Newsletter

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Five years ago this was the commonplace! In this photo by R.S. George of Oakville, C.P.'s H-1d class Hudson no. 2856 marches through Hornby Ontario with third no. 92.

UPPER CANADA RAILWAY SOCIETY
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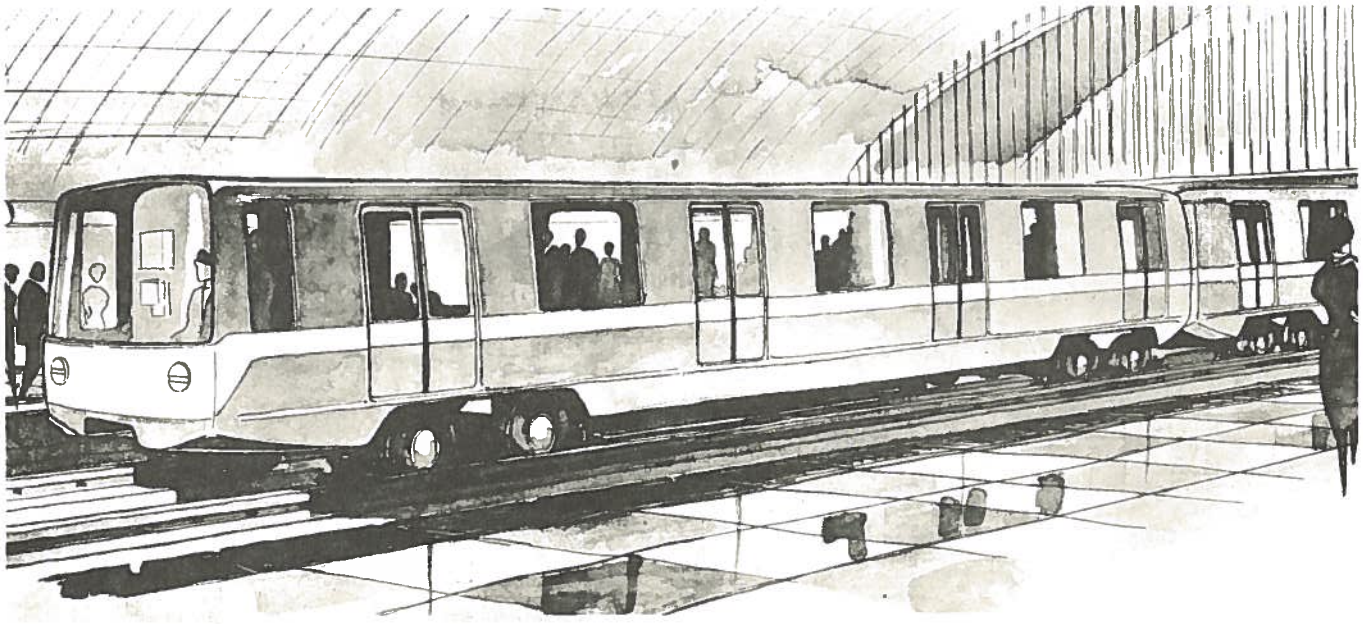
STEEL WHEELS

The question of whether to employ steel wheels or rubber tires for rapid transit equipment is one which has been and is being considered by a number of new developing transit authorities. The question is most important because it has many ramifications affecting system costs, reliability, effectiveness and safety. With such vital factors in the balance which can spell success or failure of the system, the question must be carefully and objectively resolved.

The decision of whether to employ steel wheels or rubber tires for rapid transit equipment must, therefore, be based on sound engineering and economic evaluation. In approaching this evaluation, it is necessary that certain basic objectives of and requirements for a successful system must be kept in mind:

Proven in over-all feasibility and capability,
Reliable system and equipment design,
Operationally practical,

OR RUBBER TIRES?



Applicable to surface, subway and elevated operations,
Physically compatible with streets and expressways,
Safe in design and operation,
Reasonable in first cost,
Economical to maintain roadbed and equipment,
Economical to operate,
Pleasing over-all appearance,
Capable of future expansion,
Agreeable to the passenger in riding quality and stability,
Acceptable inside and outside noise levels,
Maximum braking and acceleration performance.

The evaluation of steel wheels and rubber tires involves the careful consideration of a number of principal factors having direct bearing on the above objectives and requirements. In the following discussion, a conventional steel-wheeled configuration will be compared with the simplest rubber-tired configuration, one with two sets of vertical support wheels and two sets of guide wheels.

GUIDANCE

Steel wheels provide for vertical support as well as guiding action by reason of the flange and wheel taper. Guidance with the steel wheel is a continuous, subtle effect achieved by the flange and taper. Rubber-tired wheels provide vertical support only. They must be augmented by lateral guidance wheels. These guiding wheels require additional running surfaces and extension of the running gear framing. To provide the necessary guiding effect, the lateral guiding wheels must be precompressed between the running surfaces. This in turn has an adverse effect on maintenance and vehicle drag. The vertical surfaces against which the guiding wheels bear are considerably above the level of the steel wheel flange. Provision must be made for support of these surfaces from the roadbed.

RUNNING SURFACES

Steel wheels require two relatively simple aligned rails which perform a dual function, vertical support and transverse guidance. Rubber tires require at least four independently aligned running surfaces. Some rubber-tires systems now in operation require a total of six running surfaces to provide for vertical support, guiding and stability. The vertical running surfaces must be supported by brackets or other structure from the roadbed.

For both steel wheels and rubber tires, provision must be made for alignment and replacement or refinishing of the running surfaces. For steel wheels welded rail in long sections can be used. For rubber tires the running surfaces, if removable, must be made in relatively short lengths to permit handling.

Flanged steel safety wheels are frequently employed with rubber-tired configurations. These in turn require two rails which must be aligned relative to the other running surface.

BRAKING, ACCELERATION AND DRAG

The wheel to roadbed adhesion is considerably greater under dry conditions for rubber tires than for steel wheels. However, passenger tolerance, particularlyly that of standees, limits the acceleration and deceleration rates as well as the change of those rates. Power availability, optimum performance characteristics and braking capacity also apply limits to these rates. Realistic and acceptable rates are well below the maximum rates possible for both steel wheels and rubber tires.

The greater roadbed adhesion of rubber tires under dry conditions permits the negotiation of extremely steep grades which could not be negotiated by steel wheels. Here again, human tolerance, power availability and economics would provide maximum grade limits which would for the most part be within the range of steel wheels. It is possible that some portions of a system could reasonably use grades beyond that possible for steel wheels.

The rolling friction of rubber tires is much greater than that of steel wheels. For rubber-tired running gear this effect is compounded by the precompressed guiding wheels. This increased drag results in considerable increased power costs for the same performance or decreased performance for the same power consumption.

All of the above comments relate to dry roadbed. The greater adhesion of the rubber tire is lost under non-dry conditions.

SWITCHING

In switching steel-wheeled running gear, sections of the rail are simply moved. In intersections no special provisions need be made other than slots for the wheel flange to pass through. With rubber tired running gear the vertical running surfaces are either above or below the horizontal running surfaces and, therefore, cannot be extended through intersection points.

At these points other means for guidance must be used. The entire roadbed could be switched, for example, and in some rubber-tired systems this is actually done. In the case of the rubber-tired system being discussed here the flanged steel safety wheels would come into use to guide the running gear through the intersection. These safety wheels could develop flange contact only or both tread and flange contact, but once the intersection point had been traversed the rubber-tired guide wheels and vertical running surfaces would again take up the guiding function.

