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What is the Capacity of a Single Track Railway Line?

By V. I. Smart, Vice President and General Manager, General Railway Signal Co. of Canada, Ltd.

The following paper has been written with a view to reducing to a concrete form, some methods of arriving at what is the capacity of a single track line. It is an attempt to show a means of arriving at the relative value of different elements, which tend to reduce the amount of tonnage that can be hauled in a given time.

A train moving along the track at a given speed has kinetic energy which would raise it vertically a definite number of feet, and every speed has an equivalent vertical height. The relation of speed to the vertical height is expressed by the formula $0.035V^2$, where V is the speed in miles per hour. That is, the kinetic energy of a train running 10 m.p.h., would be capable of raising that train 3.5 ft. If, therefore, ordinates be erected on the engineering profile equal to the vertical height—equivalent to the speed at different

is made at the end of this paper. The reduction in speed due to the application of breaks, is found from the formula,

$$L = \frac{0.035V^2W}{0.7fw + Rt} + Rt$$

L is the distance in which the stop is made; V, the speed in m.p.h.; W, the weight of loaded cars; w, the weight of empty cars; f, the coefficient of friction taken here as 1-6; and Rt, the train resistance per ton.

The amount of tonnage which can be hauled over a single track is dependent on a number of conditions, among which are:— (a) Passing track facilities and train schedules. (b) The tractive effort of the locomotive. (c) Terminal facilities. (d) The rul-

amount of increase in the leaving interval, at every meeting point.

Fig. 4 shows the effect of attempting to run the same number of trains as in fig. 2, when the passing tracks are not all equally spaced. The result would be, that if the southbound trains are superior, the northbound trains could not get through at all.

Fig. 5 indicates the train schedule that would be necessary when passing tracks are unevenly spaced. It is apparent that the interval between the leaving times of the trains would now have to be twice the interval necessary to run between the two passing tracks which are spaced farthest apart, and that in addition delay is introduced at all other passing tracks equal to twice the difference between the closer spaced passing tracks and the greater.

Fig. 6 is the same as the above, except that

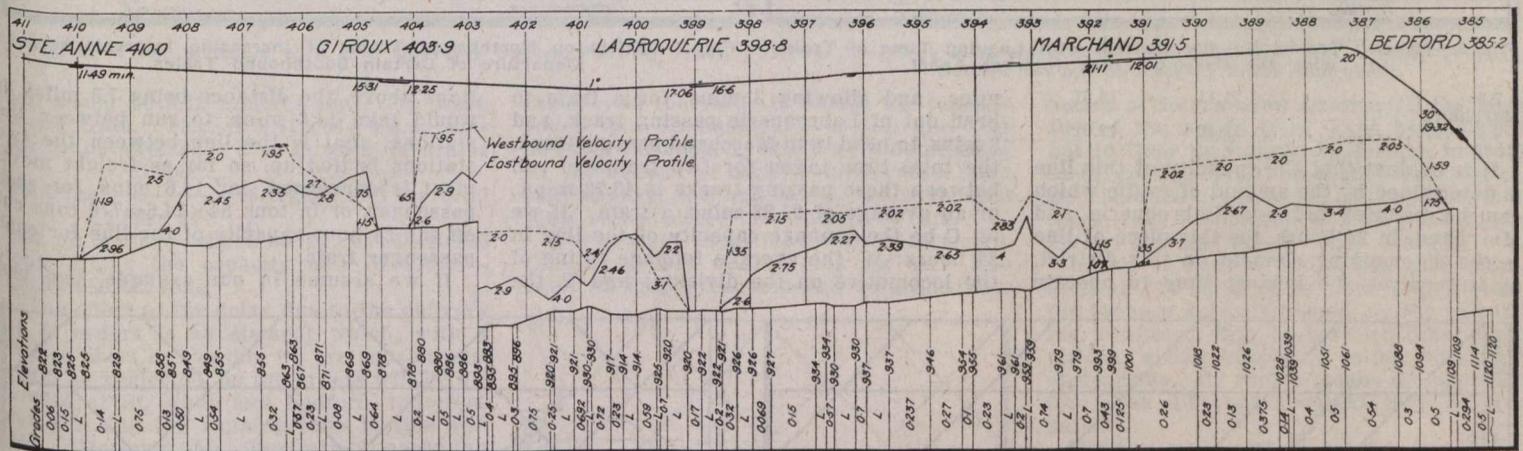


Fig. 1.—Engineering and Velocity Profiles of Line under Discussion.

points on the road, and the ends of these ordinates are joined up, a second profile, representing the operating conditions of the train, are secured. Such an operation is shown, dotted for westbound, and solid for eastbound, in fig. 1. From this a schedule of the train can be made.

The average speed of a train between any two points may be obtained by finding the area of the figure bounded by the line representing the engineering profile, and the operating, or velocity profile. Dividing this area by the horizontal distance between the two points gives the average velocity height between the two points, which is equivalent to a certain speed in miles per hour. On the profile, fig. 1, the average speed has been worked out between each mile post, and is shown on the bottom margin; below these are the number of minutes it would take the train to run between the two mile posts. Summing up these, the time taken between the passing tracks is noted below each station, that on the right showing the time taken in running from the passing track next to the right, to the station below which the figures show; similarly those to the left denote the running time from the next passing track to the left. An explanation of the process of working out this velocity profile

ing grade of the division. (e) The average rate of the grades.

The accompanying train sheets, figs. 2 to 8, develop the principles involved in the laying out of passing tracks on a single track line, and the effect on the train schedules. In drawing them up the same method is used as is employed by the superintendent in making up his schedules, and which is commonly known as "stringing" the trains. The heavy horizontal lines represent passing tracks, the vertical lines denote time; the interval between the passing tracks is measured in the time necessary to run between them, the diagonal lines represent the train movement.

In fig. 2 the passing tracks are equally spaced. The maximum train schedule would then be one where the leaving times of the trains would be twice the passing track interval apart.

Fig. 3 illustrates the effect produced on the north bound trains, by the disregard of the above relation between train schedule and passing track interval. The effect of increasing the interval between the departure times of certain of the southbound trains, is to introduce an element of delay on all northbound trains, which these irregularly spaced trains have to meet, by just the

there is but one irregularly spaced passing track; the law remains the same.

The effect of attempting to run more than the number of trains determined by the passing track intervals, is illustrated in fig. 7, the result being that an element of delay is introduced on the opposing trains equal to the regular schedule leaving interval at every meeting point, almost the amount of time necessary to run two trains over the division.

Fig. 8 shows the effect of introducing trains into the schedule of different speeds. It can be seen from this diagram that trains running 3, 5, 7, 9, etc., times as fast as the others, will eliminate a train in the opposing direction, every 3rd, 5th, 7th, etc., whereas trains running 2, 4, 6, 8, etc., times as fast will eliminate an opposing train every 4th, 8th, 10th, 16th, etc., and delay the intermediate trains by the amount of their leaving interval. The number of trains affected when the multiple of the speed is an odd number will vary inversely as the multiple. The number of trains affected when the multiple of the speed is even, will vary inversely as twice the multiple of the speed, therefore if different speed trains are in service they will produce the least objectionable effect when the speeds differ by an

even multiple.

Now it will be seen that the time of the full load train between stations is as follows:—

Between	Eastbound.	Westbound.
St. Anne		
6.1	15.31	11.49
Giroux		
5.1	17.06	12.25
Labroquerie		

condition being reached when the time required to run between all passing tracks is equal.

The maximum tonnage over our particular district, assuming that no change is made in the passing tracks, can be determined as follows:—The time taken by an eastbound train between Labroquerie and Marchand is 21.11 mins., and by a westbound train 16.01

be reduced to 70,920 tons, a loss of 8,136 tons in the 24 hours.

The above is the result obtained by using one class of locomotive and with no interference from passenger trains. If we introduce one passenger train each way we will still further reduce the capacity of the line. For, assuming the speed of the passenger train will be 30 m.p.h. between the two sta-

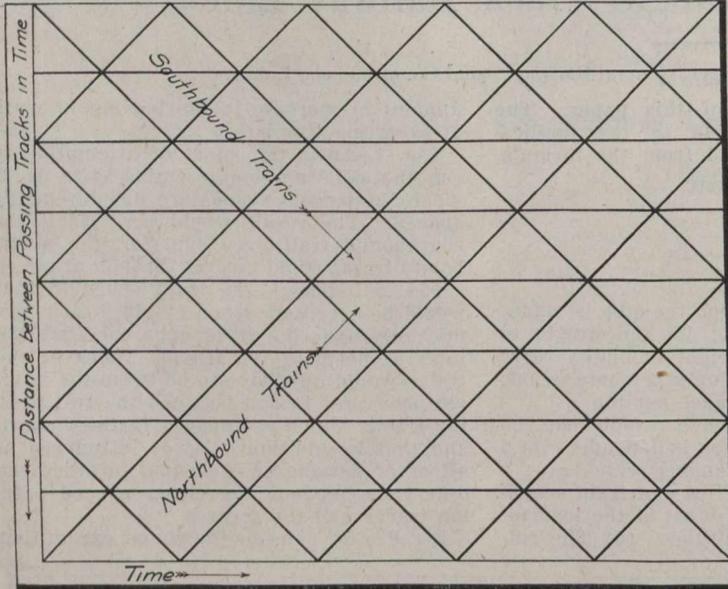


Fig. 2.—Passing Tracks Equally Spaced, with Leaving Time of Trains at Twice the Passing Track Interval Apart.

7.3	21.11	16.61
Marchand		
6.3	19.32	12.01
Bedford		

It is evident that the capacity of this line is determined by the amount of traffic which can be handled between Labroquerie and Marchand, in 24 hours, for this piece of line is the determining element on this district, as it requires the longest time to operate

mins., and allowing 3 mins. for a train to head out of Labroquerie passing track, and 3 mins. to head in to Marchand passing track, the total time taken for two trains to run between these passing tracks is 43.72 mins., or an average of 21.86 mins. a train. If we let C be the tonnage capacity of the line in 24 hours; W, the average tonnage rating of the locomotive on the division; and T, the

tions above, the distance being 7.3 miles, it would take 14.6 mins. to run between the stations; that is the line between the two stations is tied up, so far as freight movement is concerned, for 14.6 mins. for each passenger, or in tons $54 \times 14.6 = 776$ tons cut off the 24 hour capacity of the line for each passenger train.

If we assume in our example, two pas-

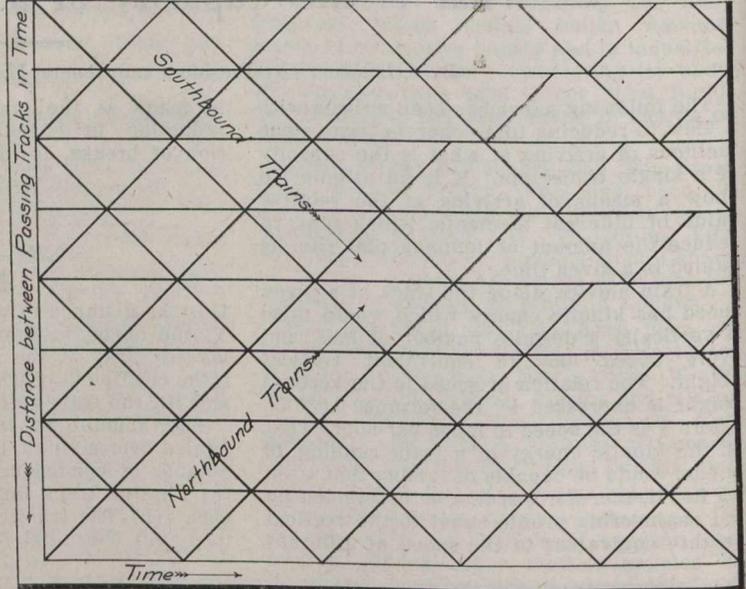


Fig. 3.—Effect on Northbound Trains of Increasing Intervals between Departure of Certain Southbound Trains.

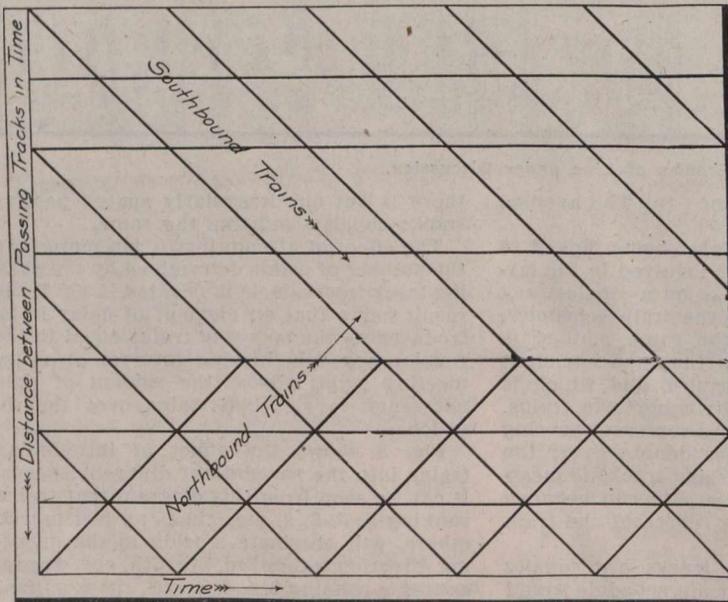


Fig. 4.—Effect of Attempting to Run Same Number of Trains as in Fig. 2 with Passing Tracks Unevenly Spaced.

between these two stations, and no more tonnage can be hauled over the division, than can be hauled between these two points in a given time.

By a rearrangement of the passing tracks, this particular throat may be made to disappear, but the new throat will appear as the interval between passing tracks which takes the greatest time to operate, the ideal

average time for a train, between the passing tracks which require the longest time to operate on a given district, then in the case

$$\text{above } C = \frac{60 \times 1200 \times 24}{T} = 79,056 \text{ tons, or } 54.9$$

tons a minute. If the clearance rule is in effect requiring inferior trains to clear superior trains by five mins., the tonnage will

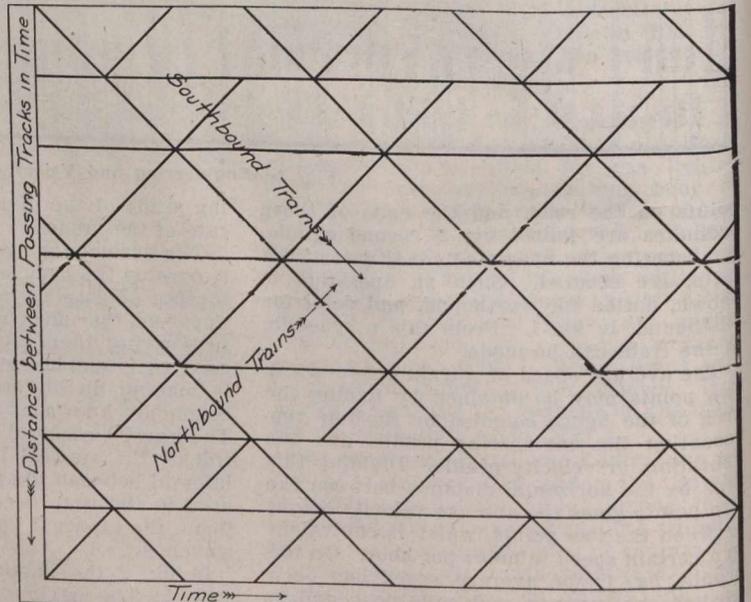


Fig. 5.—Train Schedule when Passing Tracks are Unevenly Spaced.

senger trains each way, the reduction in tonnage would be $776 \times 4 = 3,112$ tons, leaving now $70,920 - 3,112 = 67,808$ tons. The effect of the passenger trains to cause additional delay in this particular case will be very slight, and could probably be made to show no further delay, by careful scheduling, as this section is too short to get the effect. If a full division is being considered,

this delay must be taken into account. The law has been stated above.

The delay occasioned to trains at other stations than the terminals, and the two stations between which the longest interval occurs, is as we found above, twice the difference between this longest interval and the other passing track intervals. In our example this delay would occur at Giroux

tonnage possible, and that the nearer this is approximated the more efficient is the operation.

We have now considered all of the elements tending to reduce traffic mentioned above, except the question of insufficient terminal facilities. It is self evident that the tonnage capacity of the line requires that at the two terminals there must be, at least,

be capable of taking care of 683 cars in 24 hours.

The usefulness of such a calculation as the above, consists in being able to determine what are the elements in the operation of a division which needs improvement, and their relative importance. If under existing conditions it appears that double track is necessary, a calculation as above gives a

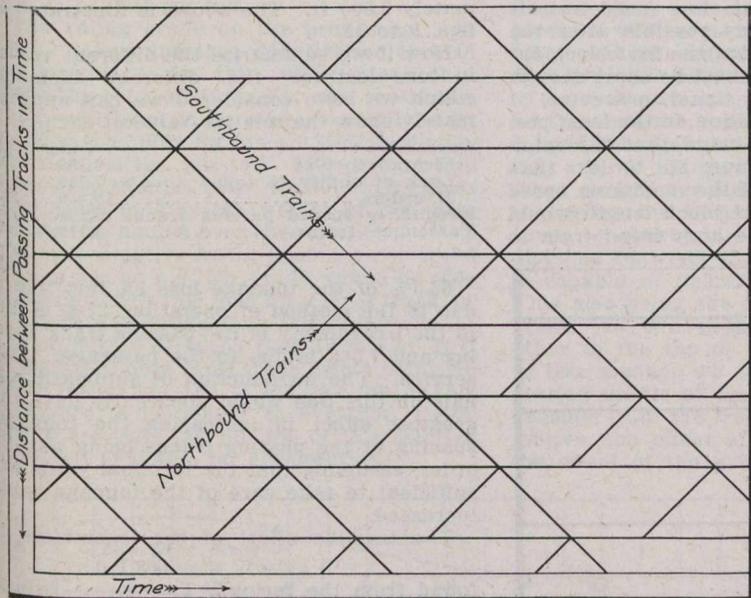


Fig. 6.—Train Schedule with One Unevenly Spaced Passing Track.

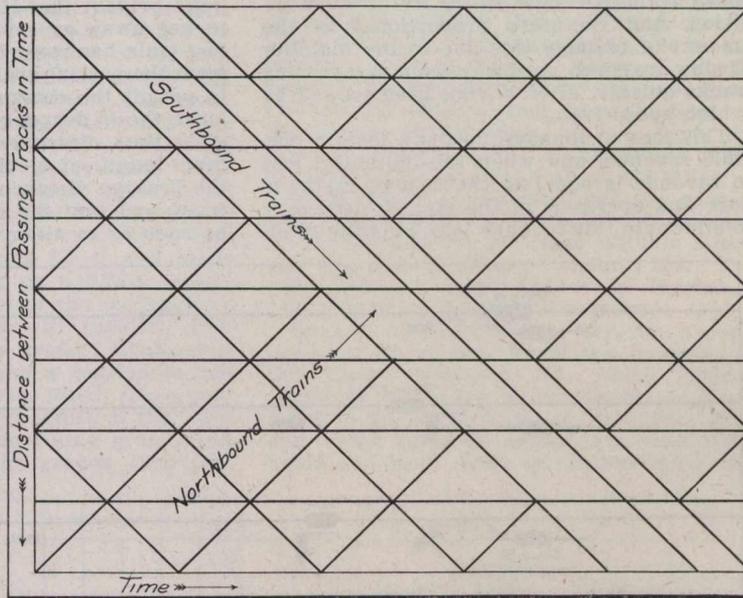


Fig. 7.—Effect of Attempting to Run More than the Number of Trains Determined by the Passing Track Intervals.

and would be 8.42 minutes for every westbound train. That is $8.42 \times 54 = 454.68$ tons per train affected. The number of trains would be $\frac{67,808}{1,200 + 227} = 48$ trains, and the total loss of tonnage would be $24 \times 454.6 = 10,896$ tons, giving the capacity now of $67,808 - 10,896 = 56,912$ tons.

The effect of the delay due to the delivery of 31 orders is an element which, with a line so short as the one we are considering, could be neglected, as the orders will be delivered at St. Anne and Bedford, therefore not affecting the running time in this section. However for illustration, assuming that the eastbound trains are given their meet orders at Giroux, the time taken in stopping, delivering and starting, will consume not less than 10 mins., or $10 \times 54 = 540$ tons per train. The number of trains then would be reduced to 19 each way, and the maximum tonnage would be $56,912 - 10,260 = 46,652$ tons.

There is one other element which we can value, that is the delay on slow trains by fast ones running in the same direction. It will be seen that in the above the passenger trains reduce the tonnage due to tying up the line between passing tracks for following movements until the fast train reaches the next station in advance, or a clearance of 10 mins. is allowed. Assuming that the 10 mins. rule is in force, the delay at such passing track for one passenger train each way will be 10 mins. at St. Anne, $10 - 8.42 = 1.58$ min at Giroux, 10 mins. at Labroquerie, 10 mins. at Marchand in the one direction, and 10 mins. at Bedford, 10 mins. at Marchand, 10 mins. at Labroquerie, and 10 mins. at Giroux, or a total of 71.58 mins., being equal to 7,730 tons lost in capacity for two passenger trains each way, leaving a maximum now of $46,652 - 7,730 = 38,922$ tons per 24 hours.

While it is quite possible that the maximum tonnage may never be realized, yet it is quite evident that this is the maximum

capacity in the yards to handle the tonnage which can be handled over the line. As however the capacity of a yard is determined by the number of cars handled, rather than the tonnage, the unit which we have used must be translated into number of cars.

The average capacity of cars in service in Canada in 1910 was 28 tons per car. The ratio of empty car mileage to loaded car

means of determining whether all the facilities of the single track have been worked out to their maximum, or if some improvement, costing less than double tracking, can be undertaken in lieu of the second main track, thus indefinitely delaying the capital outlay, and increase in fixed charges.

Moreover such a calculation gives for a division the ratio of efficiency, by dividing the tonnage actually hauled, by the calculating maximum, thus as between different divisions, giving efficiency ratios, which are comparable. By such a means the operating forces on different divisions may be compared.

Further with respect to the dispatching method. It is seen from the above, that in order to obtain the maximum, every minute of lost time must be eliminated. The time sacrificed on account of delivering 31 orders, the clearance rules, flagging rules, etc., must be reduced to a minimum. The only method that will do this safely is a proper designed block system, one on which the block for head on movement is the distance between the passing tracks, but which will permit of the movement of trains in the same direction closer than the passing track interval, as with trains of different speeds considerable delay is introduced if the slow trains being passed are compelled to wait until the train passing has reached the next passing track in advance. I do not believe that fleeting trains, or running certain trains closer together than the schedule based on the passing train intervals, will tend toward maximum traffic, on account of the effect of these fleeted trains on the opposing trains, but it is absolutely necessary to allow permissive movements in the same direction, between passing tracks, to take care of the variation in speeds of different trains, and the greater the number of speed trains, the greater the necessity for such permissive movement.

The possibility of permitting two trains to approach each other head on, even if the possibility of collision is prevented by inter-

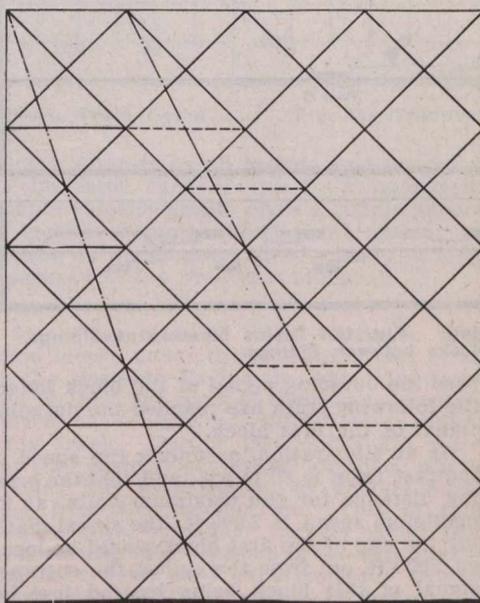


Fig. 8.—Effect of Introducing Trains of Different Speeds into Schedule.

mileage was 30%. Assuming the tare as a third of the total car weight, then the average car would weigh $28 + 9 = 37$ tons. This divided into half the total tonnage, and multiplied by 130% would equal the number $38,922 \times 130$

of cars,—i.e. $\frac{38,922 \times 130}{2 \times 37} = 683$ cars. Therefore the yard at each end must in this case

mediate signals, must be carefully avoided, as this introduces the possibility of additional delay which would materially reduce the capacity.

If the above reasoning is correct, that is that the necessity for following or permissive movements is due to running trains of different speeds on a division, then the advisability of putting in signals between passing tracks is dependent on the proportion of high speed trains to slow speed trains on a division, and therefore proportional to the amount of tonnage lost due to the inability of slow trains to get away from the passing tracks quickly, after having been passed by a high speed train.

This loss in tonnage means a loss in possible revenue, and when this potential loss in revenue is equal to the cost of maintenance and operation of the signals necessary to eliminate this tonnage loss, plus the inter-

district illustrated in the above $\frac{296.9}{25} = 11.8$ tons per signal in the 24 hours. It has been shown above that the tonnage lost due to this inability to follow was, on this district 7,730 tons, enough tonnage to pay for 65 signals on 24 miles of track.

The question naturally arises how many signals could be used economically? It is quite evident that if the slow speed train is to get away as soon as possible after the fast train has passed, that the first block out from the passing train must be short enough to permit the entrance signal to assume, at least, the 45 degree position, in the least possible time, bearing in mind that the minimum length of block must not be less than the braking distance of the maximum speed train, and that the next block length would be such as to allow the high speed train to

the block lengths succeeding the first block out would be about 9,200 ft. in length. This would determine all succeeding block lengths, except that in order to facilitate meets the distant signal indication for the next passing track should be set as close in to the passing track as possible, or it would be probably located out a distance equal to the maximum train length plus its braking distance. This would be approximately 3,500 ft. The above is illustrated in figs. 9 to 11.

Now if we summarize the different values in tons lost for the different elements which we have considered we can approximately show the relative value of each.

Operating:	Tons.	%
Clearance rules	8,136	20.5
Lack of ability to follow	7,730	19.5
31 orders	10,260	25.5
Irregularly spaced passing tracks	10,896	27.0
Passenger trains	3,112	7.5
		100.0

65.5% of the tonnage loss on this line is due to the method of operation, 27% is due to the irregularity of the passing track spacing and 7.5% is due to the passenger train service. The introduction of automatic signals on this line would apparently have the greatest effect in increasing the tonnage, spacing of the passing tracks being next in order, assuming that the terminal yards are sufficient to take care of the tonnage when increased.

The tractive effort of the locomotive is found from the formula $T = \frac{O \cdot 8 \cdot P \cdot d}{D}$ where

T is the tractive effort; P, boiler pressure; d, diameter of cylinders; s, stroke; and D, the diameter of the locomotive driving wheels.

In working out the data for the profile here shown, I assumed that the class of locomotive being used on the district was of the following dimensions:—

Weight on drivers	131,200 lbs.
Locomotive and tender	152 tons.
Boiler pressure	185 lbs.
Cylinders	22 x 26 ins.
Dia. of drivers	63 ins.

The tractive effort of this locomotive with full cut off would be 31,400 lbs. When however the locomotive reaches a certain speed the cut off must be changed, so as to admit less steam to the cylinders, and this will cause a reduction in the tractive effort of the locomotive. The point where the cut off will be modified is a function of the speed, and will be found by the formula, Speed

$$\text{factor} = \frac{56.02 \cdot V \cdot s}{D}$$

The speed factor is given

in revolutions per minute of the driving wheels. Up to a value of 250 the locomotive will be operated with full ports; above this the cut off is reduced, and there is a rapid drop in the tractive effort of the locomotive. Fig. 13 gives the tractive effort curve for the locomotive above. The tractive effort curve is a straight line to 10.8 m.p.h., the rest of the curve is a hyperbola, that is the product of the ordinates and abscissae is constant. In the case of our locomotive this product is 339,120. This curve gives the theoretical tractive effort, but the actual tractive effort which it is possible to utilize at low speeds is dependent on the friction between the drivers and the rails. Using 0.2 as the coefficient of friction, and with 131,200 lbs. as the weight on the drivers, the actual tractive effort available is $131,200 \times 0.2 = 26,240$ lbs. This value is shown on fig. 13, the balance of the curve being found by drawing a tangent from this point to the curve already found. This curve then gives the tractive effort of the locomotive from 10 to 40 m.p.h.

The resistance which the locomotive must

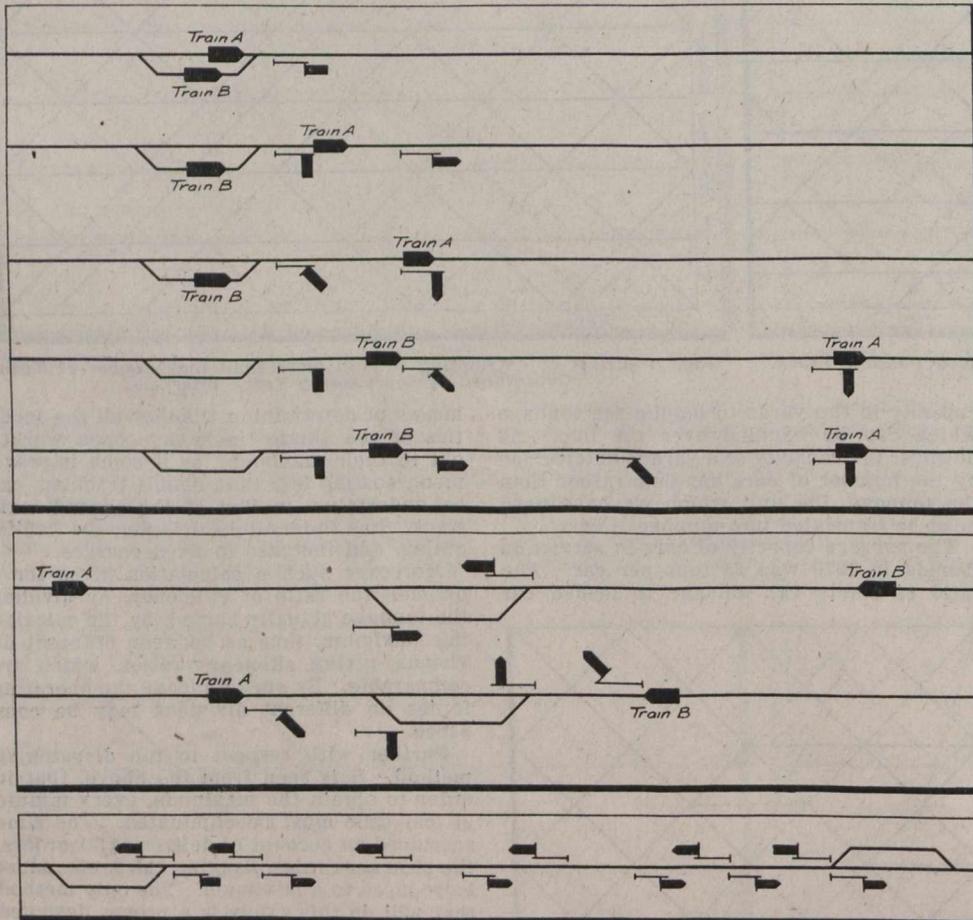


Fig. 9.—Fast Train Passing Slow Train at Siding. Fig. 10.—Trains Meeting at Siding. Fig. 11.—Distribution of Blocks between Sidings.

est on first cost and depreciation, then the point has been reached when the introduction of signals can be justified economically.

The average freight earnings on Canadian railways for 1913 was 0.753 cts. per ton mile; of this 70% was expended in cost of operation, leaving as net revenue 0.227 cts. per ton mile. Assuming that an automatic signal will cost \$300, and that the cost of operation and maintenance will be \$150 per year, the yearly charge for an automatic signal would be: Interest at 5%, \$40; depreciation at 7%, \$56; maintenance and operation, \$150; a total of \$246 per signal per year, or 67.4 cts. a day, as the cost per signal. If we divide this amount by 0.227 cts. we will get the ton miles over the division that must be added to the capacity of the line to justify the installation of one signal. This

$$\frac{67.4}{0.00227} = 296.9 \text{ ton miles, or in tons for the}$$

pass the outgoing signal of the block before the following train has reached the outgoing signal of the first block.

As an illustration, assuming the speed of the fast train is 30 m.p.h., and that the braking distance for the maximum train, at its maximum speed, is 2,000 ft., the signal marking the end of the first block would be located 2,000 ft. out from the siding, the entrance signal of this block being located just beyond the siding switch, this 2,000 ft. would be run in 0.76 mins.

The train which has been passed can now head out and will pass the entrance signal at 45 degrees. Assuming that it takes this train 6 mins. to open the switch and head out on to the main line and close the switch, and an additional minute to run to the next signal, or 7 mins. in all, the fast train would have run $3\frac{1}{2}$ miles, and therefore if the slow train is to be given a clear signal, the fast train must have passed two signals, or

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overcome in running along a straight and level track is found by the formula:

$$R = 3.5 \times 0.0055V^2 \frac{16}{(V-1)^2}$$

This is shown as the bottom curve fig. 12.

If the train has to be hauled up a grade, the additional resistance due to the grade is found from formula $R = 20 \times$ rate of grade. These two formulae give the resistance in pounds per ton.

The ruling grade on the profile fig. 1 is 0.75%. Assuming that it is desired to load our locomotive for this ruling grade at a minimum rate of 10 m.p.h. the resistance which will have to be overcome will be R_t for 10 m.p.h., plus R_g for a 0.75% grade, i.e. $4.2 + 15 = 19.2$ lbs. per ton. 19.2 divided into 26,200 (the tractive effort for 10 m.p.h.) gives 1,360 gross tons as the weight of the train that can be hauled over this district.

This locomotive being loaded for a speed of 10 m.p.h. on a 0.75% grade, would be able to operate with this load on a level track, or a less rate of grade than the ruling one, at a greater rate of speed than 10 m.p.h. If it is operating on a level track, there being no grade resistance, the 15 lbs. per ton of this resistance is no longer in evidence, therefore, there is 15 lbs. per ton of this tractive effort left available for acceleration.

0.75% grade, but that above this speed the rate decreases. It will be sufficiently accurate for our purpose if we use increases of speed of 5 m.p.h. The speed of 15 m.p.h. is equivalent to a velocity head of 8 ft., and by again referring to the curve in fig. 12, we find that at a speed of 15 m.p.h. this train can operate up a 0.85% grade. Using this new value, we continue our line to a point where it is 8 ft. above the engineering profile, here we can change the rate to that given on the curve for 20 m.p.h. This new rate could be used until the lines of the profiles had diverged 14 ft., but that at the foot of the grade we find that we have only risen 9.5 ft. above the engineering profile and that beyond this point the two lines are converging. When they have approached each other to 8 ft. we again change our rate to that given for 15 m.p.h., the two lines continue to converge however and when the distance between them is 3.5 ft. our train is capable of operating up a 0.75% grade. This also being the rate of the engineering grade the two profiles will parallel each other to the top of the grade. Continuing in this manner we secure a continuous operating profile of the line, which takes into consideration the tractive effort of the locomotive, the effect of the ruling grade, and the effect of the average grades, thus pro-

The Alaskan Railway Surveys.

The commission of engineers appointed by the United States President to survey and report on possible routes for Alaskan railways has returned to Washington and will in a short time submit its plans and estimates. Four coast points, Cordova, Valdez, Seward and Portage Bay, have been considered as possible termini. Cordova, on the east shore of Prince William Sound, has a population of about 1,100. It is the terminus of the Copper River & Northwestern Rd., which could be extended from Chitina, 132 miles distant from Cordova, up the Copper River Valley and through the Alaskan Range to the Tanana and Fairbanks, a total distance of about 445 miles.

Valdez, from which now runs the government wagon road to Fairbanks, is situated on the north shore of Prince William Sound and has a population of about 1,500. The total distance from Valdez to Fairbanks over this route is about 380 miles.

Seward, on Resurrection Bay, has a population of about 600. It is the terminus of the Alaska Northern Rd., which extends northerly across the Kenai Mountains for 72 miles to the eastern end of Turnagain Arm, and which could be extended around Turnagain and Knik Arms to the Susitna Valley

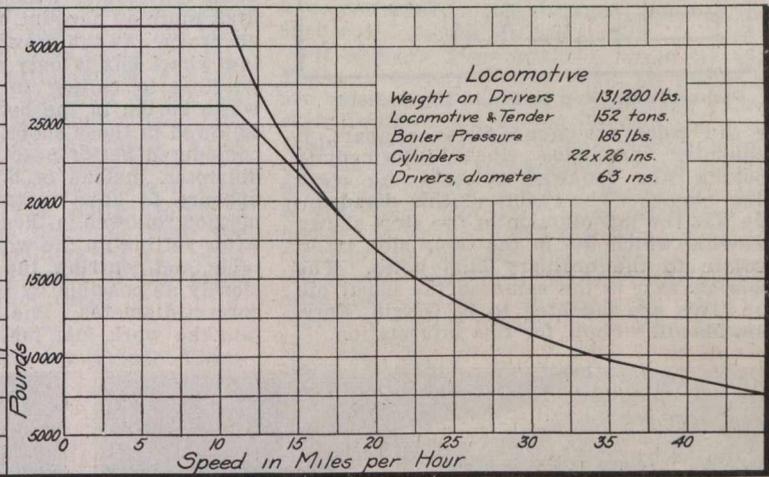
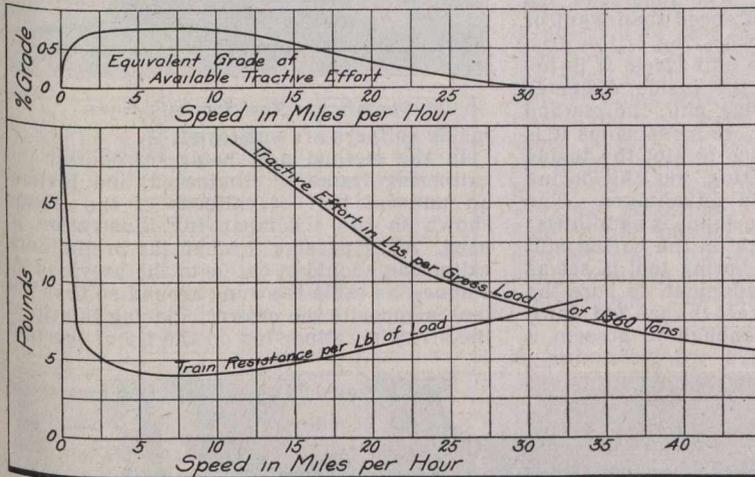


Fig. 12.—Equivalent Grade of Available Tractive Effort, Train Resistance and Tractive Effort Curves.

Fig. 13.—Tractive Effort Curve of Locomotive under Discussion.

In fig. 13, the tractive effort is shown in pounds per ton for the locomotive with the gross load of 1,360 tons. Below this curve is the train resistance curve; then the intercepts cut off between the tractive effort curve and the resistance curve, is the amount of tractive effort unused if the train is on a level track, or if we divide the value of these intercepts by 20 (the resistance of a 1% grade) we have the rate of grade up which this locomotive can haul 1,360 tons and the speed in miles per hour which it can make on these grades. The upper curve gives these rates of grade for the different speeds.

With this combination curve in fig. 12, we can proceed to construct a velocity profile on the engineering profile, producing the operating profile shown in fig. 1. The method of constructing this operating profile is as follows:—Assuming that we are starting our full tonnage train from St. Anne. The locomotive is capable of operating up a 0.75% grade, and this was the basis of loading; then if we draw a line, rising above the engineering profile, fig. 1, at the rate of 0.75% from the starting point, and continuing this line until it is 3 ft. 5 in. above the engineering profile. A velocity head of 3 ft. 5 in. is equivalent to a speed of 10 m.p.h. Referring to fig. 12, we find that at this speed the locomotive is capable of operating up a

and thence up to Broad Pass in the Alaskan Range and down the Nenana to the Tanana and Fairbanks, a total distance of about 460 miles.

