

# Canadian Railway and Marine World

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## The Handling of Railway Scrap or Salvage.

By E. J. McVeigh, General Storekeeper, Grand Trunk Railway System, Montreal.

The subject I try to deal with in this little paper is scrap or salvage. The word is so familiar that it might seem superfluous to define it here, and yet I have hopes that some may not know all that there is to know about it. I would be glad indeed if there are a few who know as little about it as a friend of mine in Ottawa. You will remember the great fire of 1898 that wiped out a considerable portion of the cities of Hull and Ottawa. In that year the price of scrap was at a high level, and scrap men from all over the North American continent gathered at Ottawa to bid against each other for the scrap that was lying in the track of this fire. Some of the monied men of the city became aware of what was going on and concluded that they would like to have a share of this business, so they selected my friend as their representative, loaded him down with money, and sent him out to buy scrap in competition with the experts who were swarming over the ground. My good friend proceeded to get busy, and was about to close a deal for a quantity of material when it occurred to him that he would call me up and ask my advice. When he told me what he was trying to do, and gave me the details of the deal that he was about to close, I asked him what he knew about scrap anyway, and his reply was, "Why, scrap is scrap, isn't it?" and then I begged him to come and see me before he went any further or the fellows that he was dealing with would not only have his clothes, but his shirt. After I had had an interview with him and told him a few things about scrap, he concluded that he would not put the experts out of business that year; and he returned the money to his friends, much to their disgust, as they had visions of large profits. These men were not aware of the fact that the scrap business of this continent is one of the best organized lines of trade that is carried on in the country, and is handled largely by experts, and these experts lost money on Ottawa scrap that year.

The word scrap does not, I am afraid, fully describe or cover the thing that we are dealing with. If you look in your dictionary you will find the definition of the word as "a small piece, fragment, or crumb," and as we proceed you will realize that the expression "small fragment or crumb" can hardly be properly applied in this case. The word as used in the railway world is supposed to cover all of our material that has been used for the purposes for which it was made, and discarded as of no further use in its then existing form, and must be returned to be made over into its original form or into some other form in which it can be made use of. It would be interesting to know just what this fragment or crumb amounts to. An ordinary American railway makes \$40 worth of miscellaneous scrap each year for each mile of road operated. We have

on the American continent 271,106 miles of railway, at \$40 a mile. This amounts to \$10,844,240; and we must add to these figures car wheels, discarded locomotives, released rail, structural steel and brass, which would bring our figures close to \$50,000,000. This is some fragment or crumb. The creation and sale of scrap by railways is, of course, no new thing. It has been going on ever since we had a railway. But it has never received from the railways themselves the attention that it deserved. It was one of the things that was everybody's business, and, as usual in such cases, it was nobody's business; and if we could today secure figures showing what the railways of America have lost through the careless handling of scrap, we would begin to understand why Mr. Brandeis got the idea that we were wasting a million dollars a day. The people of America are, I suppose, the greatest wasters the world has ever seen, and it was natural and human that they should be, because in the beginning there were a very few of us, and there was a very large country, and I believe the expression "inexhaustible resources" was coined in America. There is no more mischievous expression in the English tongue; it has been responsible for much of our foolish and wasteful ways.

We learned how to waste before railways came into existence, and we are only slowly unlearning that lesson, and in this matter of scrap we wasted probably a little more than along other lines. By multiplying the kind and class of locomotives and cars we created more scrap than we should have, and after it was created we did not handle it to the best advantage. In this world there are people always prepared to turn to their advantage their neighbors' mistakes, and the railways' neglect of their scrap has enriched many middlemen. Unfortunately the fortunes made by these men did not anywhere near represent the loss suffered by the railways, for the reason that in the scrap purchased by them was much good useable material that could not be used by others than the railway, and the middlemen made no more out of this than they did out of the material that was actually scrap.

The plan of handling and disposing of this material on the majority of American railways has been for the departments to send into the purchasing office an estimate of the quantities on hand at the various points, and the purchasing office would offer it for sale, depending entirely on the parties making the reports as to the correctness of the reports, and also depending on them for the proper loading of the material when the sale was made. As only carload lots could be sold there was generally at the end of the selling period as much scrap on hand as had been sold, and this was carried over from year to year to the railways' very considerable loss. Some years ago the Railway Storekeepers'

Association took up this question very seriously and appointed committees to study the matter and recommend proper methods of handling. One of the first things they did was to classify the scrap. This is divided under 98 headings, as follows:

[Editor's Note.—Space will not permit of printing the entire list, but the following headings are given as examples.]

- 1 Arch bars and transoms, iron.
- 2 Arch bars and transoms, steel.
- 3 Axles, iron. Driving and other axles, 6 in. diam. and over.
- 4 Axles, steel. Driving and other axles, 6 in. diam. and over.
- 5 Axles, iron. Car, tender, engine truck and other axles, car and locomotive, under 6 in. diam.
- 6 Axles, steel. Car, tender, engine truck and other axles, car and locomotive, under 6 in. diam.

A form for storekeepers to report on is supplied headed as follows:—

REPORT of SCRAP on HAND AVAILABLE  
for SALE  
At ..... Storehouse ..... 191...  
Signed ..... S.K.  
Date ..... 191...

Standard Classification  
Railway Storekeepers' Association  
No. DESCRIPTION. Quantity.

The form has the whole 98 headings printed on it, with description of the different items as shown in the specimen of headings given above. Storekeepers are required to fill out and send to the general storekeeper on the 4th of each month, reporting quantities in gross tons and including all scrap available for sale, except that for which sales orders are held. Barrels are reported by carload.

The next thing advocated by the association was the central scrap yard, where all scrap material would be collected and sorted, so that the best price possible would be secured at time of sale.

In this world we always have those who lead, those who follow, and those who refuse to do anything. In this matter of the central scrap yard one of the great roads of the United States has gone a little further than any other, and their experience should be an object lesson to every other road on the continent. The road that I refer to has over 6,000 miles of track, and they were so situated geographically that the best market for their scrap material was at one end of 6,000 miles of rail, but they did not hesitate to collect their scrap and bring it to this point. The first discovery they made was a startling one, which was that out of the enormous tonnage brought into this yard it was found that 40% was good useable material, and the value of this 40% as they selected it from the actual scrap amounted to \$175,000 a month. When this became known the departments became more careful in handling their material, and the good material found in the scrap gradually diminished, until today it amounts to only 6½% of the gross tonnage. In connection with this yard these people have established a salvage and manufacturing plant, and with even the small percentage of good useable



material that they now rescue from the scrap pile the yard is paying a net profit of \$25,000 a month. In addition to this they have their scrap sorted and classified, so that they secure the best possible price; and as this will average them from \$2 to \$4 a ton of an increase over what they would receive if the scrap was unsorted, the gross profit from this yard runs into very high figures indeed. I mention this road in particular for the reason that, as I said before, it has gone a little further than any other road on the continent in the handling of scrap and salvage, but other roads have established yards and gone a considerable distance along the same lines. In each case they have shown a good saving or profit, and you would think that with such data available every road in the country would have established yards by this time, but such is not the fact. Like all other questions pertaining to supply, our railways are inclined to side-step this thing and hope that it will work out its own salvation. "Where ignorance is bliss, it is folly to be wise," says the old saw, but where ignorance is loss it is well to get wise.

One of the most mischievous fallacies in the railway world is the idea that the man who uses the material would be the proper custodian of the material, and that the man who makes the scrap is the best man to handle it. Nothing could be more wrong than this. Would anyone with proper understanding claim that the man who throws good material into the scrap pile is the best possible man to take it out again? Good material finds its way to the scrap pile in various ways and for various reasons. Like every other evil thing in the world ignorance plays a large part in this game. But this is not the main reason. Men whose business it is to build and repair cars and locomotives like to have new material for their work, and the scrap pile is always handy to receive the second-hand material that they do not wish to use. Then again being human they frequently make mistakes and requisition for material that they do not require. Again the scrap pile comes in very handy as a grave wherein to bury their error. And as they have in the past not only made the scrap and placed it in the pile, but loaded it for sale, there has been no check on such actions and they have got away with it.

Had I made this statement some years ago it would naturally have been challenged by the men of the department, and it will be challenged today, but I can prove the statement. A few years ago I might have had difficulty in doing so without visiting various shops and inspecting the scrap pile, but today we have the records from the central scrap yards which prove that the condition was very much worse than any of us supposed. Let us look for a moment at a few of the items that are today being rescued from the scrap in the central yards:—Car replacers, coupler springs, locomotive springs, draft rigging, couplers, brake wheels, draw bar followers, nuts, bolts, knuckles, chainings, angle cocks, stop cocks, train line heads and nipples, steam heat heads and nipples, train line hose bag clips, steam hose clips, pulley blocks, shovels, picks, track bolts, track spikes, brake levers, brake cylinders, triple valves. These are a few of the items that are picked from the scrap that require little or no labor expended on them before they are turned back for use. But in addition to these there is much material, that can be worked over at small outlay and used in place

of material purchased, at much less cost.

Anyone going into the business of reclaiming material from the scrap pile must have a thorough knowledge of what he is doing, or he is liable to lose instead of make money for his company. Or to put it in another way, the handling of scrap is a man's job. The better the man the better he will have the job done, and I have yet to meet the man who knows all about it; and this reminds me of a little incident that occurred some months ago. I was discussing this business with a man who is probably the leading scrap dealer of Canada, and I remarked to him that I was sorry that I could not devote more time to this matter, as I did not yet know all there was to be known about it. His answer was, "Well, why should you expect to know all about scrap? Scrap is my business. I have been at it all my life. I do nothing else, and I am a long way from knowing all about it myself." Such a speech coming from such a man helps a fellow to bear up under the load of his own ignorance.

The railway storekeepers of America have been the pioneers in the effort to secure for the railways the full value of their scrap and in the movement that we call reclamation, meaning the reclaiming from the scrap pile material that could be used to advantage. In advocating the establishment of central yards to which all scrap on the railway would be brought for handling, we are up against the idea that to do this will mean extra expenditure. Now the storekeepers claim to be the economy men of our railways, and we would be very poor economy men indeed if we advocated spending money for which we received no return. We claim that we have proved beyond dispute that the central scrap yard is a money saver or a money maker. If all scrap originating on the road is sent to a central yard there is no further labor being spent on it than the mere loading on cars. The labor saved at the various outside points will be more than sufficient for handling the scrap in the yard. Then it has been found that the good useable material rescued from the pile always more than pays for the labor expended. If you add to this \$2 a ton in the selling price of your scrap properly sorted, you will need little further argument to prove that the central yard is a good proposition. If you want actual figures you have merely got to consider a yard that handled 30,000 tons of scrap in the year. If you increase the value of this scrap by \$1 a ton you have \$30,000. Double this and you have \$60,000. It is a bold man who will ask his company to spend money on new ideas, but with such figures as these to back us up we should have the courage to ask for what we require.

In establishing a central yard we should have a self-propelling crane with a magnet. This crane and magnet will do the work of about 30 men in the actual handling of material. But it would go further than that as it will shunt your cars and save the time of a shunting engine and crew. As the cars come into the yard the material should be unloaded with the crane and magnet on to one pile. From this pile it should be carefully sorted by hand and distributed in smaller piles, according to classification, the good useable material being removed at this time. Then when the scrap is sold the crane and magnet can load it again at the rate of 200 tons a day, and right here we can effect another large saving. By hand labor the loading of this 200 tons would cost us about

40c a ton. Loaded with the crane it would cost less than 10c. Some people claim to do it for less than 5c, but I want to be liberal and on the safe side. This will mean a further gain of 30c a ton; and while we are loading at the full capacity of the crane we are making \$60 a day, which would mean that we would pay for our crane in 166 days. How many pieces of machinery does a railway possess that would pay for itself in less time than this? Until the central yard is established we cannot use a crane and magnet for the loading of scrap, for the reason that the scrap is not sorted properly and must be sorted while being loaded. And this brings us to another phase of the question. In handling scrap under the old plan of having the department do the reporting, sorting and loading, we are constantly receiving claims for improper classification. That is, the receiver of the material will always claim the full amount for everything he finds in the car that is below the classification specified in the sale, and this claim must be allowed, and this is a loss that you can put into figures. But you hear nothing from the buyer for material that he finds in this load that is above classification, and this is a loss that you cannot put into figures and that you know nothing about.

In addition to the loss suffered through improper classification there is the other and greater loss that I have mentioned before of the good useable material that is thrown into the scrap by the mechanical people and, when the scrap is loaded by them, sent away to the buyer. What does this amount to? It is a hard question to answer. Most of us will say we don't know. The mechanical man will say it does not amount to anything; of course he will. It is the old plea of not guilty. But it so happens that I have a few figures that I can give you. The storekeepers of the railways in the United States and Canada are today, and have been for some years, helping each other out by passing along information. A friend of mine on a U. S. road had some 200 carloads of scrap to dispose of, and it was to be loaded by the mechanical men. He had been studying this matter and he asked that he be permitted to sort and load the material. He did not have a central yard. He was told never to mind, that the mechanical men had always done it and they could do it again. Well, they did it, but my friend was not happy. You all know the story of the Jew who was told that the ship he was on was sinking and he replied, "Well, let it sink, it don't belong to me." This man was not built along these lines. He felt that his company was losing money, and he wanted to stop the leak; he wanted proof. So he stopped two of these 200 cars that had been loaded by the mechanical people and unloaded them with his own men. He sorted it and reloaded the cars, keeping out the good useable material, then listed up what he had got out of the two cars and priced it. The value of that material was just a little over \$1,800. From two cars taken at random out of a lot of 200. Now do a little figuring and see what the loss was. The two loads had been sold for less than \$1,800, and they contained that value of good material. Do you say that this was an exceptional case? Well then, how about the scrap yard that I mentioned before where they found that of the total tonnage coming in 40% was good material. This is, it seems, strong circumstantial evidence, and men are hanged on circumstantial evidence.



There is another phase of this scrap business that has not received the attention it should. The scrap pile tells a wonderful story of success or failure to those who study it. We buy material and use it. It gives us good, fair, or poor service. How many know about it? A few here and there. And quite frequently those who know consider it in their interest to hide that knowledge. And how are our officers to learn these things? They can't run around looking over all the little scrap piles on the system. But suppose we have a central yard. They can and should go there occasionally and see for themselves what is going on. The scrap yard should be in charge of the stores department, but representatives of all departments should visit it just as often as they can to learn things for themselves and help along the good work by giving the men in charge the benefit of their knowledge. They will be welcome as the flowers in May.

Now it may seem that I have cast reflections on the mechanical men in this matter. Well, I have nothing to take back, and could say much worse things than I have said or intimated. But we must look at things in a proper light or from a proper standpoint. The car man's business is to repair cars. The locomotive man's business is to repair locomotives. That is what he is paid for. If he does his work well he stays on the payroll. Is it any wonder then that he is interested in that work? And he has enough of such work to do to take up most of his physical and mental energy. How then can we expect him to take that interest in scrap that the matter deserves? He can't, and he won't. And when we ask and expect him to do it we, and not he, are to blame for the results. The handling of scrap is properly the work of the stores department. We give the mechanical men their new material, not always just as promptly as they want it of course, but we do give it to them. So let us take their old material from them and make the best possible use of it, put it in shape to receive the best possible price for it as scrap, or rescue the good material and turn it back to be used. When we send them their new material they catch our mistakes, if we ever make any? And when they return the old, we will catch theirs. All in the interest of the company we work for.

The railways of America have been for many years destroying old cars that have outlived their usefulness. Some roads in the extreme west have taken their old cars out in the mountains and dumped them into a gorge. There was a reason for this. They had no market for scrap out there, and they figured that to dismantle the cars, collect the scrap and haul it east would cost them more than the scrap was worth. Railways in the east and middle west have disposed of their old cars in various ways, but most of them have disposed of them by allowing their car department to destroy them by burning, the scrap to be sorted by the same department. Nine out of every ten men who do not understand this matter fully will say that is a good plan. The car man builds and repairs cars. He is just the man to destroy or dismantle them. Well, the nine men would be wrong. The stores department should do this work. Why? Because they are material men by training. Does that sound strange? Well, let me say something here that is not often thought of or spoken about. To become a thoroughly competent master car builder,

master mechanic, roadmaster or storekeeper on a railway a man must put in a number of years at his work that if put in at college and special training would make him a doctor, lawyer or college professor, and this applies to many other railway occupations in addition to the few mentioned. If this is true, and I think it is, then is it not only reasonable that the men with such training should do the work for which they have been trained. In other words, let the car man look after his cars, the locomotive man his locomotives, and keep them fit for use as long as possible. But when they are no longer of use as cars or locomotives they become material, to be sold or saved, and they should be returned to the material man. When the car people are called on to dismantle or destroy cars they look on it as an extra and disagreeable job to be got rid of as quickly as possible. They quite often have to use men at this work whose services they require elsewhere, and men to whom they pay more than laborers wages, while it is a job for laborers. Is it any wonder then that the thing is rushed through under the key note of destruction—let the tail go with the hide idea, rather than with the idea of reclamation, or save the tail and as much of the hide as possible?

There have been published recently two very interesting papers on this subject, one by a car man and one by a storekeeper, both from roads in the United States, and in these papers the car man and storekeeper agree for once, that the methods followed in the past in the destruction of old cars has been all wrong, and that if the cars are handled by the stores department the work will not only be done cheaper, but a very large saving be effected by the saving of useable material, and increased price procured for the scrap when saved from fire damage and properly sorted.

Referring to a paper I read before the Storekeepers' Association in 1912 I find I used this expression, "In considering anything we should first of all consider whether it is worth considering," and I believe we have established the fact that the scrap or salvage of our railways is well worth all the consideration we can give it. The creator of the world is above all creation because He can create. Man is above the rest of the animal world in that while he cannot actually create he can, and does, take the material furnished by the creator, and by the use of the talents given him combine and fashion these elements into the forms he requires, the forms suitable to his needs. In this he comes close to actual creation and rises to the point where he is just a little below the angels. In the combining of these elements and the fashioning of them to his needs is man's highest work. How far behind this highest is the work of him who, after these combined elements have served man's purpose in the forms in which he has fashioned them, stops them on their way to destruction and, with less labor and effort than first expended on them, and returns them to man's use. Make no mistake about it, the scrap man is doing a wonderful work in the world. It is true he is not so highly regarded as the merchant who in his beautiful store sells at a profit that which other men brought into existence, but he is doing a more useful work, for he is saving something, and he is receiving his reward.

To go back to my paper of 1912 I find this: "How many of us can honestly say that in this matter of salvage we have

done all of the things we should have done, and left undone all of the things we should not have done. In other words, do we know that this part of our business has been handled to the best possible advantage? Is it not a fact that there has been a divided responsibility in this matter that has not tended to the best results? On whose judgment is much of our material put into the scrap pile, and just how thoroughly is that scrap pile culled over before it is delivered to the buyer? These are questions we should ask ourselves, consider them carefully, and answer honestly. We waste more or less, but as we gain knowledge we should waste less rather than more. Our railways do not waste more in proportion to the magnitude of their undertakings than do others in other branches of human effort, but we do waste. Fifty per cent. of all our loss and waste is the result of lack of education, the balance is pure 'cussedness.' This lack of education is not confined to any class or department. That we have insufficient storage facilities is due to lack of education on the part of our higher officials. They have not been educated up to see the necessity for them. The abuse of oil cans and tinware is due to pure cussedness on the part of those using them. The holding of valuable material by section men is due to lack of education or proper instruction. The loss in air and steam heat, hose and couplings is a combination of the two evils."

Further on in that paper I noted this, with reference to doing the salvage work: "Do not let us place such work in the hands of cheap men, men who do not know what they are doing. The best we have and the best we can get is none too good for this job, and no matter how good he may be he will still want the advice and assistance of the car man, the locomotive man and the storekeeper. We must guard against further waste in trying to effect a saving."

The economy game on a railway is a man's game. Any fool can spend money, the greater the fool the more money he can spend and the less he will get for it. But it takes a man and a wise man to save money for our railways, and we have but few men today who are fitted for the job. Some years ago one of the technical papers published an article in praise of a shop foreman who had made much money for his company by taking from the scrap pile 12-in. ends of 2-in. square steel and making coal hammers for locomotives out of them. This amused me so much that I wrote the editor, giving him the actual cost of a coal hammer made in this way, and gave him the cost of a coal hammer we were using. The foreman's hammer made from the square steel cost \$1.45. The hammer we were using at that time cost 10c. I also asked him if he thought I could buy this foreman's scrap pile where he had 12-in. pieces of tool steel. The editor asked me to please excuse him for not publishing my letter and figures, as he did not care to emphasize the fact that he had been as big a fool as the foreman who had misled him.

Not so very long ago I found a shop foreman making track cold sets from scrap tires. He was wasting money very fast by destroying good scrap by wasting coal and labor on it. You may hear men tell of making spanners from old steel crank pins. When you hear such talk stop and do a little figuring. A crank pin that would make a spanner would weigh 10 to 15 lb., as scrap it



would sell for say 8c. Now you use coal to heat it, labor to draw it out, shape it, and finish it off. Figure that all out and then look up the price of a spanner purchased. When you find that you can buy two spanners at the cost of making one out of a crank pin, you will likely say the whole business is a farce. But you would be wrong, it is not a farce, but some people go at anything wrong; they start out without sufficient knowledge, they see one end only. And that is why I say this is a man's game, an all-round man, a man who can see both ends and the middle, and still has a mind open to learn every day. Such men must be both born and made; they must have a natural bent toward economy and saving, and must have years of training on top of that. That is why I say we have few men today who are fitted for the job. But while we may laugh at some of the men who have got off on the wrong foot in the race, we must do so in all good nature, for after all they are the fellows

who have the right idea and will learn by their own mistakes. They are at least ahead of the man who does nothing, and there is a lot to be done.

To quote once more from my paper of 1912 on the conservation of waste: "This has been the age of steam; the signs of the times point to the fact that we are entering the age of electricity. I see on every side indications that we are going to repeat in the electrical age the same kind of mistakes we made in the age of steam. Must we do this? Can we make no advance without waste, fearful waste? Perhaps not, but we can at least try. Let us sound the warning in season and out of season. Let us learn the meaning of conservation and keep it before us always. Remember, it is not a fad; it is anything but that. It has come to stand for the life of the individual, the life of the railways, and the life of the nation."

The foregoing paper was read before the Canadian Railway Club recently.

### Birthdays of Transportation Men in October.

Many happy returns of the day to:—  
 E. W. Beatty, K.C., Vice President and General Counsel, C.P.R., Montreal, born at Thorold, Ont., Oct. 16, 1877.  
 L. S. Brown, Superintendent, Truro, Sydney and Oxford District, Intercolonial Ry., New Glasgow, N.S., born at Nelson, N.B., Oct. 19, 1864.  
 R. A. Burford, cashier, C.P.R. ticket office, New York City, born at Brooklyn, N.Y., Oct. 4, 1878.  
 Lieut.-Col. G. E. Burns, ex-Freight Claims Agent, Eastern Lines, C.P.R., Montreal, now District Intelligence Officer, Military District No. 4, Montreal, born at St. Thomas, Ont., Oct. 6, 1863.  
 K. J. Burns, Assistant General Freight Agent, Great Northern Ry., Vancouver, B.C., born at Rochester, Eng., Oct. 11, 1878.  
 F. F. Busteed, C.E., formerly Engineer in charge of C.P.R. revision and second tracking, west of Calgary, Kamloops, B.C., born at Battery Point, Que., Oct. 10, 1858.  
 J. M. S. Carroll, District Manager, Canadian Consolidated Rubber Co., Montreal, born at Ballarat, Australia, Oct. 22, 1877.  
 C. E. Cartwright, M.Can.Soc.C.E., ex-Division Engineer, C.P.R., Vancouver, B.C., born at Toronto, Ont., Oct. 13, 1864.  
 A. F. Dion, Traffic Manager, Quebec Harbor Commission, Quebec, born at L'Islet, Que., Oct. 1, 1871.  
 L. V. Druce, Commercial Agent, G.T.R. and G.T.P.R., Vancouver, B.C., born at London, Eng., Oct. 20, 1873.  
 C. E. Dewey, Freight Traffic Manager, G.T.R., Montreal, born at Cheshunt, Eng., Oct. 2, 1873.  
 C. E. Friend, General Auditor, Canadian Northern Ry., Winnipeg, born at Brighton, Eng., Oct. 12, 1871.  
 W. P. Fitzsimmons, Commissioner of Industries, G.T.R., Montreal, born at Detroit, Mich., Oct. 27, 1868.  
 G. Hodge, Assistant to General Manager, C.P.R., Montreal, born there Oct. 2, 1874.  
 J. H. Hughes, Assistant Superintendent, District 4, Eastern Division, C.P.R., Ottawa, Ont., born at Charlottetown, P.E.I., Oct. 7, 1865.  
 H. Irwin, M.Can.Soc.C.E., Consulting Right of Way and Lease Agent, C.P.R., Montreal, born at Newgrove, County Down, Ireland, Oct. 27, 1847.  
 J. W. N. Johnstone, General Passenger Agent, Reid Newfoundland Co., St. John's,

Nfld., born at Campobello, N.B., Oct. 4, 1878.  
 W. M. Kirkpatrick, ex-Assistant Freight Traffic Manager, Eastern Lines, C.P.R., Montreal, now on active service, born at Kingston, Ont., Oct. 8, 1874.  
 W. B. Lanigan, Assistant Freight Traffic Manager, Western Lines, C.P.R., Winnipeg, born at Three Rivers, Que., Oct. 12, 1861.  
 J. W. Leonard, General Manager, Toronto Terminals Co., Toronto, born at Epsom, Ont., Oct., 1858.  
 Sir William Mackenzie, President, Canadian Northern Ry., Toronto, born at Kirkfield, Ont., Oct. 30, 1849.  
 C. Malcolm, chief clerk, Auditor of Stores and Mechanical Accounts, Alberta Division, C.P.R., Calgary, Alta., born at Tatamagouche, N.S., Oct. 18, 1881.  
 W. T. Marlow, Import Freight Agent, C.P.R., Montreal, born at Limerick, Ireland, Oct. 25, 1872.  
 R. Marpole, General Executive Assistant, C.P.R., Vancouver, B.C., born in Montgomeryshire, Wales, Oct. 9, 1850.  
 C. R. Moore, Assistant to Vice President, Construction, Operating and Maintenance, G.T.R., Montreal, born at Hamilton, Ont., Oct. 12, 1867.  
 Hugh Paton, President, Shedden Forwarding Co., Montreal, born at Johnstone, Renfrew, Scotland, Oct. 5, 1852.  
 J. W. Porter, Chief Engineer, Hudson Bay Railway, Winnipeg, born at Aberdeen, Scotland, Oct. 15, 1877.  
 D. Pottinger, I.S.O., ex-Assistant Chairman, Government Railways Managing Board, Moncton, N.B., born at Pictou, N.S., Oct. 7, 1843.  
 T. F. Rahilly, acting Trainmaster, Algoma Central & Hudson Bay Ry., Sault Ste. Marie, Ont., born at Diorite, Mich., Oct. 6, 1892.  
 H. G. Reid, Master Mechanic, District 3, National Transcontinental Ry., Transcona, Man., born at Pembroke, Ont., Oct. 27, 1863.  
 A. G. Richardson, District Passenger Agent, C.P.R., Winnipeg, born at Rockford, Ill., Oct. 16, 1880.  
 W. S. Rollo, joint agent, G.T.R., and Central Vermont Ry., St. Johns, Que., born at Dundee, Scotland, Oct. 8, 1852.  
 J. K. Savage, Superintendent, District 1, Saskatchewan Division, C.P.R., Regina, born at Forreston, Ill., Oct. 5, 1876.  
 Lord Shaughnessy, K.C.V.O., President, C.P.R., Montreal, born at Milwaukee,

Wis., Oct. 6, 1853.  
 T. Duff Smith, Fuel Agent, Grand Trunk Pacific Ry., Winnipeg, Man., born at Barking, Essex, Eng., Oct. 2, 1868.  
 F. Stamelen, Night Locomotive Foreman, C.P.R., Winnipeg, born at Chatham, Ont., Oct. 16, 1863.  
 E. Sterling, Superintendent, Districts 2 and 3, British Columbia Electric Ry., New Westminster, born at Thornbury, Ont., Oct. 3, 1875.  
 C. E. Stockdill, Assistant to Vice President and General Manager, Western Lines, C.P.R., Winnipeg, born at London, Ont., Oct. 25, 1881.  
 E. N. Todd, Division Freight Agent, Eastern Division, C.P.R., Montreal, born at Huntington, Que., Oct. 17, 1879.  
 J. H. Valteau, Secretary-Treasurer, Thousand Islands Ry. and Oshawa Ry., Gananoque, Ont., born at Selby, Ont., Oct. 14, 1889.  
 A. W. Wheatley, President, Lima Locomotive Corporation, Lima, Ohio, born at Ashford, Kent., Eng., Oct. 12, 1870.

### Canadian Pacific Railway Mileage.

Following are the mileages as at June 30:—

Included in C.P.R. traffic returns	12,993.6
Other lines worked	383.6
	<u>13,377.2</u>
Minneapolis, St. Paul & Sault Ste. Marie Ry.	4,228.3
Duluth, South Shore & Atlantic Ry.	627.7
	<u>4,856.0</u>
	<u>18,233.2</u>

### Canadian Pacific Railway Pension Fund.

Following is a statement as at June 30, 1916:—

Balance to June 30, 1915	\$585,548.13
Contributed by company for year	125,000.00
Received as interest	43,609.82
	<u>\$754,157.95</u>
Payment of pension allowances for year	240,222.94
Balance in cash and investments	<u>\$513,935.01</u>

NUMBER ON PENSION ROLL, JUNE 30, 1916.	
Under 60 years of age	60
Between 60 and 70 years of age	445
Over 70 years of age	329
Total	<u>834</u>

**Pacific Great Eastern Ry. Investigation.**—H. C. Brewster, leader of the Liberal party, which carried the British Columbia provincial election recently, is reported to have said in a press interview:—"We will investigate the Pacific Great Eastern Ry. finances and have a strict accounting of every dollar of public money that has been spent in connection with that road, with the idea of recovering as much as possible of all that has been mis-spent."

**The Traveling Engineers' Association's** annual convention, which was to have been held at Chicago, Ill., Sept. 5 to 8, was postponed to Oct. 24 to 28, the Secretary, W. O. Thompson, Cleveland, Ohio, issuing a circular stating that on account of the serious labor conditions in progress with the four brotherhoods, the executive committee deemed it wise to postpone the meeting.

**Protection for Car Men from the Weather.**—The Regina, Sask., Trades and Labor Council has passed a resolution calling upon the Trades and Labor Congress of Canada, to take up with the Board of Railway Commissioners the protection of railway car men from the inclemency of the weather.



# Railway Mechanical Methods and Devices.

## Oxy-Acetylene and Electric Welding in Winnipeg Shops, C.P.R.

The following information, with the accompanying illustrations, will give a good idea of the extent to which the above mentioned methods have been adopted in the C.P.R.'s Winnipeg shops and the amount of saving effected:—

from the road on account of worn crossing points. The parts whitened were built up by an oxy-acetylene operator, rail metal being fed in in the building up process. The entire cost of repair was \$19.70, while the original diamond

the worn place and plane it off costs only \$5.

Fig. 4 shows a patch inside a locomotive in position ready for the welder; the crack was whitened to show it up. It will be particularly noted that the

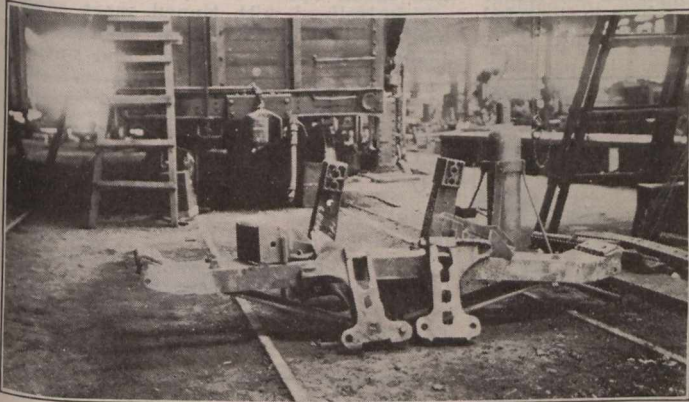


Fig. 1. Welding Work in Steel Car Shop.

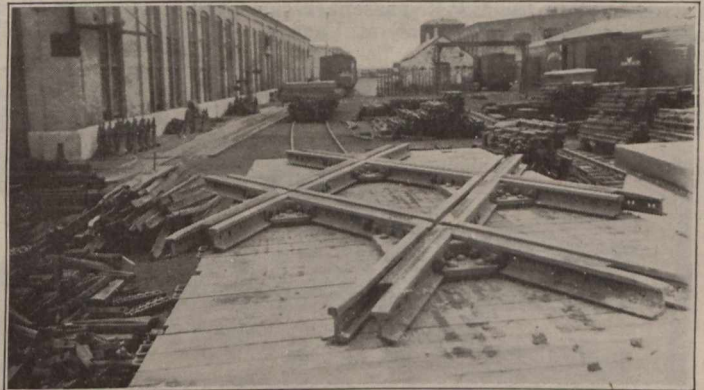


Fig. 2. Welded Track Diamond.

The following description with the accompanying photographs will give an idea of the extent of the application that we have arrived at and the amount of saving effected.

Fig. 1, from a photograph taken in the steel car shop, shows a representative group of work handled by this department. Column castings seen in the foreground of the photograph show the extent of the wear on the faces, in fact the face is worn right through. By welding a plate on these faces the casting is made equal to a new one at a cost of 48% of the price of a new one.

Bolsters are similarly repaired, where before the application of oxy-acetylene or electric welding they were scrapped. The same photograph shows a bolster that has been welded up, which cost \$32.40 when new and \$10.60 to repair. This repair cost includes cost of new castings and repairs to bottom strap as well as the welding. This is less than one-third of the original cost.

The two couplers shown standing in the background (unfortunately the

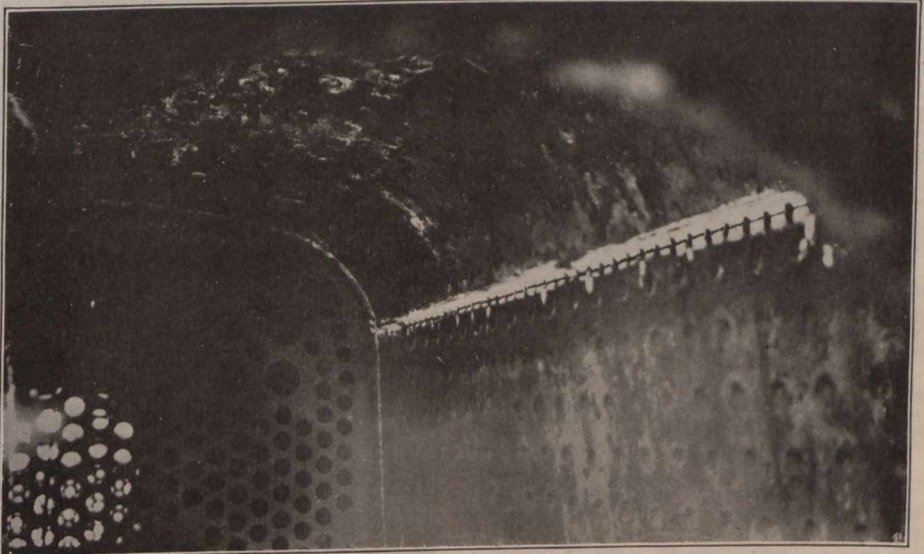


Fig. 5. Sheet Inside Fire Box Ready for Welding.

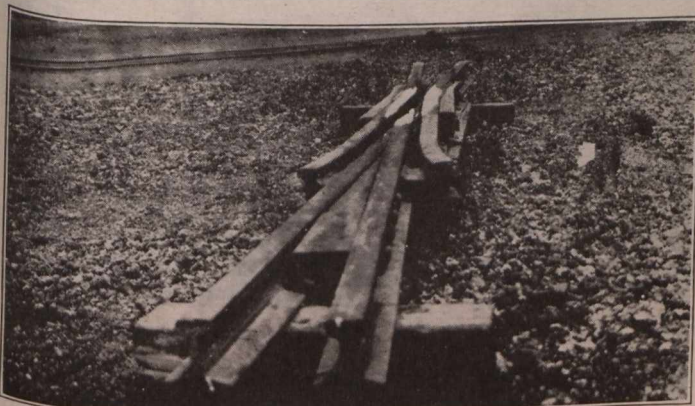


Fig. 3. Welded Track Frog.

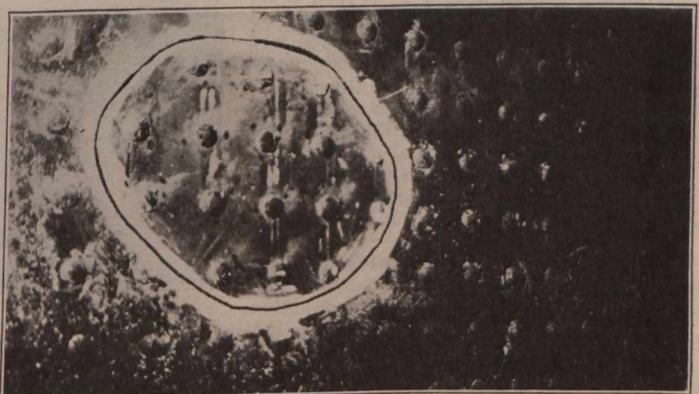


Fig. 4. Welded Patch Inside Locomotive.

wrong way up) represent a large industry in itself. Cracks are welded and lugs that are broken off are welded up again, and the whole from service test is equal to new.

Fig. 2 shows a track diamond taken

cost over \$250.

Fig. 3 shows a track frog 85-lb. rail. It is a similar example of the saving brought about by oxy-acetylene welding. To repair the frog by renewing the rails would cost \$29.70, whereas to build up

patch is permanently riveted in position and that no allowances for drawing are made. We have found this method entirely successful.

Fig. 5 shows a side sheet inside a fire-box ready for welding. It will be noted



here also that the drawing of the plate has been entirely and successfully neglected.

For the foregoing information and for the photographs from which the illustrations were made we are indebted to R. A. Pyne, until recently Superintendent of Shops, C.P.R., Winnipeg, and Superintendent Motive Power and Car Department, Eastern Lines, Montreal.

**Racks for Holding Triple Valves.**

Some very serviceable racks for triple valves built in the C.P.R. passenger car shops air brake department, at Vancou-



Racks for Holding Triple Valves.

ver, are shown in the accompanying illustration. They are built entirely of scrap. The measurements of each rack over all are 9 ft. long x 21-3 ft. wide x 5 ft. high, carrying four tiers or rows of valves placed lengthwise on the rack. One rack is used for valves to be cleaned and repaired and the other for those in good order.

The frame is of 3-in. angle iron rivetted to an upright of the same material. The centre braces are of 1-in. iron pipe, 2 braces to each tier, with a 5/8-in. rod running lengthwise through the pipe and fastened with nuts on the outside ends, which make the rack quite rigid.

The capacity of each rack is 130 valves, and their use eliminates having to pile valves on the floor. We are indebted to T. Spence, General Car Foreman, C.P.R., Vancouver, for the foregoing information and for the photograph.

**Railways' Coal Consumption.**—United States railways in 1915 consumed 24% of the country's total coal production. Practically all of the 600,000 tons of anthracite and 62,700,000 tons of the 128,200,000 tons of soft coal consumed by railways were burned in the eastern district. Railways of the Western district burned 43,500,000 tons, and those of the southern district 22,000,000 tons.

The C.P.R. was reported from Raymond, Alta., Sept. 2, to be negotiating with the night-Svegan Co., for the purchase of its factory and plant there, which has been closed for some time.

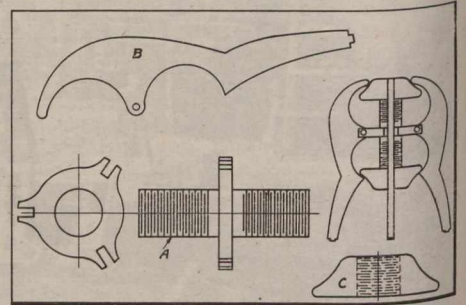
**Auxiliary Chuck for Turning Piston Packing Rings.**

The auxiliary chuck, the separate parts of which are shown herewith, is being used in the G.T.P.R. shops at Biggar, Sask., for holding piston gland packing rings in the lathe while they are being turned. The completed chuck is made up of a centre stem A, enlarged at the centre to form a fulcrum for the three arms B, which take the packing rings. The arms are controlled by the movement of the cones C, placed on either end of the centre stem, which is threaded at both ends for their adjustment. The

tapered shank can be held in the centre bore of the spindle, and keeps the work far enough away from its face so that better work can be accomplished. For details of this device we are indebted to W. W. Yeager, Locomotive Foreman, G.T.P.R., Biggar, Sask.

**Cleaning Water Filters in C.P.R. Passenger Car Shops.**

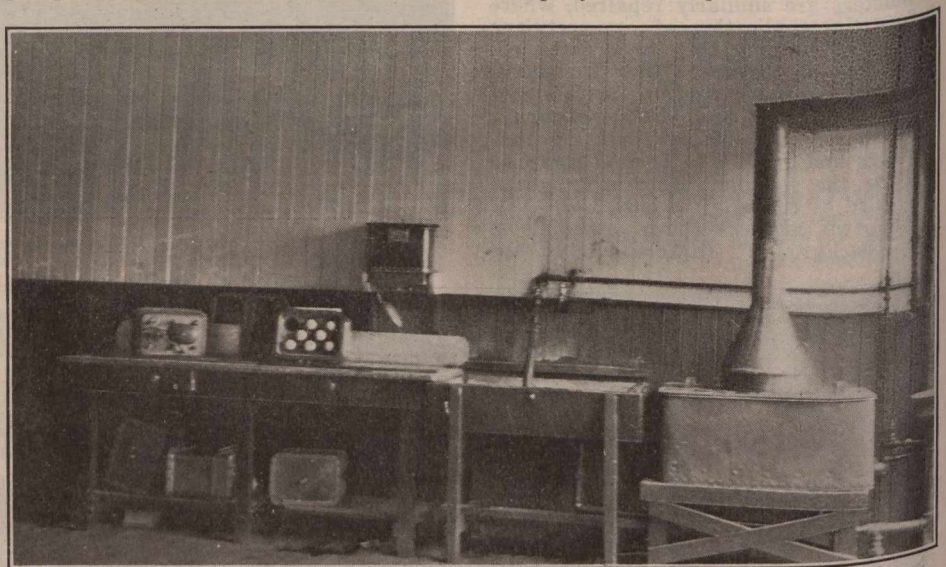
In the C.P.R. passenger car shops at Vancouver the dining car water filters are taken apart on a bench or table, which is lined with tinned sheet copper and drains to a sink in the centre. The inside filters are removed and entirely



Auxiliary Chuck for Turning Piston Packing Rings

washed out with warm water, after which they are sterilized in a copper tank, heated with live steam. The filters are then reassembled and tested with water pressure before being returned to the cars. We are indebted to T. Spence, General Car Foreman, C.P.R., Vancouver, for the foregoing information and for the photograph.