NOISE LEVEL

Rubber tires would appreciably lower the outside noise level as compared to steel wheels on a conventionally ballasted roadbed. The difference would be particularly noticeable in subway application. With modern carbuilding methods and steel-wheeled running gear design, the transmitted noise level inside a vehicle would be substantially the same for both steel wheels and rubber tires.

With steel wheels the external noise level can be materially reduced through tunnel and structure design, roadbed insulation and running gear springing. By employing modern techniques in the right-of-way design and in the equipment design of steel-wheeled configurations, entirely acceptable noise levels, although not as low as with rubber tires, can be attained.

CAR BODY

For equivalent carrying capacity rubber tires are much larger than steel wheels. Also rubber tires have a very definite load carrying limit. This capacity limits in turn the weight and hence size of the car body which may prevent an optimum car size from being selected. Steel wheels, even the smallest size used for rapid transit equipment, have ample load carrying capability for the longest cars required.

Because of the diameter difference, a car with an unobstructed floor can be appreciably lower when steel wheels rather than rubber tires are used. This can result in smaller tunnel diameters and reduced clearance requirements for car bodies of the same cross section. In many instances this would prove to be a major system cost savings. A lower car body centre of gravity afforded by steel wheels would also improve the transverse stability of the car.

It is believed that car body weight for both types of running gear would be comparable. A major portion of car body weight is represented by equipment which would be necessary in either case. Car structure would also be comparable if the same requirements of maintenance and life are met.

Investigations and studies reveal that generally the rubber-tired running gear would weigh, as well as cost, somewhat more than the steel-wheeled running gear because of its greater complexity. Therefore, it would be expected that a complete car with rubber-tired running gear, equivalent in performance and passenger capacity, would weigh and cost somewhat more than a corresponding car with steel wheels.

RIDING QUALITY

Riding quality is basically a function of suspension and running surface design and condition. The relationship of noise and psychological factors will not be covered here.

Maintenance of track alignment is a most important factor. Maintenance of the four relatively large area running surfaces for rubber tires is more difficult than maintenance of alignment of two rails. In the case of rubber tires, the pre-

compressed guide wheels are more sensitive to vertical running surface misalignment than in the case of steel wheels which tend to "hunt" under the constant influence of wheel contour.

Rubber tires do provide additional vertical springing at the best point in the load path, at contact between wheel and running surface where shock and impact originate. In steel-wheeled arrangements, additional springing must be provided within the running gear to minimize the unsprung weight and to compensate for that which remains. We believe, however, that in properly designed steel-wheeled and rubber-tired systems, the riding quality would be comparable.

SAFETY AND RELIABILITY

The safety and reliability of steel-wheeled running gear has been demonstrated by billions of passenger miles. The demonstration for rubber-tired running gear in rapid transit operation is limited essentially to that of a few systems overseas. The experience of this operation in regard to safety and reliability has apparently been good.

In order to achieve a satisfactory level of safety with rubber tires, additional steel wheels must be employed which carry the vertical load and perform the guiding function in the event of failure of any of the rubber tires. In the event of failure it is, of course, necessary to reduce train speed until a convenient set-out point is reached.

With steel safety wheels plus sound operating and maintenance practices, the safety and reliability of a rubber-tired system can be made to approach that of a steel-wheeled system. However, these additional safeguards constitute weight, cost and operational penalties which must be considered in the evaluation of the overall system.

SPEED

Speed, particularly scheduled speed, is a function of power available, safety considerations, passenger comfort, system operating and cost factors, and running surface configuration and alignment. If these factors are comparable for a steel-wheeled system and a rubber-tired system, the speeds should likewise be comparable. This is particularly true since acceleration and deceleration rates would be comparable for the reasons stated earlier.

MAINTENANCE

In the case of rubber-tired running gear, four or six sets of wheels and running surfaces must be maintained compared to only two rails for steel wheels. Steel wheels have a much longer life than rubber tires and require limited in-service attention. Rubber-tired running gear require more maintenance because of greater complexity. In addition differentials are required for rubber tires which materially complicates the drive assembly and increases maintenance.

The relationship of wheels within the rubber-tired running gear must be closely maintained. This relationship depends upon tire wear, tire pressure, safety wheel flange engagement and precompression of the guide wheels. This problem does not exist with steel-wheeled running gear.

WEATHER CONDITIONS

Steel wheels have a very small area of contact with the rail and hence a high bearing pressure. Rubber tires have a large area of contact with the running surface and hence a relatively low bearing pressure.

In the presence of ice, snow or sleet, the steel wheel cuts through to develop and maintain rail contact. The rubber tire is unable to do this with the result that ice and snow builds up and packs under it thereby destroying adhesion. Steel wheels can operate under all weather conditions. Rubber-tired equipment must be protected from adverse weather conditions or provision must be made to remove ice and snow from the running surfaces through mechanical, chemical or heating means.

SUMMARY

Rubber-tired running gear provide two principal advantages over steel wheels:

somewhat lower external noise level and the ability to negotiate steeper grades. As mentioned, the external noise level of steel wheels with modern car and running gear design can be substantially reduced to an acceptable level. The value of being able to negotiate steeper grades has to be economically determined for each particular system. In most systems grades are not required or desired that cannot be negotiated by steel-wheeled vehicles. In some systems, however, where extreme topography and peculiar substructures are encountered, it may prove of economic value to be able to change elevation in shorter distances.

Steel-wheeled running gear provide several advantages. The running gear is simpler in design and weighs less, thereby producing a lighter weight and lower cost car. The roadbed for steel-wheeled equipment is simpler resulting in lower initial and maintenance costs of the system. Vehicle drag is substantially less resulting in lower operating costs. The smaller wheel diameter permits a lower car, thereby permitting minimum tunnel diameters and clearance requirements which result in lower system costs.

Transit authorities, consultants and others considering the question of steel wheels and rubber tires should thoroughly explore and weigh all of the principal factors presented here. The question as mentioned earlier is most important because of all of its ramifications. Once a rapid transit system is established it cannot readily be changed without large financial, psychological and time losses. The decision must be the right one. The decision, therefore, must be based on sound engineering and economic evaluation, and not merely on political or nationalistic motivations.

The activity in the transit equipment supply industry is attracting many new groups having services and equipment to sell. Certain of these groups, unfortunately, have less credentials than desirable. However, some new groups will, no doubt, make definite contributions to the advance of the industry but others may produce the opposite effect. It is imperative, therefore, that the voice of those established operators and suppliers, both in Canada and the United States, be clearly heard in this forthcoming period, to help insure that the establishment of new rapid transit systems will be based on sound and logical decisions. This is one of the most significant ways in which the industry can grow and advance at a maximum rate.

The preceding paper was presented by R. L. Lich of the St. Louis Car Division of General Steel Industries at a meeting of the American Transit Association Advisory Committee on Rail Cars in late 1963. Our thanks to R.F. Corley of Peterborough for forwarding a copy of the paper to the Editor.

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and forgotten last month were D.W. Hately, J.A. Nanders, R.J. Sandusky

COMMENT ! by Peter A. Meldrum

In this, the first of what I hope will be a continuing monthly column, I feel that it would be proper for me to set out certain facts, the most important being that this column represents the views of one person only, the author, and not those of the Editor and his staff. My purpose is to comment upon, to criticise and to praise as necessary the railways of Canada and the United States. It is hoped that in the ensuing months we will be able to stimulate some controversy and argument among our readers.

Thus, I would appreciate hearing from members of the Society or from any of our affiliated organisations. From time to time I will publish some of these letters and my replies to them. However, I would ask that all letters be addressed directly to me, and please, if you have any comments to make, would you make them by mail, and not telephone. Lastly, but most importantly, all correspondence must be signed as unsigned letters will be consigned to the nearest garbage container.