Portage Bay is situated on the west coast of Prince William Sound, where no settlement now exists. It can be connected by a 15-mile line, in which there are about 3 miles of tunnel, with Turnagain Arm, and thence northerly through the Susitna and Nenana Valleys to the Tanana and Fairbanks, a total distance of about 410 miles.

In addition to the main trunk lines, branch lines to the Matanuska and Bering River coal fields are being considered. During the past summer the commission, with a large force of engineers, has been engaged on the survey and examination of these routes.

Heavy rails have developed some new physical weaknesses, one of the most notable being failure through crescent shaped pieces breaking out of the rail flanges, followed by at least one, and in many cases several, ruptures across the whole section of the rail.

The C.P.R. and the G.T.R. shops are reported to be adding the necessary extra plant to enable them to turn out steel shell jackets for the British Government.

and thence up to Broad Pass in the Alaskan Range and down the Nenana to the Tanana and Fairbanks, a total distance of about 460 miles.

Portage Bay is situated on the west coast of Prince William Sound, where no settlement now exists. It can be connected by a 15-mile line, in which there are about 3 miles of tunnel, with Turnagain Arm, and thence northerly through the Susitna and Nenana Valleys to the Tanana and Fairbanks, a total distance of about 410 miles.

In addition to the main trunk lines, branch lines to the Matanuska and Bering River coal fields are being considered. During the past summer the commission, with a large force of engineers, has been engaged on the survey and examination of these routes.

Heavy rails have developed some new physical weaknesses, one of the most notable being failure through crescent shaped pieces breaking out of the rail flanges, followed by at least one, and in many cases several, ruptures across the whole section of the rail.

The C.P.R. and the G.T.R. shops are reported to be adding the necessary extra plant to enable them to turn out steel shell jackets for the British Government.

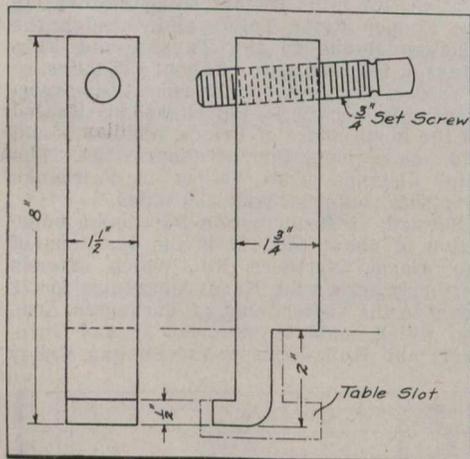
Steel Ties made of rolled channels, with wood blocks under the rails, are being tried on the Northern Pacific Ry. About 100 were laid in 1911, but some of them have been removed on account of difficulties in shimming track. During 1914 about 320 were put in, mainly at water stations where wooden ties were burned by cinders dropping from the locomotives. Ties of this general type, but under various names and with various modifications in the rail fastening, have been used experimentally at different times within the past 30 years.

Revised passenger and station regulations for the Intercolonial Ry. and the Prince Edward Island Ry. were approved by order in Council, Jan. 12.

Railway Mechanical Methods and Devices.

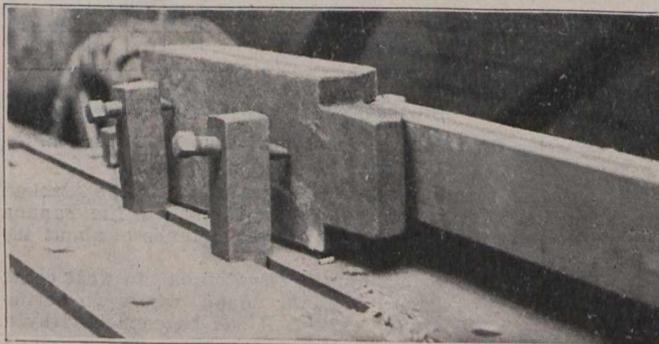
A Handy Planer Stop.

A handy stop for the planer, in use in the Toronto, Hamilton and Buffalo Ry. shops, Hamilton, Ont., is shown in the accompanying illustration. The planer has the usual T slots the length of the table, with round stop holes in rows between. In these holes pins can be fitted, with set screws through the upper end for bearing against the work.



Planer Table Stop to Fit in the T Slots.

As the holes are some distance apart, it frequently happened that intermediate blocking was required to hold the work being planed. The result of this disadvantage was the introduction of the stop, shown herewith, which fits in the table slot, intermediate to the ordinary stop holes. The upper portion is the same as the usual pin stop. We are indebted to E. Glavin, Foreman, Machine Shop, for this information.



Jig on Planer for Planing Outside Faces of Shoes and Wedges.

Planing Shoes and Wedges.

A method of machining shoes and wedges on the planer with a minimum of time required in setting up the work has been developed in the Toronto, Hamilton, and Buffalo Ry. shops, Hamilton, Ont. In the first stage of the machining they are laid in a row on the planer table, and the inner faces planed out, the locating of the shoes and wedges for this operation not requiring a great deal of accuracy, as there are no finished surfaces up to this stage. The next operation consists of planing the sides of the shoes and wedges, an operation that is performed in the manner shown in the accompanying illustration.

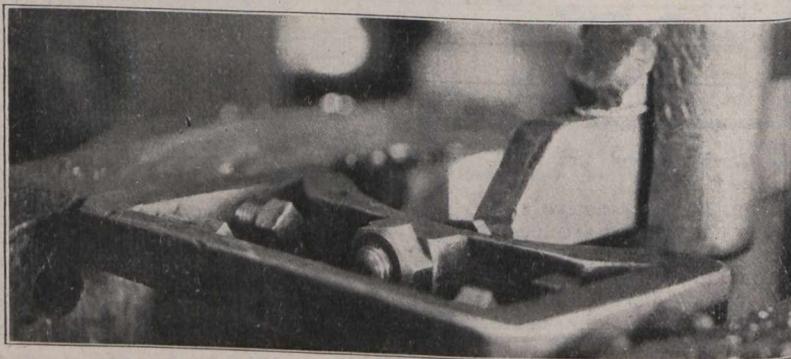
Bolted to the planer table there is a casting, roughly of a base and upright form, the upright section being finished on the outer face to the inside dimensions of the shoe or wedge. Against this face the inside finished

face of shoe or wedge is placed and held in position by planer stops and set screws, and in this position one face of the shoe or wedge is finished. Reversing the position, the other face is finished. Both these operations can be performed on several shoes or wedges at a setting.

For the final operation of finishing the backs of the shoes or wedges such a jig cannot be used, as, due to the inequality in wear on the mating faces of the shoes and wedges, where they are used in repair work, as in this shop, it is necessary to lay out lines on the ends of the shoes and wedges to which to plane. We are indebted to E. Glavin, foreman machine shop, for this information.

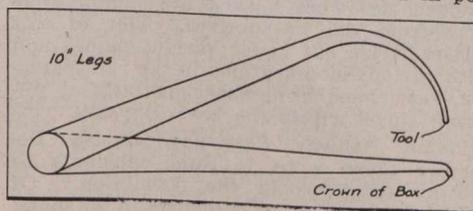
Calipering Driving Wheel Boxes.

In the Toronto, Hamilton, and Buffalo Ry. shops, Hamilton, Ont., for the purpose of calipering the inside diameter of driving wheel boxes, there is in use a most excellent method, which is in many ways superior to anything the writer has seen in use elsewhere. Good as it is, a still better method is being developed which will supersede the first, more on account of speed than want of accuracy. As the crown bearing of the driving wheel box is only a half circle it is impossible to caliper in the inside diameter while boring in the boring mill, the method followed in these shops. In some shops it is considered better practice to slot the inside diameter, instead of boring, but the boring appears to have certain advantages. The method followed in these shops is as follows: After setting up the work on the boring mill table, and centring, the boring tool is set as closely as possible by judgment, to bore the correct diameter. The tool is then fed down into the work just far enough to present a



Calipering Driving Wheel Boxes, Old Method.

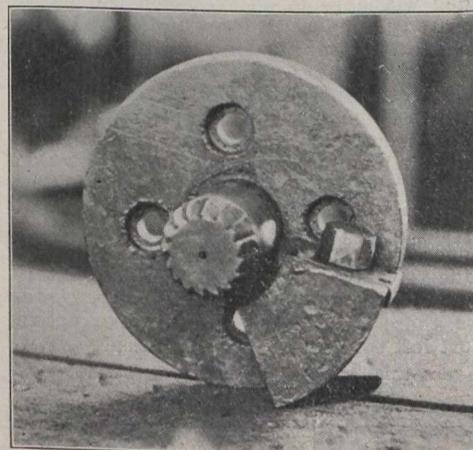
calipering shoulder. In the open side of the box there is fitted a special calipering jig. This latter consists of an open frame of the shape shown herewith, and which is a forged member. This frame is held in po-



Calipering Driving Wheel Boxes, New Method.

sition in the box opening by two set screws on each side, bearing against the box walls. In the centre of the frame there is a flat head bolt, the head projecting inwards towards the tool, and the outer end carrying a lock nut. After the

calipering shoulder is cut in the box the table is swung around until the tool is opposite the flat head of the bolt, the latter being adjusted until it just touches the tool. This gives the other side of the boring diameter, which can thus be calipered, the crown of the box as one side of the diameter and the flat head of the bolt as the other side. The tool can be adjusted after this preliminary calipering until finally correct, when the calipering jig may be removed. In the above method plain



Chamfering Tool for Safe Ends.

inside calipers are employed.

In the method now being introduced the calipering frame is eliminated, and instead an unusual pair of calipers of the shape shown in the accompanying illustration is used. After passing through the preliminary calipering shoulder, cut as in the previous instance, the table is swung around so that the tool is opposite the crown. Placing the tip of the straight caliper leg on the tip of the tool

gives the diameter to which the tool is set, from which an adjustment of the tool may be speedily made if found necessary. These two methods have been developed under E. Glavin, foreman machine shop.

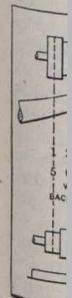
Chamfering Tool for Safe Ends.

In the Toronto, Hamilton, and Buffalo Ry. shops, at Hamilton, Ont., a very handy method of chamfering the tube pieces that are used in safe ending is in use. Its advantage lies largely in the fact that the tool can be used in the bolt machine without much special fitting. The tool consists of a steel disc, which can be secured by four cap screws to the head of a bolt machine. Concentric in this disc there is a pin of the same inside diameter as the tube, the outer end of which is fluted like a reamer, for removing inside burrs in the tubes. On one side of the pin there is a radial projection, to one

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Canadian Northern Railway Company's Annual Report.

At the annual meeting in Toronto Feb. 1, the following directors were elected:— Sir William Mackenzie, President; Sir Donald Mann, Vice President; Z. A. Lash, Frederick Nicholls, R. M. Horne-Payne, R. J. Mackenzie, E. R. Wood and D. B. Hanna. All but Messrs. Wood and Hanna were members of the former board. E. R. Wood, as stated in the report, has been added to the board, and D. B. Hanna, who is Third Vice President, has also been added.

The following directors' report, over the signature of Sir William Mackenzie, was submitted at the annual meeting:

The results of the operations for the fiscal year ended June 30, 1914, are as follows:

GROSS EARNINGS.

From Passenger traffic	\$ 3,719,946.94
From freight traffic	18,316,055.73
From express, mail, telegraph, interest and profits from elevators and other subsidiary companies, investments, etc.	1,745,326.17
WORKING EXPENSES, (including taxes, etc.)	23,781,328.84
Net earnings	\$7,330,565.75
Deduct: fixed charges	5,776,060.34
Surplus	\$ 1,554,505.41
From this deduct interest at 5% per annum paid on income charge convertible debenture stock outstanding	1,250,000.00
Net surplus for the year	\$ 304,505.41

The gross earnings show a decrease, compared with the previous year, of \$496,149.63, or 02.04%. Whilst your directors regret that this year, for the first time in its history, they have to report a decrease of gross earnings, it is gratifying, due to substantial economies effected in the operation of the various undertakings controlled, that the net earnings from all sources show an increase of \$556,697.85, or 08.22%, over the preceding year. The working expenses were 72.02% of the gross earnings of the railway proper, and including taxes 69.18% of the gross earnings from all sources, compared with 74.64% and 72.10% respectively in the previous year.

During the year 413 miles of newly constructed track were added to the railway, the average mileage operated being 4,563 miles, compared with 4,297 the preceding year.

The land sales during the year were 3,692 acres for \$56,220.94, an average of \$15.23 an acre, compared with an average of \$15.36 for the preceding year. Land grant bonds of the issue of 1909, amounting to £122,600, were retired, leaving in respect of this issue outstanding £634,400. During the year £3,500,000 5% land mortgage debentures, repayable in or before 1923, have been created and £1,500,000 sold to public. Having regard to the fact that the National Trust Co. holds cash in its hands in excess of the amount required to retire the issue of 1899 land grant bonds, that the deferred payments when collected on the land actually sold will retire the balance of the issue of 1909 and leave a surplus of over \$4,800,000, that there are 857,356 acres of land still to sell, it will be seen that the redemption of these 5% land mortgage debentures in due course is amply provided for. In addition to the equities referred to above and the unsold lands, there has also been assigned to the trustees of these debentures as additional security \$10,000,000 of shares and \$10,000,000 4½% debenture stock of the Canadian Northern Town Properties Co. In addition to the issue of 5% land mortgage debentures, short term issues of secured notes and temporary loans were made at different times during the year, the proceeds of which have been or will be applied

to construction and betterment of the system generally. There have also been created during the year, under conditions hereinafter explained, \$45,000,000 of 4% debenture stock guaranteed unconditionally by the Dominion of Canada; this \$45,000,000 under ranks for security the existing issues of bonds and debenture stocks, including the 5% convertible income debenture stock. Car trust obligations were created to the extent of \$8,126,596.14, for the purchase of locomotives and passenger and freight cars of different kinds. During the year \$5,604,596.14 was repaid in respect of previous obligations, thus making a net increase on this account for the year of \$2,522,000.

As a result of the satisfactory grain crop of 1913 in Manitoba, Saskatchewan and Alberta, your company handled not less than 80,000,000 bush. of grain, or its equivalent in flour and other mill products. The gross revenue, therefore, for the first half year under review, showed a very substantial increase over the same period of the preceding year, and it was confidently felt because of this fact that, although there had been a perceptible slowing down of business generally throughout the Dominion, the expected falling off of traffic receipts for the succeeding six months would not approximate the increased revenues for the first half of the year. Notwithstanding the unexpected heavier loss in gross receipts, there are favorable features in certain classes of traffic handled which, with a return of business to normal conditions, must be of substantial advantage to your company in the future. At several points on the system, the mining of coal is being carried on with success. During the past year your company handled over 1,100,000 tons of commercial coal, in addition to which an average of 700 tons a day have been purchased from mines served by our own lines and used in the operation of our trains. Reference should also be made to an increase of 150,000 head of live stock over the preceding year. The increase is on account of the development of this industry in Saskatchewan and Alberta, which assures to the farmer a steady and regular income, quite apart from the profits in the growing of grain, and ensures to your company the movement of profitable traffic at all times of the year. The development of these features is the natural outcome of the policy which has been consistently followed by your company, and also to the fact that its lines have been constructed in territory particularly adapted to mixed farming.

During the year an important revision of the main line between Winnipeg and Port Arthur, across Rainy Lake, was completed. The revision is over 2½ miles long and replaces a part of the original line, which was largely on timber trestles, by permanent work, at the same time reducing the gradient to a maximum of 4-10 of 1%. The new line is built for double track and is laid with 80 lb. steel rails. The work includes some heavy excavation, a rock embankment over 1½ miles long and from 20 to 70 ft. in height above the bottom of the lake, and two permanent steel and concrete bridges, one of them a bascule lift bridge over the navigation channel. In addition to this other betterment work, representing large expenditures, was done over the entire system, which has so increased the efficiency of the service that the need for further expenditure in that regard may with safety be delayed until a return of normal business conditions.

As you are aware, the object of the board has been to secure a transcontinental railway system across Canada, and with that object the ownership or control of a num-

ber of independent companies was secured. The lines of some of these railways are so located that, being joined with your company's main line, they constitute a through and very direct route connecting Quebec, Montreal, Ottawa, Toronto, Winnipeg, Edmonton and Vancouver and Victoria by car ferry. The lines of the other companies constitute valuable branch lines and feeders. The problem of financing the completion of this main through line, and the development and betterment of this system generally, had to be solved. It did not seem practicable or desirable to continue as heretofore and complete the system while many of the separate or subsidiary companies constituting it remained in law, corporations independent of the C.N.R. company. Your directors, after careful consideration, decided that the time had arrived for the formal acquisition by your company of the control of the entire system and for the raising of money on the security of the general system, in order that the main through line might be completed and the construction, equipment and betterment of the works and undertakings of the system generally might be provided for. Owing to the public nature and importance to the people of Canada of the C.N.R. system, and that in the public interest it should be completed without delay, your directors explained to the Dominion Government their intentions with respect to the consolidation and completion of the system, and applied for a Dominion Government guarantee of securities to the extent of \$45,000,000, secured by a general charge upon the undertakings of the C.N.R. and upon the stocks of the subsidiary companies. The application having been favorably entertained by the Government, and the statute having been passed by Parliament, an agreement between the Government and the company was made and the control of the shares in the capital stocks of the subsidiary companies which had not previously been acquired by the C.N.R. Co. was transferred to it. The statute authorizes any railway company comprised in the Canadian Northern system to enter into arrangements and agreements with the Canadian Northern respecting the operation by the C.N.R. of its undertaking. This provision will greatly facilitate the consolidation of the system, and your directors intend to take advantage of it, so that, as far as possible, the whole system may be operated directly by the C.N.R. Co., and that a single or consolidated yearly balance sheet may be prepared. By the statute the capital stock of the C.N.R. is fixed at \$100,000,000, subject to increase only by the Dominion Parliament; provided that for the purpose of exchange of income charge convertible debenture stock, \$25,000,000 of which is now outstanding, there may be issued to such holders who exercise the option of exchange, the amount of capital stock over and above the \$100,000,000 required for the purpose. The statute also provides that no further issue of income charge convertible debenture stock shall be made under the trust deed securing the same. No shares in the capital stocks in the subsidiary companies beyond the amounts heretofore issued can be issued without the consent of the Government. As part of the terms upon which the Government guarantee was authorized, the statute required that there should be transferred to the Dominion of Canada \$33,000,000 par value of the C.N.R. Co.'s capital stock, in addition to the \$7,000,000 which was issued under the authority of the statute of 1913. The shareholders furnished this amount, and the Government is now a shareholder to the extent of \$40,000,000, out of a total of \$100,000,000 of stock. The provisions of the statute relating to the guarantee of the \$45,000,000 were all complied

March, with, an curities trust m pleted s year, th appear i Since ness ow bad, ov Every, greater so far a are con from we Province ditions y ing econ ness as i offset th Owing the com has been that a pl and the ing year vice will of 1915. E. R. v Security other i been ele board. The a pended Third Vi CO Cost of r Acquired Advances tion ... Value of supplies Due from tion bal Deferred accrued land sa Cash w Trust of land Cash ac With Don ment - With Pro toba - With Pro katchev With Pro berta - Cash on i In addi owns 857 Saskatch Capital s Bonds ar Govern 4% per debenture 5% incon debenture 6% one ye 5% secur 5% land debenture Land gra 1899 ... 1909 ... Temporar as colk ermen the val price la borrow Car trust Current li Unpaid U n p a vouch Due to panies Coupon warra (since

with, and the issue of the guaranteed securities was duly authorized and secured by trust mortgage. These having been completed subsequent to the close of the fiscal year, the effect of the arrangement does not appear in the present statement of accounts.

Since the close of the fiscal year, business conditions have become exceedingly bad, owing to the war now in progress. Every industry has been affected to a greater or less extent, and this is reflected, so far as all the railways in the Dominion are concerned, in reduced gross revenue from week to week, especially in the Prairie Provinces. To meet these unparallelled conditions your directors have enforced sweeping economies in the handling of such business as is being offered as will in a measure offset the serious loss in gross revenue.

Owing to conditions which have arisen, the completion of your line across Canada has been delayed. It is expected, however, that a physical connection between the east and the west will be made early in the coming year, and that a regular through service will be in full operation by midsummer of 1915.

E. R. Wood, Toronto, President, Dominion Securities Corporation, and identified with other important financial interests, has been elected a member of your company's board.

The accounts and statistical tables appended were submitted by D. B. Hanna, Third Vice President:

CONDENSED BALANCE SHEET.

Assets.	
Cost of railway and equipment	\$239,688,998.27
Acquired securities (cost)	17,309,634.77
Advances to other companies	9,310,721.28
Advances to lines under construction	15,226,978.49
Value of material and supplies on hand	\$2,817,971.51
Due from agents, station balances, etc.	714,291.16
Deferred payments and accrued interest on land sales	7,161,785.46
Cash with National Trust Co. account of land sales	2,730,962.75
Cash account—	
With Dominion Government	757,513.29
With Province of Manitoba	656,713.38
With Province of Saskatchewan	2,803,617.04
With Province of Alberta	1,148,959.85
Cash on hand	2,841,477.90
	\$303,169,625.15

In addition to the above assets the company owns 857,356 acres of land in Manitoba and Saskatchewan.

Liabilities.	
Capital stock	\$77,000,000.00
Bonds and stock (guaranteed by Government)	54,915,117.86
4% perpetual consolidated debenture stock	46,464,715.83
5% income charge convertible debenture stock	25,000,000.00
6% one year gold notes	\$3,500,000.00
5% secured notes	11,923,333.34
5% land mortgage debentures	\$7,300,000.00
Land grant bonds	
1899	\$2,000,000.00
1909	3,087,413.35
Temporary loans against deposit as collateral of inter alia Government guaranteed securities, the value of which at current price largely exceeds the amount borrowed	14,968,487.19
Current obligations	22,023,500.00
Current liabilities—	
Unpaid pay rolls	1,147,874.01
Unpaid audited vouchers	2,303,020.51
Due to other companies	4,633,972.31
Coupons and dividend warrants due July (since paid)	1,784,639.31

Accrued interest on bonds and equipment securities	631,984.71	2,416,624.02
Equipment replacement fund		694,403.25
Surplus—		
Land account	16,828,269.95	
Railway account	6,962,893.53	23,791,163.48
		\$303,169,625.15

INCOME ACCOUNT.

Operating expenses	\$16,147,417.08
Taxes, railway	214,835.51
Taxes on company's lands	88,510.50
Interest on bonds, etc.—	
Consolidated debenture bonds, guaranteed by Manitoba	\$491,825.31
Ontario Division debenture bonds, guaranteed by Manitoba	230,648.36
Winnipeg Terminal bonds, guaranteed by Manitoba	120,000.00
3% debenture stock, guaranteed by the Dominion	280,799.86
3½% debenture stock, guaranteed by the Dominion	276,380.52
4% debenture stock, guaranteed by Manitoba	114,399.94
4% debenture stock, guaranteed by Saskatchewan	321,200.00
4% debenture stock, guaranteed by Alberta	154,950.00
Consolidated debenture stock	1,809,375.37
Qu'Appelle, Long Lake and Saskatchewan Ry. 4% debenture stock	202,056.02
Land grant 4% bonds	129,556.32
5% land mortgage debentures	182,500.00
5% secured notes	122,354.87
	4,436,046.57

Rental of leased lines—	
Northern Pacific & Manitoba Ry.	225,000.00
Minnesota & Manitoba Rd.	26,460.00
	251,460.00

Interest on equipment securities	1,088,553.77
Accrued interest to June 30, 1914	631,984.71
Less accrued interest to June 30, 1913, paid during current year	511,988.18
	119,996.53

Interest at 5% per annum paid on income charge convertible debenture stock outstanding	1,250,000.00
Balance of income account	6,962,893.53
	\$30,559,713.49

Balance of income account at June 30, 1913, as per annual report	\$6,778,384.65
Gross earnings, passenger	\$3,719,946.94
Freight	18,316,055.73
Express, mail and miscellaneous	1,745,326.17
	23,781,328.84
	\$30,559,713.49

Balance to credit of income account June 30, 1914 \$6,962,893.53

Gross Earnings.

Class	1914	Per cent.
Passenger	\$3,719,946.94	15.64
Freight	18,316,055.73	77.02
Mails	148,665.67	00.63
Express	485,108.94	02.04
Miscellaneous	1,111,551.56	04.67
Total	\$23,781,328.84	100.

Operating Expenses.

Class	1914	Per cent.
Maintenance of way and structures	\$3,191,805.44	19.40
Maintenance of equipment	2,563,233.05	15.58
Traffic expenses	450,413.67	02.74
Transportation expenses	9,198,610.26	55.92
General expenses	1,046,700.67	06.36
Total	\$16,450,763.09	100.

Summary of Earnings and Expenses.

Class	1914	Per cent.
Gross earnings	\$23,781,328.84	
Operating expenses	16,450,763.09	69.18
Net earnings	7,330,565.75	30.82

Description of Freight Carried.

	1914.	1913.
Flour, sacks (100 lbs. ea.)	2,405,487	3,047,478
Grain, bushels	73,892,911	59,380,957

Live stock (all kinds), head	385,697	239,133
Logs and lumber, feet	466,745,000	448,351,000
Firewood, cords	209,712	233,248
Coal, tons	1,150,461	1,111,865
Immigrants' effects, cars	4,241	4,628
Building material (lime, stone, brick, sand, etc.) cars	41,952	57,367
Miscellaneous, tons	1,456,997	1,371,927

Passenger Traffic.

	1914.	1913.
Passengers carried (earning revenue)	2,010,272	1,984,978
Passengers carried one mile	158,216,177	157,225,910
Passengers carried one mile per mile of road	34,674	36,590
Average distance carried	78.73	79.21
Total passenger revenue	\$3,591,054.32	3,590,313.39
Average amount received per passenger	1.78.64	1.80.87
Average amount received per passenger per mile	.02.270	.02.284
Total passenger train earnings	\$4,353,721.55	4,381,668.92
Passenger train earnings per train mile	1.22.702	1.28.088

Freight Traffic.

	1914.	1913.
Revenue tons carried	6,537,416	6,821,811
Revenue tons carried one mile	2,419,604,849	2,366,393,799
Revenue tons carried one mile per mile of road	530,266	550,708
Average distance haul of one ton	370.12	346.88
Total freight revenue	\$18,125,874.76	18,261,130.13
Average amount received for each ton of freight	2.77.264	2.67.687
Average revenue per ton per mile	.00.749	.00.772
Total freight train earnings	\$18,316,055.73	18,561,026.90
Freight train earnings per train mile	2.95.153	2.83.240

Passenger and Freight, Etc.

	1914.	1913.
Gross earnings per mile of road	\$5,211.77	5,649.87
Operating expenses per mile of road	\$3,605.25	4,073.45
Net earnings per mile of road	\$1,606.52	1,576.42
Amount required per mile of road to pay fixed charges, including leased lines	\$1,027.29	993.01

Train Mileage.

	1914.	1913.
Mileage of passenger trains	3,548,219	3,420,821
Mileage of freight trains	6,205,620	6,553,100

Expenses Per Traffic Train Mile.

	1914.	1913.
Maintenance of way and structures	cts. 32.72	32.33
Maintenance of equipment	cts. 26.28	33.10
Traffic expenses	cts. 04.62	04.29
Transportation expenses	cts. 94.31	97.26
General expenses	cts. 10.73	08.51
Total	\$1.68.66	1.75.49

Summary of Equipment.

	1914.	1913.
Locomotives	663	534
Sleeping and dining cars	80	76
Passenger coaches	412	376
Baggage and mail and express cars	142	135
Business cars	16	16
Freight, refrigerator and stock cars	27,018	23,759
Conductors' vans	433	396
Boarding, tool, auxiliary cars, steam shovels and snow equipment	818	701

The total mileage owned and operated, including leased lines, at June 30, 1914, was 4,965.90, located as follows: Ontario, 342.07; Manitoba, 1,836.70; Saskatchewan, 2,052.24; Alberta, 691.17; Minnesota, 43.72.

Railways and Forestry.—The Canadian Forestry Association passed a resolution at its annual meeting recently, thanking the railway companies for the assistance given the association in various ways in carrying on the work of forest conservation, and stating that without such aid the association's work would have been much curtailed.

*x carried 25,284 net passenger
net - 2,790.93, returned*

Application for a General Increase in Freight Rates.

The Canadian Freight Association, on behalf of all the railway companies under the Board of Railway Commissioners' jurisdiction, filed the following application with the Board, on Feb. 17:—

The companies propose to file with the Board tariffs bringing into effect increases in freight charges as shown in the schedule hereto attached.

In order to obviate the enormous expense of printing tariffs and filing same, prior to their consideration by the Board, the companies desire to submit a memorandum thereof, showing the increases proposed to be made effective, for the Board's approval. Copies of this application and of the schedule attached have been forwarded to the secretaries of the principal boards of trade and to the Canadian Manufacturers' Association.

In support of the application the applicants state that it is in the interest of the country at large, as well as of the companies and their shareholders, that further revenues should be obtained from the carriage of freight traffic.

That the rate of return in net operating income upon the companies' property investment has seriously declined.

That the principal cause of this decline is the steady and constant increases in operating expenses, due to matters of continuing character, such as wage increases, legislative requirements and the necessity of maintaining a higher standard of track equipment and facilities generally.

That the return upon money invested in railway facilities in the territory in respect of which increases in rates are asked is unreasonably low and inadequate.

The effect of these factors is to seriously diminish the companies' borrowing powers and compel the obtaining of necessary capital at much higher rates of interest, thereby increasing fixed charges, which must be met out of the net earnings, which have been decreased, and will in all likelihood be further decreased, by the necessity of paying higher rates of interest on any monies borrowed.

That in consequence of the exceptional conditions at present existing, various money markets previously open to the companies are now closed, the result being to very materially limit the sources from which money may be obtained.

That among other grounds the companies will urge as a reason for the proposed increases the fact that after a full hearing the Interstate Commerce Commission made an order recently increasing the rates in the Official Classification territory to the South, notwithstanding the fact that in the applicants' opinion the conditions under which the companies were there operating were much more favorable than those which apply to the applicants.

The applicants propose to submit to the Board, on the hearing of the application, statistics to support the grounds upon which the application is based. These statistics are in course of preparation and will be filed with the Board before the date set for the hearing, if at all possible. At the same time copies will be forwarded to the secretaries of the boards of trade and other interests.

Schedule of Increases Proposed.

To meet in some measure the conditions outlined in the foregoing application the following changes in various freight tariffs, class and commodity, are proposed:—

1. CLASS RATES.—That goods carried under Canadian Freight Classification ratings and class rates will be advanced 2c. per 100 lbs. 1st class, and 1c. per 100 lbs. 5th class; rates for other classes to be fig-

ured on the usual basis, subject to standard mileage class rates as a minimum.

2. COMMODITY RATES.—On freight traffic carried on commodity rates the following advances are proposed:—

Coal and coke, 10c. a ton. Sand, gravel and crushed stone (except stone for fluxing), 5c. a ton.

Billets, pig iron, wire rods, rails, crop ends, ferro silicon, iron ore concentrates, crude oxide of iron, mill cinder.

Where present rate is	Proposed advance.
\$1.49 a ton or lower	5c
\$1.50 a ton to \$2.49	10c
\$2.50 a ton to \$3.49	15c
\$3.50 a ton to \$4.49	20c
\$4.50 a ton to \$5.49	25c
\$5.50 a ton to \$6.49	30c

Pulpwood, cordwood, paving blocks, logs, stone, artificial stone.

Where present rate is	Proposed advance.
7½c or lower	¼c
Over 7½c but not exceeding 12½c	½c
" 12½c but not exceeding 17½c	¾c
" 17½c but not exceeding 22½c	1c
" 22½c but not exceeding 27½c	1¼c

Alum, tan bark, stone dust, cooperage stock, gypsum rock, shafts, magnesite, final molasses, salt, drain tile, wire fencing, wrapping paper cores, china clay, beer packages, charcoal, nitre cake, hubs, spokes, mica scrap, pitch, salt cake, potatoes, wire netting, sulphur in packages, cement, petroleum coke, grinding pebbles, rims, lime, lumber and forest products, rags, slag, wrapping paper, woodpulp, articles of iron and steel manufacture, car lots.

Where present rate is	Proposed advance.
15c or lower	½c
Over 15c but not exceeding 35c	1c
" 35c but not exceeding 45c	1½c
" 45c but not exceeding 55c	2c

Wood alcohol, excelsior, petroleum, marble, tar, ale and beer, gas liquor, rice and rice flour, car loads, sludge, tin cans, glass bottles, granite, green hides, sulphur in bulk, metal shingles and siding.

Where present rate is	Proposed advance.
25c or lower	1c
Over 25c but not exceeding 35c	1½c
" 35c but not exceeding 45c	2c

Grain and grain products, flax seed, beans.

Where present rate is	Proposed advance.
7½c or lower	½c
Over 7½c but not exceeding 12½c	1c
" 12½c but not exceeding 17½c	1½c
" 17½c	2c

3. Rates on grain and grain products from Fort William, all rail and lake and rail; also from Bay ports to Montreal, will be advanced 1c. per 100 lbs. Rates from Fort William and Bay ports, and Ontario points to points in the Maritime Provinces, will be advanced 1c. per 100 lbs., plus the difference in the present and proposed arbitrates east of Montreal.

4. Sewer pipe as follows, viz:—Where present rate is 7½c. or lower, 1c. per 100 lbs. Where present rate is over 7½c., 1½c. per 100 lbs.

5. In connection with iron and steel articles, it is proposed to advance the l.c.l. rates to the proposed 4th class rates.

6. Rates on binder twine from Welland, Ont., will be advanced from 1c. to 4c. per 100 lbs., to correspond with similar advances made from twine factory points in the United States.

7. Proposed advance in rates on canned goods. To Montreal and Ottawa 1½c. to 2½c. per 100 lbs., points in the Maritime Provinces being figured by adding established arbitrates to the Montreal rate.

8. Cheese.—Rates on this commodity to Montreal will be advanced 2c. per 100 lbs., but not higher than the 4th class rates, which basis already applies from a very large territory.

9. Proposed to advance the present rates on livestock from 1c. to 2c. per 100 lbs.; also corresponding advance is proposed in the rates on livestock to Buffalo, N.Y., and United States generally.

10. Proposed to advance rates on dry earth paints from Argalls, Champlain and Red Mill, Que., to the 10th class rates.

11. Proposed to advance rates on paper, starch and glucose, to correspond with the advance made in the 5th class rates.

12. It is proposed to place acids on the 7th class basis.

13. Some commodities such as confectionery, corn oil, cotton piece goods, stoneware, gin, lard compound, leather and soap will be advanced to Classification basis.

14. On certain commodities such as fertilizers, ore, stone for fluxing, sugar beets, beet pulp, etc., no advance has been proposed.

The above takes care of a great majority of the changes proposed. There are a few others of less importance which have been submitted to the Board in detail.

The Board has given notice that the application will be heard in Ottawa on March 1.

Canadian Northern Railway Earnings, Etc.

Gross earnings, working expenses, net earnings, increases, or decreases, compared with those for 1913-14, from July 1, 1914:

	Gross Earnings	Expenses	Net Earnings	Increase or Decrease
July	\$1,594,300	\$1,163,800	\$430,500	x \$83,800
Aug.	1,367,700	1,123,000	244,700	x 163,900
Sept.	2,109,400	1,519,000	590,700	65,800
Oct.	1,895,300	1,332,100	563,200	x440,900
Nov.	1,670,200	1,123,100	547,100	x417,700
Dec.	1,329,100	908,000	423,100	200,900
	\$9,966,500	\$7,167,200	\$2,799,300	x\$1,241,400
Decr.	\$3,398,400	\$2,157,000	\$1,241,400	.....

x Decrease.
Approximate earnings for January, 1915, \$950,800, against \$1,570,900 for Jan., 1914; and for two weeks ended Feb. 14, \$499,200, against \$615,800 for same period 1913.

Canadian Pacific Railway Earnings, Etc.

Gross earnings, working expenses, net earnings, increases, or decreases, compared with those of 1913-14, from July 1, 1914:

	Gross Earnings	Expenses	Net Earnings	Decrease
July	\$10,481,971.72	\$6,733,525.89	\$3,748,445.83	\$388,347.85
Aug.	8,917,764.38	6,554,666.60	2,363,097.78	597,981.54
Sept.	10,754,139.67	6,387,091.28	4,367,048.39	43,530.30
Oct.	9,282,923.49	5,961,600.13	3,321,323.36	2,281,529.43
Nov.	8,057,353.89	5,413,867.72	2,643,486.17	2,244,173.89
Dec.	7,443,962.43	5,244,488.62	2,199,473.81	2,127,297.90

\$55,938,125.58 \$36,264,549.32 \$19,673,576.26 \$7,537,860.41
Dec. \$19,348,036.45 \$11,810,176.04 \$7,537,860.41

Approximate earnings for Jan., 1915, \$5,908,000, against \$7,719,000 for Jan., 1914; and for two weeks ended Feb. 14, \$3,074,000, against \$3,485,000 for same period 1913.

Grand Trunk Railway Earnings, Etc.

The following figures show the earnings of the G.T.R., G.T.W.R., and D.G.H. & M.R. for January, compared with Jan., 1914:—

	1915	1914	Incr.	Decr.
G.T.R.	\$2,661,080	\$3,023,783	.....	\$362,703
G.T.W.R.	559,938	555,434	\$4,504	.....
D.G.H. & M.R.	192,131	190,295	1,836	.....

Totals \$3,413,149 \$3,769,512 \$356,363

Approximate earnings for two weeks ended Feb. 14, \$1,603,413, against \$1,741,770 for same period, 1914.

Grand Trunk Pacific Railway Earnings.

The approximate earnings of the Prairie Section and Lake Superior Branch, 1,104 miles, for January were \$247,011, against \$368,318 for Jan., 1914.

Birthdays of Transportation Men in March.

Many happy returns of the day to:—

W. G. Annable, General Passenger Agent, C.P.R. Atlantic Steamship Lines, Montreal, born at Ottawa, Mar. 3, 1875.

John Archibald, Locomotive Foreman, C.P.R., Coquitlam, B.C., born at Edinburgh, Scotland, Mar. 13, 1872.

C. H. Bowes, Assistant General Passenger Agent, C.P.R., Vancouver, B.C., born at Bangor, Me., Mar. 22, 1877.

George Bury, Vice President, C.P.R., Montreal, born there, Mar. 6, 1866.

Allan Cameron, Superintendent, Land Branch, Department of Natural Resources, C.P.R., Calgary, Alta., born near Owen Sound, Ont., Mar. 14, 1864.

F. G. J. Comeau, General Freight Agent, Dominion Atlantic Ry., Halifax, N.S., born at Meteghan River, N.S., Mar. 10, 1859.

W. A. Cooper, Manager, Sleeping, Dining and Parlor Cars and News Service, C.P.R., Montreal, born there, Mar. 22, 1871.

A. E. Cox, General Storekeeper, Canadian Northern Ry., Winnipeg, born at Huddersfield, Eng., Mar. 12, 1863.

Hon. N. Curry, President, Canadian Car and Foundry Co., Montreal, born in King's county, N.S., Mar. 26, 1851.

C. T. Delamere, Assistant Engineer of Construction, C.P.R., Montreal, born at Brainerd, Minn., Mar. 18, 1881.

Patrick Dubee, Secretary-Treasurer, Montreal Tramways Co., Montreal, born there, Mar. 4, 1876.

Frederick Elliott, President, Victoria Navigation Co., Ltd., Thurso, Que., born at Montreal, Mar. 8, 1858.

G. R. Fairhead, District Freight Agent, Canadian Northern Ry., Hamilton, Ont., born at Toronto, Mar. 6, 1882.

W. R. Fitzmaurice, Assistant Superintendent, Moncton and Ste. Flavie District, Intercolonial Ry., Newcastle, N.B., born at Bedford, N.S., Mar. 19, 1870.

