

February, 1961 - Number 181

The society meets on the first and third Fridays of every month. The first-Friday meeting in March will be held on March 3rd at C.N.R. Danforth station.

➤ SPECIAL NOTICE: The February regular meeting of the Society will be a most unusual one. It will be held on February 17th in the Music Room, Hart House, University of Toronto, commencing at 8:00 P.M. The meeting will consist of a showing of the famous feature comedy film "*The Titfield Thunderbolt*", made in England about eight years ago and shown throughout the world. It details the adventures (and misadventures) of the inhabitants of a small English town faced with the abandonment of its branch-line railway. If you ever wished to see a duel between a steam-roller and a locomotive, or if you would like a lesson in removing preserved engines from museum buildings, this is the film for you.

Business will be kept to the minimum, and the Programme Committee extends a cordial invitation to wives and friends of members to attend this unusual meeting. A diagram is appended showing the location of Hart House, and the Music Room is upstairs in the west wing of the building; it is the room in which we assembled prior to the banquet in November.

Map: Location of Hart House, at UofT.

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THE ANNUAL MEETING

At the Annual Meeting held on January 20th, the following members were elected as directors: J. Brown; B. M. Headford; R. H. Johns; E. A. Jordan; G. A. Meek; J.M. Mills; A. S. Oliver; R. J. Sandusky; S. I. Westland. At the Directors meeting of January 27th, the following Officers and Committee Chairmen were appointed:

President:	B. M. Headford
Vice-President:	J. M. Mills
Recording Secretary:	G. A. Meek
Corresponding Secretary:	E. A. Jordan
"Excursion Committee" Chairman:	E. A. Jordan
"Programme Committee" Chairman:	J. Brown
Preservation Committee Chairman:	J. Brown
Bulletin Editor:	B. M. Headford
<i>Newsletter</i> Editor:	R. J. Sandusky
Assistant Editor:	J. M. Mills
Curator:	S. I. Westland

A special committee was appointed, with R. H. Johns and J. D. Knowles as co-Chairmen, to suggest suitable methods of commemorating the 100th anniversary of street railway transportation in Toronto, which occurs on September 11th, 1961.

MONTREAL MUSEUM PROJECT In order to keep members informed of the railway museum project which is taking shape in Montreal, the following information has been supplied by the C.R.H.A.

The National Rail Transportation Museum for Canada

On December 3rd, 1960, the Canadian Railroad Historical Association announced that a museum, bearing the name *National Rail Transportation Museum for Canada*, would be erected on a section of land about 10 acres in extent, a few miles south of the Island of Montreal, and adjacent to St. Constant station of the Canadian Pacific Railway.

The site, which was leased to the Association for the nominal rental of \$1.00 is only five miles south of the Honore Mercier Bridge. It possesses railway track access directly with the Canadian Pacific Railway, and with the private railway of the Canada Creosoting Company Limited, who generously provided the leased land for the museum site. Within a half mile of the property, at the Delson, Quebec, interchange, access is also had to both Canadian National Railways and the Napierville Junction Railway Company, the latter the Canadian subsidiary of the Delaware & Hudson Railway. The lease is held for 25 years, and is renewable at the end of that period.

The property itself is elongated, approximately 1250 feet long, and 350 feet broad. On it, the Association expects to start construction in the spring of an eight-track storage building which will afford approximately 2400 feet of covered track space for the many exhibits which have been acquired to date. The storage building will be the nucleus of a projected group of buildings to be erected from time to time, as additional funds become available.

Since it is expected that the administration building would be the last to be erected, a temporary one-storey railway-station-style wooden building will be erected for administration purposes, souvenir shop and refreshment pavilion. It is expected that construction of the temporary building will go on during 1961, concurrently with the eight-track storage building.

Around the nucleus of three principal buildings, other facilities will be provided, both for utility and decoration. The tracks serving the storage building and roundhouse and connecting them with the railway lines just off the property, will be arranged in the form of a railway yard. Among the major "accoutrements" will be an enclosed wooden water tank so familiar throughout Canada as to be considered almost a trade mark of the railway. While the existing facilities do not permit extensive operation of steam trains, there will be a loop for the electric cars almost half a mile in length, and upon which the public will be enabled to ride. Small shop facilities will also be provided so that certain of the smaller steam locomotives may be fired up and operated for demonstration purposes from time to time.

As to the exhibits in the storage buildings, it is not the intention to leave them completely under cover during the summer months. Various exhibits will be moved out in the open, and the exhibits on display will thus present an ever-changing aspect and encourage visitors to return for additional visits.

Initially, it is expected that the museum will be open during the summer months only, with the winter period reserved for refurbishing and cleaning, and preparation of new special exhibits. It is possible that the museum will be open partially during the summer of 1961, at which time visitors may view a considerable amount of material and see a small scale model of the master plan which will, by then, have been prepared.

Before this can be done, the Museum Committee faces an almost unbelievable amount of work, principally in painting up a few of the steam locomotives sufficiently to bear public inspection. No material will remain out-of-doors throughout the winter, however, and it is hoped that this will result in longer periods between repainting.

The prototype exhibits in the buildings will span, for the steam locomotives, only the period from the 1870s to the present, and a long-range project is to have full-size replicas built of older locomotives and cars. An operating replica of the first locomotive "Dorchester" will certainly receive priority at this phase, along with its train, but it is conceivable that other early types, such as the Portland and Birkenhead locomotives of the Fifties, will be represented in this way.

In the rolling stock, the oldest item will be the 1859 G.T.R. passenger coach from

the C.N.R. Museum Train, while in the field of street railways, the present collection embraces the whole electric railway period, in all its forms, from open-platformed four-wheel cars to the P.C.C. car. The Museum will also afford facilities for the model railroaders.

In attempting such an ambitious project, the Association invites the co-operation of other organizations, as the museum is planned to illustrate and to portray Canadian railroading on a national basis, without sectional interest. The project, in addition is not in conflict with any other in this country, and its supporters desire that it will reflect the efforts not only of the Canadian Railroad Historical Association, but of the Upper Canada Railway Society and other reputable institutions in Canada of a like nature.

Gifts of money, materials or labour will be welcomed, and the Association expects to be able to provide housing facilities to those who may wish to come and spend a few profitable days working on the project. In connection with financial help, it should be said that the Canadian Railroad Historical Association is recognized as a charitable and educational organization for income tax purposes, and consequently, donations to the Association may be deducted by the donors from their taxable incomes.

