. Nicholls was concerned about the collecting and preserving of archival material long before archival holdings in Canada were considered as important as they are today. As a result, CRHA has in many ways set a standard for the gathering of significant archival materials to support the study of Canadian railway history, development and technology. It is significant too, that in the very early years of the CRHA Dr. Nicholls saw a need for a forum to share the documentation of railway history through establishing *The Bulletin* which in its own right grew to become today's significant means of sharing Canadian railway history - the publication *Canadian Rail*.

Dr. Nicholls has also made a significant contribution to the railway museum movement in Canada as he was an integral part of a group of people who worked toward the development of the Canadian Railway Museum. He was the messenger for that group as he quietly negotiated with the chief executive officers of Canada's two largest railways with a carefully chosen list of the significant pieces of railway motive power and rolling stock that now forms the core of the Canadian Railway Museum. Dr. Nicholls has been recognized widely for his outstanding and significant contribution to the field of Canadian railway history. It is appropriate that his peers in the Association now have an opportunity to recognize his contribution. For Dr. Nicholls this is truly a lifetime achievement award as he has had significant involvement throughout the CRHA's lifetime (58 years) and for most of his own adult lifetime.

Other nominations for the Lifetime Achievement Award were Mr. Anthony Clegg, who was also very involved in the development of the CRHA and is a well known railway historian and author; and Mr. Nicholas Morant, renowned Canadian Pacific Railway photographer. In the words of one of the judges - "any one of them could have been selected as a worthy winner".

ARTICLE AWARD IN A CRHA PUBLICATION: The quality of presentation in all three of the articles nominated for the Article Award in a CRHA publication was excellent from an historical perspective; they were well researched and credibly presented. The winner for this award is Mr. David Llewelyn Davies for "EMBANKMENT".

His article was outstanding for a number of reasons. It is extremely well written and has a definite developmental or unfolding story dimension to it. The article is also well documented. The field visits and assessments and the manner in which they are described lend a great deal of interest to the article. Probably much of what was told to the author by Mr. Gibson about how the embankment was built could not be found readily in engineering journals. Mr. Davies' use of old post office records and engineering records helped round out this masterful piece of "detective" work. It also

describes the construction and engineering aspects of early 20th century railway building. [A "sequel" or update to this article, also by Mr. Davies, will appear in the next *Canadian Rail*. Ed.]

Other nominated articles were "The Centennial of the International of Maine" by Fred Angus, and "Help for your Scanner" by Lorne Nicklason.

ARTICLE AWARD IN A NON-CRHA PUBLICATION: The Article Award in a periodical or magazine goes to Ken Goslett for "The GE E-166 Electric: CN's Long-Lasting Boxcars" published in the December 1989 issue of *Railroad Model Craftsman*. His article displays an incredible depth of knowledge of these locomotives. As well, an interesting story line was combined with good writing style and excellent analysis of the issues. The drawings and photographs add to the excellent quality of the article.

Additional excellent articles nominated in this category were written by Tom Grumley and published in "Branchline", Margaret Peterson in *Heritage Magazine*, and R. Matthew Fisher's news releases in the *Globe and Mail*.

BOOK AWARD: Bytown Railway Society has been publishing a trackside guide for a number of years, and its "Canadian Trackside Guide 1989" has been selected to receive the Book Award for 1989.

Other nominations in the book category were Ena Schneider's "Ribbons of Steel. The story of the Northern Alberta Railways", a documented history that fills a void in Canadian railway history, of a railway which was one of our country's largest; also "The End of the Line. The Newfoundland Railway in Pictures" by Clayton D. Cook - a book diligently and painstakingly researched.

PRESERVATION AWARD: Heritage Park in Calgary has been chosen to receive the Preservation Award for its restoration of Canadian Pacific Passenger Car 141, built in 1907. The Port Stanley Terminal Railway was again second choice. There is clear evidence of a systematic plan in the development of Heritage Park's project, beginning with the rationale behind choosing this car for restoration, choosing the time period the restored car would represent, carefully researching and documenting the purpose of the car, the technology of the builder's art and the railway operational context. All this is re-created in the restoration process. The restoration appears to have been carefully documented as well, so that scholars and preservationists of the future will know how the car was restored.

Another nomination was for Clayton D. Cook who, by his efforts, has preserved the Trinity Loop on the former Bonivista Branch of the Newfoundland Railway.

Presentation of the Award certificates will be made to the winners as soon as arrangements can be made.

The Awards Committee is truly thankful to the panel of judges who have responded to the difficult task of selecting the winners of the awards, as noted by their comments in the above documentation. One notes that the 1989 material is of high quality and of considerable interest, and another states that the quality of the submissions has increased each year. Any one of them could have been selected as a worthy winner.

TENTING ON THE OLD MUSEUM GROUND



The recent disturbances involving the Mohawks of the Kahnawake Indian reservation, and the blockades of roads and bridges in the area, have had an effect on the railroad situation, and on the Canadian Railway Museum. In our last issue we reported about the new commuter trains between Montreal and St. Isadore Que. travelling over CN tracks. Although the Mercier road bridge has now reopened, it has been announced that the special trains will continue to run until October 15. Freight traffic has also been rerouted to avoid use of the CP Rail bridge which has its south end in the reservation.

Although the Canadian Railway Museum has been affected by these events, mainly through a reduced



number of visitors, the involvement became more direct late in August when the Canadian Army requested permission to base some of their equipment at the Museum site. This permission was, of course, given and on August 30, at about noon, the Army arrived with 20 armoured personnel carriers and 20 other trucks and jeeps, together with about 200 men. This "visit" has already been of considerable benefit to the Museum, for some members of the Royal Canadian Engineers, based at Gagetown N.B., have repainted one of our bridges in a truly professional manner.

Ken Carroll of St. Constant was on hand the day the Army arrived, and he took these interesting photographs showing the troops and vehicles arriving and setting up camp at the Museum.





PEPSI TRAIN

In June 1990, a special train crossed Canada on the CN line, from Vancouver to Halifax, extolling the virtues of Pepsi Cola. The train consisted of VIA locomotive 6400 and cars 15451, 750127, 615, CHATEAU PAPINEAU, CHATEAU ROBERVAL, WASCANA, TWEEDSMUIR PARK. David Morris was on hand on June 24 to photograph the special train as it left Moncton N.B. and crossed the marshes on the New Brunswick - Nova Scotia border near the end of its transcontinental trip. A highlight of the day was the meet between the special and the "Ocean" at Aulac New Brunswick. Now if only Coke would sponsor a train on CP lines!

HOW MUCH ARE WE OFFERED?

A former member has presented us with his well-preserved copies of Canadian Rail, commencing with Number 149 - November 1963, through Number 288 - January 1976; with two exceptions, Nos. 217 and 258 (both of which we have Xeroxed from our file copy). Number 253 was not printed (due to an error in numbering), but Number 256A made up for the missing issue.

Considering that back issues of the old format (6" X 9") currently sell for \$1.50 we offer this set, as described, for sale to the highest bidder. Offers should be addressed to BACK ISSUES, P.O. Box 148, St. Constant, Que., Canada, J5A 2G2. We propose to close the bids October 31. Proceeds will be for the benefit of the Association.

BACK ISSUES

Several of our members have asked for a list of available back issues which are for sale. Steve Walbridge, Custodian of Back Issues, proposes to compile an inventory of all on hand and publish a list during the winter. So, interested members, please be patient.

*BACK COVER: In 1990. Royal Hudson 2860. Fifty years young, and still capable of many more high-stepping miles.
Photo by Lance Camp of Port Coquitlam B.C.*



2860

BRITISH COLUMBIA
CANADA