C. Forrester, Superintendent, Stratford Division, Ontario Lines, G.T.R., Stratford, born at Wanstead, Ont., Mar. 5, 1876.

Jas. D. Fraser, Director and Secretary-Treasurer, Ottawa Electric Ry., Ottawa, Ont., and Vice President, Canadian Electric Railway Association, born at St. Andrews, Que., Mar. 26, 1851.

H. M. Gain, Trainmaster, Districts 6 and 7, Belleville Division, Eastern Lines, G.T.R., Belleville, Ont., born at Lindsay, Ont., Mar. 21, 1879.

R. A. Gamble, General Yardmaster, Winnipeg Terminals, C.P.R., born at Dublin, Ireland, Mar. 1, 1876.

E. P. Goodwin, ex Inspecting Engineer, National Transcontinental Ry., Baie Verte, N.B., born there, Mar. 17, 1865.

J. Halstead, Division Freight Agent, C.P.R., Calgary, Alta., born at Bracebridge, Ont., Mar. 2, 1877.

R. M. Hannaford, M. Can. Soc. C.E., Assistant Chief Engineer, Montreal Tramways Co., Montreal, born there, Mar. 22, 1865.

C. A. Hayes, General Traffic Manager, Canadian Government Railways, Moncton, N.B., born at West Springfield, Mass., Mar. 10, 1865.

H. T. Hazen, M. Can. Soc. C.E., Mackenzie, Mann & Co., Toronto, born at Truro, N.S., Mar. 14, 1870.

Joseph Hobson, M. Can. Soc. C.E., Consulting Engineer, G.T.R., Hamilton, Ont., born at Guelph, Ont., Mar. 1834.

J. I. Hobson, Treasurer, Canada Steamship Lines, Ltd., Montreal, born at Guelph, Ont., Mar. 30, 1872.

N. J. Holden, President, The Holden Co., Ltd., Montreal, born at Nobleton, Ont., Mar. 22, 1866.

A. R. Holtby, Master of Bridges and Buildings, Mountain Division, Grand Trunk

Pacific Ry., Prince Rupert, B.C., born at Rawdon, Que., Mar. 23, 1859.

Frank Lee, M. Can. Soc. C.E., Principal Assistant Engineer, C.P.R., Winnipeg, born at Chicago, Ill., Mar. 7, 1873.

A. K. Leighs, Car Foreman, G. T. Pacific Ry., McBride, B.C., born in Great Britain, Mar. 6, 1883.

R. W. Long, Division Freight Agent, G. T. R., Hamilton, Ont., born at Appin, Ont., Mar. 20, 1873.

T. W. Lowe, General Boiler Inspector, Western Lines, C.P.R., Winnipeg, born at Montreal, Mar. 30, 1858.

J. M. McKay, Superintendent, District 1, British Columbia Division, C.P.R., Revelstoke, born at Tiverton, Ont., Mar. 13, 1868.

Owen McKay, M. Can. Soc. C.E., Chief Engineer, Essex Terminal Ry., Walkerville, Ont., born in Ross tp., Renfrew co., Ont., Mar. 13, 1848.

M. Magiff, Superintendent of Car Service and Telegraphs, Central Vermont Ry., St. Albans, Vt., born at Planks Point, N.Y., Mar. 24, 1852.

Sir Donald D. Mann, Vice President, Mackenzie, Mann & Co., Ltd., and Vice President Canadian Northern Ry., Toronto, born at Acton, Ont., Mar. 23, 1853.

H. H. Melanson, General Passenger Agent, Canadian Government Railways, Moncton, N.B., born at Scadou, N.B., Mar. 9, 1872.

T. Milne, Locomotive Foreman, C.P.R., Windsor, Ont., born at Arbroath, Scotland, Mar. 3, 1856.

J. V. Murphy, General Agent, C.P.R., Portland, Ore., born at Bowmanville, Ont., Mar. 5, 1885.

Peter Paton, Purchasing Agent, Canada Steamship Lines, Ltd., Montreal, born at New Lowell, Ont., Mar. 13, 1869.

R. Patterson, Master Mechanic, G.T.R., Stratford, Ont., born at Brantford, Ont., Mar. 13, 1860.

F. W. Peters, General Superintendent, British Columbia Division, C.P.R., Vancouver, born at St. John, N.B., Mar. 25, 1860.

J. W. Pugsley, Secretary, Department of Railways and Canals, Ottawa, Ont., born at Amherst, N.S., Mar. 12, 1861.

E. H. Sewell, City Passenger Agent, C. P. R., Sherbrooke, Que., born at Quebec, Mar. 17, 1875.

W. Y. Soper, Vice President, Ottawa Electric Ry. Co., Ottawa, Ont., born at Oldtown, Me., Mar. 9, 1854.

E. F. L. Sturdee, Assistant District Passenger Agent, C.P.R., Toronto, born at St. John, N.B., Mar. 29, 1876.

G. W. Vaux, General Agent, Passenger Department, Union Pacific Rd., Chicago, born at Montreal, Mar. 21, 1866.

A. T. Weldon, Assistant General Freight Agent, Canadian Government Railways, Moncton, N.B., born at Dorchester, N.B., Mar. 6, 1876.

D. O. Wood, General Freight Agent for Ontario, Allan Line Steamship Co., Toronto, born at Kleinburg, Ont., Mar. 16, 1864.

H. K. York, Car Foreman, C.P.R., North Transcona, Man., born at Victoria Corner, Carleton co., N.B., Mar. 20, 1881.

Railway Lands Patented.—Letters patent were issued during December, in respect of Dominion railway lands in Manitoba, Saskatchewan, Alberta and British Columbia, as follows,—

	Acres.
Calgary and Edmonton Ry.	481.00
Canadian Northern Ry.	312.90
Canadian Pacific Ry.	49.85
G.T. Pacific Branch Lines Co.	159.84
G.T. Pacific Branch Lines Co.	5,561.50
Qu'Appelle, Long Lake and Saskatchewan Rd. and Steamboat Co.	6,565.09
Total	6,565.09

Spark Arresters for Locomotives Using Non-coking Coals.

With reference to the Board of Railway Commissioners' circular, published on pg. 87 of this issue we are officially advised that the Board's present standard of spark arresting device, which is 2½ x 2½ of no. 10 Birmingham wire gauge, has been found not to give satisfactory results with certain non coking western coals. The object of the proposed modification of the board's order is to induce the various railway companies, which desire to use non coking or poorly coking coals, to conduct experiments and develop spark arresting devices which will enable these coals to be used without excessive sparking. This is practically a new proposition, and the officials are not aware of any spark arresting devices which have been tested with these coals and found to give satisfactory results from the point of view of sparking and steaming capacity.

The Canadian Coal and Coke Co., of which H. A. Lovett, of Montreal, is President, has for some months been conducting experiments in co-operation with the Grand Trunk Pacific Ry. However, on account of the accidental death of O. M. Terry, who was conducting the experiments, the work was temporarily discontinued in December, but has again been taken up by Mr. McConachie, who has been loaned by the G. T. P. R. for the work. The Canadian Coal and Coke Co. owns the Pacific Pass mine at Lovett, Alberta. Pacific Pass coal is one of several non coking or poorly coking western coals with which there has been difficulty due to excessive sparking. Some two years ago, the G. T. P. R. voluntarily discontinued the use of these coals during the summer, on account of fire danger. The object of the Canadian Coal and Coke Co. in carrying on these experiments is, of course, to develop the summer railway market.

In connection with the circular above referred to, the board has no particular spark arresting device in mind, and it has not been shown that any of the spark arresting devices on the market will meet the particular conditions in question. It is hoped that by co-operation between the railway companies and the coal companies concerned, some method may be found which will enable these poorly or non coking coals to be used during summer with a reasonable degree of safety. The proposition is not to prohibit the use of these coals, but simply to require some definite kind of spark arresting device in connection with them, the details of such device to be developed experimentally and the results checked by the board's inspectors. The coal companies in question have already to a very considerable extent lost their summer railway market, and the idea is to develop some plan, if possible, by which this market may be regained. In this work the board's operating and fire inspection departments are co-operating as fully as possible.

Vancouver Elevator.—It is announced that active construction of the Government elevator at Vancouver will be commenced in April, and everything rushed so that the elevator will be ready for operation in the autumn. Preliminary work is in progress on the site, and the contractors, Barnett and McQueen Co., are organizing their plant. The total storage capacity of the elevator will be 1,250,000 bush., and the sacking plant will be able to deal with from 2,000 to 4,000 sacks an hour. Grain in bulk will be discharged at the rate of 60,000 bush. an hour, and grain will be taken into the elevator at the rate of about 20,000 bush. an hour.

Passenger Rate Meetings at Toronto.

The annual meetings of the International Water Lines Passenger Association, the Niagara Frontier Summer Rate Committee and the Great Lakes and St. Lawrence River Rate Committee were held at Toronto in January. The rate representatives met on Jan. 26 and 27, and prepared the rates for submission to the general meetings of the three associations, at which they were confirmed without alteration.

At the Niagara Frontier Summer Rate Committee's meeting, Jan. 28, the chairman, F. T. Grant, G.P.A., Rutland Rd., Rutland, Vt., stated that the meeting had been called for the purpose of compiling for the information of interested lines, summer fares from Niagara Falls, Toronto, Montreal, Quebec, Detroit, Port Huron, Boston and miscellaneous points for season of 1915.

Mr. Grant was presented with a gavel, the head of which was made of marble from a mine under the Rutland Rd.'s right of way at North Rutland, Vt., and the handle of rosewood taken from the last wooden car used on that company's line.

R. L. Fairbairn, G.P.A., Eastern Lines, Canadian Northern Ry., was elected chairman for this year, and presided over the remainder of the meeting. The Erie Rd. was readmitted to membership.

The fares, as compiled by the rate representatives, were adopted, and it was understood that summer excursion tickets would be on sale May 1 to Oct. 15, and bear final limit of Oct. 31, inclusive, except where otherwise stated.

It was decided that the proceedings be issued by the Secretary for the information of interested lines, which are to understand that the publication is not a tariff or substitute for one, and consequently will not be accepted by the Board of Railway Commissioners for Canada, the Interstate Commerce Commission, or the New York State Public Service Commission as a legal tariff covering the fares shown therein.

The Secretary was instructed to compile and issue a Division Book, which will show divisions of all fares shown in the Niagara Frontier Summer Rate Sheet by all routes interested in same. The expense of compiling and issuing the summer rate sheet and division book, including Secretary's salary, will be assessed on the basis of mileage of each line over which fares are quoted in the sheet.

At the Great Lakes and St. Lawrence River Rate Committee's meeting, Jan. 28, W. F. Herman, G.P.A., Cleveland and Buffalo Transit Co., presided until the election of J. F. Pierce, G.P.A., Canada Steamship Lines, Ltd., as chairman for this year. The Indiana Transportation Co., Chicago, was admitted to membership.

The representatives of the various steamer lines were invited to announce their fares for the season of 1915, which the Secretary was instructed to embody in the proceedings.

James Morrison, A.G.P.A., Eastern Lines, Canadian Northern Ry., Montreal, is permanent Secretary of the Niagara Frontier Summer Rate Committee and the Great Lakes and St. Lawrence River Rate Committee.

The next annual meeting of the three associations will be held in Buffalo, N.Y., in January, 1916.

The International Water Lines Passenger Association met Jan. 27, the President, O. H. Taylor, P.T.M., Eastern Steamship Corporation, New York, in the chair. He was presented, on behalf of the Chicago, Duluth & Georgian Bay Transit Co., with a gavel made from wood used in the construction of the s.s. South American for that company, and which was placed on the Chicago-Duluth route in June, 1914.

The following lines were admitted to membership:—Great Northern Pacific S. S. Co., Indiana Transportation Co., United Fruit S. S. Co., Victoria Navigation Co., Ltd.

The subjects listed for discussion were dealt with and officers for the current year were elected as follows:—President, W. P. Hinton, A.P.T.M., Grand Trunk Pacific S. S. Co., Montreal; Vice President, F. B. Hibbard, G.P.A., Hudson River Day Line, New York; Secretary, M. R. Nelson, C.C.G.P.D., Northern Steamship Co., New York; Executive Committee—P. Robbins, G.P.A., Goodrich Transit Co., Chicago, Ill., 2 years; H. H. Cudyworth, G.P.A., Eastern Steamship Corp., Boston, Mass., 1 year; E. W. Holton, G.P.A., Northern Navigation Co., Sarnia, Ont., 1 year.

Special Dominion Taxation.

The Minister of Finance introduced a series of resolutions in the House of Commons, Feb. 11, to impose special taxation to meet deficiencies in revenue. The following are the principal items affecting transportation companies:—

Every cable and telegraph company shall pay for Consolidated Revenue Fund 1 cent upon each dispatch or message originating at the offices of the company in Canada and transmitted thence over the company's lines for which a charge of 15 cts. or more was imposed, the company having the right to charge the 1c. to and collect the same from the person paying or liable to pay the regular charges for the transmission of the dispatch or message;

Every purchaser of a railway passenger ticket or right to transportation over a railway to any place in or outside of Canada, a steamboat passenger ticket or right to transportation by steamboat between ports or places in Canada or from a port or place in Canada to a port or place in Newfoundland, the West Indian Colonies or the United States, a ticket or right entitling the passenger to transportation over a railway and by steamboat to a port or place in Canada, Newfoundland, the West Indian Colonies or the United States, whether such transportation be by railway and steamboat or by steamboat and railway or by railway, steamboat and railway, shall pay for Consolidated Revenue Fund, in addition to the regular charge for the ticket or right, in respect of a ticket or right costing—over \$1 and not more than \$5—five cents, over \$5—for each \$5 and in addition for any fractional part of \$5—five cents;

Every purchaser of a berth in a sleeping car or seat in a parlor car shall, in addition to the regular charge for the berth or seat, pay for Consolidated Revenue Fund, 10 cts. in respect of each berth bought, 5 cts. in respect of each seat bought;

Every company carrying passengers by vessel from any port or place in Canada to any port or place outside of Canada, except Newfoundland, the West Indian Colonies and the United States, shall pay for Consolidated Revenue Fund in respect of each passenger carried—\$1, if the amount chargeable for the passage exceeds \$10; \$3 if the amount chargeable for the passage exceeds \$30; \$5 if the amount chargeable for the passage exceeds \$60, and the company may charge to the passenger and may collect from him the sum so payable;

No person shall issue a cheque at or by a bank and no person shall negotiate a bill of exchange through a bank or deliver a bill of exchange to a bank for collection unless he affixes thereto a stamp of the value of 2 cts.; a cheque or other bill of exchange made or drawn out of Canada in the possession of a bank in Canada shall before payment or pre-

sentment for payment have affixed thereto a stamp of the value of 2 cts., and the value of the stamp shall be chargeable to the person entitled to the proceeds of the cheque or bill; Every customer of a bank shall affix to a receipt for money paid to him by the bank and chargeable against a deposit to his credit in the bank a stamp of the value of 2 cts.;

Every express company carrying on business in Canada shall, before the issue of a money order or a traveller's cheque, affix thereto a stamp of the value of 2 cts. chargeable to the purchaser of the order or cheque or to the payee thereof;

No money order or postal note shall be issued under the provisions of the Post Office Act until there is affixed thereto a postage stamp of the value of 2 cts. and 1 ct. respectively, to be paid for by the purchaser of the order or postal note, and upon such stamp there may be printed or impressed the words "war tax";

On every letter and post card for transmission by post a tax of 1 ct. shall be levied and collected, such tax to be payable by affixing to the letter or card a postage stamp of that denomination, upon which there may be printed or impressed the words "war tax";

Every person by whom goods are received—to be exported or carried coastwise, or to be transported by railway, shall attach to the bill of lading or other evidence of receipt a stamp to be furnished by the shipper or consignor, of the value of 2 cts.

Railway Route Maps Approved.

The Minister of Railways and Canals approved of the following railway route maps, Feb. 3:—

Edmonton, Dunvegan and British Columbia Ry., from Tp. 78, R. 7, w. 6 m., Alberta, to Tp. 78, R. 13, w. 6 m., about 48 miles.

Peace River Tramway and Navigation Co., from Fort Smith to Smith's Landing, Alberta, about 17 miles; also from south of Vermillion in Tp. 108, R. 6, w. 5 m., to the Peace River, north of Vermillion Falls, about 10 miles.

The Canadian Transfer Co.'s officers and directors elected recently for the current year are:—President, C. Cassils; other directors, Hugh Paton, G. R. Starke, Sir Montagu Allan, F. W. Molson; General Manager and Secretary, F. M. McRobie.

New Brunswick & Prince Edward Island Ry.—In the Senate, Feb. 12, in answer to Senator McSweeney, Senator Loughheed stated that there is an agreement for the purchase by the Dominion Government of the N.B. & P.E.I.R., which is 36 miles long, and the owners being "The New Brunswick & Prince Edward Island Ry." the price to be \$270,000. The line is being operated by the Intercolonial Ry.

The Southampton Ry. Investigation.—The Minister of Railways laid on the table of the House of Commons, Feb. 8, the report of the investigation made into the construction of the Southampton Ry. in New Brunswick. The Commissioner, C. A. Pringle, K.C., finds that the Government had overpaid a subsidy of \$34,607, and reprimanded E. V. Johnson, Inspecting Engineer, Railways Department, for having accepted the construction engineer's word as to the cost of the line, but adds that it was a physical impossibility for Mr. Johnson to personally investigate the cost of construction of the lines he had to inspect. Correspondence brought down with the report shows that the Department of Justice is taking steps to recover the amount of the overpaid subsidy.

Attempt to Destroy Bridge Over St. Croix River.

Early on the morning of Feb. 2, Werner Vanhorn, (or Van Horn, or Von Horn), who subsequently claimed to be a German army officer, attempted to destroy by dynamite, the C.P.R. bridge over the St. Croix River, between St. Croix, N.B., and Vanceboro, Me. The bridge, which is designated no. 5.6, Brownville Subdivision, is 5.6 miles west of McAdam Jct., N.B., and is a 150 ft. through truss span. Originally it was a simple truss span, with the usual 2 trusses and floor beams and stringers. In 1906 the span was reinforced by the addition of similar trusses outside each existing truss, supported on spare space on bridge seats. New special floor system of the required capacity was also put in.

The attempt, which was made at the Canadian end of the bridge, affected the inner north truss, which had the end post damaged, and the adjacent stringer crippled, besides some other small damage. The substructure was not damaged. One passenger train was delayed 20 minutes, after which cars were pushed over without locomotives. A small amount of falsework was put under the damaged end, after which trains passed over under slow orders. Permanent repairs were effected within a few days. We are indebted to P. B. Motley, M. Can. Soc. C.E., Engineer of Bridges, C.P.R., for the information about the bridge, structure, etc.

After making the attempt Vanhorn returned to Vanceboro, where he had made his temporary headquarters, and was arrested there. On a charge of damaging property there by the shock of the explosion he was sentenced to the county jail at Machias, Me. An application for his extradition to Canada was made immediately by the British Ambassador at Washington, and is still under consideration.

After the attempt the C.P.R. placed special guards at the bridge, and on Feb. 16 a military guard was placed at the New Brunswick end, and an application has been made to the U.S. Government to similarly guard the Maine end.

Proposal for Increased Passenger Fares in United States.

A campaign has been started in a number of Western States to obtain higher passenger fares on the railways. It is being carried on by the principal railways centreing on Chicago, and was inaugurated, so far as Illinois is concerned, on Feb. 3, when a committee of railway presidents, with C. H. Markham, of the Illinois Central, as chairman, had a conference with the Governor of the State. The committee applied for an increase in the passenger fares on the several lines from 2 to 2½ cts. a mile. The statement made to the Governor on the part of the railways sets out that for some years the railways have been facing a condition of stationary or declining rates for their services, and a steadily increasing cost of operation. The investigation of the Interstate Commerce Commission into the subject of railway operation and revenue is referred to. At this investigation, the generally unprofitable character of railway passenger service was emphasized to such a degree that the commission was impelled to give it special consideration, although the question of passenger fares was not specifically before that body. As a result of the findings of the commission upon passenger fares, the railway presidents are presenting the facts to the public and requesting that action be taken through the different State legislatures to obtain the relief suggested by the commission. The

Interstate Commerce Commission has authorized 2½ cts. as an interstate rate, and in the New England States legislative action is being taken to grant a similar rate within the several States. It is proposed to present a similar bill in Illinois.

In preparation for the presentation of this bill, the railways are circulating petitions throughout the State; and considerable statistical literature bearing on the subject, and are arranging for the holding of meetings all over the State. The petition quotes the following from the report of the Interstate Commerce Commission:—"The travelling public is giving expression to its demands for better service, better accommodation, and for the adoption by carriers of all devices that make for safety. A public that demands such service cannot reasonably object to the payment of a reasonable compensation therefor."

Similar campaigns are in progress in Ohio, Indiana, and Michigan, whilst in Nebraska an increase to 3 cts. a mile is asked; but a bill now before the Legislature proposes to increase the rate to 2½ cts.

Locomotive Feed Water Heating.

At a meeting of the American Society of Mechanical Engineers recently, in discussing a report on "Steam Locomotives of Today," H. H. Vaughan, Assistant to Vice President, C.P.R., Montreal, said that considerable has been heard as to the experiments made on feed water heating by Mr. Trevithic on the Egyptian railways, in which he used not only exhaust steam heaters, but waste-gas heaters in the front end. With the latter he has been able to put the water into the boiler at 230 deg. and obtain 20% economy. The Central of Georgia Ry., has done a little with feed water heaters, as well as the New York Central,

the Canadian Pacific, and the Central Rd. of New Jersey.

"On the C.P.R. we have been experimenting with feed water heating for six years. We have tried open heaters in a tank with fairly good satisfaction. We also applied exhaust steam injectors, and got fair results. We have since been advised by the manufacturers that our troubles were because of our having applied too large size an injector for ordinary work on the locomotive. However, I am of the opinion that while the exhaust steam injectors would work fairly well under certain conditions, yet there would be some difficulties where the amount of water consumed is large. We found on experiments with an open heater that the temperature obtained was due to the exhaust steam from the feed pump, so, assuming a temperature of 200 deg. in the feed water, it would really be the equivalent of 160 deg. when the water was put into the boiler by an injector with 100% efficiency. By heating the water at the injector suction to 120 deg., we got 6% economy, and used injectors as against 10 or 12% economy with the feed water heater, and using a pump. We thought 6 or 7% with the injector was preferable to 10 or 12% with the pump, and we have been experimenting on that in recent years with reasonable results. Lately we have experimented with an ordinary closed feed water heater, and it is giving fair results.

"This is a subject which American railway people have largely neglected. It has the advantage of not only saving in coal, but increasing the capacity of the boiler. In careful experiments we found an economy of 12% in the use of the heater, and we feel that that justifies our going into the device more thoroughly. I feel that we will see feed water heating coming into larger use, not only with exhaust steam, but with waste gas."

Grain in Store at Terminal Elevators, Interior Terminal Elevators and at Public Elevators in the East,

Week ended Feb. 11, 1915.					
	Wheat.	Oats.	Barley.	Flax.	Totals.
	Bush.	Bush.	Bush.	Bush.	Bush.
Fort William:—					
C.P.R.	111,154	45,560	11,778	3,547	172,039
Consolidated	311,149	148,697	31,425	90,963	582,234
Empire Elevator Co.	337,328	183,538	26,392	120,155	667,413
Ogilvie Flour Mills Co.	543,316	79,588	18,312	.....	641,216
Western Terminal Elevator Co.	258,532	112,054	7,226	256,234	634,046
G.T. Pacific	569,804	326,388	19,754	87,793	1,003,739
Grain Growers' Grain Co.	880,378	277,775	37,826	.....	1,195,979
Fort William Elevator Co.	489,408	111,291	34,571	54,519	689,789
Eastern Terminal Elevator Co.	128,711	119,565	11,306	.....	259,582
Port Arthur:—					
Port Arthur Elevator Co.	1,197,051	475,072	40,736	84,234	1,797,093
D. Horn & Co.	19,539	8,669	.....	37,479	65,687
Dominion Government Elevator.	218,347	54,199	3,440	76,371	352,357
Total Terminal Elevators	5,064,717	1,942,396	242,766	811,295	8,061,174
Saskatoon					
Dominion Government Elevator	472,844	634,402	12,644	454	1,200,344
Moosejaw					
Dominion Government Elevator	1,145,796	320,604	13,525	.....	1,479,925
Total Interior Terminal Elevators	1,618,640	955,006	26,169	454	2,600,269
Depot Harbor	.....	96,200	.....	.....	96,200
Midland:—					
Aberdeen Elevator Co.	355,471	130,731	.....	.....	486,202
Midland Elevator Co.	.....	.....	.....	.....	.....
Tiffin, G.T.P.	416,225	662,881	.....	.....	1,079,106
Port McNicol	1,784,827	495,478	.....	75,330	2,355,635
Goderich	602,020	218,637	.....	.....	820,657
Goderich	*113,441	.....	.....	.....	113,441
Collingwood	22,014	.....	.....	.....	22,014
Harbor Commissioners, Quebec	3,862	110,322	.....	.....	114,184
Kingston:—					
Montreal Transportation Co.	15,076	.....	.....	.....	15,076
Commercial Elevator Co.	32,488	66,664	.....	.....	99,152
Port Colborne	432,702	240,055	117,366	†30,121	820,244
Prescott	.....	.....	.....	.....	.....
Montreal:—					
Harbor Commissioners no. 1	193,678	.....	9,067	.....	202,745
Harbor Commissioners No. 2	103,785	610,609	24,904	.....	739,298
Montreal Warehousing Co.	3,273	148,226	20,369	.....	171,868
West St. John, N.B.	392,687	560,007	.....	.....	952,694
Total Public Elevators	4,471,549	3,339,810	171,706	75,330	8,088,516
Total quantity in store	11,154,906	6,237,212	440,641	†30,121	18,749,959
*Grain afloat in vessels. †Corn.					

Railway Development.

Projected Lines, Surveys, Construction, Betterments, Etc.

Alberta and Great Waterways Ry.—Track was reported, Feb. 6, to have been laid to Lac la Biche, mileage 137 from Carbondale, the starting point on the Edmonton, Dunvegan and British Columbia Ry. Construction is being pushed forward on the bridge across the arm of the lake at the track end, and it is expected to have the line completed to Fort McMurray by the end of this year. (Feb., pg. 56.)

Brule Lake Ry.—The Alberta Legislature is being asked to extend the time for the building of the projected railway from mileage 994 on the Grand Trunk Pacific Ry., on the east shore of Brule Lake, Alberta, south easterly through sections 26 and 24, tp. 49, range 27 west, and then north easterly through sections 19, 20 and 27, tp. 49, range 26. The provisional directors of the company, which was incorporated in 1913, are: G. G. S. Lindsey, K.C., Toronto; S. B. Woods, K.C., O. M. Biggar, E. W. Fula and J. T. J. Collisson, Edmonton, Alberta.

Burrard Inlet Tunnel and Bridge Co.—The British Columbia Government, which is being asked to guarantee the company's bonds for the erection of a bridge across the Second Narrows of Burrard Inlet, is considering, in connection with the application, the decision of the directors to accept a tender put in by C. A. P. Turner, Vancouver, for the erection of the bridge. The resolution accepting the tender states that the price of the bridge as contained in the offer is \$1,744,837, and sets out that the acceptance of the offer is conditional as follows: That the contractor agrees, as offered, to conform with the recommendations of R. Modjeski's report, and meet the requirements regarding the design therein contained, also, that the plans be approved by the Dominion Government. Further, provided that the structural steel required for the whole construction be purchased from B. C. structural steel manufacturers and the contractors agree to purchase all material and have all work possible done in B. C., and to employ to the maximum extent B. C. workmen on the work. Further, provided that the bridge company shall not assume any obligation with C. A. P. Turner, and that the work shall not be actively proceeded with until satisfactory financial arrangements have been made by the company. (Feb., pg. 56.)

Canadian Terminal Ry.—The New Brunswick Legislature is being asked to extend the time for the building of this projected railway from L'Etang Harbor to St. Croix, with branch lines. The company was originally incorporated in 1907, and in 1912 the provisional directors were changed to J. S. Clark, G. W. Ganong, H. I. Taylor, G. W. Marsh, W. L. E. Marsh, J. L. Clark, W. A. Mitchell, G. J. Clarke. (June, 1912, pg. 299.)

Central Canada Ry.—The Alberta Legislature is being asked to amend chapter 46 of the statutes of 1913 by authorizing the building of a railway from north of the line between tps. 64 and 65 on the Alberta and Great Waterways Ry., easterly and south easterly to the eastern boundary of the Province. The line at present authorized and under construction extends from McLennan, on the Edmonton, Dunvegan and British Columbia Ry. to Peace River Landing, with a branch to Battle River.

A press report states that on Feb. 6, track had been laid on 15 miles of the 28 miles of grading completed and is expected to have the remaining mileage laid early in March. The construction of the line to Peace River Crossing, a further distance of

22 miles, is being pushed forward with dispatch. (Feb., pg. 56.)

Dominion Government Ry. to Hudson Bay.—The report of the Chief Engineer on the construction of the line, presented to Parliament by the Minister of Railways, states that the located line shows a variation of only 24 miles from being an air line between Pas and Port Nelson, Man. About 350 out of the 412 miles have been graded, on which 204 miles of track has been laid. The telegraph line has been completed for 175 miles.

The estimates laid before the House of Commons include \$5,500,000 for construction of railway, terminals and elevators. (Feb., pg. 56.)

Edmonton, Dunvegan and British Columbia Ry.—A. T. Kerr, of the Board of Railway Commissioners' engineering staff, inspected the line to McLennan, mileage 245 from Edmonton, Alberta, at the end of January and is said to have favorably reported upon it. The contractors are operating a train service to McLennan, but it is expected that the line will be taken over and placed in the charge of a permanent operating staff early in March. (Feb., pg. 56.)

Entwistle and Southern Alberta Ry.—The Dominion Parliament is being asked to incorporate a company with this title to build a railway from the Grand Trunk Pacific Ry. at Entwistle, Alta., southerly to the Saskatchewan River near the boundary between tps. 17 and 18, west of the 5th meridian, 50 miles. Pringle, Thompson, Burgess and Cote, Ottawa, solicitors for applicants.

Greater Winnipeg Water District Railway.—The City of Winnipeg is building an aqueduct for 97.2 miles to secure water from Shoal Lake, adjoining Lake of the Woods. The located line runs south of the C.P.R. and National Transcontinental Ry. and north of the Canadian Northern main line, through an undeveloped section of the country. In order to take in the supplies and machinery required for the aqueduct construction it was necessary to build a railway along the aqueduct right of way. This road is of standard gauge, with 60-lb. rails and substantial roadbed. Including yards, spurs to gravel pit and sidings, there will be in all about 102.4 miles of track. The maximum grade is 0.5 ft. per 100 ft., and the standard minimum curvature is four degrees. The contractors' working tracks will be located between the railway and the trench, from which the track is distant 110 ft. The railway will cost approximately \$1,200,000, and is being built by the Northern Construction Co., of Winnipeg. Tracklaying was completed Dec. 17, 1914. There are still some seven miles to be ballasted. This will be carried out early in the spring in order to have the road in shape for the main aqueduct work, which will be commenced as soon as the frost leaves the ground. The clearing of the right of way was done by E. J. Bawlf, of Winnipeg. This cost \$79,360, and comprised: Clearing, 2,586 acres; salvage, 7,900 cords of wood, 349,000 lin. ft. poles; 14,467 fence posts.

A telephone line has been completed by the city from Winnipeg to Indian Bay. Residences have been erected for the engineers. Offtake drainage ditches have been dug. Roads have been built and other small works have been carried forward to prepare for the aqueduct construction.

The Commissioners, Feb. 15, let a contract

to the Progress Construction Co., Winnipeg, for the erection of a three stall locomotive house, with concrete pits, at Deacon, Man., at a cost of \$3,996.87.

Three trains a day each way are being operated over the line, construction supplies being taken in and cord wood being hauled out. (Feb., pg. 57.)

Intercolonial Ry.—The estimates laid before Parliament recently ask for the authorization of the following expenditures on capital account, among others:—

Dock and wharves, \$30,000; new terminal facilities, \$3,000,000 (which includes a revote of \$750,000); to increase accommodation and provide new machinery, \$3,500 (revote), and for Willow Park service, \$39,500 (revote). These expenditures are proposed to be made at Halifax, N.S.

Elimination of level crossings and grades at Moncton, N.B., \$125,000, of which \$85,000 is a revote, and a revote of \$22,500 for roofing at the same place is also included.

General improvements at Levis, Que., \$200,000.

To bring the New Brunswick and Prince Edward Island Ry., and the International Ry. of New Brunswick up to Intercolonial branch line standard \$25,000 and \$11,200 respectively. These two lines were taken over by the Railways Department, July 31, 1914.

For construction of a railway from near Dartmouth via Musquodoboit Harbor, and the Musquodoboit River Valley to Dean's Settlement, N.S., \$510,000, of which \$210,000 is a revote. (Feb., pg. 56.)

Kettle Valley Lines.—We are officially advised that track is laid continuously on the extension of the line from Midway to Pentiction, 133.7 miles, and from Pentiction to Osprey Lake Summit, 39 miles; from Otter Creek summit to Merrit, 30 miles; from a point on this stretch 25 miles west of Merrit, to the Coquihalla River, 16.4 miles, and from the Fraser River to a junction with the C.P.R., 1.9 miles. The work now being done covers the connecting up of these various sections, and includes the deviation from the original route to a junction with the Vancouver, Victoria and Eastern Ry., at Princeton, which company's line is to be used as a joint section to the Coquihalla River; and the section along the Coquihalla River Valley to Hope, which is also to be a joint section with the V. V. and E. Ry. The grading on the entire mileage is finished, and it is expected to lay the 31 miles of uncompleted track between Midway and Merritt, and the 35 miles on the Coquihalla River section, early in the summer. During 1914, track was laid on 58.1 miles, grading was completed on 65 miles, ballasting was done on 103 miles, and 46.52 miles of fencing were put up.

The bridge under construction at Hope, over which the connection with the C.P.R. will be made, is under construction. This bridge will consist of four steel spans, each 238 ft. long, resting on three concrete piers and two concrete abutments. The piers are sunk down in the bed of the river to solid foundation, one to solid rock, and the others to heavy boulders. The substructure has been completed, and the steel superstructure is being erected. Armstrong, Morrison & Co., Vancouver, put in the substructure, and the Canadian Bridge Co. is putting up the steel work. (Feb., pg. 56.)

Montreal and South Western Ry. & Power Co.—The Quebec Legislature is being asked to extend the time for the building of this projected railway from Adirondack Jct., on the C.P.R., along the St. Lawrence to the International boundary, and another line from Adirondack Jct., on the New York Central Rd., to Sunder, Que. The provisional directors are: V. Casson, L. Dansereau, A.

Geoffrion, G. N. Cusson, R. Gange, Montreal. The company has power to operate its lines by steam or electricity. (June, 1911, pg. 557.)

Pacific Great Eastern Ry.—J. W. Stewart, President, is reported to have stated in Vancouver, B.C., Feb. 4, that the contractors expected to have the uncompleted portions of the grade between Squamish and Fort George, linked up by Mar. 1. Track is reported to have been laid into Lillooet, mileage 120 from Squamish. Between Lillooet and Clinton, 50 miles, there is considerable bridge work. The foundations for the 2,600 foot bridge over the Fraser River are finished. It is expected to have track laid to Clinton by Aug. 1.

A regular train service is being operated from Squamish to Anderson Lake.

We are officially advised that track laying is to be started early in May from Fort George southerly, towards Clinton, and that the Squamish-Fort George section will be completed this year. This section involves the building of a high level bridge across the Cottonwood River.

Nothing has been decided as to the starting of construction from Fort George towards the British Columbia-Alberta boundary, where a junction is to be effected with the Edmonton, Dunvegan and British Columbia Ry.

The residents of the vicinity of North Vancouver decided, Feb. 3, to send a delegation to the Provincial Government asking that pressure be put on the company to push forward the construction of the section of the line from North Vancouver to Squamish. This piece of line is in operation from North Vancouver to Horse Shoe Bay, 12 miles, and the distance from the latter point to Squamish is 26 miles. (Feb., pg. 57.)

Pacific, Peace River and Athabasca Ry.—C. F. Law, Vancouver, is reported as stating, Feb. 1, that work in connection with this and its allied concerns will be started in the spring; that the company is applying for a change in the location of its projected terminals on the Pacific coast, and is completing its survey work. The first piece of work which will be put in hand will be a section of the Peace River Tramway and Navigation Co.'s undertaking. This will consist of a tramway at Vermillion Chutes on the Upper Peace River, which will connect two important navigable stretches of river and lake. A steamboat will be built at Peace River crossing for the 550 miles of navigation to be opened up to Vermillion Chutes. (Jan., pg. 11.)

Prince Edward Island Ry.—The amounts chargeable to capital for which estimates have been submitted to Parliament for this year are:—Original construction, \$800 (revote \$200); to strengthen bridges, \$10,000; power plants, \$125; surveys and inspections, \$10,400; to increase accommodation and facilities along the line, \$17,600 (revote \$1,800); to provide car ferry, construct terminals and necessary connections, \$1,800,000 (revote \$800,000). (Jan., pg. 11.)

Regina North Western Ry.—The Dominion Parliament is being asked to extend the time for the building of this projected railway from Regina, Sask., to Tuxford, on the C.P.R., thence northwesterly to Red Deer, Alberta; with a branch to Battleford, Sask., and on to Fort McKay. The provisional directors are: G. L. Kavanagh, O. L. Brunelle, J. Whitesell, J. Clyma, G. Bordenau, Montreal.

Simcoe, Grey and Bruce Ry.—The Dominion Parliament is being asked to extend the time for the building of this projected railway from Southampton via Owen Sound and Meaford to Collingwood and from Southampton via Port Elgin and Tiverton

to Kincardine, Ont. The provisional directors named in the act of incorporation, which was obtained in 1911, are: C. M. Bowman, Southampton; J. B. Tudhope, Orillia; W. T. Torres, Collingwood; H. Pedwell, Thornbury; H. Cleland, Meaford; S. J. Porter, J. W. McLaughlin, C. Eaton, E. Lemon, R. McDowall, B. Allan, A. G. Mackey, Owen Sound. (Jan., 1914, pg. 22.)

Toronto, Hamilton and Buffalo Ry.—A conference of engineers interested in the elimination of grade crossings in Hamilton was held Feb. 11, when G. A. Mountain, Chief Engineer, Board of Railway Commissioners, discussed the matter with them. A number of alterations were suggested, which necessitate the preparation of an almost entirely new set of plans. These alterations, it is stated, will result in the saving of about \$300,000 in the cost of the work. The new plans will be ready for approval early in March. (Feb., pg. 57.)

Toronto Terminals Ry.—The Dominion Parliament is being asked to amend the company's act of incorporation by increasing the limits of its bonding powers, to authorize it to acquire lands, and to maintain and operate in Toronto freight and other facilities in such manner and to such extent as the business of the company may render expedient. (Aug., 1914, pg. 371.)

Railway Finance, Meetings, Etc.

Boston and Maine Rd.—A bill has been introduced in the Maine Legislature to provide for the reorganization of the B. & M. R., by the amalgamation of the parent company with the subsidiary lines operating in the State. The matter is not being proceeded with at present, pending the investigation of the alleged possibility of a transportation monopoly by its passage.

Canadian Northern Ry.—A London, Eng., press dispatch states that the C.N.R. guaranteed 4% debenture stock has been placed on the list of securities, approved by the Treasury, in which trust funds may be invested.

A lease of rolling stock from the Imperial Rolling Stock Co. to the C.N.R., dated Oct. 1, 1914, and numbered series K 1, 1914, was deposited with the Secretary of State at Ottawa, Jan. 22. This refers to the rolling stock covered by recent bonds to the value of \$2,000,000 placed on the Philadelphia market, recently. The bonds are to be redeemed by half yearly payments of \$150,000, the first payment being due in October.