Omer S. A. Lavallee

TORONTO SUBWAY NOTES

- Ancient fossils, shells and bits of wood found by excavators digging under University Avenue are under study at the University of Toronto. Professor R. E. Deane, a geologist, suggested that the finds indicate that Canada may still be warming up from the last ice age.
- A 12-storey building is to be constructed over the Eglinton Terminal of the Yonge Street subway. Such an event was envisaged when the station was designed, and the present ground-level buildings are of a temporary nature. The building will be Swiss-owned and will contain office facilities and a supermarket on the ground floor. The structure is planned so that it may be readily extended from six floors to 12 either during or after construction, which is expected to begin in March. Strangely for a site which contains such excellent transit facilities, it is thought necessary to provide parking accommodation for 450 cars.
- It is expected that the first two of the 36 subway cars now under construction will be completed by the end of 1961.
- Owing to a minor error of an inch or two in the driving of piles near Avenue Road and Bloor, a section of completed concrete wall had to be torn down and replaced recently. Further inspection procedures are expected to eliminate this danger in future.

MISCELLANY

- The C.N.R. has inaugurated a new fast freight service between Eastern and Western Canada known as "Highballer" service, which is expected to speed freight deliveries by 24 hours. Owing to washouts in the Fraser Canyon, for the first few days the new service was forced to terminate at Kamloops, BC.
- A diesel locomotive failure was responsible for the delay of almost an hour to the train in which the Queen was riding from London to Sandringham on January 10th. The journey was at length completed behind an old steam locomotive pressed into emergency service. A British Railways official stated that he could not recall anything like this happening to a Royal Train before. Royal Trains in Britain have seldom been diesel-powered previously.
- Plans are almost complete for a major expansion to the C.N.R. yard at St. John's, Newfoundland.
- W. A. Mather, Chairman and former President of the Canadian Pacific Railway, died in Winnipeg recently.

- The C.N.R. is planning early reconstruction of the Scarboro Junction express station.
- The hull of the recently-burned excursion steamer "Island King II" (see December *Newsletter*, Page 2) is to be used in construction of a salvage craft.
- It is perhaps worth pointing out to members that a complete file of this newsletter, extending back to its beginnings in 1945, is maintained by the Toronto Public Libraries Reference Division at College and St. George Streets.
- The C.N.R.'s old office buildings on to McGill Street in Montreal, inherited from the Grand Trunk Railway, have been sold to the province of Quebec to house its Public Works Department, and will be turned over to the new owners in June, 1961.
- Mr. L. S. McGregor, the Speaker at our Banquet, has been appointed Chief of Motive Power and Car Equipment for the Canadian National Railways.
- The Spadina roundhouse of the C.N.R. was damaged by fire on January 14th. The fire was largely fed by diesel fuel and for a time prevented entrance and exit from the building. The fire, believed to have started from a welding torch, burned through a large section of the roof of the building.
- An underpass is to be constructed for Islington Avenue crossing with the C.N.R. south of Highway 401.
- Member Herbert Stitt, a C.P.R. engineer, reports having driven 4-6-4 No. 2857, the engine used on the Society's Port McNicoll excursion in June 1960, at a rate of a mile in 36 seconds near London, Ontario on a Toronto - Windsor train. This corresponds to a speed of 100 M.P.H.
- A mile-long monorail is to be built in Seattle, Washington in connection with an international fair to be held there in 1962. Its designed capacity is to be 8,000 passengers per hour.

STEAM TRACTION IN EUROPE

The Swiss Federal Railways magazine has taken a poll of the state railways in Europe with regard to the expected end of their use of steam locomotives. Here are the results: Denmark, Luxembourg, 1963; Sweden, Switzerland, 1965; Belgium, Italy, 1968; Norway, France, 1970; Austria, 1975; Germany, 1980; and Great Britain, 1985. These dates refer to the final removal of the last steam engine, and might tend to be deceptive: for instance, the Swiss Federal Railways have been almost totally electrified for several years, but retain a very small number of active steam locomotives in special circumstances. It is interesting to note that the railway of Britain, the first to use steam railway locomotives, expect also to be the last to give them up 160 years later. It is also to be noted that these dates refer to the state railways; many of the countries listed have many small private railways which would not necessarily conform to the dates given. One further interesting statistic is provided. Of the 256,875 miles of railway in Europe, 28,125 are now electrified and more miles are being added every week.

WASHOUTS IN BRITISH COLUMBIA

Heavy rains and washouts in the lower Fraser Canyon on the weekend of January 14-15 resulted in suspension of service by both Canadian railways west of Kamloops. C.P.R. train service was interrupted until January 22nd, while the C.N.R., which was more severely damaged, was not restored for several days following that. In the interval, C.N.R. passengers were transported by bus from Vancouver to Kamloops, while freight was re-routed via the Pacific Great Eastern Railway and Prince George. Most of the damage to the C.N.R. occurred to the west of Boston Bar, BC, where there were six major washouts in 19 miles, ranging in size up to 180 feet long and 50 feet deep. Anderson's Bridge, two miles west of Boston Bar, which is

900 feet long and 112 feet high, had two piers severely damaged through pounding by wreckage carried along by flood waters. There were in addition other more minor washouts extending 20 miles east from Boston Bar. It is estimated that the bill for necessary emergency repairs will exceed \$350,000.

FURTHER RAILWAY MERGERS IN THE U.S.A.

The list of railroads wishing to join together for mutual benefit continues to grow. The latest patrons of the marriage market:

Atlantic Coast Line and Seaboard Air Line Railway.

Pennsylvania Railroad and Lehigh Valley.

Missouri Pacific and Chicago & Eastern Illinois.

Additional information has come to hand concerning some merger proposals previously reported. The Chesapeake & Ohio and the Baltimore & Ohio are now expected to merge without the New York Central, whose huge operating deficits make it a very unpopular railroad so far as mergers are concerned. The now-merged U.S. subsidiaries of the C.P.R. are known collectively as the SOO Line Railroad Company. The Norfolk & Western has purchased for \$27,000,000 the Sandusky line of the Pennsylvania Railroad and now proposes to merge with the Nickel Plate. The merged railroad would then seek to lease the Wabash. The Western Pacific is now being ardently wooed by two of its larger neighbours, the Southern Pacific and the Santa Fe.

UPPER CANADA RAILWAY SOCIETY

PRESIDENT'S REPORT FOR THE YEAR 1960

Those present who have previously served as president will know what I mean when I say that the President of a society such as ours really doesn't do very much. Because of the relative infrequency of Directors' meetings, he must act as coordinator of all the activities of the Society; he acts as chairman at meetings of the Society and its directors; he attempts to achieve consistency in the actions of the Society; he tries to keep in mind the sometimes divergent claims of the active Resident Member and the perforce inactive Associate Member by trying to strike a reasonable balance in the activities which are undertaken. From this you will see that the President spends much of his time watching the people who really do the work. And here lies the source of our present eminently satisfactory position, for rarely has a President had the privilege of being associated with a more energetic, effective group of men. Many innovations were made this year, most of them blazing trails into territories new to this Society, and a remarkably high degree of success was achieved through the united efforts of a large proportion of our active membership especially in Committees, which in 1960 assumed more importance than previously, and should be further strengthened in 1961. I am thinking particularly of the Safety and Lunch Committees on our steam excursions, of the Preservation Committee on behalf of 6213, of the Membership Committee and of the *Newsletter* Production Committee. All of these Committees have acted with energy, dispatch and resourcefulness, and solid success has crowned their efforts. If I do not name members individually, it is only because the list would be too long; furthermore their success was their purpose and their reward. To them I express on behalf of the Society our most sincere thanks for a job well and truly done.