**The Flying Train Failure.**—A few years ago the Batchelet, Flying Train & Levitated Railways Syndicate was formed in England, to build and operate systems of levitated railways. An order has now been made for the winding up of the company and a liquidator has been ap-



Cleaning Water Filters in C.P.R. Passenger Car Shops.

ends of the arms which take the packing rings are each made with a lip on the end so that they will grip the rings either from the inside or the outside, thus enabling the ring to be turned completely by two adjustments of the chuck. When the inside and one end is turned the chuck is readjusted to the inside, and the outside and opposite end are turned. This appliance is easily held in the ordinary lathe chuck, or by adapting a Morse

pointed. The idea was based on the application of the principle of electro-magnetic repulsion. The "track" was represented by a series of electric coils with horseshoe shaped solenoids at regular intervals. On these coils being energized, the cigar-shaped aluminium carriage was repelled from the "track," and by similar means, propelled from point to point. It was claimed that a safe speed of 300 per hour could be attained.



# Canadian Pacific Railway Company's Annual Report.

Following is the report for the year ended June 30, addressed to the shareholders over the signature of the President, Lord Shaughnessy:—

The accounts for the year ended June 30 show the following results:—

Gross earnings .....	\$129,481,885.74
Working expenses .....	80,255,965.28
Net earnings .....	\$49,225,920.46
Deduct fixed charges .....	10,306,196.06
Surplus .....	\$38,919,724.40
Contribution to pension fund.....	125,000.00
	\$38,794,724.40
Deduct net earnings of Pacific Coast steamships, commercial telegraph, and news department, transferred to special income account .....	1,923,288.96
	\$36,871,435.44
From this there has been charged a half yearly dividend on preference stock of 2%, paid April 1..	\$1,613,638.42
And 3 quarterly dividends on ordinary stock of 1 3/4% each, paid Dec. 31, April 1 and June 30.....	13,650,000.00
	15,263,638.42
	\$21,607,797.02
From this there has been declared a second half yearly dividend on preference stock, payable Oct. 1	\$1,613,638.42
And a fourth quarterly dividend on ordinary stock 1 3/4%, payable Oct. 1 .....	4,550,000.00
	6,163,638.42
Leaving net surplus for the year..	\$15,444,158.60
In addition to the above dividends on ordinary stock, 3% was paid from special income.	
Following are details of special income for the year:—	
Balance at June 30, 1915	\$8,216,144.15
Less dividend paid Oct. 1, 1915 .....	1,950,000.00
	\$6,266,144.15
Interest on proceeds land sales.....	151,170.51
Interest on deposits and loans.....	976,326.08
Interest from Minneapolis, St. Paul and S.S. Marie Ry. bonds.....	159,720.00
Interest from Mineral Range Ry. bonds .....	50,160.00
Interest from Toronto, Hamilton & Buffalo Ry. bonds .....	10,237.78
Interest from Montreal & Atlantic Ry. bonds and other securities....	108,136.03
Interest from Berlin, Waterloo, Wellesley & Lake Huron Ry. bonds.....	17,040.00
Interest from St. John Bridge & Ry. Extension Co. bonds .....	6,250.00
Interest from Esquimalt & Nanaimo Ry. bonds .....	193,280.00
Interest from Dominion Atlantic Ry. extension debenture stock .....	56,940.00
Interest from Dominion Atlantic Ry. 2nd debenture stock .....	36,986.67
Interest from Hull Electric Ry. ....	60,000.00
Dividend on St. John Bridge & Ry. Extension Co. stock .....	70,000.00
Dividends on Minneapolis, St. Paul & S.S. Marie Ry. common stock .....	890,645.00
Dividends on Minneapolis, St. Paul & S.S. Marie Ry. preferred stock .....	445,326.00
Dividends on West Kootenay Power & Light Co. common stock .....	27,500.00
Dividends on West Kootenay Power & Light Co. preferred stock .....	3,850.00
Dividend on Consolidated Mining & Smelting Co. stock .....	307,437.50
Dividend on Berlin, Waterloo, Wellesley & Lake Huron Ry. stock .....	12,500.00
Earnings from ocean steamships and hotels .....	3,583,292.28
Revenue from interest in coal mine properties .....	557,842.72
Extraneous mail earnings .....	216,305.07
Net earnings of Pacific Coast steamships, commercial telegraph, news department .....	1,923,288.96
Space rented in office buildings .....	76,720.34
	\$16,207,099.09
Less:—Payments to shareholders in dividends: Dec. 31, April 1, and June 30..	5,850,000.00
	\$10,357,099.09
From this a dividend has been declared payable Oct. 1, 1916.....	1,950,000.00

The working expenses for the year were 61.98% of the gross earnings, and the net earnings 38.02%, compared with 66.04 and 33.96%, respectively, in 1915.

There were no sales during the year of 4% consolidated debenture stock, preference stock or other capital securities.

The sales of agricultural land during the year were 390,715 acres for \$6,126,108.00, an average of \$15.68 an acre. Included in this area were 8,046 acres of irrigated land which brought \$54.67 an acre, so that the average price of the balance was \$14.86 an acre.

You will be asked to give approval to an agreement between the New York Central, Michigan Central, and Canada Southern Railway Companies and your company, and the Toronto, Hamilton & Buffalo Ry. Co., which, in addition to providing for the interchange of traffic passing over the latter company's lines, provides for the issuance by the T., H. & B. Ry. Co. of 1st mortgage consolidated bonds not exceeding \$10,000,000, bearing interest not in excess of 5% a year, to be issued only with the consent of the other companies, parties to the agreement, and to be unconditionally guaranteed as to principal and interest by these companies jointly and severally.

In consequence of the extraordinary conditions created by the present war your directors considered it advisable to postpone the effective date of the agreement entered into between your company and the Allan Line Steamship Co. and the Canadian Pacific Ocean Services, Ltd., authorized by resolution passed at the last annual meeting, for the acquisition by the last named company of the capital stock of the Allan Line now held by your company and of the vessels of your company named in the resolution. Your directors have, however, though it desirable to enter into an agreement with the Canadian Pacific Ocean Services, Ltd., under which the vessels of both fleets are operated by that company as managers and agents. In view of possible changes in the conditions pertaining to ocean traffic, your directors consider it may be advisable, in your company's interests, that in giving effect to the proposals previously approved a somewhat different plan should be adopted, and a resolution will be submitted granting authority to your directors to carry out the transaction with the C. P. Ocean Services or some other company created for that purpose, of which company your company will have full ownership and control in such manner and on such terms as seem to them proper. The revenue from your steamships given in the statement of special income is exclusive of an amount transferred to the reserve account to cover the cost of replacing ships sold or destroyed, and of a sum sufficient to meet any tax on excess profits that may be ultimately payable.

The relations between the Consolidated Mining & Smelting Co. and the West Kootenay Power & Light Co. were such as to make it desirable, in the interest of both properties, that they should be under one control, and in order that this might be accomplished, your company joined with the other shareholders in the West Kootenay Power & Light Co. in exchanging its holding of common stock in that company for shares in the Consolidated Mining & Smelting Co. on a basis of \$75 of the stock of the Consolidated Co. for each \$100 face value com-

mon stock of the West Kootenay Co.

Your directors appropriated for expenditure on capital account in the calendar year \$3,749,474. Of this, \$1,955,000 was required for the Connaught tunnel in the Selkirk Mountains, and the balance for miscellaneous works of improvement over the whole system.

The profits resulting from the manufacture in your company's shops of munitions of war undertaken at Government request, have not been taken into the operating revenue, but have been applied as a set off against contributions to patriotic and relief funds, and other expenditures by your company directly due to the war and not properly chargeable to working expenses.

The important falling off in the revenue per ton mile for the carriage of freight traffic from 0.76 cents in 1915 to 0.64 cents this year, was largely due to the abnormal increase in the tonnage of grain handled at the very low rates that apply to that commodity, although the reduction in many tariff rates in Western Canada had considerable influence.

There being some doubt as to the right of the company to issue its preference and debenture stocks in dollar currency as well as sterling, the requisite authority to do so was secured by act of Parliament at the last session.

In Nov. 1915 the trustees under the mortgage securing £7,191,500 first mortgage bonds executed a discharge of mortgage and re-conveyance of the property to the company, and the documents have been deposited with the Secretary of State at Ottawa.

E. W. Beatty, K.C., Vice President and General Counsel, was elected a director to fill the vacancy caused by the resignation of D. McNicoll.

The following directors will retire from office at the approaching annual meeting. They are eligible for re-election,—W. D. Matthews, A. M. Nanton, George Bury.

Assets.	
Railway .....	\$352,971,897.76
Rolling stock equipment .....	153,605,367.56
Ocean, lake and river steamships..	24,211,713.33
	\$530,788,978.65
Acquired securities (cost) .....	111,793,714.53
Advances on lines and steamships under construction .....	42,852,519.99
Advances and investments .....	9,639,472.07
Deferred payments on lands and townsites sales .....	12,006,140.61
Special Investment Fund:	
Deferred payments on lands and townsites \$39,044,383.42	
Government securities .....	10,088,734.86
Deposited with trustee .....	7,135,650.56
	56,268,768.84
Material and supplies on hand..	11,814,583.84
Agents' and conductors' balances..	1,819,709.40
Net traffic balances .....	512,056.88
Miscellaneous accounts receivable..	8,787,605.83
Temporarily invested in war loans	5,272,690.63
Cash in hand .....	41,581,680.69
	\$69,738,327.27
Other assets, mining stock, Hull Electric Ry., collieries, lands, etc.	127,129,135.93
	\$960,217,057.89
Liabilities.	
Ordinary stock .....	\$260,000,000.00
Four per cent. preference stock..	80,681,921.12
	\$340,681,921.12
Four per cent. consolidated debenture stock .....	176,284,882.10
Algoma Branch 1st Mortgage 5% bonds .....	3,650,000.00
Note certificates 6% .....	52,000,000.00
Premium on ordinary capital stock sold .....	45,000,000.00
Audited vouchers .....	5,185,207.45
Pay rolls .....	4,789,748.92
Miscellaneous accounts payable ..	5,536,269.10
Accrued rentals of leased lines and coupons on mortgage bonds .....	531,658.91



Equipment obligations .....	11,680,000.00
Equipment replacement .....	4,978,627.79
Steamship replacement .....	5,384,028.92
Reserve fund for contingencies and for contingent war taxes .....	14,103,178.79
Marine insurance fund .....	335,960.86
Net proceeds lands and townsites .....	68,255,803.19
Surplus revenue from operation .....	100,604,596.60
Surplus in other assets .....	121,215,174.14
	\$960,217,057.89
<b>Receipts, Year Ended June 30.</b>	
Cash in hand, June 30, 1915 .....	\$17,055,269.63
Surplus revenue .....	36,871,435.44
Special income .....	9,940,954.94
Lands and townsites:	
Proceeds of sales and interest .....	\$7,269,112.38
Deferred payments on previous years' sales .....	3,386,938.07
	\$10,656,050.45
Less amount remain- ing in deferred payments on year's sales .....	5,677,002.59
	\$4,979,047.86
Less sale expenses and irrigation .....	1,872,665.35
	3,106,382.51
Gimli extension subsidy .....	80,032.00
	\$67,054,074.52
Agents' and conductors' balances .....	\$1,819,709.40
Net traffic balances ..	512,056.88
Miscellaneous accounts receivable .....	8,737,605.83
Advances on lines and steamships under con- struction .....	42,852,519.99
Advances and invest- ments .....	9,639,472.07
	\$63,561,364.17
Amount at June 30, 1915 .....	65,079,065.69
	1,517,701.52
	\$68,571,776.04

<b>Expenditures.</b>	
Dividends on preference stock .....	\$3,227,276.84
Dividends on ordinary stock .....	26,000,000.00
Construction of branch lines .....	64,318.97
Additions and improvements, main line and branches .....	2,778,655.38
Additions and improvements, leased and acquired lines .....	204,329.18
Rolling stock equipment .....	10,304.83
Shops and machinery .....	14,963.89
Purchase of steamship Mattawa .....	\$486,666.67
Payments on account of steamships under con- struction .....	386,483.43
	\$873,150.10
Less amount paid from steamship re- placement .....	870,032.05
	3,118.05
Redemption of balance of 1st Mort- gage 5% bonds .....	2,749,180.00
Deposited with trustee of special in- vestment fund .....	5,803,233.15
Securities acquired:	
Shuswap & Okanagan Ry. bonds	109,887.50
St. John Bridge & Ry. Extension Co. bond .....	1,000.00
Great North West Central Ry. stock .....	30,000.00
Kingston & Pembroke Ry. stock.	200.00
Consolidated Mining & Smelting Co. stock .....	145,250.00
Payment of equipment obligations.	1,100,000.00
	\$42,241,717.79
Deduct decrease in material and supplies on hand .....	3,915,021.65
	\$38,326,696.14
Deduct increase in liabilities:	
Current liabilities ..	\$15,511,225.47
Interest on funded debt .....	531,658.91
Reserves and appro- priations .....	24,801,796.36
	\$40,844,680.74

Amount at June 30, 1915 .....	24,235,389.32
	16,609,291.42
	\$21,717,404.72
Temporarily invested in war loans	5,272,690.63
Cash in hand .....	41,581,680.69
	\$68,571,776.04

<b>Earnings for Year Ended June 30.</b>	
Passengers .....	\$ 24,690,652.19
Freight .....	89,654,405.19
Mails .....	1,384,567.43
Sleeping cars, express, telegraph and miscellaneous .....	13,752,260.93
Total .....	\$129,481,885.74

<b>Working Expenses for Year Ended June 30.</b>	
Transportation expenses .....	\$38,915,381.50
Maintenance of way and structures	14,671,791.20
Maintenance of equipment .....	16,695,955.87
Traffic expenses .....	2,798,699.40
Parlor and sleeping car expenses..	900,410.87
Expenses of lake and river steam- ships .....	829,811.73
General expenses .....	4,014,753.69
Commercial telegraph .....	1,339,161.02
Total .....	\$80,255,965.28

<b>Surplus Income Account, June 30.</b>	
Balance at June 30, 1915 .....	\$83,019,483.06
Net earnings of rail- way .....	\$36,871,435.44
Special income .....	9,940,954.94
	46,812,390.38
	\$129,831,873.44
Less dividends on pref- erence stock .....	\$3,227,276.84
Less dividends on or- dinary stock .....	26,000,000.00
	29,227,276.84
	\$100,604,596.60

## Orders by Board of Railway Commissioners for Canada.

Beginning with June, 1904, Canadian Railway and Marine World has published in each issue summaries of orders passed by the Board of Railway Commissioners, so that subscribers who have filed our paper have a continuous record of the Board's proceedings. No other paper has done this.

The dates given of orders, immediately following the numbers, are those on which the hearings took place, and not those on which the orders were drawn.

General order 171, Aug. 1.—Directing that railway companies equip certain locomotives with handrails on sides of cabs above windows near top of cab, and tenders with railing on both sides. This order is given in full on another page.

25298. Aug. 19.—Approving agreement between Bell Telephone Co. and Rydal Bank Telephone System, Aug. 15, 1914.

25299. Aug. 21.—Authorizing Blenheim Tp., Ont., to build McLaren drain under G.T.R. on Lot 8, Con. 5.

25300. Aug. 21.—Extending to Oct. 21 time for C.P.R. to build branch at mileage 67.6, London Subdivision, Ont., authorized by order 25176, July 17.

25301. Aug. 21.—Ordering Canadian Northern Ry. to provide proper ditches at subway in Cons. A and 1, Ottawa Front, Nepean Tp., Ont., work to be done by Sept. 15.

25302. Aug. 22.—Ordering Lake Erie & Northern Ry. to commence forthwith and complete within 60 days work ordered by order 19807, Apr. 16, 1913, in connection with location from Lorne Bridge, Brantford, to Main St., Galt, Ont.

25303. Aug. 22.—Authorizing C.P.R. to build spur for Ayers, Ltd., Lachute, Que.

25304. Aug. 23.—Authorizing Bosanquet Tp., Ont., to build south boundary drain under G.T.R. at mileage 143.84, District 15.

25305. Aug. 23.—Authorizing G.T.R. to build branch to connect with siding for Dominion Steel Foundry Co., Hamilton, Ont.

25306. Aug. 21.—Approving agreement between Bell Telephone Co. and Halton Telephone Co., Halton, Ont.

25307. Aug. 23.—Authorizing C.P.R. to make diversion in lieu of road allowance on south boundary of Sec. 13, Tp. 18, R.33, w.p.m., Sask., and to close same within its right of way.

25308. Aug. 23.—Approving plan, profile and book of reference combined showing siding to be built for J. H. Theoret, St. Eustache, Que.

25309. Aug. 23.—Relieving Niagara, St. Catharines & Toronto Ry. from providing further protection at crossing 19 between lots 244 and 252, Thorold, Ont.

25310. Aug. 23.—Amending order 25265, Aug. 26, re G.T.R. track arrangement across Albert St.,

Oshawa, Ont.

25311. Aug. 21.—Approving agreement between Bell Telephone Co., and Blind Line Telephone Co., Aug. 4.

25312. Aug. 24.—Authorizing Canadian Northern Ry. to build bridge over Old Man River in s.e. ¼ Sec. 13, Tp. 9, R. 26, w. 4 m., Alta.

25313. Aug. 17.—Dismissing complaint of H. Miles, Point Fortune, Que., against unloading charge of \$1 a car at Hochelaga stock yards and charge of 75c. a car for cleaning and disinfecting live stock cars as charged by C.P.R.

25314. Aug. 23.—Approving proposed location of Canadian Northern Ry. station at Bienfait, Sask.

25315. Aug. 25.—Approving Canadian Northern Ontario Ry. location, mileage 1.88 to 2.00, from Port Arthur, Ont., and temporary connection with spur to water front.

25316. Aug. 19.—Ordering C.P.R. to install automatic bell at crossing of St. Francois St., Rigaud, Que.

25317. Aug. 24.—Authorizing Canadian Northern Ry. to cross and divert road allowance between Secs. 20 and 29, Tp. 21, R. 12, w. 3 m.

25318. Aug. 18.—Ordering Atlantic, Quebec & Western Ry. to stop trains on flag at Little River East, Que., and approving location of shelter and platform there.

25319. Aug. 25.—Relieving C.P.R. from providing further protection at crossing of Dundas St., Cooksville, Ont.

25320. Aug. 25.—Extending to Oct. 25, time for installation by G.T.R. of gates at the crossings of Waterloo and Colborne Sts., London, Ont.

25321. Aug. 25.—Rescinding orders 17282, Aug. 22, 1912, and 20212, Aug. 28, 1913, which approved revised location of C.P.R. Crowsnest Pass Branch between Seven Persons and Grassy Lake, mileage 15 to 53.1, Lethbridge Subdivision, Alta.

25322. Aug. 30.—Suspending, until further order, Tariffs, C.P.R. C.R.C. no. E-3176, and Temiscouata Ry. C.R.C. 256, effective Sept. 1, on turnips and potatoes, from points in Maritime Provinces to stations in Ontario and Quebec.

25323. Aug. 26.—Authorizing G.T.R. to build siding to Harrolds Coal Co.'s premises, Toronto.

25324. Aug. 26.—Authorizing C.P.R. to build spur for Canada Iron Corporation, Three Rivers, Que.

25325. Aug. 22.—Amending order 25132, July 4, re building of highway over C.P.R. by Harriston municipality, Man.

25326. Aug. 24.—Amending order 25259, Aug. 5, re protection of Drouillard Rd. crossing, Walkerville, Ont., by G.T.R. watchmen, by substituting Ford City for Walkerville.

25327. Aug. 29.—Approving supplement 1 to C.P.R. Standard Mileage Freight Tariff, C.R.C. no. W-1948.

25328. Aug. 29.—Extending time within which Canadian Northern Ontario Ry. complete opening up of Second Concession Road allowance over its right of way in Goulbourn Tp., Carleton County, Ont., until such time as Goulbourn Tp. has done its part of work in opening up concession line and notified railway company, when company shall proceed with work over railway tracks.

25329. Aug. 30.—Authorizing G.T.R. to build siding, and spurs therefrom, to Harris Abattoir Co.'s premises, Toronto.

25330. Aug. 30.—Authorizing Windsor, Essex & Lake Shore Rapid Ry. to build spur for Champion Brick & Tile Co., Lot 265, South Talbot Road, Gosfield North Tp., Ont.

25331. Sept. 1.—Authorizing Canadian Northern Ry. to cross and divert highway between Secs. 10 and 15, Tp. 6, Rge. 20, w. 2 m., Sask.

25332. Sept. 1.—Authorizing C.P.R. to build spurs at Bradbury, Man., for Manitoba Steel Foundries.

25333. Aug. 30.—Ordering G.T.R. to appoint and maintain, at own expense, watchman at Ottawa Ave., South River Village, Ont., to be on duty between 9 a.m. and 9 p.m. daily.

25334. Aug. 31.—Relieving C.P.R. from providing further protection at highway west of Shoal Lake station, Man.

25335. Aug. 31.—Authorizing Saskatchewan Board of Highway Commissioners to build highway over C.N.R. on boundary line between north and south halves of Sec. 33-33-4, w.3.m.

25336. Aug. 30.—Approving plan, dated June 28, showing proposed alterations in interlocking plant at crossing of C.P.R. and Jacques Cartier Union Rlys. at Ballantyne, Montreal Terminals.

25337. Aug. 30.—Ordering C.P.R. to divert highway at Sagua, N.B.; 20 per cent. to be paid by railway grade crossing fund, \$500 by New Brunswick Government, and remainder by C.P.R. Westfield Parish to acquire necessary lands.

25338. Aug. 21.—Authorizing Toronto and Hamilton Highway Commission to build a highway crossing over G.T.R., in Burlington, Ont., and across the Hamilton Radial Ry. on Maple Ave.; and to divert highway along Water St., and across G.T.R., and Toronto and Niagara Power Co.'s lands.

25339. Aug. 28.—Ordering that Bronson Ave., Ottawa, Ont., be protected by gates, operated by day and night watchmen; 20 per cent. of cost to be paid out of railway grade crossing fund; and of remainder half by city and half by G.T.R.; operation and maintenance divided equally between city and G.T.R.; work to be completed by Dec. 1.

25340. Sept. 2.—Authorizing G.T.R. to build additional track across highway between Cons. 2 and 3, Tres St. Sacrement Parish, Que.



25341. Sept. 2.—Relieving New York Central & Hudson River Rd. from maintaining watchmen at crossing of highway near Beauharnois station, Que.

25342. Sept. 5.—Ordering C.P.R. to appoint station agent at Fortune, Sask., during Sept. Oct., Nov., and Dec., each year, until otherwise ordered.

25343 to 25345. Sept. 1.—Approving Bell Telephone Co. agreements with Westport Rural Telephone Co., Aug. 16; Monck Tp., Ont., July 13, and Watt Tp., Ont., July 1.

25346. Sept. 7.—Authorizing G.T.R. to build siding for Canada Forge Co., Welland, Ont.

25347. Sept. 2.—Ordering C.P.R. to protect crossing of Main St., Farnham, Que., by gates, operated by day and night watchmen; 20 per cent. of cost to be paid out of railway grade crossing fund; work to be completed within 60 days.

25348. Sept. 1.—Approving agreement between Bell Telephone Co. and Leeds and Frontenac Rural Telephone Co., Aug. 14.

25349. Sept. 1.—Extending for three months from date, time within which C.P.R. shall complete spur and sidings for Dominion Sugar Co., Chatham, Ont.

25350. Sept. 8.—Ordering C.P.R. to build spur on east half of Sec. 23-2-7, w-2-m, mileage 148.9, Estevan Subdivision, Sask.

25351 to 25377. Sept. 7.—Authorizing Canadian Northern Ry. to build its Winnipeg Northern branch across certain highways, at rail level, in Manitoba.

25378. Sept. 7.—Authorizing Canadian Northern Ry. to build across highway between river lots 116 and 115, St. Clements Parish.

25379 to 25388. Sept. 8.—Authorizing Canadian Northern Ry. to build across certain highways in Manitoba.

25389.—Sept. 8.—Authorizing Lake Erie and Northern Ry. to build across Leonard St., Brantford, Ont.

25390. Sept. 8.—Authorizing Canadian Northern Ry. to build spur in s.e. ¼ Sec. 7-28-19 w-4-m, Alberta, for Western Commercial Coal Co.

25391. Sept. 8.—Authorizing C.P.R. to build second track across road allowance between Secs. 8 and 9-17-23, w-1-m, Man.

25392. Sept. 8.—Authorizing Canadian Northern Alberta Ry. to build spur on n.w. ¼ Sec. 36-52-22, w-5-m.

25393. Sept. 8.—Authorizing Great Northern Ry. to withdraw for present year mixed train service on its Oroville-Princeton subdivision, required by order 23663, May 4, 1915; withdrawal to take effect Sept. 18, 1916.

25394. Sept. 11.—Amending order 25305, re spur for Dominion Steel Foundry Co., Hamilton, Ont.

25395. Sept. 8.—Authorizing Canadian Northern Ry. to build across Church and Colville Roads, East Selkirk, Man.

25396. Sept. 8.—Authorizing Saskatchewan Government to build highway across Grand Trunk Pacific Branch Lines Co.'s right of way, at north end of Bechard station.

25397. Sept. 8.—Authorizing C.P.R. to build its Kerrobert Subdivision across road allowance between Secs. 16 and 17-30-15, w-3-m, Sask.

25398. Sept. 8.—Authorizing C.P.R. to build extension to Canada Lumber Co.'s siding, York Tp., Ont.

25399. Sept. 9.—Ordering G.T.R. within 60 days to install improved type automatic bell at Lake Road crossing, east of Grimsby, Ont., 20% of cost to be paid out of railway grade crossing fund.

25400. Sept. 11.—Approving C.P.R. plan, Aug. 12, as revised Aug. 21, showing transfer tracks at Government elevator, Moose Jaw, Sask., providing for interchange with G.T.P.R.

25401. Sept. 11.—Authorizing Sunny South rural municipality no. 123, Suffield, Alta., to build highway across C.P.R. between Secs. 14 and 15-15-10, w-4-m.

25402. Sept. 11.—Authorizing City of Toronto to use structure for passage of street cars, authorized to be built east of Strachan Ave. by order 25093, June 17.

25403. Sept. 11.—Ordering Canadian Northern Ry. to fence certain portions of its railway between Vita and Caliento, Man., by July 31, 1917.

25404. Sept. 11.—Amending order 23863, June 15, 1915, re protection of Central Vermont Ry. crossing at St. Armand, Que.

25405. Sept. 11.—Ordering Edmonton, Dunvegan & British Columbia Ry. to build station accommodation for passenger, baggage, express and l.c.l. freight; and siding accommodation for carload freight at Tomkins Crossing, Alta.; station to equal standard station, B.R.C. 1 B, with platform for at least 3 passenger cars; work to be completed by Oct. 31.

25406. Sept. 13.—Authorizing G.T.R. to build spur for Goodyear Tire & Rubber Co., Toronto.

25407. Sept. 13.—Authorizing G.T.R. to build siding and two spurs from north of Eighth St., New Toronto, southwesterly along Ninth St., to Birmingham St.

25408. Sept. 12.—Ordering Canadian Northern Ry. to build siding at mileage 18, Moose Jaw Subdivision, Sask.

25409. Sept. 12.—Authorizing Saskatchewan Highway Commissioners to build highway over C.P.R. spur in n.e. ¼ Sec. 33-17-18, w. 2 m.

25410. Sept. 12.—Relieving G.T.R. from speed limitation of 10 miles an hour over Talbot Road crossing, Courtland, Ont.

25411. Sept. 12.—Approving plan showing under crossing of Esquimalt & Nanaimo Ry. by Shawinigan Lake Lumber Co.'s logging railway, British Columbia.

25412, 15413. Sept. 12.—Relieving G.T.R. from speed limitation of 10 miles an hour over crossings at Chatham Road, Thamesville, Ont., and near Allanburg station.

25414. July 14.—Ordering that 20% of cost of installing gates at Pembina highway crossing, Winnipeg, by Canadian Northern Ry., be paid out of railway grade crossing fund.

25415. Sept. 12.—Relieving Lake Erie & Northern Ry. from providing further protection at Cherry Valley road crossing, Townsend Ep., Ont., at mileage 38.25.

25416. Sept. 12.—Authorizing Grand Trunk Pacific Ry. to build spurs for Great West Coal Co. in s.e. ¼ Sec. 7-53-23, w. 4 m., Alta.

25417. Sept. 15.—Extending, for six months from date time within which C.G.T. shall complete spur for International Harvester Co. of Canada, Ltd., Hamilton, Ont., as authorized by order 24801, March 14.

25418. Sept. 16.—Authorizing G.T.R. to build siding with four spurs for Goodyear Tire & Rubber Co., New Toronto, Ont.

25419. Sept. 14.—Ordering Canadian Northern Ry. to erect standard third class station at Palmer, Ont., by Aug. 1, 1917.

25420. Sept. 14.—Authorizing Travers Municipality Local Union no. 188, Alta., to build highway across C.P.R. near Travers station.

25421. Sept. 14.—Amending order 25270, Aug. 14, re two crossings of Grand Trunk Pacific Ry. by Alberta Government at Cooking Lake.

25422. Sept. 15.—Extending for three months from date time within which C.P.R. shall complete spur for Conger Lehigh Coal Co., Ltd., Toronto, authorized by order 25030, June 5, 1916.

25423. Sept. 14.—Ordering Kettle Valley Ry. to fence its track from mileage 22.5 to 30 on the Penticon to Princeton portion by Oct. 31.

25424. Sept. 16.—Ordering Canadian Northern Ry. to build transfer track at Yorkton, Sask., with Grand Trunk Pacific Branch Lines Co.; C.N.R. to pay 4/5 and G.T.P.B.L. Co. balance of cost; both companies to furnish, without charge, necessary land on their respective rights of way for transfer; maintenance to be borne equally and track to be completed by Oct. 31.

25425. Sept. 15.—Extending for three months from date time for construction of extension to Boake Mfg. Co.'s siding for Harry Webb Co., Toronto.

25426. Sept. 15.—Authorizing Vancouver, Victoria & Eastern Ry. & Navigation Co. (G.N.R.) to open for traffic its line from Kilgard to Sumas Landing, B.C., mileage 37 to 45.35.

25427. Sept. 15.—Ordering Canadian Northern Ry. to maintain present schedule of trains nos. 9 and 10 in operation between Deseronto and Toronto, pending enquiry by the Board.

**Cafeteria for C.P.R. Employees.**—For the convenience of employees, of whom there are nearly 2,000 in the Windsor St. Station building at Montreal, the C.P.R. has started a cafeteria luncheon at 15c in a large apartment which will accommodate 251 persons at a sitting. In the offices there are hundreds of girls, especially, who have not time to go home, or who, if they do go home, are greatly pressed for time. With this service at their disposal they will save car fare; will get a satisfying luncheon; and can have on wet or cold days the comfort of the lounge room in connection, which contains a piano, magazines and papers and in which they can rest for the balance of their lunch hour. The arrangement is four to a table. There is still the 30c luncheon upstairs, and the regular dining room with a la carte service; but the cafeteria is strictly for employes, male and female, who prefer to have lunch inside the building to going to restaurants or carrying it from their homes.

The Great Northern Ry. has set aside \$1,000,000 to endow a pension plan for veteran employes. The plan went into effect on Sept. 16, the anniversary of the late James J. Hill's birth. The appropriation will be invested in bonds, interest on which will be used for pensions, but if the fund thus created proves insufficient the deficit will be paid out of earnings and included in operating expenses. Employes are to be retired at 70, but may voluntarily retire at 65 and receive pensions. The system will take in employes who have been continuously in service for 20 years or more.

## Railway Finance, Meetings, Etc.

**Canadian Northern Railway.**—There has been filed with the Secretary of State at Ottawa, a trust agreement dated Sept. 1, made between the Canadian Northern Ry., the Mount Royal Tunnel and Terminal Co., and others, to the Central Trust Co. of New York as trustees, securing an issue of one year 5% gold notes.

There has also been filed with the Secretary of State at Ottawa a mortgage executed by the C. N. R. securing \$15,000,000 repayable on demand, and also mortgages given by certain of the companies included in the C. N. R. system, securing loans made to them out of the \$15,000,000, the companies being as follows: Canadian Northern Alberta Ry., Canadian Northern Western Ry., Canadian Northern Ontario Ry., Canadian Northern Quebec Ry., Central Ontario Ry., Duluth, Winnipeg & Pacific Ry., Halifax & South Western Ry., Quebec & Lake St. John Ry., Qu'Appelle, Long Lake & Saskatchewan Rd. & Steamboat Co.; Mount Royal Tunnel & Terminal Co. Limited; Bay of Quinte Ry.

**C.P.R. Note Certificates.**—Hallgarten & Co., and Kean, Taylor & Co., New York, offered recently \$2,500,000 C.P.R. 6% note certificates at 101% and accrued interest, to yield about 5.73%. They are part of a total issue of \$52,000,000, all of which were sold by the company at the time of issue. The prospectus says:—"These notes are a direct obligation of the company, which enjoys an extremely high credit position. At present they constitute the company's only funded debt, with the exception of \$11,280,000 equipment notes maturing serially until 1928 and \$3,650,000 5% bonds of the Algoma Branch due in 1937. As security for these certificates the company agrees that the monies accruing from time to time from deferred payments on lands heretofore sold and interest thereon and from securities in which the proceeds of land sales have been invested shall be set aside for the purpose of paying principal and interest of these certificates. The amount of such deferred payments, securities, etc., aggregated \$56,268,768 on June 30, 1916."

**Klondike Mines Ry.**—The board of directors for the current year, elected at the annual meeting, recently, is as follows: H. B. McGiverin, President; J. P. Ebbs, Vice President; Andrew Haydon, Secretary; John Latta and C. G. Keke-wich.

**Magnetawan River Ry.**—The annual meeting was held at Toronto, Sept. 13. The following constitute the board for the current year: E. J. Chamberlin, President; H. G. Kelley, Vice President; Frank Scott, Secretary-Treasurer; J. E. Dalrymple, R. S. Logan, J. A. Yates, and J. Sharpe.

**Montreal and Province Line Ry.**—This G.T.R. subsidiary company held its annual meeting in Montreal recently. The officers for the current year are: E. J. Chamberlin, Chairman; E. C. Smith, President; J. G. Smith, Vice President; Marcus Alexe, Secretary; W. H. Chaffee, Assistant Secretary and Treasurer; E. Deschenes, Auditor.

**Temiscouata Ry.**—Gross earnings for June, \$24,535; operating expenses \$16,022; net earnings \$8,513, net earnings for 12 months ended June 30, \$40,761.

**White Pass and Yukon Route.**—Gross earnings from Jan. 1 to July 31, \$964,795, against \$789,821 for same period 1915.



# Railway Development, Projected Lines, Surveys, Construction Betterments, Etc.

**Alaska.**—H. U. M. Higgins, a U. S. Government engineer connected with the building of the government railway from Anchorage to Fairbanks, Alaska, is reported to have said, in an interview: "While the Government is doing the more elaborate work, such as bridges, etc., the system is to let grading contracts for small sections of the line, to station men who are paid upon the engineers' reports. Thus the middleman is eliminated, and a small contractor gets the whole of his earnings without deductions. The system has been found to work very well, and gives general satisfaction. There is a great deal of heavy construction on the line owing to the physical conditions of the country, and it is estimated that four years will elapse before Fairbanks is reached. The difficulty of securing material so far remote from centres of population has become almost inconceivable, and only those who have been on the work can realize the problems which have been presented in assembling construction supplies. Eventually the transportation has to be taken out of the hands of the ordinary steamship lines plying to Alaska, and use made of the United States army transports."

**Dominion Atlantic Ry.**—We are officially advised that the new passenger station to be built at Middleton, N.S., is to be a frame building, 70 x 26½ ft. over all, of C.P.R. standard design. It will contain a general waiting room 18 x 25 ft., ladies' waiting room 16 x 25 ft., and baggage and express room 16 x 25 ft., with suitable lavatories and office accommodation. The freight shed is to be a C.P.R. standard wooden structure 60 x 30 ft. on concrete foundations. The contract has been let to J. H. Hicks & Sons, Bridgewater, N.S.

**Dominion Government Railway to Hudson Bay.**—We are officially advised that grading is progressing favorably on the last 40 miles to Port Nelson, Man., from mileage 285 to 425. Track laying has reached mileage 300, and it is expected it will reach Kettle Rapids, the second crossing of Nelson River, by Oct. 20. The track has received the first lift of ballast to mileage 280, and the telegraph line has been erected up to the same point. The putting in of the substructure for the bridge at Kettle Rapids will be started during October. The construction season now drawing to a close has been very wet and labor has been very scarce, both of which facts have impeded progress. J. W. Porter is Chief Engineer. The head office was removed from Winnipeg to Pas, Man., Sept. 1. (Sept., pg. 364.)

**St. John and Quebec Ry.**—There has been deposited with the Minister of Public Works at Ottawa, plan and description of the site of the proposed bridge across the Nerepis River, at Westfield, N.B., mileage 69.30, on the extension now under construction from Gagetown to Westfield. (Sept., pg. 364.)

**Grand Trunk Pacific Ry.**—We are officially advised that the grading for the extension of the line from St. Louis into Prince Albert, Sask., was completed some time ago. The work now to be done consists of track laying and ballasting, the building of stations and sidings, and the construction of terminal facilities at Prince Albert. These will include passenger station, freight house, locomotive house, loading platform, etc. The work is to start immediately and to be completed as fast as the labor market will

permit, which the company hopes will be this autumn. (Sept., pg. 364.)

**Grand Trunk Ry.**—We are officially advised that the work to be done in connection with the erection of the new car shops at Port Huron, Mich., involves the putting up of the following buildings:—Passenger car shops, composed of two buildings both 130 ft. wide x 250 and 310 ft. long, respectively, and both being served by a transfer table 60 ft. wide; 2 story cabinet shops 75 x 225 ft.; blacksmith shop 75 x 300 ft.; machine shop, 75 x 300 ft.; office building 42 x 88 ft.; store room 65 x 150 ft.; wood mill 100 x 200 ft.; lumber storage 75 x 130 ft.; dry kiln, 40 x 80 ft.; freight car shop 160 x 350 ft.; paint shop 25 x 50 ft. The buildings will be constructed principally of brick and concrete. The power plant is to be of modern construction equipped with boilers and generating plant for furnishing electric power. The machinery will be motor driven throughout and the plant will be modern in every respect. The approximate expenditure is \$700,000. (Sept., pg. 364.)

**Great Northern Ry.**—The City of Vancouver has issued a permit to the company to build a freight shed on the company's property at False Creek. The building is to be erected in close proximity to the new passenger station which is now well advanced, and is to be 600 x 50 ft. The estimated cost is \$25,000. The contractors are Grant, Smith and MacDonnell.

The Board of Railway Commissioners has ordered the building of a permanent steel bridge across the North Road in Burnaby municipality, B.C., within a year. The bridge is to have a 24 ft. roadway with a 6 ft. sidewalk on either side. (Sept., pg. 364.)

**Intercolonial Ry.**—The Railways Department has declined to accept any of the tenders submitted for the erection of the station buildings in connection with the new ocean terminals under construction at Halifax, N.S. The reason given is that all the tenders were too high to justify the placing of a contract, but the tenderers justify their figures by the present high price of materials and the scarcity of labor. Other tenders for the work have not yet been invited.

In an address to the Rotarian Club of St. John, N.B., Aug. 31, Jas. MacGregor, who has resigned his position as Superintending Engineer, in order to go overseas with the Canadian Expeditionary Forces, spoke of the work being done and that while Halifax is pre-eminently the Canadian port on the Atlantic seaboard, there is ample trade for St. John as well. In carrying out the work Mr. MacGregor said the following quantities of material were required to be handled: Gravel and sand, 250,000 cubic yards; cement, 350,000 barrels; steel, 10,000 tons; granite, 2,000,000 cubic ft.; lumber, 5,000,000 ft. b.m.

F. P. Gutelius, General Manager, is reported to have said, Sept. 1, that with the close of navigation on the St. Lawrence River this season three additional berths would be ready at the Halifax ocean terminals, and three temporary sheds would be available.

F. P. Gutelius, General Manager, spent Sept. 1 in Halifax, and had a conference with the Mayor and the City Engineer in respect to a number of matters connected with the development of the port. The following statement was subsequent-

ly made by Mr. Gutelius: "We have settled with the Mayor and City Engineer all outstanding in connection with the closing of streets and exchange of property for the Halifax Ocean Terminals, and they anticipate that the tentative settlement will be approved by the Board of Control and the City Council at their next meeting, when the details of the entire transaction will be published. The settlement includes the dedication of the Flynn estate at the North West Arm for a hospital site and further than that the beaches on the Anderson estate and the Flynn estate will be dedicated to the public for recreation grounds, as the city may determine. With reference to the subway at the Three Mile House, at the solicitation of the Mayor and City Engineer the plans have been modified so as to improve the view of the subway on all approaches, and we are satisfied that when the work, as agreed on, is completed, the objections from automobile owners will be fully met. It is to be pointed out, however, that the speed of automobiles must always be limited when approaching subways located at a junction of highways."

The Railways Department has under consideration tenders for the construction of the foundations for a 500,000 bush. storage grain elevator, working house and track shed at St. John, N.B. (Sept., pg. 364.)

**Kootenay and Alberta Ry.**—The charter and assets of this projected railway were purchased by D. Redman, on behalf of the North American Collieries Co., on Sept. 7, for \$250,000. The amount of the reserve bid fixed by the court. The sale was made as a result of a foreclosure action against the company by the Alliance Investment Trust Co.

The K. & A. R. was incorporated by the Dominion Parliament in 1909, to build a railway from the C. P. R. Crownsnest Branch between Cowley and Pincher, Alta., through the Beaver Valley and the North Kootenay Pass to the International boundary in B.C., and through Pincher Creek and the Blood Indian Reserve, and the Milk River Valley to the International boundary near Coutts, Alta.