A London, Eng., cablegram of Feb. 12 says the C.N.R. has privately placed an additional £500,000 sterling, 4% guaranteed debenture stock.

Grand Trunk Ry.—London, Eng., cablegram, Feb. 19:—Announcement was made today that the G.T.R. will pay a final dividend of only 1½% on the 4% guaranteed stock, making 3½% for the year, whereas for the previous year full dividends were paid on first and second preferences, together with 2½% on the third preference. This caused a great weakness in G.T.R. issues, the notes alone being unaffected. In order to make this distribution, the carry forward has to be drawn on to the extent of £12,400.

Great Northern Mining and Ry. Co.—Notice has been given of the redemption of a number of bonds on Mar. 1, at 5% premium and accrued interest, under the terms of the trust deed of Feb. 8, 1911.

International Ry. of New Brunswick.—The New Brunswick Legislature is being asked to authorize the conveyance of the line to the Dominion Government. The transfer of the property was arranged in July, 1914, and the line has been operated since Aug. 1, as a branch of the Intercolonial Ry.

Michigan Central Rd.—Application was filed in the U. S. District Court, Detroit, Mich., Feb. 1, on behalf of a number of shareholders asking for the appointment of a receiver. The petitioners allege that the company's business is being diverted by the New York Central and Hudson River Rd. control for the benefit of other railways under the same control, and ask for an injunction to prevent the N.Y.C. and H.R. Rd. vote being used in the control of M.C.R. affairs. The petition alleges among other things that the M.C.R. credit is being used for the purchase of rolling stock for competing lines.

Toronto, Hamilton and Buffalo Ry.—The agreement under which the Erie and Ontario Ry. becomes merged in the T.H. and B. Ry. was filed with the Secretary of State, Ottawa, Jan. 30.

White Pass and Yukon Route.—Gross earnings for two weeks ended Jan. 14, \$2,961, against \$3,736 for same period 1914.

Commodity Rates to U. S. Pacific Coast Terminals, Etc.

The Interstate Commerce Commission has decided the applications for relief from the provisions of the fourth section of the Act to Regulate Commerce, as amended June 18, 1910, with respect to commodity rates from eastern defined territories to Pacific Coast terminals and intermediate points as follows:

Carriers authorized to establish certain carload commodity rates from Missouri River territory to Pacific coast terminals lower than to intermediate points, provided rates contemporaneously applicable on like traffic to intermediate points do not exceed 75 cts. per 100 lbs.

Carriers authorized to establish certain carload commodity rates from points in zones 2, 3, and 4 to Pacific Coast terminals lower than to intermediate points, provided rates from Missouri River territory to intermediate points are not exceeded by more than 15, 25, and 35 cts. per 100 lbs. from points in zones 2, 3 and 4, respectively.

Carriers authorized to establish certain less than carload commodity rates from Missouri River territory to Pacific Coast terminals lower than to intermediate points, provided the rates contemporaneously applicable on like traffic to intermediate points do not exceed \$1.50 per 100 lbs. on articles classified as first or second class and \$1.25 per 100 lbs. on articles classified as third or lower class in western classification.

Carriers authorized to establish certain less than carload commodity rates from points in zones 2, 3, and 4 to Pacific Coast terminals lower than to intermediate points provided the rates to intermediate points do not exceed the rates contemporaneously applicable from the Missouri River territory to the same points by more than 25, 40, and 55 cts. per 100 lbs. from points in zones 2, 3, and 4, respectively.

Suggestion made that carriers readjust rates to back haul points by either adding to the full terminal rates something less than the full local from terminals to destination or by the publication of basing rates to the terminals less than the terminal rates to be used in connection with local rates from the terminals in determining rates to intermediate points.

Fitzhugh.—The Grand Trunk Pacific Ry. division point, 1.027 miles west of Winnipeg, and near the Yellowhead Pass, which was named after E. H. Fitzhugh, formerly Vice President, G.T.R., is now known as Jasper, it being the headquarters of the Jasper Park officials.

Railway Rolling Stock Notes.

The G.T.R. has received two first class cars from Canadian Car and Foundry Co.

The Canadian Northern Ry. has received three baggage cars from Crossen Car Co.

The C.P.R., between Jan. 15 and Feb. 15, received 8 steel baggage and express cars, 5 steel frame box cars and 49 flat cars, from its Angus shops, Montreal.

New Glasgow, N.S., press reports indicate that the Eastern Car Co. has representatives in Russia at present, and that there is a possibility of that government placing orders shortly for cars of various types.

The estimates for the current year submitted to the House of Commons, ask for \$2,250,000 (of which \$380,000 is a revote) for rolling stock; \$24,000 for safety appliances for equipment, and \$3,400 to improve triple valves for the Intercolonial Ry.

Press reports recently stated that the G. T. R. was building freight cars at its Elsdon, Ill., shops, but we are officially advised that some four or five cars, which were partially destroyed by fire about a year ago are being rebuilt there, and that the company is not contemplating building any cars there at present.

The 12 side dump cars which the Greater Winnipeg Water District Commissioners have ordered from the Canadian Car and Foundry Co., are to be of 6 cub. yds. capacity, with running gear of steel or iron to conform to standard M. C. B. specifications. The body is to be of oak with steel reinforcements, and the couplers are to be of the standard railway link and pin type, and the cars are to have hand brakes.

The Canadian Car and Foundry Co., since Jan. 15, has received orders for 50 steel underframe express refrigerator cars for the G.T. Pacific Ry.; 12 wooden side dump cars, for the Greater Winnipeg Water District, and 40 two way air steel dump cars, through F. H. Hopkins & Co., for the Greater Winnipeg Water District; 3 pairs of 50 ton trucks for the St. Lawrence Bridge Co.; 1 pair 50 ton trucks for the Confederation Construction Co., and 6 ore cars, 50 tons capacity for the Mond Nickel Co.

The chief details of the 40 dump cars which the Greater Winnipeg Water District Commissioners have ordered from F. H. Hopkins and Co., and which will be built by Canadian Car and Foundry Co., are as follows,—type of car, 16 cubic yard, or 20 cubic yard automatic two way air side dump, standard gauge; trucks and draft gear couplers, M.C.B. type; brakes, air, and auxiliary hand; safety appliances to conform to the Board of Railway Commissioners' requirements; construction, entirely of steel or iron except the floor, which may be of wood.

The Greater Winnipeg Water District Commissioners have ordered 4 locomotives, two of which are to be equipped with superheaters, and 1 saddle tank dinky locomotive, from Montreal Locomotive Works: 40 twenty yard air dump cars, from F. H. Hopkins and Co.; 12 six yard dump cars, from Canadian Car and Foundry Co.; and have purchased 20 flat cars and 4 cabooses, from O'Brien, Fowler and McDougall Bros., contractors, Ottawa; 10 box cars from J. A. McTaggart, Winnipeg, and 1 combination passenger and baggage car, from W. H. Wilson and Co., Philadelphia.

The G.T. Pacific Ry. has ordered 50 express refrigerator cars from the Canadian Car and Foundry Co. Following are the chief details:—

Length between end sills 41 ft. 0 $\frac{1}{2}$ ins.
Length inside between ice tanks ... 35 ft. 5 ins.
Width over all 9 ft. 8 $\frac{3}{4}$ ins.
Width inside 8 ft. 7 $\frac{3}{4}$ ins.

Height top of rail to top of running board ...
..... 13 ft. 3 ins.
Height top of rail to centre of coupler
..... 2 ft. 10 $\frac{1}{2}$ ins.
Draft gear and buffing device ... Friction type
Air brakes Westinghouse KC-1012
Couplers Climax
..... Diamond arch bar
Wheel base 6 ft. 6 ins.
Journals M.C.B. 5 x 9 ins.
Wheels Rolled steel, 36 ins.
Truck bolsters Simplex
Brake beams Simplex
Side bearings Wood

The four locomotives which the Greater Winnipeg Water District Commissioners have ordered from Montreal Locomotive Works, are required to have a tractive effort of from 20,000 to 24,000 lbs., with a maximum speed of 25 miles an hour on a level grade, with a trailing load of 1,000 tons gross behind the tender. The weight of each locomotive is not to exceed 65 tons. They are to be fitted with standard straight and automatic air brakes, air signal and air sander. The dome is to be provided with a 1 in. air connection including valve fitted for steam hose, with 50 ft. of 1 in. steam hose with two couplings. The boilers must conform to the Manitoba and Ontario rules and regulations. Ash pans of the dump type, extra headlight on rear of tender, Detroit lubricators, Ohio injectors, C.N.R. standard boiler feed and check valves. The driving wheels must be equipped with hard grease cellars, and cups for hard grease supplied for the side rods. The tender axles are to be fitted with standard brasses interchangeable with those used on cars. Standard safety devices must be supplied for the locomotives, and the front of the locomotive and rear of the tender must be equipped with stub pilot braced to the body, and on this must be attached a foot board, and seat boxes must be furnished in the cabs. Spare parts to be supplied, include lubricator cup, complete injector, set of injector tubes, boiler feed check valves, complete driving box, grease cellar for driving box complete, set of tender brasses, 2 jacks, pair car replacers, 2 pinch bars, coal hammer and shovel and complete set of engineer's small tools. The dinky locomotive must have a tractive effort of 7,000 lbs., and is not to exceed 20 tons. It is to be equipped with M.C.B. automatic couplers with slotted knuckles, front and back, and two headlights.

Canadian Pacific Railway Construction, Betterments, Etc.

Montreal Subways.—The Montreal City Council has under consideration tenders for the putting of subways under the C.P.R. tracks at St. Denis and Ontario Streets, at a cost to the city of about \$500,000. These are to replace existing subways which are not sufficiently large for the present traffic.

Sault Ste. Marie Bascule Bridge.—The bridge connecting the C.P.R. lines in Canada with its subsidiary the Minneapolis, St. Paul and Sault Ste. Marie Ry., at Sault Ste. Marie, across the ship canal, is said to be the longest of its kind in the world. It is 356 ft. long between pier centres, and 336 ft. long between trunnions. Each leaf is composed of two rivetted trusses, 168 ft. long and 55 ft. deep, spaced 20 ft. apart, and counter balanced by heavy overhead masses of concrete. Each leaf, with its machinery, is carried on a tower, the trunnion being at the base of the framing which carries the counterweight and the accompanying mechanism. Expansion and contraction is allowed for by one central tower with its leaf and counterweight being placed on rollers, so

that it is free to move when the bridge is closed. The weight of structural steel in the bridge is 1,400 tons, and each of the leaves, with its floor system, weighs 400 tons. The bridge is operated by electricity, and it can be opened and closed in 1 $\frac{1}{4}$ minutes.

Western Lines.—Grant Hall, Vice President and General Manager, returned to Winnipeg, Feb. 15, after having completed his first inspection over the lines west of Winnipeg since his recent promotion. The various lines, he said, are in good condition. Work at Rogers Pass tunnel is progressing faster than was anticipated, and it is expected to finish the work within two years. So far as the construction plans for the year are concerned he said there is nothing to add to the general statement made on his return from Montreal, and which appears on page 101 of this issue.

Second Track on Western Lines.—The details of the second track work completed in 1914 on Western Lines show that 20 miles of grading, 100.2 miles of tracklaying and 125 miles of ballasting were done, distributed as follows:

	Miles graded.	Miles track laid.	Miles ballasted.
Manitoba Division:			
Kemnay-Virden	1.5	2.4	2.4
Whitewood-Broadview .....	..	6.8	18.1
	1.5	9.2	20.5
Saskatchewan Division:			
Broadview-Grenfell ..	0	16.0	16.0
Indian Head-Regina ..	0	13.5	21.0
Chaplin-Swift Current ..	0	11.0	11.0
	0	40.5	48.0
British Columbia Division:			
Revestokle-Taft	13.0	24.0	24.0
Pritchard-Kamloops ..	2.5	25.5	25.5
Kamloops-Tranquille ..	3.0	3.0	9.0
	18.5	50.5	56.5

Vancouver Hotel.—F. Swales, architect in charge of construction at the hotel, is reported to have stated that he had received instructions to proceed with the finishing, decoration and furnishing of the main building and the Granville St. Annex, and to start construction on the new Marpole wing. This wing is to be built on a part of the site now occupied by some of the hotel buildings, which are to be cleared as soon as the main part of the building is opened. This wing will correspond with the 10 story wing on the east side. The main part of the hotel is expected to be opened about May 1. (Feb., pg. 62.)

Spark Arresters for Locomotives Burning Non Coking Coals.—Referring to the Board of Railway Commissioners' circular, printed on page 87 of this issue, we are officially advised that, owing to several requests made by parties interested, the date set for the submission of comments to the Board has been extended from Feb. 20 to Mar. 16.

The Canadian Society of Civil Engineers' Ottawa Branch was addressed, Feb. 4, by W. Sanford Evans, Chairman of the Georgian Bay Canal Commission, on the economics of engineering problems. In referring to his work in connection with the Georgian Bay Canal project, he stated that a preliminary report will be presented shortly, in which there will be a great deal of useful information.

Locomotive Fuel Oil Tanks at Vancouver.—The Union Oil Co. is erecting a large oil tank in the C.P.R. yards at Vancouver, similar in size and construction to the two already completed. Each of the tanks has a capacity of 55,000 barrels, so that the three will have a total storage capacity of practically 7,000,000 gals. A berthing slip for the steamships bringing in the oil is under construction at the tanks. The completion of this will obviate the use of the long pipe line and auxiliary pumping station now on pier A.

Mainly About Railway People.

Sir Wm. Mackenzie has retired from the National Trust Co.'s board.

Sir Thos. and Lady Tait are spending part of the winter at Bellairs, Florida.

W. J. Hammond, station agent, Canadian Northern Ry., Colborne, Ont., died suddenly there, Jan. 27.

R. Marpole, General Executive Assistant, C.P.R., Vancouver, B.C., left there Feb. 3, for a short holiday in California.

Miss J. A. Drayton, who died at Toronto, Jan. 29, was a sister of **H. L. Drayton, K. C.**, Chief Railway Commissioner, Ottawa.

G. M. Bosworth, Vice President, Traffic Department, C.P.R., has been re-elected a director of the Provincial Bank of Canada.

D. B. Hanna, Third Vice President, Canadian Northern Ry., has been elected a director of the company.

A. G. Penny, Assistant Advertising Agent, Canadian Northern Ry., Toronto, was married at Montreal recently to **Miss E. L. Benton**.

D. B. Hanna, Third Vice President, Canadian Northern Ry., and **Mrs. Hanna**, spent about a fortnight in Florida and other southern places in February.

J. R. W. Ambrose, Chief Engineer, Toronto Terminals Ry., read a paper on Toronto grade separation before the Canadian Railway Club in Montreal, Feb. 9.

W. D. Scott, General Manager, Spokane, Portland & Seattle Ry., Oregon Trunk Ry., Oregon Electric Ry. and United Rys. Co., died at Portland, Ore., recently, aged 56.

Jules Hone, Dominion Government Director, Grand Trunk Pacific Ry., is included in the estimates submitted to Parliament recently for \$2,000 as yearly remuneration.

Mrs. Ross, widow of the late James Ross and mother of **J. K. L. Ross**, director, C.P.R., died in Montreal, Feb. 22, after a brief illness.

L. B. MacFarlane has been elected President, Bell Telephone Co. of Canada, Ltd., Montreal, succeeding **C. F. Sise**, who remains on the board.

C. J. Harris, Foreman Brass and Tool Shop, Intercolonial Ry., Moncton, N.B., was presented with a Morris chair, by his associates, recently, on his retirement after 27 years service.

H. H. Vaughan, Assistant to Vice President, C.P.R., Montreal, gave an address on shell manufacture, illustrated by lantern slides, before the Canadian Society of Civil Engineers in Montreal, Feb. 4.

J. H. Johnston, Superintendent, Bridges and Buildings, G.T.R., Montreal, has been appointed a member of the American Railway Bridge and Building Association's committee on crossing gates, towers, etc.

A. K. Grimmer, A.M.Can.Soc.C.E., who resigned the position of City Engineer of Medicine Hat, Alta., recently, was, in 1906, engineer in charge of the Glenn extension of the York and Carleton Ry., in New Brunswick.

Stewart Gordon, who was formerly connected with the Hotel Department, C. P. R., has been appointed Secretary-Treasurer of one of the larger hospitals being organized by the St. John's Ambulance Association for service in Europe.

A. E. Doucet, M.Can.Soc.C.E., District Engineer, National Transcontinental Ry., Quebec, was entertained to dinner, Feb. 5, by a number of the divisional engineers who formed the engineering staff during the construction of the railway.

George Beckingham, Superintendent of Track, Eastern Lines, G.T.R., Montreal, has

been appointed a member of the Roadmasters and Maintenance of Way Association of America's committee on new and experimental track accessories and tools.

W. McNab, Principal Assistant Engineer, G.T.R., Montreal, addressed the Canadian Society of Civil Engineers, Toronto Branch, Feb. 25, on the construction of the Grand Trunk Pacific Ry., the address being illustrated by lantern slides and motion pictures.

G. Blackbird, Locomotive Foreman, G.T.R., Richmond, Que., who has retired under the pension rules, after 49 years of continuous service with the company, was presented with a case of silver and an address by the local staff and a number of residents, at Richmond, recently.

Lt.-Col. Lacey R. Johnson, M. Can. Soc. C.E., General Superintendent, Angus Shops District, C.P.R., Montreal gave an informal talk, illustrated by lantern slides, before the Canadian Society of Civil Engineers, in



R. L. Fairbairn, General Passenger Agent, Eastern Lines, Canadian Northern Ry., and Chairman, Niagara Frontier Summer Rate Committee.

Montreal, Feb. 15, on "Heavy guns used in the field."

John B. Laurie, Purchasing Agent and General Storekeeper, Central Vermont Ry., St. Albans, Vt., who died there recently, was born at Sarnia, Ont., Feb. 22, 1862, and entered railway service with the G.T.R., as storekeeper at London, Ont., transferring to the C.V.R. in Sept., 1899.

John Murphy, Chief Electrical Engineer of the Department of Railways and Canals, and Electrical Engineer, Board of Railway Commissioners, was a passenger in the I.R. C. train which left the track near Campbellton, N.B., Jan. 29. Neither he, nor any of the other passengers were seriously hurt.

David McCoole, Superintendent of Track, Toronto Terminals, G.T.R., has been appointed a member of the Roadmasters and Maintenance of Way Association of America's sub committee no. 3, on the proper organization of section forces and methods for maintaining and policing track for large terminals.

W. L. Fagan, who died at Vancouver, B.C., Jan. 28, aged 74, was in railway service in Ontario many years ago, on the Great Western Ry., and went to British Columbia in 1886. He was the first agent for the C. P.R., at Port Moody, and also the first agent for the same company at New Westminster.

Stewart Gordon, at one time Manager of the C.P.R. hotels at Banff, Alta., and Victoria, B.C., and who has been living in England for several years, has been appointed Secretary-Treasurer of a large hospital which is being organized by the St. John Ambulance Association for service on the European continent.

Sir James Bell, who has been appointed Chairman of the Glasgow and South Western Ry. (Scotland), vice P. T. Caird, resigned, has been a director since 1896, and acted as Deputy Chairman since 1900. He is a principal of Bell Bros. and Co., steamship owners and exporters, Glasgow, and a former Lord Provost of the city.

A. T. Genest, A.M.Can.Soc.C.E., who died at Ottawa, Jan. 27, was born at Fermont, Que., July 10, 1859, and was engaged, in his early days, on railway location and construction in the Laurentians, on what is now part of the Canadian Northern Ry. Later he was an engineer in connection with the projected Georgian Bay Canal.

John Leslie Knight, who was appointed acting auditor and chief clerk, Midland Ry. of Manitoba, Winnipeg, as announced in our last issue, was born at Kensington, Eng., Apr. 28, 1889, and entered M.R. of M. service, Sept. 1, 1912, since when he has been, to Feb. 1, 1914, timekeeper; Feb. 1 to Aug. 14, 1914, accountant, General Superintendent's office.

W. D. Reid, President, Reid Newfoundland Co., has presented the Newfoundland Regiment, with two machine guns. One of his sons is serving in the regiment as a private, and another is a lieutenant in the second contingent, and it is stated that he will, on reaching England, be transferred to the army flying corps, for which service he volunteered.

L. V. Harrington, whose appointment as Night Chief Dispatcher, Toronto, Hamilton and Buffalo Ry., Hamilton, Ont., was announced in our last issue, was born at Attercliffe, Ont., Mar. 17, 1884, and entered T.H. & B.R. service, July, 1901, since when he has been, to July, 1909, agent and operator at different points; July, 1909 to Jan. 1, 1915, dispatcher, Hamilton, Ont.

Brigadier-General H. C. Nanton, in regard to whom some information was given in our last issue, has been made a Companion of the Order of the Bath, by the King. He started his professional career as an Engineer, on C.P.R. location in the Rocky Mountains in 1884, Sir Herbert Holt being a member of the same party. He is now Chief Engineer Officer of the Indian Forces in active service in Europe, in the neighborhood of Ypres and La Bassee.

W. J. Warnick, whose appointment as Trainmaster, Toronto, Hamilton and Buffalo Ry., Hamilton, Ont., was announced in our last issue, was born at Hamilton, Ont., Mar. 20, 1880, and entered T.H. & B.R. service Jan. 9, 1896, since when he has been, to Mar. 1897, clerk in General Office; Mar., 1897, to July, 9, 1902, operator and freight clerk; July 9, 1902, to 1910, dispatcher; 1910 to 1912, Assistant Chief Dispatcher; 1912 to Jan. 1, 1915, Chief Dispatcher.

William Henry Staniland, whose appointment as Chief Dispatcher, Toronto, Hamilton and Buffalo Ry., Hamilton, Ont., was announced in our last issue, was born at St. George, Ont., July 3, 1878, and entered T.H. & B.R. service, Sept. 21, 1895, since when he has been, to May 1, 1902, agent and

operator at various points; May 1, 1902 to Mar. 1, 1914, dispatcher, Hamilton; Mar. 1, 1914 to Jan. 1, 1915, Night Chief Dispatcher, Hamilton.

Arthur Hatton, whose appointment as General Superintendent of Car Service, C.P.R., Montreal, was announced in our last issue, was born in London, Eng., Apr. 12, 1869, and entered railway service, June 1888, since when he has been, to July 1890, station agent, Central Ontario Ry., at various points; June 1891 to July 1896, telegraph operator, C.P.R., Eagle River, and Kenora, Ont.; June 1896 to Sept. 1901, dispatcher, C.P.R., Kenora, and Fort William, Ont.; Sept. 1901 to Jan. 1907, Chief Dispatcher, C.P.R., at various points on the Western Lines; Jan. 1907 to Mar. 1912, Inspector of Transportation, C.P.R. Winnipeg; Mar. 1912 to Jan. 1915, Superintendent of Car Service, C.P.R., Winnipeg.

Silas B. Wass, A.M.Can.Soc.C.E., whose appointment as Assistant Superintendent, Intercolonial Rys., Fredericton, N.B., in charge of station service, train service and track, St. John and Quebec Ry., was announced in our last issue, was born in Perth County, Ont., July 11, 1880, and entered railway service, July 1906, since when he has been, to Jan. 1908, Resident Engineer, C.P.R., Walkerton, Ont.; Jan. 1908 to Jan. 1909, Assistant Engineer, C.P.R., Durham, Ont.; May 1909 to Sept. 1910, Chief Engineer, Aroostook Valley Rd., Presque Isle, Me.; Sept. 1910 to Jan. 1912, Assistant Engineer, C.P.R., Montreal; Jan. 1912 to Apr. 1914, Assistant Chief Engineer, St. John and Quebec Ry., Fredericton, N.B.; Apr. to Dec. 1914, Chief Engineer, same road.

John Ross, who died at Montreal, Feb. 4, aged 70, was born in Scotland, came to this continent in early life, and worked for some time on railway construction in the United States. During the building of the C.P.R. through the Rockies, he obtained some contracts there, in partnership with the late D. McDermott. These contracts covered a good portion of the snow shedding through the Rogers Pass. He subsequently was engaged on railway construction for the C.P.R. and other companies in the east. As a partner in Ross, Barry and McRae, he was one of the builders of the Canadian Northern Ry. between Joliette and Quebec, and in the Ross Harris Co., carried out a contract on the C.P.R. Toronto-Sudbury Line, while in conjunction with G. McComb, he built a portion of the Montreal and Southern Counties Ry., and was interested in many other contracts on the C.P.R., C.N.R. and G.T.R. He was also interested in contracts on the Welland Canal.

H. J. Humphrey, whose appointment as Superintendent Car Service, Western Lines, C.P.R., Winnipeg, was announced in our last issue, was born at Berry's Mills, N.B., Jan. 26, 1879, and entered railway service June 1896, since when he has been, to Aug., 1897, telegraph operator, Intercolonial Ry., at various points; Aug. 1897 to Aug. 1901, telegraph operator, Boston and Maine Rd., at various points; Aug. 1901 to Apr. 1902, telegraph operator, Intercolonial Ry., at various points; May 9, 1902 to Sept. 6, 1903, telegraph operator, C.P.R., Calgary, Alta.; Sept. 6 1903 to June 1, 1907, dispatcher C.P.R., Calgary, Alta.; June 1, 1907 to Nov. 1, 1909, dispatcher, C.P.R., Medicine Hat, Alta.; Nov. 1, 1909 to Apr. 10, 1911, dispatcher, C.P.R., Calgary, Alta.; Apr. 10, 1911 to July 1, 1912, Chief Dispatcher C.P.R., Macleod, Alta.; July 1, 1912 to Jan. 8, 1915, Car Service and Fuel Agent, C.P.R., Saskatchewan Division, C.P.R., Moose Jaw.

R. Marpole, General Executive Assistant, C.P.R., Vancouver, B.C., sent, as mentioned in our February issue, 20 recruits for the Welsh Army Corps being raised in Wales.

They sailed by the s.s. Grampian from St. John, N.B., Jan. 29, for Liverpool, and were to go from there to Llandudno or Cardiff, as the Welsh Army Corps executive committee might decide. Mr. Marpole paid their entire transportation expenses to their destination, and gave each man sufficient to visit his home four days after joining the battalion. He has also undertaken to pay the expenses to Vancouver of any of the men who may be incapacitated while in active service, or within 90 days after peace is declared, and after being properly released from active duty by the commanding officer. The private secretary of the Chancellor of the Exchequer, Right Hon. D. Lloyd George, has written Mr. Marpole thanking him for his timely assistance and stating that the men will be included in the Gwent Battalion, under Col. Sir Hamar Greenwood, M.P.

Allan Kilpatrick, whose appointment as Superintendent, G. T. Pacific Ry., Edson, Alta., was announced in our last issue, was born at Closeburn, Dumfriesshire, Scotland, Apr. 20, 1863, and entered railway service in Oct., 1878, since when he has been, to May, 1881, freight clerk, Glasgow and South Western Ry., Maybole, Scotland; July, 1881, to Apr., 1882, clerk in Audit Office, G.T.R., Montreal; Apr. to Aug., 1882, freight clerk, G.T.R., Coteau Jct., Que.; Sept., 1882, to 1890, chief clerk, Mechanical Department, Canada Atlantic Ry., Ottawa; 1890 to 1892, audit clerk in charge of car records and passenger accounts, same road, Ottawa; 1892 to 1897, General Agent in charge of operations during construction, Ottawa, Armprior and Parry Sound Ry., Scotia Jct. and Parry Sound, Ont.; 1897 to 1900, Assistant Trainmaster, Canada Atlantic Ry., Madawaska, Ont.; 1900 to 1905, Assistant Trainmaster, same road, Depot Harbor, Ont.; 1905 to 1911, Assistant Trainmaster, G.T.R., Depot Harbor, Ont.; 1911 to Jan., 1915, Superintendent on Construction, National Transcontinental Ry., Cochrane, Ont.

W. M. Ansley, who has been appointed acting Superintendent, District 2, Alberta Division, Lethbridge, during the absence on leave of F. Walker, was born at Flesherton, Ont., June 15, 1873, and entered railway service Apr. 6, 1897, since when he has been, to Dec. 1900, with Canada Atlantic Ry. at Depot Harbor, Ont.; Dec. 1900 in service of Algoma Central and Hudson Bay Ry., Sault Ste. Marie, Ont.; Aug. 4, 1901 to Mar. 17, 1903, brakeman, C.P.R., Kenora, Ont.; Mar. 17, 1903 to Aug. 19, 1907, conductor, same road; Aug. 19 to Nov. 3, 1907, Assistant Trainmaster, same road, Brandon, Man.; Nov. 3, 1907 to completion of construction, Trainmaster, Sheho Extension, same road, Saskatoon, Sask.; from then to Oct. 1, 1908, Trainmaster, same road, Saskatoon, Sask.; Oct. 1, to Dec. 1, 1908, Trainmaster, same road, Souris, Man.; Dec. 1, 1908, to May 1909, Trainmaster, same road, Brandon, Man.; May 1909 to July 1911 Trainmaster, same road, Revelstoke, B.C., and during a portion of this period, acting Superintendent there; July 1911 to Nov. 1913, Trainmaster, same road, Grand Forks, B.C.; Nov. 1913 to Feb. 1915, Trainmaster, same road, Macleod, Alta.

R. L. Fairbairn, General Passenger Agent, Eastern Lines, Canadian Northern Ry., Toronto, who has been elected Chairman, Niagara Frontier Summer Rate Committee for the current year, and whose portrait appears in this issue, was born at Stillwater, Minn., Nov. 24, 1880, his parentage being Canadian. He entered railway service in July, 1899, since when he has been, to Mar., 1904, in office of Auditor of Passenger Receipts, G.N.R.; Mar., 1904 to May 1, 1906, in Passenger Traffic Manager's office, same road; May 1 to Dec. 1, 1906, as-

stant rate clerk, Passenger Department, same road; Dec. 1, 1906 to June 1, 1908, chief rate clerk, Passenger Department, same road; June 15, 1908 to Oct. 1910, chief clerk, Passenger Department, Canadian Northern Ry., Winnipeg; Oct. 1910 to Apr. 1911, District Passenger Agent, C.N.R., Saskatoon, Sask.; Apr., 1911, to May, 1912, Assistant General Passenger Agent, lines east of Port Arthur, Toronto; May 1912 he was appointed to his present position as General Passenger Agent, Eastern Lines, C. N.R., and Canadian Northern Steamships, Ltd.

Thos. Swinyard, President, Dominion Telegraph Co., who died in New York, N.Y., Feb. 25, aged 83, was born at Guildford, Surrey, Eng. In 1850 he was appointed Secretary to the General Manager, London & North Western Ry. of England, and was Secretary of the Railway Officers Monthly Conference in London. In 1862 he came to Canada as General Manager, Great Western Ry., with office at Hamilton, Ont., and in connection therewith was Vice President, Detroit & Milwaukee Railway. In 1874 he was appointed by the Dominion Government to take over, complete and organize the Prince Edward Island Ry. In 1875 he was appointed General Manager, Dominion Telegraph Co., and subsequently became its President. For some years he was Vice President, New York, Ontario & Western Ry. In 1897 he represented the Dominion Government in the arbitration case at Vancouver between the Government and the C.P.R.; of late years he lived at The Hall, Gilbertsville, N.Y., his second wife, who survives him, being a daughter of the late G. Y. Gilbert of that place. He was buried at Gilbertsville.

Davenant Rodger who died at Brooklyn, N.Y., Jan. 19, aged 62, is spoken of by Engineering News, New York, as "a prominent Canadian civil engineer." The News says: "Col. Rodger was connected with the construction of the Canadian Pacific Ry. and the Cape Cod Canal and was commissioned by the Canadian Government to observe the construction of the Croton aqueduct and the siphon under the Harlem River. He was for many years Chief Engineer of the Chilean Government. At the time of his death, he had been engaged as prospective chief engineer of an irrigation project on the Colorado River in Arizona." The Mr. Rodger referred to is no doubt "Dave" Rodger, as he was known some 30 years ago. In 1875 he went from Montreal to the west and was section engineer at Ingolf, Ont., on section 15 of the C.P.R., which extended from Keewatin to Cross Lake and was under contract from the Dominion Government to the late Jos. Whitehead, the Division Engineer being Henry Carre, M.Can.Soc.C.E., now of Belleville, Ont. In 1881 he joined H. N. Ruttan, M.Can.Soc.C.E., of Winnipeg, as a member of the firm of Ruttan, Rodger & Co. and P. J. Brown & Co., who built the Manitoba and Southwestern Colonization Ry. from Winnipeg to Elm Creek, and as engineers and contractors built the Portage, Westbourne and Northwestern Ry., from Portage la Prairie to near Neepawa. He left Manitoba in 1883 for New York.

A New Transcontinental Railway has gone into operation. It is a working combination of the St. Louis & San Francisco Rd. and the Santa Fe system. The route is via the St. Louis & San Francisco from New Orleans to Houston, Tex., and then over the Santa Fe to San Francisco, including the Coleman and Belen cut offs in Texas and New Mexico. This gives New Orleans and the South two transcontinental railway lines, the other being the Southern Pacific system.

Transportation Appointments Throughout Canada.

The information under this head, which is almost entirely gathered from official sources, is compiled with the greatest care, so as to ensure absolute accuracy. Anyone who may notice any error in our announcements will confer a favor by advising us.

Algoma Central and Hudson Bay Ry., Algoma Eastern Ry.—The position of Purchasing Agent has been abolished, the duties being undertaken by F. W. ACHESON, Chief Storekeeper, Sault Ste. Marie, Ont.

Canadian Government Railways.—A. DION has been appointed Assistant Superintendent, National Transcontinental Ry. between Edmundston, N. B., and St. Jean Chrysostome, Que., vice H. A. Ryan. Office, Monk, Que.

Canadian Northern Ry.—W. PRATT, Jr., heretofore Superintendent Hotels, Sleeping and Dining Car Service, has been appointed General Superintendent, Sleeping, Dining, Parlor Cars and Hotels, Lines East and West. Office, Winnipeg.

E. TREMBLAY, heretofore Foreman, Quebec Yards, has been appointed Supervisor of Track, Lake St. John Division, Quebec Grand Division, vice J. Frigon, resigned to enter another company's service. Office, Chicoutimi, Que.

W. R. KELLY, heretofore Assistant Superintendent, Toronto Division, Toronto, has been appointed Assistant Superintendent, Ottawa Division. Office, Trenton.

H. B. SHERWOOD, Superintendent, Quinte, Kingston and Brockville Districts, Napanee, Ont., has been granted three months leave of absence.

R. S. DERBYSHIRE, heretofore Assistant Superintendent at Trenton, Ont., and S. J. KITCHEN, Trainmaster at Trenton, Ont., have returned to train service as conductors, with headquarters at Trenton and Deseron to respectively.

P. H. FOX, heretofore Chief Dispatcher, Toronto Division, Rosedale, Toronto, has been appointed Chief Dispatcher, Ottawa Division. Office, Trenton, Ont.

J. E. CATHER, heretofore dispatcher at Toronto, has been appointed Chief Dispatcher, Toronto Division, vice P. H. Fox, transferred. Office, Rosedale, Toronto.

The positions of Assistant Superintendent, Toronto Division, and Trainmaster, Ottawa Division, have been abolished.

R. A. MILLER has been appointed General Foreman, Trenton, Ont., vice W. G. Rodden.

F. MCKAY, heretofore Bridge and Building Foreman, Toronto, has been appointed Bridge and Building Inspector there, vice W. H. See deceased.

W. WALSH, heretofore Supervisor of Track, Toronto, has been appointed section foreman there.

S. J. SHARP, who has a general ticket agency at 79 Yonge St., Toronto, has been appointed City Ticket Agent for the C.N.R. The company's city ticket office, at 52 Yonge Street, in charge of F. V. Higginbotham, will continue to be maintained.

A. H. DAVIS has been appointed City Passenger Agent, Winnipeg, vice G. A. North transferred.

G. A. NORTH, heretofore City Passenger Agent, Winnipeg, has been appointed City Ticket Agent, Brandon, Man., vice W. Stott on leave of absence.

A. G. HANNA has been appointed ticket agent, Portage la Prairie, Man., vice E. A. Williams.

Canadian Pacific Ry.—J. W. LEONARD retired from the position of Assistant to Vice President, Jan. 31, and is devoting his time to his duties as General Manager of the

Toronto Terminals Co., which will build the new Union Station, etc., at Toronto.

F. L. HUTCHINSON, heretofore Manager, Windsor Hotel, Montreal, has been appointed Manager in Chief, C. P. R. Hotels, vice Hayter Reed, from Apr. 1. Office, Montreal.

The position of General Master Mechanic, Eastern Lines, Montreal, heretofore held by C. KYLE, whose appointment as Master Mechanic, Atlantic Division, was announced in our last issue, has been abolished. His office is at St. John, N. B., not at McAdam Jct., N.B., as previously announced.

J. H. FORBES, heretofore Resident Engineer, Smiths Falls, Ont., has been appointed Resident Engineer, District 3, Montreal, vice T. B. Ballantyne transferred.

T. B. BALLANTYNE, heretofore Resident Engineer, District 3, Montreal, has been appointed Resident Engineer, Smiths Falls, Ont., vice J. H. Forbes transferred.

H. DIBLEY, heretofore Assistant Car Foreman, Transcona, Man., has been appointed Freight Shop Foreman, Fort William, Ont., vice T. E. Higgins promoted.

T. W. MARSHALL has been appointed Assistant Car Foreman, Transcona, Man., vice H. Dibley promoted.

JOHN O'BRIEN, heretofore night clerk at Sutherland, Sask., has been appointed Storekeeper, Regina, Sask., vice T. H. Horton, who has been granted leave of absence to enlist for active military service.

J. F. PLOTT has been appointed Roadmaster, Swift Current Subdivision, Moose Jaw, Sask., vice A. J. Wolfe, transferred.

A. J. WOLFE, heretofore Roadmaster, Swift Current Subdivision, Moose Jaw, Sask., has been appointed Roadmaster, Outlook Subdivision, Outlook, Sask.

R. J. COLLINS, heretofore dispatcher, District 1, Saskatchewan Division, Regina, has been appointed Chief Dispatcher, District 4, Alberta Division, Edmonton, vice W. E. Cline, transferred to Winnipeg as announced in our last issue.

W. M. ANSLEY, heretofore Trainmaster, District 2, Alberta Division, Macleod, has been appointed acting Superintendent, District 2, Alberta Division, vice F. Walker on leave of absence. Office, Lethbridge.

L. J. FISHER has been appointed District Master Mechanic, Cambridge, B. C., vice A. Sturrock promoted.

E. RALSTON, formerly Yardmaster at Vancouver, B. C., has been appointed Yard Foreman there, on account of the former position having been abolished. By an error in our January issue it was stated that he had been appointed Yardmaster.

Central Vermont Ry.—J. W. WARDLAW has been appointed Assistant to the President, and Purchasing Agent, having, in addition to other duties, the charge of purchases and stores, vice J. B. Laurie deceased. Office, St. Albans, Vt.

Grand Trunk Pacific Ry.—W. E. MOHER, heretofore locomotive driver, has been appointed Travelling Locomotive Foreman, with headquarters at Melville, Sask.

The position of Superintendent of Water Service, at Melville, Sask., heretofore held by C. R. HEATH, has been abolished.

G. H. LAYCOCK has been appointed Locomotive Foreman at Endako, B. C., vice G. McNeil assigned to other duties.

C. E. STEWART has been appointed Locomotive Foreman, Edmonton, Alta., vice C. E. Brooks appointed General Foreman, Transcona, Man., as announced in our last issue.

O. CARLSON, heretofore Roadmaster, District 10, McBride to Prince George, B. C., has been appointed Roadmaster, District 9,

from Jasper, Alta. to McBride, B. C., vice J. Moriarty resigned. Office, McBride, B. C.

B. BRADY has been appointed Roadmaster, District 10, from McBride to Prince George, B. C., vice O. Carlson transferred. Office, McBride, B. C.