The Secretary has reported in detail the manifold activities undertaken during the year. I will therefore touch only on a few items which seem to me to be worthy of special mention. The first, of course, is the special-train excursions to Port McNicoll and Niagara Falls. Electric Railway trips have been standard fare for ten years, but it must be realized that while the usual electric railway excursion represents an investment to the Society of something

in the vicinity of \$50.00, a day's excursion of the type we have operated by chartered train represents an investment of very roughly \$1,500.00 in addition to many tedious weeks of preparation. A wrong guess could easily have bankrupted the Society, and a rainy morning could have produced unpleasant deficits. Fortunately the smiles of Fortune, and the hard work of Mr. Jordan and his crew, produced results which still seem amazing even six months later, and we view the possibility of future employment of 6167 with enthusiasm.

Another item on which I would like to comment concerns preservation activities. This Society has traditionally not been involved in this way. It has always been felt that it should not be, in view of the fact that for the Society to undertake large-scale commitments of this nature is unfair to the Associate Members who far outnumber Resident Members, and might in less prosperous circumstances in the future mean a drastic reduction in the many other fields of endeavour that are more legitimately the business of an organization such as ours. Seven years ago a number of members, cognizant of this fact, established a museum of electric railway interest which has always been closely associated with this Society, but is unlikely now to combine with it. More recently, other members have undertaken as somewhat similar independent projects, the preservation of steam locomotives, and we heartily wish them well. The Society itself has undertaken preservation work on 6213 at the Exhibition, but this is not actually a financial responsibility although we are virtually in complete authority as to what should be done and when. I personally hope that this lack of formal involvement by the Society in museum matters would continue in the future. We must not, it seems to me, let the perhaps natural wish for a "showpiece", combined with our unaccustomed affluence, entice us into commitments which we might not be able to fulfil lacking large-scale profits from excursions, which can never be expected again.

I would like also to say a few words about *Bulletins*. Three Bulletins were published during the year dealing with a wide assortment of railway sub subjects. In addition, several illustrated supplements, each as costly as a *Bulletin*, were included in the *Newsletter*. The *Bulletin* production program we could - and should - be increased in the future, but this depends entirely on the members themselves. More than any other activity of the Society, *Bulletin* production is the one in which individual members, working on their own interests and in their own fashion, can make their most effective individual contribution to Canadian railway historical literature. The *Bulletin* Editor will be glad to extend any assistance, and should of course be consulted as to the suitability of the proposed work. Interesting and valuable as excursions and so forth are in the present life of the Society, in the long run historical research and publication represent our most important field of endeavour, for knowledge alone is permanent and indestructible.

Now for the coming year. There seems reason to hope that steam excursions will be possible for an interval at least, and some slight intimation of our intentions has already appeared in the *Newsletter*. Detailed arrangements with the railway have been delayed apparently by the Canadian National's internal reorganization which took effect on January 1st, but I would hope that a detailed announcement might be possible in the near future. In the early fall of 1961 occur two important anniversaries, namely the 20th anniversary of the formation of this Society, and the Centenary of street railway transportation in Toronto. The Directors who will be elected tonight will have to wonder a suitable manner of commemorating these two significant dates. Interest in the now sadly diminished field of electric railway activities must be continued, and, it is hoped, will not be entirely obscured by clouds of steam emanating from 6167. Other activities newly introduced in 1960, such as an annual Banquet and special chartered sleeping car operation, will undoubtedly be continued where possible.

This has been my first report as President of this society. It is also my last. I

was first elected director in 1949 and have since cherished the hope that one day it would be my privilege to serve the Society as its President. During the year just passed this wish was fulfilled, and it has been a matter of great satisfaction to me that a sort of renaissance happened to coincide with my tenure in office. And I must admit that I have enjoyed the experience. During the year it has, however, become evident to me that I do not have the confidence of all members of the Directorate. No President can continue to function effectively in the situation as it has developed, and I intend therefore to withdraw so that a President may be appointed who will have the united confidence of all the Directors.

J. M. Mills.

REPORT OF THE SECRETARIES

for the year 1960

	<u>1958</u>	<u>1959</u>	<u>1960</u>
MEETINGS:			
General Meetings:			
Number held	10	10	10
Total attendance	332	369	468
Average attendance	33	37	47
Directors Meetings:			
Number held	2	1	8
Total attendance	16	6	60
Average attendance	8	6	8

In addition to the indoor meetings held in Room 486 of Union Station, four of the informal, outdoor type of meeting were held at local points of railway interest.

The March meeting was a guided tour of the T.T.C.'s Danforth Division car house, and members present witnessed a demonstration and explanation of the workings of a P.C.C. car's controller.

The April outdoor meeting was a guided tour of the C.N.R.'s Spadina roundhouse, where engine No. 6213 was seen undergoing repainting prior to its being placed on display in Exhibition Park.

At the July meeting, Society members were the guests of the Toronto Terminals Railway for a thorough and interesting explanation and demonstration of the workings of the Scott Street interlocking tower.

The August meeting was held aboard T.T.C Large Witt car No. 2420. This three-hour excursion, with free fare for members, covered the Queen, King and Long Branch trackage, with appropriate stops for the taking of night photographs.

A banquet, for members and guests from the local railway scene, was held on November 11th, in the South Dining Room of Hart House in the University of Toronto. Our very entertaining guest speaker was Mr. L. S. McGregor, Supervisor of Motive Power and Car Equipment from the Canadian National Railways.

Entertainment at meetings this year has included showings of movies and colour slides, an auction of railroadiana, a photo quiz, and addresses by visiting gentlemen of note, including Mr. Ross Kelly of the T.T.C. and Mr. Omer S. A. Lavallee of the C.R.H.A., Montreal.

Our thanks should also be extended to Mr. T. F. McIlwraith, Jr. and Mr. John Freyseng who helped immeasurably in planning and staging the entertainment at the meetings.

	<u>1958</u>	<u>1959</u>	<u>1960</u>
MEMBERSHIP:			

Associate	128	127	191
Resident	67	66	119
Total	195	193	310

Changes:

Dropped from membership	17	27	16
New members	33	25	133
Net change	16 increase	2 decrease	117 increase

The startling increase in membership this year did not "just happen", it was carefully promoted by the Membership Committee, organized by Mr. J. A. Brown. Without his efforts, our membership would have been at such a low level as to preclude the possibility of the operation of the many activities that we did.