The charter was owned by interests associated with the Western Coal and Coke Co., Montreal, of which C. Fergie was manager. The coal company built a line of 13 miles from Pine Tree Harbor on the C.P.R. Crownsnest Pass Branch to the coal mine at Beaver Creek, Alta., in 1912, (Oct., 1912, pg. 501.)

**The Maritime Ry. Power and Coal Co.** proposes to open a new colliery near Maccan, N.S., and it is reported will build some additional lines and sidings in connection therewith. (Sept. 1910, pg. 727.)

**The Nova Scotia Coal, Iron and Ry. Co.'s** certificate of registration has been revoked by the Nova Scotia Government, the company having failed to pay registration fees due. The company was originally chartered to develop coal areas in the Broughton coal field, and a railway in connection therewith.

**Pacific Great Eastern Ry.**—Some work is being done on the extension of the line from Clinton to Prince George, B.C., for which funds were provided in a \$2,000,000 loan arranged by the British Columbia Government in London, Eng., at the end of July. Until this section of the line is completed nothing will be done in connection with the projected extension from Prince George to the B.C.-Alberta



boundary in the Peace River district where it is proposed to make connection with the Edmonton, Dunvegan & British Columbia Ry. (Sept., pg. 364.)

**Pere Marquette Rd.**—J. J. Corcoran, Superintendent Detroit-Canadian Division, and other officials were in Sarnia, Ont., Sept. 8, in conference with the Board of Trade respecting the building of a new station. The present station is inconveniently situated, particularly for passenger traffic, and is altogether inadequate for the traffic. It is suggested that the property at the end of the Christina St. pavement can be secured at a reasonable price. The Superintendent stated that it was proposed to build a modern station at an early date (Feb., pg. 49.)

**Prince Albert District.**—The Price Al-

bert, Sask., Board of Trade is getting a petition signed by farmers asking the Dominion and Provincial Governments to take steps to have a colonization railway built to open up the agricultural lands to the north of that place.

**Vancouver Terminal Ry.**—In connection with the proposals for the development of Vancouver, B.C., harbor, the Harbor Commissioners propose to build a terminal railway along False Creek, and have made application to the City Council for a right of way. At a conference of the representatives of Pacific Port authorities held at Vancouver, Sept. 5, a resolution was passed approving of the proposal for laying out a terminal railway there as a public work. (July, pg. 282.)

arranged to the greatest extent is that heretofore known as the Complete Timetables, which is now designated Form A. This contains the complete timetables of the system, with the exception of the suburban train service at Montreal and Chicago, and the motor car service over the International Bridge between Bridgeburg, Ont., and Black Rock, N.Y. The folder also contains a complete list of all stations on the system, and condensed timetables of the G. T. Pacific Ry., the G. T. Pacific steamship lines, and of the Central Vermont Ry. The other folders are as follows:—Form B., Ontario Lines; Form C, Eastern Lines; Form D. Montreal Suburban Lines; Form E (former Form A), Lines west of Detroit and St. Clair River; Form F, Chicago Suburban Lines; Form G, pocket time card, Buffalo Port Colborne and Dunnville; Form H, pocket time card, motor traffic International Bridge between Bridgeburg and Black Rock; Form J, Chicago condensed through time table; Form K, Highlands of Ontario.

## Freight and Passenger Traffic Notes.

The Lehigh Valley Rd.'s new passenger station in Buffalo, N.Y., was opened for traffic Aug. 29.

The C.P.R. has added to its Ontario Division the Camp Borden Subdivision, extending from Ypres, the point of connection with the Toronto-Sudbury line, to the camp, and including its lines at the camp, 4.5 miles.

The harvest excursions are estimated to have taken about 30,000 men into the prairie provinces; the C.P.R. carrying 18,000; the Canadian Northern Ry. 7,000; and the Grand Trunk Pacific Ry. 5,000.

The Canadian Northern Ry. put in operation on Sept. 11 a new direct train between Brandon, Man., and Moose Jaw, Sask. It leaves Brandon Mondays, Wednesdays and Fridays, returning Tuesdays, Thursdays and Saturdays.

The G.T.R. lake route special trains made their last trips for the season of 1916 as follows: Toronto to Sarnia Wharf, and Winnipeg to Toronto and Sarnia Wharf to Detroit, Sept. 17; Fort William to Winnipeg, Sept. 18.

A new mail and express train was put in operation, Sept. 4, by the G.T.R. between Toronto and Collingwood, reaching the latter place at 10.30 a.m. Under the service previously operated the mail was not received in Collingwood until mid-day.

The G.T.R. advertising department is having a number of moving picture films made of beauty spots on its line from Toronto, and over the G. T. Pacific Ry. to Prince Rupert. Arrangements are reported to have been made for exhibiting them in the United States to promote tourist traffic to Canada.

The G. T. Pacific Ry. on Sept. 4 put on a tri-weekly train service on its Cutknife Branch, which extends from Battleford to the boundary between Saskatchewan and Alberta, replacing the weekly service heretofore given. This gives a through tri-weekly service from Biggar, on the main line, to Battleford and Carruthers.

An association of transportation men on the Pacific Coast, covering Washington, U.S., and British Columbia, is being formed to effectively advertise the area for tourist purposes. A preliminary meeting was held at Seattle, Wash., Sept. 7, and a general meeting for organization purposes has been called to be held at Tacoma, Wash., Oct. 11.

The Canadian Northern Ry. is reported to have completed a survey of the pulpwood and other resources along its line

between Ottawa and Port Arthur, Ont. The survey estimates that there are over 8,000,000 cords of pulpwood, and 25,000,000 ties available mainly on the land within the area from which it can select the land grant given by the Province of Ontario in aid of the building of the line.

The G.T.R., commencing Sept. 24, rearranged its train leaving Montreal and connecting with the Delaware and Hudson Co.'s lines at Rouses Point, for points in New York State. The following is now the time of the trains leaving Montreal on this route: Daily for New York, 9 a.m. and 8.20 p.m.; while the times of arrival will be: 8.25 a.m. and 8.25 p.m. daily. All other trains running between Montreal and New York are cancelled.

The clauses in the U. S. emergency revenue bill to prohibit admission of Pacific Ocean halibut or salmon through a foreign country except in bond from a U. S. port were abandoned by Congress, Sept. 7. These clauses were aimed at the extraordinary development of the shipments of halibut, etc., from Prince Rupert, B.C., since the opening of the Grand Trunk Pacific Ry., and the consequent lessening of the halibut fishery trade into Seattle, Wash.

The Hamilton City Council is applying to the Board of Railway Commissioners for an order to compel the G.T.R. to provide an adequate train service between Hamilton and Burlington Beach. It was reported to the council that there was an agreement between the company and the city as to the number of trains to be run, and that no evidence could be found of an agreement between the G.T.R. and the Hamilton Radial Ry., by which the electric railway had the exclusive right to the passenger traffic between the city and the Beach.

The Grand Trunk Pacific Ry. announces that on all tickets reading between Portage la Prairie, Man., or points east thereof, and Edmonton, Alta., or points west thereof, a free side trip will be given from Melville, Sask., to Moose Jaw, Sask., and return. Passengers availing themselves of free side trip to Moose Jaw will not be permitted the privilege of free side trip to Yorkton or Canora. Similarly passengers availing themselves of free side trip to Yorkton or Canora will not be permitted the privilege of free side trip to Moose Jaw.

The G.T.R. has made radical changes in the dress and arrangement of schedules in its time table folders, the first series of the new folders being issued Sept. 10. The folder that has been re-

### Canadian Northern Railway Earnings, Etc.

Gross earnings, working expenses, net earnings, increases, compared with those of 1915-16, from July 1, 1916:

	Gross Earnings	Expenses	Net Earnings	Increase
July	\$3,834,200	\$2,636,800	\$1,197,400	\$ 711,000
Aug.	3,684,900	2,612,900	1,072,000	614,300
	\$7,519,100	\$5,249,700	\$2,269,400	\$1,325,300
Incr	\$3,573,800	\$2,248,500	\$1,325,300	.....

Approximate earnings for three weeks ended Sept. 21, \$2,102,900 against \$1,702,100 for same period, 1915.

### Canadian Pacific Railway Earnings, Etc.

Gross earnings, working expenses, net earnings, increases, or decreases, compared with those of 1915-16, from July 1, 1916:

	Gross Earnings	Expenses	Net Earnings
July	\$12,247,440.39	\$8,230,348.66	\$4,017,091.73
	\$12,247,440.39	\$8,230,348.66	\$4,017,091.73
Inc.	\$ 4,352,064.92	\$3,135,376.31	\$1,216,688.61

Approximate earnings for August, \$12,880,000 against \$8,414,000 for Aug. 1915, and for two weeks ended Sept. 14, \$5,407,000 against \$4,216,000 for same period 1915.

### Grand Trunk Railway Earnings.

Following are the earnings and expenses for the G.T.R., including the Canada Atlantic Ry., the G.T.W.R. and D.G.H. and M.R., for July, compared with those for July, 1915:—

Grand Trunk Railway.		
Gross earnings	.....	\$4,197,000
Expenses	.....	2,920,800
Net earnings	.....	\$1,276,200
Grand Trunk Western Railway.		
Gross earnings	.....	\$ 831,250
Expenses	.....	590,750
Net earnings	.....	\$ 240,500
Detroit, Grand Haven and Milwaukee Ry.		
Gross earnings	.....	\$ 289,100
Expenses	.....	234,800
Net earnings	.....	\$ 54,300

### Traffic Receipts of the System.

	Aggregate from Jan. 1 to Aug. 31:—		Increase
	1916	1915	
G. T. R.	\$29,886,153	\$25,771,392	\$4,114,761
G. T. W. R.	6,269,093	4,788,364	1,480,729
D.G.H. & M.R.	2,210,795	1,720,902	489,893
Totals	\$38,366,041	\$32,280,658	\$6,085,383

Approximate earnings for August, \$5,750,376 against \$4,585,881 for Aug. 1915, and for three weeks ended Sept. 21, \$3,840,360 against \$3,188,108 for same period 1915.



# Traffic Orders by Board of Railway Commissioners.

## Distributing Tariffs from Manitoba Points.

25230. Aug. 1. Re application of Canadian Pacific, Canadian Northern and Grand Trunk Pacific Railway Companies for leave to revise the distributing or "town" tariff rates from Winnipeg, Portage la Prairie, and Brandon, Man., so as to conform to the basis laid down in the Board's judgment, dated April 6, 1914, as applicable from distributing centres in Saskatchewan and Alberta: Upon hearing the application at Winnipeg, June 12 and July 14, 1916, in the presence of counsel for and representatives of the applicant railway companies, the Winnipeg Board of Trade being represented at the hearing, no objection to the granting of the application being offered, and upon the recommendation of the Chief Traffic Officer of the Board, it is ordered that the application be granted.

## Transfer Track at Basque.

25245. Aug. 3. Re application of the Canadian Northern Ry. for authority to construct a transfer track with the C.P.R. at Basque, B.C. It is ordered that the application be granted.

## Brick Rates from Grand Piles.

25249. Aug. 3. Re complaint of Doucet & Freres, Grand Piles, Que., against freight rates on brick from Grand Piles to Yamachiche, and other points in the Province of Quebec, over the C.P.R. It is declared that the joint rate on brick from Grand Piles to Shawinigan Falls and Grand Mere, Que., on the Canadian Pacific and Canadian Northern Railways, should be 3½c; and it is ordered that the said railway companies be authorized to refund to the applicants ½c per 100 lb. on any shipments of brick to Shawinigan Falls and Grand Mere for which a charge of 4c has been made; and that the complaint with respect to rates to other points in the Province of Quebec be dismissed.

## Heated Refrigerator Car Service.

25251. Aug. 5. Re the consideration of the question of extra charges proposed by carriers for heated refrigerator car service from points in Eastern Canada to points west of Fort William, Ont. Upon hearing the matter at Winnipeg, June 12, Saskatoon, June 14, Edmonton, June 15, Calgary, July 10, and Winnipeg, July 14, 1916, the Winnipeg and Saskatoon Boards of Trade, the Calgary Brewing Co., the Canadian Manufacturers' Association and the Canadian Pacific, Canadian Northern, and Grand Trunk Pacific Railway Companies being represented; and upon the report of the Chief Traffic Officer of the Board: It is ordered that order 24994, May 22, 1916, suspending certain tariffs showing charges for the use of heated refrigerator cars, in so far as it affects the following railway tariffs, namely, Canadian Pacific C.R.C. 2156; Esquimalt & Nanaimo C.R.C. 327; Kettle Valley C.R.C. 83; Grand Trunk Pacific C.R.C. 158; Canadian Northern C.R.C. W-936, be rescinded; provided that sec. 3 of said tariffs shall apply only when loading is done by shippers, and that sec. 4 be eliminated.

## Crushed Stone Rates from Hagersville.

25255. Aug. 11. Re application of the Hagersville Contracting Co., Ltd., and Hagersville Crushed Stone Co., against the proposed increase in freight rates on crushed stone from Hagersville to Windsor and Pelton, Ont., from 65c a ton to

85c a ton, as shown in Supplement 12 to Michigan Central Rd. Tariff C.R.C. 2490. It is ordered that the said increased rates on crushed stone be disallowed pending further order.

## Grain and Lumber Stopped for Orders.

25285. Aug. 18. Re complaint of Montreal Board of Trade against track storage charge made by C.P.R. on lumber and forest products at Cartier, Ont., and against the same charge made by the G.T.R. at Sarnia, Ont. It is ordered that the G.T.R. be authorized to charge the following special tolls for detention of cars containing lumber and forest products at Sarnia, for more than 72 hours, while awaiting furtherance orders from the consignee thereof, viz., \$1 a car per day of 24 hours, or part thereof, for the first 2 days following the expiration of the 72 hours, and \$2 a car per day of 24 hours for each succeeding day or part thereof; the said tolls to be chargeable in addition to the ordinary demurrage toll, prescribed by General Order 1 (formerly order 906), Jan. 25, 1906, and the stop-over charge as fixed by order 6148, Jan. 21, 1909, as amended by order 10418, April 26, 1910; and it is further ordered that order 24436, Nov. 11, 1915, be amended so as to include lumber and forest products detained at Cartier, for orders.

## Cleaning and Disinfecting Live Stock Cars.

25313. Aug. 17. Re complaint of Henry Miles of Point Fortune, against the unloading charge of \$1 a car at Hochelaga stock yards, and the charge of 75c a car for cleaning and disinfecting live stock cars, as assessed by the C.P.R.. Upon hearing the complaint at Montreal, June 28, 1916, in the presence of counsel for the C.P.R., no one appearing for the complainant, and upon the report of an inspector of the Board, it is order that the complaint be dismissed.

The Assistant Chief Commissioner, D'Arcy Scott, gave the following judgment: It is provided in the Live Stock Contract approved by the Board that stock shall be loaded and unloaded by the owner. In the present case the car was shipped to the East End stock yards, Montreal, where, owing to the nature of the yards and the volume of traffic handled it is impracticable for cattle to be unloaded by the owner. Consequently, the railway company has provided in Supplement 6 to C.R.C. no. E. 3041, a charge of \$1 car for unloading or loading cattle at the East End cattle market, Montreal. From the explanation given by the company at the hearing, it appears to me that it is justified in making this charge and I do not think the tariff should be interfered with. As far as the 75c for cleaning and disinfecting a car is concerned, that item is covered by the same supplement and was some time ago considered and approved by the Board.

## Potatoes and Turnips from Maritime Provinces.

25322. Aug. 30. The application of Jones & Jones, of Woodstock, N.B., respecting shippers of potatoes in the Maritime Provinces for suspension of C.P.R. Tariff C.R.C. no. E-3176, and the Temiscouata Ry. Tariff C.R.C. no. 256, applying on potatoes and turnips from points in the Maritime Provinces to stations in Ontario and Quebec: Upon reading what has been filed on behalf of the applicants, it is ordered that the said tariffs be suspended, until further ordered.

## C.P.R. Standard Mileage Freight Tariff.

25327. Aug. 20. Re application of C.P.R., under sec. 327 of the Railway Act, for approval of Supplement 1 to its Standard Mileage Freight Tariff, C.R.C. no. W-1948: Upon the recommendation of the Chief Traffic Officer of the Board, it is ordered that the said supplement be approved.

## Export Rates on Iron and Steel.

25453. Sept. 22. Re application of Canadian Manufacturers' Association for suspension of proposed cancellation of rates on iron and steel articles from stations in Canada to Montreal, Quebec and the Atlantic seaports for export. Upon reading what has been submitted on behalf of the applicants, it is ordered that the proposed cancellation of special commodity rates on iron and steel articles from stations in Canada to St. Lawrence River and Atlantic ports for export, as contained in the following schedules, be suspended pending hearing on a date to be fixed by the Board. Grand Trunk Ry. Supplement 8 to tariff C.R.C. no. E-3351; supplement 34 to tariff C.R.C. no. E-3088; supplement 38 to tariff C.R.C. no. E-3089. Canadian Pacific Ry.—Supplement 25 to tariff C.R.C. no. E-2944; supplement 27 to tariff C.R.C. no. E-2946; supplement 10 to tariff C.R.C. no. E-3131. Toronto, Hamilton & Buffalo Ry.—Supplement 5 to tariff C.R.C. no. 1047; supplement 2 to tariff C.R.C. no. 1086; supplement 2 to tariff C.R.C. no. 1046; supplement 3 to tariff C.R.C. no. 1090. Canadian Northern Ry.—Supplement 10 to tariff C.R.C. no. E-624. Michigan Central Rd.—Supplement 3 to tariff C.R.C. no. 2521. Wabash Ry.—Supplement 4 to tariff C.R.C. no. 933. Pere Marquette Rd.—Supplement 4 to tariff C.R.C. no. 2007.

## Endorsement Re Seed Grain Advances.

General Order 170. Aug. 5. Re general order 148, Sept. 1, 1915, authorizing companies within the legislative control of the Parliament of Canada and operating in Alberta and Saskatchewan, to endorse upon the bills of lading, approved under order no. 7562, July 15, 1909, the amount of advances for seed grain, fodder for animals and other goods furnished to persons in the said Provinces, and the interest agreed to be paid, authorized by chap. 20 of the acts, 1915, and as provided under order in council of July 23, 1915: Upon the report of the Governor in Council by Order in Council dated July 31, 1916, terminating on Sept. 1, 1916, the arrangement whereby the railway companies endorse indebtedness on bills of lading, it is ordered that the General Order 148, dated Sept. 1, 1915, be rescinded on and after Sept. 1, 1916.

**I. R. C. Moncton Offices.**—The Division Superintendent of the Intercolonial Ry. at Moncton, N.B., has removed his offices from the station building to the Rest House, and the Superintendent of Car Service has moved his offices from the station building to the Creighan Building, Main St. It has not been announced what will be done with the vacant offices at the station.

**Railway Taxation in Montreal.**—The City Recorder has fixed the valuation for taxation purposes of the C.P.R., the G.T.R., and the Canadian Northern Ry. tracks within the city at \$5,000 a mile. Then Board of Assessors put a valuation of \$6,000 a mile on the line in 1912, and the matter has been before the courts since.



## Canadian Pacific Ry. Construction, Betterments, Etc.

The Montreal City Council has given notice that the bridge at Notre Dame St., which collapsed a short time ago when some freight trains collided must be replaced by a permanent structure of concrete and steel. The company claims that the bridge which was destroyed was of a permanent character, and can be rebuilt as it was before.

A Kingston, Ont., press report says C.P.R. officials are investigating the possibility of electrifying the company's line from Kingston to Renfrew, the power to be obtained from the Mississippi River. This is the old Kingston and Pembroke Ry., 103.4 miles.

The Manitoba Bridge and Iron Works started work, Sept. 5, on the erection of the platform roofs at Winnipeg. They will be of the umbrella type. The work is expected to be completed early in the autumn.

S. P. Dunham, President of the United Farmers of Alberta, was advised recently by Grant Hall, Vice President, and General Manager, Western Lines, that there were districts in the country wanting railway accommodation worse than the

to the harbor line, a distance of 812 ft. It will approximate 170 ft. in width, including a central portion of 140 ft. with a 15 ft. open space on either side. The Vancouver Province, referring to the work, says: "The gravel fill taken in the dredging operations between sheds 3 and 7 will be deposited in the centre and will come up to low water. Through this gravel fill there will be driven piles or concrete caissons down to hard bottom. The structure will be a 2 story one and all the latest contrivances will be used for the loading and unloading of vessels. The docks in the centre will be so arranged as to be capable of being depressed or lifted according to the state of the tide. There will be a bridge from Burrard viaduct on to the structure and to the second floor. The lower floor will be kept as free from teaming as possible and the upper floor will be used for local cargo. Elevators will be installed to work between the upper and lower floors. The upper floor will likely be constructed of solid construction steel. At low tide there will be 35 ft. of water at the outer edge of the pier and this will, it is be-

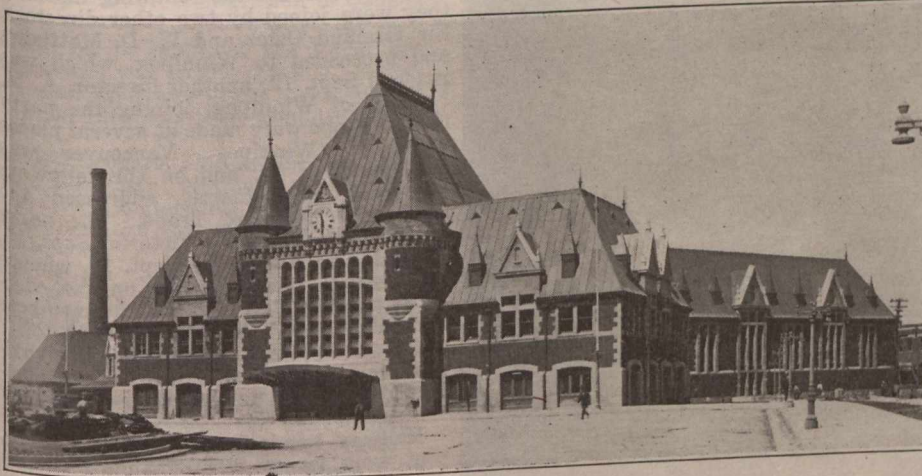
## What Efficiency Testing Really Means.

By R. W. D. Harris, Trainmaster, C.P.R., Ignace, Ont.

In the mind of the progressive railway man efficiency is synonymous with safety, and the employe who looks at efficiency tests in their true light, welcomes them as a means of proving his worth, of showing him wherein lies his weakness or his strength. Efficiency tests are absolutely necessary, not only to ensure the proper performance of duty, but, as is primarily their mission, to check and safeguard the employe against his own possible mistakes, the greatest of which I can safely say is, "taking chances." Not a few of us know by experience how the mere fact that our work may become mechanical, the same day after day, makes a loophole for laxity to creep in, and then, indeed, are we in danger. No one can develop without the right test made in the right way and by the right person. By our failures we can attain to greater efficiency than by the way of untested efforts. Personally I have found the men, as a rule, ready and glad to take suggestions and instruction how to improve their work when failure has been the result of a test. They are beginning to see that it is not failure, but efficiency, that the officer is looking for, and that greater vigilance should be uppermost in their minds. Guided by an alert, clear brain, the hand is steadier, the eye keener, the ear quicker, and with pride in his work and the knowledge that his best is expected, ambition to excel is stimulated in the interested employe. I have noticed that occasionally an employe, notably a locomotive man, who is apparently all that can be desired in his particular line, becomes completely rattled when the unexpected happens, and in railway parlance "falls down," and too often for the reason that he has never been subjected to critical supervision and discriminating discipline. Such a man should be taken in hand and if possible educated, otherwise he may become one of those misfits in whose wake calamity follows sooner or later.

The sentiment in regard to surprise tests is changing, and the majority of the men are not only willing but anxious for the officer to see that they are on their job all the time. If tests could be the work of a special officer who would daily and hourly devote himself conscientiously and systematically to it there would not be the danger of continually repeating a test on the same employe, as sometimes happens through no fault of the one making the test, thereby engendering in the employe a feeling that the officer is hounding him and looking for failure. Such occurrences are unavoidable at times, for a test, to be genuine, must be unknown to the man who is tested and information sought as to his identity sometimes renders a test futile.

Efficiency testing should not be regarded as the work of a spotter, or spy, as I have frequently heard it stigmatized, but the judicious skilful work of a special officer through whom each and every employe shall receive sometimes much needed educating. What would be punishment to one man would not affect another in the same degree; all natures are not alike and a hard and fast rule for discipline is difficult to apply and attain the desired result. But if the men can be made to understand that the officers mean to put into practical application the golden rule, that right and justice are the paramount objects in discipline, then I believe that



Union Station, Quebec, built by Canadian Pacific Railway.

Canadian Railway and Marine World for September contained a description of the above mentioned new station, with an illustration made from the architect's drawing. The accompanying illustration is made from a photograph and shows the building as completed. As previously stated, it will also be used by the Canadian Government Railways for National Transcontinental Ry. train service.

district northeasterly of Kipp, Alta. The United Farmers asked for the immediate building of a line from Kipp, northeasterly for 25 miles. The route plans for this line were approved by the Minister of Railways, April 16, 1913, but nothing in the way of construction has been done. The organization proposes to appeal to the Dominion Government to see what can be done to have the line built.

Work on the completion of the Rogers Pass cut-off—which includes the tunnel, the name of which we are officially advised is to be the Connaught Tunnel—is being rapidly completed. The approach lines are practically finished, and the ventilating machinery is being installed. The tunnel, which is said to be 5 miles 5 ft. long, is expected to be opened for traffic early in November.

Tenders were received to Sept. 25 for building a jetty pier, in connection with the company's deep water terminals on Burrant Inlet, Vancouver, B.C. A description and plan of the site of the proposed jetty, has been deposited with the Department of Public Works, Ottawa. The pier is to be built between the present piers A and D, and will be known as Pier B. Like pier A it will go right out

lied, be sufficient to accommodate any size of vessel that may call at this port for many years to come." (Sept., pg. 361.)

**Duty on Steel Rails.**—Recent press reports from Ottawa have stated that on representations that Canadian railways could not secure steel rails in Canada, the mills being largely engaged in producing war material, the Government would probably suspend or reduce the customs duty on steel rails temporarily. An Ottawa press dispatch of Sept. 23 said the following announcement had been made officially: "It is understood that an arrangement has been made with regard to supplying rails required by the railway companies which will satisfy temporarily the urgent requirements of the various railway systems."

**Canadian Northern Ry. Fishing Lodge.**—The C.N.R. had in operation from about June 15 to Sept. 15, a fishing lodge which it built on the shore of Orient Bay, an arm of Lake Nipigon, Ont., with accommodation for about 20 guests. It was operated as an annex of the company's hotel at Port Arthur, Ont.



the majority of the employes will loyally co-operate in similar spirit and the business of the road be conducted on the plane of mutual helpfulness. It takes a friend to tell us our faults, and the efficiency officer should be able to so conduct his work that he will elevate his office and be regarded as the employes' friend in deed. Under such conditions efficiency tests will be the means of leading up to just what a railway stands for in practice as well as in theory—safety to the travelling public and to the employe, efficiency in its highest and best sense.

**Railway Rolling Stock Notes.**

The Canadian Northern Ry. has received 3 tourist cars, nos. 9408, 9411 and 9413 from Canadian Car and Foundry Co.

The National Steel Car Co., Hamilton, Ont., is reported to be making excellent progress with its order for freight cars for the French Government.

The 12 all-steel sleeping cars, which have been built recently, or are now being built for Canadian Government Railways, are to be named Levis, L'Islet, Louisburg, Lunenburg, Val Brilliant, Valcartier, Valley, Valois, Vernon, Ville Marie, Villeroy and Vivian.

Canadian Government Railways, between Aug. 16 and Sept. 18, received the following additions to rolling stock: 2 steel sleeping cars, from National Steel Car Co.; 13 vans from its Moncton shops, and 7 Pacific type locomotives from the Canadian Locomotive Co.

The Eastern Car Co. is reported to be negotiating for a contract for 4,000 cars for a foreign government, probably the Belgian. The first contract of 1,000 cars for the French State Railways has been completed, and it is expected that deliveries will commence in October of the remaining 3,000 cars on order for France.

Canadian Government Railways have ordered 20 all steel snow ploughs, for delivery by Dec. 1; 200 wooden box cars with steel draft arms, 30 tons capacity, for delivery by Jan. 15, 1917, and 100 refrigerator cars with steel draft arms, 40 tons capacity, for delivery by Feb. 1, 1917, from Canadian Car and Foundry Co., and one 100 ton working crane from F. H. Hopkins & Co.

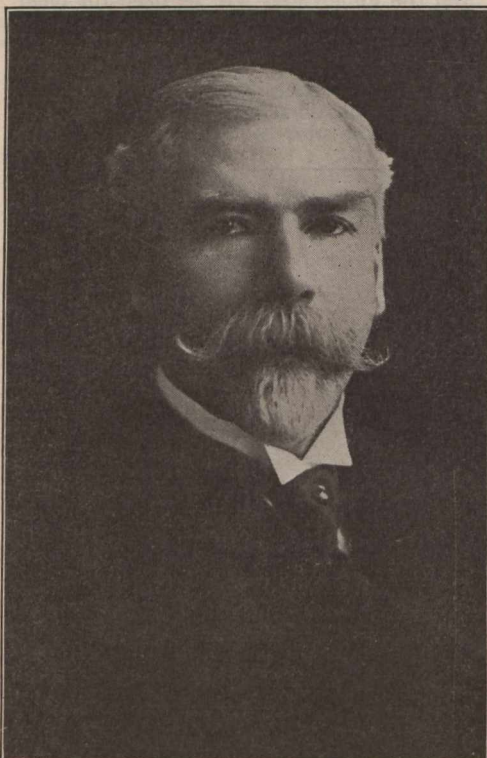
Following are some of the chief details of the 500 steel frame box cars which Canadian Government Railways have on order with Canadian Car and Foundry Co., as mentioned in a previous issue:

Length over striking plates	.....42 ft. 8½ in.
Length centre to centre of bolsters	.....31 ft.
Truck wheel base	.....5 ft. 6 ins.
Height from rail to top of running board	.....4 ft. ¼ in.
Length inside	.....40 ft. 6 ins.
Height inside	.....8 ft. 7 15/16 ins.
Door opening, width	.....6 ft.
Width over side sills	.....9 ft. 3 ins.
Width over all	.....9 ft. 9 ins.
Width over corner posts	.....9 ft. 9¾ ins.

The Eastern Car Co. has completed the first contract for 1,000 cars for the French Government, all of which have been delivered, and it expects to begin delivery in October on the second order from the French Government for 3,000 cars. Work is also beginning on 500 freight cars for the Canadian Government Railways. The company is negotiating for a contract to build 4,000 cars for another foreign Government, and if it is successful in securing this the works will be assured of orders to keep them employed for nine months of next year. Orders on hand are sufficient to keep the company busy throughout this year.

**The Late Thomas J. Kennedy.**

Thomas John Kennedy, one of the receivers and General Manager of the Algoma Central and Hudson Bay Ry., President and General Manager Algoma Eastern Ry., and Vice President and General Manager Trans-St. Marys Traction Co., died at Sault Ste. Marie, Ont., Aug. 29, of pernicious anaemia, after an illness lasting over three months. A funeral service, at which Archbishop Thornloe officiated, was held at St. Luke's Cathedral, Sault Ste. Marie, of which he was one of the wardens for several years. During the holding of the funeral service, the operation of all trains and work on the A. C. & H. B. R. and Algoma Eastern Ry., and the system generally, was suspended for three minutes. The body was taken on his official car to his birthplace at Campbellford, Ont., where another service was held at The Homestead, after which the burial took place



The late Thomas J. Kennedy.

in Christ Church cemetery. He leaves a widow and one daughter.

He was born at Campbellford, Ont., in 1854, and entered railway service in 1874 as chairman on the first C.P.R. survey east of Winnipeg, since when he was, consecutively, June 1877, assistant engineer on contract 15, C.P.R.; May 1880, engineer for Manning, Macdonald & Co., contractors for section B, C.P.R., at Rat Portage, Ont.; Oct. 1882 to the spring of 1885, Superintendent of Construction on the same section; June 1885, Roadmaster, White River section, C.P.R.; Aug. 1892, Superintendent, Chapeau District, C.P.R.; Sept. 1899, Superintendent, North Bay district, C.P.R.; June 1900 to Feb. 1911, General Superintendent, Algoma Central and Hudson Bay Ry., and Manitoulin and North Shore Ry., and from 1904 to Sept. 1910 also Manager, International Transit Co., Trans-St. Marys Traction Co., and the ferry line between Sault Ste. Marie, Ont., and Sault Ste. Marie, Mich.; Feb. 1911 to Oct. 1914, President, Superior Construction Co., Espanola, Ont., with contracts for the con-

struction of a section of the Manitoulin and North Shore Ry., now Algoma Eastern Ry, from Crean Hill to Whitefish; and subsequently for the northern section of the Algoma Central and Hudson Bay Ry. from Frank to Hearst. On a reorganization of several of the Lake Superior Corporation's subsidiary companies in 1914, he became, in October of that year, President and General Manager Algoma Central and Hudson Bay Ry., and Algoma Eastern Ry., and Vice President and General Manager, International Transit Co. and Trans-St. Marys Traction Co. in charge of street railways and ferries. Toward the end of 1914 he visited England and conferred with bondholders and others financially interested in the A. C. & H. B. R., and in March, 1915, he was appointed one of the two joint receivers on behalf of the bondholders. From the outbreak of the war, he took a very active interest in local committee appointed for that purpose.

**C.P.R. Directors' Inspection Trip.**

Lord Shaughnessy, President, C.P.R., left Montreal by special train on Sept. 9, accompanied by three directors, Sir Herbert Holt, R. B. Angus and E. W. Beatty, K.C. At Toronto the following morning they were joined by two other directors, Sir Edmund Osler and W. D. Matthews and proceeded to Winnipeg, which was reached Sept. 12; another director, A. M. Nanton, of Winnipeg, joining the party there. Stops were made at several places west of Winnipeg. Vancouver was reached Sept. 15, and on the following day Lord Shaughnessy addressed the Vancouver Board of Trade. The party went by steamship to Victoria, Sept. 17, returning to Vancouver Sept. 18, whence their special train started on the eastward journey, Sept. 19, and the members arrived at their destinations, Sept. 26.

The party was accompanied by various general and local officials of the company through their respective territories.

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

	Acres.
Calgary & Edmonton Ry. ....	791.00
Canadian Northern Ry. ....	620.00
Grand Trunk Pacific Branch Lines Co. ....	19.37
Kootenay Central Ry. ....	8.56
Qu'Appelle, Long Lake & Saskatchewan Rd. & Steamboat Co. ....	3,596.02
Total .....	5,034.95

The Grand Trunk Ry. Building, 17 to 19 Cockspur St., London, Eng., is reported to have been commandeered by the British Government. The G.T.R. will probably be allowed to retain the ground floor, but the office tenants will have to move out. It is said the offices will be used by the Department having charge of the manufacture, etc., of the new tank armored cars.

The Canadian Northern Ry. during the 12 months ended Aug. 31, handled over its lines between Lake Superior and the Rocky Mountains 109,122 cars of grain produced in its territory and inspected at Winnipeg, Calgary and other points in the west. This was an increase of 69,828 cars over the total of the previous year, and represented a gain of 178%.

Canadian Northern Ry. Collateral Trust Notes, which bear the Dominion Government's guarantee, are selling in New York to yield about 5.35%, or a little above the return on the war loan. They are secured by a general mortgage, the par value of the bonds being 133 1-3% of the note issue.



## Mainly About Railway People Throughout Canada.

**E. Tiffin**, General Western Agent, Canadian Government Railways, and Mrs. Tiffin have taken quarters at the Carls-Rite Hotel, Toronto.

**J. K. L. Ross**, of Montreal, director C.P.R., has been appointed Chairman of the Pensions Board to deal with military pensions in the Dominion.

**Mortimer M. McLaren** has been appointed officer in charge of railway terminals at Camp Borden, Ont., with the temporary rank of major.

**Lord and Lady Shaughnessy** have announced the engagement of their daughter, Hon. Marguerite Shaughnessy, to E. L. Sanborn, of Havana, Cuba.

**Lieut. H. G. Pepall**, of the 48th Highlanders, who was wounded in action Sept. 7, is a son of G. Pepall, Assistant Foreign Freight Agent, G.T.R., Toronto.

**W. R. MacInnes**, Freight Traffic Manager, C.P.R., Montreal, has been elected a member of the Bank of British North America's advisory committee in Canada.

**J. Murray Gibbon**, General Publicity Agent, C.P.R., addressed the Calgary Ad. Club, Sept. 19, on immigration to Canada and the return of soldiers after the war.

**Lieut. M. L. Duffie**, of the Royal Engineers, who was on the C.P.R.'s London, Eng., staff, and was given a commission in March, 1915, has been wounded at the front.

**R. W. Leonard**, M.Can.Soc.C.E., formerly Chairman National Transcontinental Ry. Commission, has subscribed \$500 to the Lord Kitchener National Memorial Fund.

**Mrs. Kerry**, wife of J. G. G. Kerry, M.Sc., M. Can. Soc. C. E., of Kerry & Chace, Limited, engineers, Toronto, died there Sept. 5, aged 47. She was buried at Quebec, Que.

**Sir William and Lady Mackenzie** announce the engagement of their daughter, Miss Bertha, to Major J. F. H. McCarthy, 170th Battalion, Canadian Expeditionary Force.

**F. P. Gutelius**, General Manager, Canadian Government Railways, presented a silver cup for competition by I. R. C. employes at the city silver band sports at Moncton, N.B., Sept. 4.

**Sir William Mackenzie**, President, and D. B. Hanna, Third Vice President, Canadian Northern Ry., who left Toronto Aug. 24, for England, are expected back about the middle of October.

**W. A. Duff**, A.M.Can.Soc.C.E., Engineer of Bridges, Canadian Government Railways, Moncton, N.B., who has been suffering from blood poisoning at Halifax, N.S., has recovered and resumed his duties.

**C. W. Van Buren**, General Master Car Builder, C.P.R., Montreal, has been appointed a member of the standing committees on car wheels and car trucks, to report at the Master Car Builders' Association's 1917 convention.

**James Coleman**, Superintendent, Car Department, G.T.R., Montreal, has been appointed a member of the Master Car Builders' Association's standing committees on arbitration, and car trucks, to report at the 1917 convention.

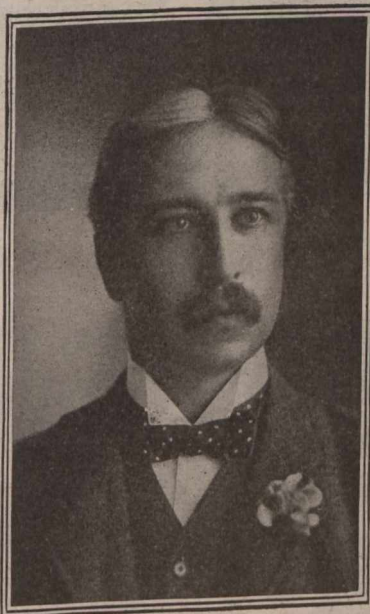
**C. H. Dancer**, M.Can.Soc.C.E., who until recently was Deputy Minister and Chief Engineer, Manitoba Public Works Department, has been appointed District Engineer at Winnipeg for the Dominion Public Works Department.

**Captain W. A. Casey**, son of the late G. E. Casey, formerly M.P. for West Elgin, Ont., who was killed in action Sept. 8, was employed on the Grand Trunk Pacific Ry. during its construction in British Columbia and was first City Engineer of Prince Rupert.

**W. C. Nixon** has been elected President of the recently incorporated St. Louis-San Francisco Ry., which succeeds the St. Louis & San Francisco Rd. Since July, 1913, he has been chief operating officer and receiver of the old St. Louis and San Francisco.

**Lord Shaughnessy**, President, C.P.R., has been elected a trustee of the Mackay Companies, which owns the Commercial Cable Co. and the Postal Telegraph Co. Two other C.P.R. directors are also trustees, viz.: Sir Edmund Osler, Toronto, and Sir Thomas Skinner, London, Eng.

**H. B. Mucklestone**, M. Can. Soc. C.E., Assistant Chief Engineer, Irrigation Branch, Natural Resources Department,



Sir Thomas Tait  
Director General of National Service.

C.P.R., who has been located at Brooks, Alta., is now a captain in the 4th Pioneers Overseas Battalion, and is in Ottawa prior to going overseas.

**Col. Fred Campbell**, D.S.O., M.P. for North Ayrshire, Scotland, who died in London, Eng., Sept. 4, after a brief illness, was a son of the late Archibald Campbell, of Simcoe, Ont., and a grandson of the late F. W. Cumberland, at one time Managing Director of the old Northerly Ry. of Canada.

**F. Rioux**, Assistant to President, Reid Newfoundland Co., St. John's, Nfld., who went overseas in July as Second Lieutenant in the British Army Service Corps, has been transferred to the Royal Engineers Railway Operating Department, R.O.D., R.E. When last heard from he was at Longmoor Camp, Hampshire, Eng.

**Lt. Col. C. N. Shanly**, D.S.O., of the Canadian Army Pay Corps, who died in Toronto, Sept. 7, while on leave of absence from France on account of ill health, was the last surviving son of the late Frank Shanly, civil engineer, at one time City Engineer of Toronto, and one

of the builders of the Hoosac Tunnel in Massachusetts.

**A. S. Goodeve**, one of the members of the Board of Railway Commissioners, Ottawa, has been notified that his son, Lieut. A. E. Goodeve of the Princess Patricia's, has been killed by the bursting of a shell over the trench in which he was at the time. Two other sons are in the Canadian Expeditionary Forces and a daughter is nursing at Salonika.

**J. MacGregor**, Superintending Engineer, Halifax Ocean Terminals, Intercolonial Ry., was entertained to dinner at Halifax, N.S., recently, by a number of friends, and presented with regulation military binoculars by the Board of Trade, on leaving for camp preparatory to going overseas with the 239th Construction Battalion, in which he has a commission as a Major.

**E. L. Brown**, Vice President and General Manager of the Denver & Rio Grande Rd., has been elected President of the Minneapolis & St. Louis Rd., succeeding Newman Erb, resigned. Mr. Brown is 52 years old and entered the railway service as a telegraph operator. For several years previous to 1912 he was an operating official of the Northern Pacific and Great Northern railways.

