



# Newsletter

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**UPPER CANADA RAILWAY SOCIETY**  
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When Toronto's T-44's were new: The exact date of this photo of TTC's Lansdowne Division yard is not known, but the presence of many Can-Car Brill Model T-44 coaches in the yard while most of the street cars are out for the P.M. rush hour suggests that the time is 1947, prior to inauguration of the Ossington t.c. route.

--TTC photo



This view shows the new LRRT tracks of the NFTA on Main St. in downtown Buffalo, looking north at Swan St. The photo was taken in October, 1982, shortly after the rails had been laid, then embedded in poured concrete. This spring the poles for supporting the overhead will be installed in the space between the tracks.

--Al Kerr photo



It may look like a rather undistinguished mobile home, but CP Rail unit 5720-03 will come to make an important contribution to the efficient handling of main line freight trains in Western Canada. Known as a train/dynamic analyser, the half-million dollar vehicle is used to instruct locomotive engineers in the operation of long and heavy trains.

--CP Rail photo



# The automated light rail system for the Vancouver Metropolitan Area

by J. Ralph Oakley

The entire automated light rail system for the Vancouver Metropolitan Area will be unique among rapid transit installations in its incorporation of all of the following features: 1. Use of linear induction motors to propel the cars. 2. Unattended cars. 3. Steerable trucks. 4. Size of cars. 5. Power supply to the cars. 6. A mandatory private-right-of-way for the entire length of the system.

Features 1, 3, 4, 5 and 6 will also be incorporated in the rapid transit system of the Toronto Transit Commission, but only for the Kennedy to Scarborough Town Centre portion of that system, now under construction.

**Linear Induction Motors**--Each linear induction motor will have one component mounted on the associated truck and one, consisting of a 12-inch wide aluminum-capped black-iron-magnet, mounted on the roadbed between the running rails. The clearance between the LIM rail and the truck-mounted component will be 0.443 inch. An object thrown onto the roadbed component, in an act of vandalism, or an accumulation of ice or compacted snow on that component could render a train inoperative. In the event of snow or freezing rain, it is planned to maintain continuous operation of trains to prevent an accumulation of those elements. Otherwise, train operation would be discontinued during night hours.

**Unattended Cars**--There will be passenger and trade union resistance to the operation of unattended cars. On page 10 of the information booklet "Advanced Light Rapid Transit, The System For Vancouver", the following appears: "Right-of-way Security--Should an object intrude on the guideway, a detection system will stop all approaching ALRT vehicles and turn off the power." However, when a representative was queried concerning that matter, he stated that a means of detecting objects intruding on the right-of-way is being sought. Because of potential manpower failure through illness, inattention, a risk-taking tendency, or boredom, an automated system could be safer than one with attendants. Boredom would most likely occur, if, as on the Bay Area Rapid Transit System, normal operation is entirely automated. In the event of a service breakdown, the presence of an attendant would be desirable.

**Steerable Trucks**--Steerable trucks were designed to reduce wear of wheel treads and flanges, rails, axle boxes, axle guides and vehicle frames and to reduce noise, particularly on curved tracks. A study of steerable trucks at the Massachusetts Institute of Technology indicated that, in wet weather and at low speed, there may be transverse movement of vehicles, with possible derailment. However, the publication "Rail Engineering International", October 1974, states that steerable trucks reduce the potential of derailment. It appears that the subject of steerable trucks has not been resolved.

**Size of Cars**--This is an aspect of the automated light rail system which has not been publicized. The following tabulation compares the 75-foot long by 10-foot wide cars of the Toronto Transit Commission with the 41.7 foot long by 8.5-foot wide cars of the ALRT system. For the purpose of this comparison, the same headway and approximately the same load is assumed.

	TTC	ALRT
Number of cars per train	6	17
Number of passengers, maximum	1800	1785
Number of wheels to maintain	48	136
Number of axles to maintain	24	68
Number of control systems to maintain	6	17

The design of the control system on the ALRT cars dictates a maximum train length of six cars. To provide the same capacity as the TTC system, the ALRT system would have to operate on a much reduced headway than prevails on the TTC system. The estimated patronage of the ALRT system would not justify a system with the capacity of the Toronto subway, but population growth and the expansion of the ALRT system could result in increased patronage. The reason given for the provision of small cars for the ALRT is that the dimensions of the elevated structure and the size of stations will be reduced, as compared with those for a conventional rapid transit system. Proponents of the ALRT system claim that the provision of central computer control permits much reduced headways than are possible with conventional control, and that, with automated operation, the cost of train attendants disappears as a cost factor; it is not related to the number of trains in service. The SICTS (Scarborough Intermediate Capacity Transit System) being built for operation by the TTC will not be automated insofar as train operation is concerned.

**Power Supply To The Trains**--The 600-volt direct current power supply to the ALRT cars will be from a positive side contact rail and the return by a negative side contact rail stacked vertically and mounted to one side of the track. On most transit lines, the return is through the running rails, though, on some lines, a fourth rail mounted on the roadbed between the running rails is employed for the return. The arrangement proposed for the ALRT is to reduce the possibility of stray current causing electrolytic corrosion of neighbouring metallic structures and to reduce electro-magnetic interference. Pictures, drawings, and a model do not depict a protective covering over the power supply rails. A covering is essential to reduce the possibility of damage by vandalism, to protect

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the Newsletter to the Editor at the  
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## Correspondence



Office of the President

P.O. Box 8116  
Montreal, H3C 3N3

Dear Mr. Chambers:

Thank you for your letter received on  
August 20, addressed to Mr. J.F. Roberts, and which has  
been referred to me for attention as I have been appointed  
President of VIA Rail Canada Inc. on July 1.

With regard to scheduling of  
transcontinental trains, I would like to mention that it  
is a very complicated and difficult procedure. While we  
are aware that the main attraction in Western Canada,  
for example, is the mountains, there is also the equally  
important consideration of being able to arrive and leave  
major terminals at reasonable times of day. I am sure  
you will agree that this is not an easy task. In the  
process of establishing these schedules, every attempt is  
made to provide our passengers with a balanced opportunity  
of seeing as much as possible of the interesting territory  
by daylight, bearing in mind service requirements over the  
entire route. Following consultation with our Regional  
offices across the system, I believe that we have been  
quite successful in scheduling our trains through this  
territory to provide a reasonable compromise and achieve  
acceptable schedules at key cities across Canada.

We realize of course that every train  
schedule has some drawbacks and that we must, at times,  
select those that have the fewest disadvantages for the  
majority of the travelling public.

We sincerely appreciate your interest in  
our passenger services and wish to thank you again for  
giving us the benefit of your views.

Yours sincerely,

For Pierre A. H. Franche

Stuart and John:

A while ago I sent you a letter  
regarding THE CANADIAN that I had also sent to  
VIA. Well, here's the reply from VIA. Since it's  
from the Office of the President we can assume  
that it is official. It would seem from the reply  
that VIA will not be making any changes to the  
schedule of THE CANADIAN as they seem to feel  
that it is best suited to the majority of  
travellers. I wish they had mentioned some specific  
points of the schedule. Like many letters from  
government offices it says very little but takes  
over a page to do it. I find it simply incredible  
that they feel a 7 A.M. arrival in Vancouver is  
such as to suit the majority of the people. Did  
the majority of the people express that the  
after midnight service at Thunder Bay was  
preferable? Both of these matters could, it  
seems, be changed quite quickly. Another major  
point which I mentioned was that of an earlier  
departure from Toronto. This, of course, would  
take some hustle at Union, but no more speed  
than has been shown by dozens of other rail-  
roads, in countless situations, to be readily  
attainable. That midnight departure does not  
serve the majority of the travelling public in  
their best interest. Another item in the reply  
worth noting is the fact that they mention that  
scheduling transcontinental trains is a difficult  
procedure. Well, I can certainly accept that  
there are problems. One wonders, though, how CN  
and CP managed to run three each...combine them...  
divide them...and thread them down a single  
track main populated with milk runs. And they  
did it without CTC, without computers and with-  
out radio...and they did it better and they did  
it faster. Nuff said.

Bob Chambers  
Ancaster, Ont.

--According to a report from the Vancouver, B.C. CTV network affiliate, the British Columbia  
Ministry of Tourism is considering dropping the popular Royal Hudson (2860) Steam Excursions  
due to declining patronage and a high operating deficit during the 1982 season. The engine,  
which requires a heavy overhaul very shortly, would likely be donated to a Provincial  
museum for static display. (Ouch!-ml)

--Mike Lindsay

COVER: Yes, it does snow in Vancouver! CCF-Brill trolley coaches 2209 and 2135 are pictured in  
a nocturnal scene recorded on Jan. 22, 1982, by Angus McIntyre. The West Coast city operates  
the last trolley coaches of this type in Canada, but they are running on borrowed time.



maintenance personnel, and to offer some protection from accumulation of snow and ice on the power supply rails.

Mandatory Private Right-of-Way--The linear induction motors and the power supply rails on the system necessitate a private right-of-way for the entire installation. That will be achieved by elevated structures, tunnels and fences. Elevated structures afford visual pollution and partially account for the high estimated cost of construction. A further drawback associated with an elevated structure is the hazard associated with the evacuation of a train if it becomes inoperative.

Power Conversion Unit--The motors on rapid transit cars usually operate on the current collected from a trolley wire or a third rail. The motors on the proposed ALRT cars and on some of the "Airporter" cars on the Cleveland, Ohio system, operate on three-phase current provided by power conversion units on the cars. The motors on the Cleveland cars are not of the linear induction type. Cars on order for the Chicago Transit Authority will be similarly equipped. Power conversion units introduce complexity, higher initial cost, and additional expenditure of electrical energy. The associated three-phase alternating current motors offer lower first and maintenance costs than direct current motors. As the linear induction motor has not been tested in rapid transit service, it has not been determined where it will rank, cost-wise.