EXCURSIONS

On May 8th, the Society operated a six-hour excursion over T.T.C. trackage using cars Nos. 4649 and 4675. The cars were run in multiple-unit along the Queen Street private right-of-way for the benefit of photographers.

Cars 2420 and 2424 were used on June 4th in a comprehensive five-hour tour of the city. A highlight of this trip was the use of "foreign" route and destination signs on the cars.

July 9th saw cars 2756 and 2870 chartered for a five and one half hour trip through what was one of the worst thunderstorms of the summer.

June 5th will probably mark the day that the last steam-powered C.P.R. train left Toronto Union Station. Appropriately enough, a few drops of rain fell during the day, but the nine movie and still photo stops were put to good use by the 404 passengers, and surely thousands of photos of C.P.R. engine No. 2857 and its complementing train must have been taken that day.

Not to be outdone by the C.P.R., our C.N.R. special to Niagara Falls attracted 448 passengers for its 12 cars. Motive power was provided by the spotlessly attired engine No. 6167. This engine's distinctive styling was certainly well displayed on the Grand River bridge at Caledonia, and its ample power was evidenced by the sustained high speeds along the Grimsby Subdivision.

More complete descriptions of our excursions can be found in the *Newsletter* following such events.

For the convenience of members attending the C.N.R.'s official "End of Steam on the C.N.R." excursions, the Society operated the chartered sleeping car "Willow Grove" on the C.P.R. The party travelled to and from Montreal in the car, and used it as a hotel room (in Windsor Station) for one night.

PUBLICATIONS

The usual 12 issues of the monthly *Newsletter* were published, with three of them containing half tone photos while three others contained line drawings or maps. Supplements to the *Newsletter* included a re print of the pamphlet "The Development of the Steam Locomotive in Canada", which was distributed to passengers on the July 10th excursion, the C.N.R.'s data sheet on the U-2-g class locomotive, a reprint of a *Canadian Railway & Marine World* article on the Grand Trunk Railway and each issue of the T.T.C.'s pamphlet *Headlight*.

Three *Bulletins* were published this year. Number 52 was entitled "Pool Trains", number 53 was on the C.P.R.'s K-1a class 4-8-4 engines, while number 54 dealt with the Kingston, Portsmouth & Cataraqui Electric Railway.

We, the Corresponding and Recording Secretaries, respectfully submit this report to the Directors and Membership at large on this Twentieth day of January in the year 1961 at Toronto in the Province of Ontario.

George Meek
Recording Secretary.

Edward A. Jordan,
Corresponding Secretary.

UPPER CANADA RAILWAY SOCIETY
(INCORPORATED)

Again I have the privilege of presenting the Financial Statement of your Society, and of touching on some of the highlights of the last exceptional year.

Your Society ended 1960 with a net balance that was practically four times that of 1959, being \$1,722.38 compared with \$431.38 which at the time was considered very good.

Again it was the income from fan trips that has put us in such a good financial position.

As I commented last year, it is rather sad to realize that the most well attended fan trips are those on lines about to be abandoned, and with motive power that is going out of service.

Obviously in time there will be an end to this source of income, so it is well to note that our increase in *Bulletin* sales has almost offset our increased *Bulletin* costs.

Membership dues and *Bulletin* sales have been our historical source of income. This year we have received double the membership receipts, \$668.18 compared with \$335.74 for last year. Considerable credit should go to Mr. James A. Brown who has quietly slipped our prospectus brochure into the hands of more people than has been done for years. There has obviously been some expense for this, i.e. \$51.12, but the results have been well worth the effort.

One new obligation that we have undertaken is the care of C.N.R. locomotive No. 6213. The expenditure of \$284.03 on this work in 1960 covers several items of capital outlay, such as a transformer and power conduits, which will not be a recurring expense.

While in the past we have received donations of small amounts, this past year was unique in that we were presented with the large amount of \$200. This was another highlight in our history.

We have one loan on our books which was made due to an emergency arising in the purchasing of the L.& P.S. car No. 14. This car will be paid by the C.R.H.A., and we are at present holding No. 14.

I would like to record here my appreciation of the help received from Mr. Edward A. Jordan, the Corresponding Secretary, who has made order out of chaos with many batches of our incoming mail.

In summation, while expenses continue to climb as we grow larger, our present financial condition is the best that it has ever been.

A. S. Olver,
Honorary Treasurer,
Upper Canada Railway Society.

January 20th, 1961

UPPER CANADA RAILWAY SOCIETY
(INCORPORATED)

Treasurer's Report for 1960

Here follows your Honourary Treasurer's Report for the past calendar year 1960. For purposes

of comparison, the 1959 and 1958 figures are bracketed in the right hand columns.

	RECEIPTS		
	<u>1960</u>	<u>1959</u>	<u>1958</u>
Membership Fees 1958	\$ --	--	(207.50)
Membership Fees 1959	2.50	(234.98)	(110.93)
Membership Fees 1960	391.15	(97.91)	(5.00)
Membership Fees 1961	267.68	(2.85)	--
Membership Fees 1962	6.85	--	--
Publication Sales		224.02	(74.13)
	(83.60)		
Fan Trips (net)		1,417.57	(140.59)
(31.00)			
Auctions - Club Meetings		45.56	--
	(7.00)		
Donations - Postage	--	--	(2.11)
Donations - C.N.R. 6213		2.00	--
	--		
Donations - General	203.20	--	--
UCRS Pins - sales	60.50	--	--
BALANCE, December 31 st , 1959			
(1958 & 1957)	<u>431.38</u>	<u>(201.75)</u>	<u>(266.08)</u>
	\$ 3,052.41	(752.21)	(713.22)
	<u>DISBURSEMENTS</u>		
Newsletters, supplies, etc.	335.34		(219.56)
	(149.70)		
Bulletins	249.20	(31.46)	(287.76)
Postage - Publications	128.61		(50.00)
(29.00)			
Postage - Corresponding Secretary	13.00	--	
	(3.00)		
Annual Post Box Rental	6.00		(6.00)
	(6.00)		
Provincial Government Return	1.00	(1.00)	(1.00)
Magazine Subscriptions	9.00	--	
	(18.01)		
Prospectus Account	51.12	--	--
C.N.R. 6213 Account	284.03	--	--
Lapel Pins - cost	95.63	--	
	--		
Annual Banquet - deficit	2.60	--	
	--		
Entertainment Committee expense	23.50		(11.45)
	(13.35)		
Bank charges, exchange, excise			(1.36)
	(3.65)		
L. & P.S. Car Account (loan)	131.00	--	--

BALANCE, December 31st, 1960
(1959 & 1958)