**Joseph A. Panter**, whose appointment as Trainmaster, C.P.R., Kenora, Ont., was announced in a previous issue, was born at Toronto, Nov. 18, 1877, and entered C.P.R. service, Aug. 28, 1898, since when he has been, to April 1904, brakeman, Toronto; April 1904 to June 1908, brakeman, Calgary, Alta.; June 1908 to Nov. 1915, freight conductor, Calgary, Alta.; Nov. 1915 to April 1916, Trainmaster, Calgary, Alta.

**John Calvert Carruthers**, who was appointed agent G.T.R., Canadian Express Co., and Great North Western Telegraph Co., Prescott, Ont., recently was born in Edwardsburgh Tp., Ont., Jan. 11, 1876, and prior to entering transportation service, was engaged from July 1892 to Sept. 1913, with the Prescott Emery Wheel Co., Prescott, Ont., and Williams & Wilson Ltd., Montreal, respectively; Sept. 1913 to Sept. 1915, clerk, Canadian Express Co., Prescott, Ont.; Sept. 1915, to April 1916, inservice of Westinghouse Church, Kerr Co.

**John Roy Shaw**, who has been appointed General Agent, Passenger Department, Canadian Pacific Ocean Services, Ltd., Shanghai, China, was born at Montreal, June 28, 1871, and entered transportation service in 1885, since when he has been, to 1891 clerk in Passenger Department, G.T.R., Montreal; 1891 to 1895, clerk in Passenger Department, C.P.R., Montreal; 1895 to 1898, clerk and ticket agent, C.P.R., Boston, Mass.; 1898 to 1904, Travelling Passenger Agent, C.P.R., Boston, Mass.; Feb. 1904 to June 1916, Passenger Agent, C.P.R., Yokohama, Japan, and Hong Kong, China.

**Neil Mooney**, who has been appointed Assistant General Passenger Agent, New York Central Rd., New York, entered railway service in 1884, as assistant ticket agent, West Shore Rd., Buffalo, N.Y., and was from 1886 to 1887, ticket agent, same road, Niagara Falls, N.Y.; 1887 to 1888, ticket agent, Harlem Division, N.Y.C.R., New York; in 1888 he was appointed City Passenger Agent, West Shore Rd., New York, and in 1892, General Western Passenger Agent, same road, Chicago, Ill., and from Jan. 1910 to



Aug. 31, 1916, he was General Agent, Passenger Department, N. Y. C. R., Montreal.

**Edward James Worth**, whose appointment as Chief Dispatcher, C.P.R., Ottawa, Ont., was announced in our last issue, was born at Toronto, July 29, 1887, and entered C.P.R. service April 5, 1905, since when he has been, to June, 1907, operator at various points, Ontario Division; June 1907 to March 1908, operator at various points, Western Lines; March to July 1908, operator at various points, Ontario Division; July 1908 to April 1914, dispatcher, London, Ont.; April 1914 to Jan. 1915, Train and Station Inspector, Toronto; Jan. to Nov. 1915, dispatcher, London, Ont.; Dec. 1, 1915, to Aug. 1916, car service agent, Atlantic Division, St. John, N.B.

**Capt. L. C. Ord**, formerly Assistant Master Car Builder, Eastern Lines, C.P.R., Montreal, who is about to leave England for France with the 165th Siege Battery, has appealed to his friends, including members of the Canadian Railway Club, for assistance in procuring comforts, such as collapsible stoves and utensils, etc., for the battery, stating that as it is made up of reinforcements and did not go as a unit from Canada it has no battalion funds provided from Canada, and that the provision of comforts therefore falls on the officers. Contributions may be sent to Jas. Powell, Secretary, Canadian Railway Club, Box 7, St. Lambert, near Montreal.

**Albert Henry Kendall**, who has been appointed Master Mechanic, Ontario Division, Toronto, was born at Aspatria, Cumberland, Eng., April 4, 1878, and entered railway service in June 1901, since when he has been, to Jan. 1904, locomotive foreman, C.P.R., Nakusp and Revelstoke, B.C.; Jan. to Nov. 1904, locomotive foreman, G.T.R., London, Ont.; Nov. 1906 to July 1913, gang foreman, erecting shop foreman, and general foreman, successively, Angus Shops, C.P.R., Montreal; July to Dec. 1913, locomotive inspector, C.P.R., Kingston, Ont.; Dec. 1913 to April 1915, general foreman, C.P.R., North Bay, Ont.; April 1915 to Aug. 28, 1916, Assistant Works Manager, Angus Locomotive Shops, C.P.R., Montreal.

**J. T. Hallisey**, who has been appointed Superintendent, District 6, Intercolonial Ry., Truro, N.S., and granted a short leave of absence, was born at Beaver Bank, N.S., Dec. 29, 1862, and entered I.R.C. service, Dec. 12, 1879, since when he has been, to April 1882, telegraph operator; April 1882 to Nov. 1890, dispatcher, Truro, N.S.; Nov. 1890 to April 1903, Chief Dispatcher, Sydney and Oxford District, New Glasgow, N.S.; April 1903 to June 4, 1908, Chief Dispatcher, Truro, N.S.; June 4 to Nov. 1908, acting District Superintendent, Halifax and St. John District; Nov. 1908 to Dec. 1912, Superintendent, Halifax and St. John District; Dec. 1912 to Aug. 31, 1916, Superintendent, District 3. He underwent an operation at his home recently and is reported to be progressing satisfactorily.

**W. R. Fitzmaurice**, who has been appointed Superintendent, District 2, Intercolonial Ry., Campbellton, N.B., was born at Bedford, N.S., March 19, 1870, and entered I.R.C. service May 21, 1886, since when he has been, to 1889, operator at various stations in Nova Scotia; 1889 to 1897, assistant agent, Springhill Jct., N.S.; 1897 to 1898, agent, Oxford Jct., N.S.; 1898 to Aug. 12, 1913, agent, Amherst, N.S.; Aug. 12, 1913 to Sept. 28, 1915, assistant Superintendent, Moncton-Ste. Flavie District, Newcastle, N.B.;

Sept. 28, to Nov. 1915, acting Superintendent, District 2, Campbellton, N.B.; Nov. 1915 to Aug. 31, 1916, Assistant Superintendent, Moncton-Ste. Flavie District, Newcastle, N.B.



**G. A. Montgomery**  
Acting General Manager, Algoma Central and Hudson Bay Railway and Algoma Eastern Railway.



**J. S. Byrom**  
General Superintendent, Sleeping, Dining and Parlor Cars and News Department, Eastern Lines, Canadian Pacific Railway.

**W. Roberts Devenish**, A.M.Can.Soc.C.E., who has been appointed Superintendent, District 3, Intercolonial Ry., Moncton, N.B., was born in County Tipperary, Ireland, Nov. 21, 1882, and entered transportation service in 1903, serving with the C.P.R. for eight years in various ca-

pacities in the Engineering and Maintenance of Way Departments, from rod man to Assistant Division Engineer, Lake Superior Division. He was appointed Division Engineer, Intercolonial Ry., Moncton, N.B., in Sept. 1913, and for a time prior to that he acted as Assistant Engineer with the National Transcontinental Ry. Investigation Commission. From Nov. 1915 to Aug. 31, 1916, he was Superintendent, District 2, I.R.C., Campbellton, N.B.

**R. A. Pyne**, who has been appointed Superintendent Motive Power and Car Department, Eastern Lines, C.P.R., Montreal, was born at Toronto, April 10, 1874, and entered C. P. R. service in July 1887, since when he has been to May 1893, apprentice, Winnipeg; May 1893 to Dec. 1898, fitter and lathe hand, and Dec. 1898 to July 1899, gang foreman there; July 1899 to March, shop foreman, Winnipeg roundhouse; March 1901 to July 1902, erecting shop foreman, Winnipeg repair shop; July 1902 to Jan. 1903, general foreman, Calgary, Alta.; Jan. 1903 to Oct. 1906, locomotive foreman, Brandon, Man.; Oct. 1906 to April 1909, District Master Mechanic, Moose Jaw, Sask.; April 1909 to March 1910, District Master Mechanic, Nelson, B.C.; March 1910 to Jan. 1912, Master Mechanic, Alberta Division, Calgary; Jan. 1912 to Aug. 31, 1916, Superintendent of Shops, Winnipeg.

The Railway Magazine, London, Eng., in referring to the departure from England of **Wm. Phillips**, who represented the Canadian Northern Ry. there from 1912, first as European Traffic Manager and afterwards as European Railway and Steamship Manager, says:—"During his residence in England he has made many friends both in business and social circles, who will greatly regret his departure. Shortly after the outbreak of war the company's steamships were taken over by the government, which involved important Admiralty work, and Mr. Phillips also took a prominent part in connection with the working agreement made between the Canadian Northern and the Cunard Line, to which company the Canadian Northern steamships were transferred. Prior to his departure Mr. Phillips received from the Lord Mayor of Bristol a letter conveying the best wishes of the business community, and another from Alderman H. W. Twiggs on behalf of the Bristol Docks Committee. He was also made the recipient of a number of presentations from his staff in England."

**David Morice**, who has retired from active service after 52 years with the G.T.R., was born at Brantford, Ont., Oct. 31, 1851, and entered G.T.R. service Sept. 4, 1864. He was from that date to 1868, messenger and clerk at Brantford, Ont.; 1868 to Oct. 10, 1870, chief clerk, Superintendent's office, Brantford, Ont.; Oct. 10, 1870 to April 1879, same position, Stratford, Ont., where the Superintendent's office had been moved; April 1879 to Aug. 1885, Freight and Passenger Agent, Stratford, Ont.; Aug. 3, 1885 to Nov. 1891, Agent, Niagara Falls, Ont.; Nov. 1891 to Nov. 1892, Assistant Superintendent, London, Ont.; Nov. 1892 to April 1896, Assistant Superintendent, Toronto; April 1896 to Aug. 1903, Terminal Superintendent, Toronto; and Aug. 3, 1903, to the date of his retirement, Sept. 8, 1916, Freight and Customs Agent, Niagara Falls, Ont. The condition of his health, as well as that of Mrs. Morice, make it necessary that they remove from Niagara Falls, and they will in future



live in Stratford, Ont. Prior to leaving Niagara Falls, he was presented with an address and a purse of money, by a number of associates in the G.T.R. freight department and other friends.

**J. S. Byrom**, who has been appointed General Superintendent, Sleeping, Dining and Parlor Cars and News Service, Eastern Lines, C.P.R., Montreal, was born at Jersey City, N.Y., Feb. 10, 1872, of British parentage, and on the death of his father six months after, he was taken to Scotland, where he was educated. At the age of 15 he went to sea before the mast and for two years sailed in ships of various rigs round the British coast. In 1889 he came to Halifax, N.S., on the Allan Line s.s. Sardinian, and entered the service of the Canadian Pacific Navigation Co., at Vancouver, B.C., serving as coal trimmer, sailor and steward, successively. From the autumn of 1890 to the spring of 1895, he served as assistant and chief steward on various Pacific steamships running out of San Francisco, after which he entered the Kootenay Lakes Navigation Co.'s service as steward, and remained in that service on the absorption of the company by the C.P.R. In 1901 he returned to the Pacific coast, the C.P.R. having acquired the Canadian Pacific Navigation Co. in the previous year, and was appointed shore steward and storekeeper, including a general supervision of all marine stores and labor of the C.P.R. British Columbia Coast Service, which position he retained until his appointment as Superintendent, Great Lakes Steamship Service, C.P.R., Port McNicoll, Ont., in May 1915.

**G. A. Montgomery**, who has been appointed acting General Manager for the Receivers, Algoma Central and Hudson Bay Ry., and acting General Manager, Algoma Eastern Ry., Sault Ste. Marie, Ont., following on the illness and death of T. J. Kennedy, one of the Receivers, referred to in another column, was born at Bradford, Ont., Feb. 11, 1871, and entered railway service, Sept. 1, 1886, since when he has been, to Sept. 1887, assistant to agent, Northern Ry., Newmarket, Ont.; Sept. 1887 to March 1889, agent, G.T.R., Powassan, Ont.; March 1889 to March 1890, freight clerk, C.P.R., North Bay, Ont.; March 1890 to June 1893, chief clerk, freight department, C.P.R., Sudbury, Ont.; June to Aug. 31, 1893, relieving agent, C.P.R., Lake Superior Division; Aug. 31, 1893 to June 1900, chief clerk to Superintendent, District 1, Lake Superior Division, C.P.R., North Bay, Ont.; June 1900 to Aug. 28, 1902, chief clerk to General Superintendent, Algoma Central and Hudson Bay Ry., Sault Ste. Marie, Ont.; Aug. 28, 1902 to Aug. 15, 1910, Superintendent, Algoma Eastern Ry., Sudbury, Ont.; Aug. 15, 1910 to Mar. 1, 1911, Superintendent, Algoma Central and Hudson Bay Ry., Michipicoten Harbor, Ont.; March 1, 1911 to Oct. 15, 1913, Superintendent, same road, Sault Ste. Marie, Ont.; Oct. 15, 1913, to the date of his present appointment, General Superintendent, same road and Algoma Eastern Ry., Sault Ste. Marie, Ont.

**F. Walker**, who was, until the early part of the present year, Superintendent, District 2, Alberta Division, Lethbridge, died at Tacoma, Wash., Sept. 7, after a long illness. He was born at Pontiac, Ill., Feb. 8, 1867, and entered railway service in 1883, as operator and served in that capacity until 1885, when he was appointed operator in the general offices, Oregon Rd. and Navigation Co., Portland, Ore., since when he had been, from 1888 to 1891, dispatcher, same company, Portland, Ore.; 1891 to 1893, chief

dispatcher, Union Pacific Rd., Butte, Mont.; from 1893 he was in private business for some years, and subsequently entered C.P.R. service as operator at Winnipeg, and acted as relieving dispatcher on the Western Division, being appointed dispatcher at Fort William, Ont., in 1900, and later, trainmaster at Rat Portage, Ont.; 1901 to April 1902, chief dispatcher and trainmaster, Cranbrook, B.C.; April 1902 to July 1908, chief dispatcher, North Bay, Ont., and at Nelson, B.C., consecutively; at various periods during 1908 and 1909 he was acting superintendent, District 3, Pacific Division, Nelson, B.C.; Sept. 1910 to June 1912, chief dispatcher, District 2, British Columbia Division, Vancouver; June 1912 to Sept. 1913, Car Service Agent, Manitoba Division, Winnipeg; Sept. to Nov. 1913, car service agent, Alberta Division, Calgary; Nov. 1913 he was appointed Superintendent, District 2, Alberta Division, Lethbridge, and towards the end of 1915, he was granted leave of absence on account of ill health, and finally relinquished the position in April 1916.

**Sir Thomas Tait**, who has been appointed Director General of National Service, in charge, under the Premier, of the adopted regulations recently for the co-ordination of the work of all agencies connected with recruiting, was born at Melbourne, Que., July 24, 1864, and entered railway service in September 1880. Since that date he has been, to July 1881, clerk in office of Assistant to President, Chicago and Grand Trunk Ry.; Oct. 1881 to April 1882, clerk in Solicitor's office, G.T.R., Belleville, Ont.; April to Oct. 1882, clerk in General Manager's office, G.T.R.; Oct. 1882 to Sept. 1886, private secretary to Vice President and General Manager, C.P.R.; Sept. 1886 to May 23, 1887, clerk in General Traffic Manager's office, C.P.R.; May 23, 1887 to Feb. 1, 1889, Assistant Superintendent, Ontario and Quebec Division, C.P.R.; April Mar. 12, 1890, Superintendent, Ontario Division, C.P.R., Toronto; Mar. 12, 1890, to Mar. 1, 1893, General Superintendent, Ontario and Quebec Division, C.P.R.; Mar. 1, 1893 to May 3, 1897, Assistant General Manager, C.P.R.; May 3, 1897, to April 1901, Manager, Eastern Lines, C.P.R.; April 1901 to Mar. 1903, Manager of Transportation, C.P.R.; April 1903 to Sept. 1910, Chairman of Victorian Railway Commissioners, Australia. On his resignation in 1910, he spent some time travelling in India and Europe, and was knighted Jan. 1, 1911. On his return to the Canada, he became interested in the Fredericton and Grand Lake Coal and Ry. Co., of which he is President.

**Pacific Great Eastern Ry. Aid Bonds.**—The British Columbia Minister of Finance was authorized at the B. C. Legislature's last session to raise \$10,000,000, and out of this to loan to the Pacific Great Eastern Ry. \$6,000,000 to aid in finishing its construction. \$2,000,000 of the Province's 4½% gold bonds, dated July 1, 1916, and due July 1, 1925, were sold through MacNeil & Young, Toronto, the issue price being 93½ and accrued interest, yielding practically 5.35%.

**Elevator for Port Stanley.**—The London Railway Commission, operating the London & Port Stanley Ry. has decided to secure data at once on the cost of a large grain elevator for Port Stanley, and if the reports are favorable the London ratepayers will be asked to vote \$100,000 for the purpose at the January elections.

## Handrails Etc. for Locomotives and Fenders.

The following general order 171, passed by the Board of Railway Commissioners and dated Aug. 1, was issued Aug. 31: Re the question of hand rails and small foot rests on the outside of cabs of locomotives; and a railing on the tender to prevent men from slipping off when they are passing over the tender or when the locomotive is taking coal or water. Upon hearing the matter at Ottawa, May 4, 1915, in the presence of representatives of the Brotherhood of Locomotive Engineers, the Brotherhood of Firemen and Enginemen, the Grand Trunk, Canadian Pacific and Canadian Northern Railway Companies, and the New York Central, Rutland and Michigan Central Railroad Companies, and what was alleged, and reading the replies of the railway companies interested to supplement 1 to the Board's circular 142, July 6, 1915, and the report and recommendation of the Chief Operating Officer of the Board, it is ordered:

That the railway companies be directed to equip all locomotives of 100,000 lb. or over with handrails on the sides of cabs above the windows, near the top of the cab, and running the entire length of the same, the rails to have a clearance of 2 in. between the inner side of the rail and the outside wall of the cab, and to be securely fastened at each end, with a support in the centre; and that where the running boards do not project beyond the side of the cab an additional piece be added, to project not less than 1 in. from the side of the cab and running the full length of same.

That the tender of all such locomotives be equipped with a railing on both sides, on the top of the coping; such railing, if made of round bar iron or of iron pipe, to be not less than 1 in. in diameter, supported by three columns, one at each end and one in the centre, standing 8 in. from the top of the coping; the said rails to run the full length of the fuel storage well, or clear of the back coal wall on the tender; that on the space back of the coal wall, where the water man hole is located, the coping or railing project 8 in. above the top of the tank and run around both sides and back of the tank not less than 8 in. high, supported by columns to make it secure. That plans showing the proposed foot rests and the railing on tenders be filed for the Board's approval.

That the railway companies be permitted to operate locomotives used in international traffic, and merely passing through Canadian territory, equipped in accordance with the Interstate Commerce Commission's regulations. That this permission shall not extend to locomotives operated from or entirely within Canadian territory.

**The English Channel Tunnel**, which it is proposed to build between Dover, England, and Calais, France, is estimated to cost \$80,000,000. An estimated income shows, \$3,120,000 from passengers, \$4,000,000 from freight, \$325,000 for baggage and \$200,000 for postal service, annually, making a total revenue of \$7,645,000. Operating expenses are placed at \$2,000,000, the balance allowing over 7% on the estimated expenditure.

**J. J. Hill's Fortune.**—The state of Minnesota will receive approximately \$1,250,000 as an inheritance tax from the estate of the late J. J. Hill, railway builder and operator, whose Minnesota holdings were approximately \$40,000,000.



## Royal Commission of Enquiry into Canadian Railway Situation.

Two of the commissioners, viz., A. H. Smith, President, New York Central Rd., and Sir Henry L. Drayton, Chief Railway Commissioner for Canada, have started work on their investigation, but the third commissioner, Sir George Paish, of London, Eng., will, we are officially advised, be prevented from acting owing to ill health. We are also advised that the appointment of a successor is under consideration by the Government and that pending the collection of a large amount of necessary information and statistics the successor will not be required to come to Canada. From this it would appear that the appointment is to be made outside Canada.

The commissioners have opened offices in the Royal Bank Building, Ottawa, where a staff is already at work. It has been impossible to obtain a list of appointments from the commissioners but it is said that most of the staff, at least the principal members have been brought in from the United States. G. F. Swain, Professor of Civil Engineering in Harvard University, and Chairman of the Boston Transit Commission, has been employed, and W. H. Chadbourne, also from the United States, and they are said to be engaged in valuation work. Archibald Buchanan, who is said to have been at one time in the New York Central Rd.'s motive power department and also on the Central Vermont Ry., is looking into the rolling stock and terminal facilities questions. He has already been over the Canadian Northern lines west to Edmonton, Alta., and will probably go over the Grand Trunk Pacific in the near future. A London press dispatch says that Chairman Smith has appointed George A. Assiter, son of Rev. G. F. Assiter, of that city, his personal representative in the matter and that Mr. Assiter has already undertaken "a nation-wide inspection trip." The employment of aliens has caused considerable criticism and the Canadian Society of Civil Engineers has issued the following circular to its members:

The council of the Canadian Society of Civil Engineers desires to call your attention to a matter of vital interest to the society, and requests your personal action in connection therewith for the benefit of the civil engineers of Canada. The Canadian Government appointed a Commission recently to advise upon certain phases of the railway situation of the country. It is understood that the government wishes to determine whether it should continue to assist private ownership as in the past by additional loans, or take over for itself the ownership and operation of certain railways, or allow them to go into receivership. The commission consists of A. H. Smith, President, New York Central Railroad; Sir Henry Drayton, Chairman of the Board of Railway Commissioners of Canada; and Sir George Paish, financier, London, England.

The above commission immediately appointed an American engineer as its advisor, and instructed him to organize a corps of engineers for valuation and advisory work. We wish to record our strong condemnation of the policy of placing in the hands of aliens the engineering work of a commission appointed by the Canadian Government to investigate Canadian railways for which the Canadian community has paid. The inferences to be drawn from the employ-

ment of aliens in the above connection are that the Federal Government considers: 1. That the Canadian engineers who built the railways are not competent to report upon them; 2, that the Canadian universities, in many cases enjoying government subsidies, are not producing competent engineers; and 3, that the Canadian Society of Civil Engineers, although embracing a membership of about 3,000, is not considered worthy of consultation on an important engineering question.

The above mentioned appointment of alien engineers is not by any means the first of its kind, as many similar but possibly less flagrant cases have preceded it, and it is not improbable that the recurrence of such appointments may be due to the fact that Canadian engineers neither assert themselves nor demand recognition. In order to impress upon the Federal Government the fact that one of its first duties is to encourage and develop the engineering profession in Canada in every possible way, the council has selected this gross violation of a vital principle to initiate a campaign and impress the fact that Canadian engineers must receive due consideration. The Canadian railways, canals, public works and other engineering attainments are a proof that Canadian engineers stand in the front rank, and it should be quite unnecessary for them to have to appeal to their own government for recognition.

It may be argued in support of the present alien appointment that Canadian engineers are not acceptable because many have been in the employ of the railway companies. To this we would reply that, as the commission itself is to advise the government, basing itself upon the engineering data given to it, any experienced engineers are competent to collect and submit the necessary information to the commission. It may also be argued that the government gave the commission a free hand in the appointment of an engineering staff, and, since this freedom of appointment is essential, our protest should be to the commission itself. To this we reply: 1, That when a particularly flagrant case arises such as this where competent constructing and operating engineers are passed over in favor of alien engineers, the question of the suitability of the commission appointed by the government for the work in hand comes into question; 2, A protest to the commission itself would probably prove futile, and, even if successful, would not in any way impress the government, the creator of commissions, in regard to future procedure in matters of this kind. The council of the Canadian Society of Civil Engineers, therefore, asks you to use your influence in every way to diffuse a knowledge of this matter throughout your community, and to place before those with whom you may come in contact the facts of the case and the position of engineers in relation thereto.

Sir Henry L. Drayton gave out the following reply in Ottawa, Sept. 12: "Professor Swain, of Harvard University, has had a varied experience in the valuation of railways, not only from the standpoint of the investor, but also from the standpoint of the government enquiry and valuation of the lines which have been followed for the past two years by the Interstate Commerce Commission in its task of making and fixing a valuation

of all the railways of the United States, a work as yet not undertaken in Canada. Prof. Swain's experience in this connection is unique. The instructions to the commission are that the investigation and report should be made at the earliest possible moment. In view of this it was essential that an engineer of the greatest experience in such matters should be employed. Prof. Swain has, therefore, been engaged, and with him W. H. Chadbourne, who has acted in past enquiries as office assistant for Prof. Swain, and who is familiar with the proper methods to be adopted and information to be obtained. He will, in this case, as in others, act as such office assistant, in so far as work in the field is concerned, and for all outside work or further assistance which may be required, the commission intends and always has intended, to employ Canadian engineers."

Chairman Smith went over a portion of the railways in the Maritime Provinces recently, and he and Sir Henry Drayton left Toronto Sept. 18, over the Canadian Northern Ry. by special train, which comprised their two official cars and two Canadian Northern official cars for Sir Donald Mann, Vice President, F. H. Phippen, K.C., General Counsel, and W. Phillips, formerly European Railway and Steamship Manager. M. H. MacLeod, General Manager and Chief Engineer, Western Lines, met them at Port Arthur. The intention when starting was to go over the Canadian Northern to Vancouver, by steamship to Prince Rupert, by Grand Trunk Pacific via Edmonton to Calgary, by Canadian Northern from Calgary to Camrose, by Grand Trunk Pacific to Winnipeg, by National Transcontinental to Quebec and by Canadian Northern from Quebec to Montreal, which it is expected will be reached about Oct. 8.

**Subscriptions to Dominion War Loan.**—Among the largest subscribers to the Canadian War Loan issued recently are the following: Canadian Pacific Railway Co., \$2,500,000; The Mackay Companies, New York, \$2,000,000; Dominion Bridge Co., Montreal, \$1,000,000; Imperial Oil Co., Sarnia, Ont., \$1,000,000; J. K. L. Ross, director, C.P.R. Montreal, \$500,000; St. Lawrence Bridge Co., Montreal, \$500,000; Imperial Oil Co.'s Officials, \$485,000; Nova Scotia Steel & Coal Co., \$250,000; Sir Herbert Holt, director, C. P. R., Montreal, \$250,000; Canadian General Electric Co., Ltd., \$250,000; James Carruthers & Co., Limited, grain exporters, Montreal, \$100,000; James Carruthers, President, Canada Steamship Lines, Ltd., Montreal, \$100,000; J. W. Norcross, Vice President & Managing Director, Canada Steamship Lines, Montreal, \$100,000; Union Steamship Co., Vancouver, \$100,000; Dominion Steel Foundry Co., Hamilton, Ont., \$100,000; Montreal Warehousing Co., Ltd., Montreal, \$100,000; Elder Dempster & Co. Ltd., Montreal, \$100,000; Lord Shaughnessy, President, C.P.R., Montreal, \$100,000; Canadian Ingersoll-Rand Co., Montreal, \$100,000; Crossen Car Co., Cobourg, Ont., \$100,000; E. T. Galt, Montreal, formerly President, Alberta Ry. & Irrigation Co., \$50,000; W. G. Ross, President, Montreal Harbor Commission, and director Montreal Tramways Co., \$50,000; Structural Steel Co. Montreal, \$50,000; and Senator Curry, President, Canadian Car & Foundry Co., Montreal, \$25,000.



## Grand Trunk Pacific Railway Annual Meeting.

At the G. T. P. R. Co.'s annual meeting in Montreal, Sept. 19, the President, E. J. Chamberlin presented the following statement: Construction work during the year consisted of ballasting, bridging and rip-rapping on existing lines, but no new work of any consequence was undertaken. To comply with the Board of Railway Commissioners' orders and to give access to industries, certain construction was necessary, and this, with the minimum maintenance required to keep the railway in good working condition, covers the construction work for the year. On the Prairie Section from Winnipeg to Wolf Creek, 916 miles, the work was almost entirely confined to maintenance and renewals, with the exception of a few sidings and spurs. On the Mountain Section, from Wolf Creek to Prince Rupert, 833 miles, there were a number of minor bridge renewals, some small bridges and culverts being constructed. Considerable ballasting was done on this section, as well as right of way fencing. One hundred thousand gallon steel water tanks and stand pipes were erected at Smithers and Endako, and the water supply in connection with them completed. Owing to amendments to the land titles acts in the western provinces it was found necessary to make re-surveys by provincial land surveyors of the right of way in Alberta and Saskatchewan. This has been in continuous progress during the past year and has been completed in Alberta.

The operation of the company's lines during the year showed substantial increase in both passenger and freight traffic. Prosperous conditions developed as a result of the enormous production in Western Canada, which were reflected in passenger receipts early in the present year, when business began to show substantial improvement. In connection with the company's steamships on the Pacific Coast, service was established between Prince Rupert and Alaska to meet the demand for transportation to that territory co-incident with the railway construction and development at present taking place there by the U. S. Government, the steamships being taxed, as a rule, to their carrying capacity. The increased business, however, was more marked with the freight traffic from the very large grain crop in the west last year. The preliminary reports of the present year's crop indicate that the grain traffic this year will exceed the volume from the next largest crop in 1913, and in view of the prosperous conditions of the agricultural communities and the towns dependent upon the prosperity of agriculture, making it possible for the people not only to provide for necessities but also luxuries to which they were not previously accustomed, the indications are that a good traffic in supplies, implements, vehicles, automobiles, etc., will continue for a number of months.

Owing to the establishment of the new service to Alaska, markets have been found for the sale of central British Columbia products along the company's line, including hay, potatoes and oats, and is encouraging increased production by the settlers in that section of the province. Agricultural settlement has not shown rapid progress in any part of Western Canada during the past two years. It has not been entirely arrested, however, as during the year a fair number of settlers from the U. S. have come

in, all of them, almost without exception, are well provided with money, implements and stock to ensure their success. Large settlement has taken place during the last two years in the Edson district and it is believed the company will receive a very considerable and constantly growing traffic from that section. During the year several hundred families have located in the Salmon River Valley and in the Nechaco Valley in the Prince George district. Fruit growing has been commenced in the Kitsumgallum and Lakelse valleys, tributary to the Skeena River, with very satisfactory results, and the development has been sufficient up to the present time to create substantial and prosperous towns. Mining is also going on in northern British Columbia, tributary to the company's line, and substantial traffic is being derived from this source, discoveries of new and valuable deposits being frequently made, many of which are being followed up with the necessary development.

The directors and officers elected for the current year are: President, E. J. Chamberlin; Vice President and General Manager, M. Donaldson; Vice President and General Counsel, W. H. Biggar; Vice Presidents, J. E. Dalrymple, Frank Scott; other directors, A. W. Smithers, Sir Henry M. Jackson, Sir Felix O. Schuster, Sir Arthur Yorke, London, Eng., W. Molson Macpherson, Quebec, J. B. Fraser, Ottawa, Hon. R. Dandurand, E. B. Green-shields, H. G. Kelley, W. H. Ardley, Montreal, Jules Hone, Quebec, Peter Mc-Ara, Regina, Sask., the three latter representing the Dominion Government. J. N. Booth, of Ottawa, declined re-election, owing to ill health. Secretary, H. Phillips; Comptroller, W. H. Ardley.

The annual meetings of the various G. T. P. R. subsidiary companies, including the Telegraph, Steamship and Branch Lines Companies were held on the same and following days. The directors and officers in these companies are composed of the directors and officers of the railway company.

### Canadian Northern Railway Construction, Betterments, Etc.

A press report states that the company has ordered 15,000 tons of steel rails from the United States Steel Corporation.

**Mount Royal Tunnel and Terminal Co.**—There has been deposited with the Secretary of State at Ottawa copy of a trust deed dated July 16, made by this company to the British Empire Trust Co., securing an issue of debenture stock and bonds in respect of the company's tunnel and terminal at Montreal.

Before leaving for England recently Sir W. Mackenzie, President, arranged a \$1,750,000 loan in New York on C. N. R. terminal securities, to be used in completing the Mount Royal tunnel and building, a passenger station on Dorchester St., Montreal.

**Canadian Northern Ontario Ry.**—An order has been given Roberts & Schaefer Co., engineers and contractors, Chicago, to rebuild a frame constructed automatic coaling plant at Rideau Junction, Ont., which was destroyed by fire recently.

**Canadian Northern Ry.**—C. N. R. officials inspected the Rice Lake mineral district of Manitoba recently with, it is said, a view of ascertaining traffic possi-

bilities. The residents of the district suggested that the company build a branch from some convenient point on its Victoria Branch line to Fort Alexander, Man.

The section of the line from Warman to Humboldt, Sask., 65 miles, is reported as being relaid with heavier steel.

A press report credits the company with having laid track on 35 miles of lines west of Easton, Sask., graded 35 miles on the Duck Lake branch, south of Dumblane, Sask., graded 47 miles on the Thunderhill branch west of Preeceville, Sask., completed the grading of the Oliver-St. Metis line, Alta., to mileage 100, and laid 40 miles of track on the same.

The Saskatchewan Government has, it is reported, been informed by M. H. MacLeod, General Manager and Chief Engineer, that construction may be started this season on the projected line from Hanna, mileage 263 on the Saskatoon-Calgary line, southerly to Medicine Hat, Sask. The report adds that the contract for grading has been let to the Cowan Construction Co., Winnipeg. Another press report states that a contract is about to be let for the grading of a 60 mile line from Hanna, north westerly through Red Deer to connect with the Vegreville-Calgary line, and the line to the Brazeau River coal fields, Alta.

We are officially advised that it is the company's intention to build a bridge across the Red Deer River, so that its line from Warden to the Brazeau River district may be taken into the town of Red Deer, Alta. A large quantity of material for the bridge has already been delivered.

We are officially advised that the store building now being erected at Edmonton, Alta., is 86 ft. long, 48 ft. wide, and 27 ft. high from base of rail to eaves, and 2 stories high. It is being built on concrete foundations, the superstructure being of brick.

A press report states that the company has completed and will open for traffic during October, a branch line of 2.5 miles from Brule, mileage 2345 on the Transcontinental line, to the Brule Lake coal field, Alta.

**Canadian Northern Pacific Ry.**—We are officially advised that a start has been made on the construction of the Kamloops-Okanagan branch, by the putting on of some gangs on the rockwork at Vernon, B.C. A bridge across the North Thompson River to connect the main line with the town of Kamloops is reported to be under construction.

Tenders will be received up to Oct. 2, for the erection of freight offices and freight sheds at False Creek, Vancouver.

Press reports state that track laying on the line from Victoria to Patricia Bay, on Vancouver Island, is nearly completed, and that the line is expected to be put in operation within a short time. (Sept. pg. 361.)

**Canadian Northern Equipment Trust Bonds.**—The C.N.R. has placed in New York recently \$1,250,000 of equipment trust bonds the proceeds of which have been used in paying for rolling stock for the Duluth, Winnipeg & Pacific and other lines.

T. H. Holmes, heretofore agent, C.P.R. Telegraphs, Brandon, Man., has been appointed agent at Ottawa, Ont., vice O. A. Jorgenson, retired.

Agitations are being worked up in Toronto and London, Ont., for extensions of the free delivery limits for express companies in those cities.



## The Canadian Pacific Railway's Roll of Honor.

C. H. Buell, Staff Registrar and Secretary Passenger Department, C.P.R., has issued list 11, which is prefaced as follows: "Several thousand officers and employes of this company enlisted for active military duty with the Canadian Expeditionary Forces, and the majority of them are now in Europe bravely battling for Canada and the Empire. As particulars of army reservists are not available, these lists of those who have given up their lives for their country or been wounded in action are necessarily incomplete, and do not therefore indicate fully the extent to which the company's officers and employes have participated in the great struggle." The list follows:—

The following casualty to a member of the company's European staff, on active service, has been reported: P. T. Roberts, clerk, London, Eng., wounded.

Bear, C. S.	Baggage porter	Medicine Hat	Wounded
Carden, C. C.	Apprentice	Angus	Wounded
Clandillon, Wm. P.	Clerk	Calgary	Wounded
Dargavel, Peter	Wiper	Fort William	Wounded
Davidson, C. H.	Car heater and iceman	St. John, N.B.	Killed in action
Delemont, Leonard	Car repairer	Winnipeg	Wounded
Frizzelle, R. K.	Operator	Lake Louise	Killed in action
Gilchrist, Charles	Night cleaner	Winnipeg	Suffering from shock
Hansen, A. C.	Clerk	Calgary	Wounded
Hume, H. T.	Trainman	B. C. Div'n	Killed in action
Johnson, Harry	Private car porter	North Bay	Wounded
MacAskill, P. M.	Trainman	Cranbrook	Suffering from shock
Malcolm, Sydney	Wiper	Macleod	Wounded (2nd time)
Parsisson, Harry	Storeman	Angus	Killed in action
Piton, H. H.	Brakeman	Lethbridge	Wounded
Porter, P. R.	Clerk	Guelph	Killed in action
Reynolds, E. C.	Freight porter	Carleton Place	Suffering from shock
Salway, H. H. R.	Sectionman	Neelby	Wounded
Sharp, E. J.	Inspector	Calgary	Wounded
Shufelt, C. R.	Loco. fireman	Farnham	Wounded
Sinclair, J. C.	Material man	West Toronto	Killed in action
Smith, G. F.	Loco. fireman	North Bay	Wounded
Smith, H. E.	Clerk	Vancouver	Wounded
Smith, L. C.	Transitman	Nelson	Previously reported missing, now officially declared dead
Tate, R. W.	Machinist	Ogden	Wounded
Vidal, Cyril	Clerk	North Bay	Wounded
Voyce, J. W.	Hostler	Lambton	Killed in action
Walsh, G. V.	Stenographer	Montreal	Wounded
Walsh, Mathew	Checker	Winnipeg	Wounded
Williams, H. J.	Fitter's helper	West Toronto	Killed in action
Woodworth, Frederick	Electrician's helper	Calgary	Killed in action
Young, Norris	Pumpman	Moose Jaw	Suffering from shock

### List 12.

Ascott, Thos. H.	Car cleaner	Place Viger	Wounded
Barnett, John A.	Yard clerk	Fort William	Wounded
Barr, James	Record clerk	Montreal	Wounded
Barrowman, Robert	Wiper	Wynyard	Wounded
Biggs, Ralph P.	Wiper	Swift Current	Wounded
Blair, Frank A.	Clerk	Angus	Wounded
Condon, James F. B.	Clerk	Calgary	Killed in action
Craig, Robert A.	Apprentice	Angus	Suffering from shock
Cushing, Geo. B.	Brakeman	St. John, N.B.	Wounded
Davies, Allan B.	Brakeman	Lethbridge	Wounded
Doughty, Edward S.	Land Agent	Calgary	Suffering from shock
Ferguson, James	Blacksmith's helper	Angus	Wounded
Ferguson, John	Loco. fireman	Fort William	Wounded
Fitzgerald, John E.	Brakeman	B. C. Div.	Wounded
Forster, Gordon	Assistant agent	Stonewall	Wounded
Hallett, Clarence B.	Loco. fireman	Brandon	Wounded
Hamilton, John	Labourer	McAdam Jct.	Suffering from shock
Harrison, Roy S.	Loco. fireman	West Toronto	Wounded
Hopwood, Charles	Loco. fireman	Sutherland	Killed in action
Jones, W. Leslie	Wiper	Wynyard	Killed in action
Jones, W. Sydney	Trainman	Sherbrooke	Wounded
Kennedy, Thomas	Checker	Calgary	Wounded
Kerr, Geo. Donald	Brakeman	Cranbrook	Previously reported missing, now officially declared dead
Laing, W. Reid	Crew clerk	Moose Jaw	Wounded
Legg, Percy B.	Messenger	Winnipeg	Wounded
Leonard, Charles	Yardman	Ottawa	Wounded
McDonald, A. D.	Waiter	Montreal	Wounded
McKenzie, James	Porter	Fernie	Wounded
McSwan, Donald	Waiter	Fort William	Suffering from shock
Matthews, Ray	Car checker	Calgary	Died of wounds
Miedema, Peter	Waiter	Quebec	Wounded
Moran, Richard	General helper	Angus	Wounded
Mundy, Reginald E.	Drill boy	Angus	Suffering from shock
Nimmo, Robt. C.	Constable	Montreal	Killed in action
Nisbett, John	Stationary fireman	S. Ste. Marie	Wounded
Orr, Arthur C.	Register clerk	Calgary	Wounded
Oxborough, William	Draftsman	Calgary	Wounded
Parrott, Cecil L.	Clerk	Kenora	Wounded
Patience, George	Loco. fireman	Fort William	Suffering from shock
Payce, George	Painter	North Bay	Wounded

## Proposed Joint Terminals Scheme for Fort William.

The Fort William, Ont., Board of Trade sent a communication to the Board of Grain Commissioners recently, asking for the establishment at the head of the lakes of adequate terminal facilities for handling grain. The matter was taken up by the Board July 17, when representatives of Fort William and Port Arthur were present and gave their views. In reply to the views expressed at the meeting, Grant Hall, Vice President and General Manager, Western Lines, C.P.R., has written the Board of Grain Commissioners, reviewing the whole situation and presenting the C.P.R.'s views in opposition to the suggestion for joint terminals to provide for the whole grain traffic at the head of the lakes. Mr. Hall says in part:—

"It must be self evident to the Board that the railway performing the road haul can give a much cheaper terminal service than an independent company whose operations are confined to this one movement. The terminal costs to the road haul railway are only an incident in its haul. To a terminal railway it is not only its whole office, but its whole source of revenue. The separate overhead expenses, separate and distinct expenses of organization, would necessarily enhance the terminal cost of the service. The suggestion is entirely impracticable. It is impossible to segregate grain traffic from the company's other activities, and turn over to a separate company working in the same terminals, the operation of the terminals for grain only. Therefore, the joint terminal company would have to perform all the terminal service on all the traffic, whether grain or otherwise. No railway would consent to an additional and separate assessment by another company in handling its terminals, or would consent to hand over its property for this purpose."

The question of the formation of a big terminal company separate from the railways is declared to be impracticable; and the formation of a joint terminal company by the different railway companies doing business at the two points is said not to be feasible, and in summing up Mr. Hall says:—"The C.P.R. has been at a large expenditure to create its extensive terminal tracks at the lake front on plans suited to the demands of its own traffic and the interests of its patrons. Its plans for the enlargement of the same are necessarily subject to its own interests. It cannot possibly consent to have its expenditures curtailed or enhanced, as the case might be, or its plans interfered with by the necessities of the traffic of other lines or the dictation of officers of the same. . . . The company finds no reason in the representations to your Board, either in its own interests or the interest of its patrons, for making any change in the manner in which its terminal facilities are now being operated."