The Tunnel Under Dunsmuir Street--The tunnel under Dunsmuir Street in Vancouver was built to move Canadian Pacific Railway trains from the area adjacent to Burrard Inlet to the railway's yard and maintenance facilities on the north shore of False Creek. That use has been discontinued. It is planned to double-deck the tunnel for use by the ALRT trains. One publication of the Urban Transit Development Corporation had stated that lowering of the tunnel floor would not be required to achieve the double-deck operation, but lowering of the floor is now deemed mandatory. Other matters pertaining to the use of the tunnel are: 1. A transition to and from the double deck configuration in the tunnel to the side-by-side configuration, which will prevail elsewhere, will be required at each end of the tunnel. At the site of B.C. Place, the presence of a road dictates that the transition must be made on elevated structures. 2. A walkway, for use by patrons in the event that evacuation of a train is required because of accident or equipment breakdown, will be required. It must be of sufficient width to enable rapid evacuation. 3. The absence of a parallel track in the tunnel and the restricted clearances in the tunnel would render rerailing, or the clearance of wreckage, extremely difficult. 4. The portal at the Cambie Street end of the tunnel requires relocation northward to the Dunsmuir Street arm of the Georgia Viaduct. Two hundred metres of tunnelling is related to that project. 5. The Burrard and Granville stations will be in the tunnel and lengthy escalators will be required. One proposal is to remove a portion of the tunnel lining for the length of platforms at the sites of stations; another is to create openings only at points where train doors will open. A platform area would be created behind the points where openings are created. Some assert that a new tunnel would be less costly than undertaking the extensive alterations required in the existing tunnel. The latter would be a compromise at the best. A tender has been accepted for the injection of grouting to fill voids between the tunnel structure and the surrounding soil or rock.

Power Consumption--There is a diversity of opinion concerning the power consumption of linear induction motors, as compared with direct current motors. It has been estimated that they will consume 30%, 100%, and 500% more power per passenger-kilometer than direct current motors. One report states that the power consumption, as compared with direct current motors, could not be confirmed at the time of the writing of the report.

Capital Cost of Cars--The cost per pound, and the initial cost per passenger, varies inversely as the size of the car. The following tabulation appears in the July, 1964 issue of the UCRS Newsletter:

	Toronto Car	Montreal Car	New York Car
Price per car	\$92,000	\$145,000	\$100,000
Length	75 feet	53 feet	51 feet
Width	10 feet	8 feet	10 feet
Weight per car	60,000 lbs.	52,000 lbs.	58,000 lbs.
Cost per pound	\$1.50	\$1.60	\$2.00
Passenger capacity	300	160	200
Initial cost per passenger	\$306	\$910	\$500

Each ALRT car is estimated to cost \$1 million, is 41.6 feet long, 8.2 feet wide, has a capacity of 100 and weighs 28,221 pounds tare. That relates to a cost of \$35.4 a pound and \$10,000 initial cost per passenger. The values much exceed those in the tabulation, even when the decline in the value of the dollar is taken into account.

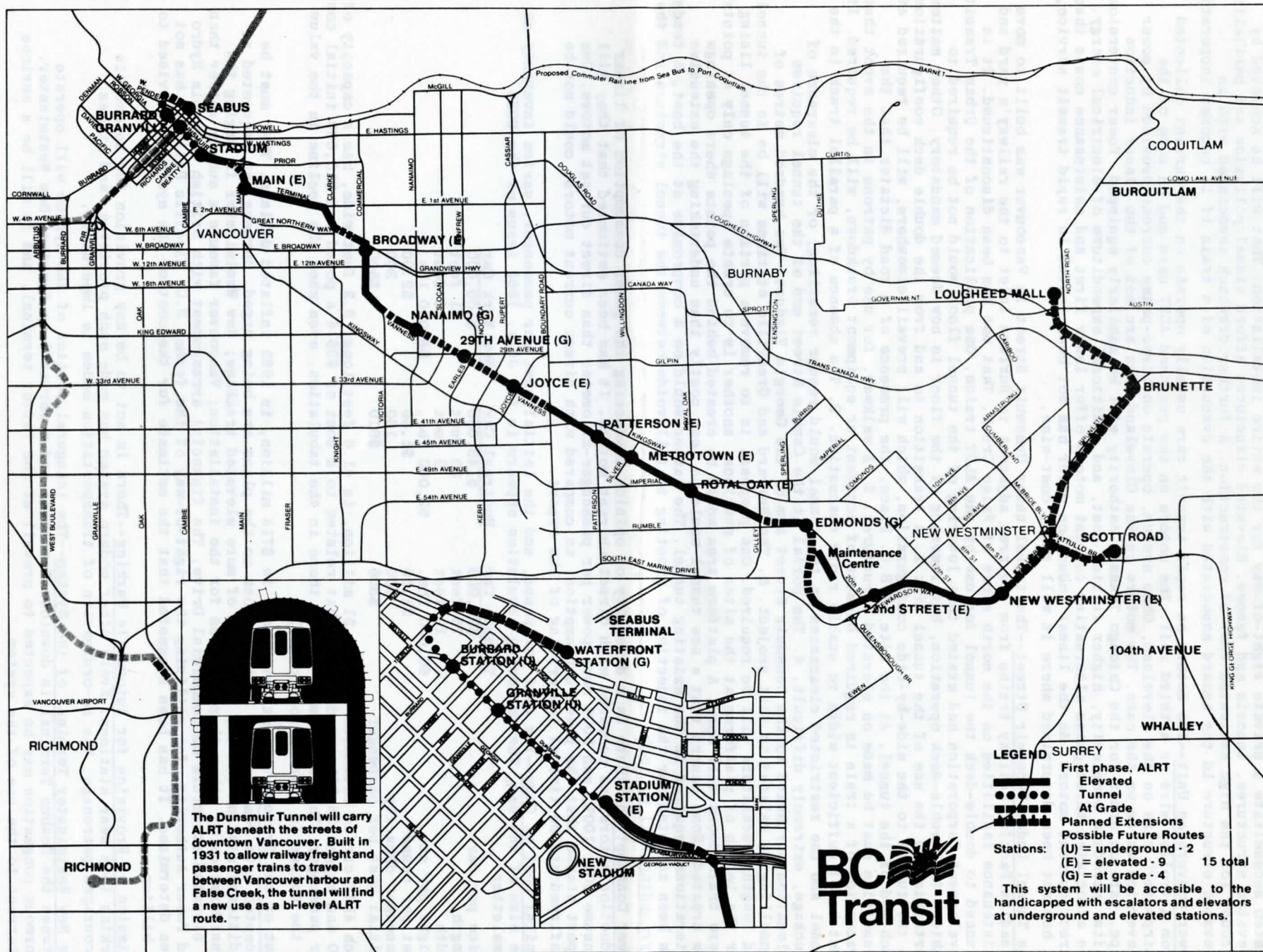
Cost of the System--The estimated cost is \$718 million, in 1982 inflated dollars. That must be accepted with reservation. Modifications to the plans are being urged. Burnaby has requested an additional station and the provision of more elevated trackage; New Westminster is urging the consideration of other thoroughfares for the installation; Vancouver favours a subway rather than an elevated structure on Commercial Drive. The financial arrangement with British Columbia Hydro and Power Authority, for utilizing the right-of-way of the former B.C. Electric Railway, has not been determined. It has been suggested that the estimate for the cost of the system be revised to \$1 billion.

Omission of Provision for Automobile Parking--There is not to be any provision for automobile parking lots near stations. Every other modern system has made such provision, and it has encouraged patronage. The co-ordination of transportation modes is imperative.

The New Westminster Terminal of the System--The inaugural portion of the system will operate between the Seabus Terminal in downtown Vancouver and a terminal in downtown New Westminster. Enormous congestion may be expected to prevail at the latter terminal, and it will be a serious deterrent to the use of the system.

Some Fallacies--There has been much political interference relative to the proposed system. Some consider that it was foisted on the Area because of the involvement of the B.C. Government with





## Vancouver Regional Rapid Transit



that of the Province of Ontario, and the latter's involvement in the Urban Transportation Development Corporation. One politician has stated that, if the linear induction motors prove unsatisfactory, the installation of rotary motors would be a minimal operation; another has stated that, if the capacity of the system proves inadequate, standard size cars could be utilized by altering stations and the right-of-way; another suggested that a trailer car could be added to the sets of six motor cars. The motor cars have not been designed for use in such trains.

**Conclusion**--Extensive testing of prototype ALRT cars and related equipment has been conducted at the development facility. Judgement as to the system's practicability, or otherwise, must be reserved until it is operating in revenue service. The San Francisco Bay Area Rapid Transit system also incorporated many innovations, and three test cars were operated during its design phase. Only recently has it been operating satisfactorily. When the Vancouver Metropolitan Area Automated Light Rail Transit System commences operation, it is to be hoped that it will not be assessed as a development laboratory attempting to operate in revenue service.

## Discontinuances and abandonments

by Brian C. Nickle

- On Dec. 13, 1982, the Railway Transport Committee of the Canadian Transport Commission issued Order R-34714, which denied permission for the Algoma Central Railway to discontinue the passenger train service between Sault Ste. Marie and Hearst, Ont. The actual loss for this train service in 1981, as determined by the RTC, was \$2,208,209. The amount lost between 1977 and 1982 was \$9,058,772.
- A public hearing, to be held on an as yet unscheduled date in the spring of 1983, will reconsider the application to discontinue the VIA Rail passenger train services between Sioux Lookout and Thunder Bay North, and between Hearst and Nakina.
- On Dec. 22, 1982 the Western Division of the CTC issued Order WDR-00973, which gave permission for the CNR to abandon a portion of the Sheerness Subdivision between Sheerness and Cessford, Alberta, a distance of 33.8 miles. This line was constructed between 1918 and 1920 by the Canadian Northern Railway, and formed part of a line which was originally planned to run from Hanna to Medicine Hat. This latest abandonment is just the most recent in a long chain of events which has been reducing the length of this subdivision ever since its construction stages in 1920. The line was completed only as far as Stephenville at Mileage 58.8 and, despite the fact that bridge piers were placed across the Red Deer River and that grading for the right-of-way was finished for several miles to the south, no tracks were laid past Stephenville. Then, in 1927, the final four miles of track into Stephenville were abandoned. In October, 1977 a further seven mile section of track was pulled up. After Jan. 22, 1983 only 13 miles of the line will be left intact, but this portion is protected until the year 2000 by the Abandonment of Branch Lines Prohibition Order.
- On Dec. 23, 1982, another Prairie branchline was affected by a board order, this being No. WDR-00974. This allows the CNR to abandon a 17-mile section of the Cudworth Subdivision between St. Louis and a point near Prince Albert, Saskatchewan. This line was constructed by the Grand Trunk Pacific Branch Lines Company between 1910 and 1917.
- If anyone wonders why so many of the Prairie branchlines have decayed to the point where they are candidates for abandonment, one has only to look at the profit and loss statements for grain handling by CN and CP. Forced to haul the grain off the Prairies at the artificially low Crowsnest Pass freight rates, CN and CP lost the combined total of \$440 million in 1982. Total losses on the movement of grain over the past three years are in excess of one billion dollars. That amount of capital would have gone a long way towards rehabilitating the Prairie rail network. Another sad commentary on the whole Crow Rate matter is that many badly needed projects currently being worked on to increase the capacity of the rail lines through the Rockies are being delayed--some while still in the planning stages--due to lack of funds. Between the recession and the increasing losses on grain movement, 1982's financial picture was very bleak for both CN and CP.
- With respect to the last item, it is reported that 7,000 Canadian rail workers lost their jobs in 1982 as the railways reduced their operating budgets.