The following station agents have been appointed,—Juniata, Sask., H. F. Jones; Yorkton, Sask., G. C. Smart; Ebenezer, Sask., T. J. Shields; New Norway, Alta., T. J. Leslie.

Grand Trunk Ry.—F. W. WARREN, recently appointed Locomotive Foreman, Southwark Terminals, Montreal, has returned to his former position as Locomotive Foreman, Coteau, Que., vice E. B. Meehan transferred, the Southwark Terminals having been closed temporarily.

A. BEARDSHAW has been appointed Locomotive Foreman, Richmond, Que., vice G. Blackbird, retired under the pension rules.

E. B. MEEHAN, heretofore Locomotive Foreman, Coteau, Que., has returned to his former position as Locomotive Foreman, Brockville, Ont., vice F. Foster.

H. M. McPHERSON, heretofore in Division Engineer's Office, Montreal, has been appointed Assistant Engineer, Belleville, Ont., vice C. S. Ogilvie, now on active military service.

R. WOODS, heretofore Foreman Painter, Port Huron, Mich., has been transferred to the car shops at London, Ont., in a similar position.

D. ROSS, heretofore Locomotive Foreman, Southwark Terminal, Montreal, has been appointed Locomotive Foreman, Durand, Mich.

A. COPONY, Master Car Builder, Western Lines, has had his office moved from Port Huron, Mich. to Elsdon, Ill.

The following station agents have been appointed,—Gore, Que., R. Desjardins; Summertown, Ont., G. A. Butzer; Wales, Ont., J. A. McMillan; Otter Lake, Ont., H. W. Mayhew; Kingsville, Ont., outside, A. R. Keele; Stratford, Ont., outside, Feibig and Heagy.

Intercolonial Ry.—FRANK DUNBAR, formerly Mechanical Foreman's clerk, at Gibson, N. B., has been appointed storekeeper there, and C. L. BURGESS has been appointed Mechanical Foreman's clerk. In our January issue it was stated in error that C. L. Burgess had been appointed storekeeper at Gibson, instead of F. Dunbar.

The **Ironton, Bancroft & Ottawa Ry.** having been taken over by the Canadian Northern, and now being operated as part of the Ontario Grand Division, the positions of Superintendent, General Freight and Passenger Agent and Master Mechanic have been abolished. R. S. Derbyshire, formerly Superintendent, is running as conductor on the C. N. R., out of Trenton. W. A. Ward, formerly General Freight and Passenger Agent, is acting as accountant on the C. N. R. agents staff at Bancroft, and J. Webb, formerly Master Mechanic, is in charge of the locomotive house at Bancroft.

Michigan Central Rd.—L. J. BRINKMAN has been appointed Freight Claim Agent, vice J. M. Eedson resigned. Office, Detroit, Mich.

W. R. PATTERSON has been appointed General Foreman of Shops, Detroit, Mich., vice A. K. Galloway.

National Transcontinental Ry.—See Canadian Government Railways.

Roberval-Saguenay Ry.—J. FRIGON, heretofore Supervisor of Track, Lake St. John Division, Canadian Northern Ry., has been appointed Superintendent, Roberval-Saguenay Ry., Chicoutimi, Que.

Toronto Terminals Ry.—J. W. LEONARD, heretofore Assistant to the Vice President,

C. P. R., Montreal, has been appointed General Manager, Toronto Terminals Ry. Co., which has been incorporated to build the new Union Station, etc., in Toronto, and he will open an office at 38 King St. East, in the near future.

Wabash Rd.—G. B. INGERSOLL, heretofore Westbound Agent, Chicago, Ill., has been appointed Local Freight Agent there.

W. BOCKSTAHLER, heretofore Travelling Freight Agent, Buffalo, N. Y., has been appointed Westbound Agent, Chicago, Ill., vice G. B. Ingersoll promoted.

H. EICKE has been appointed Superintendent Transportation, vice F. E. Bolte resigned to accept service elsewhere. Office, St. Louis, Mo.

J. L. HARRIS has been appointed General Live Stock Agent, in full charge of live stock and live poultry traffic. Other duties will also be assigned to him in connection with the handling of packing house products and perishable freight. Office, Kansas City, Mo.

E. E. STOWELL, heretofore Travelling Freight Agent, Rome, Watertown and Ogdensburg Rd., has been appointed Travelling Freight Agent, Wabash Rd., Buffalo, N. Y., vice W. Bockstahler promoted.

Traffic Orders by the Board of Railway Commissioners.

Special Rates for Farmers' Conventions.

Jan. 5. The Board has refused the application of A. Roy for an order directing railway companies to issue tickets at a special rate of 1c. a mile to farmers desiring to attend agricultural conventions, conferences and exhibitions. In concluding his judgment the Chief Commissioner said:—Under the Act, it is, of course, impossible for the Board to order special privileges for any one class. To do so would be to directly violate the provisions of the Act. It is not open to the Board to consider whether a farmer or a doctor, on the one hand, should or should not travel cheaper than a mechanic or a lawyer on the other."

Freight on Mixed Carloads of Grain Products and Hay and Straw.

23153. Jan. 13. Re application of the Central Convention of Farmers' Institutes of British Columbia, for an order to grant the privilege of shipping mixed carloads of flour and feed (in sacks) and baled hay and straw at carload rates. Upon hearing the application in Vancouver, Oct. 27, 1913, in the presence of counsel for the C. P. R., no one appearing for the applicants, and reading the report of the Chief Traffic Officer of the Board—it is ordered that the application be refused.

Joint Rates for Shingles Over Western Canada Power Co.'s Ry. and C. P. R.

23213. Jan. 26. Re application of Stoltze Manufacturing Co. for an order requiring joint rates to be charged on shingles over the Western Canada Power Co.'s Railway and the C. P. R. It is ordered that the C. P. R. and the Western Canada Power Co. jointly publish and file supplements to the C. P. R. Special Joint Tariffs, C. R. C. Nos. W-1615 and 1806, providing joint rates from the applicant's mill to the destinations shown in the said tariffs, via Ruskin, B. C., which shall not exceed the rates from Ruskin by more than 2 cts per 100 lbs.; the W. C. P. Co. to receive 3 cts per 100 lbs. as its proportion of the joint rates so made.

Suspension of Tariffs Increasing Freight Rates.

23231. Feb. 2. Re certain freight tariffs published and filed by the New York Central Rd. and the Ottawa & New York Ry. increasing the rates to be charged between

stations in Canada. It is ordered that the said tariffs, in so far as they increase the rates now being charged from stations in Canada to stations in Canada, be suspended until further ordered by the Board.

Suspension of Boston & Maine and Maine Central Tariffs.

23232. Feb. 2. Re certain freight tariffs published and filed by the Boston & Maine and Maine Central Railroads. It is ordered that said tariffs, in so far as they increase the rates now being charged between stations in Canada, be suspended until further ordered by the Board.

Switching Charges at Fort William.

23281. Feb. 9. Re application of Fort William, Ont., Board of Trade, for abolition of charge of 1 ct. per 100 lbs., minimum \$5 a car, for switching goods for or from steamboats between sidings and docks at Fort William, as shown in C.P.R. tariff, C.R.C. no. 17, 1919, page 6. It is ordered that the application be refused.

Rates from Head of Lake Superior.

23282. Feb. 10. Re application of Fort William, Ont., Board of Trade, for an order requiring the railway companies to lower all rates from the head of the lakes to points west 2½ cts. per 100 lbs., and to make the tariffs read 'Rates are exclusive of wharfage at Fort William, Port Arthur and West Fort.' It is ordered that the application be refused.

Standard Regulations re Opening of New Lines.

General order 134. Jan. 25. Re amendment of the Board's standard regulation as to the opening of new lines, so as to provide that, in addition to filing the standard mileage tariff applicable to traffic on the portion of the railway to be opened, the appropriate special tariffs also be filed. It is ordered that railway companies making application to open for traffic under sec. 261 of the Railway Act (as distinct from obtaining, under subsec. 7, as amended, of the aforesaid section, leave to carry traffic where, because of the needs of settlers or other urgent condition, public convenience will be served thereby,) be, required, before opening for the carriage of traffic any extensions of their existing railway systems west of Lake Superior, to publish and file the appropriate supplementary special class or "town" tariffs, mileage commodity tariffs, and special tariffs on grain to the Lake Superior terminals, and on lumber from British Columbia, as these may be applicable to the territories to be served by the said new lines, in addition to the standard mileage tariffs therefor.

The Asbestos & Danville Ry., the freight tariffs of which have been approved recently by the Quebec Public Utilities Commission, is about 4.4 miles long, connecting the village of Asbestos, Que., with the G.T.R. at Danville. It carries freight only, and has 2 locomotives, 1 freight car and 10 dump cars. T. F. Mannville is President, and J. R. Pearson, General Manager. It is a subsidiary of the Asbestos & Asbestic Co., Ltd., which has its headquarters in London, Eng., and its Canadian office at Asbestos, Que.

Full Crew Laws.—Efforts will be made to bring about repeal of the full crew laws in Pennsylvania and New Jersey at the present sessions of the legislatures in those states. Thirteen railways operating in the two states have joined together to make a public appeal to the people for their support in accomplishing this object.

The C.P.R.'s downtown freight office in Vancouver is being removed from 440 Hastings Ave. to the new station.

Grand Trunk Railway Betterments, Construction, Etc.

Lachine, Jacques Cartier and Maison-neuve Ry.—The Board of Railway Commissioners, on Feb. 15, granted the company permission to carry its tracks over those of the Montreal Tramways Co., to connect its projected line with the G.T.R. near Jacques Cartier Jct.

Track Elevation in Montreal.—The consideration of the question of the enlargement and modernization of the Wellington St. subway has been postponed until the general plan of G.T.R. track elevation from Bonaventure Station to St. Henri is settled.

Peterborough and Chemong Lake Branch.—The City of Peterborough is asking the Ontario Legislature to authorize the making of an arrangement with the G.T.R. for a lease to the Canadian General Electric Co. of a portion of the right of way of the Peterborough and Chemong branch line, as a right of way for a testing track for electric locomotives. This branch line extends from Peterborough to Bridgorth, and has not been operated for a number of years.

Hamilton Improvements.—It is said that some considerable improvements are to be made at the King St. station in the near future. The matter was discussed between J. H. Gordon, G.T.R. Superintendent, and the city officials, Jan. 30. The question of building the subway at Kenilworth Ave. was also discussed.

Guelph, Ont.—Press reports state that arrangements are being made for the establishment of a divisional point at Guelph. (Feb., pg. 64.)

The G. T. R. is reported to have taken special precautions for the safeguarding of its shipping facilities at Portland, Me., and its railway bridges and connections between that point and the International Boundary, in view of the report that a plot had been formed in California, to destroy the same, and that four men were on their way to carry it out.

The Intercolonial Ry. Efficiency Association at its usual monthly meeting, at Sydney, N. S., Feb. 7, dealt with a number of questions under the operating rules relating to train operation. A. C. Barker, Inspector of Stations, Trains and Train Dispatching, Canadian Government Railways, attended, and explained a number of the details which were not clearly understood.

An Arbitration Board has been appointed, consisting of Justice Hyndman, Edmonton, Alta., Chairman, and O. M. Biggar, K.C., and Wm. McAdams, Edmonton, to enquire into the dispute between the Edmonton, Dunvegan and British Columbia Ry. and its shop employes at West Edmonton. The trouble relates to a proposed reduction in wages.

The Quebec Cartage and Transfer Co.'s annual meeting was held at Quebec, Feb. 9. The officers and directors for the current year are: President, Hon. R. Turner; Vice President, C. J. Baillargeon; other directors, Hon. A. Turgeon, H. D. Barry, Jules Hone, J. T. Ross and N. Belleau. R. L. Jess is Manager.

The Toronto, Hamilton and Buffalo Ry. Freight Department held its seventh annual dinner at Burlington, Ont., Feb. 10. Addresses relating to railway work were given and discussed.

Central Railway & Engineering Club of Canada.—C. McNair, representative, Galena Signal Oil Co., read a paper on lubrication before the club at Toronto, Feb. 23.

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PRINCIPAL CONTENTS.

Appointments, Transportation	99
Birthdays of Transportation Men	91
Board of Railway Commissioners,—	
Traffic Orders	100
Canadian Northern Ry. Construction	102
Report	88
Canadian Pacific Ry. Construction	96
Capacity of Single Track Railway	81
Commodity Rates to U. S. Pacific Terminals	95
Electric Railway Department	103 to 108
Cape Breton Electric Co.'s Report	105
Car Straightening Frame	103
Finance, Meetings, Etc.	107
Halifax Tramway Co.'s Report	105
Jitney Omnibus Situation	106
London and Port Stanley Ry. Electric Locomotives	105
London St. Ry. Report	104
Ottawa Traction Co.'s Meeting	104
Portable Oxy-Acetylene Plant	103
Projects	108
Saskatoon Street Railway Situation	105
Toronto and Its Electric Railway Franchises	104
Toronto Ry. Overcrowding	103
Report	105
Freight Rates, Application for Increase ..	30
Grain in Store at Terminal Elevators, Etc.	93
Grand Trunk Ry. Betterments	100
Great Northern Ry. Lines in Canada	102
Locomotive Feed Water Heating	93
Mainly About Railway People	97
Marine Department	109 to 116
Canadian Lakes Protective Association ..	109
Dominion Marine Association	111
Great Lakes Protective Association	113
Vessels Registered	112
National Transcontinental Ry. Construction	102
Passenger Rate Meetings at Toronto	92
Passenger Rates Increased in the United States	93
Railway Development	94
Railway Earnings	90
Railway Finance, Meetings, Etc.	95
Railway Mechanical Methods and Devices	86, 87
Railway Rolling Stock Notes	96
Spark Arresters for Locomotives	87, 91
Taxation, Special Dominion	92

General Construction Work on Western Lines. Rogers Pass Tunnel Construction Progress.

Grant Hall, Vice President and General Manager, Western Lines, C.P.R., has made the following statement regarding the works undertaken by the company during recent years:—"Since 1908 the C.P.R. has in the West taken over for operation 3,088 miles of new lines. These figures include the portion of the Kettle Valley Ry., from Midway to Merrit, which we will probably commence to operate under lease during next summer. In the same period we have taken over for operation 789 miles of second track, and have completely rebuilt the lines between MacLeod and Lethbridge, Alta., and between Field and Hector, B.C. Practically every terminal we have has been rebuilt, including Vancouver. A new terminal has been built at Transcona, and a double track cut-off constructed around the city of Winnipeg. We have built very large high level bridges at Lethbridge and Edmonton, and have built new passenger stations at many points, notably Fort William, Regina, Calgary, Edmonton, Banff, Lake Louise and Vancouver. The Ogden shops have been built, hotels constructed at Calgary and Balfour, and extensive additions made at Banff, Lake Louise, Winnipeg and Vancouver hotels. This brief survey of work done does not include extensive improvements to the track and roadbed, but will sufficiently demonstrate the fact that the past seven years have been busy ones.

"It would hardly be expected that the work of construction and reconstruction would continue at such a breathless pace, and the quieter business conditions will be reflected this year in our programme. It is the intention to push ahead vigorously the work on the Rogers Pass tunnel, the magnitude of which is probably not fully grasped by many. The task of piercing the Selkirks is one of the most formidable we ever tackled, but is progressing most favorably. Its progress is being watched with interest by engineers all over the world, as special problems have been met, and, we believe, satisfactorily solved. The extensions to Winnipeg station will also be pushed vigorously, and the general scheme will now begin to unfold itself day by day as the work progresses. It is our intention to spend a considerable sum on betterments on operated lines, notably in the way of building stockyards at small centres. This we are doing with a view to the encouragement of mixed farming and stock raising, in which we are greatly interested. We are not pressing this year the construction of new lines or double tracking, outside of the Rogers Pass tunnel, which is a part of our general scheme of double tracking, but if crop prospects and other business conditions appear favorable early in the summer, there may be some revision of our estimates in connection with such work."

The Largest Simple Locomotive yet built has been delivered at the Panama Pacific Exposition grounds at San Francisco, where it forms part of the exhibit of the Chicago, Burlington & Quincy Rd. It is 88 ft. long over all, weighs 206.9 tons and is fitted with automatic stoking apparatus, both steam and air power reverses and electric generating set. It was accompanied across the continent from Philadelphia by an attendant who converted the tender into temporary quarters with separate cooking and sleeping apartments. Hauling it as freight cost more than \$1,000 and the journey occupied 37 days owing to the necessity of routing it over lines whose curves were not too sharp for its long rigid wheelbase.

Following is the footage made in January for the headings in the C. P. R. Rogers Pass tunnel:

East end centre heading, 443 ft., schist and quartzite.
East end pioneer heading, 594 ft., schist and quartzite.
West end centre heading, 701 ft., slate and quartzite.
West end pioneer heading, 932 ft., slate.

The latter is 122 feet over the American record established by the Canadian Northern Mount Royal tunnel heading, and will probably stand as the new American record for many years. A. C. Dennis, M. Can. Soc. C. E., is Superintendent for the contractors, Foley Bros., Welch & Stewart. Jos. Murphy is Assistant Superintendent on east end, and Jos. Fowler is Assistant Superintendent on west end, with W. Fowler and J. Young as walkers and A. Adams, J. Stewart and D. Hamer as shift foremen on pioneer heading.

G. H. King, Car Inspector, G.T.R., Palmerston, Ont., writes: "I think Canadian Railway and Marine World is a good publication for any railway man."

T. McHattie, Master Mechanic, G. T. R., Montreal, in renewing his subscription, writes:—"I find the matter contained in Canadian Railway and Marine World interesting and instructive each month, in fact more so than in any other technical journal that comes to me. I wish you continued success."

The Manitoba Public Utilities Commission has issued six orders affecting the Winnipeg Electric Ry. The first provides for the purchase of a sufficient number of fire hose, bridges for use on the tracks at fires, and also that such bridges shall be carried by the fire apparatus so as to be available for use by the street cars at all times. The second provides for the regulation of the company's employees' watches; the third for the inspection and control of waiting rooms and shelters; the fourth that the company shall so arrange signs on the front and side of cars so that the immediate destination of the cars shall be shown; the fifth that cars going to the barns shall be indicated, but passengers may ride in such cars; and the last order relaxes the previous order relating to the measure of protection to be afforded at the St. James St. subway by directing the installation of the General Railway Signal Co.'s light signal. The company is asking for a reconsideration of the fourth order.

Toronto Ry. Stub Line Operation to Exhibition Camp.—During the Canadian National Exhibition at Toronto each autumn the Toronto Ry. operates its cars along Dufferin St. to the Exhibition Park, from Queen and King Sts. Latterly the park is being used as a military camp and training ground, and a section of the local press has been castigating the company for not operating a service over the line. Following this the City Council wrote to the Ontario Railway and Municipal Board, calling its attention to the lack of service and asking for an order for such service to be put in force forthwith. The Board took the matter up with the company, from which a reply was received to the effect that no application had ever been made for the service until the Board brought it up, that the company had previously offered to put on such service, and all the Board need do was simply to mention it in order to obtain what was desired. The company's position in this matter was grossly misrepresented by the local press.

Canadian Northern Railway Construction, Betterments, Etc.

Montreal Tunnel and Terminal Co.—Sir Donald Mann, Vice President, is reported to have stated, after a recent inspection of the work at the tunnel under Mount Royal, Montreal, that at the present rate of progress it will be completed to the full double track width by the end of April, and will be ready for operation in the early autumn. The power house at the back of the tunnel is reported completed, and the erection of the Mount Royal Heights station is being proceeded with.

Montreal-Ottawa-Port Arthur Line.—The work of finishing up the stretches of the line from Montreal to Hawkesbury, and from Ottawa to Capreol, are being proceeded with, and it is expected to have the whole of this ready for the through operation of trains by the autumn.

It is expected that a through train service will be put in operation between Toronto and Port Arthur in June. There is a train service already in operation from Toronto to Ruel.

Ontario-Niagara Connecting Bridge Co.—The President of the United States has signed a measure providing for the building of a bridge across the Niagara River, just north of Niagara Falls, N.Y. F. A. Dudley, Niagara Falls, N.Y., is one of the incorporators. The Dominion Parliament is being asked to incorporate a company for the Canadian part of the undertaking. The Canadian Northern Ry. interests are said to be behind the project.

Canadian Northern Ry.—Following the defeat of the C.N.R. bylaw by the ratepayers at the January municipal elections, negotiations were opened for a compromise, and the Mayor reported that M. H. MacLeod, General Manager, and other officers, were going to Port Arthur to discuss the situation, and he hoped that the new proposals to be made would result in a settlement being effected.

A press report, Feb. 15, states that work was begun that morning on the extensior of the coal dock controlled by the company at Port Arthur. The work to be done includes the placing of solid concrete abutments for foundations at the coal hoists, and the facing of the dock with concrete. The cost is estimated at \$30,000. The contractors are the Barnett and McQueen Co.

The Manitoba Legislature is being asked to increase the capital stock of the Winnipeg River Ry. Co. from \$50,000 to \$500,000. This is a subsidiary of the C.N.R., and has power to build a line from Lac du Bonnet along the Winnipeg River valley for 10 miles.

The Board of Railway Commissioners has authorized the opening for traffic of the line from a junction with the Camrose-Strathcona line to a junction with the Edmonton, Yukon and Pacific Ry. at Strathcona, Alberta, 0.6 of a mile.

Canadian Northern Pacific Ry.—The last rail on the line between the B. C. eastern boundary near Yellowhead Pass and Port Mann, was laid Jan. 25, at Basque, on the North Thompson River, 188 miles north easterly from Port Mann. It is expected to have the ballasting and other work so far completed by May 1 that the formal ceremony of driving the last spike may take place then, though possibly a through train service will not be started until July or August. All the bridges, with the exception of that at Wallachin, have been completed, and a temporary bridge has been erected there.

Nothing definite has been settled as to the construction of the line from Port Mann to the False Creek terminus in Van-

couver, 15 miles. According to the agreement with the Vancouver City Council, all the terminal work has to be completed within five years from the signing of the document, about two years ago. The company owns about 164 acres at the upper end of False Creek, and is reclaiming about 60 acres of the creek. It has erected a large bulkhead for 1,500 ft. easterly from the Morris St. bridge, then 2,000 ft. southerly, behind which has been pumped about 1,000,000 cubic yards of sand. A large culvert for drainage purposes has been constructed to deep water. This work of continuing the filling in was restarted Feb. 1, but nothing has been decided as to the actual start on building the permanent sea wall. The Vancouver City Council has passed a resolution urging the immediate putting in hand of this work.

The members of the British Columbia Legislature were given a special trip over the section of the C.N.P.R., from Port Mann to Cisco, 140 miles, Feb. 12. T. H. White, Chief Engineer; D. O. Lewis, Divisional Engineer on Vancouver Island; and J. M. Mercer, engineer for the Northern Construction Co., accompanied them.

The British Columbia Minister of Finance, replying to a question in the Legislature, Feb. 1, said none of the Canadian Northern Pacific Terminal bonds guaranteed by the Province had been hypothecated, but bonds to the value of \$1,770,000 had been sold, realizing \$1,645,577. The prices realized ranged from 92 to 95%. The following amounts had been expended upon terminals:—Port Mann, \$337,420.88; New Westminster, \$1,370,642.42; Vancouver, \$148,045.05; Steveston, \$201,715.85; Patricia Bay, \$898.57; total, \$2,148,722.77. (Feb., pg. 60.)

National Transcontinental Railway Construction.

The total track mileage of the N.T.R. is as follows:—Main line, Moncton, N.B., to Winnipeg, Man., 1,803.42 miles; second track and line from Quebec to site of Quebec bridge, 20.79 miles; sidings and yards, 423.26 miles; total track mileage, 2,247.47. The total cost of the line, to Mar. 31, 1914, as stated in the ninth annual report of the Commissioners, was \$142,967,999.02, which does not include interest on capital expenditure, nor any expenditure made by the Government on the approaches to the Quebec bridge, before that work was taken over as a part of the N.T.R. undertaking. At that date the steel bridges on the line were 97.2% completed, the Quebec bridge being regarded as a separate undertaking. Since the date of the report, the bridge work has been practically finished, and the other finishing up work has been practically completed. The fitting up of the shops and the provision of other equipment for operation is being proceeded with.

We are officially advised that the contract for the erection of nine travelling cranes for the Leonard shops, Quebec, has been awarded to the Dominion Bridge Co., Montreal.

The estimates for this year, which have been laid before the House of Commons, include the following items:—N.T.R. construction, \$5,000,000; Quebec Bridge construction, \$3,500,000, and towards the construction of a railway to connect Montreal with the National Transcontinental Railway, \$750,000 (revote). (Jan., pg. 19.)

Divisional shop forces on railways have demanded a considerable reorganization during the past few years with the advent of the newer types and arrangement of running gear and valve motions, from a resulting new maintenance situation.

Great Northern Railway Lines in Canada.

Vancouver, Victoria and Eastern Ry. and Navigation Co.—J. H. Kennedy, Chief Engineer, visited St. Paul, Minn., Feb. 6, to consult A. H. Hogeland, Chief Engineer, G.N.R., in connection with the Hope Mountain and other sections of the line at present under construction. The first section connects up the already constructed part of the line with the Hope Mountain section, which is being built by the Kettle Valley Ry. for joint use. The line from Hope to a junction with the Canadian Northern Pacific Ry. has already been built, and the V. V. & E. Ry. operates over that line to New Westminster, where connection is made with its own lines to Vancouver, Port Guichon and the ferry to Vancouver Island, and the line formerly known as the New Westminster Southern Ry. to the U.S.

Vancouver Terminals.—R. Budd, Assistant to the President, G.N.R., and G. R. Martin, Comptroller, left Vancouver, B.C., Feb. 4, after having spent some time there in discussing the False Creek terminal plans. The agreement with the city provides for the erection of station buildings, the laying out of yards and other terminal facilities by the end of 1916. Up to the present time, several hundred acres of the False Creek flats have been filled in under the terms of the agreement, and the visit of the company's officials had to do with the arrangements for starting building operations. The city council passed a resolution calling upon the company to proceed with the building of the station and the laying out of the terminal yards at once. (Feb., pg. 61.)

Canadian Shipping and the German Submarine Menace.—In common with the ship owners of Great Britain, those of Canada, while appreciating the possibility of some damage to their vessels, or even an occasional total loss, are not in any sense panic stricken, at the recent German threat to carry on a wholesale attack against all vessels trading to and from Great Britain and Ireland. The consensus of opinion amongst Canadian shipowners is that there is no more danger than there was a month ago.

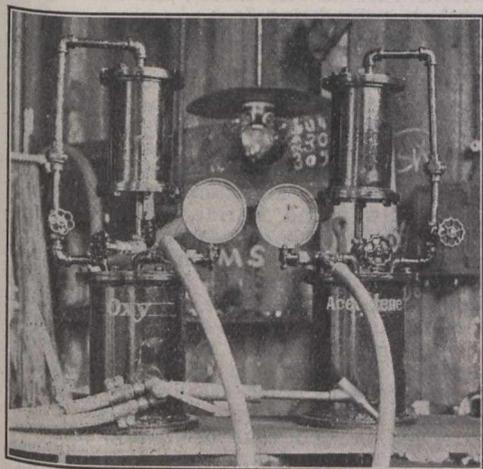
The United States and the Proposed Purchase of Interned Foreign Steamships.—In connection with the ship purchase bill which Congress has passed recently, the U. S. Secretary of the Treasury has stated that in view of false rumors and statements he deems it advisable to say that at no time had a communication from, or discussion with any banking house or institution, in or out of the U.S., been had, in connection with the purchase, sale or disposition in any manner whatsoever, of the German vessels interned in U. S. ports or elsewhere, or in connection with any other vessels of belligerent or neutral nations for any purpose whatever.

British Government Sells German Vessels.—In accordance with the recent announcement, the British Government has sold five of the German vessels captured since the commencement of the war. The vessels, their purchasers and the amounts realized, are as follows:—Schlesien, Thomas Sons and Co., London and Liverpool, £65,200; Ulla Boog, J. W. Baird and Co., West Hartlepool, £23,150; Marie Glaeser, J. W. Baird and Co., West Hartlepool, £18,225; Franz Horn, F. Jones and Co., Cardiff, £11,600; and Nauta, Roberts and Cooper, Brierley Hill, £12,550. Later, another German vessel, Wilhelm Behrens, was sold to A. Calbert, Goole, for £11,550. Under the conditions of sale, only 25% of the purchase price need be paid immediately, the balance being spread over three years at 4%.

Electric Railway Department

Portable Oxy-acetylene Plant in Dominion Power and Transmission Co.'s Shops.

A portable oxy-acetylene plant for general shop use, a view of which is shown herewith, was built in January for service around the Dominion Power and Transmission Co.'s shops, at Hamilton, Ont. There are two distinct generators, both of the same size and design, one for generating acetylene, and the other for oxygen. Each generator consists of a lower cylinder made of 6 in. steel tubing, flanged top and bottom, and with cover plates, and a similar cylinder of 4 in. steel tubing, flanged and with cover plates mounted above. The lower cylinder is the generator, and the upper cylinder, the water reservoir. In the lower cylinder, there is a basket arrangement containing the chemicals from which the gases are generated. Between the two cylinders there is a ¼ in. pipe, with globe valve, which permits the water to trickle down in the desired quantity from the water reservoir above. Connecting the tops of the two cylinders, there is a ¼ in. pipe by-pass, with globe valve, by opening which the pres-



Portable Oxy-Acetylene Outfit.

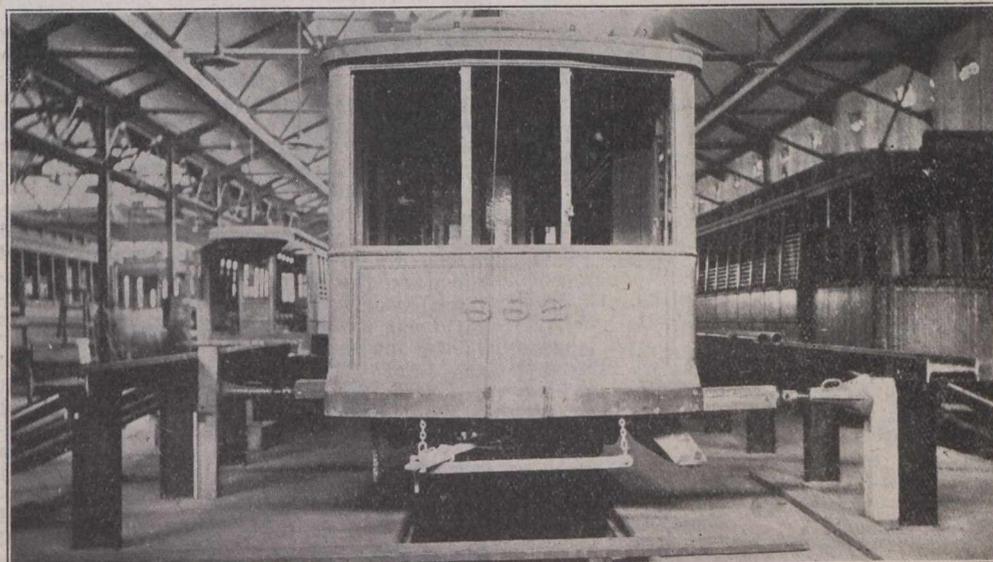
sure in the two cylinders is equalized, thereby permitting the water to drain out of the reservoir. Attached to the top of the lower cylinder, there is a small pressure gauge. The gas is drawn off through the top of this cylinder.

For generating the oxygen, peroxide of sodium is used, and for the acetylene, calcium carbide, the combination of water with each of which produces the respective gases. The baskets in each of the lower cylinders are filled by removing the lid of the lower cylinder. Similarly with the water above. The two gases are combined in a torch, which communicates with the cylinders by a rubber hose. We are indebted to J. O. Binkley, Shop Superintendent, for this information.

The Board of Railway Commissioners has approved a clearance of 7¼ ins. for the poles on the electrified London and Port Stanley Ry. This applies to the 150 poles already erected, the clearance for the balance of the poles has been approved at 7½ ft. The Board's standard regulations for clearance of this kind calls for 8 ft. between the trolley wire and the pole, but owing to the great expense necessary to meet this change, a special privilege has been granted in this case.

Car Straightening Frame, Montreal Tramways Company's Shops.

In the M. T. Co.'s new shops at Youville, a suburb of Montreal, which were described in Canadian Railway and Marine World, Mar. 1913, provision was made over one of the row of car hoist pits, for a car straightening frame, to remove any warps or bends which might develop in the steel equipment used, through collisions or accidents. This frame, with a car in it, is shown in the accompanying illustration. The frame consists of a row of five I beam posts set vertically in the concrete floor about 8 ft. each side of the car track, rising to a height of about 3½ ft., with a similar heavy I beam extending along the top of these vertical posts, overhanging slightly at the end posts. The car body to be straightened is run in on the track, and by means of screw jacks and blocking from these posts applied at the required points on the car frame, the body can be straightened out. We are indebted to D. E. Blair, Superintendent of Rolling Stock,



Steel Car Straightening Frame in Montreal Tramways Co. Shops.

Montreal Tramways Co., for this information.

The new requirements of steel equipment in maintenance, have been felt by both electric and steam roads, different methods being required to keep the equipment in a state of repair. Steel equipment, when injured, usually bends or twists, whereas similar shocks to wooden equipment tend to break the frame members, requiring replacement. For straightening out the steel frame box cars now in general use on the system, the C.P.R. has in service at least two frames, one of which was described in Canadian Railway and Marine World, Nov. 1913.

Experiments with Front End Collection.—Desiring to get its cars through the congested district in shorter time during rush hours, between 4 and 6 p. m., the Detroit United Ry. is experimenting with the front end collection system and finds it is working satisfactorily. Passengers who have the exact fare ready board the car in the front, but when transfer tickets or change are required the passengers must board the car in the rear.

Overcrowding on the Toronto Railway.

The conviction of the Toronto Ry. Co., in Nov., 1914, for overcrowding its cars, when sentence was suspended pending the disposition of a stated case in the Appeal Court, has been responsible for the preparation of a draft bylaw by the company for the approval of the Ontario Railway and Municipal Board, limiting the number of passengers which the company may carry on any of its cars. Following is the draft of the bylaw as submitted to the Board:—

"Whereas complaints have been made that the cars of the company in operation in the city of Toronto have been overcrowded, and whereas the company is desirous of avoiding overcrowding upon its cars, and of regulating the number of passengers to be carried thereon, and whereas the City Council on May 4, 1895, adopted the following recommendation of the City Engineer:—

"I beg to recommend and determine, under the requirements of clause 38 of the contract and agreement between the Toronto Ry. Co. and the city, that the carrying capacity of closed cars be limited to 50% above the seating

capacity (allowing a space of 18 ins. on the seat for each person), and that open cars be limited to their seating capacity. In order to avoid disputes, notices should be placed in each car, stating the exact number of passengers it is allowed to carry."

"Be it therefore enacted, That in the operation of the company's railway, that the carrying capacity of closed cars be limited to 50% above seating capacity (allowing a space of 18 ins. on the seat for each person), and that the carrying capacity of open cars be limited to the seating capacity."

The Board at a sitting on Feb. 12 approved of the draft on the understanding that the bylaw be redrafted, that it do not become operative until a date to be fixed, and that the company adopt a device to show when the cars are full. This decision was given by the Chairman, D. M. McIntyre, K.C., with the concurrence of H. N. Kitson, the Vice Chairman, A. B. Ingram, dissenting. The Chairman said that it was clearly the company's duty to carry out the law as indicated by the courts and it was the Board's duty to support the company in doing so. The question came up as to whether it was practicable to enforce this bylaw, and whether there should not be certain physical barriers or mechanical devices. The disposition was

Toronto and Its Electric Railway Franchises.

to approve the bylaw subject to the condition that immediately on it coming into force some machinery should be devised notifying the public when, in the opinion of the officials and the company operating the car, the car was legally full, and if it is found that the company reports or the city reports that it is impossible to enforce the bylaw, resting merely on a notification to the public that the car is full, and trusting to their obedience and instinct not to violate the bylaw, then the Board must reserve to itself the right to require the company to adopt some physical means, the erection of gates or barriers of some kind controlled by the employe in charge of the car.

Vice Chairman Ingram, in dissenting, said:—"I have satisfied myself that unless gates or doors are provided, worked by motormen or conductors, it is utterly impossible to carry out this bylaw without creating a good deal of dissatisfaction. As soon as the company makes these alterations in its rolling stock, I am quite willing to support a bylaw of this character. I would be glad indeed if that could be done as soon as possible. Otherwise I cannot see my way to support this bylaw at this particular stage."

The London Street Railway Company's Annual Report.

The 40th annual report for the calendar year 1914 shows the following results:—

	1913.	1914.
EARNINGS:—		
Earnings—Passengers ..	\$327,075.64	\$370,915.62
" Miscellaneous ..	4,890.92	4,979.66
Gross earnings	\$331,966.56	\$375,895.28
EXPENSES:—		
Maintenance:—		
Way and Structures ..	\$26,539.70	\$31,732.73
Equipment	30,306.91	34,669.66
Transportation:—		
Power	45,992.83	42,291.79
Car service	99,817.00	123,796.29
General	32,260.15	35,410.36
Total operating expenses ..	\$234,916.59	\$267,900.83
Net earnings	\$97,049.97	\$107,994.45
Interest on bonds	\$28,848.00	\$31,908.59
Interest on overdraft ..	265.79	40.35
Total Deductions	\$29,113.79	\$31,948.94
Net income	\$67,936.18	\$76,045.51

\$47,911.77 was expended in construction and equipment.

COMPARATIVE STATISTICS.

	1913.	1914.
Expenses, per cent. of earnings	70.07	71.02
Net income, per cent. of capital	12.22	13.6
Passengers carried	1,462,562	1,697,963
Car earnings per passenger ..	3.12c	3.09c
Car mileage	1,583,840	1,908,175
Gross earnings, per car mile	20.96c	19.69c
Operating expenses, per car mile	14.83c	14.03c
Net earnings, per car mile ..	6.13c	5.66c
Miles of track	34.97	35.19
Gross earnings, per mile of track	\$9,492.89	\$10,681.88

The directors for the current year are:— E. W. Moore, Cleveland, O., President; T. H. Smallman, London, Ont., Vice President; P. W. D. Broderick, Toronto; Sir Herbert Holt, Montreal; W. M. Spencer, C. H. Ivey and C. B. King, London, Ont. The only change made was consequent on the retirement of H. A. Everett, Willoughby, O., who has been President for many years, his place on the board being taken by C. B. King, Manager. G. G. Holding is Secretary-Treasurer.

Following on the declaration of the Mayor of Toronto in his inaugural address to the City Council recently, and the recent judgment of the Imperial Privy Council in connection with the Toronto Suburban Ry. Co.'s appeal relative to track repairs on its Davenport Road line within the city limits, the city is applying to the Ontario Legislature for legislation declaring that the true meaning of the agreement of Sept. 4, 1899, between York Tp., and the Toronto Suburban Ry. Co., as set forth in chap. 124, Vic. 63, is that the company is obliged to keep clean and in proper repair and to build a new roadway or pavement on the part of Bathurst St. and Davenport Road, occupied by and between the rails and for 18 ins. on each side of the rail or rails, and that such new roadway or pavement shall be of a character similar to that built or to be built upon the other portion of the said highways by the municipality having jurisdiction over said highways, and that in default of the company keeping clean and in proper repair, and building a new roadway or pavement on the portion of the said highways when requested to do so by the city the work may be done by the city at the company's expense. It is also desired that a declaration be made that the word "tracks" wherever used in the agreement shall include the roadway or roadbed on which the rails are placed, between the rails and 18 ins. outside of each rail. The effect of this legislation would be to nullify the judgment of the Privy Council, as published in Canadian Railway and Marine World for February, which stated that the Ontario Railway and Municipal Board had no jurisdiction to make an order on the company to lay a new pavement of a kind which did not exist and was not provided for when the agreement was originally entered into, and the Supreme Court of Ontario was wrong in affirming that order. As to the interpretation of the word "tracks," the Lord Chancellor said that they could not give the wide meaning placed on it by the lower court, which extended it not only to the rails, but to the ground occupied not only between the rails but up to 18 ins. on each side, and they think that the words in the section referred to indicate an interpretation of a more restricted and literal kind and exclude the general roadway itself as distinguished from the rails, etc., laid upon it.