The Shipping Federation of British Columbia has been incorporated under the Benevolent Societies Act, with office at Vancouver, generally to look after the interests of shippers and shipping companies in the province. The incorporators are: J. R. Stuart, Secretary-Treasurer; Marine Association of British Columbia; D. Baird, Local Manager, Victoria & Vancouver Stevedoring Co.; W. M. Crawford, Manager, Empire Stevedoring & Contracting Co., and T. W. B. Loudon, Manager, Balfour, Guthrie & Co.



# Transportation Appointments Throughout Canada.

The information under this head, which is gathered almost entirely 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 & Hudson Bay Ry.,** Algoma Eastern Ry. G. A. MONTGOMERY, General Superintendent, who has been acting as General Manager for several months since the commencement of the illness of the late T. J. Kennedy, who was one of the receivers of the A. C. & H. B. R. and President of the A. E. R., is continuing in the same position pending a permanent appointment.

**Canada Steamship Lines, Ltd.—J. A. GREINER** has been appointed Mechanical Superintendent, vice R. Duguid resigned. Office, Montreal.

N. A. RULE, Assistant to Operating Manager, having left the service, the position has been temporarily abolished, and A. E. STINSON has been appointed dispatcher, Toronto.

**Canadian Government Railways.—J. A. EVERELL** has been appointed District Passenger Agent, Montreal, vice D. McDonald deceased. He will also retain his position as Superintendent, Montmorency Division, Quebec Ry. Light and Power Co., which division is to be taken over by the Dominion Government. (See also Intercolonial Ry.)

**Canadian Northern Ry.—E. LABRECQUE**, Soliciting Freight Agent, Quebec, Que., is reported to have been appointed City Freight Agent there, vice S. E. Leger, transferred.

S. E. LEGER, heretofore City Freight Agent, Quebec, Que., has been appointed City Freight Agent, Montreal, vice W. F. Barry, whose appointment as Commercial Agent, San Francisco, Cal., was announced in our last issue.

G. F. FOWLER, heretofore in the General Passenger Office, Toronto, has been appointed City Passenger Agent, Hamilton, Ont. This is a new position.

A. L. JOHNSTON, heretofore Travelling Passenger Agent, Winnipeg, has been appointed City Passenger Agent there, vice R. C. Curley transferred.

BARTLEY BROWN, heretofore chief rate clerk, Winnipeg, has been appointed Travelling Passenger Agent there, vice A. L. Johnston transferred.

M. J. DUPUIS has been appointed chief rate clerk, Winnipeg, vice Bartley Brown promoted.

R. F. McNAUGHTON, heretofore Travelling Passenger Agent, Edmonton, Alta., has been appointed City Ticket Agent, Regina, Sask., vice E. R. Cunningham, resigned.

R. C. CURLEY, heretofore City Passenger Agent, Winnipeg, has been appointed Travelling Passenger Agent, Edmonton, Alta., vice R. F. McNaughton, transferred.

J. S. PECK has been appointed City Ticket Agent, Edmonton, Alta., vice J. Madill, whose appointment as District Passenger Agent there, was announced in our last issue.

J. S. PECK, heretofore assistant ticket agent, has been appointed City Ticket Agent, Edmonton, Alta.

**Canadian Pacific Ry.—R. A. PYNE**, heretofore Superintendent of Shops, Winnipeg, has been appointed Superintendent Motive Power and Car Department, Eastern Lines, vice D. T. Main transferred. Office, Montreal.

N. R. DesBRISAY, heretofore chief clerk, Passenger Department, New York,

has been appointed District Passenger Agent, St. John, N.B., vice M. G. Murphy transferred.

C. J. KAVANAGH, heretofore Superintendent, District 4, Ontario Division,



W. R. Devenish  
Superintendent, District 3, Intercolonial Railway.



A. H. Kendall  
Master Mechanic, Ontario Division, Canadian Pacific Railway.

Toronto, has been appointed Superintendent, District 2 (Montreal Terminals), Eastern Division, vice J. M. Barrett resigned. Office, Montreal.

J. S. BYROM, heretofore Superinten-

dent, Great Lakes Steamers, C. P. R., Port McNicholl, Ont., has been appointed General Superintendent, Sleeping, Dining and Parlor Cars and News Service, Eastern Lines, vice A. Rutledge resigned. Office, Montreal.

THOMAS BATE, formerly at Calgary, Alta., has been appointed Assistant Works Manager, Angus Locomotive Shops, Montreal, vice A. H. Kendall, transferred.

E. A. NIX has been appointed acting Assistant Works Manager, Angus Car Shops, Montreal, vice T. C. Chown, assigned to other duties.

T. C. CHOWN, who has been acting as Assistant Works Manager, Angus Car Shops, Montreal, since the departure of L. C. ORD on active service overseas, has been appointed leading draughtsman, Mechanical Department, Montreal.

W. J. PICKRELL, heretofore Master Mechanic, Ontario Division, Toronto, has been appointed Assistant Superintendent, District 1, Eastern Division. Office, Farnham, Que.

M. G. MURPHY, heretofore District Passenger Agent, St. John, N.B., has been appointed General Agent, Passenger Department, Detroit, Mich., vice A. E. Edmonds, who is reported to have been appointed City Passenger Agent, or City Ticket Agent, there.

T. COLLINS, heretofore Superintendent, District 2, Ontario Division, London, has been appointed Superintendent, District 4, Ontario Division, vice C. J. Kavanagh, transferred to Montreal. Office, Toronto.

A. H. KENDALL, heretofore Assistant Works Manager, Angus Locomotive Shops, Montreal, has been appointed Master Mechanic, Ontario Division, vice W. J. Pickrell, transferred. Office, Toronto.

A. L. SMITH, heretofore Superintendent, District 1, Lake Superior Division, Sudbury, Ont., has been appointed Superintendent, District 2, Ontario Division, vice T. Collins transferred. Office, London.

D. T. MAIN, heretofore Superintendent of Motive Power and Car Department, Eastern Lines, Montreal, has been appointed Works Manager, Winnipeg, vice R. A. Pyne, Superintendent of Shops, transferred to Eastern Lines.

W. R. BOUCHER, heretofore Trainmaster, Assiniboia, Sask., has been appointed Superintendent, District 1, Lake Superior Division, vice A. L. Smith, transferred. Office, Sudbury, Ont.

W. M. ANSLEY, heretofore Trainmaster, Macleod, Alta., has been appointed Trainmaster, District 1, Saskatchewan Division, vice W. R. Boucher, promoted. Office, Assiniboia.

**Grand Trunk Ry.—W. KEW**, heretofore chief clerk, local freight department, Niagara Falls, Ont., has been appointed Freight and Customs Agent there, vice D. Morice, retired after 52 years service with the company.

J. C. L. NEWBY has been appointed chief clerk, Local Freight Department, Niagara Falls, Ont., vice W. Kew, promoted.

The following station agents have been appointed: St. Gregoire, Que., J. A. Landry; Vars, Que., J. Armstrong; Point Edward, Ont., A. Lickorish; Simcoe, Ont., E. G. Phillips; Algonquin Park, Ont., A. E. Needham.

**Grand Trunk Pacific Ry.—**The following station agents have been appointed: Lebrét, Sask., L. Connolly; Mawer, Sask.,



F. X. Landry; Holden, Alta., T. F. Constance; Mount Park, Alta., G. McMann.

**Intercolonial Ry.**—In consequence of the resignation of JAMES MacGREGOR, Superintending Engineer, Halifax Ocean Terminals, for military duties, A. C. BROWN, Resident Engineer in charge of the harbor works, will report to W. A. DUFF, Engineer of Bridges, Canadian Government Railways, Moncton, N.B., and H. H. SMITH, Resident Engineer in charge of railway construction, will report to C. B. BROWN, Chief Engineer, Canadian Government Railways, Moncton, N.B.

Districts 2 and 3 have been re-arranged, and District 6 has been created, as follows:

District 2, Mount Joli to Campbellton, Campbellton to Pacific Jct., not including Pacific Jct., Dalhousie Jct. to Dalhousie, Derby Jct. to Fredericton, Nelson Jct. to Loggieville, Campbellton to St. Leonards, and Gagetown to Centreville, 641.67 miles. W. R. FITZMAURICE, heretofore Assistant Superintendent, Moncton-Ste. Flavie District, Newcastle, N.B., has been appointed Superintendent, District 2, vice W. R. Devenish transferred. Office, Campbellton, N.B.

C. D. BOVARD, heretofore station agent, Moncton, N.B., has been appointed Assistant Superintendent, District 2, Campbellton, N.B. District 3, St. John to Moncton, Pacific Jct. to Truro, Painsec Jct. to Point du Chene, and Sackville to Cape Tormentine, 271.17 miles.

W. R. DEVENISH, A.M.Can.Soc.C.E., heretofore Superintendent, District 2, Campbellton, N.B., has been appointed Superintendent, District 3, vice J. T. Hallisey, transferred. The office has been transferred from Truro, N.S., to Moncton, N.B.

District 6, Truro to Halifax, and Windsor Jct. to Stewart. J. T. HALLISEY, heretofore Superintendent, District 3, Truro, N.S., has been appointed Superintendent, District 6, and has been granted a short leave of absence, during which the jurisdiction of L. S. Brown, Superintendent, New Glasgow, N.S., is extended to include District 6. Office, Truro, N.S.

S. ALLANACH, heretofore Roadmaster, Fredericton Subdivision, Fredericton, N.B., has been appointed Roadmaster, Campbellton Subdivision. Office, Campbellton, N.B.

H. MORTON, heretofore chief clerk, General Manager's office, Canadian Government Railways, has been appointed Car Service Agent, I. R. C. Office, Moncton, N.B.

J. UNDERHILL, heretofore section foreman, Fredericton Subdivision, has been appointed acting Roadmaster, Fredericton Subdivision, vice S. Allanach, transferred. Office, Fredericton, N.B.

Michigan Central Rd.—H. SHEARER, heretofore Assistant General Superintendent, has been appointed General Superintendent, vice S. W. Brown. Office, Detroit, Mich.

W. H. O'KEEFE, heretofore Superintendent, Detroit Terminal and Toledo Division, Detroit, Mich., has been appointed Assistant General Superintendent, vice H. Shearer, promoted. Office, Detroit, Mich.

J. L. McKEE, heretofore Superintendent, Canada, St. Clair and Michigan Middle Divisions, St. Thomas, Ont., has been appointed Superintendent Terminals, Detroit, Mich., vice W. H. O'Keefe, promoted.

JAMES BALKWILL, heretofore Trainmaster, St. Thomas, Ont., has been appointed Division Superintendent there, vice J. L. McKee, promoted.

H. L. MARGETTS, heretofore Assistant Trainmaster, Niagara Falls, Ont., has been appointed Trainmaster with direct supervision over territory, Welland and east thereof. Office, Niagara Falls.

F. McELROY, heretofore General Yardmaster, Windsor, Ont., has been appointed Trainmaster with direct supervision over territory west of Welland, and also in charge of train crew assign-

ments. Office, St. Thomas, Ont.

New York Central Rd.—N. MOONEY, heretofore General Agent, Passenger Department, Montreal, has been appointed Assistant General Passenger Agent, New York. Office, 1216 Broadway.

A. L. MILLER has been appointed General Agent, Passenger Department, Montreal, vice Neil Mooney promoted.

## Canadian Northern Railway System Annual Report.

The following report was issued recently over the signature of Sir Wm. Mackenzie, President:

Your directors in submitting the first report of The Canadian Northern Ry. System (and what otherwise would have been the 13th annual report of the Canadian Northern Ry.) for the year ended June 30, 1915, regret exceedingly having to do so at such a late date. There were, however, various reasons for the delay. A large number of head office and other employes have from time to time joined the Canadian Expeditionary Forces doing service for the Empire, and a great deal of the detail work incidental to the consolidation of the accounts of the various parts of the system had to be done by a limited staff. At present over 1,700 of your employes are attached to the service, and unhappily a number have already fallen on the several fields of battle. To the families of such employes your directors extend the sincerest sympathy, in the belief that in offering up their lives for their country's honor they have performed the highest service possible for men to do.

Another reason is that in carrying into effect the statute under which the consolidation of the companies forming part of the C. N. R. System was provided, reference to which was made in the previous annual report, an immense amount of preliminary work was necessary to co-ordinate the services and accounts of the different companies so that the best results might be attained. This statute required the preparation of a consolidated balance sheet, showing the financial position of all the companies comprised in the C. N. R. System. The financial statements submitted with the previous annual reports of the C. N. R. Co. itself, but in the financial statements submitted herewith are included the operations and accounts of the system as a whole covering the fiscal year ended June 30, 1915. In this connection your directors felt that this was an opportune time to introduce the practice of having the accounts audited by representative public chartered accountants. They, therefore, appointed Webb, Read, Hegan, Callingham & Co. to perform this service, and their certificate is attached to the consolidated balance sheet. The results of the operations of the system for the fiscal year, June 30, 1915, are as follows:

GROSS EARNINGS.	
Passenger traffic .....	\$5,41,224.87
Freight traffic .....	18,207,800.51
Express, mail, telegraph, interest and profits from elevators and other subsidiary companies, investments, etc. . . . .	2,293,081.41
	\$25,912,106.30
WORKING EXPENSES.	
Including taxes, etc. ....	\$19,288,814.42
Net earnings .....	\$6,623,291.88
Deduct:—	
Fixed charges .....	8,263,574.99
Net loss or deficit .....	\$ 1,640,283.11

The gross earnings of the system show a decrease of \$5,544,362.89, or 17.63%,

compared with the previous year's figures. The working expenses were 76.66% of the gross earnings of the system proper, and including taxes, 74.44% of the gross earnings from all sources, compared with 76.74% and 76.60% respectively last year.

As indicated in the report for the previous year Canada had commenced to feel the effect of a contraction in business. Real estate values and the building trades, were, as usual, the first to suffer, and carried in their wake subsidiary and dependent industries. In the throes of the trade depression came the war, the immediate effects of which were disastrous to the industrial life of the country. For weeks after the declaration of war business was practically at a standstill and the uncertainty of the future threatened to bring about a collapse of credit conditions. Faith in British power, supported by timely and generous encouragement from financial circles in London, averted disaster, and restored the country to a more normal condition, in which it regained confidence in its own inherent resources. To these troubles had been added a limited grain crop in the Western Provinces, and the C. N. R. with a large proportion of its mileage in the grain growing districts, suffered accordingly in the loss of such traffic.

It is a matter for sincere regret that notwithstanding the most rigid economy exercised in the operation of the companies' lines, the net earnings for the past year were insufficient to meet the fixed charges for the same period. It is perhaps unnecessary to say that this is the first occasion of its kind. Your directors feel, however, that having regard to the abnormal conditions which prevailed added to the fact that they exercised the closest supervision of the companies' revenues, they were able to avert even greater losses than those shown in the report.

Land sales during the year were 9,866 acres for \$158,272.40, an average of \$15.53 an acre, compared with \$15.23 for the preceding year. Land grant bonds of the issue of 1909, amounting to £122,700, or \$597,140, were retired, leaving in respect of this issue outstanding \$2,490,273.

Car trust obligations were created to the extent of \$2,000,000 for the purchase of cars of different kinds. During the year \$3,533,000.00 was repaid in respect of previous obligations, thus making a net decrease on this account for the year of \$1,533,000.00. The amount outstanding is now \$20,490,500.00, but inasmuch as the aggregate purchases of equipment amounted to \$56,761,448, it will be seen that very substantial repayments have been made on that account.

It has not been the practice in previous annual reports of the C. N. R. to incorporate in its accounts by way of an asset the value of unsold lands owned by the company. In view of the fact, however, that other subsidiary companies of our



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TORONTO, CANADA, OCTOBER, 1916.

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The C.P.R. has been awarded a special gold medal for a display of toys suitable for home manufacture, and a special diploma for the excellence of its agricultural exhibit at the Quebec Provincial Exhibition, held recently.

The railways operating in Ontario complied with the Ontario License Board's request and discontinued selling intoxicating liquors on their trains after Sept. 16, when the Ontario Temperance Act went into force.

system had also unsold lands amongst their assets, your directors decided to place a valuation on such lands and to include the amount in the assets of the consolidated Balance Sheet. The amount therein shown is \$20,074,380.00, represented by the following acreage in the different provinces: Manitoba and Saskatchewan, 857,720 acres; Ontario, 2,000,000 acres; Quebec, 402,860 acres. The valuation is a most conservative one, and whilst producing the amount mentioned, the sales to settlers will materially add to the traffic returns of your system in due course.

Various short term issues of secured notes and temporary loans were made during the year, the proceeds of which have been or will be applied to construction work and for the general purposes of the company.

Prior to the opening of the Transcontinental line for public service it was felt by your directors that the time was opportune to extend an invitation to the members of the Senate and House of Commons of the Dominion and representatives of leading newspapers of Eastern Canada, Chicago and New York to be the company's guests on a trip across the continent. Seventy-eight members of the Senate and House of Commons and 34 journalists accepted the invitation. The trip occupied ten days, and both from members of parliament and journalists the company received congratulations. The members presented to the executive officials an address from which is submitted the following extract: "We had not conceived it possible that a railway, possessing the standard of alignment and gradient of your road could have been constructed across Canada within so short a period. The evenness of the roadbed and the facility with which one locomotive has hauled across the continent a train near one-quarter of a mile in length (consisting of 15 heavy coaches) fully demonstrates the high standard of construction obtaining throughout the line of travel."

The main line traverses the continent from tidewater on the Atlantic at Quebec, through the provinces of Quebec, Ontario, Manitoba, Saskatchewan, Alberta, and British Columbia, to tidewater on the Pacific at Vancouver and Victoria by car ferry, with branches gridironing the grain-growing prairie provinces of the west, and with trunk lines and branches serving the main industrial centres of the east. We have the advantage of access to ocean ports on the Atlantic and Pacific, as well as to the principal ports of the Great Lakes. Our future prosperity should be assured in proportion to the prosperity of the country. We will not realize our full earning power this year, or next year, but with continued improvement in the agrarian and industrial movements of the country we should continue to show steady increases in the traffic carried and revenues earned.

There has in the past been a real need for the company's lines in the economic development of Canada. There will be the same need in the future. These lines have been located with careful regard to the development of the maximum amount of traffic. With an efficient modern equipment and a roadbed of the highest physical standard it would appear that the success of the C. N. R. as a Canadian transcontinental system is assured.

Since the close of the fiscal year business conditions have substantially improved. The placing of large orders for munitions served to revive the industrial centres of Eastern Canada, and the ris-

ing prices of cereals, beef, pork products and cheese—Canada's principal export commodities—materially increased the purchasing powers of the farming communities of the nine provinces of the Dominion. The grain crop, too, of 1915, was the best in the history of the country, the value of farm products of all Canada exceeding that of any previous year by at least \$300,000,000.

With the completion of our transcontinental line from Quebec to Vancouver towards the end of 1915, a service was established which now gives to your company the advantage of the long haul on all traffic which had heretofore been enjoyed by other intermediate carriers. As indicating the cumulative effect of better trade conditions and the operation of your company's transcontinental service, the following comparative traffic figures for the last few months will perhaps more effectively show the situation:

	1916.	1915.	Increase.	Per cent. of increase.
March	\$2,607,000	\$1,898,500	\$ 708,500	38%
April	2,824,300	1,948,900	875,400	44%
May	3,088,900	1,721,400	1,367,500	79%
June	3,377,200	1,779,600	1,697,600	90%

### Port Arthur's Connection With National Transcontinental Ry.

Port Arthur, Ont., people are looking forward to the time when National Transcontinental Ry. trains will be passing through their city, and be given a connection with the main line east. A correspondent of one of the local papers wrote recently as follows:—"In order to reach the east from Fort William over its present lines, government railway trains have to travel back to Superior Jct., which is half way to Winnipeg. Then they have to travel as far east again by the main line before they are as near the east as when they started from Fort William. That is, they have travelled more than 350 miles before making any progress. It costs money to move trains too. The solution is to connect the Canadian Northern with the government railway at Long Lake, northeast of Nipigon, where the two roads are only 35 miles apart. Then, by running over the Canadian Northern to Long Lake the government road could save the 350 miles of useless and expensive haul from Fort William to Superior Jct. and back east to a point opposite Fort William."

### Grain Inspection at Western Points.

The following figures compiled by the Department of Trade and Commerce, show the number of cars of grain inspected on railways at Winnipeg and other points on the Western Division for August, and for 11 months ended August 31, with a comparison of the number of cars inspected for 11 months ended August 31, 1915.

	Aug.	11 months to Aug. 31, 1916	11 months to Aug. 31, 1915
C.P.R. . . . .	10,704	192,114	61,382
C.P.R. Calgary . . . . .	359	7,236	6,624
C.N.R. . . . .	7,298	108,862	38,792
G.N.R. Duluth. . . . .	94	15,232	1,387
G.T.P.R. . . . .	1,155	40,595	14,646
Totals	19,610	354,039	122,831

The Timiskaming & Northern Ontario Ry. Commission has removed its head office to the Imperial Oil Building, 56 Church St., Toronto, from 25 Toronto St.

The British Government is reported to have ordered 45 narrow gauge locomotives, from the Baldwin Locomotive Works, Philadelphia, Pa.

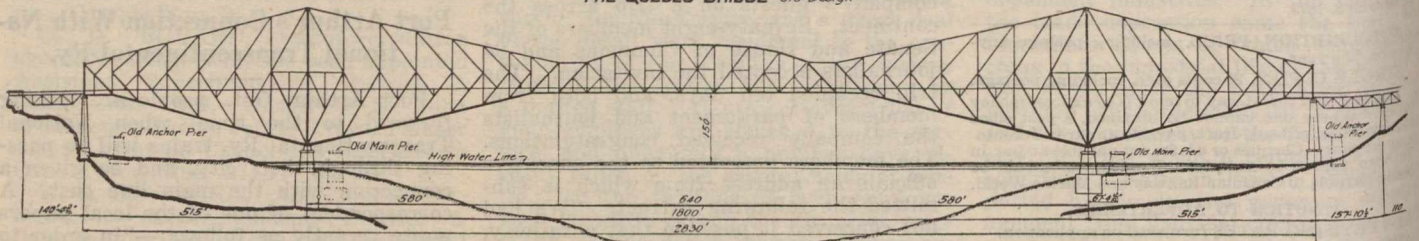
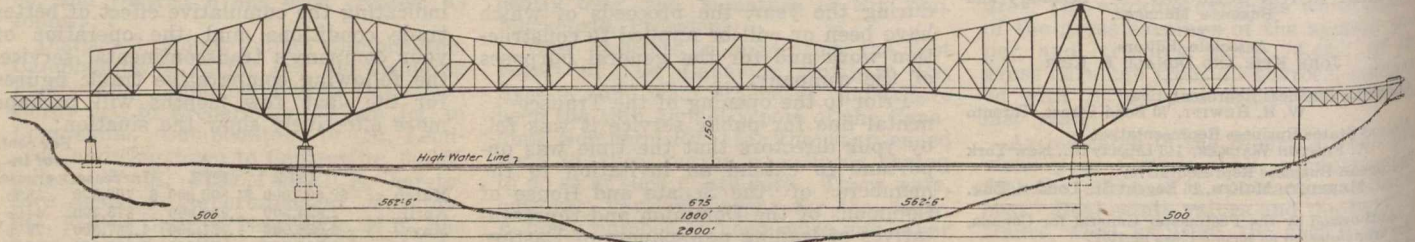


# The Falling of the Suspended Span of the Quebec Bridge.

The regrettable accident by which the suspended span of the Quebec ridge fell and was lost in the St. Lawrence River on Sept 11 has been so fully described in general terms by the daily press that it would be superfluous for us to devote space to the general details and incidents. We shall therefore confine ourselves to its technical features. Before doing so, however, we wish to emphasize the one great outstanding feature of the calamity—the admirable pluck of the contractors

lies a wreck on the bed of the St. Lawrence. Until the instant of failure the remarkably worked out programme was successful in every particular. The floating out from the erection site, the placement ready for hoisting, the connection of the truss to its lifting mechanism, the releasing from the scows, seven or eight cycles in the jacking operations—all had been performed in accordance with schedule. Then when the hosts of spectators were congratulating the engineers over

north half of the west truss robbed the mass of its diagonal support of the instant previous and allowed the north shoe of the east truss to drop back with considerable impact upon its stirrup, causing the north half of this truss, doubtless already weakened, to crumple. An instant later the southeast lifting girder tore its way free from the structure, already turning upstream, or west, and partly in the water. At this moment, apparently, both north corners still rested



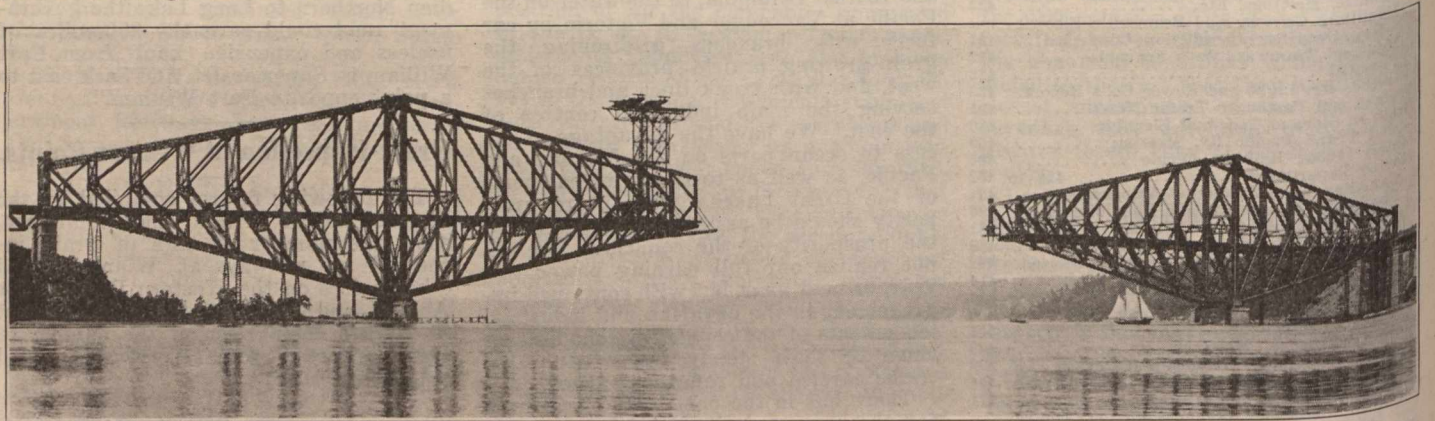
Designs for Quebec Bridge, for the first one which failed in 1907, and for the second one now being built.

whose monetary loss has been so great. Instead of there being any quibbling or attempt to avoid responsibility, as occurred some years ago when one of the cantilever arms of the first bridge collapsed, the contractors at once assumed the whole responsibility and declared their intention to build another span and complete the bridge. As is generally known, the contracting company, the St. Lawrence Bridge Co., is a combination of the Dominion Bridge Co. and the Canadian

the success of their work, when most of the responsible men, confident of the overcoming of all difficulties, were relaxing from the strain which so serious an operation imposed, the huge structure, without warning, slipped from its supports and in a flash disappeared in the river. The failure occurred at 10.50 a.m., 89 minutes after the barges had floated free and lifting had begun.

The sequence of failure was probably as follows: The southwest corner of the

in their stirrups. Which of these left its seat first the evidence does not yet clearly indicate, but whichever did, snapped first the mooring lines (none of which had been cast off) exerting the greatest pull on the east corner of the mooring truss, breaking in the instant previous the east set of heavy falls attached to the lower corner of the mooring truss and to the lower chord of the cantilever. This movement severely stressed this truss, warping it permanently while it



Quebec Bridge—Anchor and cantilever arms ready to receive suspended span and as they now are.

Bridge Co., the chief officials being Phelps Johnson, M.Can.Soc.C.E., President, and G. H. Duggan, M.Can.Soc.C.E., Chief Engineer. Their pluck and courage have been magnificent all through. They have the warm sympathy of the Canadian people as a whole and their best wishes for a successful consummation of the colossal work.

The suspended span of the Quebec Bridge while being hoisted to position on Sept. 11 fell from its hangers and now

span slipped out of its supporting stirrup, throwing the weight of the structure on the southeast and northwest corners. The lateral system and sway bracing developed sufficient resistance under shear to crumple the west truss in the centre of its north half. At the same time, or just previous, the top chord of the south half of this west truss pulled apart from its own weight. Simultaneously, probably, the unsupported north half of the east truss also pulled apart, or began to do so. The failure of the

was still held by the west set of falls. By this time the north pair of hangers had undoubtedly been kicked far back, so that when the last corner of the suspended span let go it was under or even north of the mooring truss. The two lines from this corner must have swung the mooring truss north, letting it go as they snapped, so that it fell back and broke its west set of falls by its own weight. Some 12 lives, all those of workmen, were lost in the failure.

This account of what happened after



everything in the unprecedented operation of raising this 5,100-ton span of nickel had gone so smoothly that most of the distinguished engineers present had left for lunch, is based on testimony of eyewitnesses, photographs and conditions after the accident, the information hav-

tion with remarkable precision and in very short time. The hanging links of the lifting mechanism had been completely attached by 8.35, and in about 40 minutes jacking operations were started, which raised the span sufficiently for the last group of barges to float clear by

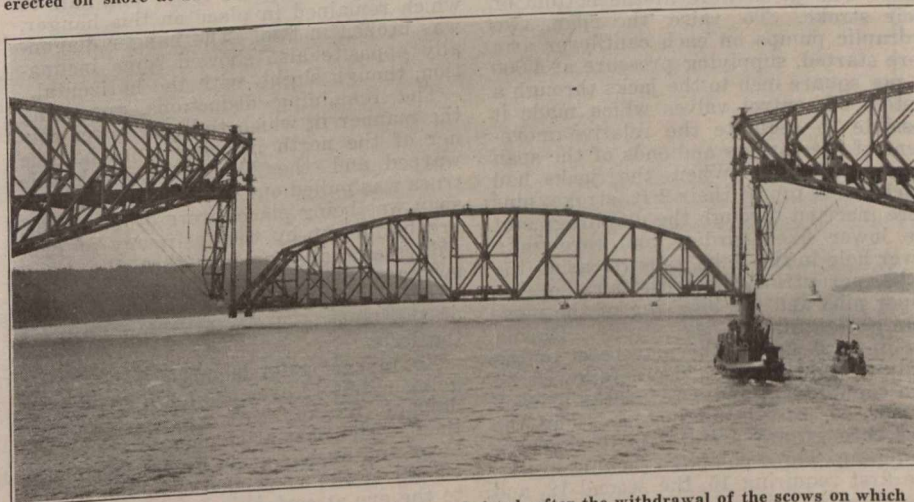
blocking on the outer end of the top chord rested a universal rocker bearing composed of a base casting bearing a pin parallel to the axis of the bridge, an intermediate casting resting on the first pin and bearing a pin at right angles to it, and a top casting resting upon the



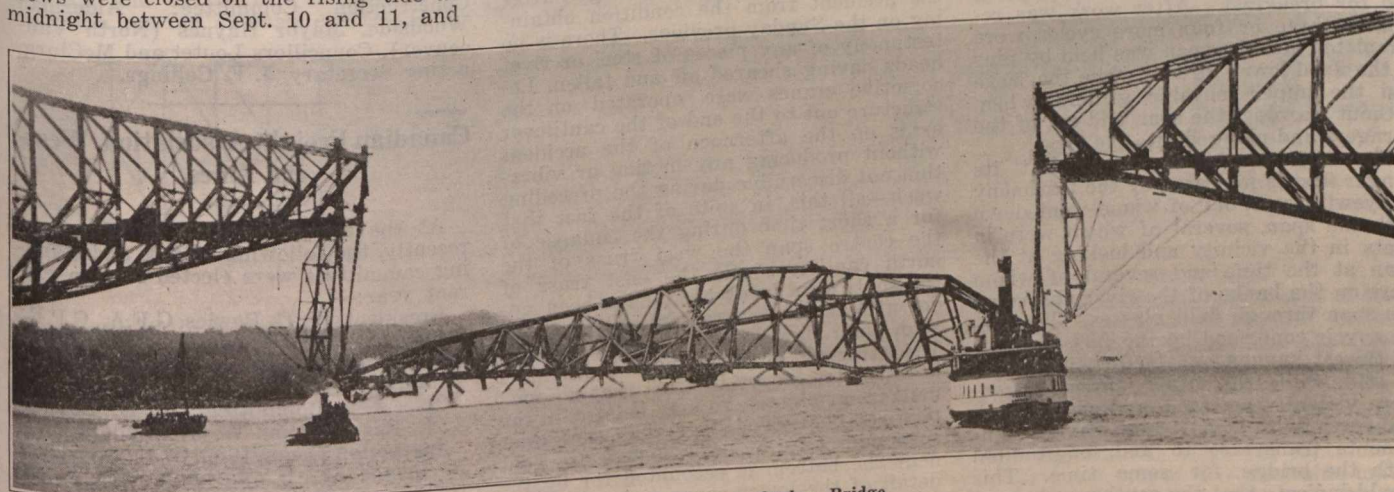
Quebec Bridge—Suspended span erected on shore at Sillery Cove, prior to placing on scows for floating into position.

ing been gathered by two representatives of the Engineering Record, who were at the site. This evidence will be presented in detail below, but for its understanding a brief review of the method employed and of the operations under way at the time is necessary. This method, which was most unusually successful in every detail up to the moment of the collapse, is fully described further on in this issue.

The span in lifting condition was completely erected at Sillery Cove, 3 miles below the site, except the floor system, of which only the floor beams and such of the centre and end panel stringers as were needed to support the hoists and platforms required during erection were in place. Beneath each end, securely fastened together, was placed a group of three specially built steel frame barges, which were blocked from the span with the remaining floor steel. Valves in these scows were closed on the rising tide at midnight between Sept. 10 and 11, and



Centre Span, Quebec Bridge, in process of being hoisted, after the withdrawal of the scows on which it was floated into position.



Falling of Centre Span, Quebec Bridge.

(Copyrighted in Canada and Great Britain by Chesterfield & McLaren.)

the span floated at 3.53 a.m., the barges drawing 8 ft. 2 in. of water. The span started to swing out into the river at 4.40 a.m., and by 5.12 a.m., when the last line to shore was cut, was in complete control of the tugs. It reached the bridge site at 6.55 a.m. and was moored in posi-

9.30 a.m. At this point breakfast was served to the men, and jacking operations were not resumed until a few minutes before the accident.

Taking one corner of one cantilever arm as a unit, the lifting mechanism may be briefly described as follows: First, on

second pin and directly supporting a short, heavy box girder. From this girder on each side of the chord hung heavy steel plate links supporting a second girder at approximately the level of the track. Both of these girders were fixed with reference to the raising of the span,



and did not change relative position during lifting operations. On the lower girder rested a pair of hydraulic jacks tested to a capacity of 1,250 tons apiece. Upon these jacks was carried a third and movable box girder similar to the first pair. Passing through diaphragms in the movable and in the lower fixed girder on each side of the truss were suspender links in 30-ft. lengths having pin holes on 6-ft. centres and extending down to the level at which the centre span was floated in. After this span was moored in place, the lower ends of these suspender chains were pinned to stub links at the corners of the suspended span. Each pair of these stub links in turn supported a fourth box girder similar to the other three upon which rested a corner of the span. The support at this point was identical with that above the top chord of the cantilever arm, and provided, by means of three castings and two pins at right angles to each other, for movement of the suspended span in any direction, due to wind pressure, without putting any bending stresses on the hangers and their connections.

At the time the span came to a bearing on these hangers, pins were inserted through the diaphragm holes of the movable girders resting on the jacks and through holes at the top of the suspender links. The jacks were at the bottom of their stroke. To raise the span, two hydraulic pumps on each cantilever arm were started, supplying pressure at 4,000 lb. per square inch to the jacks through a system of control valves which made it possible to regulate the relative movement of the corners and ends of the span very accurately. When the jacks had reached the top of their 2 ft. stroke, pins were inserted through the diaphragms of the lower fixed girders and through a lower hole in the links, thus releasing the jacks, permitting the withdrawal of the upper pins and the lowering of the movable girder for the next stroke. During the upward stroke, the movement of the hydraulic jacks was closely followed by two counterweighted screw jacks at each corner, to provide against dropping the load through any accident to the hydraulic piping. Three complete jacking cycles, the first requiring 15, the second 12, and the third 10 minutes, were completed to release the scows before work was stopped for breakfast. After work was resumed, three or four more cycles were completed and the span was held by pins in the fixed lower girders while the jacks and the upper movable girders, when, without warning, the span slid out of the hangers and plunged into the river.

That the southwest corner left its hanger first is indicated by the testimony of eyewitnesses, one of whom went down with the span, several of whom were in boats in the vicinity and looking at the span at the time and several of whom were on the banks of the river observing the span through field glasses. The testimony is confirmed by the fact that the southwest hanger remained comparatively still, while the other three hangers were violently agitated, and swung back and forth, with a movement having components transverse to and longitudinal with the bridge, for some time. This would indicate that the southwest hanger was not affected by the subsequent movements of the span before it plunged into the river, while the other three were. It is further confirmed by the positive evidence from the very remarkable photograph which shows this corner beneath the water at a time when the other three corners were still above the level of

the supports. This photograph also confirms the testimony of eyewitnesses that the span turned over toward the west in disappearing.

That the span broke up in the manner indicated by reason of the fact that it was supported for a short space of time on the southeast and the northwest corners is evidenced by eyewitnesses who saw: 1. A parting of the top chord of the west truss at the second panel from the south end. 2. A crumpling of the top chord of the west truss at the north end. 3. A pulling apart of the eye-bars in the bottom chord of the east truss at the north end.

All of these statements are confirmed by the photograph of the plunging span published herewith. They are further confirmed by the fact that the southeast and the northwest hangers sustained more damage than the other two, and that the platforms on the jacks at the top of these hangers were more completely broken up by swinging than those around the other two. The violence with which the southeast hanger tore loose from the southeast corner of the truss is evidenced by the fact that its westerly suspender bar was considerably stretched and that this is the only hanger in which the girders were thrown to any extent out of level. Also the lower pin, half of which remained in place on this hanger, was broken in two. The hanger diagonally opposite also showed some inclination, though slight, with the horizontal.

The remaining deductions, regarding the manner in which the east lower corner of the north mooring truss became warped and the blocks by which this truss was pulled out of the way while the span was being placed were broken loose, are borne out by the testimony of eyewitnesses to the fact that the truss swung violently to and fro, as did the hangers on this arm, and by the warping of the truss and the breaking loose of the falls.

So far as could be observed, without going minutely over the main trusses, no damage of any sort was sustained by them. The normal camber of the cantilever and anchor arms before taking the weight of the suspended span was visible to the eye at certain points on the structure and appeared to be unchanged after the accident from the condition obtaining on the Sunday previous. There is no testimony of any pieces of steel or rivet heads having sheared off and fallen. Locomotive cranes were operated on the structure out to the end of the cantilever arms on the afternoon of the accident without producing any motion or vibration not discernible during the preceding week—all this, in spite of the fact that for a short time during the collapse of the centre span the west truss of the north cantilever and the east truss of the south cantilever must have been under at least 100% greater load from the span than they were designed to carry. The strength of the hanger mechanism is fully attested by the fact that all four hangers are intact, as may be seen in the photographs. The fact that the inner suspender bars of each hanger are bent near the bottom is accounted for by the detail of the lower connection. A heavy box girder connected the lower ends of the inclined posts of the trusses of the suspended span, and the inner links of the suspender chains came up through the inside of this girder. It was necessary for them to tear it apart before the span could break free from the hangers. The fact that at least the calculated friction was developed by the longitudinal

pins in the shoes under the corners of the span is well attested by the manner in which the last three corners hung on until the span had broken apart.

It is not possible to suppose that the southwest stirrup could have been pulled out from under the span in any manner, both because of the fact that such a great friction was developed on the other pins, because a close inspection of the mooring lines had been made a few minutes prior to the accident and because the upward motion of the span was at the time loosening instead of tightening these lines. The photographs also prove conclusively that the members of the truss itself could not have failed and thus caused the slipping out of this shoe, as the truss continued to hang on at both ends after its members had actually come apart. For these reasons the Engineering Record is led to suspect the failure of the intermediate cast steel supporting shoe as the primary cause of the loss of the span.

### Burrard Inlet Tunnel & Bridge Co.

The annual meeting of the shareholders of the Burrard Inlet Tunnel and Bridge Co., consisting of representatives of the various municipalities surrounding the Inlet, was held at North Vancouver, B.C., Sept 13. The retiring President, F. L. Carter-Cotton, was not present, and had not sent in a report. The shareholders decided to ask for one, and arranged to hold an adjourned meeting to receive it on Nov. 8.

A report of the Auditors on the Company's financial standing at June 30, showed a balance on hand of \$3,062.25. The expenditure for surveys, organization, engineering, borings at site of proposed bridge, etc., to June 30, included \$3,478.27, which was expended during the year 1915-16. The company is capitalized at \$3,000,000 of which shares to the value of \$764,500 have been issued, and on which \$118,000 has been paid up.

Following are the officers, etc., for the current year: President, Mayor McBeath, Vancouver; Vice President, Reeve Bridgeman, North Vancouver; Finance Committee: Alderman Foreman, Reeve Hay, with the President and Vice President; Construction Committee: Alderman Woodside, Mayor Haynes (North Vancouver), Councillors Loutet and McClurg, acting Secretary, J. F. Collings.

### Canadian Freight Association, Western Lines.

At the annual meeting in Winnipeg, recently, the following officers and standing committees were elected for the current year:—

President, W. C. Bowles, G.F.A., C.P.R., Winnipeg; Vice President, W. G. Manders, G.F.A., Canadian Northern Ry., Winnipeg.

Executive Committee: W. C. Bowles, A. E. Rosevear and W. G. Manders.

Inspection Committee: G. H. Smith, F. R. Porter, P. H. Burnham and J. M. Horn.

Car Service Committee: J. P. Driscoll, E. D. Cotterell, T. P. White, W. B. Harris, and G. P. Clarke.

Weighing Committee: W. C. Bowles, O. C. Walker, W. G. Manders, J. P. Driscoll, A. E. Rosevear and F. R. Porter.

Classification Committee: W. B. Langan, W. P. Hinton, G. Stephen, A. E. Rosevear, W. C. Bowles, W. G. Manders and F. R. Porter.