## the TDA - for better train handling

CP Rail has taken delivery of a new \$500,000 computer-based train/dynamic analyser, to be used to train locomotive engineers in Western Canada. The unit is pictured on Page 2. The training area of the TDA is capable of seating nine people, including a supervisor, and comprises a locomotive control panel, a telex machine, another keyboard about the size of an office calculator to tie in with the computer, a mini-computer about half the size of a coffee machine, and a cathode-ray tube monitor. The analyser/simulator, one of the most advanced and sophisticated pieces of locomotive engineer training equipment in existence, has been acquired by the railway in response to the increasing weight of freight car loads and the more sophisticated locomotives built to haul them. Present day main line freight trains require more from a locomotive engineer than "seat-of-the-pants" experience and training.

Developed by the Freightmaster Co. of Fort Worth, Texas, the TDA not only identifies a wide variety of train-handling problems, but also puts them on television. The instructor describes



a "train" on a keyboard which is plugged into the computer, and the locomotive engineer, or engineer student, then operates the consist over a moving graph track layout on a cathode-ray screen. Once programmed, the system can duplicate anything from a single locomotive and caboose to a 200-car unit train with robot controlled mid-train power. The master computer has been programmed to cover the complete CP Rail main line as well as many secondary subdivisions. The control panel is identical to that of a standard CP Rail diesel unit, but instead of commanding a 3000 horsepower prime mover, the various handles and controls direct a mini-computer. Any acceleration or braking movement produces a movement in the graph line representing the forces within the train. Any handling mistake is detected, causing the line to buckle and dance like a snake at the precise car in the consist of the imaginary train, indicating anything from a broken knuckle on a coupler to slack running in.

The TDA is capable of reproducing a wide variety of equipment to simulate different types of locomotives and freight cars used on CP Rail. This allows enginemen, without their ever going near a real train, to recognize errors in handling that might cause the train to come apart or derail. The engineer can also review his performance with instant video replays and stop-action. Also, because of increased costs, diesel fuel conservation has become important in the TDA teaching program. The unit shows that the effective way to handle a train also conserves fuel. The mobility of the unit permits bringing the classroom to employees rather than requiring employees to travel great distances to training centres.

--CP Rail release

## SHORT ITEMS

The GO North Committee has filed a letter of objection with the CTC in connection with CN's application to abandon the portion of the Meaford Subdivision between Collingwood and Meaford, Ont., and the letter requests that a public hearing be held. In acknowledging receipt, the Commission has indicated that it has not decided whether such hearing will be held, but says that a submission by the GO North Committee will be considered as evidence regardless of the way in which the railway's application is ultimately dealt with. The subject section of line, of course, is that upon which the Ontario Rail Association has been planning for several years to operate a steam tourist operation (Peter F. Oehm)...CN's Prairie Region Vice-President, Douglas Fletcher, is convinced that the Crowsnest Pass rates will be eliminated by August 1...Bombardier Inc. is developing a new line of diesel locomotives which will feature fuel economy, low maintenance costs and high availability, and is hoping to cut into EMD's and DDGM's portion of the market. Intended to be offered in a horsepower range between 1650 and 4400, with an 18-cylinder model, the locomotives are not expected to be in quantity production until 1985...VIA Rail is reported to be interested in up to 200 double deck cars for transcontinental service and possibly 50 more for intercity runs, and Hawker Siddeley is counting heavily on receiving these orders. The builder also hopes to market bilevel cars in the U.S. and in foreign countries, with Amtrak being a potential customer for 650 long distance cars and 150 intercity commuter cars...An average of 100 passengers a day are crossing the border on VIA-Amtrak's INTERNATIONAL, surpassing the estimate of 80 per day...VIA has undertaken a \$1 million project in co-operation with CP Rail to overhaul the Budd-built equipment, formerly owned by the latter, to improve the steam heating system, including fitting pipes with new insulation as well as checking and replacing steam control valves and other parts as required; a former CN steam generator unit has been used on the rear end of THE CANADIAN this winter in order to improve heating in the portion of the train most remote from the locomotives (VIA Rail "Vialogue")...Effective in January, LRC maintenance has been shifted from GO Transit's Willowbrook Shop in Toronto to the former Canadian Car and Foundry plant in Lachine (Montreal), Quebec, on a temporary basis until VIA can construct its own maintenance facility. CN personnel are employed at the Lachine location, but supervision of the shop is a VIA function. The shop will also house VIA's test centre, where equipment performance will be measured...Amtrak F40PH 323 appears to have replaced LRC locomotives on all Tempo-equipped INTERNATIONALS, during mid-January (Mike Lindsay).

TOURIST RAILROAD-RESTAURANT COMPLEX PLANNED FOR PORT STANLEY--According to the London Free Press, a proposal has been made to establish a new tourist railroad and restaurant complex in Port Stanley, Ont. Brad Jolliffe of London and his partner, Don Broadbear of Pinafore Park Ry. fame, have received moral support from the Ontario Ministry of Tourism and Recreation in regard to upcoming negotiations with CN over acquiring some abandoned sections of that railway's Talbot Subdivision (the old London and Port Stanley interurban line). The project, with a target start for this coming spring, is to set up an ex-CN van as a fast food restaurant, adjacent to the Port Stanley station, with kitchen facilities and a serving counter inside, and a patio style exterior dining area. The promoters are also attempting to lease the former L&PS station for use as a souvenir shop and museum to display local railway artifacts and photographs. Also planned is perhaps the most interesting facet of the overall proposal, a regularly operating excursion, running between Port Stanley and Union, a round trip distance of 10 kilometres (about six miles). Jolliffe has said that he and Broadbear have a passenger car available and that they recently bought a small diesel locomotive which until 1982 was being used by a Paris, Ont. gravel company. The Village of Port Stanley has already voted to support the project, but CN "bucked the idea" when the van was moved to Port Stanley before a lease agreement was signed. The van has been moved several times since and now sits on an isolated section of track west of Kettle Creek near Shamrock Chemicals. Jolliffe claimed that CN wanted payment of somewhere around the quarter million mark for rails and ties, annual rent of \$13,000 and an agreement that tenants would pay property taxes. The homeless van has sparked enough interest amongst rail enthusiasts in the London area that a small association has been formed to boost the project. A business, to be called the Port Stanley Terminal, is being incorporated. A long term goal is to provide not only for passenger tourist trade, but regular rail freight service to local industry. According to Jolliffe, "We intend to re-establish a reliable rail access linking the Port of Port Stanley to shippers throughout Southwestern Ontario...". Optimistically, we may see the establishment of the first new short line in Ontario in quite a few years. Broadbear's experience with Pinafore Park's operation and his employment with CP Rail should be definite assets.

--Mike Lindsay



# book review

NO HORSECARS IN PARADISE By Douglas V. Parker Available from Railfare Enterprises Limited, Box 33, West Hill, Ontario M1E 4R4, for \$14.95.

Reviewed by John A. Maclean

The street railway era in Victoria, British Columbia's picturesque capital city, lasted just over 58 years, from the first test runs on 19 February 1890 to conversion of the last car line to bus operation on 5 July 1948. For all but the first seven years of this period, the system was owned and operated by the British Columbia Electric Railway Company, being a small and seldom-remarked appendage of the larger and more interesting traction empire operated by the Company on the Lower Mainland. The history and operation of Victoria's street railway system have enjoyed little documentation until now: unfortunately this lack is only partly filled by the volume under review.

Mr. Parker has chosen to limit his coverage to the initial seven-year period of local ownership before the BCER takeover, and has "thrown in" the stories of the electric light and gas utilities which preceded the street railway, apparently on the strength of the fact that these also became part of the B.C. Electric system. The author has succeeded in amassing a surprising amount of information from this short period, but the nature of his sources--contemporary newspaper reports, letters and similar material from Provincial, Municipal and Company archives--inevitably results in his coverage being heavily slanted toward the corporate, financial and political aspects of the system's history, while providing all-too-little detail of technical and operational features. Students of general, local and corporate history will probably find this approach to their liking, and will appreciate the extended quotations given from newspaper reports and letters, but railfan readers, to whom this review is primarily directed, may find information on their special interests scanty. There is a good roster of the 20 cars comprising the pre-BCER fleet, but details of other areas of a technical or operational nature are either lacking or confined to small items buried in the chronological text.

The foregoing comments are not to be construed as severe criticism of the book, which is a worthwhile piece of work, but it is felt that attention should be directed to the restricted scope and specialized bias of the volume for the guidance of prospective purchasers. The work comprises 144 pages approximately six by nine inches in size between hard covers, with dust jacket, 31 black-and-white pictures, and two maps. Quality of paper and printing is good, and the text is well written and readable in spite of the mass of (mostly) corporate, financial and political information incorporated. There are a foreword and 15 chapters, the first two of which deal with the origins of the gas and electric light utilities, while the third gives an account of the system of horse-drawn omnibuses which provided local transportation before construction of the street railway--an unusual and welcome feature in a traction history. Three appendices give details of the roster, staff positions and salaries (20¢ per hour for Conductors and "Motorneers", for example), and list car assignments by route as of 3 February 1894. These are followed by a short bibliography, an unusually comprehensive list of sources of footnotes in the text, and an index. Reproduction of photographs is surprisingly good, considering that all of them are necessarily over 85 years old: not all of them are of street cars, however, as a portrait of the Honourable David W. Higgins, the system's Manager in its early years, is included, along with three views of horse buses and two of street lights, no less. The maps are clear and immaculately drawn, one showing the horse bus system and the other the street railway system as it existed before the BCER takeover of 15 April 1897. Is the former the first route map of a horse omnibus system ever published? It is certainly the first that this reviewer can recall seeing.