Now that I have introduced myself, I shall get down to the business at hand. I applaud the C.N. and the C.P. for their fares reductions and the C.N.'s obvious desire to increase their passenger carryings. However, in the typical North American tradition, the operating departments seem to have no liason with passenger sales and thus we have the ludicrous sight of the railway having to hire buses, and even taxis, to handle passengers for which its operating department has failed to provide coaches (see Newsletter 213, p. 157). Getting people to use the trains is a great idea, but they won't come back if the service is not satisfactory.

A similar situation has occured more recently when the railways announced that they were booked solid for weeks before Christmas.

If all the space on available cars is all sold out, why can't extras be run with some of the stock which is sitting around in yards, most of which could be restored to revenue service with only the simplest of servicing and repairs?

It is very nice to trumpet in newspapers, on radio and television, that new low fares are available, but if you haven't any space for prospective passengers it does your image no good and publicising this in newspapers only compounds an already ridiculous situation.

I have heard people say that it is hard to sell service, but this is not true at all. It is only hard to sell bad service. The railways will find this out to their chagrin.

A distressing lack of initiative is also evident in the scheduling of passenger trains in this country. At one time we were in the forefront of mainline, high-speed passenger service. Now, however, we are far down the list in comparison to most of the world's major railways.

The only area in which there has been any real improvement has been in the transcontinental schedules. The timetables between the two major cities of the country have not been improved since the second World War.

It seems to me that if the British can cover a slightly longer distance with several trains and at the same time over a line on which the track occupancy approaches the incredible, there seems no reason why our adherence to a schedule which was barely adequate at the end of World War II should continue.

I see no reason why we cannot have a journey time of 4½ to 5 hours between Toronto and Montreal. I am sure that a considerable amount of this reduction could be achieved by removing many of the useless station stops which are now included in the timetable. I am sure that we in this country have reached the point where we can expect non-stop express service between major cities. It is my own personal opinion that if one of the railways would put such a train in operation and back it with a sufficiently comprehensive advertising campaign, they would be surprised by the response of the travelling public.

(Editor's Note: The opinions expressed above do not represent those of the Editor or the Society. Address all correspondence concerning this column to the author, Peter A. Meldrum, at Apt. 105, 16 The Links Road, Willowdale, Ontario.)

How to Move a Giant

by R.F. Corley.

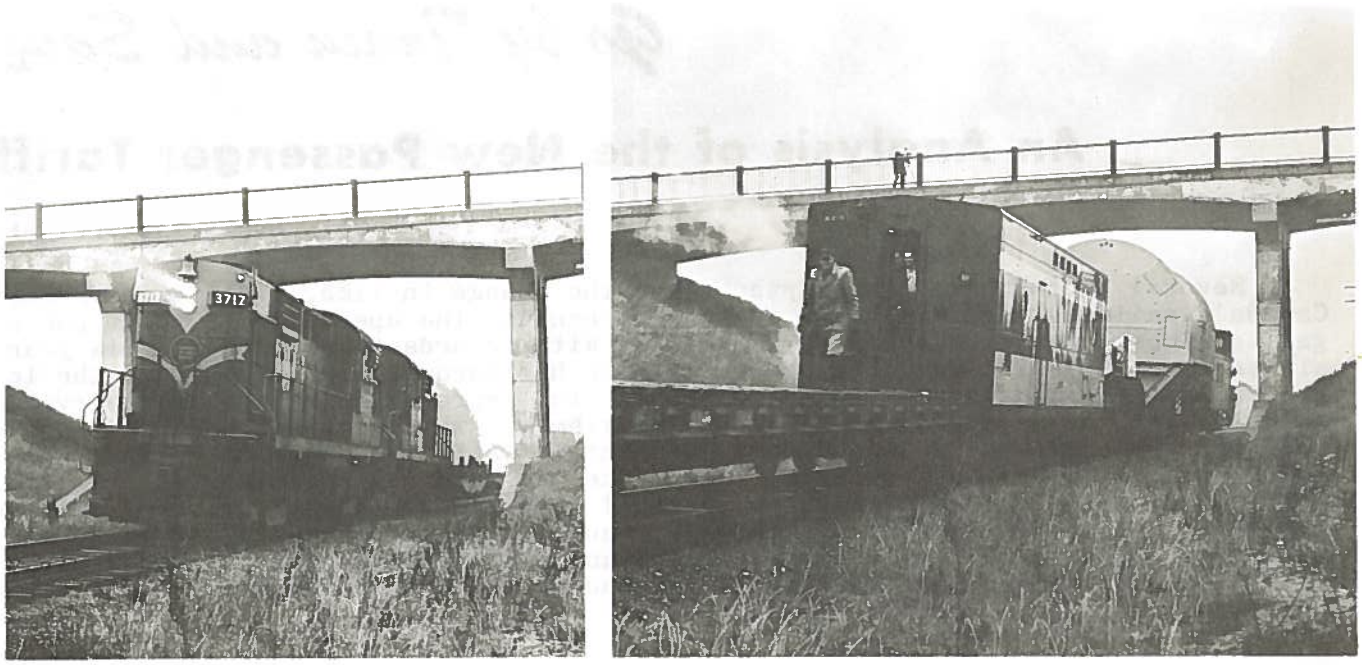
photo courtesy Canadian General Electric

On Thursday, November 28th, 1963, the largest single car shipment on a Canadian railroad started out from Peterborough. The load was the stator of the first of four 300 megawatt turbo-generators being built by Canadian General Electric Company for the H.E.P.C. of Ontario's Lakeview Generating Station, west of Toronto, shipped via Canadian National Railways.

The stator, weighing 230 tons, was loaded on a special 89 foot, 110 ton car, which is very interesting. It is one of a group manufactured by the Thrall Mfg. Co., North Chicago, Ill. for the General Electric Company and is based at Pittsfield, Mass. for making shipments of large power transformers. The particular car was GEX-40003, built in January, 1962. Its capacity is 500,000 lbs., with a load limit of 529,000 lbs., light weight is 220,800 lbs. Of a well bottom flat design, it is supported at each end by span bolsters, each carrying one 6 wheel and one 4 wheel truck - the 6 wheel truck being at the outer or coupling end in each case - a total of 20 wheels.

During shipment the services of a steam generator car (C.N.R. 15450) were employed to heat the water-cooled stator winding to control expansion and contraction due to temperature changes.

C.N.R. road-switcher 1319 pulled 15450 and the big load out of the plant in early afternoon of November 28th. Part of a building had to be demolished to permit the exit, and clearances on the access track from plant out to the main line were critical. Half way out 1319 ran around the wye formed by the CN and CP interchange tracks and then pushed the 2 cars up to a siding in the yard south of the CN station.



ABOVE: Extra 3717 West sets out over the Uxbridge Subdivision with three flat cars, a steam generator, the 20-wheeled car and a van. photo courtesy Canadian General Electric

At daybreak on Friday, November 29th, the load moved off to Toronto via Lindsay, hauled by 2 1800 hp MLW road-switchers (led by 3717) with a number of flats between the locomotives and the 2 cars, to "spread" the loading. (It will be remembered that the long trestle over Doube's Creek, between Lindsay and Peterborough, was rehabilitated last year).

The empty car arrived back in Peterborough on December 6th, for return to the U.S.A. until the next stator is ready for shipment in 1964.