1722.38	(431.38)	(201.75)
<u>\$3,052.51</u>	<u>(752.21)</u>	<u>(713.22)</u>

BALANCE SHEET - December 31st, 1960

	<u>ASSETS</u>		
Bank (ledger)	\$1,722.38	(431.38)	(201.75)
Duplicator - less 20% Annual Write Off		35.75	(71.50)
	(107.25)		
Lapel Pins Inventory - at cost		64.71	--
--			
Loan	131.00	--	--
	<u>\$ 1,953.84</u>	<u>(502.88)</u>	<u>(309.00)</u>
	<u>LIABILITIES</u>		
Prepaid Memberships	274.53	(100.76)	(115.93)
Capital	<u>1,679.51</u>	<u>(402.12)</u>	<u>(193.07)</u>
	<u>\$ 1,953.84</u>	<u>(502.88)</u>	<u>(309.00)</u>

A. S. Olver,
January 1961

REPORT OF THE PRESERVATION COMMITTEE

The Preservation Committee was organized in January, 1960, specifically to offer assistance to the City of Toronto in their efforts to place a steam locomotive on display; in this regard, it has been most successful. A deputation to the Parks Committee on behalf of the Society resulted in the expenditure of sufficient civic funds to construct an adequate foundation and fencing. The Preservation Committee selected the actual locomotive for display, the now-familiar Canadian National No. 6213, offered suggestions regarding its restoration, and assisted the Railway in carrying these out. The Society provided and installed Plexiglas, thus replacing all glass in the locomotive; and in addition, provision was made for locking the cab. Committee member R. Buck arranged for the old-style square C.N.R. emblems for the tender. The Committee Chairman acted as liaison between the City Works Department and the Railway, thus ensuring that the locomotive would be ready for display as soon as the foundation was completed. Once installed at Exhibition Park, the Committee took charge of the locomotive, cleaning and painting it periodically, so as to keep it in neat appearance. A transformer and associated electrical fittings were provided by the Society and installed by the Committee, under the direction of Mr. Jordan, so that all locomotive lights now operate. Temporary signs were erected, giving the locomotive's "vital statistics"; we hope to replace these soon with more permanent signs.

I am pleased to report that our precautions against vandalism seem to be successful. In the five months the locomotive has been on display, there have been absolutely no signs of vandalism. Let us hope this will always be the case.

In another field, the Preservation Committee was approached the Canadian Pacific Railway regarding the donation of Business Car No. 7 (former Dominion Atlantic Railway "Nova Scotia") to the Society. As yet, no commitment can be made by the Railway, as the car is still in use. This is not to be construed as a museum project in competition with the National Railway Museum in Montreal. Rather, it is our hope that this car may become a

permanent "home" for the Society, wherein informal meetings may be held, and collections of railroad material kept.

Finally, in 1960 the Preservation Committee provided an illuminated tail sign for Society excursions, and acquired a complete set of Canadian National locomotive diagrams, for the library.

James A. Brown, Chairman,
Preservation Committee.

January 20th, 1961.

UPPER CANADA RAILWAY SOCIETY
SPECIAL SUPPLEMENT TO THE NEWSLETTER
THE GRAND TRUNK RAILWAY

(The following articles were originally published as magazine articles at the turn of the century. They describe in a very interesting manner the history of the Grand Trunk Railway up to that time.)

HISTORICAL SKETCH OF THE GRAND TRUNK RAILWAY

The problem of transportation of passenger and freight traffic by means of wheeled vehicles propelled by steam over two lines of rail had been only recently successfully demonstrated by Stephenson, and the news of its success had the effect of inducing the prominent men of Montreal to establish a line of railway running from a point as near to that city as practicable in the direction of New York, and the result was the construction of the railway under the name Champlain & St. Lawrence, from Laprairie to St. Johns, Quebec. The line was opened for traffic in 1836, being laid with wooden rails and worked by horse-power during the first year of its existence. But one winter's experience satisfied the promoters that these two features of the undertaking would have to be improved upon by the substitution of something more substantial, and in the following year the wooden flanges, as the rails were termed in the articles of incorporation, were replaced by iron, and the horse supplanted by the more enduring steam engine.

The line was shortly afterwards extended from St. Johns to Rouses Point, NY, and in connection with this it may not be out of place to mention that in an early edition of the Biographical Dictionary of Railway Officials appears a sketch of the late Jay Gould's career in which it is stated that his first experience in railway work was as a surveyor in the location of this line. The political disturbances during 1837 and 1838, together with a business depression, put a damper on further Canadian railway construction, and there is no record of any railway charter being granted or applied for until 1845. In that year the Atlantic & St. Lawrence Railway obtained incorporation for the purpose of building a line from Portland, Maine, running west through that state, New Hampshire and Vermont, to a connection at the international boundary with the St. Lawrence & Atlantic, also organized the same year.

The Great Western Railway was also incorporated in that year under the name of the Hamilton and Sandwich Railway, for the purpose of securing connection between Hamilton and Detroit. In the following year, 1846, the Montreal & Lachine Railway was incorporated, and the next year saw its line between the two points mentioned an accomplished fact.

It also established a ferry service between Lachine and Caughnawaga, and at the latter place connected with a short railway chartered as the St. Louis & Province Line Railway, running from Caughnawaga south-easterly to the International boundary line. Another important line known as the Toronto Simcoe & Lake Huron was incorporated in 1849 and commenced the construction of a railway from Toronto northward to Collingwood. Its name was

subsequently changed to Ontario Simcoe and Huron and again to that of the Northern Railway, being like all the other railways just mentioned, finally merged into the G.T.R. system.

On August 10, 1850, the Quebec & Richmond Railway was incorporated with power to construct a line from Richmond to Point Lévis via Chaudière Junction, and twelve months after, the Toronto & Guelph Railway was granted authority to build between these points. On October 11 following, the St. Lawrence & Atlantic line was opened from Longueuil to Richmond, and the Champlain & St. Lawrence carried its road from Laprairie to St. Lambert in the early months of 1852. Charters were also obtained in 1852 for the construction of a railway from Chaudière Junction to Trois-Pistoles by the Grand Trunk Railway Company of Canada East, one from Montreal to Toronto (this was really the "parent stem") by the G.T.R.; and a third from Toronto to Hamilton by the Toronto & Hamilton Railway Company. In the meantime the principal lines under construction, viz. the Great Western, the Northern, and the St. Lawrence & Atlantic were struggling under financial difficulties owing to the want of capital. Canada was then very young and but thinly populated. Owing to improvement in the inland navigation the cost of transportation had been materially lessened, but the closing of navigation during the winter months made it necessary on the part of the Government of the day to find a remedy, and it was deemed an important measure of public policy to secure access to the seaboard at all periods of the year.