Undoubtedly the Victoria street railway system's principal claim to fame is the collapse of the Point Ellice Bridge under car 16 on 26 May 1896, with the loss of 55 lives. This unfortunate event is detailed, together with its aftermath of recriminations and details of the inconvenience suffered by street car passengers during the long period before the bridge was replaced. A less well known and less grisly claim to fame, also quite coincidentally involving car 16, was the system's possession of one of the few, if not the only, street car in Canada furnished with six wheels instead of the usual four or eight. The only car of its size on the system, too large for a single truck but too small to justify double trucks, number 16 was equipped with the uncommon Robinson three-axle radial truck. Surprisingly and unfortunately, this unique or nearly unique feature is not stressed in the book, and no description is given of how it worked: according to this reviewer's understanding, the small pony wheels under the centre of the car were connected by triangular frames to the driving wheel and motor assemblies fore and aft, forcing them to swivel on curves. Of the four pictures of car 16 in the book, two show the unusual running gear clearly, one in derailed condition.

In case the reader hasn't guessed, the title "No Horsecars in Paradise" refers to the fact that Victoria never enjoyed the services of this type of vehicle: by the time the city had reached a size where street railway construction was an attractive proposition, electric cars had proven themselves practical in several other cities. Details are, however, given of an interesting "charter operation" during which some of the Company's trailers were hauled by hired teams of horses between city centre and an outlying race track, this taking place while all other service was suspended due to the power house having burned down. It is to be hoped that Mr. Parker will in due course produce a companion volume, or volumes, bringing the system's history down to modern times, and perhaps incorporating additional technical and operational material.

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--Bombardier Inc. has announced its intention to conduct a study, at its own cost, of the inter-city rail passenger market within the State of Florida, presumably in the hope of supplying LRC equipment for use in that state.



# RENAULTUSA

## DUAL-MODE ARTICULATED TROLLEY COACH



A demonstrator dual-mode articulated trolley bus capable of operating with either diesel or electric propulsion went into test revenue service on the Seattle Metro system following the Workshop on Trolley Bus Applications held in Seattle at the end of August, 1982. The vehicle was manufactured by the Truck and Bus Division of Renault Vehicules Industriels of France. The Model PER180 coach is being tested by Renault and Seattle Metro in conjunction with the Urban Mass Transportation Administration primarily to evaluate the concept of dual modality. The vehicle, carrying the fleet number 1050 on the Seattle system, is equipped with both a rear mounted 245 H.P. diesel engine, driving through a four-speed automatic transmission, and a mid-mounted electric motor deriving its power by way of a roof-mounted freon-cooled chopper built by Traction-Cem-Oerlikon (TCO). The coach is unique in that both the rear and middle axles are powered by both means of propulsion. The concept of full dual modality is not only to use the diesel engine for emergency moves in the event of power failure, etc., but to make possible express operation on free-ways while using overhead on local streets at one or both ends of the route. The test period will last for about one year, with a technical support staff provided by Renault and TCO. The vehicle has also been displayed, but not operated, in Vancouver, B.C.

### Specifications

Length: 59 feet    Width: 98 inches    Height: 137 inches  
 Wheelbase: Tractor: 18 feet, 4.5 inches    Trailer: 20 feet, 6.75 inches  
 Total: 38 feet, 11.25 inches    Turning radius: 39 feet, four inches  
 Passenger capacity: Seated, up to 70 depending on configuration.  
    Standing: 30    Seats by American Seating  
 Curb Weight: 40,000 lbs.    Gross Vehicle Weight: 55,000 lbs. (or as limited by local regulations)  
 Propulsion systems: Diesel: Renault    Electric: Electric motor with compound diesel engine (6 cylinder in line freon-cooled chopper by Traction-Cem- inclined at 55 degrees - 245 H.P. (SAE) Oerlikon  
 Gearbox: "ZF" (H.P. 500 - 4 speed automatic with integral retarder)    Automatic pneumatic pole raising and lowering  
 Step height: Ground to first 14.2 inches  
 First to second 5.9 inches    Door openings (front, middle and rear):  
 Second to floor 6.0 inches    47.2 inches  
 Destination sign: Transdot (electric) by Transign

--information from Mike Roschlau





# Trolley Coach Features

## ◀ 1: Renault Articulated

## 2: A Can Car—Brill Retrospective

(Editor's Note: In rather sharp contrast to the present hard examination being given by the TTC to the Transit Electrification Program as is made evident by the article appearing in the November issue, there is presented herewith an article which appeared originally in the February, 1947 issue of Canadian Car Journal, published by Canadian Car and Foundry Company. At that time, with the CC&F Fort William (later Hawker Siddeley's Thunder Bay) plant backlogged with orders for new Model T-44 trolley coaches, the advantages of this type of vehicle were liberally extolled, and it seemed that it would have a long uncontested future. It must be remembered that, when this article was written, trolley coaches had a decided capacity advantage in that they were not subject to the more stringent width restrictions which applied to motor buses, and that the latter were for the most part being purchased by the larger transit systems in a 36-passenger size).

THE MODERN ELECTRIC TROLLEY COACH--Since an electric motor requires two feed wires to complete the electrical circuit, the idea of an electrically driven vehicle fed from two overhead conductors is an obvious conception. The arrangement was actually tried out as long ago as 1882. The early experiments, however, were not successful. In fact, many years were to go by before it could be said that the problem of the two-conductor overhead service had been solved. It is true that no great pressure was exerted on the matter until street car tracks began to wear out in wholesale fashion and transit operators began to ask the question "Do we really have to put all this expensive steelwork back into the street?"

The early adventures in two-conductor overhead used a little contact carriage or truck which ran along the wires and was connected to the vehicle by flexible cables. Such an arrangement was shown at the Paris Exhibition in 1900, but its subsequent installations were not quite successful. Nevertheless the cable collection system was developed somewhat later to a fairly workable stage in Italy and Austria. In Germany about this time a route was put into operation using two trolley poles, and this gave a much better performance than the flexible cable scheme. The early trials in America had a single pole with a two-contact device at the top end. World War I put a stop to European trolley coach development along with other peace-time projects. After the war, Great Britain took the lead away from the Continent and adopted two poles and under-running contact wheels as standard current collection equipment. This remains the standard system in both Europe and America, except that sliding carbon shoes are now used instead of contact wheels.

Maintenance of Trolley Coaches--Maintenance of the trolley coach is a somewhat less onerous chore than required by other vehicles. As compared with a street car, the trolley coach has only one main motor instead of four, and as compared with a gas bus it has a main power plant with one moving part instead of a great many. Regular inspections will show when the control devices need new contacts and when brushes should be replaced on the main and auxiliary motors. The frequency of inspections and overhaul will be determined by local conditions. Experience with the modern equipment, however, indicates that an inspection about every 2000 miles is usually adequate, with motor bearings being attended to every 30,000 miles, and a general overhaul at intervals of about 150,000 miles.

They Win Friends and Influence People--"The electric trolley coach is rapidly becoming the most popular vehicle for urban transportation" writes Electrical News and Engineering. Operators of transit properties are finding that trolley coaches win friends and influence people--win friends for electric traction and influence people to patronize the transit system.

The first thousand trolley coaches in North America took nine years for their installation; the second thousand took only a little more than two years, and the third thousand just over a year and a half. Right now there are about four thousand on order. Canada has 67, with about 345 more coming up. Present Canadian Car operations include trolley coaches for Winnipeg, Edmonton and Montreal. Winnipeg has ordered 25 more, and Edmonton has ordered an additional 47. Other Canadian transit properties are following the fashion, and on order now, as initial ventures, are nine trolley coaches for St. John, N.B. (Never delivered--Ed.), 10 for Kitchener, 50 for Toronto, 20 for Regina, 60 for Calgary, eight each for Fort William and Port Arthur, and 42 for Vancouver.

These vehicles appeal strongly to the riding public because they give a fast, smooth, quiet ride along with safe and convenient curb loading and freedom from obnoxious fumes. Polls of transit riders in several cities have shown the trolley coach to be a most popular transit vehicle. The proof of the pudding is that trolley coaches can carry more passengers in proportion to the investment in plant and equipment than any other form of transit service. Their particular application is on routes having peak loads between 400 and 3000 passengers



per hour one way.

**Public Warned**--In cities where the new trolley coaches have been put in operation, it has been deemed advisable to warn the public and motorists that the ten-ton vehicles move silently and without apparent effort and possess an amazing rate of acceleration which might prove startling to motorists accustomed to beating street cars through tight squeezes by an advantage in pick-up. Trolley coaches equal most automobiles in acceleration, which means new problems for motorists.

### 3: WHY HAVE TROLLEY BUSES?

By Llew Lawrence, Director of Operations, Edmonton Transit System

(Editor's Note: The following is the abridged text of another paper presented at the Seattle "Workshop on Trolley Bus Applications". The dissertation displays an infectious and convincing enthusiasm for t.c. operation. The paper is one which deserves far wider circulation within the transit industry than it is likely ever, unfortunately, to receive).

Edmonton is a city of interesting contrasts. In order to understand how we came to be one of the select group of North American cities operating trolley coaches, it will help to give a bit of history. As a place, Edmonton is senior to most U.S. and Canadian Western cities, having been founded in 1795 as a fur trading post. As the city, however, Edmonton belongs to the Twentieth Century. Next year (1983) Edmonton Transit will be celebrating its 75th Anniversary. Edmonton skipped the horse car and cable car periods, but by the 1911 census it had a population of 30,479, who made use of 17 street cars. The operation began under municipal ownership and it has continued as a city department to this day. While the Department's history has had its ups and downs, it avoided the damaging sequence of crisis after crisis that stifled long range thinking in the privately owned public transit systems.