Authority is also being asked for the city to expropriate and take over the portion of the Toronto Suburban Ry. and the company's real property within the city limits and such personal property in connection therewith, as the Ontario Railway and Municipal Board may fix, upon payment of its value to be determined by arbitration by the Board, and that in determining such value, the franchise or control of the tracks upon the highways shall not be estimated as of any value whatever, and also to declare that the Toronto Suburban Ry. Co.'s rights and privileges to operate railways or to exercise any other franchise rights within the city limits are cancelled and forfeited.

So far as the Toronto Ry. is concerned, the Legislature is being asked to declare that the proper construction of the agreement between the City of Toronto and G. W. Kiely, of Sept. 1, 1891, as set forth in chap. 99, Vic. 55, and the award, conditions and bylaw attached thereto, is that in respect to what new lines shall be established and laid down and tracks and services extended by the company, whether on streets in the city as existing at the date of the agreement or as afterwards extended, it is for the city and not the company to determine and direct what new lines shall

be established and tracks and services extended, and further that the privilege to the city to grant to any person or company for failure of the company to establish new lines and open same for traffic, is not the only remedy the city can claim, but it may, in addition, build and operate such lines, and that the company shall pay the cost of construction and operating, and that the city may collect such cost by distress on the company's property, and for imposing a penalty of \$1,000 a day for failure to comply with the requirements of any such bylaw as above provided for. Authority is also being asked by the city to compel the Toronto Ry. Co. to build and equip 13 miles of new track within the city limits and to build and place in operation 180 new cars to afford adequate and proper street car accommodation for citizens.

The city is also applying for an amendment to the Ontario Railway Act to provide that no greater sum than 5c may be charged on any street railway as fare within the limits of an urban municipality, and also for such legislation as may be necessary to provide that 5c. be the maximum fare upon the Metropolitan Ry. to and from points within the city limits. On the Toronto and York Radial Ry's. Metropolitan Division there are four miles of the line within Toronto city limits, the fare to the farthest point being 7c.

The question of the Toronto Ry. building approximately 13 miles of new track, along with other recommendations as to connections and track repairs, with additional new and rebuilt cars, was dealt with in a report on the conditions made, at the instance of the Ontario Railway and Municipal Board, by C. R. Barnes, and summarized in Canadian Railway and Marine World for July, 1914. The Board's opinion or judgment on this was published in full in our Dec., 1914, issue. The matter came before the Board again, Feb. 9, when the company applied for an extension of the time within which it may carry out some of the work recommended. The time for the construction of the new tracks was extended to July, but the time for equipping 50 new cars was not extended beyond that originally set, viz., June 1. The company's counsel stated that the cars could not be completed by the time stated and he would have to ask for an extension later. Lack of available funds for the work was given as the chief cause of the inability to comply with the Board's requirements.

Ottawa Traction Co's. Annual Meeting.

This company's first annual meeting was held in Ottawa, Feb. 1. The report, including the Ottawa Electric Ry. Co.'s operations, which appears in full on pg. 118 of this issue, shows that notwithstanding the business stringency during the greater portion of the year, and the war during the last five months of it, every month showed an increase in gross receipts, the net earnings also increasing.

The directors were re-elected.

The percentage of operating expenses to gross receipts, compares as follows, for various years,—1899, 57%, 1900, 57%, 1901, 63%, 1902, 60%; 1903, 61 4-5%; 1904, 62%; 1905, 59 2-5%; 1906, 57 4-5%; 1907, 59 4-5%; 1908, 66 2-5%; 1909, 63 1/2%; 1910, 63%, 1911, 57 2-5%; 1912, 57 1-5%; 1913, 60 2-5%; 1914, 60 3-5%.

Following is a comparison of the number of passengers carried:—1894, 2,797,281; 1904, 8,717,205; 1914, 25,321,547.

Toronto Railway Co's. Annual Report.

The report for the calendar year 1914, presented at the annual meeting, Feb. 3, says that the operations for the year do not show the usual increases, but when taking into consideration the conditions which prevailed in the early part of the year, when business generally was suffering from general depression, and latterly from the effects of the European war, the results must be considered satisfactory.

Gross earnings were	\$6,127,096.77
Charges for operating, maintenance, etc.	3,529,546.22
Net earnings	\$2,597,550.55
Dividends	\$923,901.31
Bond interest, etc.	182,499.85
	\$1,106,401.16
Payments to city:—	
Percentage on earnings	\$955,740.24
Pavement charges	95,756.96
General taxes	71,416.46
	1,122,913.66
	\$2,229,314.82

The passenger earnings, \$6,043,512.15, increased \$62,816.27 over 1913. The various charges against the earnings for operation, maintenance, etc., were \$3,529,546.22, or 58.4% of said earnings, an increase of 6.2%.

The payments made to the city were \$1,122,913.66, an increase of \$33,205.60.

Four quarterly dividends of 2% each were paid.

Passengers carried 152,966,153, against 151,263,925 in 1913. Transfers 65,778,022, against 63,083,118.

The percentage of charges, etc., to passenger earnings, 58.4, is the highest of any year for which figures are given, the record for 11 years being:—1904, 58.2; 1905, 56.8; 1906, 52.9; 1907, 53.09; 1908, 52.9; 1909, 51.4; 1910, 51.6; 1911, 55.2; 1912, 53.4; 1913, 52.2; 1914, 58.4.

The directors, who were re-elected, are:—Sir Wm. Mackenzie, President; Frederic Nicholls, Vice President; Sir Rodolphe Forget, Sir Henry Pellatt, Jas. Gunn, W. D. Matthews, E. R. Wood.

The Street Railway Situation in Saskatoon.

A report on the street railway situation prepared by the commissioners has been under discussion by the Saskatoon, Sask., City Council. The report states that the total capital debt of the city in respect of the street railway, incurred and authorized, is \$725,000. The estimated cost of extending the railway from Second Ave. along Twenty-Fifth St., across the new bridge to connect with the street railway to Clarence Ave., is \$58,250; and the estimated cost of extending the railway through the Nineteenth St. subway to connect at the corner of Twentieth St. and Avenue A is \$79,143. The total debt of Saskatoon is \$6,159,153 or \$205 per capita, or deducting local indebtedness, \$114 per capita.

In discussing the manner in which the deficit on the system may be reduced, it is pointed out that \$56,000 has been allowed in the estimates for wages. The following is an approximate saving of wages if any of the schedules quoted were adopted in Saskatoon; Winnipeg rates, \$9,000; Vancouver rates, \$8,500; Moose Jaw rates, 10 per cent. off, \$9,900; Lethbridge, \$10,456; Edmonton, \$4,200; Calgary, increase, \$1,000.

The report concludes with three recommendations: 1. That the present rates for motormen and conductors be cancelled and a new schedule of rates in accordance with one of the cities quoted in the report be adopted, and that the bylaw be amended accordingly. 2. That, as previously recom-

mended, an experienced street railway superintendent be appointed, and the Electrical Engineer's superintendence be discontinued. 3. That the power rate to be charged by electrical power and light department for 1915 be 1½ cts. per k.w.h.

At a council meeting held Jan. 26, it was decided to employ an expert street railway man to take charge of the operation of the system; to reduce the charge for power from 2 cts. to 1½ cts. per k.w.h. A special committee was appointed to meet representatives of the employes to discuss the question of the adjustment of the schedule of wages so as to bring it into harmony with the rates paid in other cities.

The annual statement of the City Auditor for 1914 shows that the surplus on the operations of the railway was \$33,477.56.

At another council meeting, held Feb. 1, the following new wage schedule, to come into operation at once, was adopted:—26 cts. an hour for the first six months, 28 cts. for the second six months, 33 cts. for the second year, and 35 cts. for subsequent years. Coupled with the reduction is the rescinding of the suggestion made last September that the regular men lay off occasionally in order to provide more work for the spares. An amendment to bring the new schedule in operation May 15 was defeated.

The council also decided to continue the ticket system for another month.

Following are the audited figures covering the operations of the line for 1914, in comparison with 1913:—

Operating charges:—	1914.	1913.
Total revenue	\$153,972.66	\$158,947.33
Operating expenses ..	134,360.74	137,334.11
Excess of revenue over operating expenses ..	19,611.92	\$21,163.22
Capital charges:—	1914.	1913.
Interest	\$29,926.91	\$22,632.77
Sinking fund	11,091.71	3,048.79
Depreciation	12,070.86	15,136.49
	\$53,089.48	\$40,818.05
Less profit from operating account	19,611.92	21,163.22
Total deficit on system	\$33,477.56	\$19,654.83

The operating expense per car mile in 1914 was 19.348 cts., against 21.431 cts. in 1913. The traffic receipts per car mile last year were 22.172 cts., while in 1913 they were 24.733. Total passengers carried for the year 3,242,914, against 3,401,351.

The net deficit on the Sutherland line is \$168.87, the passengers carried being 159,485.

The Mayor and Commissioner Yorath received applications for the position of Superintendent for the railway to Feb. 25.

Halifax Electric Tramways Co's Annual Report.

The report presented at the annual meeting in Halifax, Feb. 8, contained the following figures:

Tram	1914.	1913.
Power	\$319,880	\$301,771
Gas	254,045	232,554
Miscellaneous	64,678	62,076
	6,637	9,531
Total gross	\$645,241	\$605,933
Expenses	375,423	337,008
Net	\$269,818	\$268,925
Interest	30,223	30,000
Balance	\$239,594	\$238,925
Renewals, etc.	780	8,617
Balance	\$238,814	\$230,307
Dividends	112,000	112,000
Surplus	\$126,813	\$118,306

After the usual 8% dividend, \$126,813 remained to be carried forward to surplus.

against \$118,306 a year ago. Dividends were earned slightly better than twice over.

The surplus account, with \$126,813 from 1914, stands at \$921,735. The directors were re-elected.

Cape Breton Electric Co's Report.

The report for 1914 shows gross earnings \$349,893.58; operating expenses and taxes \$211,119.24; net earnings \$138,774.34; interest charges \$62,849.19; balance \$73,925.15; bond sinking and improvement funds \$14,730; net balance \$61,195.15. Dividends were paid on the 6% preferred stock, absorbing \$14,040, and a 6% dividend was paid on the common stock, \$67,500, and for these purposes the surplus was drawn on to the extent of \$20,344.85. In 1913 the gross earnings were \$380,951.86; the net earnings, after deducting operating expenses and taxes, \$170,998.54, and the balance for sinking and improvement funds, reserves, depreciation and dividends \$112,365.65.

The authorized bonds amount to \$1,500,000, of which there are outstanding \$1,027,000; in the treasury, \$6,000; cancelled for improvement fund, \$2,000, and unissued, \$465,000. They are first mortgage 30 year 5% gold, due Jan. 1, 1932. The improvement fund consists of payments of 1% per year of the bonds issued. The authorized stock is \$500,000 preferred 6% non cumulative, of which \$234,000 is outstanding; and \$1,125,000 common stock.

The company does the entire electric lighting and electric railway business in Sydney, N. S., and the entire electric lighting business in North Sydney, the ferry business between Sydney and North Sydney, and operates an interurban electric railway between North Sydney and Sydney Mines. It also owns \$220,000 of the \$398,000 outstanding first mortgage bonds, and the capital stock of the Sydney and Glace Bay Ry. Co., an interurban line of 19 miles between Sydney and Glace Bay, which is operated under lease for 99 years from Jan. 1, 1911, and it guarantees the payment of the latter company's bonds as to principal, interest and sinking fund. The General Managers of the company are the Stone and Webster Management Association, Boston, Mass., and the Manager at Sydney is E. L. Milliken.

Electric Locomotives for the London and Port Stanley Railway.

Some details of the three electric locomotives for the London and Port Stanley Ry., a general description of which appeared in Canadian Railway and Marine World for Nov., 1914, are now available. They will be of the box type, mounted on two 4 wheel trucks, the latter equipped with 36 in. rolled steel wheels. The general dimensions are as follows:—

Length inside knuckles	37 ft. 4 ins.
Length over cab	27 ft.
Height to top of locked pantograph ..	15 ft. 2 ins.
Height to top of cab	11 ft. 9½ ins.
Width over all	9 ft. 7¼ ins.
Total wheel base	26 ft. 8 ins.
Minimum radius of curvature	75 ft.
Weight, total	120,000 lbs.
Weight, electrical equipment	38,000 lbs.
Weight, airbrake and compressor	6,000 lbs.

Each locomotive will have two pantographs, supplying power to four 245 h.p. 750 volt d.c. motors, arranged two in parallel on the 1,500 volt line, and operated through a multiple unit control.

The Wentworth St. Mountain Incline Ry., Hamilton, Ont., has replaced its steam plant with an electric plant, hydro-electric power being used.

The Jitney Omnibus Situation.

Within the last few months electric railways, particularly in the Western cities of the United States, have been given a competition by what is termed the "Jitney" omnibus. The principal field of operations of the jitney has been in the Pacific coast cities from San Diego, Cal., to Vancouver, B.C., but it has extended east as far as New Orleans and Kansas and neighboring States in the United States, and an endeavor is being made to introduce it into Saskatoon, Sask. The term jitney seems to have been coined offhand, various accounts being given of its origin, and is applied indiscriminately to auto busses and to itinerant autos carrying passengers at a five cent fare upon any temporary route that seems likely to produce profits. "The expression jitney," says the Electric Railway Journal, "is said to be the side show barker's slang for a 5 ct. piece, and (as applied to this particular traffic) three months ago was hardly known outside the place of its origin, Los Angeles."

The genesis of the jitney bus seems to have been as follows: In 1914 the Pacific Motor Coach Co. was organized in Los Angeles, and 33 buses were put in operation in July. The company ran its buses mainly in competition with the Pacific Electric Ry. cars, cutting the round fare trip between Los Angeles and Venice from 50 cts. to 40 cts., and then to 25 cts. The company did an extensive business, but in time was given a competition in the shape of what is the real jitney, the 5 ct. itinerary car. As a result the Pacific Motor Coach Co. is now in liquidation with a total indebtedness of \$86,788, and assets valued at \$3,026, exclusive of cars.

The 5 ct. car competition began in Nov., 1914, and it was reported that by Christmas about 200 small cars were in operation in Los Angeles, and that the owners, who in most cases drove their own cars, were making from \$10 to \$12 a day. The idea seems to have spread with considerable rapidity, particularly in the coast cities, and in the inland cities where there was considerable tourist traffic. Different types of vehicles were used, and at present they range from the large double deck bus to the ordinary two seated touring car. In some cases the lighter motor trucks were provided with seats, and put on the streets.

It was not long before the necessity of regulating this new class of traffic became evident, and the city councils in Los Angeles, San Francisco, Oklahoma and other places put in force temporary regulations for the protection of the public. This brought about the organization of the jitney bus owners in the several cities, with a view of squeezing out the undesirable owners, and of obtaining better conditions from the councils. The regulations provided for the licensing of the cars at varying fees; the putting up of bonds for the protection of passengers from injury, etc., amounting to as high as \$10,000; and regulations as to traffic, with penalties for breaches of the rules. The result of the putting in force of the regulations was such that the traffic was practically killed in Oklahoma, and at Denver practically none but well organized companies, having considerable capital, can obtain a license.

The extent to which the traffic developed may be gathered from the report that at Jan. 30, jitneys were reported to be in operation in 39 cities in the United States; that there were 2,375 busses in operation in five of the Pacific Coast cities, and that in San Francisco alone from 15 to 20 new licenses were being issued daily. This new traffic development has been engaging the attention of the electric railway associa-

tions in the United States, as well as the city councils, and the question of the complete regulation of the traffic has been under consideration of the state legislatures in California, Kansas and Massachusetts. The San Francisco City Council is considering a proposition to operate a municipal jitney service in certain sections of the city, while the Olympia, Wash., Light and Power Co. is considering the adoption of the jitneys as an adjunct to its electric railway service.

The first jitneys in Canada appeared in Vancouver and Victoria, B.C., early in January, and they had become so numerous that on Jan. 27, the Vancouver Public Service was formed, with over 100 jitney drivers as members, and on Feb. 6, a similar association was formed in Victoria with 101 out of the 157 jitney drivers in the city as members. The councils in both cities took up the matter of the traffic at an early stage, and made temporary bylaws for its regulation, and in the case of Vancouver application was made to the British Columbia Legislature for an amendment to the city's charter of incorporation to authorize the

Canadian Electric Railway Association.

PRESIDENT—C. B. King, Manager, London Street Railway Co.

VICE PRESIDENT—James D. Fraser, Director and Secretary-Treasurer, Ottawa Electric Railway Co.

HONORARY SECRETARY-TREASURER—Acton Burrows, Managing Director, Canadian Railway and Marine World.

EXECUTIVE COMMITTEE—The President, Vice President, Secretary - Treasurer, and

E. P. Coleman, General Manager, Dominion Power and Transmission Co.

Patrick Dubee, Secretary - Treasurer, Montreal Tramways Co.

A. Eastman, General Manager, Windsor, Essex and Lake Shore Rapid Railway Co.

H. M. Hopper, General Manager and Purchasing Agent, St. John Railway Co. Wilson Phillips, Superintendent, Winnipeg Electric Railway Co.

C. L. Wilson, Assistant Manager, Toronto and York Radial Railway Co.

ASSISTANT SECRETARY—Aubrey Acton Burrows, Business Manager, Canadian Railway and Marine World.

OFFICIAL ORGAN—Canadian Railway and Marine World, Toronto.

regulation of jitneys. The Victoria City Council took steps, Feb. 11, to obtain similar powers, and the B. C. Government decided to have the Municipal Act amended in such a way as to meet the conditions arising. The three bills are being given consideration by the Legislature's Municipal Committee at the sittings of which representatives of the British Columbia Electric Ry. and of the jitney bus owners have been present.

The Auto-Public-Service Corporation of B. C. has been incorporated under the B. C. Companies Act to carry on this kind of traffic. Victoria has two women who run jitneys.

A jitney service has been started in Toronto's Rosedale suburb.

The Superintendent of the Edmonton, Alberta, power plant offered, Feb. 12, to supply power for the Edmonton Radial Ry. at 1½ cts. per k.w. hour, instead of 2 cts. as then being charged.

The Regina, Sask., City Council has issued instructions to the police to stop the practice indulged in by boys, of attaching their sleds to the electric cars, owing to the danger to the traffic, generally.

The Ottawa and St. Lawrence Electric Railway Project.

From time to time Canadian Railway and Marine World has published statements which have been put forth as to intended construction on this line, but none of which have been fulfilled and it has never been possible to obtain any complete or satisfactory information about the company from the promoters, J. A. Morden & Co., Toronto. As far as we can judge the project is still in the promotion stage and we have been unable to ascertain what its financial position is, or what its prospects are.

The following letter from W. B. Russel, M.Can.Soc.C.E. Toronto, has been published in Saturday Night: "It has come to my knowledge today for the first time, that my name has been used in connection with and as being on the advisory board of the Ottawa & St. Lawrence Electric Ry., and that in connection with some request from some one to your paper for information some months ago, my name was given as being one of the advisory board. This certainly was without my knowledge or consent, that is, I mean that the railway company had no authority to use my name in this capacity, and I am notifying them today to this effect. I would ask you to kindly state that I am not connected in any shape or form with this enterprise, and I was not aware that they were using my name as being connected with their enterprise."

Mainly About Electric Railway People.

C. W. Colvin is reported to have been appointed Transmission Engineer, British Columbia Electric Ry.

B. R. Jenkins, inventor of the Jenkins automatic fender for street cars, died in Toronto, Feb. 18, after two years illness.

E. Anderson, K.C., gave an address on the history and development of the Winnipeg Electric Ry., at a luncheon of the Jovian Order, at Winnipeg, recently.

E. A. Evans, M. Can. Soc. C.E., formerly General Manager, Quebec Ry. Light & Power Co., has been elected Grand Master of the Quebec Grand Lodge of A. F. and A. M., for the current year.

Allan Purvis, Manager, Interurban Lines, British Columbia Electric Ry., has resigned. It is stated that a successor will not be appointed, but that the duties will be merged with those of the General Superintendent.

Lieutenant-Colonel E. W. Rathbun, President, Oshawa Ry., was given a farewell by the citizens of Deseronto, Ont., Feb. 13. He has been appointed to the command of the 6th Artillery Brigade, and will sail with the second contingent for service in Europe.

W. H. Hazlitt, who has retired from the position of Purchasing Agent, British Columbia Electric Ry., after having been in the company's service since 1900, was presented with a gold watch and chain by the staff of the general offices, Vancouver, Feb. 1.

It is reported that information has been received in Toronto as to the whereabouts of J. W. Moyes, responsible for the tangle in the construction of the Ontario West Shore Ry., and that a new warrant has been sworn out, under which he can be extradited to the Dominion. It is stated that the previous warrant did not allow of extradition proceedings being taken.

William Parker, heretofore Inspector, Hamilton St. Ry., Hamilton, Ont., has been appointed Superintendent. Since the accidental death of Duncan Miller about two

years ago, the duties of Superintendent have been carried out by J. Pearson, one of the Chief Inspectors, who now resumes his former position, and will in addition act as Assistant Superintendent.

Electric Railway Finance, Meetings, Etc.

Brantford Municipal Ry.—The new cars commenced to run in Brantford on Dec. 17 and the revenue from Dec. 18 to Jan. 16, both inclusive, was \$4,188.24, against \$3,104.21 for the corresponding period of 1913-4. These figures are for the lines in Brantford only, and do not include the Grand Valley Ry. between Brantford and Galt, as a bridge at Blue Lake was down and there was other trouble, consequent upon the bad state of the line, which affected the traffic.

Brantford Municipal Ry.—Earnings for January for city lines and interurban line Brantford to Galt, \$6,676.94.

British Columbia Electric Ry.—Gross earnings for December, \$674,063; operating expenses and maintenance \$512,663; net income \$161,400, against \$793,219 gross earnings; \$548,535 operating expenses, maintenance, etc.; \$244,684 net earnings, for Dec., 1913. Aggregate gross earnings for seven months ended Dec. 31, \$3,998,899; net earnings, \$924,331, against \$4,553,726 aggregate gross earnings; \$1,221,405 net earnings, for same period 1913.

Berlin and Waterloo St. Ry.—The report for 1914 of this municipally owned railway shows total receipts of \$72,973.69. There was a decrease of over \$4,000 from 1913, but a net profit of \$405.70 was shown for 1914, of which 75% is paid to Berlin and the balance to Waterloo.

Calgary Municipal Ry.—Total receipts for January \$47,550.86 against \$55,827.05 for January, 1914.

Calgary Municipal Ry.—The financial condition of this railway has been under discussion for some weeks by the Board of Commissioners at Calgary, Alberta. Replying to a suggestion that the system should be run as if owned by a private company, Commissioner Greaves said it was impossible, as it would involve the cutting off of service over some 10 or 20 miles of track, which the citizens would not submit to. Commissioner Garden expressed the opinion that the railway was getting the better of a private corporation in escaping paving and other charges. The matter is still under consideration.

P. S. Fitter, Publicity Commissioner, in a communication to the press on the finances of the line, points out that although the loss on operation for the 11 months ended Nov. 30, 1914, was \$44,284, during the four years operation of the line, a surplus of \$300,000 had been built up over and above all fixed charges. The loss in operation is practically on two lines only, the Bowness Park line, which the city operates in consideration of a park site which had been granted, and the other the line to the C.P.R. Ogden shops. The present loss on this latter line is \$50 a day. (Aug., 1914, pg. 384.)

Detroit United Ry.—The Board of Street Ry. Commissioners has under consideration a proposition to acquire the system of electric railways in Detroit, Mich. So far as the proposition has been discussed only the lines within the city area are included. The company owns the Sandwich, Windsor and Amherstburg Ry., operating lines in and between Windsor, Walkerville, Sandwich and Amherstburg, Ont. It was stated at the annual meeting of shareholders, Feb. 2, that a definite announcement upon the question of the proposed purchase would be made as soon as possible after the meet-

ing of the directors of the D. U. Ry. and the Municipal Commissioners, Feb. 15.

Dominion Power and Transmission Co.—A Hamilton, Ont., press dispatch says that at the annual meeting it was announced that the company had a surplus of \$65,559 after paying dividends of \$461,392. The receipts of the street railway and radial lines fell off \$106,000.

Edmonton Radial Ry.—The estimates for this year submitted to the Edmonton, Alberta, City Council, Feb. 10, contain the following respecting the E. R. Ry. Estimated receipts, \$582,000. Expenditures, maintenance, operation and power charges will be \$444,000, leaving a surplus of \$148,000 of revenue over operation alone. Fixed capital charges, however, amount to \$240,000, leaving a deficit of \$92,000, without taking into consideration the depreciation charges of \$102,000. With this included the Superintendent estimates the total deficit of the railway for this year at practically \$200,000.

Edmonton Radial Ry.—The City Auditor's report that the operating expenses for 1914 increased \$45,000 while the revenue only increased \$13,000 as against the figures for 1913, has been questioned by Commissioner Harrison and Superintendent Larmonth. The Superintendent has been instructed to make a report showing in what respect he claims the auditor's figures are not correct.

Hamilton St. Ry.—The percentage paid to the city for the three months ended Dec. 31, was \$12,702.97. The total paid during 1914 was \$54,712.08, against \$59,290.56 in 1913.

Moncton Tramways, Electricity and Gas Co.—The Eastern Trust Co. received offers recently for the sale to it, under the terms of the trust deed, bonds to the amount of \$12,000 at a price not exceeding 5% premium. The \$12,000 is at the credit of the sinking fund, and failing to receive offers of bonds, the trustees will draw bonds for redemption to the amount necessary.

Montreal Tramways Co.—Three cheques aggregating \$508,665.51 were given by the company to the Montreal City Treasurer, at the end of January. The balance of the \$603,911.57, which was claimed to be owing at Dec. 31, is in course of adjustment, which involves the consideration of the merits of a counterclaim.

Regina Municipal Ry.—Unofficial reports in Regina, Sask., are to the effect that the deficit upon the operation of the electric railway for 1914 will reach \$96,000, including debenture interest and all overhead charges. The actual loss arising from operation was \$10,000 in May, but with economies effected this had been reduced to \$6,000 at the end of the year. The interest and other charges were \$90,000.

Sandwich, Windsor and Amherstburg Railway.—The report of the Detroit United Ry., which owns all the capital stock of the Sandwich, Windsor and Amherstburg Ry. Co., which in turn owns the capital stock of the Windsor and Tecumseh Electric Ry. Co., shows the mileage of these latter lines at Jan. 1, 1914, as 39,932, to which was added during the year, 0.3466 mile.

Statistics of the year's operations are as follows:—Revenue passengers, 5,068,191; transfer passengers, 679,015; employ passengers, 17,160; total, 5,764,366; receipts per revenue passenger, 0.0512c.; receipts per passenger, 0.045c. Car mileage, 1,037,467; earnings per car mile, 0.2582c.; expenses per car mile, 0.1663; net earnings, per car mile, 0.0919.

During the year \$110,577.16 was spent on extension to lighting plant, new track and additional equipment.

Sherbrooke Ry. and Power Co.—Gross earnings for six months ended Dec. 31, \$74,819.29; operating expenses \$44,617.97;

net earnings \$30,201.32, against \$75,914.87 gross earnings; \$46,337.61 operating expenses; \$29,577.26 net earnings, for same period 1913.

Earnings of Toronto Ry., for January, \$471,226 against \$501,843 for Jan. 1914.

Winnipeg Electric Ry.—Gross earnings for December, \$368,400; operating expenses \$230,719; net earnings \$137,681, against \$379,863 gross earnings; \$211,969 operating expenses; \$167,894 net earnings, for Dec. 1913. Aggregate gross earnings for 1914, \$4,101,302; net earnings \$1,685,093, against \$4,078,694 aggregate gross earnings; \$1,826,087 net earnings, for 1913.

The percentage payments to the city for 1914 were \$122,226.90.

Electric Railway Notes.

The Toronto Suburban Ry. is applying to the Ontario Legislature for power to operate cars on Sundays.

British Columbia Electric Ry. employes in Vancouver, New Westminster and North Vancouver, contributed \$839.12 to the local war relief fund for the month of December.

The City Commissioners of Saskatoon, Sask., received applications for the position of Superintendent of the municipal railway, to Feb. 25.

The Moose Jaw Electric Ry. has made a special issue of tickets, 8 for 25 cents, to the members of the 46th Battalion Third Contingent, in training at Moose Jaw, Sask.

A London, Eng., cable states that owing to the scarcity of labor in Great Britain the managements of a number of street railway systems are considering the advisability of employing women as conductors.

The Saskatchewan Supreme Court has awarded a Regina Municipal Ry. conductor named Schell \$2,000 damages against the city. He was knocked off the step of his car by coming in contact with one of the iron standards of the Broad St. subway.

One of the judges of the Ontario High Court of Judicature has decided that W. C. Hawkins, Managing Director and Secretary, Dominion Power & Transmission Co., must answer certain questions in a suit brought by C. W. Moodie, against the directors, who Moodie claims have voted themselves excessive fees.

The Brantford, Ont., Municipal Ry. Commission is preparing to issue school children's tickets at 10 for 25 cts. The council has authorized the commission to carry the liability of the employes under the Workmen's Compensation Act, and also to the general public, from the operation of the street railway, by setting aside annually a sum to provide a fund to meet claims.

The London St. Ry. is asking the city for a renewal of the agreement allowing the operation of cars on Sundays. It is reported that the Board of Control is looking into the question with a view to obtaining some concession from the company, either a percentage of earnings, or extra mileage payments. The company claims that Sunday cars do not pay, but are run as a public convenience.

The Calgary, Alberta, Street Railway Men's Association, Feb. 12, accepted the new wages schedule, which provides for a reduced rate of pay consequent upon war conditions. The new schedule comes in operation at once and provides as follows:—While operating on the spare list: First year, 28 cts. an hour; second year, 30 cts.; after two years, 32 cts. Regular runs—First six months, 32 cts.; second six months, 33 cts.; third six months, 34 cts.; fourth six months and thereafter, 35 cts. The new schedule is estimated to effect a saving of about \$10,000 during the year.

Electric Railway Projects, Construction, Betterments, Etc.

Brantford and Hamilton Electric Ry.—The company is applying to Parliament for an extension of time for building the branch from Langford to Galt, Ont. (Nov., 1914, pg. 516.)

Brantford Municipal Ry.—The Brantford, Ont., City Council is asking the Ontario Legislature to confirm a number of bylaws, among them being one for borrowing upon debentures \$270,000 for the purchase, improvement and equipment of the Grand Valley Ry. (Feb., pg. 70.)

Brantford Municipal Ry.—The Commissioners, on Feb. 13, approved of plans for a new street railway station to be built on the site of the old power house on Colborne St., opposite Clarence St., Brantford. Work is to be started at once. (Feb., pg. 70.)

British Columbia Electric Ry.—A steel span replacing the old wooden one has been erected in False Creek bridge, on the Lulu Island branch line, Vancouver. The new bridge consists of one span of 125 ft., which was erected on scows and floated to the site, and raised by the tide to the new pile foundation. The other half of the bridge consists of a swing span, which has always been of a permanent character. The contractors were J. Coughlin and Son, Vancouver, and the work was done under the direction of H. P. Peterson. (Feb., pg. 70.)

Cornwall St. Ry., Light and Power Co.—The Cornwall Town Council is applying to the Ontario Legislature for the confirmation of a bylaw granting an extension of the company's franchise for a further period of 20 years. (Dec., 1914, pg. 553.)

Forest Hill Electric Ry.—The Ontario Legislature is being asked to extend the time for the building of this projected electric railway on Forest Hill Road, Toronto, northerly and northwesterly to 2.50 miles north of Eglinton Ave., also on Eglinton Ave., to one mile west of Dufferin St., and northerly on Dufferin St. for 2.50 miles. W. E. Grierson, T. J. Glover and J. Hales, Toronto, are the provisional directors. (June, 1914, pg. 282.)

Hamilton Mountain Electric Ry.—Application is being made to the Ontario Legislature for an extension of time within which to build the projected electric railway from the Hamilton Mountain road, Ancaster tp., at the crossing of the Brantford and Hamilton Electric Ry., to Mount Albion, Barton tp., and from northerly boundary of Hamilton at the Hamilton and Caledonia Road, to Ryckman's Corners, three miles. T. H. Crerar, L. R. E. Awrey, S. B. Thomson, G. E. Armstrong and T. H. Stinson, Hamilton, Ont., are the provisional directors.

Hamilton St. Ry.—The question of the extension of the company's tracks on Birch Ave. extension across Coal Oil Inlet was considered Jan. 26 by G. A. Mountain, Chief Engineer of the Board of Railway Commissioners. The City Engineer proposed that the company divert its tracks and this suggestion was approved by Mr. Mountain, who recommended the use of 10 ft. ties instead of 8 ft. ones. The work will, it is said, be done early in the spring. (Jan., pg. 28.)

Hull Electric Co.—The citizens of Gatineau Point, and of Hull, Que., are negotiating with the H. E. Co. to secure an extension of the company's line to Gatineau Point. (Sept., 1914, pg. 431.)

Hydro-Electric Power Commission of Ontario.—At a Board of Trade dinner in London, Ont., Jan. 29, Sir Adam Beck said he did not think he was visionary in saying that if the Dominion Government subsidizes radial lines, Ontario will build 1,000 miles that will

pay from the day operation is started. The making surveys and estimates was one involving a great deal of anxiety to the Commission. In referring to the projects for the building of electrical lines centering on London, he said the development of such a system would mean much for the city. The lines referred to included a belt line round the city, a line to Aylmer, and one to St. Marys, connecting with one to Stratford, Berlin and Toronto, with lines to Arkona and Sarnia, Chatham and Windsor.

A deputation from Tillsonburg waited on Sir Adam Beck, Feb. 2, urging the inclusion of Tillsonburg in the project.

The Collingwood, Ont., Board of Trade has been informed by F. A. Gaby, Chief Engineer, that the Commission's engineers are completing their surveys in that district, and that the plans will be laid before the municipalities at an early date. (Feb., pg. 70.)

Lacombe and Blindman Valley Electric Ry.—Grading is reported completed on this railway from Lacombe to Rimbey, 37 miles. Nothing has been decided as to when track will be laid. This is one of the light railways authorized to be built under provincial guarantee of bonds to the amount of \$7,000 a mile. (Dec., 1914, pg. 553.)

Lethbridge Municipal Ry.—The Lethbridge, Alberta, Board of Trade is pressing the City Council to undertake the extension of this railway to Hardieville. The council has the matter under consideration.

The question of the cost of lifting and relaying the electric railway tracks under the 18th St. subway, \$465.61, is in dispute between the City Council and the C.P.R. No provision was made in the agreement for this work, and the C.P.R. now wants to collect it. The City Council referred the matter to the City Solicitor, Feb. 1. (Dec., 1914, pg. 553.)

London and Lake Erie Ry. and Transportation Co.—W. N. Warburton, General Manager, had a conference, Jan. 22, with representatives of Malahide, Aylmer, Yarmouth, and St. Thomas municipalities with reference to a proposition to extend the company's line from St. Thomas to Aylmer and from Union to Sparta, Ont. This proposition has been under discussion for several years. (Sept., 1914, pg. 431.)

London St. Ry.—The committees of the London, Ont., City Council met C. B. King, Manager L. S. R., Feb. 15, to discuss street railway matters. The two questions about which the discussion chiefly centred were the matter of track extension and that of the renewal of the bylaw allowing the operation of Sunday cars. The company offered to extend the Hamilton Road line to West St., on condition that some arrangement was made by the city to aid in financing the work. The committees wanted something better than this and adjourned its consideration for a week. The committees offered to renew the Sunday bylaw on condition that 9 tickets be sold for 25 cents, and that 10% of the proceeds be paid to the city. Mr. King said it was a waste of time to consider such a proposition. (Jan., pg. 28.)

Montreal and Southern Counties Ry.—We are officially advised that it is expected to start work early in the spring upon the 1,700 ft. extension to Youville Square, Montreal, cross the Montreal Tramways Co.'s tracks on McGill St., run to Youville St., to St. Peter St., on that street to Youville Square, and along that square to McGill St., with a Y in front of the central fire station. (Feb., pg. 70.)

Ottawa and St. Lawrence Electric Ry.—An unconfirmed press report states that work on the Perth and Smiths Falls section of this projected railway will be started early in the spring. It is stated that the line will run through Rideau Ferry, and not as originally planned. (Jan., pg. 28.)

Pictou County Electric Co.—We are officially advised that the extension to Parkdale will be started about April 1, and that it will be completed about three weeks thereafter. L. L. Flaherty, Stellarton, N.S., is Manager. (Feb., pg. 70.)

Regina Municipal Ry.—We are officially advised with reference to the press reports that a mile and a half of new track would be laid this year in Regina, Sask., that it is unlikely that any such construction will be undertaken, though it might be found possible, later on in the year, to arrange for it. (June, 1914, pg. 283.)

St. John's (Nfld.) Ry.—We are officially advised that there is no truth in the recent press report that the company is preparing to extend its tracks. (Feb., pg. 70.)

Three Rivers Traction Co.—Press reports state that the Three Rivers, Que., City Council has granted a 20 years franchise for the operation of a street railway in the city. The terms have been under consideration for over a year. (Nov., 1914, pg. 517.)

Toronto, Barrie and Orillia Ry.—The Ontario Legislature is being asked to authorize the reduction of the company's capital stock, and to extend the time for the building of the projected railway in Barrie, northerly to Orillia, and southerly to Toronto. Bicknell, Bain, Macdonald and Gordon, Toronto, solicitors for the company. (May, 1914, pg. 232.)

Tramways Limited.—We are officially advised that while there was a large majority in favor of ratifying the bylaw and agreement between the company and the Edmonton, Alberta, City Council, there was not the necessary two-thirds majority required for its ratification. The action to be taken under these circumstances is being considered. (Feb., pg. 71.)

Transcona.—The application of the Town Council of Transcona, Man., for the annulment of the contract with J. H. Kern, for the building of an electric railway in the town was heard by the Manitoba Public Utilities Commissioner, Feb. 5. The town claims that the contractor has failed to live up to his agreement, while Kern claims that he was granted an extension of time until the spring to begin work, and says he is prepared to build the line as agreed upon.

Winnipeg Electric Ry.—The Manitoba Legislature is being asked to amend the company's charter by adding to its powers. The notice of application does not state the additional powers to be asked for.

It is said that the tracks laid on Arlington bridge when it was built are to be torn up and relaid, and that a car service will be operated over it in the summer. The Arlington cars now run along William Ave. to Arlington St. (Jan., pg. 28.)

Sunday Car Service in London, Ont.—The London St. Ry.'s annual report states that Sunday service was started Feb. 22, 1914. The service has been approximately 70% of that of an ordinary week day, where as the earnings have been only approximately 40%. The amount of service each Sunday has been varied as requirements seemed to justify, so that this service has proved to be ample for the present at least. It is obvious from the above that the profits on the Sunday car service are not nearly so much as from the week day service, and that therefore the percentage of operation will be slightly increased.

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Marine Department

Canadian Lake Protective Association Annual Meeting.

At the annual meeting in Ottawa, Feb. 16, the President, L. Henderson, Managing Director, Montreal Transportation Co., occupied the chair. The report, which is given in full below, was unanimously adopted.

The following were elected as the executive committee:—A. E. Mathews, Mathews Steamship Co., Toronto, Chairman; W. J. Bassett, Bassett Steamship Co., Toronto; W. E. Burke, Canada Steamship Lines, Montreal; H. W. Cowan, Canada Steamship Lines, Toronto; W. L. Reed, Canadian Northwest Steamship Co., Toronto; G. E. Fair, Farrar Transportation Co., Toronto; R. Fraser, Montreal Transportation Co., Kingston, Ont.; J. T. Mathews, Mathews Steamship Co., Toronto; Jas. Playfair, Great Lakes Transportation Co., Midland, Ont.; H. W. Richardson, Great Lakes Transportation Co., Kingston, Ont.; A. A. Wright, St. Lawrence and Chicago Steam Navigation Co., Toronto.