It was believed that there would be sufficient Canadian traffic to maintain a line of railway connecting the principal cities and towns of the old Province of Canada, now Ontario and Quebec. Their policy being quite in accord with public opinion, the Government determined on aiding the railway companies, and an act was passed (1849) affording Government assistance in the shape of loans to railways of not less than 75 miles in length. The conditions of this Act were found to be in some respects unworkable and too onerous, and further legislation of a more liberal character was passed in 1851. This Act was entitled "An act to make provision for the construction of a main trunk line of railway throughout the whole length of this Province." Briefly, the Act provided for three eventualities. First, the construction of an intercolonial road from Halifax to Quebec, in conjunction with the Provinces of New Brunswick and Nova Scotia, on a loan under Imperial guarantee, or from funds advanced by the British Government. Second, that if the Imperial guarantee was obtained, the road should be continued as part of the main trunk line to Hamilton or some other point on the Great Western; but failing the Imperial guarantee the road was to be constructed jointly by the Province of Canada and the municipal Corporations, which should subscribe for half the cost the whole to be completed and managed as a provincial public work. Third, if neither of these projects proved practicable, the work might be undertaken by chartered companies, which would be entitled to Provincial aid in a guarantee extended from the interest to the principal on loans amounting to half the cost of the railway.

It will be seen from this that the scheme was for a trunk line running from Sarnia to Halifax on British territory. New Brunswick, however, insisted on a branch being built to Portland, Maine, but the Imperial authorities were not disposed to view this with favour and absolutely refused to give any guarantee if a foreign connection was in any way included in the proposals, or if the main line through New Brunswick was constructed on any other survey than that made by Major Robinson in 1848. At that period the Intercolonial Railway as a grand highway to a winter seaport in British waters was a constant theme of discussion among the people of the three provinces of Canada, New Brunswick and Nova Scotia and, of course, made much scope for serious consideration of their respective Governments. A line from Montreal to Portland was already under construction. Hence it was with much disappointments if not chagrin, that the great majority of the people saw their hopes blighted for a time at

least. There were innumerable conferences between Provincial premiers, several missions to London, and negotiations of the most intricate character, which it would be impossible to refer to here, even if desirable.

Suffice it to say that while in London, on one of these missions early in 1852, the late Sir Francis Hincks, at that time holding the position of Inspector-General (an office analogous to that of Minister of Finance) learned that satisfactory financial arrangements for the building of that part of the line between Montreal and Toronto could be made with the firm of Betts & Brassy railway contractors. They had just completed extensive works in France, and having a large quantity of unemployed plant, were ready to engage in construction of all the railways required in Canada. English capital to any amount that might be needed would be supplied, provided the works were entrusted to contractors who were known to and in the confidence of English capitalists. On the return of Sir Francis to Canada, he consulted his colleagues in the cabinet, and the proposals of the contractors, after being somewhat enlarged, were accepted by the Ministry. The lines to be constructed were those from Montreal to Hamilton, it having always been contemplated by the Government that the Great Western Railway whose terminus was then at Hamilton, should be a portion of the Grand Trunk line, to which the public aid was limited. When these proposals were embodied in a bill incorporating the Grand Trunk Railway Company and introduced in Parliament during the session held in the autumn of 1852, they met with considerable opposition from the supporters of the Montreal & Kingston Railway Company, but were finally carried on a division vote after being amended in some important respects.

The Provincial Government guarantee, instead of being for half the cost of the road, was limited to £3,000 sterling per mile, and the contractors, instead of requiring a Canadian subscription of one-tenth of the capital, undertook to obtain the whole in England. Later in the session a bill was passed authorizing the amalgamation of the Grand Trunk Railway Company with the St. Lawrence & Atlantic, the Toronto & Guelph, the Grand Trunk Railway Company of Canada East, and the Quebec & Richmond Railway Company. On November 10, 1852, it received the Royal assent. It may be mentioned that the Toronto & Guelph Railway had power to continue its line to Sarnia. By a supplementary agreement between the various companies dated April 12, 1853, the details of the amalgamation were completed, a contract with Peto, Brassey & Betts for building the Victoria Bridge was made, and the Atlantic & St. Lawrence Railway from Portland to the Canadian boundary was leased for 999 years. The amalgamated lines formed 964 miles of railway. Eighteen directors were appointed, nine of whom were nominated by the Government in consideration of the Provincial guarantee, and with a view to protecting the public interests. Four of these Government directors were cabinet ministers, four were independent gentlemen of considerable influence, and the ninth was the Honourable John Ross, Solicitor-General, who was appointed President in Canada. The twelve directors resident on this side of the Atlantic composed the Canadian board, and thus equipped and constituted the Grand Trunk Railway started upon its career.

On July 22, 1853, No. 1 pier of Victoria Bridge was commenced, and in the same month the road from Longueuil, opposite Montreal, to Portland, Maine was opened. Early in January 1854, the main line of the Great Western Railway from Hamilton to Sandwich, commenced working as a separate concern and remained independent until August 12, 1882. On November 27, 1854, traffic was started over the line from Richmond to Point Lévis, opposite Quebec. Early in 1855 the Northern Railway commenced operating its line between Toronto and Collingwood. On November 19 following, the Grand Trunk began traffic operations between Montreal and Brockville, and two weeks after that date business began on the line from Chaudière Junction to St. Thomas, Quebec. The next important addition to the mileage took place on October 27,

1856, when the first passenger train ran through from Montreal to Toronto, and in three weeks from that date the road was opened through to Stratford. In 1857 it was deemed expedient to dispense with the Government directors, and that step was authorized by Act of Parliament. The Board was then reorganized, and the number of directors fixed at 15 instead of 18, ten of whom were to be resident in Canada and five in England.

On June 28, 1858, the line from Goderich to Fort Erie was opened, and that from Stratford to St. Marys on September 27, while the Great western line from Hamilton to Toronto, with that company's Sarnia branch, were ready for traffic in December of that year. In November 1859, a very important connecting link between the Canadian line and the U.S. roads centring in Detroit was completed from Port Huron to that city, and the Rivière-du-Loup line was almost finished. On December 12, the Victoria Bridge was opened for traffic, and on December 17 the first passenger train passed through. So much has been recently written and said about this great undertaking that it would seem superfluous to refer to it here, more especially as it is, at the moment of writing, being reconstructed as an open lattice bridge, the tubular feature of the work being removed. Suffice it to say that the workmen engaged in removing the stone walls at each of the entrances to the tube are assured beyond a doubt that the builders of the bridge did their work in the most solid and lasting manner.

At the end of the decade in 1859 the company had completed a large system of railways, extending literally throughout the Province of Canada from the waters of Lake Huron to Rivière-du-Loup on the St. Lawrence 125 miles below Quebec, and also to the Atlantic seaboard at Portland, a total of 951 miles. It ought to be mentioned that the entire line was of the 5'- 6" gauge and land was, in all cases, provided for a double track, and in several of the large structures the foundations and the masonry of the abutment were put in for a double line. On May 25, 1860, the Prince of Wales officially opened the Victoria Bridge and on July 2 the line from Chaudière Junction to Rivière-du-Loup was opened for business. The Government agreed to waive the condition compelling the company to extend the line from Rivière-du-Loup to Trois-Pistoles.