Edmonton's contrasts include geography. While it appears to be a typical prairie city in most respects, it has a deep river valley cutting through its centre. This is exactly at the point where street cars and the early motor buses would be most heavily loaded on lines linking residential areas with the central business district across the river. The inauguration of trolley coach service in 1939 introduced a route that tackled the big grades (McDougall Hill) directly, eliminating the circuitous route (up 97 Avenue and 109 Street) used by street cars.

Some of the cities represented at this conference had also introduced trackless trolley operations in the 1930's and Edmonton's civic administration had been impressed by these. Despite the interest in U.S. systems, however, Edmonton still was a part of the British Empire, and its initial trolley coaches were British. Those of you who may have humourously complained that your plans for something were "torpedoed" may not recall that in 1939 it was the German Navy that was ready to do in the trolley coaches.

During the war, the original trolley coaches and the American Mack and Pullman buses which supplemented them proved to be reliable performers. Canada's own industrial strength was also growing, and in the post war period, replacement of the street cars continued with the most successful series of trolley coaches ever built, the Canadian Car & Foundry-Brill. In its post war peak in 1964, Edmonton operated 100 trolley coaches, including second hand Brills from Regina, and Vancouver, B.C. The last new Brills ordered in 1954 were literally that, because no more trolley coaches were turned out by the Canadian firm.

In the 1950's and 1960's, Edmontonians were preoccupied with the automobile. However, since the city itself was growing, Edmonton Transit did not experience severe cutbacks. It gradually spread itself over the area with motor bus feeder lines.

It is hard to put a label on the later 1960's. Although that decade was full of crashing final curtains in the United States transit industry, the scene in Canada was mixed. On the one hand, there were people who wanted to imitate the decisions being made in the U.S. The "New Look" diesel was on the streets in Edmonton, with the front that drivers loved, a back that equipment people loved, and passenger facilities tossed in as an afterthought. It was designed to get out on those great new freeways and go! And there were people who wanted to get some freeways for the big tail fins and the "New Looks" to cruise. In the 1960's, that trend was represented by our only discontinuance of a trolley coach route (the S6-Low Level). It was affected by a roadway project and by a sudden concern about aesthetics from a university administration that was otherwise busy building ugly surface parking lots.

But Canada was not the United States, and there was no Interstate Freeway funding to twist the city's decision making process. Groups opposed to freeway construction carried more weight in such an environment. Post war immigration combined with Edmonton's position on trans-Polar air routes kept decision makers open to European influences. The development of integrated rail/bus operations in Toronto and Cleveland interested transit officials. And the most important step was taken when the right men, ideas, and technology were brought together. In annexing the Town of Jasper Place, the City of Edmonton had implied that it would offer the sprawling, low density suburb the same level of transit service enjoyed by city residents. How could that be done without great expense?

The Timed Transfer Concept has been and will be discussed in other forums. I will be brief in describing what happened. An existing trolley coach route was extended to a terminal built beside the Jasper Place Town Hall. Motor bus feeder routes were timed to meet both trolleys and



each other. And in peak hours, the heaviest trips were extended to downtown as expresses. This put each bus mode into the range in which it could perform best. Trolleys covered the stop and go main line operation, taking advantage of their good acceleration and performance with heavy loads. This also fits their need for frequent day and night operation to lower the distributed capital cost of the electrical system, and it fits our system's desire to be a good neighbour in areas where main lines cut through residential areas and hospital grounds. The most affluent inner city residential neighbourhood in Edmonton (Glenora) is served quietly and efficiently by our main line to Jasper Place.

Diesel buses perform well in express operations, where their engines can run at a fairly constant speed. Their noise levels are not a severe problem on routes served infrequently, or where late night, Sunday and holiday service is not offered. Feeder routes sometimes have the potential to use smaller buses as well, although in Edmonton traffic has grown on most of these lines to the point where the use of 40-foot buses is necessary.

The Timed Transfer Concept has also allowed us to run a fairly simple system, from the customer standpoint. The traditional North American radial system often makes the outlying express route points difficult to reach from intermediate areas. This presents planners with a choice of adding stops to expresses, running expresses and locals over the same route, or just writing off the people who want to reach points in that part of the older city which falls between the downtown and the suburbs. This area contains many trip generators, and in the concept employed in Edmonton, these points are accessible via transfer at the outlying transit centres. If it is necessary for an inner city route to wander around in order to tap an industrial area, for example, it is not necessary for the residents of outlying areas to join its slow trip. They have the option of continuing on an express bus or LRT to downtown.

Let me picture the ideal that we work toward. The passenger sets out from home, walking 400 metres or less to a feeder line that runs on a memory pattern schedule. On her arrival at a transit centre, she is offered a choice of:

1. A main line trolley bus or light rail transit train, which will travel directly to downtown.
2. An express bus or LRT train, which will travel directly to downtown with few or no stops. This may not be available nights, Sundays, and holidays.
3. A direct bus to the University of Alberta and the University Hospital.
4. A cross-town route. These may not operate in off-peak hours.
5. Industrial routes, most of which operate in peak hours only.
6. Other feeder routes, which offer access to nearby schools, community centres, shopping and other services.

Of course, this is an idealized picture. At any given time or place our customers will find more or less what I have described.

The argument that people "don't like transfers" has not been invalidated in Edmonton. It is just that there are other things that they like more. That includes direct access to places of work and services, and it includes frequent service on main lines. It is also important to note that there are transfers and there are transfers. We still operate many street corner connections. However, we have found that there is considerably less resistance to transfers in the civilized environment of a terminal facility than when the same type of connection is offered on a street corner..

We see the trolley coach offering a part of our complete system. Its attributes give it a solid place on the main lines and in the most densely populated parts of Edmonton. We see it as a forerunner of LRT service in these corridors. Trolley lines will not be replaced by LRT lines in areas where local stopping services are necessary. In coordination with the LRT, trolley coach operation will enable us to meet our 1984 goal of carrying 27% of our passengers with electric power.

Future of Trolley Coach Operation in Edmonton--Many of you are aware of our 1973 decision to continue trolley operations. This was followed by the purchase of 37 Flyer E-800's, which used recycled electrical components from older buses. We went through a difficult period with those buses, and it took three years to get them all into service. At the same time, maintenance of the Brill fleet was curtailed in anticipation of its retirement. This caused us to stop and take stock of the situation.

The eventual result of this experience was our order for 100 Brown Boveri Canada-equipped GMC trolley coaches. These buses were designed with input from all sections of Edmonton Transit, with many features that were specially intended to overcome operator objections to the Flyers.

The feedback that we are getting from operators and passengers has generally been good. Chopper controlled motors provide a very smooth operation. Electric heat is great in the winter, and twin roof vent hatches have kept interior temperatures comfortable in the summer. The appearance of a "New Look" bus with trolley poles did cause some double takes at first, but most Edmontonians do not realize how unique these vehicles are. They just want the service to function smoothly and with some comfort. If the bus looks a bit racy, with the black bumpers, dark standee windows, and raised roof hatches, that is okay, but service is why the patrons are standing out on those corners.

What are we offering the people on those corners? Trolley coach operation will expand to use the existing overhead again. From 1979 through 1981, the 37 Flyers have turned up here and there, covering 88 runs which were scheduled as trolleys. We needed 100 buses to provide spares. By the end of 1982, we will again have enough trolleys to cover every run. In addition, we have a backlog of minor overhead extensions that will require additional vehicles. One of these extensions opened in the Fall of 1982, taking our Route 3 through an industrial area from the apartment house district it now serves to the original Jasper Place Centre. This and the other extensions involve routes which spend a substantial part of their time under trolley overhead now.



We are working to upgrade the overhead. Our lines are constructed and maintained by Edmonton Power, the city-owned utility. During the period in which trolley coach operations were being curtailed, valuable skills were lost with retirements, and many flaws developed in the overhead. Other problems were caused by the growth of traffic on city streets and the growth in length of the buses themselves, with switches and some curves remaining in outcated locations. Perhaps the single step most appreciated by operating personnel and least noticed by the public was the switch to K&M elastic suspension overhead. Along with induction control switches, the new overhead system has been nicknamed "speed wire" by enthusiastic operators. Trolley coaches are controlled so that they cannot literally speed, but the time and inconvenience wasted on lost poles has been reduced.

As trolley operation becomes more common, we will also be working to upgrade the personnel operating these vehicles. We have a commercially-made training film, based on the Flyer E-800, which gives beginning operators some background on the trolley coach system. We are working to upgrade the service control on our system, so that disruptions are handled more easily. As a part of that, the overhead program includes some additional switches and short links to allow a variety of situations to be met. The best upgrading is already underway; that is in having a fleet big enough so that a run scheduled to have trolleys can be expected to have them assigned.

Operators who want to drive trolley coaches will sign on those runs, and the experience level will improve. We have had examples of people going two or three years from their training period and then suddenly finding themselves in a trolley coach. This leads to some sloppy or awkward operation, and it also prevents overhead problems from being properly identified.

When the overhead extension projects are completed, we will be able to use all of our 137 trolley coaches. At that point, we expect to look at cost comparison studies, our operating experiences and our ridership levels to determine any future expansion of the system. The bundle of diesel lines which we operate over the former Low Level trolley coach route meets the criteria set in the 1973 Edmonton Transit study by Robert Clark, and similar criteria developed by the San Francisco Municipal Railway's Karl Natvig in 1979.

I hope that this has put our view of the trolley coach into perspective. I would like to see continued extensions where traffic warrants it. In the mid-1980's, one out of every six buses in Edmonton Transit's fleet will be a trolley coach. When I began work as a transit operator in the 1950's, trolleys were the majority of our vehicles. So we are not "turning back the clock." Rather, we are continuing a useful operation where specific needs make it the best solution to problems.

Now I am going to tackle head on some of those beliefs or myths that lead mixed mode systems to head toward diesels as the lowest common denominator. We have our share of people who chant these phrases whenever upgrading the trolley system is mentioned. It does not have anything to do with how much education they have. The perpetuation of these myths depends on "busy" people who do not work at trying to keep a well-rounded picture in their minds of why it is that we run a transit system.

Some Oft-Heard Words About Trolley Coaches--The trolley coach is inflexible! That is probably the number one chant. It means almost anything that the speaker cares to imply, but whatever the meaning, it is a word that sets strong men to shivering and children to wake crying in their beds.