# The Method Adopted for Hoisting the Centre Span, Quebec Bridge.

In view of the failure to hoist the centre or suspended span of the Quebec Bridge, the method adopted is of the greatest interest. The following description of it was written shortly before the attempted hoisting, by A. J. Meyers, Chief Draughtsman of the Board of Engineers in charge of construction.

The span is 640 ft. long, 88 ft. wide and weighs, in floating in condition, about sequent stresses in the sway and lateral bracing. The inequality of pressure is proportional to the horizontal cross section of the loaded scows near the surface of the water. To reduce wave effect as much as possible, long, narrow scows with a deep draft would preferably be used. With the design of scow adopted the oscillation of the span from wave action produces only stresses in the sway

the transverse and longitudinal centre lines of the scows, or a load of 1,075 tons uniformly distributed over a length of 50 ft. at each end of the scow and symmetrically placed about its centre lines. These two conditions of loading give the largest stresses in the web members of the three longitudinal trusses. The largest stresses in the chords of these trusses are caused by a loading of 280 tons uni-

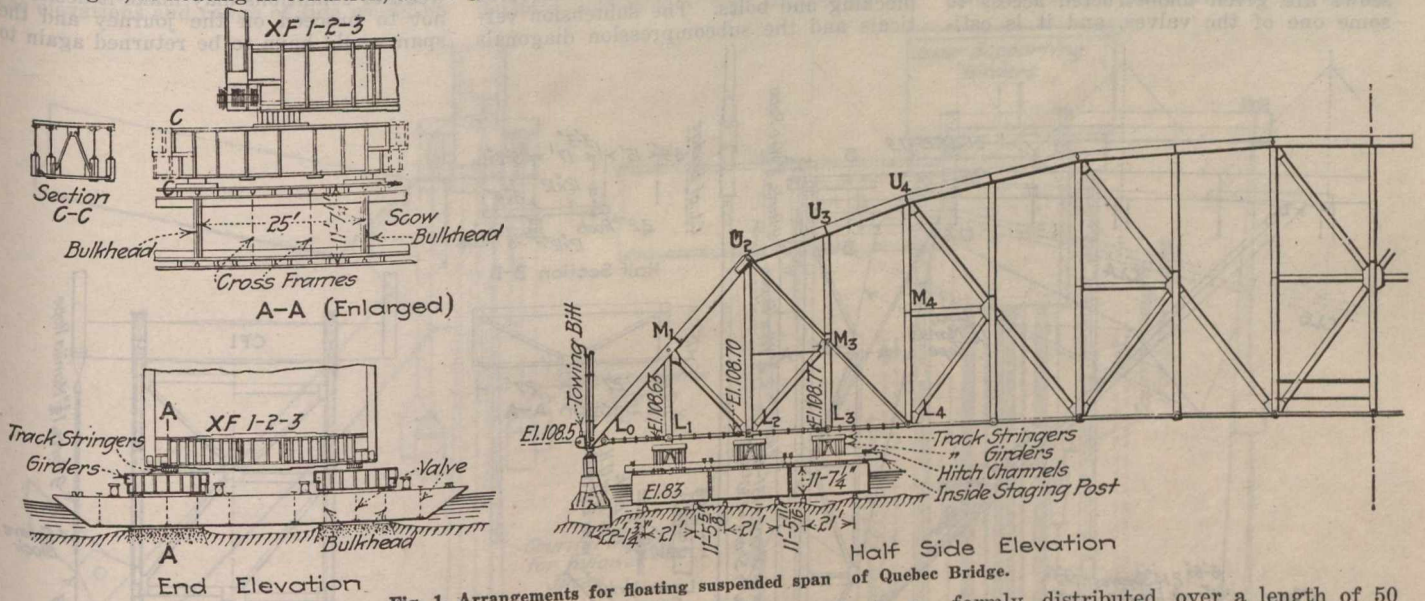


Fig. 1. Arrangements for floating suspended span of Quebec Bridge.

5,000 tons. It was erected at Sillery, about 3 miles below the bridge site, over the shallow waters of Victoria Cove. During erection it was supported on staging under each panel point; afterward the intermediate supports were removed. As shown in fig. 1, the suspended span, after it had been completely assembled and riveted up, rested on the end staging bents at L0 and L18. The scows for floating the span to the main bridge site, about 3 miles up the river, were floated into the positions shown in the diagram under panel points L1, L2, L3, L15, L16 and L17, and as the tide lowered they came to a bearing on their concrete and

and lateral bracing, which these systems are well able to resist. The scows as built are 32 ft. 5½ in. wide, 164½ ft. long and 11 ft. 7½ in. draft over bilge timbers. Each has a steel frame made up of three longitudinal trusses, spaced 10½ ft. c. to c. and braced transversely by 4 watertight steel bulkheads with intermediate crossframes between the special longitudinal bracing in the horizontal planes is provided, as the 11½ x 5½ in. cross timbers, spaced 2 ft. 9 in. c. to c., are bolted directly to the steel framework of the scow; and the 4-in. timber covering is spiked to these cross-

formly distributed over a length of 50 ft. on either side of, but immediately adjacent to, the transverse centre line of

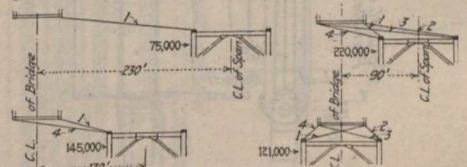


Fig. 3. Lines from centre span to mooring trusses.

the scow, or a load of 180 tons uniformly distributed over a length of 50 ft. at the centre of the scow and symmetrically

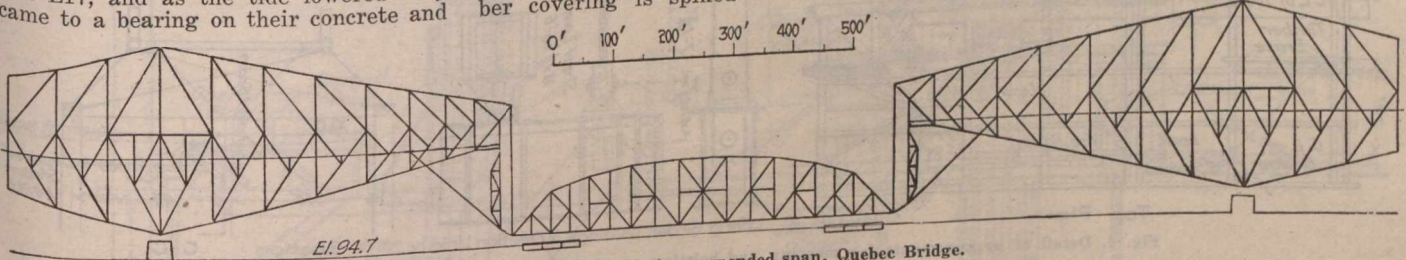


Fig. 2. General scheme for hoisting suspended span, Quebec Bridge.

timber beds. In the bottom of these scows valves are provided which were opened and will be left open until the span is to be floated, so that the scows and the span will not be disturbed by the daily rise and fall of the tide.

The design of the scows was governed by the arrangement and requirements of loading and the possible condition of the surface of the river during floating-in operations; also so that they might have some commercial value after their work of floating in the suspended span was completed. The average length from crest to crest of wave at the bridge site is about 40 ft.; the wave height is 4 ft. This unevenness of the surface of the river produces unequal upward pressures at the four corners of the span and con-

timbers with 8 x 7/16 in. boat spikes, three at each intersection, providing an efficient resistance to any transverse or longitudinal horizontal shearing and bending forces that may arise.

The load of the suspended span is transferred to the bulkheads by means of the cross-girders and I-beams shown in fig. 1. The bulkheads transfer this load to the longitudinal trusses, which distribute it over the length of the scows. In addition to the scows being designed to carry the load of the suspended span, in order that they may be used for freight carrying purposes after their work of floating in the span is completed, they are built to carry a load of 1,400 tons uniformly distributed over a length of 123 ft. and systematically placed about

placed about its centre lines.

It was assumed that the weight of the scow itself produced no stresses in the longitudinal scow trusses and that the total superimposed load was carried equally by these three trusses. In calculating the maximum bending stresses in the chords of these trusses a co-efficient of 0.75 was used to allow for continuity over the panel points. The allowable unit stresses provided for a safe unit stress in these trusses with the suspended span carried on four instead of six scows. The scows are placed under the suspended span and shimmed against the bottom flanges of the floor beams. To make sure of favorable weather conditions while the span is floating, it should be lifted from its supports at L0 and L18



only immediately before its journey to the bridge site. In order to prevent the lifting of the span by the scows when the weather conditions are not favorable, there are a number of 8-in. disc bottom valves in each scow, and these are left open. The elevations of the beds of the scows were so chosen that the scows will be emptied through these bottom valves during the last low tide before the beginning the journey to the site of the main span. The valves have a total area of one five-thousandth the clear area of the scows. All interior areas of the scows are given unobstructed access to some one of the valves, and it is esti-

cars.) The total load carried by one scow under these conditions is 970 tons, distributed over four bulkheads. The draft of the unloaded scow is 1½ ft. and when carrying the load of 970 tons the draft is 8 ft. 2 in. The stresses in the truss members of the span while it is being supported entirely by the scows are such that a tension connection had to be provided at the joint U2; and the bottom-chord eye-bars between the panel points L0-L4 and L14-L18 had to be stiffened temporarily, as indicated in fig. 1, with longitudinal timbers and transverse blocking and bolts. The subtension verticals and the subcompression diagonals

stresses arising from the action of a 4 ft. wave.

Just before the span is lifted off the supports at L0 and L18 the load is nearly all taken by the scows, and the span could be easily displaced from its position by the current and wind, unless it is anchored against their combined effect. It is desirable to prevent this shifting off before the actual moment of starting arrives, inasmuch as it may happen that after deciding to raise the span preparatory to moving out, a change in the weather conditions may make it desirable not to proceed on the journey and the span would have to be returned again to

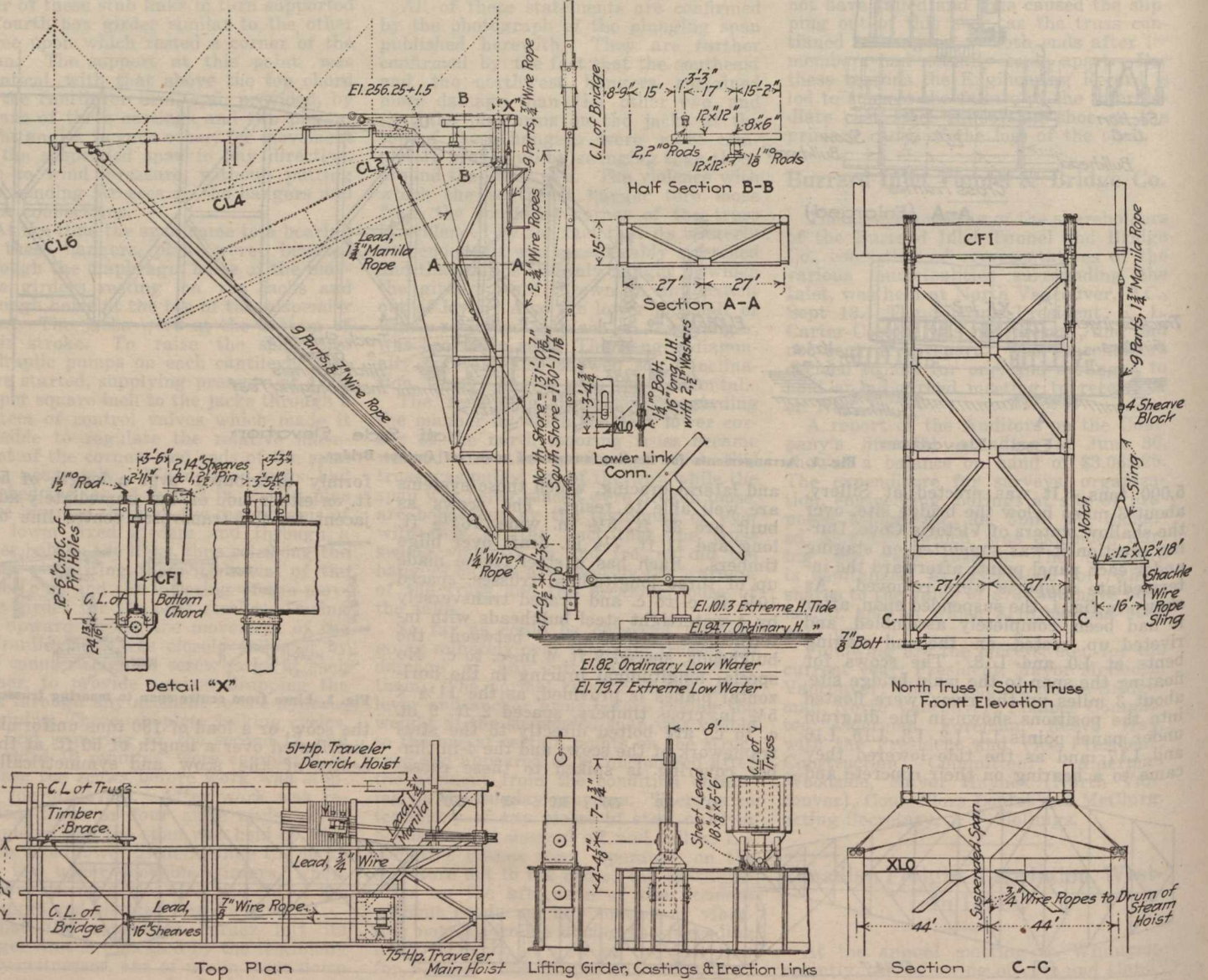


Fig. 4. Detail of arrangements for mooring and hoisting suspended span, Quebec Bridge.

mated that the water will drain out practically as fast as the tide falls.

As illustrated in the fig. 1, the load of the suspended span is transferred from the floor-beams at each of the panel points L1, L2, L3, L 15, L16 and L17 to the bulkheads of the scows by means of eight 24-in. 80-lb. I-beam track stringers, with their end-connection angles interlocked at the ends, and four track girders braced together by swaying frames and top laterals. These I-beam stringers and track girders are part of the permanent floor material of the span—all the floor steel and the railway track floor, except the main floor beams, being left off the span during the operation of floating-in and hoisting. (This floor material will be placed afterward by means of derrick

directly over the scows had also to be specially designed and stiffened to take reversal of stress while floating the span.

The three scows at each end of the span are braced and connected together as shown in fig. 1, by using the inside staging posts from the framework of the anchor arm as continuous connecting girders. Four of these posts are used for each set of three scows and are spaced 42 ft. c. to c. These posts were connected to the scows by means of a pair of cross channels, pin connected to vertical angles which were in turn bolted to the transverse bracing frames of the scows. Wedges were driven between the posts and the scow decks. These connections and the connecting girders were calculated to resist the bending and shearing

its bearings on the staging bents, to await the next favorable opportunity for making a trial. To keep the span in its position until the final decision to float away has been made, timber bents will be placed between the points L0 and L18 and the adjacent scows and also bents on the shore side of the span, against which the scows will guide themselves as the span is raised or lowered on its supports.

The bottoms of the scows are placed at El. 83, where they rest on bearing timbers. The bed of the river over which the scows must pass will be cleared off to El. 82. The draft of the loaded scows will be 8 ft. 2 in. In order to float the span, a high tide elevation of at least 92 ft. will be required, and in order to



drain the scows at the previous low tide an elevation of low tide of not more than 82 ft. would be expected. Inasmuch as elevations of high and low tide, as calculated from the tide tables, may vary at the erection site of the span plus or minus 2½ ft., in order to be sure of floating off, a tide must be chosen whose elevation, as given by the tide tables, will correspond to a high-tide elevation of 94.5 ft. and a low-tide elevation of 79.5 ft., giving a range of tide of 15 ft.

Four or five days in succession, when the elevations and range of tide would be

Service at Toronto. These statements will be telephoned at about 11 a.m. and 11 p.m. respectively, with a prediction of the possible wind velocity. By barometric observations at the bridge site it can be estimated whether any threatening centres of low pressure, indicating string winds, at a great distance on the previous day, have moved more quickly or slowly than was expected. The appearance of the sky, the velocity and direction of the wind just before starting and the indications on an electric storm detector will also be well considered be-

The span on its journey to the bridge site will be towed and controlled by tugs, assisted by the westward current and influenced by the coexisting wind of unknown direction, but exerting a force of not more than 2 lb. per sq. ft. With tugs having a pulling capacity of 100,000 lb. in a 4-mile current, a velocity of the span of 4 miles per hr. can be produced relative to the water, and at the same time overcome the effect of a 2 lb. wind on the span. About 50 min. before high tide the span will be floated away from its erection site, with a westward current having

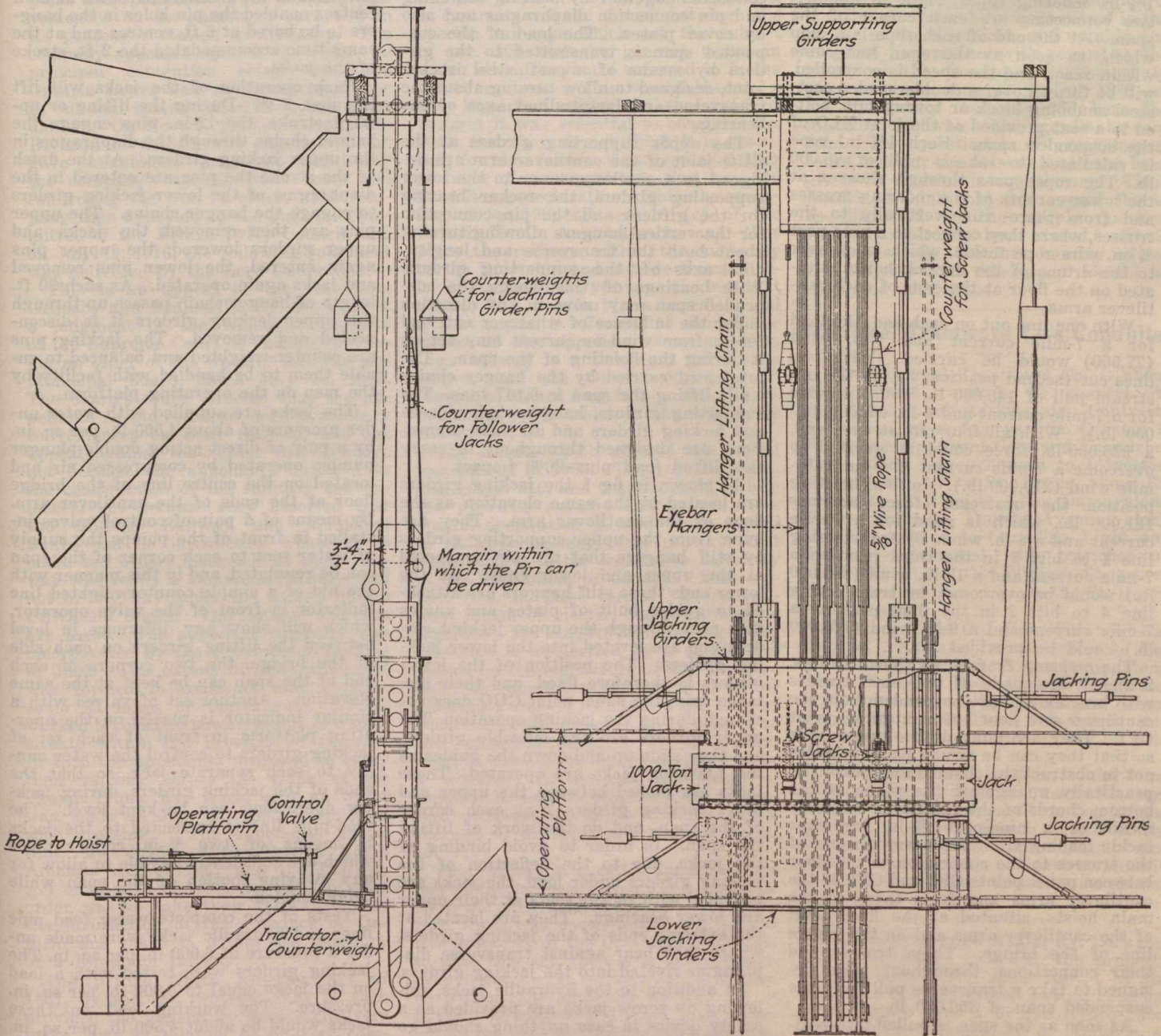


Fig. 5. Jacking equipment for hoisting suspended span, Quebec Bridge.

suitable for draining the scows and floating the span, occur at intervals of about two weeks time. The first favorable tide period, after the preparations for floating the span are complete, is about Sept. 12. If the weather conditions are not favorable during this period, it will be necessary to await the next favorable height and range of tide, and so on until suitable tide and weather conditions co-exist. A full daily statement of the meteorological conditions throughout the country giving the position of high and low pressure centres at 8 a.m. and 8 p.m. will be received from the Meteorological

fore deciding whether or not to start. It is estimated that any winds which will exert a greater pressure than 2 lb. per sq. ft. can be foreseen, and in that event no start will be made. The current velocity at the bridge site is a maximum, one hour before high tide, and is flowing westward at a rate of 6.3 to 7.3 miles per hr. in a direction which will carry the span toward the main bridge site. At high tide the current velocity is less by about 1 mile per hr. The change of current from a westward to an eastward direction, when the velocity is zero, occurs about 1 hr. after high tide.

a velocity of about 6 miles per hr. At first the tugs will be used mainly for guiding the span. While on its journey to the bridge site the rate of progress will be used mainly for guiding the span. While on its journey to the bridge site the rate of progress will be observed by means of a series of ranges placed 0.2 miles apart within 1 mile of the bridge and ½ mile apart from 1 to 3 miles distant from the bridge. The span should arrive at the bridge with a velocity of current of about 4 miles an hr. With such a current and a wind velocity of not more than 2 miles an hr. the tugs will have



no difficulty in stopping the span before coupling up to the mooring trusses.

The time of arrival will be controlled by the tugs so that the span will be in position about half an hour after high tide, when, for a period of 1 hr., the current does not exceed 3 miles per hr. and during which it changes direction. The tugs will hold the span against the wind and current while the 1¼-in. steel mooring lines are being connected, as shown in figs 3 and 4. The span will then be pulled directly under its final position in the bridge by means of these 1¼-in. mooring ropes, eight in number, two connecting at each corner of the span. At the end of each rope is a loop which, as soon as the span has come within reach and the speed is controlled, will be thrown over a double-headed cast-steel snubbing block or towing bitt, bolted to a seat provided at the joint XLO of the suspended span. Each 1¼-in. rope is calculated to take a pull of 75,000 lb. The ropes pass through sheaves at the lower corners of the mooring trusses and from there run vertically to the trusses, where they connect to a nine-part ¾-in. wire rope tackle, which leads back to the drums of the derrick hoists, situated on the floor at the ends of each cantilever arm.

With one line out on each end, the load for a 7-mile current and 1-lb. wind (77,500) would be carried. With two lines cut (second position, fig. 3) the upstream pull of 145,000 lb. would provide for a 7-mile current and 6-lb. wind (145,000 lb.). With all four out at each end, a 220,000-lb. force could be exerted to overcome a 7-mile current plus an 11½-mile wind (219,000 lb.). In final hoisting position the upstream force becomes 121,000 lb., which is good for a 7-mile current and a 4-lb. wind. By transferring line 1 to bitt 2 in the third position a 7-mile current and a 17-lb. wind (293,000 lb.) would be overcome; by transferring line 4 to bitt 2 in the final position a 7-mile current and a 9-lb. wind (186,000 lb.) could be provided for.

The mooring frames, as shown in figs. 2 and 4, are made of two steel trusses with bracing and are suspended from the cantilever arm floor beams at panel point CF1. They are hung at the upper ends so that they can be swung back, in order not to obstruct the channel unnecessarily, practically up against the plane of the bottom chords of the cantilever arms, by means of a nine-part ⅞-in. wire-rope tackle leading from the lower corners of the trusses to the connection to the floor between panel points CF5 and CF6 of the cantilever arms and from there to the main hoists, situated at the floor level of the cantilever arms and on the centre line of the bridge. These trusses and their connections throughout were designed to take a transverse pull from the suspended span of 300,000 lb.

As soon as the span is pulled into position, before being lifted from the scows, the hanger chains will be swung down and connected through the slotted holes at the lower end to the pins at the top of the short hanger link, shown in fig 5, connecting to the supporting girders under the joint XLO. These hanger chains at each corner of the span are made up of 4 strings of slabs to each chain. Each slab is built up of two 30 x 1½-in. carbon steel plates. The allowable working erection unit stress through the pin holes was 20,000 lb. per sq. in., which included the stress from 20% of the lifted load as impact. No reinforcing pin plates were used around the pin holes, and special tests made showed that this apparently

high working stress through the pin holes was perfectly safe for this type of connection. The slabs were manufactured and shipped in lengths of about 30 ft. c. to c. of end pin holes. They were controlled after being suspended from the jacking girders by means of a two-part tackle connecting to the cantilever arm trusses at panel point CL2. The hanger chains connect at the lower end to supporting girders, shown in fig. 5. These supporting girders are 6 ft. 11½ in. back to back of angles and 25 ft. long. They are built up of two plate girders, connected together by bearing stiffening and pin connection diaphragms and also by cover plates. The load of the suspended span is transmitted to the girders by means of a cast steel rocker joint, designed to allow turning about the transverse and longitudinal axes of the bearing.

The upper supporting girders at the CUO joint of the cantilever arm are designed in a similar manner to the lower supporting girders, the rocker bearing for the girders and the pin connection for the vertical hangers allowing turning about both the transverse and longitudinal axes of the supporting girders. With bearings of this design the suspended span may move in any direction under the influence of whatever external forces from wind or current may act on it during the hoisting of the span. The total load carried by the hanger chains while lifting the span is 5,147 tons. The supporting girders, hanger chains, jacks and jacking girders and all their connections are designed throughout to carry this lifted load plus 20% impact.

As shown in fig 5 the jacking girders are located at the same elevation as the floor of the cantilever arm. They are hung from the upper supporting girders by stiff hangers that are pin connected at the upper and lower ends. At the lower ends these stiff hangers are attached to guides built of plates and angles that pass through the upper jacking girders and are riveted into the lower jacking girders. The position of the lower girders is therefore fixed, and their distance from the panel point CUO does not change during the jacking operation. The upper girders are the movable girders, and they slide up and down the guides as the 1,000-ton jacks are operated. These jacks are placed between the upper and lower jacking girders 2 at each corner of the span, and do the work of lifting the span. In order to avoid binding of the jacks, due to the deflection of the jacking girders under load, the jacks are provided with rocker seats at their upper and lower bearings. They are located at the extreme ends of the jacking girders, where they bear against transverse diaphragms riveted into the jacking girders.

In addition to the hydraulic jacks, following up screw jacks are provided as a safety device in case anything should go wrong with the pumping system for the hydraulic jacks or the jacks themselves, if they should fail to maintain the pressure of about 4,500 lb. per sq. in. necessary to hold the weight of the suspended span while being lifted. These screw jacks also react against cross girder diaphragms in the jacking girders. The screw itself is counterweighted so that practically all the friction due to its own weight is eliminated, and the operator of the screw jacks will be able to turn the screw without difficulty and follow the operations of the hydraulic jacks with equal speed and very little exertion.

The hanger lifting chains are guided between cross pin bearing diaphragms

riveted into the jacking girders. These chains are bored every 6 ft. c. to c. to receive a 12-in. pin while the cross diaphragms have holes for the same diameter of pin bored at 2 ft. centres. The clearance provided in the pin holes of the hanger chains is ½ in. transversely and ⅞ in. longitudinally, and in the pin holes of the cross-diaphragms 1 in. transversely and 1¼ in. longitudinally. This clearance is considered ample to allow the pins to be driven, no matter what position the span may take while hoisting, due to the action of current and wind. Having the pin holes in the cross diaphragms at 2-ft. centres enabled the pin holes in the hangers to be bored at 6 ft. centres and at the same time accommodated the 2 ft. stroke of the jacks.

Each operation of the jacks will lift the span 2 ft. During the lifting or upward stroke, the 12-in. pins engage the hanger chains through the diaphragms in the upper jacking girders. At the finish of the stroke the pins are entered in the diaphragms of the lower jacking girders to engage the hanger chains. The upper pins are then removed, the jacks and upper girders lowered, the upper pins again entered, the lower pins removed and jacks again operated. As each 30 ft. length of hanger chain passes up through the upper jacking girders it is disconnected and removed. The jacking pins are counter-weighted and balanced to enable them to be handled with facility by the men on the operating platform.

The jacks are supplied with water under pressure of about 4,500 lb. per sq. in. by a pair of direct acting double-plunger pumps, operated by compressed air and located on the centre line of the bridge floor at the ends of the cantilever arm. By means of a pair of control valves installed in front of the pumps the supply of water sent to each corner of the span can be regulated, and in this manner with the aid of a simple counterweighted line indicator in front of the valve operator, which will show any difference in level between the lifting girders on each side of the bridge, the two corners of each end of the span can be kept at the same elevation. Another set of valves with a similar indicator is placed on the operating platform in front of each set of jacking girders to control the water supply to each separate jack, so that the ends of the jacking girders, during jacking operations, can be kept level. The feed-pipe line is connected to the jacks by means of two ¾-in. copper pipes which are sufficiently flexible to allow for any swaying motion of the span while being hoisted.

Tests of the complete water feed pipe lines and hydraulic jacks were made under a pressure of 6,000 lb. per sq. in. The jacking girders were tested with a load on the jacks equal to 5,000 lb. per sq. in. pressure. The working load on these jacks would be about 4,500 lb. per sq. in. Each individual scow was tested for leakage after the scows were in place.

The vertical distance through which the span will be hoisted depends upon the varying elevation of the water level, but will be approximately 145 ft. Each operation of the jacks hoists the span 2 ft., and a cycle will take about 15 min. to complete. Altogether there will be approximately 73 separate lifting operations, and the time consumed from the moment of coupling up to the hanger lifting chains to the moment of driving the last pins connecting the two portions of the permanent eye-bar suspenders will be approximately 20 hrs., provided no delays occur.—Engineering News.



# Electric Railway Department

## Ontario's Jurisdiction Over Hamilton, Grimsby and Beamsville Electric Railway Confirmed.

The Ontario Railway and Municipal Board, on May 10, 1915, ordered the Hamilton, Grimsby & Beamsville Electric Ry. to file within 30 days complete plans and specifications for sanitary conveniences on its passenger cars and in its passenger station at Grimsby. The company appealed against the order, its principal contention being that the Ontario Board had no jurisdiction over it, but that it was under Dominion jurisdiction. On Nov. 9, 1915, the Appellate Division of the Ontario Supreme Court gave unanimous judgment dismissing the company's appeal with costs and confirming the board's order. The company then appealed to the Judicial Committee of the British Privy Council, and on July 18, 1916, the following judgment was delivered by the Lord Chancellor:—

This is an appeal of the Hamilton, Grimsby and Beamsville Ry. Co. against a judgment of the Appellate Division of the Supreme Court of Ontario, affirming an order of the Ontario Railway and Municipal Board, dated May 10, 1915. The board's order directed that the appellants should construct certain sanitary conveniences on their railway, and the appeal against that order was brought, not because the appellants objected to the construction of the sanitary conveniences, but because they asserted that the Ontario Railway and Municipal Board had no jurisdiction whatever to make the order, inasmuch as their railway was really a Dominion railway, and not in any way under the control of the Provincial Board. The facts of the case are these. The appellant company was incorporated by the Province of Ontario in 1892. The extent of the railway it was formed to construct and work is some 23 miles or thereabouts. It is worked by electric power, and it is wholly situate within the Province of Ontario. In 1895 the appellants proposed to carry their railway across the track of the Grand Trunk Ry. track, and an order was made on Jan. 28, 1895, permitting such crossing. The appellants assert that, by virtue of the British North America Act of 1867 and the Railway Act of Canada of 1888, the effect of that order was to take their railway out of the jurisdiction of the Province of Ontario and place it within the category of a Dominion railway.

The British North America Act of 1867, by sec. 92, provides that in each province the legislature may exclusively make laws in relation to matters coming within the classes of subjects that are there enumerated, and among the classes that are enumerated are local works and undertakings, other than "such works as, although wholly situate within the province, are before or after their execution declared by the Parliament of Canada to be for the general advantage of Canada or for the advantage of two or more of the provinces."

In 1888 the Railway Act of Canada was passed, and this contained certain provisions with regard to railways crossing other railways that were within the legislative authority of the Parliament of Canada. There are many sections in that statute to which reference would be

needed if it were necessary to consider exactly the terms of sec. 306 upon which the appellants rely, for it is quite true that if a comparison be made between sec. 306 and some of the other sections, a contrast will be found between the specific railways which are the subject of sec. 306 and the general terms in which all railways are referred to in the other sections. This would become a very important matter if their Lordships thought it was essential to construe sec. 306. But they do not think it is essential, for this reason, that even assuming in favor of the appellants that sec. 306 did effect a declaration within the meaning of sec. 92, sub-sec. 10 (c) of the British North America Act, and thus place the railway within the authority of the Dominion and outside the authority of the province, yet none the less that statute has been in terms repealed, and if that repeal is effectual to change the status of the appellant company, then their railway is a Dominion railway no longer, and the Ontario Railway and Municipal Board had full jurisdiction to make the order which is the subject of the appeal.

The statute which effected this repeal was passed in 1903. The repealing section is sec. 310, and that repealed in toto the previous statute, and by sec. 7 a special declaration is made with regard to railways crossing other railways that were subject to the legislative authority of the Parliament of Canada. That section runs in these terms: "Every railway, steam or electric street railway or tramway, the construction or operation of which is authorized by a special act passed by the legislature of any province now or hereafter connecting with or crossing a railway, which, at the time of such connection or crossing, is subject to the legislative authority of the Parliament of Canada, is hereby declared to be a work for the general advantage of Canada, in respect only to such connection or crossing, or to through traffic thereon, or anything appertaining thereto. . . ."

This railway in question answers every one of the necessary conditions prescribed in the earlier part of sec. 7. If, therefore, there was power left in the legislative authority of the Dominion of Canada to pass this act, then it is obvious that, even assuming the railway had been placed within that authority by sec. 306, it is there no longer, and there is no power within the Dominion to control its affairs. Their Lordships are clearly of opinion that sec. 92, sub-sec. 10, never intended that a declaration once made by the Parliament of Canada should be incapable of modification or repeal. To come to such a conclusion would result in the impossibility of the Dominion ever being able to repair an oversight by which, even with the greatest care, mistakes frequently creep into the clauses of acts of Parliament. The declaration under sec. 92, sub-sec. 10 (c), is a declaration which can be varied by the same authority as that by which it is made. In the present case their Lordships see no reason to doubt that if the statute of 1888 effected such a declaration to place the whole rail-

way under Dominion control, that declaration has been properly and effectually varied, and the appellant company has ceased to be, even if it ever once was, under the control of the Dominion Board.

Other questions have been raised in the course of the argument, and notably one of great importance, with regard to the power of the Dominion Parliament to pass such a statute as that of 1888, on the hypothesis that sec. 306 bore the meaning for which the appellants contend. This question is of great importance, but, for the reasons that have been given, its decision is unnecessary. Their Lordships think that this appeal should be dismissed on the simple question which has already been stated. Their Lordships will therefore humbly advise His Majesty that this appeal should be dismissed with costs.

### Montreal Tramways Co's Conduits.

The Montreal Tramways Co. is about to construct conduits to connect its power house, sub-stations, etc. Contracts have been let as follows: To Quinlan & Robertson Co., from Cote and Lagauchetiere, along Lagauchetiere to Inspector, along Inspector to St. James, along St. James to St. Remi to Notre Dame, along Notre Dame to Fourth Avenue, along Fourth Avenue to Canadian Light and Power Co. terminal, with branches on Aqueduct St. to the William St. power house, and on Glen Ave., to the St. Henry sub-station;

To G. M. Gest Co., from Cote and Lagauchetiere, along Lagauchetiere to Dorion, along Dorion to Notre Dame, along Notre Dame to Hochelaga power house, with branches on Sanguinet and Henri Julien Sts., to St. Denis sub-station, and on Cote St. to the proposed Cote St. sub-station.

The conduit will be 4 in. round bore, vitrified clay, with brick manholes, concrete floor and roof, cast iron frames and covers. The total trench length of the installation will be approximately nine miles. The methods of construction will be the ordinary ones on work of a similar nature.

The Peterborough Radial Ry. Co.'s corporate existence is ended, the property having been owned since Mar. 1 by the Province of Ontario and having been operated since June 1 by the Hydro Electric Power Commission of Ontario as trustee. The line will continue to be known as the Peterborough Radial Railway.

Hamilton, Ont., jitney owners have discovered that the city bylaw under which they operate does not provide for the fare to be charged for the service given. As a result there is no uniformity of charge, and drivers ask whatever fare suits them. The traffic, particularly at night, is reported to be getting into the hands of foreigners.

Brandon Municipal Ry.—The Brandon, Man., City Council has under consideration a proposal to take up with the Dominion Government the question of the extension of the electric railway.



**The Montreal Tramways Co's Franchise.**

The Montreal Board of Control is giving a general consideration to the Montreal Tramway Co.'s franchise in the city. The matter came before the board, in its present form in a letter from E. A. Robert, President of the company, dated July 14. A report on the position of affairs, and dealing with the letter was prepared in the City Engineer's Department, and is the basis of the board's deliberations. The terms of the new franchise which Mr. Robert suggests should be given the company, are: The present franchise to be extended for 30 years, and privileges granted to carry freight, and to construct and operate an underground electric railway system. In exchange for these privileges the company will agree: To make the extensions to be presently agreed upon between the city and company. The future extensions to be made by the company as agreed upon from time to time, or in event of a disagreement between the city and the company as to the extensions asked being justified, the question to be decided by the Quebec Public Utilities Commission. The necessary right of way in all cases to be provided by the company.

The company will agree to surrender all its franchises affecting the territory now forming part of the city, and its franchises in the territory now outside of the city limits, when such territory shall form part of the city of Montreal.

The company will agree to give a uniform rate of fare of 5c on its surface line in the territory now forming part of the city of Montreal and such territory as becomes part of the city of Montreal comprised within the eastern limits of the city of Lachine, the eastern limits of Mercier Ward, the River St. Lawrence on the south and the Riviere des Prairies on the north. The company will also agree to sell on its surface lines, good for all days except Sundays and holidays, 8 tickets for 25c between 6.00 and 8.00 a.m. and between 5.00 and 7.00 p.m. and 10 tickets for 25c for school children. The fare on the underground system shall be 5c straight.

In consideration of above being accepted, the company will pay the city annually \$200,000 for the first five years, \$300,000 annually for the next five years and \$500,000 annually afterward while the contract remains in force. The exemption of taxes, enjoyed by the company in all the territory wherein it may operate to remain during the life of the contract.

A press report states that a syndicate is being formed in New York to submit a proposal for building a system of elevated railways in Montreal. Duncan McDonald, formerly General Manager Montreal Tramways Co., is said to be identified with the syndicate.

**Calgary Municipal Railway Earnings.**

Following are the earnings, expenses, etc., for August, and for eight months ended Aug. 31:—

	August.	8 months to Aug. 31.
Car earnings .....	\$57,242.58	\$390,653.55
Miscellaneous earnings ..	870.93	7,186.09
Total earnings .....	58,113.51	397,839.64
Operating expenses .....	31,242.96	237,406.51
Overhead and fixed charges ..	16,583.01	131,952.71
Construction and maintenance, Sarcee line .....	594.45	14,504.31
Total expenses .....	48,420.42	383,863.53
Surplus .....	9,693.09	13,976.11

**Quebec Railway, Light, Heat and Power Co's Report and Meeting.**

Following are extracts from the report for the year ended June 30, presented at the annual meeting in Montreal, Sept. 12: The gross earnings from operation for the year were \$1,731,732.49, compared with \$1,548,096.35 in 1915, an increase of \$183,636.14. Adding miscellaneous income \$236,868.93, makes a total revenue from all sources of \$1,968,601.42, an increase of \$184,527.10. The operating and maintenance expenses were \$1,029,750.96 against \$924,817.22, an increase of \$104,933.74. The fixed charges and taxes of all kinds were \$723,447.26, leaving a net surplus of \$215,403.20, which, added to the previous surplus, leaves a total surplus to date of \$562,902.65. The properties and plants of the company and its various subsidiary companies have been maintained in the same high state of efficiency as heretofore, as evidence of which there was expended during the year on maintenance accounts \$220,602.51.

Assets.	
Investments—stocks, bonds and interests in other corporations.....	\$19,181,389.43
Treasury bonds .....	1,742,700.00
Advanced to controlled companies for construction, etc. ....	1,165,251.48
General construction, etc. ....	528,413.29
Cash on hand and in banks.....	167,456.55
Accounts and bills receivable .....	297,637.89
Stores and supplies on hand .....	155,319.33
Prepaid expenses .....	12,089.21
	\$23,250,257.18
Liabilities.	
Capital stock .....	\$10,000,000
Less: Unissued .....	500
	\$9,999,500.00
Bonds .....	\$14,600,000
Less: In escrow to redeem bonds of subsidiary companies .. \$3,659,000	
Less cancelled ..	144,000
	3,803,000
	10,797,000.00
Bills payable .....	175,492.59
Accounts payable, etc. ....	412,222.01
Sundry loans .....	495,293.51
Accrued interest .....	129,638.87
Deferred and unclaimed interest....	548,818.21
Accrued charges, etc. ....	47,373.30
General suspense and reserves .....	82,016.04
Surplus .....	562,902.65
	\$23,250,257.18

The directors for the current year are: Sir Rodolphe Forget, President; L. C. Webster, Vice President; J. N. Green-shields, K.C., Hon. R. Mackay, L. J. Tarte, L. G. Morin, D. O. L'Esperance, Paul Galibert, C. A. Lavigne and C. Donohue. The number of directors has been reduced by one, A Berthiaume, T. Bastien and A. Ecrement retiring, and C. A. Lavigne and C. Donohue being added.

**Jitney Competition with Winnipeg Electric Railway.**

During the hearing by the Manitoba Public Utilities Commission on Sept. 12 of the Winnipeg City Council's application to compel the Winnipeg Electric Ry. to build and operate an electric car line on Sargent St. from Arlington St. to Wall St., evidence was given as to the effect of jitney competition on the electric railway earnings. Wilford Phillips, General Manager and Chief Engineer, said: "We haven't the money and material to do it. The jitney business has cut the earnings of the Sargent Ave. line by nearly 40%. I would like to see the jitney business done away with altogether. It is an unfair competition to the street railway. Our franchise does not anticipate such a competition. It would cost \$10,000 to build the extension the city is asking, and we can't afford it."