C.N.R. Report

* In early November, C.N.R. work crews passed the half-way point on the 15-mile branch line being constructed in New Brunswick from Nepisiqiut Junction to the lead, zinc and copper deposits being worked by Brunswick Mining and Smelting. The completed line will haul ore from a concentrator to be erected on the site. The one hundred men employed on the project are continuing ballasting through the winter.

The first 2.8 miles of this line have been laid on the abandoned grade of the New Brunswick and Seaboard Railway, an old mining line in this area.

* New steel on the C.N. Milton Subdivision, being laid as a part of the Toronto Terminal access line project, and which has progressed simultaneously south from Georgetown and north from Burlington, met late in December. The subdivision has been completely out of use during the reconstruction project.

* The C.N.R. ferry William Carson, operated on the Sydney-Port aux Basques run has been placed in drydock in order to have its passenger capacity increased to 500 persons.

* The New Brunswick - Prince Edward Island road and rail link has been decided as a 2-mile tunnel and seven miles of causeway, across the Straits of Northumberland. The cost of construction under this combination will be $80 to $90 million as against $105 million for a straight causeway.

Go by Train and Save!

An Analysis of the New Passenger Tariffs

by Harlan Creighton

Several months have now elapsed since the change in time, that date on which Canada's railways unveiled their ideas concerning the operation of their passenger services during the coming six months. With regards to schedules, this year's winter timetables followed the pattern which has become established over the last few years: the Canadian National continued to improve their passenger services, notably with the acceleration of the Scotian in the Maritimes and the improved schedule and equipment on the Super Continental, while the Canadian Pacific simply made the usual winter adjustments, and made no major improvements in its train services at all. And so, although the Fall 1963--Winter 1964 timetables will not likely be remembered because of schedule changes, they do nonetheless represent a milestone in Canadian, if not North American, railway passenger history. It was this timetable change that saw the C.N.R. and C.P.R. introduce new fares, fares that, in some cases, are unbelievably low.

The Need for New Tariffs

Certainly one factor retarding the development and improvement of North American railway passenger service is the antiquated system of fares on which passenger revenues depend, a system embracing two (and in some cases three) classes of travel, countless special fares (such as weekend, group, and party rates), complicated ticketing systems and almost unimaginably involved tariffs governing all this. This traditional marketing scheme has been in effect on this continent for decades, during which time the position of the railway in the passenger traffic market has undergone a drastic change; no longer does the railway dominate the minds of the travelling public. Instead, the modern rail system is engaged in a bitter life and death battle with bus lines, airlines, and most especially with the private automobile - that ubiquitous product of twentieth century science and industry. As a result of this struggle, railway passenger traffic has been steadily declining in both volume and revenue while the traffic which does remain comes in such sharp fluctuations, peaks at holiday periods such as Christmas, Easter, and Labor Day Weekend, depressions during the winter weeks, that the railways must keep in storage a great number of additional cars to handle these peak crowds. This is a very expensive situation indeed.

But that is not all. There is the dining car deficit, caused by the expense of operating a heavy and costly piece of equipment representing an investment of several hundreds of thousands of dollars, an investment which, incidently, has seldom paid off because the terrific cost of the meals served in these cars scares most passengers away from them while there are the continuing complaints from passengers about too many stops and the inevitable annoyance experienced when it is desired to change from coach to sleeper. And last, but certainly not least, there is the obvious fact that today's railways make more money on long distant travel than on short haul traffic. These are a few, but by no means all, of the problems surrounding the passenger traffic manager of any of today's major rail systems.

C. N.'s Solution

Ever since Donald Gordon became President of the C.N.R., that railway has really been going places. Despite what certain politicians in Ottawa would have us believe, Mr. Gordon has effectively changed the C.N.R. from what was once called a "dilapidated junk heap" to one of North America's most modern and progressive rail systems. One of his methods has been the elimination of tradition for the sake of tradition in railway operations. Just because it has always been done that way is irrelevant if it can be improved by doing the task another

way. Moreover, Donald Gordon has brought new blood into the C.N. Take for instance Pierre Delagrave, the C.N.'s General Passenger Sales Manager. Like Donald Gordon, Pierre Delagrave is not afraid of something new.

Add Gordon and Delagrave and you get a combination which yields new ideas for attracting passenger traffic. To see the evidence of this, simply study the C.N. timetables from 1960 to the present and compare the C.N.'s changes to the C.P.'s changes.

And so the C.N. passenger department undertook a thorough study of its operations and traffic both present and future and came up with much the same result that many another railway has from similar studies. Some of these problems have been outlined in preceding paragraphs. However, there is one difference between the C.N.'s study and any other railway's: C.N. was in a position to remedy the situation because of relaxed Board of Transport regulations covering passenger fares. And what is more, C.N. wanted to do something about it. The net result was the now famous Maritime Experiment, also called the Red White and Blue Plan, inaugurated on May 1st, 1962 between Montreal and the Maritimes. This was a radically new fare scheme which was a complete departure from traditional railway pricing. Not only were fares slashed by in some cases as much as 44%, but many other traditional features such as varying class of travel and round trip tickets were abolished as well. The experiment, the first major change in rail tariffs in decades, was variously greeted by Canadian and American railroaders, some regarding it as a glimmer of hope in that uncertain atmosphere in which passenger trains operate today; others shook their heads and wished it had been introduced a decade earlier, while there were those who pessimistically laughed at the scheme as "Gordon's Folly" and invited bets on the duration of time it would take for the C.N. to admit defeat.

The confession never came. At the end of 1962, C.N. reported tremendous increases in both passenger volume and revenues in the test area. In some of the cases, volume was up 200%. The Ocean Limited, crack Montreal to Halifax train, showed the first profit in years and the other trains, the Maritime Express and the Scotian were not far under the line. This increased revenue helped the C.N. show the first increase in passenger receipts since 1957 in its 1962 Annual Report. It may have been only $600,000, but it was a step in the right direction.

And so, encouraged by the success of Red White and Blue in the Maritimes, C.N. began making plans to extend the scheme to other parts of Canada. By the middle of 1963, the system was in effect in Newfoundland and had been adopted by the Ontario Northland Railway when C.N. introduced it to the Toronto to North Bay, Cochrane and Hearst lines in late June. Red White and Blue was on the march. By late summer it was obvious that C.N. eventually wanted the system in effect on all its lines. The question was: When?

Move & Countermove

In the middle of September, the fun began. The Canadian Pacific Railway, whose policy towards its passenger services has seemed far from encouraging in recent years, announced that fares would be reduced effective October 27. Where and by how much, the announcement did not say. This was followed a few days later on September 16, by a closed circuit TV press conference linking reporters in twelve cities with C.N.'s chief passenger man Pierre Delagrave. At this time, Mr. Delagrave announced among other things, that C.N. was extending its Red White and Blue scheme to western Canada at the end of October and even gave some examples of what the new fares would be like. Indeed, although the new C.N. fares were out by the end of September, the Canadian Pacific's agents could not quote any of their new fares until the middle of October, and their tariffs did not arrive in Toronto until a few days before the change in time on October 27. However, it should be noted that the preliminary mid-October fare advice did not include points in southwestern Ontario. This forced C.N. to announce plans to introduce Red White and Blue fares in this area as well. And so, that's the story behind Canada's new train fares. Now, let us look at the fares themselves.

Red, White & Blue

C.N.'s Red White and Blue marketing system is the first major revision of

railway passenger tariffs in several decades. It is an attempt to pour oil on the fluctuating sea of passenger volume and thus to reduce the amount of equipment sitting idle on yard tracks awaiting the next traffic peak. It is an attempt to improve the railway's competitive position in the transportation market, and, most important of all, the new fare structure is a bold attempt by Canadian National and Ontario Northland at least to reduce the passenger deficit which each system sustains. To do this, the new system equates fares to fluctuations of traffic and to distance instead of basing rates on the standard per-mile rates of the old system. There are no "return" fares as such, no classes of travel, no special additional incentive fares. Instead, there are but three rates.