Annual Report.

Following is the annual report signed by the committee: L. Henderson, Chairman, W. J. Bassett, W. E. Burke, H. W. Cowan, S. Crangle, G. E. Fair, R. Fraser, J. T. Mathews, J. Playfair, H. W. Richardson, and A. A. Wright:

The season of 1914 presents, on the whole, a very favorable casualty record. There were no total losses. Several strandings or groundings, and two or three collisions, contributed fairly large individual amounts to the season's total claim upon underwriters, yet even these cases have been of only moderate consequence compared with corresponding casualties in previous years, and an outstanding feature of the season's record is that no vessel was withdrawn from service on account of damage for more than a limited period. In one or two cases the damage might have been much greater but for fortunate circumstances, and the vessels in question have been in serious peril which under more careful management they would not have encountered, yet nevertheless the season must be judged by actual results and it is a fact that in number and character the recorded casualties are comparatively light.

The appendix at the end of this report contains an analysis of the accidents reported. There were 18 strandings or groundings. As the worst of these occurred in the rivers and without stress of weather, other than fog, and the vessels were quickly released, it has been thought better not to attempt to distinguish them from cases of less importance, by classification as strandings, as that term has a meaning broad enough to include most of the minor cases of groundings. All 18 cases are therefore grouped together. Four of them, including one of the most serious, occurred in Lake St. Louis, and further reference to these will be made later in this report in connection with remarks regarding the pilots of the Upper St. Lawrence, and relating to aids to navigation. In five of these cases fog was the chief, or at least, a contributing cause. In two, spar buoys were not satisfactorily placed; in two others spar buoys were out, and in one, red buoys were mistaken for black. In two cases the steering gear had jammed, in one case for unascertained cause, and in the other through obvious negligence in storing cargo. In another case smoke had obscured inefficient range lights. Stress of weather was responsible in another case; a sunken

ship partly blocked a channel in another. In another the master blamed the wheelsman and investigation is still pending. Another afforded a glaring instance of failure to check the course the wheelsman was following which was given to him verbally as S 80° W, and steered till the ship brought up on soft bottom as N 80° W; and in another, one of the worst, no excuse whatever could be found. In three of these cases the master was censured by your committee. In two others the pilot was censured. In one an official enquiry as to the pilot's conduct was asked for, but for a variety of reasons postponed, and in one the master is now in default as to enquiries made of him by your committee, and further action must be taken. In one case a master was relieved of his vessel and let go.

Twenty-three collisions appear in the list. The great majority of these are of minor importance, occurring in crowded quarters in harbor, or else in canals and in any case at slow speed. In a number of these the fault is clearly attributable to a vessel not enrolled in your association. Of the others, only four cases are of importance, and in none of these has your committee yet endeavored to place the blame upon the master of either vessel, as in each of the four cases the question is in litigation. Two of these four important collisions occurred in the canals, with only a moderate damage, the vessel in each case being able to proceed to destination; one occurred while approaching the St. Clair Flats Canal in Lake St. Clair, when a ship was struck by an overtaking vessel, and one in the open water of Lake Ontario, in fog. No vote of censure has yet been recorded in any collision case.

There are 11 cases of damage from striking bridges, docks, piers and harbor and channel banks, and in none of these has your committee thought it well to find fault, as it has appeared that the accidents occurred under circumstances over which the master could not be expected to have complete control. Only one case of striking canal docks or gates is reported. In this respect the record is incomplete, and the fact is that canal navigation by vessels of 43½ ft. beam through locks of 45 ft. width is necessarily attended by so many collisions of minor importance with lock walls and wing walls, that masters have found some excuse for failing to report the ordinary run of accidents of this nature and may naturally enough be tempted to refrain from reporting similar cases involving greater damage. The matter is made the subject of further remark later in this report with special reference to the question of development of power from canal water. Your committee for 1915 will require to consider the question of reports of minor accidents and it is recommended that all accidents should be reported and the committee constituted the sole judge of their importance, the master in each case exercising his privilege of reporting fully his opinion of the character of the damage. It is important to note that none of the frequent accidents in which lock gates have been broken have been occasioned by vessels enrolled in your association. At the same time these accidents have placed vessels of your association in peril and in addition to being a constant source of delay to traffic are a menace to the safety of all vessels in the vicinity. Your committee has

therefore renewed the requests heretofore made for the installation of some sufficient safety device on all lock gates to prevent the possibility of their breaking away under water pressure when forced slightly out of mitre.

It is a matter of great regret that while the association appears to be able to fulfill the very important purpose of supervising the navigation of the vessels enrolled, and while undoubted progress has been made in this respect and substantial advantage has undoubtedly been gained, nevertheless, no satisfactory method has been devised for compiling records of premiums and losses. At the last annual meeting a plan recommended by your committee of 1913 was adopted, which all hoped would provide the required record in a simple and satisfactory manner. Dale & Co., Ltd., were to write 5% of the risk on each vessel and provide the association every year with tabulated statements of all premiums and all losses. An agreement was made with that company and was observed by a large number of members of the Association who caused their insurance to be placed with due regard to this agreement. But unfortunately unforeseen difficulties arose. One member with a very long list of insurable tonnage appears to have been able to procure a special policy containing better terms than those written for the majority of members, and again the scheme was launched so well on towards the opening of navigation that some members failed to instruct their brokers with definiteness before arrangements were made which precluded the possibility of placing the required proportion of insurance with Dale & Co. It was therefore apparent that at least for the present this plan could not succeed and at a meeting later in the year your committee regretfully acknowledging this fact.

Realizing, however, that the close supervision of navigation and enforcement of the maxim safety first constituted the chief duty of the association your committee has tried to secure strict compliance with the rules formulated for that purpose and to obtain the co-operation of masters in this endeavor. In dealing with reported casualties your committee has of course kept in mind the difficulties with which navigators contend, and every allowance has been made for the circumstances over which the man in charge of a vessel has no positive control. Where doubt existed the committee has erred on the side of justice to the navigator and the votes of censure recorded have been passed only with respect to perfectly apparent cases of negligence or mismanagement. In a number of doubtful cases the committee has contented itself with investigation of the casualty by correspondence, and suggestions have been made to the master in such cases calculated to show that his actions are the object of close scrutiny and that future negligence once proved would be followed by reprimand. In all cases where the circumstances appeared to require assistance by the committee action was taken by way of seeking the installation of improved aids to navigation, or lodging complaint in the quarter from which the trouble arose. This question of aids to navigation has engaged the attention of your committee on a number of occasions and the casualties reported have proved a fruitful source of suggestion for improve-

ment in the system of buoying or lighting in a number of places. Correspondence has followed and the Marine Department or the Lighthouse Board has taken action to improve faulty conditions wherever the need has been brought to their attention. A number of the cases referred to in the report of the Dominion Marine Association's Committee have come first under the consideration of your committee and the fact that the President of the Dominion Marine Association, who holds a seat ex officio on the Dominion Lighthouse Board, is also ex officio chairman of your committee, has contributed largely to the satisfactory settlement of many suggestions for improved aids to navigation raised by the casualties above referred to.

The difficulties arising in the canals from the development of power have been prominently brought to your committee's attention. That strong currents are developed, and that water levels are interfered with, are statements for which further support is found in a number of accidents, and while some action has been taken in the matter by the Dominion Marine Association from time to time and it is again referred to in the report of that association's committee, your committee feels compelled to urge the importance of the subject and the necessity for further vigorous protest at every opportunity.

Another important subject arising from the consideration of casualty reports is that concerning the pilots engaged in river navigation between Montreal and Kingston. Early in the season of 1914 your committee realized that a number of casualties in the upper St. Lawrence were occurring while the direct and immediate control of the navigation of the vessels damaged was in the hands of these pilots, and that, as the primary fault in many cases lay with the pilots, means must be taken to subject them to control, as otherwise the supervision and disciplining of masters in this part of the river would be a most ineffective measure. The Dominion Marine Association, actuated by the unfortunate experience of its members in connection with the association of pilots in the lower St. Lawrence, had during 1913 filed an emphatic protest against the establishment of a pilotage district under the Shipping Act for the upper section of the river, and therefore, after careful consideration your committee determined that the pilots in question should be simply subjected to the same regulations and discipline as the masters. It developed that a small number of these pilots were without masters' certificates, and as a first step a rule was adopted prohibiting the engagement of a pilot, other than a member of the crew, who does not hold a master's certificate, and requiring all engaged pilots to submit themselves to the committee's jurisdiction by signing an agreement to that effect. The requirement that a pilot must hold a master's certificate was made for the double purpose of avoiding the surrender of the ship to an uncertificated man, and to enable the assistance of the Wreck Commissioner to be invoked for the purpose of penalizing men deserving punishment, that commission having authority only over the certificates issued. The pilots interested did not at first appear ready to conform to this proposal, but a deputation which called at the offices of your association and discussed the question went away expressing themselves completely satisfied and convinced that the plan was one which should be carried out and should receive support from all parties. Your committee wishes to emphasize the importance of strict adherence to the rule that only men with masters' certificates be engaged hereafter and it is recommended that your committee for 1915 give this mat-

ter special attention. Recently the Deputy Minister of Marine has submitted a recommendation made by the Wreck Commissioner that something should be done to require licensing and supervision of these pilots. The action of your committee has been reported to the Deputy Minister as an answer to this and it is hoped that fair opportunity will be given to test the effectiveness of the present arrangement.

For various reasons your committee has not lodged any formal applications during 1914 for the investigation of casualties by the Dominion Wreck Commissioner. The two cases in which masters were censured by your committee did not require investigation, as the facts were abundantly clear, and the fault in each case was of a nature that did not justify any action with respect to the master's certificate. In one or two cases of collision, where it appeared that fault should be imputed to one or both masters involved, it was found that litigation was pending and would develop the required information fully. Your committee, in such cases, has felt it necessary to avoid prejudicing the interests of a party by asking for an official investigation. The cases in which river pilots were censured occurred early in the year, before your committee had definitely decided upon any policy with reference to such casualties, and at that time there was also an objection to asking for a wreck investigation, on account of pending action referred to in the Dominion Marine Association's last report looking to a reorganization of the Wreck Commissioner's court.

Very little trouble was experienced with ice in 1914 and only one casualty report is filed with reference to damage received in this way. In this case the only damage was the blocking of a circulating pump with soft ice, but with engines out of commission the vessel was in some peril and a salvage claim arose for the services of another ship in towing to port with a gale of wind blowing. At one time towards the close of the season the services of ice breakers seemed desirable to assist vessels to port and steps were taken by members of your committee to have assistance sent, but the weather moderated and the season closed without any serious ice trouble.

There was no special rate agreed upon in 1914 for extensions of insurance after the close of November. The fact is that practically no one was anxious for it, as it may very well be said that at the rates of freight prevailing no one could well afford to pay for extensions of insurance. In one or two cases individual vessels were covered after the close of the regular season at rates agreed upon in each case by the owners of the vessels. In this connection reference may also be made to the general insurance rate of 1914. For full cover above the Welland Canal it was $4\frac{1}{2}\%$, and the customary additional rates applied to voyages extending to the foot of the lakes and to Montreal.

Your committee was instructed at the last annual meeting to accept wooden tonnage for enrolment in a special class on terms which were to be fixed by your committee. Accordingly provision was made in due course for enrolment of wooden vessels in a separate class on terms identical with those in force respecting steel hulls, and notice of this was given to members of the association. Thereupon one wooden steamer, the Sarnor, was presented for enrolment, and tonnage dues upon her were paid to the association. In July last this vessel was ashore in the St. Lawrence and later she caused substantial damage in the Welland Canal and was ultimately surrendered by her owners to the Dominion Government as security for this damage claim. Mortgage, salvage, damage, wage

and supply claims are now pending against her.

During the year your committee received reports from superintendent engineers of canals, regarding the available draft of water, and the information has been duly circulated. Special correspondence has taken place with reference to the draft of water available in the Welland and St. Lawrence Canals, and the question has had particular attention in connection with the use of canal water for power development. The serious difficulties occasioned by the conflict between power and navigation interests are referred to in this report, and in the Dominion Marine Association's reports. The subject has been brought to the attention of the International Joint Commission at a session in Detroit in Nov., 1914, and it is recommended that it be made a prominent feature in representations addressed to the ministers at Ottawa on the occasion of your association's annual meeting. Special correspondence has also taken place with reference to minor collisions in the canals occasioned apparently by insufficient attention to the regulations and to the advice given from time to time by your committee. The matter was called particularly to the attention of masters by a bulletin issued during the summer, in which the annoyance, delay and expense occasioned were called to the attention of masters, and an appeal was made for strict adherence to the rules and implicit obedience to the dictates of caution and good seamanship.

A nice question arose in connection with casualty reports regarding collision cases, and your committee decided that in these cases the casualty reports might be sent direct to the offices of the owners of the respective vessels, to be used at the owners' discretion, and to be withheld by them, so far as exact particulars of the collision are concerned, if litigation was likely to arise. Masters were notified of this in a bulletin and were instructed that they might simply notify the association of the time and place of the collision, and the names of the vessels, provided full and detail reports were sent in to the owners. Owners at the same time were required to advise the committee of the general circumstances, so that action might be taken which would be fair to both parties. The usual amount of general correspondence with underwriters, brokers, individual members of the association and other parties has also been carried on. The bulletin has been regularly issued after each meeting of the committee, and has been sent to all members of the association and to the masters of all vessels enrolled. Special attention is again called to the rule requiring that casualty reports should be filed in all cases, and the members of the association are asked by your committee to endeavor to see that it is carried out. Complete obedience to the rule will furnish the association with a complete record of casualties and it will also tend to make the system of reporting generally satisfactory to all parties. The failure to note an important casualty in the bulletin will very naturally encourage masters to withhold reports, as it will not seem fair to them that one accident should escape mention and another be made the subject of discussion. During 1914, at least with reference to casualties of any importance, it may be said that the majority of the cases were duly reported, and that but few masters are in default. Nevertheless, it is known that some few casualties of some importance were not duly reported, and your committee recommends that hereafter in all such cases mention should be made of the fact in the bulletin, with due comment on the master's failure to obey the rule. In one or two more important cases of this nature

during 1914 the failure to report did not make so much difference, as it appeared to the committee that the master had already been disciplined by the owners of the vessel, and in at least one case had been dismissed. Yet, notwithstanding this, for the reasons named above the bulletin and the association's records should be made as complete as possible.

Early in the year it was found that the limited number of the committee rendered it difficult to obtain a sufficient attendance at meetings to give fair consideration to the business on hand, and at a general meeting of the association at Toronto, July 17, it was resolved to add to the committee W. J. Bassett, G. E. Fair, and A. A. Wright.

Analysis of Accidents Reported, 1914.

Groundings	18
Collisions	23
Striking locks or gates	1
Striking bridges, docks, piers, and harbor and channel banks	11
Stress of weather causing substantial damage	2
Engines put out of commission by ice in circulating pump	1
Striking unknown obstruction in channel	1
Total	57
Groundings.	
St. Lawrence River	9
Lake Ontario	1
Lake Erie	1
Lake St. Clair	1
Detroit River	1
Lake Huron	3
St. Mary's River	2
Total	18
Collisions.	
Harbors	7
Lake St. Peter	1
St. Lawrence Canals	3
Lake Ontario	1
Welland Canal	8
St. Clair River and Ship Canal	2
St. Mary's River	1
Total	23
Striking Locks or Gates.	
Cornwall Canal	1
Striking Bridges, Docks, Piers, and Harbor and Channel Banks.	
Bridges	3
Docks and piers	4
Canal banks and walls	3
St. Lawrence River channel bank	1
Total	11
Stress of Weather Causing Substantial Damage.	
Lake Huron	1
Lake Superior	1
Total	2
Engines Put Out of Commission by Ice.	
Georgian Bay	1
Striking Unknown Obstruction in Channel.	
Lake St. Louis	1

Use of Neutral Flags on Belligerent Merchant Vessels.—Since the use of a neutral flag by the British s. s. Lusitania when approaching England recently, there has been a little misunderstanding as to the recognized use of a neutral flag under international laws. The intention conveyed in the German notice regarding shipping to Great Britain is a flagrant breach of the international rules, and the shipping of all nations, whether neutral or not, is endangered, to the extent of Germany's ability to carry out its threat. Whatever protection, however, there may be in the use of a neutral flag under the extraordinary conditions created by Germany, even a belligerent nation is entitled to claim, under the international rules, in order to protect the lives and property of neutrals on board. The right of search is not denied to the Germans, and the use of a neutral flag may, or may not, cause them to carry out such a search before proceeding to extremities. It is not considered, by those in authority generally, that the use of a neutral flag on belligerent merchant vessels will add in any way to such danger to neutral vessels as may now exist.

Dominion Marine Association's Annual Meeting.

The annual meeting was held in Ottawa, Feb. 16, the President, L. Henderson, Managing Director, Montreal Transportation Co., in the chair.

The executive committee presented a comprehensive report over the signatures of L. Henderson, President, and F. King, Counsel, showing that the tonnage enrolled continues to increase, the steam tonnage now being approximately 200,000 net registered tons, and the barge or sailing tonnage remaining about the same at approximately 33,500 tons. The report dealt in full detail with the past year's work, including the following subjects:—Legislation; Canada Shipping Act; Marine Conventions Act, 1914; Workmen's Compensation Act; bill to place inland vessels under the Board of Railway Commissioners; Seamen's Union Bill, United States; development of power at Sault Ste. Marie, Ont., and Waddington, N.Y.; pollution of navigable waters; grain cargoes, discrepancies in weighing and the bill of lading, grain trimming, dispatch in loading and Lake Shippers' Clearance Association, automatic weighing machines; canals, lock entrances, bridge semaphores, canal gates, canal draught, occasional canal damages; canal statistics; customs report of entry by Canadian vessels into Lake Michigan; load lines and deck loads; rules of the road; rules for life saving appliances international convention on unification of certain rules of law relating to the limitation of liability of owners of sea-going vessels; pilotage on the Upper St. Lawrence; Dominion Wreck Commission; masters' and mates' certificates; shipping coal ex warehouse; screening bituminous coal in bond; Montreal harbor improvements; aids to navigation; lake disaster fund.

The report was unanimously adopted. Of the four members of the executive committee who retired by effluxion of time, A. E. Mathews, Mathews Steamship Co., Toronto, and Dennis Murphy, Ottawa Transportation Co., Ottawa, were reelected. W. L. Reed, Canadian Northwest Steamship Co., Toronto, and W. E. Burke, Canada Steamship Lines, Montreal, were elected in place of F. S. Wiley, Canadian Northwest Steamship Co., and J. W. Norcross, Canada Steamship Lines.

The other members of the committee, whose terms expire in 1916 and 1917, are:—L. Henderson, Montreal Transportation Co.; H. W. Richardson, Great Lakes Transportation Co.; H. H. Gildersleeve, Northern Navigation Co.; G. E. Fair, Farrar Transportation Co.; H. W. Cowan, Canada Steamship Lines; C. B. Harris, Canadian Lake and Ocean Navigation Co. and Merchants Mutual Line, Toronto; S. V. McLeod, Algoma Central Steamship Lines, and A. A. Wright, St. Lawrence and Chicago Steam Navigation Co.

The executive committee elected A. E. Mathews, President; H. W. Richardson, First Vice President; and W. E. Burke, Second Vice President.

The association, in conjunction with the Canadian Lake Protective Association, voted \$750,000, to be divided between the Red Cross Society and the Belgian Relief Fund.

The Department of Marine has issued notice to mariners relative to the closing of certain Canadian ports, should occasion arise, and the establishment of examining stations at Halifax, Quebec and Esquimalt. Detailed instructions are given, which must be followed by all vessels making port.

The Future of Canadian Pacific Railway Steamship Operations.

In an interview in New York recently, Sir Thomas Shaughnessy, President, C.P.R., is reported, when questioned with reference to the company's application to Parliament for authority to lease or charter its vessels to a company to be formed for the purpose, to have made the following statement:—"What is planned is merely an organization for simplifying management. We are proposing, indeed we are now forming a shipping company which will take over our own ships and probably some others. This shipping company will, in reality, be a subsidiary company for the handling of our ocean traffic, so as to keep this part of our business quite apart from the management of the railway. It is merely an internal arrangement—we want to put our steamship business in the same relation to the railway company as if it were an independent steamship company. This, we are sure, will mean increased efficiency and prove beneficial to our shareholders."

It is probable that the "close working agreement" which has been in operation for some time, will be concluded by the inclusion of the Allan Line vessels in the new company being formed.

During 1912 numerous changes took place in the management of the Allan Line, including the retirement of Sir Montagu Allan, B. J. Allan and J. Smith Park from the Board, and the election of Sir Frederick W. Taylor, T. Reynolds and Sir Thomas Skinner in their places. The fact of Sir Thomas Skinner being a director of the C.P.R. was commented on at the time as being likely to confirm the reports of closer future relations between the Allan Line and the C.P.R.

At the end of 1912 it was announced that the register of joint stock companies in Edinburgh, Scotland, showed that of the 60,639 shares in the Allan Line Steamship Co., 57,637 were held by the Royal Trust Co., Montreal.

The Building of Submarines in Canada.

In the House of Commons on Feb. 11, Hon. W. Pugsley, M.P. for St. John, N.B., moved for a copy of correspondence relating to the purchase by the Government of two submarines ordered originally for the Chilean Government. In the course of the discussion he said:—"I was pleased to observe the other day in Canada, a paper published in London, a dispatch from Montreal, or from New York originating in Montreal. I am sorry the Minister of Militia is not in his place. The dispatch is as follows:

"A telegram received in New York from Montreal, according to Reuter, says:—"To meet the exaggerated stories published in the United States, the Canadian Militia Department has authorized the statement that there is no reason why the facts concerning the construction of submarines in Canada should not be published. They are as follows:—The keels of eight first-class craft have already been laid down by the Canadian Vickers Company here, and it is expected that several will be ready in August next. The plant is running at full capacity."

I would ask the Minister of Marine and Fisheries if that statement is correct?

Mr. Hazen: As to whether the Militia Department authorized the statement I do not know.

Mr. Pugsley: As to the fact?

Mr. Hazen: As a matter of fact, I think submarines are being built by the Canadian Vickers at Montreal.

Mr. Pugsley: For whom?

Mr. Hazen: I presume for the British Government.

The Safety of Navigation in the Bay of Fundy.

R. E. Armstrong, Secretary, Board of Trade, St. John, N.B., wrote recently to Shipping Illustrated, as follows:

In a recent issue, under the heading of "Marine Insurance," you say: "The loss of the steamer Navarra at Tusket Islands, Bay of Fundy, is the second which occurred last year in that vicinity. In Jan., 1914, the R.M.S.P. liner Cobequid was totally lost, and unfortunately there was serious loss of life."

You also refer to the wreck of two other steamers, one of which, the Gerald Turnbull, was wrecked on Gannet Ledge in 1913, and the other—the Bonavista—in Mar., 1912, and you close with the remark that "in less than three years four fine steamers have been wrecked in this Bay."

This is scarcely a fair statement of the case, and in one respect, at least, it is absolutely false. The Bay of Fundy, as an enclosed sheet of water, is really confined to the area included within a line drawn from the southern extremity of Brier Island to the opposite shore of the State of Maine; so that, if this area is accepted, three at least, if not all four, of these disasters you have referred to occurred outside the Bay of Fundy, on the Atlantic shore of Nova Scotia. If you accept Cape Sable as the point at which Bay of Fundy waters begin, then a line drawn across to the U.S. shore will bring you to Portland, Me. I do not think that, as an American journalist, you would be willing to admit that all or any of the marine disasters which occur at Portland, Me., or east of it on the coast of Maine, should be laid at the door of the Bay of Fundy. If this reasoning is good so far as the northern side of the Bay of Fundy is concerned, then it should also hold good when applied to the southern side, and all accidents which occur below Brier Island should be excluded from the Bay of Fundy account and charged up to the Atlantic coast.

The statement that there was a serious loss of life when the Cobequid was wrecked is untrue. Not a single life was lost during that wreck, although a heavy storm prevailed at the time.

Furthermore, in almost every case that you have referred to it was shown that the casualty was due to the navigators themselves and not to any particular danger that lurked in the waters.

The Marine Court, in its finding on the Cobequid case, stated: "The court is unanimous in its opinion that the stranding and

ultimate loss of the s.s. Cobequid was caused by the grave error of judgment of John Howson, the master. . . . The court therefore severely censures the master, but on account of the very efficient and satisfactory manner in which everything was carried out on board his ship for the safety of the passengers and crew, after the stranding, does not deal with his certificate."

In the case of the s.s. Navarra, Capt. Demers, the Dominion Wreck Commissioner, described the conduct of Capt. Milliken and his officers as "culpable errors of judgment." The master's certificate was suspended for 10 months, the second officer's for 6 months, the chief officer's for 3 months.

In the face of these findings, it does not seem fair that the Bay of Fundy should be charged up with these disasters. There is ample room in the Bay of Fundy for a ship to be navigated with perfect safety, but if navigators are careless, or if they put to sea in an unfit condition, the blame for the disaster that occurs should be placed on the proper shoulders.

Statistics prepared by this Board from Government returns of wrecks show that during 18 years subsequent to 1896, with a total tonnage of 42,029,262 tons entering the port of St. John, the casualty average was only 0.033 of 1%. This statement was made up from Cape Sable. The figures are very low, indeed, and should go far to establish the almost absolute safety of the Bay of Fundy from a navigator's standpoint.

If it were necessary, it would be quite easy to establish, by comparison, that not only were wrecks fewer in the Bay of Fundy than in many other largely-frequented waters, but that the loss of life was very much less. Not for a great many years has there been any serious loss of life in Bay of Fundy waters.

New Steamships for C.P.R. Atlantic Service.

The two vessels which are under construction in Great Britain for the C.P.R.'s Atlantic service, and which it was announced were to be named Melita and Medora, have been named Melita and Minnedosa. They will be of the one cabin type, with accommodation for 500 cabin passengers and 1,500 third class passengers. The public rooms, consisting of large lounge, smoking

room, dining room, gymnasium, etc., will be elaborately decorated, and the dining room will have accommodation for 300. The third class dining room will have capacity for 550. In the cabin accommodation, there will be about 50 two berth rooms.

The propelling machinery will consist of combination turbine and reciprocating engines driving three screws. Each of the vessels will be equipped with Babcock and Wilcox patent davits, which will enable the lifeboats to be launched from either side of the vessel, even should there be a considerable list. The vessels will be built with the cruiser stern, giving greater stability and seaworthiness, while every device for the safety of passengers will be provided, including double bottom to the hulls, wireless telegraphy and submarine signaling apparatus. The dimensions are: length overall, 520 ft.; beam, 67 ft.; depth to bridge, 46 ft.

The Future of the St. Lawrence Canal Route.

At the recent annual meeting of the Canadian Society of Civil Engineers, the retiring President, M. J. Butler, C.M.G., in speaking of the transportation problem, said:—"We have as a nation undertaken the task of forcing our outlets against the line of least resistance. The Atlantic seaboard is the outlet for the products of the prairies situated some 1,500 miles inland. Our efforts in building railways with easy curves and grades, the enlargement of our canal system and the improvement of rivers, and particularly of the St. Lawrence route, have but the one object of putting a few more cents a bushel into the pockets of the farmers. The enlargement of the Welland Canal will allow the larger type of vessel of 300,000 bush. capacity to pass down Lake Ontario and the St. Lawrence River to within 120 miles of Montreal. Storage elevators will be erected at or near Prescott, and 1,000 ton barges will be towed through the present canal system to Montreal. Ultimately, the larger lake vessel will come through to Montreal, as it is quite practicable and within the resources of the country to convert the St. Lawrence River into slack water navigation by the building of eight dams with duplicate locks, and, as an incident, develop the greatest water power in the world, aggregating over 4,000,000 h.p., eliminate the ice jams, and make practicable the navigation of the river in winter by the aid of powerful icebreakers.

List of Steam Vessels Registered in Canada During December, 1914.

No.	Name	Port of Registry	Where and When Built	Length	Breadth	Depth	Gross Tons	Reg. Tons	Engines, Etc.	Owner or Managing Owner
134164	Mary H. Cann	Yarmouth, N.S.	Mahone Bay, N.S.	1914 60 4	17 4	7 4	58	24	14 n h.p.sc.	Hugh Cann & Son, Yarmouth, N.S. Minister of Public Works, Ottawa
134304	Samson	New Westminster B. C.	Port Coquitlam, B.C.	1914 115 6	30 0	6 7	436	277	13 " pa.	
129326	Sheby	Ottawa	Sunderland, Eng.	1912 290 0	40 7	17 8	2268	1341	222 " ps.	Minister of Railways and Canals, Ottawa Lake Commerce, Ltd. Toronto
116573	Valcartier (1)	Fort William, Ont.	Cleveland O.	1903 361 0	48 2	24 0	3755	2248	147 " "	

(1) Foreign name, W. H. Mack.

List of Sailing Vessels and Barges Registered in Canada During December, 1914.

No.	Name	Port of Registry	Rig	Where and When Built	Length	Breadth	Depth	Reg. Tons	Owner or Managing Owner
134254	L.W.S.Co., No. 1.	Winnipeg	Barge	Winnipeg	1911 188 5	33 5	8 0	423	Lake Winnipeg Shipping Co., Winnipeg
134255	" " 2.	"	"	"	1911 188 5	33 5	8 0	423	
134256	" " 3.	"	"	"	1912 180 5	37 0	8 0	458	
134257	" " 4.	"	"	"	1912 179 5	33 5	9 0	401	
130516	M. A. Belliveau	Weymouth, N.S.	Schr.	Belliveau Cove N.S.	1914 115 0	30 2	10 2	199	Belliveau, et al., Belliveau's Cove, N.S. J. E. Bachman, M.O., Lunenburg, N.S. Richardson Co., St. Jerome de Matane, Que. Ritcey, M.O., La Have, N.S.
134396	Majorie E. Bachman	Lunenburg, N.S.	"	Shelburne, N.S.	1914 109 0	26 4	10 8	99	
134494	Quinnette	Quebec, Que.	"	Capucins, Que.	1914 94 7	25 6	6 7	97	
134398	Robert J. Dale	Lunenburg	"	Liverpool, N.S.	1914 113 2	28 6	10 4	198	

It is a duty which our Government may well undertake at the earliest possible moment, to secure a hydrographic and topographic survey of the St. Lawrence, so that accurate estimates of cost may be made and proper regulations may be drawn up, so to regulate proposed power developments owned by private corporations that each may be brought into a component part of the completed whole."

Great Lakes Protective Association.

This Association, at its annual meeting in Detroit, Mich., recently, decided not to increase its share of insurance risk upon vessels owned by members of the association, unless future developments in the European war made such action necessary. The association furnishes 25% of this insurance. Foreign companies are prominently represented among the underwriters, who insure the association's vessels for the other 75%. Marine men argued before the convention that the percentage of loss has been so small the association should increase its share of the risk to 50%. The majority of the members voted, however, to make no change at present unless conditions abroad make it advisable to reduce the amount of insurance given to foreign underwriters. The advisory committee was authorized to watch developments in Europe and to call a meeting of the association if it should be thought advisable, to change the insurance system.

As proof that the association has been successful in lowering insurance charges J. S. Ashley, chairman of the committee, presented figures showing the actual cost each year from 1905 to 1914 for full hull insurance on the steamship L. C. Hanna, the period covering five years preceding and five years subsequent to the beginning of the association. This vessel came out in 1905. Her gross registered tonnage is 6,356. She has been insured for her full hull insurance value ever since. Following is the actual cost to her owners each year, including commissions paid to brokers from 1905 to 1914 inclusive:

Year	Cost.	Year	Cost.
1905	\$10,702	1910	\$17,946
1906	11,686	1911	16,830
1907	11,642	1912	16,307
1908	16,200	1913	14,742
1909	16,200	1914	11,477

There was a steady increase in cost from 1905 up to and including 1910, the year following the formation of the association, and that this increased cost in 1910 was approximately \$7,000 more than it was in 1905 or 68%. There has been a steady decrease since 1910 and the 1914 cost was very nearly down to the cost of 1905. The figures of 1913 include an extra assessment of \$1,642 made by the association and which was necessary on account of the terrible disaster of Nov. 9 in that year. No credit has been taken in any of these years for profits which have been made on the percentage insured by the association. Had this profit been deducted from 1914 the cost for that year would show at approximately \$9,977.

Nineteen fourteen was a lean year for Great Lakes vessel owners, due to reduction in the ore movement, which showed a decrease of 34% from 1913, according to the report of W. Livingstone, President of the Lake Carriers' Association. Fifty-four sailors lost their lives in shipwrecks, which was "a rather high average," in the words of the President. Twenty-five vessels were lost during the season.

The New York State Barge Canal will, it is announced, be in operation for 78 miles west of the Hudson River during the coming summer, and the entire canal from the Hudson River to Lake Ontario will be ready for operation during the summer of 1916.

Russian Government Purchases Reid Newfoundland Co's s.s. Lintrose.

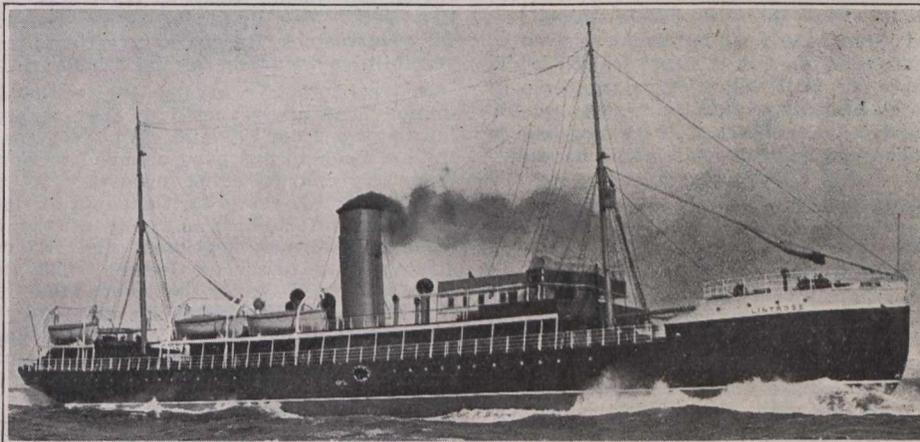
It is announced from St. John's, Nfld., that the Russian Admiralty has purchased the Reid Newfoundland Co's s.s. Lintrose, for icebreaking service in the neighborhood of Archangel. It is stated that negotiations were commenced some time ago, but were suspended owing to the Dominion Government's offer of the icebreaking s.s. Earl Grey, which was purchased and sent to Russia, but was not successful in keeping the harbor open. The negotiations for the Lintrose were then resumed and the vessel was taken from the Port aux Basques-North Sydney route for inspection and test at St. John's before a representative of the Russian Embassy at Washington, D.C., and a shipbuilding expert from the U. S., and the purchase was completed.

She was built at Newcastle upon Tyne, Eng., in 1913, and was specially designed for operation in heavy ice. Her dimensions are, length 255 ft., beam 37 ft. She is equipped with single screw triple expansion engines, supplied with steam by four large boilers under forced draught, and is capable of running at 15½ knots an hour. Excellent passenger accommodation is pro-

The Grounding of the s.s. Assiniboia.

The enquiry into the cause of the grounding of the C.P.R. s.s. Assiniboia on Bad Neighbor Shoal, Cove Island, Georgian Bay, on July 2, 1914, was held at Toronto, Feb. 18, before Capt. L. A. Demers, Dominion Wreck Commissioner, with Capt. J. D. Foote and H. W. LaRush, as nautical assessors. The judgment was as follows:—

After carefully reviewing the evidence adduced, we have come to the conclusion that the master of the Assiniboia adopted every method to navigate his vessel carefully, but owing to the current which he was not aware existed at the time, as they are irregular, it is evident that his vessel drifted from the course he thought he was making. Whilst we maintain that the fog horn is a secondary aid to navigation, and the sounds cannot be absolutely relied upon, owing to air currents and prevailing winds deflecting the sounds and giving a navigator possibly a wrong impression of his position, it behoves masters of ships to adopt the greatest measures of precaution. In this instance these measures were adopted and had the fog horn been sounded it is possible the mishap would not have happened, and we cannot but exonerate the



The Steamship Lintrose.

vided for 30 first class and 150 second class passengers, with electric lighting and all up to date equipment.

Toronto Harbor.—Work on the improvement will go on this year without interruption, \$1,000,000 being provided. The Secretary, A. Lewis, made the following statement, recently: "When the war began we interviewed the Government and were assured that the money to carry on the work would be forthcoming this year. A million was voted last year, of which \$200,000 was left over as a balance, and is included in the million just put into the estimates. The contracts will be proceeded with. We have 3,700 ft. of the western seawall cribbed, and this will be capped with cement and the cribwork extended by 5,000 ft. in front of Parkdale, 65 ft. of substructure in the channel for the industrial district was placed last year and will be capped this year. The former wall will cost \$80 a lineal foot, the eastern wall \$120."

War Insurance.—An Ottawa report states that the Department of Marine is considering a scheme of war insurance, to be worked by the Government, or under Government guarantees. It is also stated that steps will be taken to secure the release of some of the vessels held as prizes, for operation on the Canadian route, in order to relieve the shipping situation caused by the deficiency of tonnage due to the Admiralty requirements.

master from all blame with regard to the grounding of his vessel. The court has much pleasure in making the statement that it is the first time it has had the opportunity of examining a log, so carefully and neatly kept, without erasures or marginal notes.

With regard to the lighthouse keeper we cannot but state that he has performed his duties in a very perfunctory manner. He has absolutely disregarded the regulations which have been submitted to him with respect to keeping 20 lbs. pressure on the reserve tank in order to be able, in as short a time as possible, to operate the fog horn, which is absolutely necessary, as fogs come down very suddenly in that district. Also the fact of placing in charge a boy of 16 years, apparently intelligent, but not realizing the importance of the work he had to perform, is a very grave danger to the safety of shipping at that place, and does not meet with the requirements of rule 4, which says that at least one competent, able bodied man must be in charge at all times. On the whole we cannot express any other opinion than that there has been negligence, not only on this occasion, but on others which have been proved by witness.

The Canadian Society of Civil Engineers' Victoria Branch opened its new quarters in the Belmont House, Victoria, B. C., Feb. 5, with a reception and entertainment.

Atlantic and Pacific Ocean Marine.

The C. P. R. s. s. *Metagama* is scheduled to sail from Liverpool, Eng., on her maiden trip, Mar. 26.

It is reported from Vancouver, B.C., that the service which was started recently by Russian steamships between Vancouver and Vladivostok, may have to be suspended, owing to lack of vessels, many of which are being used in Government service.

The case of the C.P.R. against the owners of the s.s. *Storstad*, for \$3,000,000 damages sustained through the sinking of the s.s. *Empress of Ireland* by the *Storstad*, commenced in the Admiralty Division of the Exchequer Court at Montreal, Feb. 15.

Panama Canal tolls in December aggregated \$411,895, the highest monthly record since the opening of the canal. The cargo tonnage was 446,415 tons, not including two lumber cargoes containing 5,232 m. ft. Ninety nine vessels passed through the canal during the month.

The United States Government has thanked the Dominion Government for the assistance rendered by the s.s. *Lady Laurier* in saving the s.s. *Camino*, which broke down while en route from San Francisco to Rotterdam with supplies for the Belgians, and which was towed into Halifax at the end of January.

The Allan Line s. s. *Mongolian* arrived at St. John's, Nfld., Feb. 8, from Philadelphia, en route for Scotland, with a large hole in her bow, caused by striking a rock outside the harbor. A portion of the cargo had to be discharged before repairs could be undertaken.