R. R. Knox, Traffic Superintendent, presented a statement showing a decrease of \$550.93 in the earnings of the Sargent Ave. line during the first week in Sept., 1915, compared with the same period of the previous year. This he attributed to the activities of the jitneys. On Sept. 6, last, 46 different jitneys were in operation on this line, between 5 p.m. and 6.30 p.m. These made 188 trips and carried 474 passengers. "We have tried to combat the jitneys," said Mr. Knox, "by increasing the number of our cars, but without success. Very few of our car lines are paying."

The Commissioner reserved his decision.

A press report says that the Winnipeg Electric Ry Co. is preparing to institute suit against the city for damages, alleging that failure of the municipality to stop jitney traffic has deprived the company of half of the normal annual income. The company claims to operate under an exclusive transportation franchise.

**Mainly About Electric Railway People.**

Jas. Anderson, General Manager, Sand-wich, Windsor and Amherstburg Ry., is convalescent after a short illness.

Lieutenant Colonel G. C. Royce, General Manager, Toronto Suburban Ry., has been appointed Brigadier of the 9th Infantry Brigade, at present at Camp Borden, Ont.

E. S. Hughes, Traffic Manager, Wind-sor, Essex and Lake Shore Rapid Ry., returned to his office at Kingsville, Ont., Sept. 18, after two weeks absence through illness.

Sir Max Aitken, M.P., associated with several Canadian enterprises, and formerly living in Canada, but latterly in England, has been elected a director of the British Columbia Electric Ry. Co.

A. E. Pickering, heretofore Manager, Sault Ste. Marie, Ont., Water and Light Department, has been appointed Manager Great Lakes Power Co. and International Transit Co., Sault Ste Marie, Ont., succeeding F. E. Kruesi.

C. P. Van Norman, formerly Resident Engineer, Toronto & York Radial Ry., who enlisted for overseas service last autumn, is now a lieutenant in the 127th Battalion, York Rangers, and is stationed at Camp Borden, Ont.

Miss A. M. Grace, only daughter of J. C. Grace, Secretary, Toronto Ry., was married at Sturgeon Point, Ont., Aug. 30, to Lieut. C. J. Mitchell, of the 170th Battalion, C.E.F., of Kirkfield, Ont., and nephew of Sir Wm. Mackenzie.

G. R. G. Conway, M.I.C.E., M.Can.Soc. C.E., formerly Chief Engineer and Assistant General Manager, and now Consulting Engineer, British Columbia Electric Ry., who has been living in Toronto for the past year or two, left there Sept. 21 for Mexico City, to represent the bond holders' committees of Mexican Light and Power Co. and Mexico Tramways Co. Mrs. Conway and her family are remaining in Toronto for the present.

J. A. Everell, Superintendent, Mont-morency Division, Quebec Ry. Light & Power Co., which division is to be taken over by the Dominion Government, has been appointed District Passenger Agent, Canadian Government Railways, Montreal, vice D. McDonald, deceased. The circular issued by the Canadian Government Railways' General Passenger Agent, announcing his appointment says: "Mr. Everell will also retain his position as



Superintendent of the Quebec Railway Light & Power Co."

Charles Lewis Wilson, who was elected Vice President, Canadian Electric Railway Association, for the current year, at the recent annual meeting, was born at Boston, Mass., May 23, 1871, and from 1888 to 1891, was Master Mechanic, Eureka Milling Co., Toronto; 1891 to 1892, in Freight Department, G.T.R., Montreal; 1892 to 1904, in different positions on Toronto Ry.; 1904 to 1907, Traffic Manager, Toronto and York Radial Ry., Toronto, and since 1907, Assistant General Manager, same company.

**Electric Railway Notes.**

The Winnipeg Electric Ry. has informed the Winnipeg Trades and Labor Council, in reply to a request to run excursion trains to the Lake Winnipeg beaches on Sundays, that it would be a direct violation of the law.

An arbitration board is being formed to settle differences between the Moose Jaw Electric Ry and its employes. Jas. Summerville was nominated Sept. 16 to represent the men. The other members of the board had not then been named.

The London & Port Stanley Ry. will almost certainly have to purchase additional rolling stock, whether the second tracking of a portion of the line is carried out or not, as it was impossible during the past summer to handle the traffic without renting a number of steam railway passenger cars.

A contemporary states that the Montreal and Southern Counties Ry. intends to construct a number of new terminals along the route between Montreal and Granby. A line usually has two terminals, one at either end, and the business of a terminal is to terminate. Our contemporary should revise its terminology.

The International Ry. which operates the Niagara Falls Park and River Ry., on Canadian territory, has granted an additional stopover privilege at the Whirlpool Rapids, to enable visitors taking the belt line route, to take advantage of the recently constructed aerial railway over the whirlpool. The only other railway of this kind is at San Sebastian, Spain.

A deputation from the Montreal building trades waited on the Board of Control, Sept. 1, to ask that the city arrange with the Montreal Tramways Co. for the transportation of freight over its lines. The want of cheap and expeditious handling of building material, and excavated material is, the deputation pointed out, interfering with the city's improvement.

The bylaw to raise \$15,000 by debentures for purchasing motor busses to be operated by the Walkerville, Ont., Town Council, was defeated by the ratepayers by a large majority, Sept. 2. The proposal was made by the council in connection with the discussion of differences with the Sandwich, Windsor & Amherstburg Ry., which operates its electric railway in the town.

British Columbia Electric Ry. employes are discussing the wages question. They allege that the general reduction made in 1915 was not warranted by conditions, and the recent difference with the electrical workers has precipitated matters. All steps taken to arrive at a settlement had failed up to Sept. 16 when the men held a mass meeting and subsequently an agreement was reached.

The Manitoba Court of Appeal has granted the Winnipeg Electric Ry. leave

to appeal the recent decision as to the electrolysis of city water pipes, which was to the effect that the Public Utilities Act was *intra vires*, and that the Public Utilities Commissioner had power to order the company to instal such appliances as would prevent electrolysis or materially lessen it.

There has been some difficulty between the British Columbia Electric Ry. and its linemen lately, and on Sept. 4, some of the company's officials repaired some sections of trolley wire which had become a menace to the safety of travel. As a result the difficulty has been increased. The general working conditions of the linemen are under review, and it is expected that the difficulty will be amicably settled.

M. G. Cameron, Goderich, Ont., suing for himself and other shareholders of the defunct Ontario West Shore Ry. Co. and as judgment creditor for \$128,816.66, is asking an Ontario court for a garnishee order against the City of Toronto for a balance of \$850 alleged to be due J. W. Moyes, who controlled the O. W. S. Ry., for a report on the Toronto Ry. The city denies that any balance is owing Moyes.

The Walkerville, Ont., Town Council is protesting to the Sandwich, Windsor and Amherstburg Ry., as to the service being given in the town, contending that recent records of the traffic to show that the service given does not comply with the terms of the franchise. The company was notified Sept. 12, that if the service was not improved steps would be taken to attempt to enforce the penalty clause of \$10 a day.

A deputation from the West Kildonan, Man., municipal council waited on the General Manager of the Winnipeg Electric Ry., Sept. 14, to ask for an improvement of the electric car service and a reduction of fares on the lines in the municipality. It was agreed that a 10 minute service between 9 a.m. and midnight be given in place of the present hourly service, but it was pointed out that there could be no reduction of fares at present.

A strike of union employes of the Quebec Ry. Light and Power Co. occurred, Aug. 30, during the Provincial Exhibition and traffic was disorganized for the greater part of that day. A temporary settlement was arrived at, and the service was resumed, pending the appointment of a board under the Labor Disputes Act, to enquire into the complaints. The company withdrew warrants issued against the men for breach of contract, and agreed to pay 50 per cent. of the wages for the time they were off duty. The Sillery line and the upper town line, which are operated by non-union men were not affected.

**Fort William Electric Ry. Wages.**

The wages of the Fort William Electric Railway employes have been advanced recently as shown below, the rates paid previously per hour being also given.

	Old rate.	New rate.
<b>Conductors and motormen.</b>		
1st 6 months .....	24c	26c
2nd 6 months .....	26c	28c
2nd year .....	28c	30c
3rd year .....	30c	33c
4th year .....	32c	33c
	<b>Old rate.</b>	<b>New rate.</b>
<b>Car barns.</b>		
Laborers .....	25c	25c
General repairers .....	27½c	27½c
Pitmen .....	27½c	30c
Painter .....	30c	32c
Arm winder .....	30c	\$90 a month

**Electric Railway Finance, Meetings, Etc.**

**Brandon Municipal Ry.**—It is estimated that the operating loss for the current year will be \$50,000.

**British Columbia Electric Ry.,** and allied companies:—

	July 1916	July 1915
Gross earnings .....	\$538,293	\$510,723
Expenses .....	475,093	483,881
Net earnings .....	63,200	26,842

**Cape Breton Electric Co.**—

	July 1916	July 1915	July 31, 1916	Aug. 1, 1916 to Aug. 1, 1914 to
Gross	\$32,858.91	\$31,319.80	\$383,240.13	\$338,022.69
Exp.	19,171.30	17,666.29	224,906.58	206,227.88
Net	13,687.61	13,653.51	158,333.55	131,794.81

**The Halifax Electric Tramway Co.** declared its regular quarterly dividend of 2%, payable Oct. 2, to shareholders of record Sept. 18.

**London St. Railway**—

	July 1916	Aug. 1916	July 1915	Aug. 1915
Gross	\$39,505.49	\$37,827.73	\$36,895.52	\$34,273.14
Expenses	25,469.72	25,836.61	23,666.38	23,935.67
Net	14,035.77	11,991.12	13,229.14	10,337.47

**Montreal Tramways Co.**—The Montreal City Council claims that the Montreal Tramways Co. owes it \$194,944, and the company claims that the city owes it \$119,604.29. E. A. Robert, President of the Company, suggested to the Board of Control, Sept. 6, that the council should accept a cheque for the difference between these two amounts, and submit the other claims to a "friendly action."

**Sherbrooke Ry. & Power Co.**—Gross earnings for year ended June 30, issue of \$75,000 6% debentures of the \$136,178.65; operating expenses \$70,249.55; net earnings \$65,929.10, against operating expenses; \$55,643.63 net earnings for the year ended June 30, 1915.

**Sudbury-Copper Cliff Suburban Electric Ry.**—Brokers are offering for sale an Town of Sudbury, Ont., due Jan. 10, 1936, guaranteeing the Sudbury-Copper Cliff Suburban Electric Ry. The price is 101.46 and interest yielding 5%. The prospectus states that the railway's net earnings for the first six months of operation were \$12,000, which taken on an annual basis is enough to pay the bond interest practically six times over. A sinking fund provides for the redemption of the entire issue at maturity.

**Toronto Railway**—

	1916	City percentage	1915	City percentage
Jan. ....	\$473,784	\$68,847	\$471,226	\$70,486
Feb. ....	470,764	70,614	440,313	66,047
Mar. ....	518,555	97,237	488,468	93,141
Apr. ....	496,172	99,234	467,701	93,540
May ....	500,314	100,063	468,953	93,790
June ....	467,086	93,417	450,582	90,116
July ....	469,845	93,969	449,108	89,821
August ...	474,814	94,964	447,968	89,593
	\$3,871,345	\$718,345	\$3,684,319	\$686,534

**Toronto Ry., Toronto and York Radial Ry.,** and allied companies.—

	July 1916	July 1915	July 30, 1916	Jan. 1 to July 31, 1915
Gross	\$867,789	\$773,013	\$6,202,988	\$5,583,076
Expenses	436,735	374,637	3,172,495	2,914,954
Net	431,054	398,376	3,030,493	2,668,122

**Winnipeg Electric Railway**—

	July 1916	July 1915	July 31, 1916	Jan. 1 to July 31, 1915
Gross	\$242,688	\$248,022	\$1,944,162	\$2,000,278
Expenses	168,101	168,469	1,239,067	1,299,081
Net	74,587	79,553	705,095	701,197

**C.P.R. Electric Railways.**—The C.P.R. annual report for the year ended June 30 shows the following receipts from subsidiary electric railway companies:—Interest on bonds, Berlin, Waterloo, Wellesley & Lake Huron Ry. (Galt, Preston & Hespeler Ry.) \$17,040; dividend on Berlin, Waterloo, Wellesley & Lake Huron Ry. stock, \$12,500; interest from Hull Electric Ry., \$60,000.



## Niagara Falls Park & River Railway Safety Betterments.

J. C. Royce and H. W. Middlemist, engineers for the Ontario Railway and Municipal Board, have presented the following report on the improvements which have been made on the Niagara Falls Park & River Railway recently:—On Aug. 19, accompanied by the Chairman of the Board, we conducted a test on the Queenston hill, in order to ascertain the efficiency of the new safety switch and the effect on the speed of the car produced by the change of grade and radius of curve. A car was provided by the company, whose officials were present and witnessed the test.

A test was first made of the safety switch by starting the car freely without trolley connection from the curve at Dumfries St., 200 ft. up the grade, and allowing it to accelerate to the end of the switch. The car was then taken to Dumfries St., to a point about half way between the two curves there, and started freely and allowed to attain a speed it would likely do in case of accident, and was brought to a stop at the end of the safety switch. A test was then conducted in order to ascertain the acceleration of the car from the safety switch to the end of the lower curve near the river, the radius of which had been increased to 145', and the grade reduced to 4.2%. The car started by gravity from the switch and passed satisfactorily around the curve without the application of the brakes.

A further test was made of the braking power of the four motors which are now installed in the cars, in accordance with the Board's order. The trolley was taken off the wire and the car allowed to run free, and when it attained considerable speed, the lever on the controller was thrown into reverse position and the car was brought successfully to a standstill by the resistance of the motors only. Another test was made to ascertain the acceleration which the car would attain on the curve itself and this was found to be comparatively small on account of the curve resistance.

We consider these tests satisfactory, in so far as they show the efficiency of the safety switch, and that if a car should run freely down the grade from the safety switch it should pass around the curve at the river at a safe speed, unless power is applied by the motorman voluntarily, in which case, no precautions taken by the Board will avail. We have taken into consideration the use of a dead trolley wire between the switch and the end of the curve, as a precaution against the motorman using current and thereby attaining speed beyond the safety limit on the curve. We have decided, however, not to recommend this, as it is advantageous to have current available at all times while passing down grade, not only for operating the air brake and lighting system, but to enable the motorman to reverse his car, which would be advantageous in case of emergency.

We also called the superintendent's attention to an irregularity in the curve on the safety switch and he promised to rectify this. We would recommend that the spring frog at the safety switch be kept greased and have pointed this out to the Superintendent, who has promised to see to it.

In reference to the improvements which have been made on the N. F. P. & R. Ry. to secure greater safety it may be stated that the original construction of the portion of the line from Queenston wharf to Brock's monument required

similar methods to those used by steam railways in mountainous countries. The distance on a straight line from the top of the hill to the wharf is 2,650 ft. The difference in elevation is 293.8 ft. To descend this hill, without an excessive gradient, the line had to be lengthened. This was accomplished by constructing along its face for 2,100 ft. westerly, where it turned in an easterly direction, still on a descending grade. The length of track actually constructed between the named points was 7,500 ft. A section of track where the gradient was 5.7% at the foot of which was a curve having a radius of 115 ft., has been raised several feet at the low place recently, and the alignment has been changed so that the curve radius is now 145 ft. A new safety switch has also been installed.

## Hydro Electric Radial Railways for the Niagara Peninsula.

A meeting of delegates of the Ontario Hydro Electric Railway Association was held at Hamilton, Sept. 1, when plans of the proposed railway to be built by the Ontario Hydro Electric Power Commission, between Toronto and Niagara Falls, were explained and discussed. The portion of this line between Toronto and Port Credit has already been dealt with by the various municipalities concerned, the second section, that between Port Credit and St. Catharines being one chiefly under discussion.

F. A. Gaby, Chief Engineer of the Commission, in explaining, stated that the route it was proposed to follow through Hamilton was that adopted by the Canadian Northern Ry., and it was probable that the C. N. R. right of way would be taken over and the Hamilton station located on James St., near Murray St. The line, when completed, would be available for other railway companies on terms being arranged. It was estimated that the right of way would cost \$2,000,000 and the construction, so far as Hamilton was concerned, \$2,250,000, and stations and terminals about \$500,000. The line would run from Port Credit, where a junction would be made with the proposed Toronto-London line, thence to Clarkson, through the centre of Oakville, then south of the G.T.R. and parallel with the Hamilton Radial Ry., through Burlington. From the last mentioned point two surveys had been made, one on the north and one on the south of the Plains Road. The line would cross the G.T.R. overhead and proceed along the proposed Canadian Northern Ry. route and thence to Stoney Creek, Winona, Vineland, Grimsby, Beamsville, and St. Catharines. It was intended to use 80 lb. steel, and the whole equipment would be of the highest class, with rolling stock similar to that used on the London and Port Stanley Ry. Mr. Gaby also stated that four lines had been surveyed from St. Catharines to Niagara Falls, and the Commission was of opinion that two lines would be required, one to go via Port Robinson, and one by a more direct route.

The Hamilton Board of Control had a conference with J. N. Stanley, Assistant Engineer of the Commission, and subsequently a report was made to the City Council, showing that the estimated cost of building the line from Port Credit to St. Catharines was \$8,935,363, including stations and terminals. Car shops and rolling stock were estimated at \$425,000, the gross total cost being \$11,360,363. It was also stated that a subsidy of \$6,400 a mile on the 59.57 miles would produce

\$381,248, and reduce the cost to \$10,979,115.

On Sept. 18, the councils of St. Catharines City, Lincoln County, and Louth and Grantham Tps. passed resolutions endorsing the proposal. J. N. Stanley, Assistant Engineer, informed the St. Catharines Council, that the Commission intended to reach Niagara Falls, but as there was already a line between St. Catharines and Niagara Falls, it was considered that the line to Port Credit would be sufficiently large for a separate undertaking. He stated that the cost of construction would be divided between the municipalities concerned according to assessment.

At a special meeting of the Hamilton City Council, Sept. 19, a resolution was passed endorsing the scheme, but the council declined to approve of any definite route through the city until route plans had been considered by it.

## Toronto Suburban Railway Deviation at Lambton.

The Ontario Railway and Municipal Board has issued its order authorizing the Toronto Suburban Ry. to deviate its Dundas St. line at Lambton Mills, to a private right of way owned by the company. The order is as follows: Upon the application of the Toronto Suburban Ry. Co. and upon hearing counsel for the applicant and for York Tp. and the City of Toronto having, at the hearing, applied to be made parties thereto, the Board was pleased to direct that counsel for the City of Toronto should also be heard, but that the said city shall not be made parties hereto, and the said application having come on for judgment, the Board orders that the plans, profiles and book of reference filed with the Board showing the proposed deviation, be approved, and the company is directed to make the deviation, subject to the conditions of, and in accordance with the agreements between the parties and the statutes relating thereto.

The City of Toronto strongly objected to the connection proposed to be made, but as it had no locus standi, it endeavored to prevail upon the York Tp. council to appeal against the Board's order, the city to pay all costs. The council, however, after consulting its solicitor, decided that nothing could be gained by an appeal, as he expressed the opinion that it could not be successful. The council also stated its belief that the interests of Toronto would not be affected seriously by the connection.

## Jitney Traffic Notes.

The Vancouver, B.C., City Council has in course of arrangement the difficulty with the jitney owners as to the bonds which will be accepted under the bylaw.

A large number of car owners in the City of Quebec operated them as jitanes, during the day on which the Quebec Ry. Light and Power Co.'s conductors and motormen went on strike, Aug. 30.

R. Robson, a jitney owner, was fined \$200 at the Provincial Police Court, Winnipeg, Sept. 5, for using his jitney as a "blind pig." Some other jitney operators are suspected of being guilty of similar practices.

During the Toronto Exhibition recently practically the whole of the licensed jitanes in the city were operating on east and west routes. Scarcely any accommodation was given north and south on Yonge St.



## Electric Railway Projects, Construction, Betterments, Etc.

**Brantford Municipal Ry.**—A deputation of residents of Terrace Hill waited upon the Brantford Railway Commission, Sept. 20, to urge the extension of the electric railway into that section of the city. The route suggested by the deputation is as follows: Branching off at Market St. at Grey, along Grey to Clarence, under the Clarence St. subway to Dundas St. to the hill. This would give a direct line to the hill without change, and would also serve a section of the city below the hill which it is claimed would be a good revenue producer. The rails and other material taken up from the section of the old Grand Valley Ry. sold to the Lake Erie & Northern Ry. could be utilized. The commissioners assured the deputation that they would do the best possible to provide the accommodation required. The matter of the route would have to be given careful consideration. (Sept., pg. 378.)

**British Columbia Electric Ry.**—The Victoria, B.C., City Council, in connection with the resurfacing of Oak Bay Ave., has invited the cooperation of the company to have the entire avenue resurfaced at the same time. (Sept., pg. 378.)

**Calgary Municipal Ry.**—We are officially advised that it is proposed to connect the tracks over the west Centre St. bridge, Calgary, Alta., now under construction. This will involve about half a mile of construction, the material for which is on hand. T. H. McCauley is Superintendent, Calgary, Alta. (Sept., pg. 378.)

**Dominion Power and Transmission Co.**—We are officially advised that there is being completed about a mile of track, paving, etc., on Wentworth Ave., between Barton and Burlington Sts., on the company's Hamilton St. Ry. line.

Construction is progressing on the new steam power plant in Hamilton. (See Hamilton St. Ry., July, pg. 295.)

**Guelph Radial Ry.**—We are officially advised that it is expected to lay about 3,000 ft. of track on Ogilvie St., Guelph, next spring, to replace existing track. A. H. Foster is Manager, Guelph, Ont. (Nov. 1915, pg. 444.)

**Hull Electric Co.**—We are officially advised that the company contemplates paving its portion of Lorimer Ave., Bridge St., Montcalm St., and the Chelsea Road, in all about 10,000 ft. G. G. Gale is General Manager, Hull, Quebec. (April, pg. 156.)

**Lake Erie and Northern Ry.**—The Board of Railway Commissioners was reported Sept. 12, to have decided in favor of the contention of the Brantford, Ont., City Council, in respect of certain matters in dispute. The most important of these matters was the company's refusal to acquire an additional 7 ft. of available ground for the widening of Water St., adjacent to its building. (Sept., pg. 378.)

**London and Port Stanley Ry.**—In reference to the reported building of a second track on this line between London and Port Stanley, Ont., we are officially advised that it is not thought this work will be gone on with for some little time at least, although, from the amount of traffic the work is a necessary one. Under any circumstances it will be necessary to purchase additional rolling stock in order to handle the traffic offering, a number of steam railway passenger cars having had to be rented during the past summer. (Sept., pg. 378.)

**Moncton Tramway, Electricity and Gas Co.**—Negotiations are reported to be in progress between the company and the city council, for the extension of the line from the present terminus on John St., Moncton, N.B., to the corner of Wilbur and Union St. (Aug., pg. 338.)

**Oshawa Ry.**—Tenders are under consideration for the work and material required in the construction of a heating chamber, and for the installation of a complete steamheating system in the car barn and works shops at Oshawa, Ont. H. W. Cooper is Manager, Gananoque, Ont. (Nov. 1915, pg. 441.)

**Sandwich, Windsor and Amherstburg Ry.**—We are officially advised that the company has under construction 2,200 ft. of double track line on London St., west, Windsor, Ont. (July, pg. 295.)

**Saskatoon Municipal Ry.**—It was reported Sept. 15 that tracks for the electric railway was being laid on the new 25th St. bridge, and that the work was expected to be completed by Sept. 30. About 1,200 ft. of double track is being laid. The bridge is being built and it is expected to be opened for traffic by the end of October. (Sept., pg. 378.)

**Sudbury-Copper Cliff Suburban Electric Ry.**—We are officially advised that nothing definite has been decided upon as to the Murray Mine and Coniston extensions. The company is building a one mile extension in Sudbury, Ont. (Sept. pg. 378.)

**Three Rivers Traction Co.**—We are officially advised that the company is completing the building of an extension of its line from Three Rivers, Que., to Cap de la Madeleine. The new track is being laid with 75 lb. rail, and is expected to be ready for operation early in October. An 85 ft. extension has been completed to the car barn and shop building, doubling its car capacity.

The total length of the Cap de la Madeleine division, from the starting point at the intersection of St. Maurice and St. Cecile Sts. to Cap de la Madeleine will be 19,500 ft. The line is already built across St. Christopher Island, and the projected extension is from that point to Cap de la Madeleine. (Mar., pg. 378.)

**Toronto Civic Ry.**—We are officially advised that work on the Lansdowne Ave. line was completed July 20, except the diamond and interlocking installation with the Toronto Suburban Ry. at Davenport Road. Now that the change in gauge of the T. S. R. has been approved of the diamond will be put in when the latter work is undertaken.

The construction of a 9-car addition to the civic car barn, St. Clair Ave., is being built, Chalkey & Sons being the contractors. (Aug., pg. 338.)

**Toronto Suburban Ry.**—A Toronto press report stated recently that the company had decided, owing to the difficulty in obtaining copper for overhead work, to operate the extension from Lambton to Guelph, by steam, commencing Oct. 1. We are officially advised that nothing of the kind is contemplated. The company has not the power to operate its railway by steam, but when the right of way was purchased, a clause was inserted in the various agreements, to the effect that those selling the land would raise no objection should it be deemed desirable to operate by steam. The line between Toronto and Lambton is on the public highway and is 4 ft. 10% in. gauge, while the extension from Lambton to Guelph is on

private right of way, and is standard gauge. The Ontario Railway and Municipal Board has authorized the change of gauge to standard, on the city end, but it is not conceivable that steam operation on the public highway would be permitted.

The Western Canada Power Co., which owns the charter of the New Westminster and Boundary Ry., completed arrangements for a reorganization of its finances Sept. 1. Under the new arrangements the security of the bondholders is unimpaired, and the noteholders have provided \$100,000 of capital. Practically all of the noteholders have agreed to allow their notes to remain on deposit with the reorganization committee.

The Windsor, Essex & Lake Shore Rapid Ry. has been authorized by the Board of Railway Commissioners to build a spur for Champion Brick & Tile Co. in Gosfield North Township, Ont.

Some paving is being done by the company in Leamington and Windsor, Ont. (July, pg. 295.)

**Winnipeg Electric Ry.**—The Manitoba Public Utilities Commission has refused to grant a hearing to the Winnipeg City Council's application for an order to compel the company to build a temporary car line on Sargent Ave. from Arlington St. to Wall St.

We are officially advised that there is under construction by its subsidiary, the Winnipeg, Selkirk and Lake Winnipeg Ry., 1.5 miles of single track line with gravel ballast, from the city limits of Winnipeg to Kildonan Park, which will make the line a double track line. (Sept., pg. 378.)

**Guelph Radial Ry.**, which is owned by the city of Guelph, Ont., has advanced its conductors' and motormen's wages to the following rates, per hour: 1st year, 21c; 2nd year, 22c; 3rd year, 23c. This is practically an increase of 1c an hour, except for the first three months service, which was formerly 19c and the remainder of the year 20c, the second year having been 21c and the third year 22c. The men are working 68 hours a week, six days to the week. The company supplies one new uniform a year, together with buttons and caps.

**Niagara River Bridge.**—A bill has been introduced in the U. S. Congress to authorize the building of a second bridge across the Niagara River at Buffalo, N.Y., to take care of pedestrian, vehicular and street railway traffic. E. C. Connette, President International Ry., Buffalo, N.Y., is interested. The bill has been introduced, it is said, following the failure of negotiations with the G.T.R. for the widening of the present International Bridge so as to take care of the general traffic.

**Pennsylvania Rd.'s Detroit Extension.**—President Rea of the Pennsylvania Rd., states that the announcement of the proposed extension of the Pennsylvania into Detroit, Mich., had brought out misleading conjectures as to the plans and cost. A direct connection with that city had been under consideration for some years, but the recent industrial development there has been such as to make this extension of the company's service necessary. This does not, however, mean the construction of 80 miles of new line, as has been said, nor the expenditure of \$40,000,000. The capital outlay will not exceed \$10,000,000.



# Marine Department

## The Dominion Government Asked to Start Ocean Steamship Building.

J. G. Scott, President, Quebec Board of Trade, and formerly General Manager, Great Northern Ry. of Canada and Quebec and Lake St. John Ry. has sent us copies of correspondence between himself and the Minister of Trade and Commerce. The first letter was written by Mr. Scott on behalf of the Board on May 17, as follows:

The Council of the Quebec Board of Trade have followed with much interest the recent debate in Parliament on the question of ship building in Canada, in which you outlined an approximate idea of a method of encouraging the building of steel ocean going steamships in Canadian shipyards and their operation by Canadian owners. We understand that your plan would be for the Government to pay as a bonus the difference between the cost of building such vessels in Canada and that of building them in shipyards in the United Kingdom, and also a guarantee of subsidy to represent the difference between the cost of navigating vessels as built by Canadian owners, as compared with the cost of navigating under British ownership. We do not know if we have correctly understood the meaning of your speech, but it would seem to us that the question is so urgent that some such policy is necessary in the interest of the country; because, at present our export trade is simply prohibited by the high rates of ocean freights. For instance, in the deal trade, which interests equally Quebec and St. John, N.B., the present rate of freight is six times what it is under normal conditions, and the freight is thus far greater than the value of the lumber.

We presume that if such a policy were to be determined upon, it could not be put into force until after next session of Parliament. And in any case, if the cost of building ocean steamers in England now is so much greater than before, as the recent debate in Ottawa would indicate, might it not be difficult to induce Canadian builders to build until the termination of the war will have given them some idea as to what conditions will prevail for the future? In the meantime, the great and rapidly increasing export trade of Canada is almost at a standstill for want of ocean tonnage. The Northwest raised last year 700,000,000 bush. of grain, Montreal exported less than 40,000,000, no less than 105,000,000 went to Buffalo and thence to United States seaports, and many million bushels of grain in the Northwest are exposed to loss or injury for want of storage. Is it not therefore most urgent that the Government should take some decided steps to remedy this alarming condition of affairs?

The Quebec Board of Trade has urged for the last three years that grain storage should be built at Quebec, Halifax and St. John for at least 10,000,000 bush. at each place, so as to fully utilize the new means of transporting western grain to the seaboard offered by the National Transcontinental Ry., and thus give constant grain traffic to the railway, which the recent declaration of the Minister of Railways proves that it can profitably carry at 3c a bush. cheaper than the rates in force on the lake and rail route.

The question of ocean tonnage seems

to be equally important. Why should we not build and own and operate our own ships, as we did 40 years ago, when Canada stood fourth on the list of ship owning nations? Today, we are nowhere. Then, the ships of Quebec, St. John, Yarmouth, Charlottetown and Halifax, manned by Canadian captains and crews, were well known in every port in the world. Our merchants were ship owners and our people were mariners, and both were drawing revenue from the greatest source of revenue, which does not appear in the Government statistics, viz., ocean freights. One firm in Quebec had, at that time, nearly 100 ships in service. All that has gone. Why should it not be revived, and why should we not build steel vessels, as we formerly built wooden ones? We are able to build costly railways, great bridges, and railway cars and to make steel rails. Why not ships?

The Government is just completing, in the port of Quebec, the largest dry dock in the world, capable of docking the greatest steamship afloat, and therefore more than large enough to secure safety and repair to the largest steamships now using the St. Lawrence, some 20 of which are now without the means of repair in case of accident, being too large for existing docks. When this dock is finished, in six months from now, it will be necessary to keep a staff of experienced shipwrights and riveters there, so as to repair vessels in case of mishap. These men must have constant employment, or they will not remain. Between this dock and the smaller Government dry dock, adjacent, there is a ship building yard, where the Davie Ship Building and Repairing Co. have in the last few years built a number of steel river steamships. The workmanship on which has been declared by experts to be as good as any done on the Clyde. They are now building a large steel train ferry steamship for British Columbia, and a fleet of launches and small craft. Some 1,800 men are thus employed, who, when the war is over, will be out of work, unless, in the meantime, some arrangements can be made for building ocean steamships.

So as to give work to these men, as well as to the steel working staff who will have to be kept at the new dock, we would respectfully suggest that the Government take the initiative in building ocean steamships in Canada, by building say six or more freight steamships of 8,000 to 10,000 tons register, of which 2 might be built at Montreal, 2 at Quebec and 2 in the Maritime Provinces, and, if thought proper, some seagoing vessels on the upper lakes, whose tonnage would of course be much smaller on account of the St. Lawrence Canal locks. An arrangement could no doubt be made with the ship building yards at these points to build these vessels at the actual cost of labor and material, plus say 10% or any other profit that might be thought equitable. In this way, the Government would establish the cost on which to frame future legislation; would start the movement of building ocean steamships in Canada; would provide a small fleet to help out the transportation problem, which is very acute, would prevent a lot

of men being thrown out of employment when the war is over, would increase the business of our steel works, and would create a valuable industry, which could then be left to private enterprise, aided possibly by some encouragement from Parliament.

### Sir George E. Foster's Reply.

The Minister of Trade and Commerce wrote Mr. Scott on May 19 as follows:

In my speech in Parliament I discussed the various methods which had been proposed or might be put forward to mitigate the present difficult conditions of ocean transport, with an endeavor to draw out from the House an expression of opinion as to the best policy to be pursued. After thoroughly considering the matter, the Government came to the conclusion that it was impossible, under present circumstances, to lay down a well considered line of policy for consideration during the session just closed. The matter has been referred to a committee of council who, during the interim, will give it more extended consideration, and, if possible, be prepared at the next session of Parliament to state their intention.

Your Board is well within the mark when they recount the present conditions and urge the necessity for supplying a remedy. The nature of the remedy that could be applied, however, is a difficult matter to decide. Granted a worldwide and increasing lack of tonnage, with almost an unprecedented quantity of products to be transported, and the consequent lack of space and advancing rates, now far away beyond the normal, the question as to how to remedy this state of affairs is not solved in any way by the statement of conditions. To cite the situation years ago when Canada stood fourth in the list of shipowning nations and the situation today, does not bring very much relief. Those were the days of wooden shipbuilding, when Canada had the advantage of most countries of the world in procuring the best of lumber and of easy access to the seaboard, where inexpensive yards and plenty of material and cheap labor created an ideal situation for shipbuilding. But of course the wooden vessel has gone and its place is now taken by steel vessels and, in the main, by steel vessels of very large carrying capacity.

If shipbuilding is to be revived, it must be in the form of steel ships and for the building of these, very expensive yards are required, skilled labor to a large extent and accessible material. At present our steel shipbuilding yards are few in number and, in the main, congested with work, whilst on the other hand, labor is scarce and the skilled portion of it largely diverted to war purposes. The steel material is at peak prices and under the present conditions requires months, if not years, before an order presently given can be filled. On the other hand, whilst at this present moment tonnage is scarce and freights are high, no one knows how soon peace may come, and when it does come no one knows just what will be the effect upon tonnage and rates.

Anyone can guess, and some people may give a studied opinion, but all are liable to contingencies. So far as en-



quiries have gone, we could not get a contract for steel ships very much less than from \$125 to \$135 a ton and nowhere in Canada could we get the steel for the building and no place in the United States, under eight or ten or more months for delivery. This brings it about that the delivery of ships built under these conditions could not be guaranteed, if orders were given at once and construction gone on with as rapidly as possible, until the middle of 1917 or later. What conditions would be met with in the ocean carrying world at that time nobody knows. If peace were to ensue the interned tonnage turned loose and the necessities of army convoys and munition and supply carrying were done away with, the builder of these ships, be it Government or individual, would find himself with the most costly construction thrown into competition with the released tonnage of the world, and a corporation, and still less a Government, does not wish to face that contingency.

These are some few of the considerations hurriedly thrown together which have to be taken into account in framing a policy for shipbuilding. Coincident with that is one of the most pressing of all conditions, the exceedingly large contributions that must be taken from the country in capital and taxes to sustain the burdens of the war, which are now costing us nearly \$20,000,000 per month. There is a limit to the provision of funds by the methods of taxation; there is also a limit to the borrowing possibilities even of Canada, shut out as it now is practically from every European market.

Please do not consider that, although sending this, I do not sympathise, and very strongly sympathise, with the considerations you have put forth. It is a difficult matter for a Government, as you will quite see, and the best I can say is that they are now giving and will continue to give it their very best consideration.

#### The Quebec Board of Trade's Answer.

Sir George Foster's letter having been considered by the Quebec Board of Trade, Mr. Scott wrote Sir George Foster on June 19, to London, England, as follows: We still think that it would be wise for the Government to take the initiative and build six or more commercial steamships of 8,000 to 10,000 tons each, say, two at Montreal, two at Quebec, and two in the Maritime Provinces, on the basis of the cost of labor and material plus a reasonable percentage for the builder. By doing this, they would introduce an element of competition and at same time establish a basis of cost to guide them in the legislation necessary to establish this most important industry.

We respectfully suggest that it is the government which should incur the risk of building at the present moment, when, as you say, there is uncertainty as to the conditions which will prevail after the war is over. Private capital, as you know, is proverbially timid, and will not take risks until things have settled down. In the meantime, the country is crying out for relief in the way of shipping. Three-fourths of our western grain—the beneficial result of our enormous sacrifices in building three transcontinental railways—was diverted last year to Buffalo and New York because we had insufficient grain storage and ocean tonnage at our seaports. This must be remedied, or the commercial interests which hold together our disjoint-

ed provinces will soon cease to exist.

From a local point of view, what are we going to do after the war is over, with the 6,000 men who are now employed in Quebec in building small war vessels and in making rifles and ammunition, unless some such employment is available?

Building these vessels would not be money thrown away. The government would soon have good value for it, in the ships themselves, which should not cost dearer than those now building in the United States, and probably very little dearer than those building in Great Britain. And in doing this, they would give employment to our own people at a critical time, and help to provide tonnage to stop the alarming diversion of our trade from our seaports.

I enclose a clipping from the New York Herald which shows that the United States shipyards have now on the stocks 368 steel steamships, aggregating more than one million tons, and that there are more than twice the number of ships carrying the Stars and Stripes than there were before the war. If they can do this, with wages for shipwrights in their yards as high as 75c an hour, surely we can do much better, with more moderate scale of wages prevailing in Canada.

In my previous letter I omitted to point out that if building commercial steamers would lead to the building of war vessels, as it probably would, even though we are and hope always to be a peaceful people, there could be no better or safer place for a naval construction yard than the port of Quebec—because it is remote from the frontier, and not exposed to raids or incursions which might destroy vessels building in Montreal, only an hour's run from the border. It is also safe from attack by sea, being nearly 800 miles from the Atlantic, and only accessible through a channel which for many miles is narrow and could be commanded by artillery from both shores of the St. Lawrence, and is, therefore, not so liable to attack by sea as Halifax, St. John, or Sydney would be. Ships under construction in the yards here would be under the protection of the guns of the Citadel. Ships built in the yards adjoining the new graving dock here could be launched or docked in winter, almost as well as in summer, as the river at this point is always open and free from floating ice.

The transportation of steel and coal for these shipyards, from Sydney or New Glasgow, to Quebec, Montreal, Halifax or St. John, need not be considered an obstacle, because it would not cost more than the freight on similar articles from Glasgow to Belfast where the largest shipyards in the world are in successful operation and not much more than the cost of moving these materials from the steels works to the shipyards at Sydney, itself.

For all these reasons, I do hope you will advise the government to respond to the wish of the people and take immediate action in the direction of building ocean steamers in Canada.

#### The Nova Scotia Steel Co.'s President's Views.

Thos. Cantley, President, Nova Scotia Steel and Coal Co., wrote Mr. Scott recently, as follows:—The completion of the new Quebec graving dock, and the natural and other facilities already existing at your port, would certainly warrant you in assuming that steel shipbuilding, whether mercantile or naval, could be carried out as well at Quebec as

at probably any other port in Canada. Not only, as you point out, would the cost of transporting material from New Glasgow or Sydney to Quebec, be as cheap or from Glasgow or Middlesbrough to Belfast, but as a matter of fact, experience in years past has proved that iron and steel products such as angles, plates, etc., have, and can again be delivered from Glasgow or Middlesbrough to Belfast. This, of course, is due to the fact that domestic railway and coasting rates in the United Kingdom are exceedingly high, while ocean freights to Canadian Atlantic ports are practically on a ballast basis.

**Norwegian Vessels to Be Built in Toronto.**—An order has been placed with Polson Iron Works Ltd., Toronto, by Hannevig and Johnsen, New York, on behalf of Norwegian parties, for the construction of two steel cargo single screw steamships, for early delivery. They will be of the Frederickstadt type to Bureau Veritas classification, common to the Norwegian trade, with propelling machinery placed amidships. The dimensions will be, length between perpendiculars 251 ft., length over all 261 ft., breadth moulded 43½ ft., depth moulded 22 ft. 11½ ins., and they will be equipped with triple expansion engines with cylinders 20½, 33 and 54 ins. diam., by 36 ins. stroke, 1,300 i.h.p. at 80 r.p.m., and supplied with steam by boilers 14 ft. diam. by 12 ft. long, at 180 lbs. They will also be equipped with 6 cargo winches and the usual pumps and auxiliary apparatus, as well as complete electric lighting plant. The deadweight capacity of each will be about 3,500 tons on 19½ ft. draught.

**The Canadian Northern Ry. is building 2 car floats at Port Mann, B.C.,** for conveying freight cars across Patricia Bay, until the large car ferry which it has decided to build, is ready for service. They were designed by A. Angstrom, Naval Architect, C.N.R., Toronto, and will be 158 ft. long over all, 46 ft. beam over plating, and 48 ft. over wales, and 11½ ft. deep. They will each take 8 large size freight cars. The first one was launched in July. The C.N.R. has bought two whaling steamships, the s.s. Germania and a sister vessel, formerly owned by Canadian Northern Pacific Fisheries, Ltd., which are being changed to make them suitable for towing purposes, and which are to be renamed Chilliwack and Sumas.

**Caution to Navigators near Pierre, Miquelon.**—The Marine Department has been notified that during August, five vessels were wrecked near Plate Point, Little Miquelon, all during foggy weather. As all of these vessels went ashore at practically the same point, and as others have been wrecked there in the past, it seems probable that there is a definite cause, possibly a current, to which these accidents can be attributed. Until further information is available, mariners should be extremely cautious in this vicinity, especially during foggy weather.