The standard rate is the Blue Fare. It is good on any day of the year and is an unrestricted ticket and is the only ticket on which stop-overs are generally permitted. On Fridays and Sundays during the period June to September inclusive and during major holiday periods such as Christmas and New Year's, Easter, Thanksgiving and Labour Weekend, it is the only ticket available.

Next comes the White Fare. If a passenger starts his journey on any day other than a Blue Day, he may purchase a White Ticket for continuous travel at about 22% less than the Blue Rate. (Exception - stop-overs are permitted on certain Western lines).

Finally, there is the bargain Red Fare. Costing about 44% less than the Blue Fare, Red Fares are good for travel starting any day except Friday, Sunday or during major holiday periods, from October to May inclusive. Stop-overs are not generally allowed on Red Tickets.

The above represent passage fares, or what used to be called "coach" fares. To purchase sleeping or parlor car space, a passenger must pay a fixed amount in addition to the appropriate charge and also entitles the passenger to complimentary meals. As an encouragement for group travel, the cost of the same sleeping space for more than one person is but two dollars more per additional passenger than is the rate for one person.

At the time of writing (the latter part of December) Red White and Blue fares are in effect on all C.N. lines in Canada except those in the Pool Zones between Ottawa, Montreal and Toronto, also on the lines between Montreal and Quebec and Chicoutimi and Dobleau.

Faresaver

The Canadian Pacific's Faresaver Plan really represents an across-the-board lowering of train fares. In some ways it resembles the C.N.'s Red White and Blue scheme, on which it is probably based. However, Canadian Pacific still retains the traditional classes of travel, namely first, tourist and coach. Basic passenger fares fall into two main categories: fares covering one-way journeys of less than 520 miles and fares covering journeys in excess of 520 miles. For the former catagory, there are two fares. The first is the same rate as the C.N. Red Fare and is good for coach travel any day except Fridays or Sundays when a higher fare (costing the same as C.N. White Fare) is available. For journeys of over 520 miles, one fare costing the same as a C.N. Red Fare applies for coach travel regardless of day of origination.

First and tourist class passenger fares are grouped in the same catagories as the coach fares in relation to distance. A major difference between Faresaver and Red White and Blue becomes evident here, as passengers in either tourist or first class sleeping (or first class parlor) accomodation may buy tickets which do not include meals, whereas C.N.'s plan makes complimentary meals mandatory for all sleeping or parlor car passengers. The all-inclusive rates for first class sleeping or parlor car passengers are the same as the C.N. rates for the same space on a Red day, except for trips originating on a Friday or Sunday which are under 520 miles in length, when a rate comparable to the White fare with corresponding accomodation applies.

Finally it should be noted that there are no stop-over allowed generally on Faresaver tickets. (Exception - As with Red and White C.N. tickets, stop-overs are allowed at certain Western points. Otherwise, as there is no rate comparable to the C.N.'s Blue (Standard) fare, passengers wishing stop-overs must buy separate tic-

kets to cover each part of the trip.) The present fares and arrangements are to be replaced on April 14, 1964.

Conclusions

In conclusion, two things should be mentioned. Firstly, the effect of the new fares on the railways, and secondly, the effect on Canada.

As far as the railways are concerned, a definite increase in volume of passengers has been experienced since the new fares were introduced. Judging from comments by railway officials, the press, and from the author's own observations, the C.N.'s system has gained far better acceptance than the C.P.R.'s. One reason for this is the fact that C.N. has been showing a very definite interest in its passengers during the last few years whereas the C.P.R. has shown little or no interest in this field. In addition to C.N.'s improvements in both train service, and other areas (for example bilingual timetables), the public has been well bombarded by advertising from C.N., both before and since the adoption of Red White and Blue fares nationally. These together with the fact that the fare revisions were really started by the Maritime Fare Experiment, show a very definite leadership on the part of the Canadian National in the field of railway passenger service, a role that the C.P.R. has long been regarded and has long regarded itself, as playing. But leadership, to be continued, must be evidenced by a continual pacesetting, as C.N. has been doing recently. Leadership cannot be based on past reputation alone, as the C.P.R. seems to think. (Consider some of its advertisements.) On this basis, there is strong reason to suggest that C.P.R.'s long leadership in passenger train service has come to an end.

Finally, these new, low fares may have a profound effect on Canada. Our great country has many problems which must be dealt with in the future. But there is one problem that stands out above others. That is the fact that Canadians are suspicious of other Canadians. The Prairie farmer is suspicious of the Ontario businessman, the English-Canadian is leery of the French-Canadian, The Newfoundlander does not really trust the mainlander. And this lack of confidence in each other is certainly not breeding co-operation nor national unity. One cause of this suspicion is definitely ignorance. In what other country of the same educational standard and the same civilization levels does the population know so little about itself or its country? These new train fares, and the resultant lowering of other transportation costs, have opened long distance travel to many more Canadians to travel, and to especially travel in Canada. So, perhaps, Canadians will get to know their country. Prairie farmers will meet Ontarians; French Canadians will meet English. If this should be accomplished, then Canada's railways will have done far more than just lessen their passenger deficit; they will have helped to unite a country.

C. N. R. News

* Nothing of a definite nature has been announced, but the C.N.R.'s 1963 Annual Report suggests that a major redevelopment of railway property in downtown Toronto will be undertaken following opening of the Toronto Classification Yard in 1965. The leasing of air rights, and certain surplus lands, in the area between Jarvis St. and Spadina Ave. to private developers, and the rebuilding of Union Station are both suggested. The C.P.R. may be expected to participate in such a program insofar as its properties in the area are concerned, and both major railways have, of course, control of the Toronto Terminals Railway Company which owns Union Station and main line trackage between the Don and Bathurst Street. The property rendered surplus would appear to be the freight terminals of both railways located north of Front Street West, together with some of the area along the north side of the main waterfront yards, adjacent to the south side of Front Street. The elimination of the remainder of the downtown yards does not appear readily possible, as they are occupied by main line trackage coach yards and locomotive servicing facilities which presumably must continue in this area for passenger train operation.

Book Reviews

PCC Cars of North America, by Dr. H.E. Cox, Community Press, Philadelphia.
72 pages, 120 photographs, $2.00.

Reviewed by R.D. McMann

This book is a very recent and valuable addition to the literature of electric railways. Here between two covers is contained a most concise and complete listing of information about every PCC car built since their introduction in 1936. The author has spent some time gathering all the information presented here, and has listed it in a manner in which it is very easy to find any sort of specifications pertaining to any car that you may desire. This was not an easy job when you consider that the author had over 4,900 cars with which to deal. The cars operated by different companies are listed state by state and province by province in easy to read tables, and such minute details as "shadow aprons" and "dash emblems" are listed. Accompanying each city roster is one or more photographs to illustrate the various types of cars operated in that city. The photographs alone are quite interesting, the bulk of them being three-quarter or side views. Any deviations from the standard specifications of the PCC cars operated by different companies are described in detail and the numerous wanderings of cars of some companies to other properties are also noted.

At the beginning of the book, Dr. Cox defines the PCC car according to the rules and regulations of the Transit Research Corporation. Thus, such cars as the pre-PCC cars of Washington, the Brilliner and "Magic Carpet" cars of San Francisco are not listed. There is a brief listing in the back of the book of rapid transit cars constructed using certain PCC car features, notably trucks. There is also a brief listing of PCC cars operated in overseas countries and foreign-built PCC's built under T.R.C. patents.