The long-continued commercial depression extending over Canada and the U.S. put a stop to the further construction of railways from 1860 to 1870, and told heavily on the existing lines. Therefore the directors in 1862 found it necessary to rearrange the company's finances and staff organization. The legal domicile and seat of management was fixed in London and the number of directors reduced from 15 to 12, seven to reside in England, the five in Canada to constitute a committee of the board for local, financial and other purposes. A betterment of the postal service arrangement with the Government was secured. An improvement in train service and the renewal and repair of the road were effected and were productive of marked results.

The Civil War in the U.S. had, at that time, presented features of magnitude forbidding all chance of early peace — a serious obstacle to the development of trade and traffic and involving complications commercial and political, which hampered the operations of the company until 1865. At the beginning of 1864 they purchased the Montreal & Champlain lines, running from Montreal in the direction of the New York State line. On June 29 in that year the company had its first sad experience in the matter of accidents. An immigration train pausing over the bridge at Beloeil, Quebec, went through an open draw and down into the Richelieu River causing great loss of life amongst the Polish and German immigrants on board. On August 1, 1864, the Buffalo & Lake Huron Railway became part of the Grand Trunk system. This brought it to Fort Erie, opposite Buffalo, and the work of building an international bridge between the two places was soon put in hand.

No sooner had the war ended than the company's operations were disturbed at frontier

points by Fenian raids, and the abrogation of the Reciprocity Treaty between Canada and the U.S., which totally demoralized the international traffic of the road. In 1870 the construction of the Intercolonial line to a connection with the Grand Trunk at Rivière-du-Loup was being pushed forward with vigour. In that year also the sleeping car arrangements were placed in charge of the Pullman Palace Car Company and have so remained to the present time. The question of a change from the then existing 5'-6' gauge to that of the standards 4'-8½", was raised and the board decided to fall into line with the other roads without delay. The Grand Trunk cannot be said to have been exceptional in the matter of gauge, for at that time the Erie was of a 6-foot gauge.

On November 18, 1872, the tracks of the Grand Trunk Company between Sarnia and Fort Erie were narrowed, and on October 4, 1873, the second section between Stratford and Montreal was changed. The third and last section, that between Montreal, Portland and Rivière-du-Loup, was successfully narrowed between September 26 and 28, 1874. The line from Port Huron to Detroit was originally constructed on the standard gauge and the operation just recorded brought the G.T.R. into uninterrupted connection with the U.S. lines east and west of the system. Additional cars and locomotives were purchased and the international bridge at Fort Erie was opened in the summer of 1874.

All these advantages secured, placed the company in a strong position to compete for through all-rail business, and the Michigan Central, then an independent company handled all the Grand Trunk traffic between Detroit and Chicago. This however, aroused the jealousy of rival U.S. interests, and in 1878 the Michigan Central was secured by W. H. Vanderbilt. It was at once determined to secure a route to Chicago owned by the Grand Trunk, and the first step in that direction was the sale of the branch from Chaudière Junction to Rivière-du-Loup to the Dominion Government with the proceeds of which several pieces of railway already constructed between Port Huron and Chicago were purchased. After great delay, caused by harassing litigation as well as physical obstructions, the line now known as Chicago & Grand Trunk Railway was opened from Port Huron to Chicago on April 8, 1880, when the first through passenger train in regular service passed over it. The task of securing an entrance into large cities for new lines is of the difficult problems which railway managers occasionally have to solve, but the solution is not made easier by the additional fact of having to construct or secure over 300 miles of road preparatory to the entrance. The legislative and municipal enactments decrees, charters, deeds, etc., in this connection fill several volumes in the company's records.

In January 1881 the C. & G. T. commenced the operation of the line running from Lenox to Pontiac, and ultimately extended to Jackson, Michigan, with a view of doing business with Toledo. During the year it also strengthened its position in the district between Montreal and the New York State line. In April 1882 the midland Railway's system in Central Ontario became incorporated in that of the Grand Trunk and the Great Western Railway amalgamated with the latter on August 12 following. Both of these amalgamations were considered desirable in view of the fact that the C.P.R., not then long in existence, had determined to depart from its original intention of confining its operations to a line between Eastern Canada and Vancouver, and to enter the field for a share of the business originating in the western peninsula of Ontario. In taking over the Great Western the Grand Trunk had also to take the Detroit, Grand Haven & Milwaukee Railway which was one of its affiliations.

The work of crossing trains over the St. Clair River between Point Edward and Fort Gratiot by means of large ferry boats was at times obstructed by the large number of lake boats passing up and down that rapid stream and in winter the operation of these car-ferry boats was attended with considerable risks, owing to the running ice. The feasibility of a

tunnel under the river a short distance below the town of Sarnia was considered and finally decided on. Evil prophets there were then, just as there are today in connection with the reconstruction of the Victoria Bridge who cried, "disaster", and "failure"; but the same skill and good judgment that stilled the voice of jealousy and mistrust in the successful completion of the great submarine tunnel in September 1891, will undoubtedly reassert itself in the completion of the work over the St. Lawrence River.

In February 1888, the Northern & Northwestern line was fused in the Grand Trunk system, and in a few months later the Toledo Saginaw & Muskegon, and the United States & Canada lines, were taken over. The last subsidiary road incorporated in the Company's system was that running from Durand to Saginaw Michigan. This took place in October, 1890.

Early in 1895 a large number of the shareholders desiring a change in the policy of the board, tested the question in a vote in the month of May. The result was the resignation of Sir H. W. Tyler as President, and the election of a new board with Sir Charles Rivers-Wilson as president. In December following, Mr. L. J. Seargeant was called to London to take a seat at the Board there, and was succeeded by the present General Manager, Mr. C. M. Hays. The Grand Trunk is well equipped with all the accessories such as express, telegraph and telephone services cartage delivery, elevators grain warehouses, cattle yards and ice houses. Traffic can be carried without transshipment from Chicago or points west, to the wharves at Montreal or Portland alongside ocean steamers, and the advantage secured in the construction of long stretches of double track, enabling fast time to be made by both express and freight trains, is apparent.

G.T.R. LOCOMOTIVE HISTORY

In its 50 years' existences the G.T.R. has, in common with its contemporary lines seen many changes in ideals and methods, but none more than in its locomotives. The original prospectus of the G.T.R. was issued in 1853. Its object was the construction or formation of "a Main Trunk Line of Railway throughout the Province", of 5½-foot gauge, and embracing the lines then under construction or completed, a total distance of 1112 miles, of which 250 miles were at that time open for traffic.