Let us just imagine for a moment that the wires disappeared from Edmonton overnight. The next morning, buses would still be making their way along the same heavily-paved streets, stopping at the same shelters and concrete bus pads. Everything is running along, just slower, more noisily, and with a bit of smoke. But down the street there is a lady coming. She lives in a quiet little cul-de-sac area that faces an uphill walk to the bus. People there have been walking uphill since street car days. This morning is no exception, but something is different!

"The buses are flexible now!" She whispers to herself. And she skips back down the hill to call her Alderman with the suggestion that some, not all, of those frequent buses swing down into her neighbourhood. She is not greedy, she just wants a few trips. And how can her Alderman disagree? Out past the end of the line, a corporation is building a new office building. It is within walking distance of the former trolley line, but it would draw higher rental income if the bus went right to the door. Unfortunately, only some trips can be extended to the building, because the others have had all their layovers soaked up going down into that lady's cul-de-sac.

Within a decade, bus operators will be walking out to their diesels carrying armloads of dash cards. Route brochures will be littered with fascinating footnotes. Special interest groups will be temporarily pleased, but operating costs will climb as buses roll through back lanes and drive-ways looking for passengers. Additional street paving will be required, and the shelters will have to be moved around.

The most important aspect is what the effects on patronage will be. The passengers from out-lying areas will find the circuitous routing past the new office building or past the lady's house unattractive. They will either quit riding, or demand direct operation of their feeder routes to downtown. Either revenue will be lost or operating costs will go up. Flexibility has a price, which system after system in North America has paid without realizing it.

The routes on which trolley coaches are operated are main routes where the travel desire has remained constant over a long period. This allows the full use of the capital investment involved, and in turn, the capital invested acts as a balancing factor to offset short term desires. If necessary, detours can be arranged for major construction projects. In Edmonton, most major projects occur during summer months when there is a surplus of diesels off of university-oriented routes.

Breakdowns present a more serious case for the use of the term "inflexibility". Breakdowns that affect the power supply will affect any number of buses, whereas diesel buses fail individually. The detailed study done for Edmonton Transit by Robert Clark in 1973 showed less than one power breakdown per 100,000 miles operated, and that was on a system using many recycled components.



The restoration of trolley operation in the last few months has been accompanied by several overhead problems, likely a result of the long period of inactivity. As work continues on the overhead system we expect these problems to recede.

We do have difficulties with overloaded trucks. Edmonton is the base for shipping into the northern territories, and the economic boom brought marginal companies and marginal drivers into the trucking industry. We take action to recover costs from these firms, but as long as truckers are romanticized as bold men of action we will have to deal with the occasional irresponsible operator. The overheight truck is a universal phenomenon, however. A colleague of mine has noticed scarred traffic lights in that other boom city, Calgary, a place that has no trolley coach operations.

When we were studying new buses we considered battery or auxiliary gasoline engine operation. However examination of the weight penalty and cost that we would incur for the few occasions where this would be a factor led to the conclusion that we were better off without the auxiliary power. Dwelling on "inflexibility" in breakdown or detour situations stems from looking at a few specific incidents rather than the whole picture. While operating people and others have worried about this, I found that when I took over as Director of Operations there was no system to provide detailed proof of the problem to higher levels.

While the lack of short term "flexibility" is a problem to an extent, and does require extra effort in operations, it also appears to offer advantages. There is evidence that the permanence of the trolley route is attractive to passengers. There is a very sickening feeling given to patrons who discover that they have been left standing at a bus stop that has been bypassed due to a detour, or worse yet, by an operator who decided to save some time by cutting off part of the route.

Trolley coach operation requires teamwork to overcome the other problem that sometimes hides under some individuals' concerns about "inflexibility". There is a tendency for some diesel bus operators to regard themselves as being their own little transit system. This is a worldwide problem, so I think that it is related to the nature of the vehicle. Time and time again I have heard senior men talking about the feeling of teamwork and cooperation that they experienced with fellow operators. That included working together to share a load when traffic disrupted service, courtesies to each other in traffic, and sharing information about almost everything.

Now, we know that the "good old days" weren't all that good, but we also know that railway operations demand this relationship. Without it, customers quickly turn away. Motor bus operations should have the same relationships, but a feeling of anonymity strikes some people when they feel that diesel engine revving up. Yes, they can now pass another bus, and they will from time to time, when it is personally convenient. But too often, the passing comes after the lead bus in a jam has collected all of the passengers. I drove buses myself, and I have seen that happen. Does the instructor say to take it easy on curves? The slower the diesel driver takes the curves, the harder it seems to get going again, so the passengers had better learn to hang tight.

I am talking about a minority of operators here, but it gradually can affect everyone. If anyone doubts that this is true, consider the style of small suburban bus lines that sprang up as all-motor bus operations. Good old Joe may be friendly enough, but do the customers really count on him to stay on time and on route?

Does that style of operation best meet customer needs? It may take care of some immediate problems at the best, but it leads to a gnawing uncertainty about the dependability of transit service and the quality of people who operate it. On the other hand, the trolley system introduces a clear requirement for teamwork, just as rail operation does. The operator is literally wired into the system. He or she can drop out if necessary, but cannot operate with disregard for others. It is no coincidence, therefore, that the most highly regarded North American transit systems have rail and/or trolley coach operations.

Instead of seeing the trolley coach as an obstacle to a self-centred form of transit operation that comes to be the norm, it can be seen that in the process of meeting trolley system requirements, we can retain and develop that sense of shared purpose recalled by the older operators. We cannot do that without also keeping in mind the reasons for operating trolley coaches, foremost among them being the passenger on that corner.

--ETS "Transit News"

--As of early November, more than 90% of the track in CP's new yard at Coalhurst (Kipp), Alberta (see Newsletter 396, Page 12) had been laid, and work on the three major buildings was on schedule. The yard is expected to be ready for use by mid-March, and 300 employees will be relocated from the old Lethbridge Yard in April or May. The new Kipp Yard will have capacity to handle 1500 cars at any one time.

--The long term abandonment program for those Prairie branch lines which the two major railways see as redundant will be carried out only with considerable difficulty in the face of resistance from grain farmers. About 100 of the latter are appealing on three fronts to have CN's scheduled abandonment of 24 miles of line between Acadia Valley and Eyre Junction, Alberta thwarted. Not only have they appealed to the CTC to reverse its order permitting abandonment, the committee representing the farmers plans to file an appeal with the Federal Court and to make a submission to the Federal Privy Council. While CN claims that the line is too costly to maintain for seasonal grain movements, the farmers counter that the financial burden of trucking grain an average of 22 miles further to elevators in Sibbald, Benton, Oyen, Bindloss or Empress, Alta. is one that should not be imposed upon them. Are Provincially owned (or shipper owned) Prairie short lines the answer?



# Manitoba via mixed trains

by Jerry Buck

During the first two weeks of June, 1981, I was riding through Manitoba on VIA Mixed Trains 93-95 and 92-94 (Winnipeg to Churchill and return) and 290-291 (The Pas to Lynn Lake and return). It was a trip that sent me first into the sub-Arctic tidewater of Churchill on Hudson Bay and then into the rocky mining country around Lynn Lake.

After travelling by rail from Toronto to Winnipeg, I boarded Train 93-95 for Churchill. The train had three 9500-series units in the old orange, black and white scheme, a diner, baggage car, coaches, sleepers and about 10 refrigerator cars that were dropped off along the way. After a delay of about two hours, caused by engine problems (and no mechanic at the station to attend to them), we left Winnipeg and I started to get ready to bed down in my berth. I noticed that my sleeper was empty, but the coach behind was jammed full with the usual mob. I was not asleep long before I was roused by the Conductor, who demanded to see me about "these.... tickets", that I had earlier given to my friendly attendant. It seems that the fare was not printed properly on the bottom and was I on a pass or something? He finally found where it was and left me to sleep in peace.

Next day, in the diner, a fellow told me that I could ride a unit if I had the Conductor's permission. I had a look at our power at The Pas, but the units looked too greasy to get into with my good clothes. Besides, I already had had enough trouble with Conductor Sourpuss. Instead, I staked out the rear of the train and rode the platform there for a good view for most of the trip. We rode north-east from The Pas and the land became flatter and more swampy, with the trees shrinking in size until they were about two feet high. The telephone line, of the type which we are so used to, supported by one pole, changed to one held up by a tripod arrangement of three poles. This is because of the muskeg terrain; the tripod actually "floats" on top of the spongy surface. A wire joins the poles together at the bottom to keep them from spreading apart. Years ago, engineers found that an ordinary single pole placed in ground such as this would heat up in the summer, melting the permafrost at the base and causing the pole to sink down a bit into the soup. This process would continue until the pole was tipped onto its side or submerged up to its cross poles. The cost of replacing all of these poles led to development of the longer lasting three-legged type.

Near Sipiwesk we turned on the wye to take a 50-mile side trip to Thompson. The big attraction there is the Inco Mine, the stacks of which cover the sky from far away with greyish smoke. While taking pictures, I asked a trainman how much longer we would be here and he said "two hours". I was out on the platform when suddenly I noticed something moving out of the corner of my eye. It was the train--all stepboxes had been pulled up and the doors had been closed. I asked a carman, "Hey, are they leaving town now?" "Why, shore" said he, and seeing I was supposedly a passenger, told me "Here, jump on this here baggage car". I waited until the hand grab came by, grabbed it with both hands and pulled myself onto the dirty baggage car floor. "What d'ya want?" said a surprised baggageman. I explained that I was a passenger, not a hobo, and he laughed, "Haw, just about left you behind, eh? Haw." I wasn't laughing as I went back into the train, past Conductor Sourpuss, who eyed me suspiciously coming out of the baggage car.

On up towards Churchill we went, picking up more people, mostly local Indians, on the way. Top speed was about 30 miles an hour, due to the unsettled ballast. At night I didn't bother to pull down the blind as I undressed--nobody was out there in that swamp for miles around. Next morning found us in Churchill, where we went on a tour around town aboard a school bus. We visited the Eskimo Museum, Cape Merry, several old fort sites and the famous grain elevators. It would seem to be hard to live here, as everything has to be brought in and is quite expensive as a result. Pop was 75¢ a can, small chocolate bars cost \$1.00, bacon was \$3.50 a pound and bread was \$1.89 a loaf. Gas, if you could get it, was \$2.00 a half gallon.