In writing such a book there are bound to be a few errors creep in. The author has tried to find some of these and has issued a corrigendum to the original volume. In dealing with Toronto, one error is obvious; the track gauge is listed as 4' 8½". In the corrections, no attempt has been made to correct errors in the rapid transit and foreign car listings.

I feel that this book is bound to interest any railfan who has even the slightest interest in the PCC car and that he is getting an excellent bargain for such a small price.

(Editor's Note: The reviewer makes scant mention of the legion of errors in which this book is reported to abound. While we cannot speak on other systems, the Toronto listings include such misinformation that our cars have fluorescent lighting and British Thompson-Houston electrical equipment. Errors such as these tend to limit one's faith in the other information presented.)

Miscellany

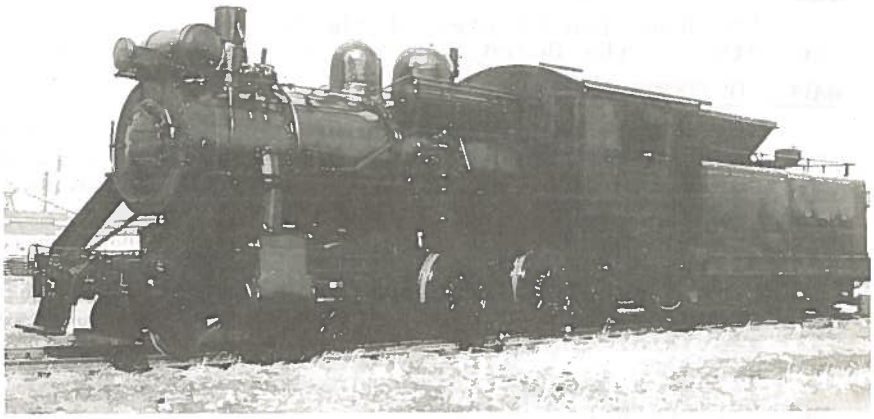
* Canadian Vickers Ltd. has awarded an $8 million sub-contract to Canada Iron Foundries Ltd. for the construction of 1000 traction motors and 250 control units with generator sets and current pickups, for Montreal subway cars now on order with the first-named company. Four French equipment suppliers who have been involved with cars for the Paris Metro will offer engineering assistance for the Montreal order. The first car is scheduled for completion in late 1964, with the order to be completed in December, 1966.

* Mail from eastern points will again be brought to Sault Ste. Marie by railway when the Canadian Pacific attaches a car to the R.D.C. Dayliner that now connects the Soo with Sudbury, Ontario. The mail had been brought from Sudbury by truck since the end of October when regular passenger train service between the two cities was replaced by Dayliners. Experiments have shown that it is feasible to attach a 30-foot car, capable of carrying 700 bags of mail, to the Dayliner with no apparent ill effects to the R.D.C. Mail to intermediate points will still be carried by truck.

NEWS: Railway PHOTOS

BELOW:
Former Acadia Coal Co. no. 42 is seen here at the Eastern Car Co. plant in Trenton, N.S. The engine was repainted there prior to being placed on display in New Glasgow, N.S.

Photo by K.S. MacDonald



1964 Excursion Season Under Way

A SPECIAL NOTE FOR TROLLEY FANS: On Sunday, February 23rd, the Society will operate a six-hour T.T.C. tram tour using a small Peter Witt car for the enjoyment of members and guests. The car will leave from in front of Postal Station "Q", 27 St. Clair Avenue East (just east of the subway station entrance) at 10:00 a.m. The fare will be $2.00.

On Saturday, March 7th, the Society will operate a special train excursion from Toronto to Blackwater for the benefit of some 500 children between the ages of six and twelve years who attend downtown Toronto community centres. To help guarantee them a safe trip, the Excursion Committee is soliciting the help of about 25 conscientious members to act as safety marshalls on the train. The only compensation offered is a free ride and lunch on the train. If you wish to help on this most worthwhile project, please send a postcard, with your name and telephone number to the Excursion Committee, Box 122, Terminal "A", Toronto and you will be contacted prior to the trip and informed fully of the details.

Once again, the Canadian National, with the co-operation of this Society, will operate a steam excursion from Toronto to Niagara Falls on Sunday, March 8th. Those who have visited the Falls in winter are aware of their impressive beauty in that season, and what better way to get there than by relaxing in a comfortable C.N. coach and leaving the driving worries to the engineer. Society members will receive full information on this trip as soon as it is released. Watch for it!

READERS' EXCHANGE

Bill Linley, 30 Altair Ave., Ottawa 7, Ontario, wishes to trade 35 mm colour slides or 2¼"x3¼" or larger black and white negatives of diesel locomotives, preferably of Canadian railways.

WANTED: Photos of C.P.R. 4-6-0 no. 2018 in working order, also Intercolonial Railway locomotive and train photos. Write to K.S. MacDonald, Box 773, Fredericton, N.B.

R.F. Corley, 490 Albertus Avenue, Peterborough, Ontario, will buy good, well lit, original slides of T.T.C. rapid transit operations -- trains in open-cut sections, entering stations, cars only, loading scenes -- preferably with M-1 (Montreal-built) cars.

U.C.R.S. Announcements

FEBRUARY MEETING

The Society meets on the third Friday of each month in Room 64 of the Royal Ontario Museum, Bloor Street and Avenue Road, Toronto, commencing at 8:15 p.m.

The next meeting will be held on Friday, February 21st.

HAMILTON CHAPTER MEETING

The Hamilton Chapter of the Society will hold its February meeting on Friday, the 28th, in the Board Room of the C.N.R. Hamilton station, commencing at 8 p.m.

MARCH OUTDOOR MEETING

The March outdoor meeting of the Society will be held on Friday, March 6, at the C.N.R. Sunnyside station. This will be a good opportunity to observe some of the leased American locomotives currently being used by the C.N.

DIRECTORS FOR 1964

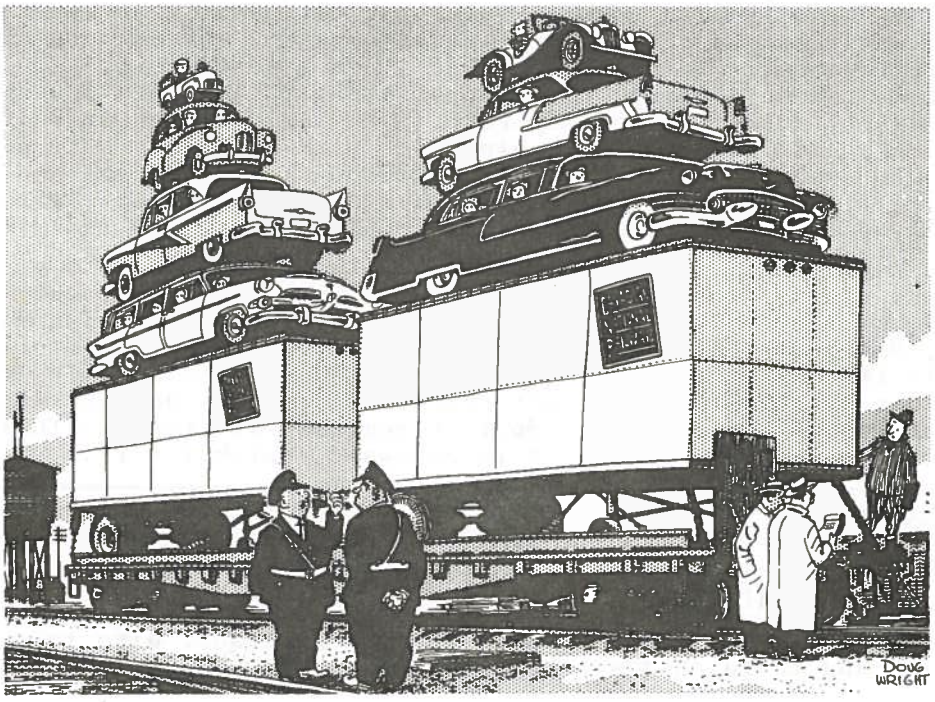
At the Annual Meeting of the Society held on Friday, January 17th, the following were elected Directors for the year 1964: Messrs. J.A. Brown, A.G. Careless, E.J. Freyseng, E.A. Jordan, W.F. McNairn, G.A. Meek, A.S. Olver, J.H. Walker, and S.I. Westland.