In 1860, when the opening of the Victoria Bridge completed the undertaking, the locomotive stock numbered 206, of which 165 were at work in Canada. These were constructed as follows: In Canada 43, in England 50, in the U.S. 72. The earliest of these was built by the Portland Company in 1848, and weighed 52,640 lbs. Fifty locomotives sent from England were constructed on the lines of those in use upon the London & Northwestern Railway, by Peto, Brassey, Betts and Jackson, the contractors for the undertaking, at the Canada Works, Birkenhead, and delivery was made during 1854 to 1858 inclusive. Passengers by the Ottawa River Navigation Company's line in summer may see a unique specimen of these so-called "Birkenheads" (the last of its line), hauling the train which makes the connection between Carillon and Grenville, in good repair, and equal to years of more work at the age of half a century. The old characteristics of the engine still remain, and the railway has the original Grand Trunk gauge of 5½ feet.

The first locomotive built in the G.T.R. shops was No. 209, designed by F. H. Trevithick, the first locomotive superintendent of the company, and nephew of the talented engineer whose name he bears. This locomotive was completed in May, 1859, and was used for the transportation of freight between Montreal and Toronto. Mr. Trevithick relinquished office in 1859, in favour of his assistant, W. S. Mackenzie who was, three years later, succeeded by the late Richard Eaton, who came from the Great Western Railway of Canada with the late C. J. Brydges in 1863. Mr. Eaton assumed the title of Mechanical Superintendent,

and built his first G.T.R. locomotive at the Montreal shops in March, 1865. He had, however, previously constructed others at the Great Western works, Hamilton, and was the first to use steel in the construction of locomotive boilers one of which, made of this material throughout, he built as far back as 1861.

Mr. Eaton's successor was Herbert Wallis, who took charge of the Mechanical Department on January 1, 1873. During his continuance in office up to May 1, 1896, the gauge of the G.T.R. was changed from 5½ feet to the standard 4'-8½", mainly during the autumns of 1873 and 1874. During this change, urgency demanded the importation of some 160 locomotives from the U.S. of which the Manchester works contributed 61, the Baldwins 45, the Schenectady 20, the Rhode Island 15, the Portland Company some 20, while in Canada the Kingston works and those of the G.T.R. added their quota of new ones. These locomotives weighed 70,000 lbs. in working order and hauled in average weather, at a rate of speed, without allowance of time at station of perhaps 10 miles per hour, between Brockville and Montreal, freight trains of 500 tons at an average expenditure of coal of about 1½ oz. per ton per mile.

It was during 1873 that coal began to be used extensively as locomotive fuel no wood-burning engines having been constructed for the G.T.R. subsequent to 1872. In the effort to produce results the eight-wheeled road engines were notoriously over-cylindered for the weight upon the driving wheels which was greatly restricted by the light nature of the track and bridges. In this category it was impossible to keep pace with the growing requirements of the traffic which were constantly asserting themselves in calls for heavier trains and high or speed, and to obtain which, sidings were lengthened, until nothing but the doubling of the main lines, and the strengthening of the road and bridges gave the necessary relief.

The introduction of the Mogul type of locomotives of which 10 were imported in 1874, permitted the utilization of a larger proportion of the total weight for adhesive purposes and thus reduced the wear and tear on the track. The driving weight was distributed over three instead of two axles, and thus it was possible, by the use of larger cylinders and higher steam pressure, to increase the capacity of the machines. Between 1874 and 1896, more than 170 of these locomotives were added to the G.T.R. stock, or replaced others of less capacity, and of these some 150 were constructed at the work shops at Montreal. Engine 572, built in 1891, was of this type, the advantage of which lay in the fact that at little greater expenditure of fuel per ton-mile, trains were increased in weight to the extent of 130%.

In 1895 the G.T.R. built its first compound locomotive, which was of the Mogul type. The high-pressure cylinder measured 19 in., and the low, or second expansion, 29 in. in the bore. The stroke of the piston was 26 in., the initial steam pressure was 190 p.s.i., and the total weight of the engine loaded was 118,412 lbs. In very carefully conducted tests between Montreal and Brockville, as between this and the then most recent example of the simple Mogul type, the compound engine used 35% less coal per ton-mile, and its boiler evaporated 20% more water for each pound of coal consumed. The average train load, exclusive of engine and tender, was equal to 1109 tons, and this work was performed at an average speed of 21 miles an hour, with consumption of coal at a rate of a little over 1 oz. per ton-mile.

In the early days of the locomotive the train loads were under 100 tons, and the fuel consumption per ton-mile was about 2 lb. Wood, in his treatise on railways (1832), gives an average of 1.6 lb. as the best English practice, after many experiments. There seems little doubt, however, that trains hauled in loads of 1000 tons, by compound engines, can be conveyed today, per ton, at one-twentieth the expenditure in coal that was common in the days of Stephenson's famous Racket and this notwithstanding the additional calls upon the boiler for brake-power, increased power, increased speed, car-heating service, and the many little

contrivances for the relief of the enginemen.

The high and low pressure cylinders on the G.T.R. locomotives of today have respective diameters of 22½ and 35 inches. The stroke of the piston and the diameter of the driving wheels are the same, but the steam pressure has been increased to 200 p.s.i., and the total weight of locomotives in working order has risen to 163,704 lbs. The haulage capacity of these locomotives between Montreal and Brockville is a train of 1500 tons going westward, and of 2000 tons going eastward.

The Morse passenger locomotive remains of the single-expansion design, but as in the case of the freight, is of greatly increased capacity, and an additional pair of driving wheels has been introduced constituting it a "ten-wheeler". The essential differences may be seen from the tabulated statement, from which it may be calculated that the increase in power amounts to something over 50% in the case of the G.T.R. passenger locomotives of today and, what is of very great importance, the steaming power of the boilers has been more than proportionately improved by a very liberal increase in heating surface and grate area.

	<u>No. 93 (1881)</u>	<u>No. 989 (1902)</u>
Diameter of cylinders	18"	20"
Length of stroke	26"	26"
Wheels	8	10
Drivers	4	6
Diameter of drivers	6½ ft.	6 ft.
Total engine weight	96,000 lb.	177,973 lb.
Initial steam pressure	160 p.s.i.	200 p.s.i.
Firegrate area	17 ¾ sq. ft.	33½ sq. ft.
Total heating surface	1304 sq. ft.	2460 sq. ft.

Twenty-five years ago the Grand Trunk Railway Company owned 444 locomotives of which 67 were passenger, 359 freight, and 8 shunting. Of these the largest had 18 x 26 inch cylinders and weighed 160,000 lbs. Now the G.T.R. System (which comprises the G.T.R., the G.T. Western, the Detroit, Grand Haven & Milwaukee, the Cincinnati, Saginaw & Mackinaw, the St. Clair Tunnel and the Toledo, Saginaw & Muskegon) possesses 983 locomotives, 243 passenger, 652 freight and 88 switching, the heaviest locomotive and tender being a 20 x 26 inch ten-wheeler weighing 308,628 lbs. These engines are fitted with all modern appliances, such as high speed air brake, air signalling, steam heats and carry a pressure of 200 lbs. per square inch.