Canada Steamship Lines is reported to be making arrangements, in conjunction with Furness Withy & Co., for placing such of its vessels as are suitable for ocean service, in the ocean grain carrying business on the reopening of navigation. It is reported that the company has about 10 vessels which can take part in such service.

The steamship companies have completed arrangements with the Russian Government whereby they may book Russian and Finnish emigrants at Helsingfors or Hango, such passengers undertaking to find their way to these ports. Such passages are confined to women, children and non-combatant males, and all must have passports.

The Allan Line s.s. *Corsican*, resumed her mail service between England and Canada at the end of January, after having been in the Admiralty service since the commencement of the war. The company's s.s. *Pretorian*, which was being used on the Liverpool route, has been returned to the Glasgow route.

The Usher Steamship Co.'s s.s. *Usher* has been sold to A. Richter and Co., Newcastle, Eng., for about £28,000. She was built at Glasgow, Scotland, in 1901, and is 3,594 tons gross, 2,350 tons register, with a deadweight capacity of 6,200 tons. The Usher Steamship Co. is owned by Hugh Cann and Sons, Ltd., Yarmouth, N. S.

The Allan line s.s. *Numidian* is reported to have been sold to British owners for £13,000. She was built at Glasgow, Scotland, in 1891, with steel hull, and equipped with triple expansion engines with cylinders 30, 50 and 80 x 60 ins., 532 n.h.p. Her dimensions are, length 400 ft., breadth 45.2 ft., depth 30.6 ft.; tonnage, 4,336 gross, 3,107 register.

The British s.s. *Chalister*, what is stated to be the first of five vessels to be engaged in a round the world service by way of the Panama Canal, arrived at Victoria, Feb. 11. This vessel on this voyage originally sailed from New York some time ago with cargo for Oriental ports, and instead of returning to New York by the Suez Canal route, was

ordered to proceed from China to British Columbia for coal, and then via the Panama Canal for New York.

The contract for the repair of the s.s. *Camino*, which was under charter to U. S. interests for carrying food supplies to Belgians, and which was badly damaged during rough weather recently, has been awarded in Halifax, N.S. Among other repairs is a new rudder, which is being supplied by the Nova Scotia Steel and Coal Co., New Glasgow.

The Norwegian s. s. *Imataca*, was reported at Halifax, N. S., Feb. 8, by wireless, to have been abandoned in mid ocean, the crew having been rescued by the s. s. *Elzorore*, which stated that the *Imataca* was in a sinking condition and a menace to navigation. She was bound from Scotland to Baltimore in ballast. She was built at Middlesbrough, Eng., in 1909, and was owned in Bergen, Norway.

The Canadian Trading Co., Ltd., has been organized and has announced the chartering of the British schooners *Albert Meyer* and *Coquitlam City*, the former for March leading in British Columbia for New Zealand ports, with Australian ports optional, and the latter for April loading. W. R. Dockrill, Vancouver, B.C., is President, and C. M. Pettibone, Seattle, Wash., is Vice President. The President sailed, recently, for Vladivostok, Russia, to investigate trade possibilities with Siberia and Manchuria.

Montreal officials of the White Star-Dominion Line are reported to have received information from England, that the name of the s.s. *Zeeland* has been changed to *Northland*, the change being necessary as the booking by this vessel for Canadian territory has been affected on account of the decided anti-German sentiment and the constructing of the name as German. The item in a Montreal paper continues that the *Northland* and *Vaderland* are now carrying two classes of passengers, etc. If the name of the first vessel, which was not German, was changed, what about the name of the second one, which is distinctly German?

The alterations necessary to convert the former C.P.R. s.s. *Empress of India* into the hospital ship *Loyalty*, were completed recently at Bombay, and the whole was inspected by the Governor of Bombay before sailing from that port. The changes were carried out under the supervision of offices of the Indian Medical Service. Altogether there are about 500 beds available on the vessel, and there is a completely equipped operating room. The vessel, which, while she was acting as an auxiliary cruiser, was painted a dull grey, has been repainted white, with black strips on the water and deck lines, with the red cross amidships. She was purchased and equipped by the Maharajah Scindia of Gwalior.

Maritime Provinces and Newfoundland.

The Dominion Government s.s. *Tyrian* is being repaired at Halifax, N.S. The amount of the contract is \$9,841.

The Reid Newfoundland Co.'s s. s. *Bruce* was seriously damaged by ice early in February at Port aux Basques, Nfld. The cost of repairs is estimated at \$20,000.

The Cabot Steam Whaling Co.'s whaling steamship *Cabot*, was offered for sale by tender, by the liquidator of the company at St. John's, Nfld., Feb. 20.

The British s. s. *Kendal Castle* arrived at Louisburg, N. S., Feb. 6, under charter to the Dominion Iron and Steel Co. She will load a general steel cargo for British ports.

Owing to damage by storm to the east breakwater pier and lighthouse at St. Martins, N.B., the exhibition of the fixed red light has been discontinued until

further notice. The lighthouse will shortly be moved 100 ft. farther in on the breakwater.

The Lehigh Valley Coal Co. is reported to have acquired, through local interests, the shipyards, docks and mill, formerly belonging to the Hildyard estate, along the harbor front at St. John, N.B., at a cost of \$150,000.

The Red Cross Line s.s. *Morwenna*, when leaving Halifax, N.S., for St. John's, Nfld., Jan. 31, collided with the ferry steamboat *Chebucto*, and sustained considerable damage to her bow, all above the water line.

The Nova Scotia Admiralty Court on Feb. 16, awarded \$3,250 as salvage to the owners of the s.s. *Skogland*, for towing the s.s. *Desola* into North Sydney about a month ago. Of the amount awarded, \$2,500 goes to the owners and the balance is divided between the officers and crew.

The Newfoundland Government has announced that Norwegian vessels now at Sydney, N.S., will be permitted to engage in the seal fishery this season, but they must comply with the law requiring all sealing vessels to carry wireless telegraph installations.

A press report from Vancouver states that the C.P.R. s.s. *St. George*, which has been operated in the company's Bay of Fundy service for some time, is to be transferred to the Pacific coast, on account of the two new *Princesses*, which were to have been on the coast service for the C.P.R. this spring, having been requisitioned by the Admiralty. The report states that the *St. George*, prior to her purchase by the C.P.R., was operating in the Channel service between Dover and Calais. This is incorrect, as the C.P.R. purchased her from the Great Western Ry., by which she was operated between Rosslare, on the southwest coast of Ireland, and Fishguard in South Wales, for which service she was built. Enquiry at Montreal elicits the information that the report is incorrect.

The s.s. *Rose Castle*, which is being built specially for the coal trade between Sydney, N.S., and Montreal, was launched at Sunderland, Eng., during January. She is built on the Isherwood system with single deck, and two bridges. Water ballast is provided for throughout the double bottom, in the fore and aft peaks and in wing tanks. There are 10 large hatches, 34 ft. wide with hinged steel covers. Two derricks are fitted to each hatch, and derricks are fitted to both masts for lifting and lowering hatch covers and handling heavy weights. There are 12 steam winches, steam and hand windlass, steam steering gear with rudder brake worked by telemotor from the wheel house and flying bridge and also from the top of the steering gear house. There are steam ash hoist and ash chute, and the vessel will be equipped throughout with electric light. The propelling machinery consists of triple expansion engines with cylinders 28½, 47 and 79 x 54 ins., supplied with steam by three multitubular boilers at 180 lbs., fitted with forced draught. It is expected that she will load a full cargo of coal in six hours and discharge by grabs in about the same time. Her dimensions are, length 470 ft., breadth 58 ft., depth moulded 33 ft. 9 ins., with a deadweight capacity of over 11,000 tons on a 25 ft. draught.

Province of Quebec Marine.

The Dominion Government s. s. *Montcalm* sailed for Anticosti Island, Feb. 22, on the winter mail service. The ice in the neighborhood was reported to be very heavy.

The Montreal Harbor Commissioners are reported to have acquired the southwestern portion of lot 28, Hochelaga ward, containing 18,390 sq. ft., bound on the north by Notre Dame St. East, for \$58,871.25.

The Department of Marine announces that on the opening of navigation, the Prince Shoal lightship no. 7, will be moored in a new position about a third of a mile northward of its old position, in the alignment of Pointe Noire range lights, 4.42 miles from Pointe Noire front range light, off the mouth of the Saguenay River in the St. Lawrence.

A London, Eng., cable dispatch states that judgment for £466, balance of contract price due for transporting an icebreaker from Smith's Dock on the River Tees to Quebec, has been given to Rea and Co. at Liverpool. The icebreaker was built for the Quebec Harbor Commissioners at a cost of £18,500, and Rea and Co. were given a subcontract to deliver it. The vessel was transported on the understanding that they would receive certain money retained by the Commissioners, but the latter refused to pay a total of £2,000 on account of claims for damages through delay. It was held that plaintiffs had been prevented from securing money on account of defendants' acts.

Ontario and the Great Lakes.

The steam tug Harrison, owned by John Harrison and Sons Co., Owen Sound, is being equipped with wireless telegraph by the Marconi Wireless Telegraph Co. of Canada.

The Goodrich Transit Co., Chicago, Ill., which operated the s.s. Arizona to Georgian Bay ports, last season, has announced that it has been found necessary to discontinue the service for the forthcoming season on account of the loss of one of its vessels.

The Cleveland and Buffalo Transit Co. announces that the same service will be operated during the coming season, as was run last year, between Cleveland, Ohio, and Port Stanley, Ont., the s.s. State of Ohio making the trip three times a week.

The Port Huron and Sarnia Ferry Co., it is reported, has been ordered to report and clear its vessels at Sarnia, each trip between Sarnia and Port Huron, on account of their now being operated as freight and passenger steamboats and not ferries.

It was announced at a meeting of the London, Ont., Board of Trade, recently, by Sir Adam Beck, that the Great Lakes Transportation Co., of which James Playfair is President, is planning the construction of a grain elevator at Port Stanley, to cost about \$700,000.

The Great Lakes Protective Association is taking steps to obtain a uniform rate for insuring vessels belonging to members of the association. The fact that all vessels in the association work under the same conditions will be brought to the attention of the underwriters.

J. Frater Taylor, President, Algoma Steel Corporation, in addressing the Sault Ste. Marie Board of Trade, Feb. 17, stated that he could see no reason why there should not be access for lake vessels to the ocean, by way of St. Lawrence, providing for ocean going steamships passing right up to Sault Ste. Marie.

It was announced at Detroit, Mich., recently, by C. F. Marvin, Chief of the U.S. Weather Bureau, that a naval wireless telegraph station will be built on Lake Michigan, near Chicago, during the year, to be used in dispatching storm warnings and general weather information to vessels on the Great Lakes.

Press reports state that about \$2,100,000 will be spent on harbor improvement works at Toronto during the current year. A considerable amount of work was done last year, and this will be continued. Some of this work is being carried out under the

Toronto Harbor Commissioners, and other portions by the Dominion Public Works Department.

The United States s.s. Tampa, which was sunk on the Canadian side of the St. Clair River, about 22 miles south of Sarnia, in 1911, was sold by auction at Sarnia, Feb. 2, for \$300. She was built at West Bay City, Mich., in 1890, and rebuilt in 1899. She is equipped with triple expansion engines, with cylinders 20, 32 and 54 x 42 ins., 1,000 i.h.p. at 76 r.p.m., supplied with steam by two Scotch boilers, 12 ft. long by 11 ft. diam. at 150 lbs.; tonnage, 1,972 gross, 1,632 register.

The U.S. Lake Survey reports the levels of the Great Lakes in feet above tide water for January, as follows: Superior, 601.81; Michigan and Huron, 579.44; Erie, 571.09; Ontario, 244.70. Compared with the average January levels for the past ten years, Superior was 0.22 ft. below; Michigan and Huron, 0.63 ft. below; Erie, 0.72 ft. below, and Ontario, 0.97 ft. below. It was anticipated that during February, Superior would drop 0.2 ft., Michigan and Huron would remain stationary, Erie would drop 0.1 ft., and Ontario rise 0.1 ft.

In a recent case against the Northern Navigation Co., for damages for the failure of the company to rescue a seaman who fell overboard through his own negligence whilst skylarking, it has been held that there is no legal obligation on a vessel owner under such conditions, on the ground that the voluntary action of the seaman in placing himself in a position of danger from which there was no escape except through the owner's intervention, could not create an obligation to stop the vessel or adopt other means to save him, and that no term was expressed or implied in the contract of hiring, that the owner should protect him from the consequences of his own negligence.

Under a deed of assignment for the benefit of the creditors of the Temiskaming Navigation Co., tenders are being received by Jas. Hardy, Toronto, for the purchase of the steamboats Meteor, Temiscamingue and Jubilee, the hull of the launch Kiask, 5 scows, and wharf properties on Lake Temiskaming, all the property of the Temiskaming Navigation Co., and the steamboat Silverland, the property of the Haileybury Navigation Co. The chief details of the steamboats are as follows: Meteor, built at Opemican, Que., in 1897; length, 130.5 ft.; breadth, 27 ft.; depth, 7.4 ft.; tonnage, 299 gross, 204 register; engines, 165 n.h.p. driving a screw. Temiscamingue, built at Timiskaming, Que., in 1898; length, 133 ft.; breadth, 22.5 ft.; depth, 6.5 ft.; tonnage, 295 gross, 213 register; engines 21 n.h.p. driving a screw. Jubilee, built at Kingston, Ont., in 1897; length, 84.2 ft.; breadth, 15.4 ft.; depth, 5 ft.; tonnage, 177 gross, 78 register; engine 10 n.h.p. driving a screw. Silverland, built at Haileybury, Ont., in 1909, length, 85.4 ft.; breadth 17 ft.; depth, 6.7 ft.; tonnage, 92 gross, 53 register; engine, 13 n.h.p. driving a screw.

Manitoba, Saskatchewan and Alberta.

The Canadian Hydrographic Survey has prepared charts of the Hudson Bay and Strait, and of the approaches to the Nelson River in Hudson Bay, copies of which may be had from the Department of Naval Service.

A site has been purchased for the construction of a dock at Winnipeg, and negotiations are in progress for another. It is expected that work on one of them, at least, will be proceeded with during this year. The Dominion Government appro-

priated \$200,000 last year for harbor work at Winnipeg and St. Boniface.

The shipping of goods to the Arctic circle has undergone many changes since the Hudson's Bay Co. commenced with dog teams and flat bottomed boats. Recent shipments from Edmonton, Alta., go by Edmonton, Dunvegan and British Columbia Ry. to McLennan, thence by the Canada Central Ry. to within 20 miles of the Peace River Crossing, to which latter point they are taken by teams, and loaded on a steamboat for shipment to the Chutes, and transhipped to another vessel which will take them to northern points along the Slave and MacKenzie Rivers.

British Columbia and Pacific Coast.

The Imperial Oil Co. has placed a contract locally for the construction of a creosoted pile wharf at Prince Rupert, between the dry dock wharf and Cameron Bay. It is stated that work will be commenced almost immediately.

The Achates Tow Boat Co., Ltd., has been incorporated under the British Columbia Companies Act, with \$30,000 capital and office at Vancouver, to build, own and operate steam and other vessels and to carry on a general tow boat business.

The Dominion Government fisheries cruiser Galiano, which stranded near Esquimalt recently, while assisting a Norwegian barque, which was in danger, is undergoing repairs at Esquimalt. A new stern post is to be fitted, and about 13 plates and a number of frames are being straightened.

Dominion Government and Vancouver civic officials visited the alterations being carried out at Brockton Point recently, in connection with the new lighthouse there, and G. Robertson, Marine Agent, Vancouver, expressed satisfaction as to the progress of the work.

The Border Line Transportation Co.'s s.s. Despatch, which was formerly operated between Vancouver and Seattle, has been equipped with passenger accommodation, and has been placed on the run to south east Alaskan ports, in conjunction with the steamships Alki and Northland.

It is reported that the Grand Trunk Pacific Coast Steamship Co.'s s.s. Prince Rupert, which has been idle since the commencement of the war, will be overhauled at Esquimalt, and replaced in service to Prince Rupert and Granby Bay, about April 1, when the s.s. Prince George will be withdrawn for overhauling, after which the usual Monday and Thursday sailings will be resumed.

The floating dry dock, which the contractors, Grant, Smith and McDonnell, are using in connection with their work in Victoria harbor, collapsed and sank there, during the construction of the cribs, for which the dock was used, at the end of January. The two cribs which were in the dock were ready for transfer, and were a part of 54 similar ones. Angus McDonnell is reported to have stated that the loss would not be so great as was at first anticipated, and it is possible that a marine way will be built at Esquimalt to handle the construction of the cribs.

Lake Freight Rates.—A bill, introduced in the House of Commons by J. E. Armstrong, M.P. for East Lambton, Ont., providing for the placing of freight rates on steamships on inland waters, under the jurisdiction of the Board of Railway Commissioners, was read a second time, Feb. 18. Considerable opposition to the proposal has developed. A similar bill, introduced last year, was withdrawn.

The Vancouver Dry Dock Project.

Canadian Railway and Marine World published in its issues of Aug., Sept., Oct. and Dec., 1914, some information about the Dominion Shipbuilding, Engineering & Drydock Co.'s project at Vancouver. We are officially advised that it is proposed to build a drydock 1,000 ft. long by 100 ft. wide, but that in order to obtain a subsidy from the Dominion Government, if it is necessary to increase the dimensions to 1,150 x 110 ft., this will probably be done, although it is felt that for a number of years the 1,000 x 100 ft. size would be sufficient for the needs of the port.

We are also advised that the company expects to have in operation by the end of this year, the 6 buildings and the 2 marine ways, one of 1,000 tons and the other of 4,000 tons capacity, together with the full equipment necessary in each case. After 1916 it is hoped to complete the second unit, consisting of a fresh water canal and shipbuilding plant, while July 1, 1917, should see the completion of the drydock, which will be the final construction.

Control of Steamship Freight Rates.—

In the discussion of the estimates in the House of Commons, Feb. 16, the Minister of Trade and Commerce stated in reference to an item of \$6,000 for the control of ocean rates that all contracts for steamship services give him the right to control rates, and that he intended to secure an expert to deal with the matter.

Canada Steamship Lines, Ltd.—The annual meeting fixed to be held in Montreal, Feb. 25, was adjourned to Mar. 25, as the date fixed by the bylaws did not allow sufficient time to get in all the returns and for the audit. The shareholders will be asked to approve an amendment to the bylaws changing the time of the annual meeting from February to March in each year.

The Ontario Workmen's Compensation Board has, on account of the difficulties encountered in deciding the limits of applicability of the Workmen's Compensation Act to vessels, placed the navigation industry in schedule 2, that is under industries, the employers in which are individually liable to pay the compensation, and assessments paid in by vessel owners are being returned.

Canadian Registry of Shipping.—The Minister of Marine stated in the House of Commons, Feb. 10, that 22 vessels were withdrawn from the Canadian register, since July 1, 1914, with a gross tonnage of 28,791. Of these, three were transferred to Newfoundland, three to Barbadoes, one to France, 14 to the United States and one to Spain. During the same period, 194 vessels were added to the Canadian register, with a gross tonnage of 65,842, and of these, 127 were steamships and 67 sailing vessels.

Shortages and Overages in Grain Cargoes.—Deputations from the Winnipeg and Montreal Grain Exchanges waited on the Premier, and the Ministers of Trade and Commerce, Marine and Fisheries, Customs and Public Works at Ottawa, Feb. 6, to protest against the change in the bill of lading adopted at a conference of lake grain carriers and shippers at Detroit, Mich., Jan. 6, and which was published in Canadian Railway and Marine World for Feb., page 76, and also to ask that the approval of the form of bills of lading be placed under the Board of Railway Commissioner's jurisdiction. The grain exchange delegates were followed by F. King, Counsel, Dominion Marine Association and H. W. Richardson of Kingston, Ont., on behalf of the vessel owners, and on the conclusion of the speeches Sir Robert Borden announced that the matter would receive due consideration.

Mainly About Marine People.

R. T. Holcomb, of Hall & Holcomb, Ltd., Ottawa, who has been seriously ill for several months, is somewhat improved in health.

J. W. Norcross, Managing Director, Canada Steamship Lines, Ltd., returned to Montreal in the middle of February, after spending some weeks in Bermuda.

L. Revillon, senior member of the firm of Revillon Bros., fur merchants, and who have branches in Canada and own some steamboats in Canadian waters, died in Paris, France, Feb. 1.

John T. Mathews, who has been appointed Dominion Government Steamboat Inspector at Edmonton, Alta., was presented with a signet ring by a number of his friends at West St. John, N.B., on leaving there to take up his new duties.

R. H. Alexander, Chairman of the Vancouver Pilotage Authority since May 26,



S. L. Penhorwood,
Manager, New Ontario Dock Co., Ltd.

1883, died suddenly at Seattle, Wash., Jan. 29. He was born at Edinburgh, Scotland, Mar. 26, 1844, was educated in Toronto, and went to British Columbia in 1862.

Alexander Elder, founder of the Elder Dempster lines, died at Southport, Eng., Jan. 25. He retired from active participation in the affairs of the company some years ago. He was a director of the Pacific Steam Navigation Co., and Chairman of the Steamship Owners' Association. He founded a chair of naval architecture in the Liverpool University, and held the Royal Society's medal for life saving.

S. L. Penhorwood, Manager, New Ontario Dock, Sault Ste. Marie, Ont., who has resigned and been succeeded by F. Gilchrist, formerly of Port Colborne, Ont., as mentioned in our last issue, was in charge of the property from its organization in 1901 until Jan. 15, 1915. He was born at Swansea, South Wales, Jan. 6, 1873, and has lived in Sault Ste. Marie for 30 years. He is harbor master of the port and is interested in several businesses there. A year ago he was given command of the 51st Sault

Ste. Marie Rifles, with the rank of Lieutenant Colonel. The first and second over-seas contingents were each furnished the desired quota of 125 officers and men, and he has been selected to organize the Northern Battalion from Algoma, Nipissing and Timiskaming.

The Farrar Transportation Co., Ltd., held its annual meeting in Toronto, Jan. 26. We are officially advised that after taking care of the fleet's bonded indebtedness, which amounted to approximately 7% on the capital stock, a dividend of 3% was paid to the shareholders. The directors were re-elected as follows: T. I. Thomson, Owen Sound, Ont., President; E. R. Wayland, Fort William, Ont., Vice President; G. E. Fair, Toronto, Secretary-Treasurer and Manager; D. D. Lewis, Lorain, Ohio; W. E. Allen, Toronto; G. P. Pearsall, Collingwood, Ont.; C. I. deSola, Montreal; J. Shultis, Port Colborne, Ont.; M. Snetsinger, Thornbury, Ont.; E. Stubbs, Sault Ste. Marie, Ont.

Summer Deckload Rules.—The Dominion Marine Department, acting in line with the British Board of Trade, is relaxing the summer deckload rules for oceangoing ships. The summer deckload has not been permitted in ports in the British Isles until April 16, but will now be allowed on vessels arriving after Mar. 30. Vessels will accordingly be allowed to leave Canadian ports for the United Kingdom with summer deckloads after March 1 in the case of sailing vessels and Mar. 12 in the case of steamers. The Dominion Government, however, takes no responsibility in the case of a Canadian ship arriving in the United Kingdom before the open season.

Georgian Bay Canal Project.—An Ottawa press dispatch states that it is likely that the Montreal, Georgian Bay and Ottawa Canal Co. will relinquish its charter to build a canal connecting the Georgian Bay with the St. Lawrence, and will hand over to the Government the property it holds, and the results of the work done. The company was incorporated in 1894, and considerable time and money has been spent in endeavoring to get the Dominion Government to undertake the work and award the contract to the company, or to guarantee the company's bonds to enable the work to be carried through. The project has been thoroughly discussed from many standpoints, and has aroused considerable controversy, its construction being thoroughly advocated by some and as thoroughly condemned by others. An application is before the Dominion Parliament for an extension of the time within which the company may commence the authorized works.

Suggested Blockade Running for U.S. Vessels.—A New York shipping paper states that there appears to be some ground for the opinion expressed by shipping veterans that merchants of today do not seem to possess the same confidence in sailorly qualities that their forbears turned to such good account in running the blockade during the civil war, and continues that it is surprising that so far no serious attempt has been made to run the blockade of the German ports and elude the British warships patrolling the English Channel and the northern passage. No one questions the morality of running the blockade by neutral countries, as it is considered legitimate game for those who care to undertake it, but it should be remembered that until the present war some respect has been paid to international rules governing warfare. Running a blockade with explosive mines spread broadcast over the waters calls for a degree of foolhardiness quite outside the range of sailorly qualities.

Transportation Conventions in 1915.

Mar. 16-18.—American Railway Engineering Association, Chicago, Ill.
 April.—American Association of Passenger Traffic Officers, San Francisco, Cal.
 April.—American Association of Demurrage Officers, Richmond, Va.
 Apr. 28.—Association of American Railway Accounting Officers, Atlanta, Ga.
 May 4-7.—Air Brake Association, Chicago, Ill.
 May 12.—American Association of General Baggage Agents, Los Angeles, Cal.
 May 17-19.—Railway Storekeepers' Association, Chicago, Ill.
 May 17-20.—International Railway Fuel Association, Chicago, Ill.
 May 19.—Association of Railway Claims Agents, Galveston, Tex.
 May 19.—American Railway Association, Atlantic City, N.J.
 May 20-21.—American Association of Railroad Superintendents, San Francisco, Cal.
 May 21-24.—American Association of Freight Agents, Richmond, Va.
 May 26-28.—Master Boiler Makers' Association, Chicago, Ill.
 June 9-11.—American Railway Master Mechanics' Association, Atlantic City, N.J.
 June 14-16.—Master Car Builders' Association, Atlantic City, N.J.
 June 15.—Train Despatchers' Association of America, Minneapolis, Minn.
 June 16.—Freight Claim Association, Chicago, Ill.
 June 22-25.—Association of Railway Telegraph Superintendents, Rochester, N.Y.
 June 23-25.—Association of Transportation and Car Accounting Officers, Niagara Falls, N.Y.
 July.—American Railway Tool Foremen's Association.
 July 14-17.—International Railway General Foremen's Association, Chicago, Ill.
 Aug. 17.—International Railroad Master Blacksmiths' Association, Philadelphia, Pa.
 Aug. 19, 20.—American Association of Railroad Superintendents, San Francisco, Cal.
 Sept. 14-16.—Roadmasters' and Maintenance of Way Association, Chicago, Ill.
 Sept. 14-17.—Master Car and Locomotive Painters' Association of the United States and Canada, Detroit, Mich.
 Sept. 21-24.—Railway Signal Association, Salt Lake City, Utah.
 October.—American Association of Dining Car Superintendents.
 Oct. 4-8.—American Electric Railway Association, San Francisco, Cal.
 Oct. 5-7.—Railway Fire Protection Association, Chicago, Ill.

Transportation Associations, Clubs, Etc.

The names of persons given below are those of the secretaries unless otherwise stated:
 Canadian Car Service Bureau—J. Reilly, Manager, 401 St. Nicholas Building, Montreal.
 Canadian Electric Railway Association—Acton Burrows, 70 Bond Street, Toronto.
 Canadian Freight Association (Eastern lines)—G. C. Ransom, Canadian Express Building, Montreal.
 Canadian Freight Association (Western lines)—W. E. Campbell, 805 Boyd Block, Winnipeg.
 Canadian Railway Club—J. Powell, St. Lambert, Que. Meetings at Montreal 2nd Tuesday each month, 8.30 p.m., except June, July, and August.
 Canadian Society of Civil Engineers—C. H. McLeod, 176 Mansfield St., Montreal.
 Canadian Ticket Agents' Association—E. de la Hooke, London, Ont.
 Central Railway and Engineering Club of Canada—C. L. Worth, 409 Union Station, Toronto. Meetings at Toronto, 3rd Tuesday each month, except June, July, and August.
 Dominion Marine Association—F. King, Counsel, Kingston, Ont.
 Eastern Canadian Passenger Association—G. H. Webster, 54 Beaver Hall Hill, Montreal.
 Engineers' Club of Montreal—R. W. H. Smith, Beaver Hall Square, Montreal.
 Engineers' Club of Toronto—r. E. Wolsey, 94 King Street West, Toronto.
 Express Traffic Association of Canada—W. H. Burr, Chairman, Toronto.
 Great Lakes and St. Lawrence River Rate Committee—James Morrison, Montreal.
 International Water Lines Passenger Association—M. R. Nelson, New York.
 Niagara Frontier Summer Rate Committee—James Morrison, Montreal.
 Nova Scotia Society of Engineers—A. R. McCleave, Halifax, N.S.
 Quebec Transportation Club—A. F. Dion, Quebec.
 Ship Masters' Association of Canada—Capt. E. Wells, 45 St. John Street, Halifax, N.S.
 Toronto Transportation Club—W. A. Gray, 143 Yonge Street, Toronto.
 Western Canada Railway Club—Louis Kon Box 1707, Winnipeg. Meetings at Winnipeg, 2nd Monday each month, except June, July, and August.

Trade and Supply Notes.

The matter which appears under this heading is compiled, in most cases, from information supplied by the manufacturers of, or dealers in, the articles referred to, and in publishing the same we accept no responsibility. At the same time we wish our readers distinctly to understand that we are not paid for the publication of any of this matter, and that we will not consider any proposition to insert reading matter in our columns for pay or its equivalent. Advertising contracts will not be taken with any condition that accepting them will oblige us to publish reading notices. In other words, our reading columns are not for sale, either to advertisers or others.

The Ohio Brass Co., Mansfield, Ohio, has issued a card folder describing and illustrating its trolley retrievers and trolley catches.

Algoma Steel Corporation.—J. Frater Taylor, President, is reported to have stated at the Sault Ste. Marie Board of Trade recently that by May its mills will probably be making rails for South Africa.

The Brown Hoisting Machinery Cor., Cleveland, Ohio, announces with deep sorrow and a keen sense of loss, the death of Miss Isabel Love Wightman, who for 17 years served the company with signal ability and devotion.

Martin-Senour Co., Ltd., paint and varnish manufacturers, Montreal, have issued a complete catalogue and color chart of marine and submarine paints and varnishes for steamship and drydock owners and the marine trade in general. Copies will be sent on application.

Canadian Locomotive Co.—Aemilius Jarvis, of Toronto, President, and A. W. Wheatley, of Kingston, Ont., Vice President, were reported to have arrived in Russia early in February to negotiate with the Government for orders for locomotives, shrapnel shells, etc.

The Bird-Archer Co.—Lyndon F. Wilson, Vice President of the Railway List Co., has resigned to become Vice President of the Bird-Archer Co., of New York, manufacturers of boiler compounds, and will take up his new duties on April 1, after which he will be located at the Chicago office.

Martin-Senour Co., Ltd., paint and varnish manufacturers, Montreal, have secured the Canadian manufacturing rights of Bredell's ship bottom compositions and copper paints. It is stated that the greater portion of ship bottom compositions used in Canada heretofore have been of German origin.

Canadian Locomotive Co.—C. Goldmark, who has been with the company for some years as Superintending Engineer, has removed to New York. On the eve of leaving he was entertained at dinner and presented with a loving cup made of pine and mounted on a 10 in. base and coated with aluminum. It was turned out in the company's pattern shop.

The Herbert Morris Crane & Hoist Co., Ltd., Toronto, makers of lifting and shifting machinery, have appointed W. G. McIntosh as Sales Engineer for Toronto. He graduated from the Toronto University's Faculty of Applied Science in 1909, obtaining an honor degree in mechanical engineering, and has since had a varied experience of shop work, drawing office and field erection with Otis-Fensom Elevator

Co., Toronto Power Co., Canada Foundry Co. and Dominion Bridge Co.

John S. Metcalf Co., Chicago and Montreal.—R. P. Durham, Vice President, who has had his headquarters in London, Eng., for the past year, has been spending a holiday in the United States and also a short time in Montreal. His company is designing two elevators for Arthur Guinness, Son & Co., the Dublin brewers, for their plant at Manchester, Eng., one for barley with 835,000 bush. capacity, and one for malt with 600,000 bush. capacity. The cost is estimated at about \$600,000. The Manchester Ship Canal Co.'s elevator no. 2, for which the Metcalf Co. acted as designers and engineers, is about completed. This is also of concrete, with 1,500,000 bush. capacity, costing about \$900,000.

H. Boker & Co., Inc.—The firm of Herman Boker & Co. is now being conducted under the firm name of H. Boker & Co., Inc. It is handling the same line of goods as heretofore, consisting of Novo Superior and other steels, as well as all other lines manufactured by Sir Joseph Jonas, Colver & Co., Ltd., Sheffield, Eng. The small tools used are made in Canada or England. The new company is capitalized at \$500,000, Karl Boker of New York being President and Sir Joseph Jonas of Sheffield, Vice President. F. E. Rejall continues as Canadian Manager at 332 St. James St., Montreal. H. Boker & Co. advise us that neither the old nor new firm is German, and that there neither was nor is any German capital invested, nor any Germans connected with the company.

NOTICE is hereby given that the Annual Meeting of the Shareholders of the Victoria Rolling Stock and Realty Company of Ontario, Limited, will be held at the offices of Messrs. Osler and Hammond, 21 Jordan Street, Toronto, on Wednesday, March 3, 1915, at twelve o'clock noon, for the reception of the Annual Report and election of Directors for the ensuing year.

By order,
 G. T. CHISHOLM,
 Secretary.

Toronto, February 12, 1915.

MARINE SUPERINTENDENT of wide experience and with college training, familiar with design and upkeep of hulls, engines and boilers, first-class certificate, desires position. Box 117, Canadian Railway and Marine World.

WANTED:
 For use on Lake Ontario, two boats, capacity 600 to 1000 tons, for carrying stone. Boats with modelled bow desired. Give present location, age, full description, and price delivered at Toronto. Canadian Stewart Co., Ltd., 30 Church St., New York City.



**MORROW
 Twist Drills**

Your aim is economy in shop practice, with accuracy of results; therefore best tools obtainable are none too good. It will pay you to buy Morrow's.

John Morrow Screw & Nut Co., Limited, - **Ingersoll, Ontario**
 "MORROW DRILLS ARE GOOD DRILLS"

Ottawa Traction Company, Limited

First Annual Report for Year Ending December 31, 1914.

Your directors have pleasure in submitting their first annual report for the year ending 31st December, 1914, including the operations of The Ottawa Electric Railway Company.

Gross earnings of The Ottawa Electric Railway Company were	\$1,096,459.22
Operating expenses and maintenance	665,226.81
Net earnings	431,232.41
Net earnings 1913	412,160.09
Increase 1914	\$19,072.32

The net earnings were disposed of as follows:

Four quarterly dividends of 3% and a bonus of 3%	\$281,535.00
Interest on bonds and loans ..	39,109.18
Mileage payments	15,751.16
Taxes	16,722.36
Placed to the credit of contingent account to be applied to the reduction of track renewals, car equipment, and other accounts	55,000.00
Transferred to credit of profit and loss	23,114.71
	<u>\$431,232.41</u>

25,321,547 passengers were carried compared with 23,987,883 in 1913, an increase of 1,333,664.

The balance at credit of profit and loss account is now \$190,273.38 and of rest account \$200,000.00.

Notwithstanding the business stringency throughout the country for the first seven months of the year, which was added to by the breaking out of the war in August, every month showed an increase in the company's gross receipts.

Nine large double truck cars were added to the rolling stock during the year. The old steel bridge at New Edinburgh was replaced by a new one costing about \$15,000.00.

Next spring it is intended to renew the Bank Street tracks from Wellington Street to Gladstone Avenue, replacing the present light rails with heavy rails. This will complete the track renewals throughout the system, a work which has been going on for a number of years past.

Your directors look with confidence to the future, and expect that when the war is over and business returns to normal conditions there will be an increase in the company's traffic even greater than in the past. All of which is respectfully submitted.

T. AHEARN,
President.

Ottawa, 1st February, 1915.

THE OTTAWA ELECTRIC RAILWAY COMPANY.

STATEMENT OF ASSETS AND LIABILITIES DECEMBER 31st, 1914.

Assets.	
Roadbed and equipment, water power property and plant, real estate and buildings	\$3,221,474.54
Cash	7,295.00
Stores	50,065.18
Insurance paid on account of period beyond December 31st, 1914	5,000.00
Accounts receivable	1,650.00
	<u>\$3,285,484.72</u>

Liabilities.	
Capital stock	\$1,876,900.00
First mortgage bonds	458,000.00
Bills payable	342,609.10
Dividend No. 83, payable January 2nd, 1915	112,614.00
Interest on bonds, payable January 5th, 1915	9,540.00
Bank of Ottawa	3,798.83
Accounts payable	26,228.74
Unpaid dividends	520.67
Contingent account	65,000.00
Rest account	200,000.00
Profit and loss account	190,273.38
	<u>\$3,285,484.72</u>

Profit and Loss Account.

Dividend No. 80. April 1st, 1914 3%	\$56,307.
Dividend No. 81. July 1st, 1914 3%	56,307.
Dividend No. 82. Oct. 1st, 1914 3%	56,307.
Dividend No. 83. Payable Jan. 2, 1915 3% and bonus of 3%	112,614.
	<u>281,535.00</u>
Taxes	16,722.36
Mileage payments	15,751.16
Interest on bonds and loans	39,109.18
Contingent account	55,000.00
Balance at credit of profit and loss, 31st December, 1914	190,273.38
	<u>\$598,391.08</u>

Balance at credit of profit and loss, 31st December, 1913	\$167,158.67
Net earnings, year ending 31st Dec., 1914	431,232.41
	<u>\$598,391.08</u>

Certified correct,
H. T. BURPEE, JAMES D. FRASER,

Auditor. Secretary-Treasurer.
Ottawa, February 1st, 1915.

OTTAWA TRACTION COMPANY, LIMITED.

STATEMENT OF ASSETS AND LIABILITIES, 31st DECEMBER, 1914.

Assets.	
17,118 shares of The Ottawa Electric Railway Company. Par value \$100 each	\$5,135,400.00
Liabilities.	
Capital stock	\$5,135,400.00

RECEIPTS AND PAYMENTS FOR 9 MONTHS ENDING 31st DECEMBER, 1914.

Receipts.	
Dividends received from The Ottawa Electric Railway Company	\$204,813.00

Payments.	
Dividend No. 1 July 1, 1914. 1%	\$ 50,853.00
Dividend No. 2 Oct. 1, 1914. 1%	51,252.00
Dividend No. 3 payable Jan. 2, 1915 1% and bonus 1%	102,708.00
	<u>\$204,813.00</u>

Certified correct,
H. T. BURPEE, JAMES D. FRASER,
Auditor. Secretary-Treasurer.
Ottawa, February 1st, 1915.

OTTAWA TRACTION COMPANY, LIMITED.

Directors.

T. AHEARN - President.
WARREN Y. SOPER - Vice-President.
T. F. AHEARN - REDMOND QUAIN
ELBERT N. SOPER - J. F. SMELLIE
THOMAS WORKMAN
TRAVERS LEWIS, K.C.
JAMES D. FRASER

THE OTTAWA ELECTRIC RAILWAY COMPANY

Directors

T. AHEARN - President.
WARREN Y. SOPER - Vice-President.
T. F. AHEARN - THOMAS WORKMAN
ELBERT N. SOPER - REDMOND QUAIN
JAMES D. FRASER
JAMES D. FRASER - Secretary-Treasurer.

Coal and ash handling conveyors, belt conveyors, structural steel, heavy machine and foundry work, coal mine bankheads and screening plants, mine fans, etc.

Engineers and Contractors
THE EASTERN STEEL CO., LIMITED
Formerly the Brown Machine Co., Ltd. and Bailey-Underwood Co., Ltd.
New Glasgow : : : Nova Scotia

CANADIAN BRONZE LIMITED
Brass Wearing Parts for Locomotives. Journal Bearings for Freight and Passenger Service. BABBITS. Miscellaneous Brass Castings for Railroads.
Works and Office : 69 DELORIMIER AVENUE, MONTREAL, QUE.