At the subsequent Directors Meeting held on Friday, January 24th, the following officers were chosen:

President -	J.A. Brown.
Vice-President -	E.A. Jordan.
Recording Secretary -	J.H. Walker.
Corresponding Secretary -	A.G. Careless.
Treasurer -	A.S. Olver.

Worth a Laugh

Courtesy Doug. Wright and the Montreal Star.



"Some of our research people running a test on a suggested method for the evacuation of Montreal - - - "

Executive Reports, 1963

President's Report, 1963.

Another year, 1963, has drawn to a close and we find the Upper Canada Railway Society still apparently prospering. Once again, some of the Society's accomplishments are worthy of special note, while others might better be forgotten. All the comments that I made in my last year's report still hold true; some have become even more relevant with the passing of one year. Our work-load, if you wish to call it that, is still unfairly borne by too few, and too many members are too willing to criticise the few without offering to lend a hand and right the wrong that grieves them. To be specific, the lateness of recent issues of the Newsletter has a good cause, and it will be explained in the next issue. The primary characteristic of this organisation that everyone seems to forget is that it is a VOLUNTEER organisation, and to reap maximum benefit from membership in the Society, one must not just belong, one must participate.

Financially, as reported by our able Treasurer, the Society appears to be in a bouyant state, if one considers only the present bank balances of several thousand dollars and our other assets. It is interesting to note that the gross revenue, from all sources, was over $30,000 this year, certainly an all-time record for the Society. However, a few rapid calculations will easily show that the Society is beginning to tread dangerous ground, financially. Considering only the balance between membership fees and publications expenses, it should be noted that a deficit of $800 was incurred during this past year. Add to this the $525 per year rental of office and meeting space, and financial disaster would seem to loom on the horizon. In the past, we have been fortunate enough to turn up a profit on nearly every excursion operated by the Society, but whether this will continue depends on too many factors beyond our control, and which are too obvious to mention here. If we depend on these operations to balance our budget, there is the danger, real or imagined, that the quality and appeal of the steam excursions will be sacrificed in order that they be guaranteed profit makers. I am afraid that this has already begun to happen.

There is no doubt that this year has seen more capital expenditures made than ever before, and it is not unlikely that they will continue in the coming year in order to facilitate our operations or give greater service to our membership. The printing shop and library at 71 Sumach Street is beginning to take shape, and the recently purchased business car has been used for its first Directors' Meeting even while restoration work on it is incomplete. Both these projects represent tremendous steps forward for the Society, and I take great pleasure that they were made during my tenure of office, although I had no particular responsibility for their occurence. There has, however, been some criticism (although the critics do not have the courage to air their views at an open meeting) that these two acquisitions are extravagant playthings for the Directors only. Given the co-operation of a few members, the office at 71 Sumach will become a unique and interesting library available to all members in the Toronto area as a benefit of membership. Similarly, the business car will be open to everyone when it is used on Society excursions; it will be available for use by members for small, informal gatherings at any time, and, should any group of members wish to travel in style, the car may be leased by them, at their own expense, of course.

Thus, in spite of our apparently high level of activities in 1963, our basic financial structure and our exploitation of available personnel is badly in need of revision and I would hope that the members present to-night will elect a strong Directorate for 1964 in order that the Society's ship of state might be steered away from the shoals of apathy on which it is in danger of foundering, and head it back onto the straight course towards solid prosperity and success.

Ed. Jordan

Edward A. Jordan,
President, 1963.

REPORT OF THE RECORDING AND CORRESPONDING SECRETARIES FOR THE YEAR 1963.

GENERAL MEETINGS:

	1963	1962	1961
Number held	10	10	10
Total attendance	528	567	580
Average attendance	53	57	58

The drop in average attendance may be explained in a number of ways. Firstly, this is our first complete year away from the Union Station. Secondly, and more importantly, despite the hard work of the Publications Committee, there has been some delay in the sending out of certain of the Newsletters and consequently often some doubts in the minds of some members regarding the time and place of meetings. After sixteen years in one meeting place the necessity of moving around has resulted in some confusion, especially when, as in the month of May, last minute changes were necessary. Such problems were in the Directors' minds when they decided to negotiate for the use of this room for the remainder of the 1963-64 season. We hope that the attendance will return to its previous level.

The 1963 meetings were held in some four different locations. One was held at the Y.M.C.A., 36 College St., one in the Music Room in Hart House, four in the Marine Museum of Upper Canada, and four in Room 64 of the Royal Ontario Museum. Ironically, the one best attended (72) was the last Annual Meeting held in the poorest surroundings at the Y.M.C.A.

Entertainment at the General Meetings consisted of four showings of slides, three film showings, one auction, one quiz and one illustrated lecture. In addition, the members were treated to some musical entertainment at our last Annual Meeting when we were located in the next room to the Ward 3 Square Dance Society!

Two summer meetings were arranged, the July meeting consisting of a bus tour to the Canadian National's Vaughan Yard and the August meeting of an evening excursion on a small Witt on the T.T.C.

Nine outdoor meetings were arranged. Eight of these were held at local railway stations, while one was held on a prominent street corner.

Regular meetings of the Hamilton Chapter were held on the fourth Friday of each month under the chairmanship of W.F. McNairn in the Canadian National station in Hamilton.

The Society's Annual Banquet was held in the Ship's Inn, Marine Museum, on November 1st. Some 40 members and guests attended to hear an entertaining illustrated address on Colorado narrow gauge railways by Mr. Basil Headford, a former president of the Society.

DIRECTORS' MEETINGS:

	1963	1962	1961
Number held	14	13	10
Total attendance	102	88	71
Average attendance	7	7	7

The gradual increase in the number of Directors' meetings reflects, I think, the increased business which the Society is doing and the need for more attention to this business by the directors. In addition, a number of this year's meetings were concerned solely with the large task of revising the Society's constitution under the able guidance of Mr. Stuart Westland.

Eleven of these Directors' Meetings were held in Hart House, two in the homes of directors and the last one in the Society's private car.

EXCURSIONS:

The Society had an active year in the excursion field. The Society operated some twelve excursions and assisted in six others. Six of the trips were steam operated, four were street car trips in Toronto, one was an R.D.C. trip, while one, in Oshawa, was behind an electric locomotive.

In addition to their number, this year's trips included a number of firsts. The Society's first R.D.C. trip was held on June 8th to Waterford. The first overnight trip was held, reaching Ottawa, North Bay and Temagami on the week-end of September 13th to 15th. In addition, this trip tapped for the first time the reservoir of enthusiasts in the Ottawa area. The Society also held its first combined steam and diesel trip, to Haliburton on September 28th, while the first "mystery" trip reached Midland on September 29th. In addition, three other steam trips, to Orillia, Palmerston, and Bradford, were operated.