**The World's Increased Vessel Tonnage.** A press dispatch of Aug. 28, purports to give the decreases and increases of vessel tonnage of the various belligerent and neutral countries for the previous 12 months, and shows a net decrease in tonnage of 1,084,749 tons. Increases shown by Russia, Italy and Norway totalled 223,885 tons, while the other countries showed decreases, the greatest decrease being Germany, 526,946 tons. Great Britain's tonnage decreased 367,037 tons.



**Atlantic and Pacific Ocean Marine.**

The Harrison Line s.s. Counsellor, bound from Vancouver, B.C., for Liverpool, Eng., is reported to have been sunk, the crew being saved.

Furness Withy and Co. are reported to have placed orders for the building of an additional four steamships. The British Government has also arranged for this company to operate the interned German steamships which Portugal has handed over to the British Government.

The Belgian s.s. Indutiomare, which was wrecked on Magdalen Island, Aug. 21, and abandoned, has been salvaged and taken to Port Mulgrave, N.S., with comparatively little damage. She was picked up by the tug Amelia, after having drifted clear of the rocks. She sailed from Newcastle, N.B., Aug. 18, for Calais, France, with lumber. This vessel was listed in England as a total loss.

**Maritime Provinces and Newfoundland.**

The Public Works Department will receive tenders to Oct. 10 for the construction of a wharf, warehouse and shed, at Gagetown, N.B.

A press report states that the car ferry service between Carleton Point, P.E.I., and Cape Tormentine, N.B., will be put in operation Nov. 1.

A four masted schooner, named Ada Tower, was launched at Port Grenville, N.B., Sept. 2. She is 150 ft. long and 528 register tons, and is to be used in the coast lumber trade.

The s.s. White Sea, outward bound from Three Rivers, Que., with a cargo of lumber, went ashore near St. Peters River, Nfld., towards the end of August, and became a total loss.

The Reid Newfoundland Co.'s s.s. Argyll collided with and sank the s.s. Hump off the entrance to St. Lawrence harbor, Nfld., towards the end of August. The Hump's crew were saved. She was operated on the Fortune Bay service, and had just been overhauled at St. John's.

The Department of Naval Service received recently bids for the purchase of the three masted schooner Burleigh, but as none of them approximated a fair value for the vessel, all were rejected. Halifax interests urged on the Department that in view of the shortage of tonnage at present, she be offered for sale, with the foregoing result.

A Government wharf has been completed at Shelburne, N.S., with 30 ft. of water at its outer end. The wharf extends from the south extremity of the point south of the town, as an earth embankment, for 425 ft., beyond which it is pile work 500 ft. long. The outermost 100 ft. is 80 ft. wide, and the remainder 40 ft. wide. There are two lines of railway track and a freight shed on the outer block, and the whole is lighted by electricity.

A motor vessel is reported to be under construction in Great Britain for use in the Newfoundland fisheries trade. It is of composite construction, 160 ft. long, and equipped with two engines of the 2 cycle polar type, each developing about 350 h.p., and a speed of over 13 knots an hour. It is stated that if this vessel is successful, a number will be built and equipped with engines developing about 1,000 h.p. and a speed of 15 knots an hour.

The St. Peters canal, connecting Bras d'Or Lakes with the Strait of Canso, has been reopened after having been closed for over a year pending enlargement and general improvement. It was first opened in 1865, and has been in operation since then without changes. The lock has been lengthened about 250 ft. and a curve has been practically eliminated. The entrance at the south end has been enlarged, and the canal is now available for vessels drawing 17 ft.

A press report states that the Dominion Government has purchased two steamships, the Manhattan and Narragansett, from the Central Vermont Transportation Co., for \$1,000,000. There is no confirmation of this, and the report should not be taken seriously. These vessels were built for operation between New York and Providence, on the completion of the Southern New England Ry. line from Palmer, Mass., to Providence, R.I., which has been delayed. The question of the operation of these vessels with others of the same company was before the Interstate Commerce Commission recently, under the Panama Canal Act, and the permission to operate was granted. All the companies named are subsidiary to the G.T.R.

**Province of Quebec Marine.**

The J. G. Rene Transportation Co. Ltd. has been incorporated under the Quebec Companies Act, with authorized capital of \$20,000 and office at Montreal, to carry goods by all means of transportation, and

in connection therewith to own and operate all kinds of boats and vehicles, with or without motive power, on land or sea. J. G. Rene, Y. Dupre, L. Gelin, H. Bourassa and L. Gauvin, Montreal, are the incorporators.

**Ontario and the Great Lakes.**

Northern Navigation Co. employes have contributed \$50 to the Port Arthur Red Cross Fund.

The Department of Public Works received tenders to Sept. 22 for the construction of an extension to the west breakwater at Port Stanley.

The Farrar Transportation Co. Ltd., Toronto, has been authorized to increase its capital stock from \$250,000 to \$1,000,000, by the creation of 7,500 shares of new stock of \$100 each.

The Canada Shipping Co.'s s.s. John B. Ketchum 2d, was damaged, Sept. 12, in collision with Wilson Paterson Co.'s s.s. Senator Derbyshire, while entering the harbor at Port Colborne.

A vessel has been completed at East Trenton, for navigation on the Trent Valley canal. The propelling power consists of two 20 h.p. gasoline engines driving twin propellers.

The Dominion Government dock at Windsor is reported to have been leased to the Detroit and Cleveland Navigation Co., for the winter, for the berthing of a number of the company's vessels.

The steam tug Thomas Freel Battle, owned by J. Battle, St. Catharines, which was sunk in the Detroit River, near Walkerville, some time ago, has been raised and taken to Sarnia for repairs.

The Mathews Steamship Co.'s s.s. Masaba grounded on Grassy Shoal, Lake Superior, Sept. 3, and was floated Sept. 6 and taken to Port Arthur for repairs. It is stated that 28 plates in the bottom of the hull were damaged.

The steamboats Agwinde and Keenora, formerly owned by the Rainy River Navigation Co., Fort William, are now owned by the Rat Portage Lumber Co., and are lying at Kenora on Lake of the Woods. They have not been operated this year.

The Northern Navigation Co.'s s.s. Saronic, which was burnt at Cockburn Island, Georgian Bay, Aug. 21, is reported to have been sold to W. Schlosser, Milwaukee, Wis., and it is said that the wreck will be towed there and rebuilt.

The Imperial Oil Co.'s s.s. Iocolite, which has been built at Collingwood,

**List of Steam Vessels Registered in Canada During August, 1916.**

No.	Name	Port of Registry	Where and When Built	Length	Breadth	Depth	Gross Tons	Reg. Tons	Engines, Etc.	Owner or Managing Owner
138262	A. Tremblay	Quebec, Que.	Matane, Que. 1916	111 5	28 2	10 4	245	147	24 sc.	U. Tremblay, et al. Matane, Que.
129497	C. A. Jaques	Montreal	Dumbarton, Scotland 1909	249 0	43 0	22 7	2105	1590	212 sc.	Canada Steamship Lines, Ltd., Montreal
138304	Coaster	Vancouver, B.C.	N. Westminster, B.C. 1916	94 0	21 0	7 2	149	99	10 sc.	Coast Steamship Co., Vancouver, B.C.
138227	J. D. Hazen	Montreal	Montreal 1916	275 0	57 8	21 9	3269	1856	568 sc.	Canadian Vickers Ltd., Montreal, Que.
104279	Turret Crown	Vancouver, B.C.	Sunderland, England 1895	253 0	44 0	19 4	1827	1142	250 sc.	Coastwise Steamship & Barge Co. Ltd., Vancouver

**List of Sailing Vessels and Barges Registered in Canada During August, 1916.**

No	Name	Port of Registry	Rig	Where and When Built	Length	Breadth	Depth	Reg. Tons	Owner or Managing Owner
138253	Agnes P. Duff	Lunenburg, N.S.	Schr.	Conquerall Banks. 1916	106 2	27 6	10 2	178	W. Duff, et al., Lunenburg, N.S.
130483	*Alluvia	New Westminster, B.C.	Barge	New Westminster. 1911	100 0	23 3	5 0	263	Coast Steamship Co., Vancouver, B.C.
138251	Hillcrest	Lunenburg, N.S.	Schr.	Lunenburg, N.S. 1916	132 6	32 5	11 8	299	Hillcrest Shipping Co., Lunenburg, N.S.
138171	Ind. Asphalt No. 2	Prince Rupert, B.C.	Scow	Port Orchard, Wash. 1907	100 7	31 9	10 0	273	Coastwise Steamship & Barge Co., Vancouver
138300	K. N. No. 2	Vancouver, B.C.	"	New Westminster. 1915	84 3	32 0	8 4	474	Kingcome Navigation Co., Vancouver
138119	M. H. P. No. 1	New Westminster, B.C.	Barge	" " 1913	100 0	33 0	8 6	261	Marsh, Hutton, Powers Co., New Westminster
138120	No. 2	"	"	" " 1913	100 0	33 0	8 6	261	"

\*Formerly a steamer.



sailed from there, Sept. 16, for Sarnia, on her maiden trip. This is the second of three vessels being built at Collingwood for the company. The third will be launched shortly.

The Marine Department is building a new lighthouse on Burnt Island in the Thousand Island district of the St. Lawrence River. It replaces a former gas beacon on the east side of the island, and consists of a rectangular wooden building, with a light of the dioptric type at an elevation of 64 ft., visible for five miles.

The Keystone Transportation Co.'s s.s. Keybell, which ran aground at Morgan's Point, near Port Colborne, during a heavy fog, Sept. 7, while bound to Montreal with coal, was released Sept. 10 after having had her cargo lightered. Practically no damage was sustained, and after reloading her cargo she proceeded to her destination.

The Dominion Government has awarded contracts for harbor improvements at Port Stanley, which will cost in excess of \$100,000. As the present west pier protecting the ferry slip docks threatens to collapse, and the need is very urgent, work will be undertaken at once, and will be carried on through the winter as far as weather conditions permit.

The United States Lake Survey reports the levels on the Great Lakes in feet above mean sea level, for August, as follows: Superior 603.73; Michigan and Huron 581.04; Erie 572.80, Ontario 247.36. Compared with the average August levels for the past ten years, Superior was 1.16 above, Michigan and Huron 0.21 ft. above, Erie 0.20 ft. above, and Ontario 0.87 ft. above.

The s.s. Topeka, which was sunk by the s.s. Christopher, Aug. 15, in the Detroit River, near Sandwich, lies in about 30 ft. of water about 800 ft. from, and abreast of the lower end of the Mullen coal dock at Sandwich. The spars and cabin of the wreck are showing above water, and it is lighted at night by two white lanterns. It constitutes a menace to navigation, but there is ample room for passing vessels.

The Dominion Government hydrographic survey steamship, La Canadienne, was driven ashore at Dorion, Lake Superior, Sept. 17. Considerable bottom damage was sustained, but it is anticipated that she will be salvaged. She was built at Glasgow, Scotland in 1880, and was screw driven by engine of 60 n.h.p. Her dimensions are, length 154.3 ft., breadth 22.7 ft., depth 10.9 ft., tonnage 372 gross, 227 register.

The U. S. Federal Court at Chicago, Ill., which issued a temporary restraining order to prevent the contemplated sale of nine steamships owned by the Great Lakes and St. Lawrence Transportation Co., to the French Government, has permanently enjoined the company from so selling its vessels. The Scranton Coal Co. stated that it had a three year contract with the company for the transportation of coal from Oswego, N.Y., to Milwaukee and Chicago, and that the company had not only stopped taking the coal, but had sent its vessels to Montreal preparatory to completing the sale to the French Government. It was held that the company is bound by the contract to carry the coal regularly for three years.

The ice breaking ferry steamboat, St. Ignace, owned by James Whalen, Port Arthur, and registered in the U. S., was destroyed by fire, Aug. 30, while in the dry dock for repairs. She was built at Detroit, Mich., in 1888, and was of oak with diagonal strapping on the frames,

and with bottom sheathed with iron for winter service. Her dimensions were, length 215 ft., breadth 52 ft., depth 16 ft., tonnage 1,199 gross, 600 register, and she was equipped with fore and aft compound engine with cylinders 28½ and 53 ins. diam., by 48 ins. stroke, 855 i.h.p. at 85 r.p.m., and supplied with steam by 3 Scotch boilers 11½ by 18 ft. at 127 lbs. She was run for many years in the Straits of Mackinac, and was occasionally used in opening the St. Marys River above Sault Ste. Marie.

The Davidson and Smith Elevator Co., Fort William, is arranging to purchase the s.s. Caledonia from the Massey Steamship Co., Duluth, Minn., to replace the s.s. Panther, recently purchased from the same company, and which was lost in collision with the Pittsburg Steamship Co.'s s.s. James J. Hill a few weeks ago. The Caledonia was built at Marine City, Mich., in 1888, and originally named W. B. Morley. She is of oak with diagonal strapping on frames, and wooden boiler house, and is equipped with fore and aft compound engines with cylinders 24 and 44 ins. diam., by 42 ins. stroke, supplied with steam by two Scotch boilers 10 by 11 ft., under induced draught, at 180 lbs. Her dimensions are, length 277 ft., breadth 42 ft., depth 21 ft.; tonnage, 2,197 gross, 1,509 register.

### Manitoba, Saskatchewan and Alberta.

The s.s. Goldfield, registered as owned by the Phoenix Brick, Tile and Lumber Co., Ltd., Winnipeg, was offered for sale by public auction at Winnipeg, Sept. 16, under a mortgage deed, subject to a reserve. She was built at Selkirk, Man., in 1912, and was screw driven by engine of 13 n.h.p. Her dimensions are, length 75.4 ft., breadth 15.9 ft., depth 6 ft., tonnage, 56 gross, 38 register.

### British Columbia and Pacific Coast.

The Western Shipping Co., Vancouver, is reported to have purchased the s.s. British Columbia from H. F. Bullen, Victoria, for \$95,000, for operation to Vladivostock, Russia.

The Border Line Transportation Co. has increased its service to British Columbia ports, the vessels Edith, Fulton, and Wakena, calling at Victoria, Vancouver and Powell River, as well as other ports, every three days.

Navigation on the upper Yukon River is practically closed for the year. The last steamboat left Dawson for Fairbanks Sept. 24, and the last boat from Dawson for White Horse is scheduled to sail Oct. 10.

The Canadian Fishing Co., Vancouver, has purchased the steamships Canada and Imbricaria from the liquidator of the British Columbian Fisheries, Ltd., for the halibut fishery trade. They have been removed from Skidegate Inlet to Vancouver, where they are to be overhauled and remodelled.

The C.P.R. s.s. Princess Maquinna, was hauled out at Victoria, early in September for survey, after touching bottom on an outlying reef off Bowen Island. While she is laid up, a number of minor repairs will be carried out. The s.s. Princess May has taken her place on the Vancouver-Granby run temporarily.

The s.s. Queen City, formerly owned by the C.P.R., which was burned recently at Victoria, is in the hands of the underwriters for disposal. She was built at

Vancouver in 1894, and was screw driven by engine of 34 n.h.p. Her dimensions were, length 116 ft., breadth 27 ft., depth 10 ft., tonnage 391 gross, 244 register.

The Marine Department's buildings on the Songhees Indian Reserve at Victoria have been completed, and the department was expected to take them over from the contractors, Parfitt Bros., during September. The wharf and store shed were completed and taken over some time ago, and the finishing of the buoy and carpenter shops completes the contract.

The Ship Drummur Co., Ltd., is being voluntarily wound up. The Drummur was one of the best known sailing vessels on the coast, and was of the four masted type with iron hull, and 1,814 register tons. She was built at Liverpool, Eng., in 1882. Soon after the declaration of war in 1914, when a number of German vessels were running riot in the Pacific Ocean, she was sunk by the cruiser Leipzig.

The Grand Trunk Pacific Coast Steamship Co.'s schedule from Oct. 16 to Dec. 21 covers the operation of the steamships Prince George and Prince Rupert on the Seattle, Victoria, Vancouver, Ocean Falls, Prince Rupert, Anyox and Alaska route, and the Prince John on the Vancouver, Surf Inlet, Prince Rupert, Queen Charlotte Islands, Anyox, Alice Arm and Stewart service. On the arrival of the Prince John at Prince Rupert, Dec. 29, she will remain at that port to take up the Alaska route from Jan. 3, 1917. The service first mentioned above will be taken from Dec. 25 to March 28, 1917, by the steamships Prince George and Chelohsin or Venture, and the Prince John fortnightly from Jan. 3. The s.s. Prince Rupert will be berthed for the remainder of the winter on the completion of the trip from Vancouver, Dec. 21. The s.s. Prince John will also perform the service from Prince Rupert to Queen Charlotte Islands, Anyox, Alice Arm and Stewart, alternately with the Alaska service, from Jan. 10.

Canadian Vickers, Ltd., placed on the market recently at par, an issue of £1,000,000 6% first mortgage registered debentures, redeemable at 103 in 25 years by means of a half yearly cumulative sinking fund of 2% per annum, all unconditionally guaranteed as to principal, interest, sinking fund and premium, by Vickers, Ltd. The sinking fund will be applied half yearly in redeeming debentures in the market at not more than 103, or by drawings at 103, the first redemption to take place by Aug. 1, 1917. The company may redeem at 103 on any interest date after Feb. 1, 1921, in whole or in part, on six months notice. Any debentures not redeemed by Aug. 1, 1941, will be payable at 103, or on the security becoming enforceable. The issue was considerably oversubscribed.

Failure to Sound Fog Horns.—Masters of vessels have made complaint through the Dominion Marine Association, as to the failure on the part of certain light keepers at the east end of Lake Ontario, to sound their horns. The Marine Department has taken the matter up and has notified the light keepers that further default will be considered serious.

Furness, Withy & Co., by the acquirement of the Prince Line, Ltd., and its 42 steamships, are now said to control the largest cargo and cargo liner fleet in the world, the dead weight capacity being estimated at from 1,250,000 to 1,500,000 tons.



### Mainly About Marine People.

N. A. Rule, heretofore Assistant to Operating Manager, Canada Steamship Lines, Ltd., Toronto, has been appointed Secretary, Standard Shipping Co., Winnipeg.

P. S. Laing, heretofore agent, F. Waterhouse & Co., steamship managers, at Vancouver, B.C., has been appointed General Freight Agent, same company, at Seattle, Wash.

R. M. Pedgen, of Toronto, who was second officer on the Canada Steamship Lines s.s. Chippewa, prior to enlisting in 1914, is in a hospital in France suffering from a fracture. He was previously wounded in April by shrapnel.

Col. G. P. Murphy, Vice President, Ottawa Transportation Co., who is in the Canadian Army Service Corps, and who has been in England for some time, has been appointed Quartermaster General and graded as a General Staff Officer, First Grade.

Capt. F. L. Davison, formerly master of the C.P.R. Company's s.s. Montegale, and latterly master of the s.s. Empress of Japan, has been appointed Assistant Marine Superintendent, Canadian Pacific Ocean Services, Ltd., Vancouver.

J. B. Morris, heretofore chief engineer, Great Northern Pacific Steamship Co.'s s.s. Great Northern, has been appointed Marine Superintendent for the company at Portland, Ore., vice C. W. Wiley. He has specialized in the operation of the steam turbine.

W. S. Baker, who died in August as the result of wounds received in France, was the second son of W. Baker, Travelling Representative of the White Star-Dominion, and American Lines, and was himself, about four years ago, acting as Canadian conductor to parties travelling

in the Dominion, on behalf of the White Star-Dominion Line.

Capt Gow, heretofore Marine Superintendent, Dollar Steamship Co., has not, we are officially advised, been appointed Superintendent of Loading, Canadian Pacific Ocean Services, Ltd., Vancouver, B.C., as reported. He is now reported to have been appointed Marine Superintendent, Canada West Coast Navigation Co., which is having a number of auxiliary power sailing vessels built for the coast lumber trade.

### Stranding of the s.s. Fernfield.

An investigation into the stranding of the British s.s. Fernfield, on Battery Point, Louisburg, N.S., July 4, was held at Halifax, recently, by Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Commander E. Wyatt, R.N.R., and Capt. A. Cuthbert, as nautical assessors. From the evidence adduced the court found that from the time the vessel left St. John, N.B., on July 1, until it reached Louisburg light, the master exercised all the necessary and proper precautions in navigating, but in that neighborhood, under the weather conditions existing, he omitted to include in his calculations the possible influence of wind on his starboard, in heading for the light on the wharf, and also that in turning around close to the buoy, a mistake was made. It therefore found that he erred in judgment, but not in a culpable manner, and therefore did not deal with his certificate, nor reprimand him, but cautioned him to be more careful in the future, in entering harbors with which he is not well acquainted. The logs were examined and found properly kept and supervised.

### Canada Steamship Lines Notes.

J. A. Greiner has been appointed Mechanical Superintendent, vice R. Duguid resigned. Office, Montreal.

The Northern Navigation Co. during the past navigation season provided a hostess on each of its five principal passenger steamships to receive passengers and to help in making the trips enjoyable.

N. A. Rule, Assistant to the Operating Manager, having resigned to become secretary of the Standard Supply Co., Winnipeg, his former position has been temporarily abolished, and A. E. Stinson has been appointed acting dispatcher, Toronto. He was entertained to lunch at Toronto, Sept. 9, by his associates, and presented with a gold fountain pen.

In our last issue a paragraph relating to the sinking of the s.s. Topeka by the s.s. Christopher in the Detroit River, near Sandwich, Ont., was placed among other paragraphs under this heading, owing to a mistake in "making up." Neither of the vessels mentioned is owned by Canada Steamship Lines, Ltd.

A dividend of 1 3/4% has been declared on the preferred stock, payable Nov. 1 to holders of record on Oct. 2. There are still some arrears of dividend due, approximating 10 1/2%, and press reports state that it is probable that early in the new year a payment of about 7% will be made on this account.

The s.s. W. C. Moreland, which is being rebuilt at Superior, Wis., will, when completed, be renamed Sir Trevor Dawson, and operated by the American Interlake Line, a subsidiary of Canada Steamship Lines Ltd. She will be retained on the U. S. register. A preliminary description of the rebuilding work was given in our last issue, page 384.

It is announced that the voting trust which was organized on the consolidation of the various companies forming Canada Steamship Lines Ltd., and which was to expire in 1919, has been extended for a further 10 years. It has been thought prudent by the British and Canadian interests at present in control to ensure the perpetuation of the present management for that time.

The Hamilton Shipbuilding and Ferry Co., a subsidiary of Canada Steamship Lines, operating the ferry service out of Hamilton, has applied to the Hamilton City Council, for an extension of its lease of Wabasso Park, where it proposes undertaking a number of improvements to the amusement section, as well as to the general ferry service. It is stated that the company may also build a dry dock at Hamilton. The company was incorporated under the Ontario Companies Act in May, with an authorized capital of \$100,000, and office at Hamilton, and J. G. Gauld as President.

The American Association of Port Authorities held its annual meeting at Montreal, Sept. 15, when papers were read and other matters concerning the administration of ports were discussed. W. G. Ross, Chairman, Montreal Harbor Commissioners, was re-elected President for the current year. The delegates attending the meetings were entertained by the Shipping Federation of Canada, and the Montreal Harbor Commissioners.

A concrete ship has been built at Christianiafjord, Norway, recently. Apart from the ribs, the hull is entirely of concrete. This combination will, it is said, resist damage better than steel or wood.

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

Week ending Sept. 8, 1916.	Wheat. bushels.	Oats. bushels.	Barley. bushels.	Flax. bushels.	Totals. bushels.
<b>Port William—</b>					
C.P.R. ....	621,436	594,624	39,012	.....	1,255,072
Consolidated Elevator Co. ....	316,464	148,983	14,008	99,099	579,364
Empire Elevator Co. ....	244,267	163,800	27,892	182,223	618,182
Ogilvie Flour Mills Co. ....	726,405	98,804	21,200	.....	846,409
Western Terminal Elevator Co. ....	374,699	163,914	5,277	277,709	821,599
G. T. Pacific ....	386,578	268,000	22,380	73,061	750,019
Grain Growers' Grain Co. ....	242,642	196,359	15,669	.....	454,670
Port William Elevator Co. ....	157,012	141,209	7,771	58,364	354,366
Eastern Terminal Elevator Co. ....	256,856	231,828	7,825	.....	496,509
<b>Port Arthur—</b>					
Port Arthur Elevator Co. ....	1,096,627	938,078	102,300	122,015	2,259,020
D. Horn & Co. ....	141,108	98,002	48,122	94,474	381,706
Dominion Government elevator. ....	286,957	270,674	11,362	89,971	658,964
Grain afloat. ....	185,348	174,911	6,322	65,587	.....
<b>Total terminal elevators</b> .....	<b>5,036,399</b>	<b>3,489,186</b>	<b>329,140</b>	<b>1,063,313</b>	<b>9,918,038</b>
Calgary Dom. Govt. Elev. ....	9,853	9,235	121	.....	19,088
Saskatoon Dom. Govt. Elev. ....	94,087	31,486	1,861	12,462	139,896
Moose Jaw Dom. Govt. Elev. ....	264,475	25,288	9,933	12,91	302,612
<b>Total interior terminal elevators</b> .....	<b>368,415</b>	<b>66,009</b>	<b>11,794</b>	<b>15,378</b>	<b>461,596</b>
<b>Depot Harbor</b> .....	<b>202,043</b>	.....	.....	.....	<b>202,043</b>
<b>Midland—</b>					
Aberdeen Elevator Co. ....	686,906	213,190	.....	.....	900,096
Midland Elevator Co. ....	105,760	493,858	.....	.....	599,618
Tiffin, G.T.P. ....	1,138,474	1,290,391	.....	.....	2,428,865
Port McNicol. ....	2,018,046	899,714	319,208	.....	3,334,166
Collingwood .....	.....	.....	.....	.....	.....
Goderich Elevator and Transit Co. ....	443,535	274,295	49,640	34,198	767,470
<b>Kingston—</b>					
Montreal Transportation Co. ....	6,800	.....	.....	.....	6,800
Commercial Elevator Co. ....	6,502	34,874	.....	.....	41,376
Port Colborne .....	1,126,752	878,503	.....	5,800	2,011,055
Prescott .....	.....	.....	.....	.....	.....
<b>Montreal—</b>					
Harbor Commissioners no. 1. ....	245,830	1,673,768	210,440	.....	2,130,001
Harbor Commissioners no. 2. ....	711,055	1,222,802	132,688	.....	2,066,745
Montreal Warehousing Co. ....	375,907	481,429	61,655	19,113	918,991
Quebec Harbor Commissioners .....	488,417	263,792	19,365	.....	771,574
West St. John, N.B. ....	50,829	.....	3,341	.....	54,170
Halifax, N.S. ....	.....	.....	.....	.....	.....
<b>Total public elevators</b> .....	<b>7,670,056</b>	<b>7,726,616</b>	<b>796,300</b>	<b>39,998</b>	<b>16,232,970</b>
<b>Total quantity in store</b> .....	<b>13,074,870</b>	<b>11,281,811</b>	<b>1,137,234</b>	<b>1,118,689</b>	<b>26,612,604</b>



**Canadian Lake Protective Association.**

Casualties to vessels enrolled in the Canadian Lake Protective Association, during 1915, all more or less of a minor nature, have been dealt with at various meetings of the committee this year. One of the casualties dealt with, revived the discussion of the danger arising when a signal from the bridge to the engine room is misunderstood and simply repeated. The second and subsequent signals are often interpreted in the engine room as a demand for the same action the engineer has taken after the first signal. It is urged by experienced masters that in every case where it is apparent that a signal has been misunderstood, the officer on the bridge should at once signal an alarm by a rapid movement and ringing of the Chadburn apparatus, and then repeat the correct signal. The mistake will then be noticed and corrected promptly, and when the vessel is in close quarters, much damage may be avoided.

In one of the cases of grounding, it was made clear that no vessel under the conditions then existing should attempt to enter Harbor Beach, Lake Huron, if drawing more than 16 or 17 ft. The Lake Carriers Association has been asked to make some effort with a view to having the U.S. authorities improve the harbor so that it may be available as a refuge at all times. The association's committee decided to take no further action for the time being with reference to the proposed double courses, east and west of Caribou Island in Lake Superior, as opinion generally was against the proposal.

In view of the risk of damage and delay from fire as exemplified in one of the casualties, the committee resolved that smoking be prohibited in the sleeping quarters of all vessels, and instructions were given accordingly to all members to instruct masters to see that the rule is strictly observed.

The recommendation of the Great Lakes Protective Association that no vessel should attempt to pass another in the shallow and narrow channels between the lower end of Port Huron middle ground and the Corisca Shoals lightship, and between the upper end of Russell Island

and the lower end of St. Clair Flats canal, was adopted.

Attention may be called to the very good record of the vessels enrolled in the association. In a total of 116 accidents for the first half of this year, only 6 affected vessels in the association.

**The Quebec Shipbuilding and Repair Co. Ltd.**, which was incorporated recently with office at Montreal, has an authorized capital of \$40,000. It has leased the dock at the Island of Orleans from Le Chantier Maritime de St. Laurent Ltee., with the intention of building wooden schooners there. The company's officers are, James Playfair, Midland, Ont., President; R. A. Carter, Montreal, Vice President and Managing Director; M. P. Connolly, Quebec, Que., Second Vice President; and G. A. Wood, Montreal, Secretary-Treasurer; James Playfair is President and Managing Director, Great Lakes Transportation Co., and was formerly connected with a number of navigation companies, now concentrated in Canada Steamship Lines Ltd.; R. A. Carter and G. A. Wood are insurance brokers in Montreal, the former having been at one time in the Richelieu and Ontario Navigation Co.'s service; and M. P. Connolly is Canada Steamship Lines' agent at Quebec. In addition to these, E. S. Farley, a yacht broker, Chicago, Ill., is a director.

**Suggested Car Ferry Service for the North Sea.**—The Swedish State Railways management is making enquiries regarding the possibility of establishing a daily ferry service across the North Sea, between Gothenburg, Sweden, and some port in England. Ferries with a displacement of about 11,000 tons are suggested, of which four would be required for service and an additional one for reserve. The distance would approximate 500 miles. It is highly improbable that any negotiations will be carried on seriously while the war continues.

**The International Joint Waterways Commission** held a meeting at Ogdensburg, N.Y., at the end of August for further discussing the pollution of boundary waters, evidence being taken with special reference to the pollution in the Thousand Island district.

**Quebec Transportation and Forwarding Co. Changes Ownership.**

The Quebec Transportation and Forwarding Co. has passed from the control of the original directorate to one representing United States interests, and is being managed by the Canada Shipping Co., Ltd., Montreal. The Quebec Company was originally incorporated under the Dominion Companies Act, April 2, 1906, with an authorized capital of \$145,000, and office at Quebec, Que. The company was practically a close corporation, the directorate being J. S. Thom, President; M. J. Hackett, Vice President; W. J. Hackett, Manager, and L. Thom. The company owns three steam tugs, Florence, J. H. Hackett and Margaret Hackett, and five barges, A. D., F. D. Ewen, Gladys H., Katie H., and Zapotec. The new officers of the company are: T. Dougherty, New York, President; F. A. Augsbury, Pyrites, N.Y., Vice President, and G. J. Madden, Montreal, Secretary and Manager.

The Canada Shipping Co., Ltd., was incorporated under the Dominion Companies Act Feb. 24, 1910, with an authorized capital of \$20,000 and office at Montreal. H. Munderloh, Montreal was chiefly concerned in the business, which was chiefly a commission and chartering one. He sold his interests in 1915 to T. Dougherty & Co., New York, who operate in conjunction with Duthie and Madden, Montreal. The company owns the s.s. John B. Ketchum 2nd, originally owned by the Spokane Steamship Co., Port Huron, Mich., and during this year also operated the steamships Cabotia, Compton and Robert R. Rhodes. The officials are, T. Dougherty, President; W. N. Duthie, Vice President, and G. J. Madden, Manager.

**Suggested Suspension of Coasting Laws.**—An application was made recently by parties interested in the lumber business, to obtain a suspension of the coasting laws on the ground that Canadian vessels were not available for freighting from north shore ports in Lake Huron to the south end of Georgian Bay. The Government consulted the Dominion Marine Association on the matter. Few vessels belonging to the association are of a class which could engage in this traffic and the vessels in this trade in former years are still on the lakes and available at present going rates. The lumber trade is of a special nature and the route mentioned is well served by railways, but the association relied on its repeated protests against interference with the coasting laws, and apparently the Government decided that no sufficient reason had been shown for interference.

**Merchant Service Certificates and Aliens.**—It is announced that the British Board of Trade has decided that during the war every applicant for masters' and mates' certificates must be a British subject, and also that at the time of his birth, both of his parents must have been British subjects. The Dominion Government has not adopted this regulation, but is following its usual practice and admitting British subjects to its examinations.

**The Pacific Port Authorities** held their third annual convention at Vancouver, B.C., Sept. 4, when a number of papers and matters generally affecting shipping on the Pacific coast and ocean were discussed. During the visit, the harbor was inspected, together with the various improvement works in progress in the vicinity.

**Sault Ste. Marie Canals Traffic.**

The following commerce passed through the Sault Ste. Marie Canals during August.

ARTICLES	CANADIAN CANAL	U. S. CANAL	TOTAL	
Copper..... Eastbound .....	.....Short tons	173	19,682	19,855
Grain .....	.....Bushels	5,311,716	3,717,589	9,029,305
Building stone.....	.....Short tons	.....	.....	.....
Flour .....	.....Barrels	435,440	995,351	1,430,791
Iron ore.....	.....Short tons	1,740,503	8,051,430	9,791,933
Pig iron.....	.....Short tons	.....	2,604	2,604
Lumber.....	.....M. ft. b.m.	2,635	53,745	56,380
Wheat.....	.....Bushels	12,651,746	12,822,181	25,473,927
General merchandise.....	.....Short tons	11,666	53,038	64,704
Passengers.....	.....Number	5,230	5,616	10,846
Coal, hard..... Westbound .....	.....Short tons	14,000	308,136	322,136
Coal, soft.....	.....Short tons	192,216	2,232,725	2,424,941
Flour.....	.....Barrels	.....	20	20
Grain.....	.....Bushels	.....	1,200	1,200
Manufactured iron.....	.....Short tons	2,035	18,146	20,181
Iron ore.....	.....Short tons	.....	11,424	11,424
Salt.....	.....Barrels	5,250	86,133	91,383
General merchandise.....	.....Short tons	39,603	134,614	174,217
Passengers.....	.....Number	6,215	5,051	11,266
<b>SUMMARY</b>				
Vessel passages.....	.....Number	1,071	2,800	3,871
Registered tonnage.....	.....Net	1,851,311	8,250,326	10,101,637
Freight—Eastbound.....	.....Short tons	2,278,012	8,786,661	11,064,673
—Westbound.....	.....Short tons	248,604	2,717,985	2,966,589
Total freight.....	.....Short tons	2,526,616	11,504,646	14,031,262



### Canadian Pacific Ocean Services Ltd., and the Allan Line.

The C.P.R. report for the year ended June 30, contains the following paragraph: "In consequence of the extraordinary conditions created by the present war your directors considered it advisable to postpone the effective date of the agreement entered into between your company and the Allan Line Steamship Co. and the Canadian Pacific Ocean Services, Ltd., authorized by resolution passed at the last annual meeting, for the acquisition by the last named company of the capital stock of the Allan Line now held by your company and of the vessels of your company named in the resolution. Your directors have, however, thought it desirable to enter into an agreement with the Canadian Pacific Ocean Services, Ltd., under which the vessels of both fleets are operated by that company as managers and agents. In view of possible changes in the conditions pertaining to ocean traffic, your directors consider it may be advisable, in your company's interests, that in giving effect to the proposals previously approved a somewhat different plan should be adopted, and a resolution will be submitted granting authority to your directors to carry out the transaction with the C. P. Ocean Services or some other company created for that purpose, of which company your company will have full ownership and control in such manner and on such terms as seem to them proper. The revenue from your steamships given in the statement of special income is exclusive of an amount transferred to the reserve account to cover the cost of replacing ships sold or destroyed, and of a sum sufficient to meet any tax on excess profits that may be ultimately payable."

**Summer Deck Loads of Wood Goods.**—The Marine Department has notified the Dominion Marine Association that the British Board of Trade has decided that it will not institute proceedings under sec. 10 of the Merchants Shipping Act, 1906, against masters or owners of vessels arriving in United Kingdom ports between Oct. 31 and Nov. 15, or between Mar. 30 and Apr. 16, with deck cargoes of light or heavy wood goods under other conditions than those allowed by that section, it being understood that the responsibility of masters and owners for ensuring safe and proper loading remains unaffected by the concession. This is an extension of the period for summer deck loads of wood goods, and collectors of customs in Quebec and the Maritime Provinces have been instructed to clear vessels with summer deck loads, for the United Kingdom, up to Nov. 7, and also on and after Mar. 1, 1917, if sailing vessels, and on and after Mar. 12, 1917, if steamships.

**The Dominion Government Dredge** for St. Lawrence Ship Channel, described in Canadian Railway and Marine World for September, was designed by William Simons & Co., of Renfrew, Scot'and, and not by Charles Duguid, Naval Architect, Marine and Fisheries Department, as stated, owing to an error in this office. The construction of the dredge has, however, been supervised by Mr. Duguid.

**The recommended draught** for vessels for Lake St. Clair and Lake Erie ports, was reduced 2 in. by the Lake Carriers' Association, Sept. 15, the draught now being 20 ft. 3 ins. The recommended draught for the Sault canals, is 20 ft. 4 ins.

### Stranding of the s.s. Fremona Investigated.

Judgment was rendered at Quebec, Aug. 30, re the stranding of the British s.s. Fremona on Anticosti Island, in the St. Lawrence, on July 31. The enquiry was conducted by Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Commander Elliott, R.N.R. and Capt. J. Murray. The court's finding is summarized as follows: The court again faces a situation which seems to predominate lately, viz., an attempt to navigate the St. Lawrence on pure assumption. The master acknowledged that he had read the sailing directions and expected to meet currents flowing in a different direction to what was shown on the chart, yet with that knowledge and information he kept his vessel at a speed which cannot be considered as moderate within the meaning of the rule formulated by the Board of Trade regulating the speed of vessels in thick, foggy weather. He has navigated these waters numerous times and is aware of the peculiarities obtaining in other parts of the world as well as here. The court is of opinion that owing to the various warnings given in the sailing directions of the vagaries of currents which may be encountered in the St. Lawrence, the master did not exercise proper prudence, or precautions, so far as speed, compass courses and soundings were concerned. After carefully reviewing all the evidence, the court is of opinion that the master, Arthur Melling, was derelict in carrying out the responsibilities of a master, and greatly erred in judgment in failing to adopt the measures of prudence and caution called for in a forcible manner by the sailing directions which indicate the various elements which tend to throw vessels off their courses in the St. Lawrence. Following the policy which has been followed hitherto, owing to conditions which the war has brought about, occasioning a dearth of masters, the court will not deal with his certificate but reprimands him severely for his lack of caution, prudence and seamanlike carefulness. The court cannot censure the officers then on watch as the master is held responsible, he being on the bridge at the time of the disaster.

### British Criticism of the Wreck Commissioner's Judgments.

Reports from England state that the Mercantile Service Association is interesting itself in the case of the stranding of the British steamship Middleham Castle on Matane Reef, Que., July 27, and which was enquired into by Capt. L. A. Demers, Dominion Wreck Commissioner, assisted by Capt. F. Nash and J. O. Grey as nautical assessors, Aug. 3, at Montreal. It is stated that the association has communicated with the Marine Department at Ottawa with the object of having the case reviewed and the judgment modified, which it considers is an undeserved reflection on the competency of the master of the vessel.

It would appear from the number and the nature of the criticisms of the Wreck Commissioners' judgments, mostly emanating from the Liverpool Journal of Commerce, which is closely in touch with the Mercantile Service Association, that they are launched as a matter of course after the delivery of the judgment, and are made without proper appreciation of facts. The animus displayed in many of

that journal's criticisms is so unreasonable as to discount any good it might do where the circumstances of a particular case make it desirable that the details be reviewed. For a number of years, during which the position of Wreck Commissioner has been held by three different individuals, each of whom has had considerable experience of marine matters generally, and of Canadian navigation in particular, these criticisms have been hurled broadcast, and whatever the intention, the tendency has been, in general, to disparage the St. Lawrence route, and in fact, all shipment to Canada.

In regard to the case of the Middleham Castle which was dealt with in our last issue, the master was reprimanded for venturesome navigation in unknown waters without having surrounded himself with the necessary information for safe navigation. It was mentioned that under different circumstances than exist in regard to shipping at present, and having regard to the fact that the vessel carried Admiralty supplies, the master's certificate would have been suspended for two months. Judging from the evidence, and coupled with the actual knowledge of the route possessed by the Commissioner and the assessors, it was unanimously decided that there had been reckless navigation, and in view of that fact, the statement made by the Journal of Commerce, that "such a sweeping judgment could not possibly be left unchallenged," seems absurd.

In another case, subsequent to that of the Middleham Castle, viz., the s.s. Fremona, the Wreck Commissioner, in dealing with the master in precisely the same manner as he did with the master of the Middleham Castle, said: "The court again faces a situation which seems to predominate lately, viz., to navigate the St. Lawrence on pure assumption."

### Telegraph, Telephone and Cable Matters.

The Marconi Wireless Telegraph Co. is arranging to erect a large wireless telegraph station at Juneau, Alaska. A party of the company's men left Vancouver early in September for the north to undertake the preliminary work.

The C.P.R. is arranging to remove all its telegraph poles from Fifth St., Chatham, Ont. The question of the removal of the Great North Western Telegraph Co.'s poles from King, Queen and William Sts., is before the Board of Railway Commissioners.

J. G. Davies, heretofore chief operator, C. P. R. Telegraphs, Montreal, has been appointed Superintendent, Great North Western Telegraph Co., Winnipeg, vice J. Paddington, resigned. S. Goldstein, local manager, Great North Western Telegraph Co., Winnipeg, has resigned.

The Imperial Privy Council has dismissed the Commercial Cable Co.'s appeal against the Newfoundland Supreme Court's decision that it is not entitled to recover \$12,000 and \$10,916.13, alleged to be due under an agreement with the Newfoundland Government. The agreement was in relation to the landing of one of the trans-Atlantic cables at St. John's.

The Great North Western Telegraph Co. has opened offices at Bagotville, Chicoutimi Ouest and Laterriere, Que.; Marmora, Ont.; Browning, Merid and St. Brieux, Sask., and Benton Station, Alta., and has closed its offices at Deschaillons, Lake St. Joseph Hotel, Little Metis