The trip back down to The Pas was on time. We started out with a large crowd in Churchill and dispersed these people over the many Indian villages along the line south. Back at The Pas, few of the original group that had boarded in Churchill were still on the train. However, there was still the Indian from Pikwitonei who told my fortune on the way down and the school teacher with whom I chatted about the problems of kids in the bush.

Staying overnight in The Pas, the next day I boarded the mixed train for Lynn Lake. I did not have to hurry as it didn't leave town until an hour after it was supposed to. The consist was mostly empty hoppers and gondolas for the mines at Sherrit-Gordon in Lynn Lake. There were a few box cars of goods and supplies tied on for good measure. One belonged to a group of American fellows from Cleveland, who had it full of canoes, supplies and fishing gear to be set off at their camp near Cranberry. I set myself up in the 1935 coach (the number I've forgotten) and then took some pictures from the back vestibule of the baggage car ahead and the caboose behind. One of the crew walked by with a wicker hamper full of food goodies; just like the old time breadman who would come to your door. "What kinds of sandwiches do you have?" I asked him. "Well, we got cheese, CN Steak and tomato" he said. I thought a steak sandwich sounded OK (especially for \$1.50), so I bought one and opened it up. CN Steak turned out to be baloney! The joke was on me. I wondered if VIA thought up the name; it was quite appropriate.

We rolled through the former mining town of Sherritt, now virtually a ghost town. In the early



fifties, Sherrit-Gordon Mines moved everything from here--machines, buildings and people--many miles north to Lynn Lake when the mine started to play out. This was an incredible job since it was done in the middle of winter, using Caterpillar trains over some of the roughest terrain in Canada. The rail line was built only some time later. Of interest to railfans may be the fact that this is one of the few lines in Canada which has never had a steam powered train over it; it was dieselized from the start.

We stopped at the Indian reserve of Puktaawagon and picked up a crowd of locals going to Lynn Lake for a large funeral. Here, I lost my seat to some of the children as I was riding the vestibule; the old coach was filled to capacity (hard to believe, eh, Jean-Luc?). Most had special reserve tickets which the conductor punched, writing the passenger's name down in a register. It was at this point that I noticed, since the departure of my American friends, that I was the only white person on the train, excepting the crew. Some of the new passengers were obviously under the influence, so to speak, and I had to share my seat, along with the kids, with a husky native who expounded on his theories of how I would not survive in this bush, on the basis of my skin colour. I guess he was the comedian of the group, since he got quite a few chuckles from his friends, but he made me uneasy all the way to Lynn Lake.

We got into Lynn Lake late, at 12:30 A.M., and I finally got a cab into town at 1:30. I would not recommend that anyone see the sights in Lynn Lake; it just isn't safe to do so. The people here are the most unfriendly and tough I have ever met. I got a room at the Gordon Hotel and was almost involved in a drunken fracas which erupted outside. The local Mountie came up in a Jeep Wagoneer with bars on the windows and took some time sorting out the culprits, finally putting an Indian man and woman under the influence into the back. He told the crowd to leave the scene or they would go with him, too! After they left, I went back to bed, but I was able to get up for the 7:00 departure of the train back to The Pas with no trouble, as I didn't sleep all night (too scared of this place). I got a cab back to the station and was the first on the Mixed that morning. The conductor asked, "Did you see everything you wanted?" and I had to say "Yeah, only too much".

It was raining hard as I set myself up inside the same car that I had come up in and watched them tack on several gons and hoppers full of ore concentrate. I noticed the conductor and the Indian whom I had sat beside the day before on the platform. "You're getting on at McVeigh? Well, don't be loading any booze on at McVeigh!" said the conductor. It seemed our friend was going to taxi down the rail line to McVeigh and then board the train there later. The conductor was pointing out to him that he could not take booze back to the reservation at Puktaawagon (as per the Indian Act). We rolled fast out of town, around a curve and back into the bush; you would not know there was anything there except for the brown smoke from the Sherrit-Gordon stacks. We reached McVeigh and our friend was there, with a case under his coat. The conductor told him to either chuck it or he wouldn't be getting on. Our friend refused, the conductor said "highball" into his walkie-talkie, and we left him there in the bush, still holding onto his precious case. Rules are rules.

We let most of our fellow travellers off at Puktaawagon and Cranberry Portage, and in early evening reached The Pas again, where the concentrate cars were shuffled about the yard. I explored about a bit and then boarded the train for Winnipeg and then on home. I enjoyed these excursions into the unknown and would recommend trips like these to anyone who has a sense of adventure and who wishes to explore railroading in other parts of Canada. You are limited only by your railroad timetable and your imagination.



#### WESTERN ONTARIO NOTES by George W. Pearce

--CN held hearings recently in regard to abandonment of the 1.1 mile Fergus town spur, but no decision has been announced publicly. Privately, the railway probably has no intention of spending an estimated \$250,000-plus on reconstruction of the line.

--CP Rail is still using the Elora Sub. infrequently, but has not placed a car into the GSW factory for months; instead, cars are placed on the interchange track for CN's Guelph switcher to move into the factory on its track.

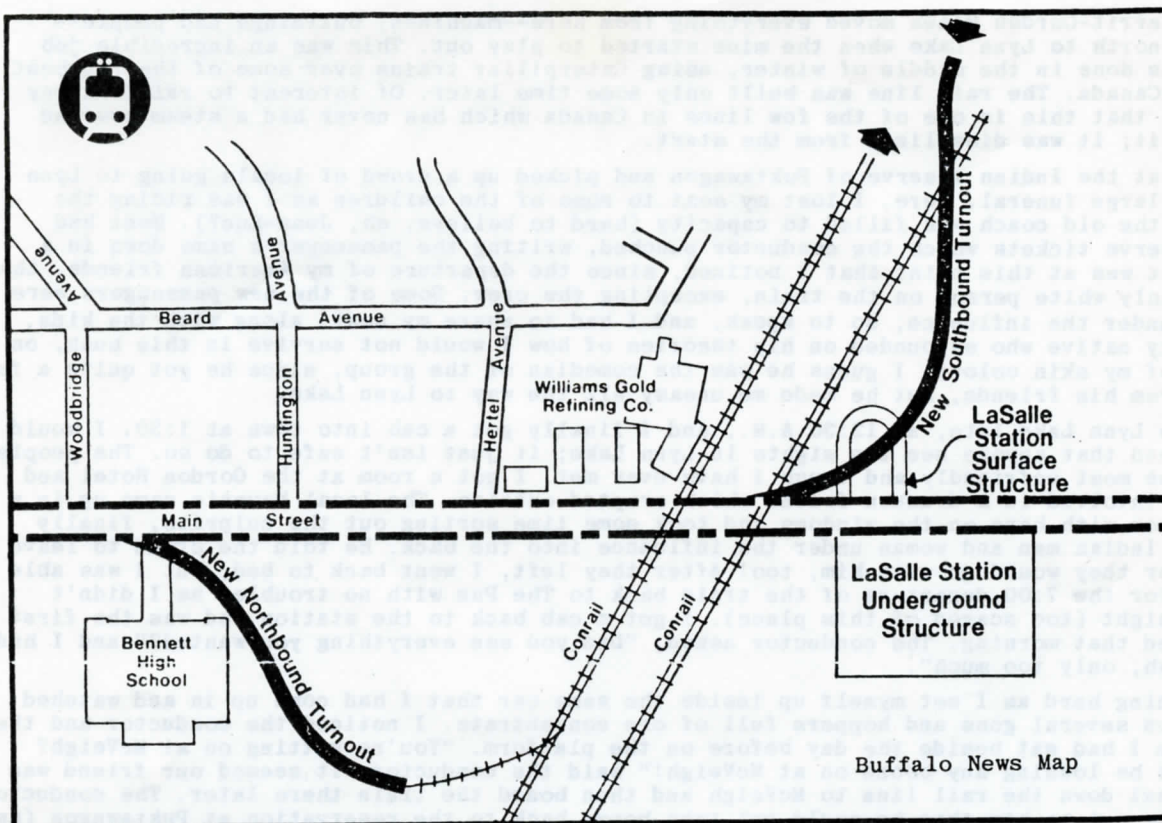
--As Brian Nickle reported, Palmerston is now closed as an operator/agency. The last agent/operator, Brock Gurney, had planned on taking up a position at St. Thomas, but health problems forced him to take his pension instead (he was eligible for full pension in any case). CN's Bruce sees only one train a week now, i.e., the round tripper to Owen Sound. Service to other branches is on an "as required" basis, but very little service is required as the shippers have deserted the railway (or vice versa) in favour of trucks long ago.

--CN Mogul 81, on display at Palmerston, provides a perfect symbol for the present status of the railway in that community--it is downright junky, just as the present railway services are. For years, a retired CN employee lavished hours of tender loving care on the little engine, and it and the grounds around it were in pristine shape. After his passing, no one took over his interests and efforts, and now 81 is a sorry sight. Everything smashable is smashed, and everything removable is gone. The Town Council has discussed restoration of the locomotive, but the Council became financially embarrassed last year, thanks to a dishonest Town Treasurer, and Palmerston is busy just trying to raise enough money to pay off its debts. As a result 81 will probably become rustier and seedier.

--CN Northern 6167 in Guelph, restored by several members of the Correctional Institution, still looks beautiful with no signs of vandalism. Thanks to a new Gray Coach Lines bus terminal having been opened recently only about 50 yards away from the locomotive, the area occupied by 6167 is now very well lighted at night, and with bus patrons coming and going at all hours, is indirectly protected as well.

Brain-teaser: What steam era CNR passenger trains must qualify as two of the shortest distance numbered, timetabled trains ever to have operated? (Answer will appear in the March issue).