The Society also participated in some last trips. We had four T.T.C. trips and one of these, on January 26th, included a large Witt for the last time. We also assisted in the observation of the final operations on the DUPONT route on February 28th. Our third annual last trip on the Oshawa Railway was held on June 29th. The number and variety of these excursions points out the extremely active work of the Excursion Committee.

The Society was active in other ways too. We obtained office space this year at 71 Sumach Street for the use of the Publications Committee, for the storage of Library material and for other uses. We also acquired a Private railway car for use on future excursions, as a meeting place, and as a repository for some of the Society's possesions.

The Publications Committee has been very active. Twelve colourful Newsletters were published which included a number of commemorative issues. In addition, the Society published a pictorial calendar and one very ambitious bulletin. Other bulletins are ready for production and a photograph album is in the planning stage.

Another 'first', for recent years at least, was the Society's participation in the Scarborough Rotary Hobby Show at Cedarbrae Secondary School.

Since the Corresponding Secretary left the area a short time ago and was not replaced on the Directorate, there is no report from him. I would like to add, however, a short resume of changes in membership which has been prepared by Mr. A.G.S. Careless, who has been looking after the Society's membership records since the departure of the Corresponding Secretary. These also reflect the Society's continuing expansion.

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MEMBERSHIP:

	1963	1962	1961
Resident	220	208	175
Associate	395	321	268
Total	615	529	443

The Recording Secretary hereby submits his report for the year 1963 for the consideration of the Directors and the Members-at-Large.

John H. Walker

John H. Walker
Recording Secretary.

January 16, 1964.

UPPER CANADA RAILWAY SOCIETY
(INCORPORATED)

Once more it is my privilege, at this annual meeting, to present the Financial Statement of you Society, and to review some of the highlights of the past year.

Again, we have had a year that has come out on the credit side. Your Society ended 1963 with a net balance approximately $650 higher than last year. The bank balance of $5,024.88 exceeds any previous year in our history. A sobering thought, however, is that it is the lowest annual increase for some years.

It is our fortunate position of still being able to operate steam trips which keeps us out of the red. The income from membership fees remains about the same and does not quite meet the cost of publications. This is not a favourable situation for a long future.

It is brought to your attention that the fan trip return represents nearly 63% of our net receipts. For this we have to thank the trip committee and their helpers who have spent long hours on organization, planning, mailing brochures, mailing tickets, and attending to all the other details of operating successful trips.

You will note that there has been a fairly heavy expenditure this year on physical assets, the value of which has increased by $639.26. This is the largest figure for any year so far and brings us to a total figure of $1,560.95 allowing for a conservative write off. The ex Canadian Pacific business car represents this year's outstanding purchase.

In conclusion, you Society continues in good financial condition and should continue in a healthy condition, but a substantial increase in membership is very desirable.

January 17, 1964

(Albert S. Olver)
Honorary Treasurer,
Upper Canada Railway Society.

BALANCE SHEET - December 31st., 1963

ASSETS

	1963	1962	1961
Bank (Ledger)	$ 5,024.88	(4,375.16)	(3,318.17)
Duplicator - less write off	1.00	(1.00)	(1.00)
Lapel Pin Inventory - at cost	8.94	(19.68)	(39.37)
Loan	- - -	(- - -)	(150.00)
Multilith 1250 - less 15% write off	425.00	(500.00)	(- - -)
Typewriter #1 - less 15% write off	221.00	(260.00)	(- - -)
Typewriter #2 - less 15% write off	34.59	(40.69)	(- - -)
P.A. System	154.62	(100.32)	(- - -)
Filing Cabinet - at cost	47.90	(- - -)	(- - -)
Rwy. Business Car - at cost	667.90	(- - -)	(- - -)
	$ 6,585.83	(5,296.85)	(3,508.54)

LIABILITIES

Prepaid Memberships - 1964 & '65	315.38	(454.70)	(156.54)
Prepaid Fan Trips	- - -	(- - -)	(28.00)
Capital	6,270.45	(4,842.15)	(3,324.00)
	$ 6,585.83	(5,296.85)	(3,508.54)

UPPER CANADA RAILWAY SOCIETY
(INCORPORATED)

Treasurer's Report for 1963

Here follows your Honorary Treasurer's Report for the past calendar year 1963. For purposes of comparison, the 1962 and 1961 figures are bracketed in the right hand columns.

RECEIPTS

	1963	1962	1961
Membership Fees 1961	- - -	(- - -)	(497.12)
Membership Fees 1962	- - -	(1,151.15)	(148.54)
Membership Fees 1963	1,152.44	(450.81)	(8.00)
Membership Fees 1964	310.38	(3.89)	(- - -)
Membership Fees 1965+	5.00	(- - -)	(- - -)
Publication Sales	207.33	(197.35)	(220.51)
Fan Trips - net	3,110.03	(2,084.80)	(1,612.83)
Auction - Club Meeting - net	8.25	(14.02)	(45.15)
Donations for CN 6213	- - -	(- - -)	(10.00)
U.C.R.S. Pin Sales	15.00	(27.58)	(33.00)
Fan Trip Prepayments	- - -	(- - -)	(28.00)
Loan Repayment	- - -	(150.00)	(131.00)
Bank Adjustment	- - -	(.95)	(.57)
P. A. System Return	79.85	(167.20)	(- - -)
First Class Mail Payments	18.00	(- - -)	(- - -)
Bank Interest (Savings Deposit)	52.60	(- - -)	(- - -)
BALANCE, December 31st., 1962	4,375.16	(3,318.17)	(1,722.38)
	$ 9,334.04	(7,565.92)	(4,457.10)

DISBURSEMENTS

	1963	1962	1961
Newsletters, supplies, etc	$ 2,183.36	(1,609.69)	(456.95)
Bulletins	235.33	(213.40)	(43.60)
Postage - publications	143.36	(181.15)	(122.55)
Postage - corresponding Secretary	41.65	(59.75)	(58.60)
Postage & miscl. - Rec'd'g. Sec'y.	45.76	(- - -)	(- - -)
Annual Post Office Box Rental	6.00	(6.00)	(6.00)
Provincial Government Return	1.00	(- - -)	(1.00)
Magazine Subscriptions	6.00	(6.00)	(21.16)
Prospectus Account	- - -	(- - -)	(91.19)
CNR 6213 Account (maintenance)	13.41	(29.19)	(35.89)
Annual Banquet - deficit	89.95	(37.69)	(45.17)
Entertainment Committee Expense	219.72	(46.47)	(90.50)
Hamilton Chapter - miscel.	7.50	(27.29)	(16.32)
OERHA Account - loan	- - -	(- - -)	(150.00)
Maintenance - P.A. System	183.66	(30.84)	(- - -)
Maintenance - Multilith 1250	26.73	(21.68)	(- - -)
Purchases - Office Equipment	63.82	(901.01)	(- - -)
Purchase - C.P.R. Business car	667.90	(- - -)	(- - -)
Maintenance - Business car	268.01	(- - -)	(- - -)
Rental & Maint. - 69/71 Sumach St.	105.54	(- - -)	(- - -)
Miscellaneous - condolences, etc.	- - -	(20.60)	(- - -)
Bank Adjustment	.46	(- - -)	(- - -)
BALANCE, December 31st., 1963	5,024.88	(4,375.16)	(3,318.17)
	$ 9,334.04	(7,565.92)	(4,457.10)