## news

Contrary to the statement made in Newsletter 396, the south terminal for operating purposes will not be in the carhouse yard but rather at a scissors crossover installed on Main Street just north of Memorial Auditorium. There is also a single facing crossover some distance to the south of the Auditorium to allow flexibility of operation in this area when events are taking place at the facility...Only Tracks 5,7,9, 10 and 12 have been laid in the South Park Carhouse for the time being (see map in Newsletter 388), with the others to be delayed, presumably, until there is a second car order; lengths of 115 lb. rail used in the carhouse were trimmed from 39 feet to 35 feet in order that welded sections would be centred on vertical supports along inspection pits...The connection from the present LRRT line to the future extension to the Tonawandas has been redesigned for March bidding as per the accompanying map, after specifications for the previous layout were called back in November. The Williams Gold Refining Co. had threatened legal action over the previous design. As will be seen from the map, Tonawanda trains will miss LaSalle Station; financing for this station, which had earlier been deleted from the construction budget, is being sought from UMTA...NFTA intends to negotiate with Conrail for the purchase of the latter's abandoned Niagara Falls secondary track (the former Erie Railroad Niagara Falls Branch) between Main St., Buffalo and Fillmore St. in the City of Tonawanda, a distance of 5.3 miles; Conrail is proposing to abandon the next section of this line, from Fillmore St. onward to Oliver St. in the City of North Tonawanda, which, if acquired by NFTA, would permit the Tonawandas extension to be carried to its intended terminal. Beyond this point a brief section of the line remains in active Conrail use, but from Frederick St. northward is abandoned for another 1.5 miles. Beyond this, the right-of-way is owned by the State of New York (acquired for an expressway which is no longer intended to be constructed), and has the potential to carry NFTA trains all the way to downtown Niagara Falls, N.Y....The other leg of the first priority extension, the Amherst Corridor, will be considerably more difficult than the Tonawandas Extension because of the lack of any kind of right-of-way, for at least the first one and a half miles, beyond the South Campus terminal and because of local resident opposition to rapid transit through this area...The Niagara Frontier Transportation Committee has assigned second priority to a Southtowns/Near South LRRT corridor, envisioning a line to Seneca Mall. There is pressure from the Town of Hamburg to follow instead the former Erie Railroad right-of-way, now owned by Erie County. The inner portion of the extension would probably be placed on the double track width embankment of the former DL&W high line easterly from South Park Shops...The first two Tokyu LRV's are under construction and are expected to arrive in April at the Federal test track at Pueblo, Colorado, and to be forwarded to NFTA in June; their livery will be basically white with brown, orange and yellow striping.

--"On the Move" (NFTA) and various other sources

Included with this issue of the Newsletter is a copy of the new TTC brochure describing the ICTS car for the Scarborough RT line. The Society thanks the TTC and particularly our member Ray Corley, Superintendent of Design and Development, for providing the brochures.





# UCRS and other events and activities

by Ed Campbell

The election of Directors is one of the most important events of the year for the Society, so be sure to attend the Annual Meeting at the Education Centre, College and McCaul Streets, Toronto at 8 P.M. on Friday, February 18. Three Directors will, if necessary, be elected. Why not stand for election? Nominations may be made from the floor at the meeting, so come and take part.

--The UCRS store at the CN St. Clair Avenue Station in Toronto will be open on Saturday, February 19 from 9 A.M. until 1:30 P.M. The station is located on the north side of St. Clair Avenue, just west of Caledonia Road, on the east side of the CNR tracks. The 512-St. Clair cars and 18-Caledonia buses will take you to within a short distance of the station.

--The Trip Committee is actively working on an excursion and details will be given to you as soon as possible.

--The Society will have a booth at the Toronto Model Railroad Show on March 12 and 13, in the Queen Elizabeth Building, Exhibition Park, and of course will also have a booth at the Canadian National Sportmen's Show from March 18 to March 27. Jim Walther (phone 1-473-3878) and Norm English (691-8541) are asking you please to give some of your time to help in the setting up and staffing of the booth. These are two of the most important shows at which the Upper Canada Railway Society is brought to the attention of the public. Please help your Society by assisting at these booths.

--Members interested in the history of West Toronto might like to attend meetings of the West Toronto Junction Historical Society which meets in the Annette Street Public Library at 145 Annette Street on the first Thursday of the month.

--We are glad to report that John Robertson is leaving hospital and will be at his parents' home in Galt for six weeks, after which he will return to his Toronto home.

--Sincere sympathy is extended to Ed Misera, whose wife died recently. Ed has worked faithfully for almost every UCRS event for many years.

Friday, February 18--The UCRS Annual Meeting and election of Directors (minimum of three) to be held in the Education Centre at the south-east corner of College and McCaul Streets in Toronto. Also worked into the evening's proceedings will be a 100-question brainbuster quiz. There will be the usual informal get-together starting at 7 P.M. so that the meeting can start at 8 P.M. sharp. Be sure to attend.

Saturday, February 19--UCRS Publications Sales Store open from 9 A.M. to 1:30 P.M. See above.

Friday, February 25--UCRS Hamilton Chapter meeting: Hamilton members always extend a welcome to visitors. Bring some 35mm slides to show them. GO Train service direct to the CN Hamilton Station, where the meeting starts at 8 P.M. Trains leave Toronto Union Station at 1719 and 1803.

Saturday, March 12 and Sunday, March 13--Toronto Model Railroad Show, Queen Elizabeth Building, Exhibition Place, Toronto. See note above regarding assistance at the UCRS booth.

Friday, March 18 to Sunday, March 27 inclusive--Sportsmen's Show at the Coliseum, Exhibition Place, Toronto. This is a most important event for the UCRS, and a lot of help is required from members. Please call Norm English at 691-8541 to offer assistance.

Friday, March 18--Regular Toronto UCRS meeting will be held at the Education Centre, south-east corner of College and McCaul Streets. Informal get-together at 7 P.M. so that the meeting can start at 8 P.M. sharp. The program will be announced in the March Newsletter.



## Notes

**COUNTER PROPOSAL TO THE "RELIEF" LINE**--A report prepared by the City of Toronto Planning Department for consideration by City Council on February 7 is negative with respect to the TTC's proposed Union Station-Donlands "relief" rapid transit line. The report states that it would be an expensive facility which would be used at peak hours only and that, even at those times, only some 6,500 passengers would be using the 20,000 peak direction capacity that would be provided (the latter figure is based on ICTS technology, rather than Heavy Rapid Transit). The report opts instead for new LRT lines on both Spadina Avenue and Bay Street, as well as a Sherbourne express bus route using articulated vehicles. The City report mentions that a Bay LRT line was proposed to the TTC by its own consultants, the IBI Group, in a report on surface transit improvements as relief measures to overcrowding on the subway system. The City report suggests that an LRT line on Bay St. would require a 20-foot exclusive section of roadway and pre-emptive traffic signals, and further mentions the possibility that the tracks could go underground at Charles St. to pass under Bloor St. and connect directly with Bay Station. The line would cost some \$100 million, would provide a peak hour one way capacity of 8,000 to 10,000 passengers per hour, and by comparison with the "relief" line would appear to have the following advantages: (1) one-quarter of the capital cost; (2) better off-peak usage; (3) it would serve passengers transferring to and from both ends of the Bloor-Danforth Subway; (4) it would serve an active development corridor throughout its length, including the area south of Front St. (While nothing is said about it in the report, the remainder of the present Bay trolley coach route north of Bloor St. and the Annette t.c. route would constitute a natural merger).

Also advocated, a measure which the TTC itself favours, is a reduction in peak hour headways on the Yonge-University-Spadina subway line from two minutes, 10 seconds to two minutes by the addition of two more trains per hour. This would produce a capacity increase on the Yonge line



of 3000 to 4000 passengers per hour (or 6000 to 8000 per hour to downtown when considering both the Yonge and the University legs of the system). This combination of LRT routes, a high capacity express bus route and a modest headway reduction on the Y-U-S subway are felt to have the potential to put off the need for any new centrally oriented HRT (or ICTS?) lines until after 1995, based on present employment growth rates. In the meantime, the report suggests, available capital funds could be devoted to suburban rapid transit development.

--After a long period devoid of change in Toronto, the peridromophile (transfer collector) has something to excite him. The TTC began, on January 12, to issue surface route transfers adorned with advertising. The Commission hopes not only to cancel out the \$450,000 annual cost of printing transfers with the revenue from the ads, but also to make a tidy profit on the venture, which may yield over \$1 million per year. The TTC has signed a three-year agreement with Transfertel Inc., an advertising marketing firm, which guarantees \$102,000 in revenue annually. The two-inch deep pictorial ads appear directly under the second date at the top of the transfer (below the P.M. slip perforation), while the route name and the balance of the printing on the face of the transfer are placed in somewhat compressed form below the ad. The latter appears also on the reverse side of the transfer. Incidentally, for those who might be curious on the subject, the traditional street car route names continue to be used on transfers, without numbers, even though the names have disappeared from sign linens. Another aspect of the advertising program, involving transfers with a tear-off coupon valid for a discount on the purchase of pizzas and records, may be respectively tested at a later date. Advertising will not appear on subway transfers, at least for the present, as the latter are printed by issuing machines.

--Additional stanchions are being added in H class subway cars. In combination with new horizontal grab rails, from which they extend to a mounting on the longitudinal seat frame, they provide some stability for standees in the end sections of H-5 cars, in which sections had previously little to hold on to except other passengers. The stanchions are also being added to longitudinal seats at other locations in the older H cars, and have the function (whether such was intended or not) of disciplining the positioning of passengers on the three-place seats by making it more difficult for two passengers to usurp the space intended for three. The first non-H-5 cars observed by the Editor as having the new stanchions were 5574-5575, on Jan. 20.

--A particularly vexatious split switch accident befell CLRV 4019 at 5:42 P.M. on Jan. 5 at the intersection of Gerrard and Broadview. The car was negotiating the right hand curve from east to south, without passengers, on a short turn movement on 506-Carlton, Run 20. The front truck took the curve, but for reasons not explained the rear truck continued on the eastbound track to the point where the car "did the splits", tying up the intersection and no less than three carlines. Attempts to back the car into position were complicated by the fact that the contorted angle of the carbody caused the rear truck to jam against a steel fender bracket in the truck well. After efforts to remove the car had twice caused the rear truck to derail, the bracket was removed with a cutting torch. The car was then rerailed, backed into position and towed to Russell Carhouse, under police escort, by car 4043. 4019 left the accident scene at 9:50 P.M., 248 minutes after the occurrence.

--In an unusual mid-winter track job, the TTC replaced the rails in Long Branch Loop (the curved loop rails and a section of approach track immediately adjacent to the loop) in the second week of January.

--Harold Glover

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